5

RISK MANAGEMENT REPORT

- 198 **Executive summary**
- 200 **A. Risk management and control model**
  - 201 A1. Risk map
  - 201 A2. Risk governance
  - 203 A3. Risk culture - Risk Pro
  - 204 A4. Management processes and tools
- 211 **B. Background and upcoming challenges**
- 213 **C. Risk Profile**
  - 213 C1. Credit risk
  - 243 C2. Trading market risk, structural risk and liquidity risk
  - 264 C3. Operational risk
  - 274 C4. Compliance and conduct risk
  - 285 C5. Model risk
  - 287 C6. Strategic risk
  - 288 C7. Capital risk

EXECUTIVE SUMMARY

Risk management and control model principles

pages 200 to 210

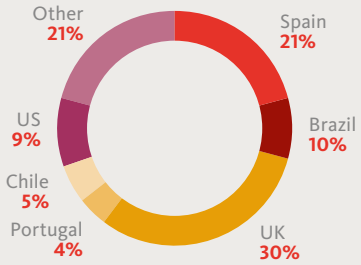
- Advanced, comprehensive management of all risks, with a forward-looking approach.
- Lines of defence that enable risk to be managed at source, controlled and monitored, in addition to an independent assessment.
- Risk culture embedded in the entire Organisation.
- A model based on autonomous subsidiaries with robust governance that separates the risk management and control functions.
- Appropriate information management and technological infrastructure.
- Risks managed by the units that generate them.

These principles, combined with a series of relevant interrelated tools and processes in the planning of the Group strategy, make for a robust control framework.

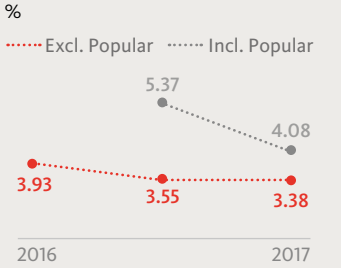
Consolidation of improvement in credit risk profile

pages 213 to 242

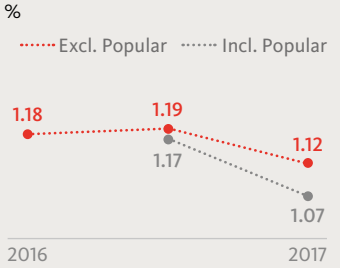
CUSTOMER CREDIT RISK BY COUNTRY



NPL RATIO



COST OF CREDIT[1]



1. Cost of credit = loan-loss provisions twelve months / average lending.

- Over 80% of risk relates to retail banking. Adequate geographic and sector diversification.
- Consolidation of the improvement trend in the Group's main credit quality indicators, which in December 2017 stood at (excl. Popular):
  - NPL ratio fell to 3.38%, decrease of 55 bp compared to year-end 2016, with noteworthy reductions in Portugal, Spain, Poland and Brazil.
- Provisions fell to EUR 8,997 million in December, down 5.5% compared to the same period of the previous year, mainly due to SCUSA, SCF and Spain.
- Cost of credit decreased to 1.12% (-6 bp), in line with the credit profile improvement.
- The coverage ratio remains at approximately 71%.

Trading market risk, liquidity risk and structural risks

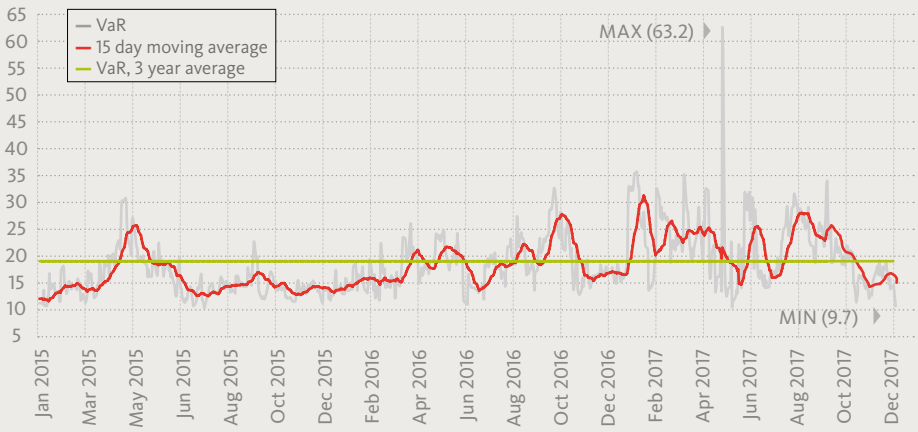
pages 243 to 263

Trading market risk

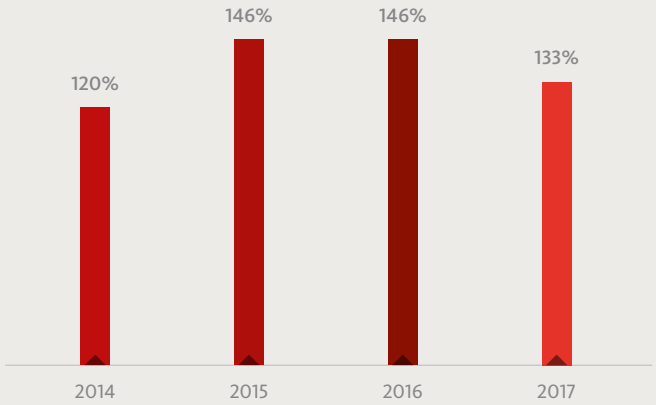
- Our core business is client facilitation driven (market making, sales/fees), along with an active management and geographically diversified model.
- An appropriate balance sheet structure reduces the impact of interest rates changes on net interest income and equity.
- Core capital ratio coverage at approximately 100% for exchange rate movements.

VAR 2015-2017 (EXCL. POPULAR)

Million euros. VaR at a 99% confidence interval over a one day horizon



SHORT-TERM LIQUIDITY COVERAGE RATIO (LCR)



Liquidity risk

- Santander has a comfortable liquidity position, based on its commercial strength and autonomous subsidiaries model, with a strong weighting of customer deposits and robust liquid asset buffers.
- The long term ratio (NSFR) maintained comfortable levels above 100% and the short term ratio (LCR) stood at 133%, complying with the regulatory requirement of 80%.
- Short and long-term liquidity metrics, and those related to encumbered assets and stress scenarios are within the risk appetite levels established for each of the Group's units.

Non-financial risks

pages 264 to 284

Operational risk

- Completion of the operational risk advanced measurement transformation project.
- Cyber risk strategy reinforcement, with the improvement of the anticipation, defence and awareness capacities.
- Development of control and critical risk methodologies to prioritise their management.

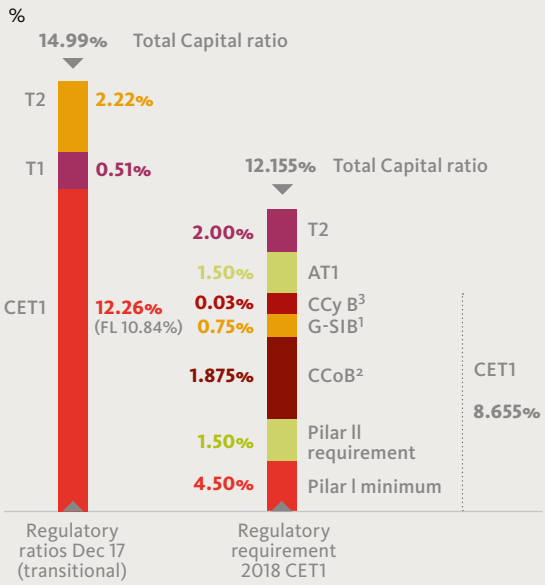
Compliance and conduct risk

- Sustainability and climate change initiatives implementation to respond to the growing interest of investors, customers and shareholders.
- Supervisor pressure increase regarding customer protection and customer complaints management.
- Challenges derived from new relevant regulations: MiFID II, GDPR, PSD II, 4th AML Directive.

Capital Risk

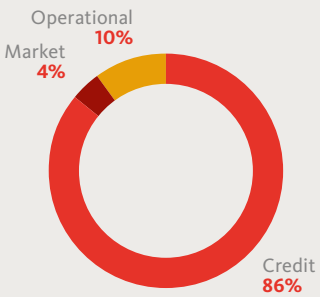
pages 288 to 290

REGULATORY CAPITAL (PHASE IN)



1. Global Systemically Important Banks buffer.
2. Conservation Capital Buffer.
3. Countercyclical Capital Buffer. Calculated with December 2017 data and required from 1 January 2018.

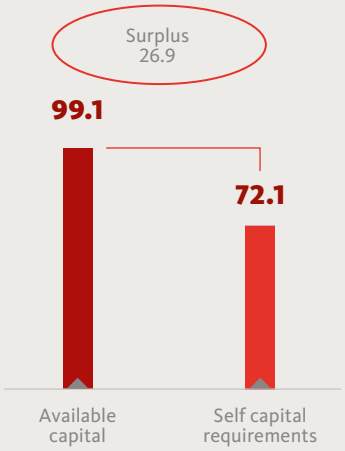
RWA* BY RISK TYPE



* Risk weighted assets

ECONOMIC CAPITAL (EXCL. POPULAR)

Billion euros



- In terms of capital risk, the Group holds a comfortable solvency position, both in terms of regulatory and economic capital.
- The breakdown of capital requirements by risk type is unchanged compared to the previous year.

EXECUTIVE SUMMARY
A. RISK MANAGEMENT AND CONTROL MODEL
1. Risk map
2. Risk governance
3. Risk culture - Risk Pro
4. Management processes and tools
B. BACKGROUND AND UPCOMING CHALLENGES
C. RISK PROFILE

A. Risk management and control model

Since its foundation in 1857, Banco Santander has had among its priorities the development of a forward-looking risk management strategy, through a sound control environment. This has enabled the Group to deal appropriately with changes in the economic, social and regulatory context in which it operates, contributing to the progress of people and businesses.

Risk management is therefore one of the key functions in ensuring that Santander remains a robust, safe and sustainable bank, that guarantees a management aligned with the interests of its employees, customers, shareholders and society.

The risk management and control model deployed by the Santander Group is based on the principles set down below, which are aligned with the Group's strategy and take into account, the regulatory and supervisory requirements, as well as the best market practices:

1. **An advanced and comprehensive risk management policy, with a forward-looking approach** that allows the Group to maintain a medium-low risk profile, through a risk appetite defined by Santander's board of directors and the identification and assessment of all risks.

2. **Lines of defence** that enable risk to be managed at source, controlled and monitored, in addition to an independent assessment.

3. **A model predicated on autonomous subsidiaries with robust governance** based on a clear committee structure that separates the risk management and control functions.

4. **Information and technological management processes** that allow all risks to be identified, developed, managed and reported at appropriate levels.

5. **A risk culture integrated throughout the Organisation**, composed by a series of attitudes, values, skills and action guidelines to deal with all risks.

6. **All risks are managed by the units that generate them.**

These principles, combined with a series of relevant interrelated tools and processes in the Group's strategy planning (risk appetite, risk identification and assessment, analysis of scenarios, risk reporting framework, budgetary processes, etc.) make up a key control framework when developing the risk profile control.

A.1. Risk map

The Santander Group has established the following first level risks in its general risk framework:

- **Credit risk:** risk of financial loss arising from the default or credit quality deterioration of a customer or other third party, to which the Santander Group has either directly provided credit or for which it has assumed a contractual obligation.
- **Market risk:** risk incurred as a result of changes in market factors that affect the value of positions in the trading book.
- **Liquidity risk:** risk that the Group does not have the liquid financial resources to meet its obligations when they fall due, or can only obtain them at high cost.
- **Structural risk:** risk arising from the management of different balance sheet items, not only in the banking book but also in relation to insurance and pension activities.
- **Capital risk:** risk of Santander Group not having an adequate amount or quality of capital to meet its internal business objectives, regulatory requirements or market expectations.
- **Operational risk:** defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk[1].
- **Conduct risk:** risk arising from practices, processes or behaviours which are not adequate or compliant with internal regulation, legal or supervisory requirements.
- **Reputational risk:** risk of current or potential negative economic impact to the Bank due to damage to the perception of the Bank on the part of employees, customers, shareholders/investors and the wider community.
- **Model risk:** risk of loss arising from inaccurate predictions, causing the Bank to make suboptimal decisions, or from a model being used inappropriately.
- **Strategic risk:** risk of loss or damage arising from strategic decisions or their poor implementation, that impact the long term interests of our key stakeholders, or from an inability to adapt to external developments.

All identified risks should be referenced to the basic risk categories mentioned above, in order to organise their management, control and related information.

A.2. Risk governance

For the proper development of the risk function, the Group has a strong governance policy, which is in place to ensure that the risk decisions taken are appropriate and efficient and that they are effectively controlled within the established risk appetite framework.

The **Group Chief Risk Officer (GCRO)** oversees this function within the Group, advises and challenges the executive line and also reports independently to the Risk Supervision, Regulation and Compliance Committee and to the board.

A.2.1. Lines of defence

Banco Santander's management and control model is based on three lines of defence.

The business functions and all support functions that generate exposure to a risk make up the first line of defence. The role of these functions is to establish a management structure for the risks that are generated as part of their activity ensuring that these remain within the approved appetite risk and the established limits.

The second line of defence is composed by the risk control function, and the compliance and conduct function. The role of these functions is to provide independent oversight and challenge the risk management activities performed by the first line of defence.

These functions are responsible for ensuring that the risks are managed in accordance with the risk appetite defined by senior management and to foster a strong risk culture across the whole Organisation. They must also provide guidance, advice and expert opinion in all key risk-related matters.

Internal audit as the third line of defence. As the last layer of control, regularly assesses policies, methods and procedures to ensure they are adequate and are being implemented effectively in the management and control of all risks.

1. Legal risk includes, but is not limited to, exposure to fines, penalties, or punitive damages resulting from supervisory actions, as well as private settlements.

The risk control, compliance and conduct and internal audit functions are sufficiently separated and independent from each other, and regarding to other functions they control or supervise for the performance of their duties, and they have access to the board of directors and/or its committees through their maximum responsibles.

A.2.2. Risk Committees structure

Ultimately, the board of directors is responsible for the risk control and management and, in particular, for setting the risk appetite for Santander Group. It can also delegate its powers to committees classed as independent control bodies or decision-making bodies. The board uses the Risk Supervision, Regulation and Compliance Committee as an independent risk control and oversight committee. The Group's Executive Committee also pays special attention to the management of all risks.

The highest risk governance bodies are described as follows:

Bodies for independent control

Risk Supervision, Regulation and Compliance Committee:
The purpose of this committee is to assist the board in matters of risk supervision and control, in the Group risk policies definition, in the relation with the supervisory authorities and in aspects of regulation and compliance, sustainability and corporate governance.

It is chaired by an independent director and is formed by external or non-executive directors, the majority of which are independent.

The functions of the Risk Supervision, Regulation and Compliance Committee are:

- Support and advise the board in defining and assessing the risk policies that affect the Group and in determining the risk propensity and risk strategy.
- Provide assistance to the board for overseeing the risk strategy implementation and its alignment with strategic commercial plans.
- Systematically review the exposures of major clients, economic sectors, geographical areas and risk types.
- Understand and assess management tools, improvement initiatives, projects progress and any other relevant activity relating to risk control over the course of time, including the internal risk model policy and its internal validation.
- Support and advise the board regarding supervisors and regulators in the various countries where the Group operates.
- Oversee compliance with the General Code of Conduct, manuals and procedures for anti-money laundering and anti-terrorism financing, and, in general, the rules of governance and the Bank's compliance programme, as well as the necessary proposals for its improvement. In particular, it is the committee's responsibility to receive information and, where necessary, issue reports on disciplinary measures for senior management.
- Supervise the Group's policy and rules of governance and compliance and, in particular, adopt the actions and measures resulting from the reports or the inspection measures of administrative supervision and control authorities.
- Monitor and assess applicable proposed regulations and regulatory initiatives, as well as analyse the possible consequences for the Group.
- Review the Corporate Social Responsibility policy, ensuring that it is oriented to the value creation of the Group, and monitoring of the strategies and practices in this matter, evaluating its compliance level.

Risk Control Committee (RCC):
This collegiate body is responsible for the effective risk control, ensuring they are managed in accordance with the risk appetite level approved by the board, permanently adopting an all-inclusive overview of all the risks included in the general risk framework. This duty implies identifying and tracking both current and potential risks, and gauging their impact on the Group's risk profile.

This committee is chaired by the Group Chief Risk Officer (GCRO) and is composed of senior management members. The risk function, which presides the committee, and the compliance and conduct, financial accounting and control, and management control functions are represented, among others. The risk function officers (CROs) of local entities take part in the committee on a regular basis to report on the risk profile of the entities and other aspects.

The Risk Control Committee reports to the Risk Supervision, Regulation and Compliance Committee and assists it in its function of supporting the board.

Decision making bodies

Executive Risk Committee (ERC):
This collegiate body is responsible for the management of all risks under the powers allocated to it by the board of directors.

The committee takes part in risk decisions at the highest level, ensuring that they are within the limits set out in the Group's risk appetite. It reports on its activity to the board or its committees whenever it is required to do so.

It is chaired by the CEO and comprises executive directors, and the Entity's senior management. The risk, finance and compliance and conduct functions, among others, are represented. The GCRO has a right to veto the decisions taken by this committee.

A.2.3. The Group's relationship with subsidiaries in risk management

Regarding the units alignment with the Corporation

The management and control model shares, in all the Group's units, basic principles via corporate frameworks. These frameworks are established by the Group's board of directors, and the local units adhere to them through their respective boards of directors, shaping the relationship between the subsidiaries and the Group, including the role played by the latter in taking important decisions by validating them.

Pursuant to these shared principles and basics, each unit adapts its risk management to its local reality, in accordance with corporate frameworks and reference documents provided by the Corporation, thus creating a recognisable and common risk management and control model in Santander Group.

One of the strengths of this model is the adoption of the best practices developed in each of the units and markets in which the Group operates. The Risk division centralises and conveys these practices.

Furthermore, the "Group-subsidiary governance model and good governance practices for subsidiaries" sets a regular interaction and functional reporting by each local CRO to the GCRO, as well as the participation of the Corporation in the process of appointing, setting targets, evaluation and remuneration of local CROs, in order to ensure risks are adequately controlled by the Group.

Regarding the structure of committees

The "Group-subsidiary governance model and good governance practices for subsidiaries" recommends that each subsidiary should have bylaw-mandated Risk Committees and other Executive Risk Committees, in line with the best corporate governance practices, consistent with those already in place in the Group.

The governance bodies of subsidiary entities are structured in accordance to local requirements, both regulatory and legal, and to the dimension and complexity of each subsidiary, being consistent with those of the parent company, as established in the internal governance framework, thereby promoting communication, reporting and effective control.

The subsidiaries management bodies have their own risk faculty model (quantitative and qualitative) and must follow the principles contained in the frameworks and reference models developed at corporate level.

Given its capacity for comprehensive (enterprise wide) and aggregated oversight of all risks, the Corporation exercises a validation and challenging role with regard to the operations and management policies of the subsidiaries, insofar as they affect the Group's risk profile.

A.3. Risk culture - Risk Pro

The Santander Way corporate culture entails a robust risk culture known as risk pro.

Risk management is underpinned by a shared culture that ensures that every employee understands and manages the risks that are part of their daily work.

Santander Group's solid risk culture is one of the main reasons the Group has been able to deal with changes in the economic cycle, new customer requirements and the rise of competitiveness, and the reason why it is considered to be an Entity that has earned the trust of its customers, employees, shareholders and society as a whole.

Against a backdrop of constant change, with new types of risk emerging and increasingly stringent regulatory requirements, Santander Group maintains an excellent level of risk management that enables it to achieve sustainable growth.

Excellence in risk management is therefore one of the strategic priorities that has shaped the Group's development. This involves prudence in risk management and building a sound internal risk management culture across the whole Organisation, which is understood and implemented by all Santander Group employees.

The risk pro culture is reinforced in all the Group's units by the following factors:

- **Employee life cycle.** From the selection and hiring phases and throughout their professional career, employees are made aware of their personal responsibility regarding risk management.

  Therefore, risk management is included in all employees' training plans. The Risk Pro Banking School, together with the other training centres for risk, help define the best strategic training lines for the Bank's professionals in accordance with Group priorities, in addition to disseminating the risk culture and developing the best talent.

  In 2017, 358,462 hours of training were given, attended by 140,527 Group employees.

  As a result, the Santander Group 2017 Global Engagement Survey concluded that 94% of employees thought that they could detect and take personal responsibility for the risks they encountered in their day-to-day work.

- **Communication.** The conduct, best practices and initiatives that exemplify the risk culture are disseminated through the different communication channels and individual actions involving the main risk managers. The Group optimised and improved its website, in which all the information required for advanced risk management is contained.

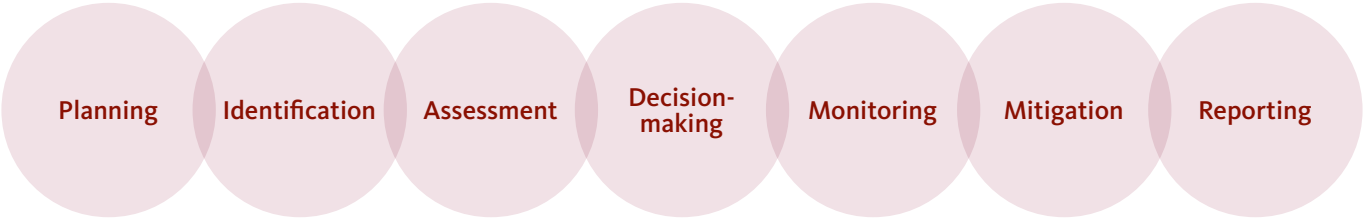
- **Risk culture assessment.** Santander Group performs a systematic and ongoing assessment of the risk culture to detect any potential areas for improvement and implement action plans. This has involved defining the global indicators used to assess the level of penetration and dissemination of the risk culture within the Group.

- **Governance.** The risk culture and risk management are underpinned by sound internal governance.

- **Advanced Risk Management (ARM).** ARM is a reflection of the importance of having a robust risk culture. For Santander Group, it is a priority aspect for its long-term goal for remaining a solid and sustainable bank.

A.4. Management processes and tools

The Santander Group has defined a series of key risk management and control processes, as shown below:



- **Planning.** Is the process of setting business objectives, which include the articulation of the types and levels of risk that the business is willing and able to accept in pursuit of these objectives.
- **Identification.** Risk identification is a key component of effective risk management and control. Every employee is responsible for identifying external and internal risks to the business in a timely manner, ensuring they are categorised according to the aforementioned risk map.
- **Assessment.** Once identified, risks must be assessed to determine their likelihood, impact and materiality under different scenarios.
- **Decision-making and Execution.** Decisions are required to manage the business's risk profile within the limits agreed in the planning phase, and to achieve business objectives. Strategy decisions are also needed to manage material and emerging risks within the functions bestowed to committees or individuals and in accordance with the powers delegated by the board of directors.
- **Monitoring performance versus Plan.** Risk management and control include monitoring business performance on a regular basis, and comparing performance against agreed plans. All plans and risk metrics should have clear alert thresholds (triggers) with defined escalation paths.
- **Mitigation (actions to address Plan deviations).** If monitoring highlights that performance has deviated, or is likely to deviate, beyond the approved ranges or thresholds, mitigating action should be considered to bring performance back to acceptable levels.
- **Reporting.** The risk reporting process includes the elaboration and submission of accurate and relevant management information, ensuring regular reporting on the business progress, and the urgent escalation of unexpected situations if required.

  It should also provide sufficient support to ensure the effectiveness of the aforementioned processes.

To develop the processes described above, Santander Group has several tools in place. These include:

Risk appetite

- **New metrics** with greater granularity and inclusion of additional metrics.
- **Consolidation** of **management and control systems** of the risk appetite framework in the Corporation and units.

Risk identification and Assessment (RIA)

- **Simplification, improvement and interaction** communities of control under new standards.
- **More robust and wider assessment** of the control environment that measures the management model implementation.

Scenario analysis

- Strengthening of the **operating and control model** in the execution of capital planning exercises.
- **Evolution of the** provisions forecast **methodology and the infraestructure** to Big Data technology, increasing the analytical and reporting capacity.

Risk Reporting Framework (RRF)

- **Structural and operational improvements** to enhance reporting of all risks at all levels.
- **Consolidation** of the **governance model** for risk information and reporting.

A.4.1. Risk appetite and structure of limits

Santander defines risk appetite as the amount and type of risks considered reasonable to assume for implementing its business strategy, so that the Group can maintain its ordinary activity in the event of unexpected circumstances. For the latter, severe scenarios that could have a negative impact on the levels of capital, liquidity, profitability and/or the share price, are taken into account.

The board is responsible for annually setting and updating the risk appetite, monitoring the Bank's risk profile and ensuring consistency between both of them.

The risk appetite is set for the whole Group, as well as for each of the main business units in accordance with a corporate methodology adapted to the circumstances of each unit/market. At local level, the boards of the subsidiaries are responsible for approving the respective risk appetite proposals once they have been validated by the Group.

The whole Organisation shares a common and unique risk appetite model. This sets out common requirements for processes, metrics, governance bodies, controls and corporate standards for its management integration, cascading down in an effective and traceable way to all management policies and limits.

Business model and fundamentals of the risk appetite

The definition and establishment of the risk appetite in the Santander Group is consistent with its risk culture and business model from the risk perspective. The main elements that define this business model and which are behind the risk appetite are:

- A general medium-low and predictable risk profile based on a diversified business model, focused on retail banking with an internationally diversified presence and with important market shares, as well as a wholesale banking business model that gives priority to customers relation in the Group's main markets.
- A stable and recurrent earnings and shareholder remuneration policy, underpinned by a sound base of capital and liquidity, as well as an effective diversification strategy in terms of sources of funding and maturities.
- An organisational structure based on subsidiaries that are legally independent and self-sufficient in capital and liquidity, minimising the use of non-operational or shell companies, and ensuring that no subsidiary has a risk profile that could jeopardise the Group's solvency.
- An independent risk function with very active involvement of senior management that guarantees a solid risk culture focused on protection, and ensuring an adequate return on capital.
- A management model that guarantees a global and inter-related view of all risks, through a corporate control and monitoring environment, with global level responsibilities: all risks, all businesses and all countries.
- A business model focused on those products that the Group knows sufficiently well and has the capacity to manage (systems, processes and resources).
- Development of its activity based on a conduct model that protects the interests of customers and shareholders.
- Adequate and sufficient availability of human resources, systems and tools that guarantee the preservation of a risk profile compatible with the risk appetite established, both at global and local levels.
- A remuneration policy that has the necessary incentives to ensure that the individual interests of employees and executives are aligned with the risk appetite model, and that these are consistent with the evolution of the Bank's long-term results.

Corporate risk appetite principles

The following principles govern Santander Group risk appetite in all its units:

- **Board and senior management responsability.** The board is the maximum body responsible for setting the risk appetite and its regulation support, as well as supervising its compliance.
- **Enterprise Wide Risk, backtesting and challenging of the risk profile.** The risk appetite must consider all significant risks to which the Bank is exposed, facilitating an aggregate vision of the risk profile through the use of quantitative metrics and qualitative indicators. This enables the board and senior management to question and assimilate the current and forecasted risk profile in the business and strategy plans, as well as its consistency with the maximum risk limits.
- **Forward-looking view.** The risk appetite must consider the desirable risk profile for the current moment, as well as in the medium term, taking into account both the most plausible circumstances and the stress scenarios.
- **Alignment with strategic and business plans and management integration** (3 year plan, annual budget, ICAAP, ILAAP crisis recovery plans). The risk appetite is a benchmark in strategic and business planning and is integrated into management through a bottom-up and top-down approach:
  - top-down vision: the board must lead the setting of the risk appetite, vouching for the disaggregation, distribution and transfer of the aggregated limits to the management limits set at portfolio level, unit or business line.
  - bottom-up vision: the risk appetite must emanate from the board's effective interaction with senior management, the risk function and those responsible for the business lines and units. The risk profile contrasted with the risk appetite limits will be determined by aggregation of the measurements at portfolio, unit and business line level.

- **Coherence in the risk appetite of the various units and common risk language throughout the Organisation.** The risk appetite of each unit of the Group must be coherent with that defined in the remaining units and that defined for the Group as a whole.

- **Regular review, continuous backtesting and best practices and regulatory requirements adaptation.** Assessing the risk profile and backtesting it against the limits set for the risk appetite must be an iterative process. Adequate monitoring and control mechanisms must be established to ensure the risk profile is maintained within the levels established, as well as taking the necessary corrective and mitigating measures in the event of non-compliance.

Limits structure, monitoring and control

The risk appetite is formulated every year and includes a series of metrics and limits on these metric (statements) which express in quantitative and qualitative terms the maximum risk exposure that each unit of the Group or the Group as a whole is willing to assume.

Fulfilling the risk appetite limits is continuously monitored. The specialised control functions report at least every quarter to the board and its Risk committee on the risk profile adequacy with the authorised risk appetite.

The excesses and non-compliance with the risk appetite are reported by the risk control function to the relevant governance bodies. The presentation is accompanied by an analysis of the causes that provoked it, an estimation of the time they will remain this way, as well as the proposed actions to correct the excess when the corresponding governance body deems it opportune.

Linkage of the risk appetite limits with the limits used to manage the business units and portfolios is a key element for making the risk appetite an effective risk management tool.

The management policies and structure of the limits used to manage the different types and categories of risk, which are described in greater detail in this report, in sections C.1.5. Credit risk cycle, C.2.2.3. and C.2.3.3. Systems of controlling limits, have a direct and traceable relation with the principles and limits defined in the risk appetite.

The connection between the credit risk appetite of the Group and the credit portfolios management is implemented, formalized and materialized through the Strategic Commercial Plans (SCPs), which define the credit policies and the plans of means necessary to achieve the commercial strategies. The transposition and cascading down of credit risk metrics of the Group's risk appetite strengthens the control over credit portfolios. Each SCP includes the risk appetite metrics corresponding to the SCP segment, and also the risk appetite control is carried out through the portfolio and new production limits in order to anticipate the portfolio risk profile.

In this way, changes in the risk appetite can be translated into changes in the limits and controls used in Santander's risk management and each of the business and risk areas have the responsibility of verifying that the limits and controls used in their daily management are set in such a way that the risk appetite limits cannot be breached. The risk control and supervision function then validates this assessment, ensuring the adequacy of the management limits for the risk appetite.

Risk appetite pillars

The risk appetite is expressed via limits on quantitative metrics and qualitative indicators that measure the exposure or risk profile by type of risk, portfolio, segment and business line, in both current and stressed conditions. These metrics and risk appetite limits are articulated in five large areas that define the positioning that Santander's senior management is wiiling to adopt or maintain in the development of its business model:

- The **volatility** in the **income statement** that the Group is willing to accept.
- The **solvency** position that the Group wants to maintain.
- The minimum **liquidity** position that the Group wants to have.
- The maximum levels of **concentration** that the Group considers reasonable to accept.
- **Non-financial and transversal risks**.

RISK APPETITE PILLARS AND MAIN METRICS

Volatility of results	Solvency	Liquidity	Concentration	Non-financial and transversal risks

• Maximum loss the Group is prepared to accept under a scenario of acute tension	• Minimum capital position the Group is prepared to accept under a scenario of acute tension
	• Maximum leverage the Group is prepared to accept under a scenario of acute tension
		• Minimum structural liquidity position
		• Minimum liquidity horizon position that the Group is prepared to accept under a scenario of acute tension
		• Minimum liquidity coverage position
			• Concentration by individual customer
			• Concentration in non-investment grade counterparties
			• Concentration in large exposures
				• Qualitative operational risk indicators:
				  • Fraud
				  • Technological
				  • Security and cyber-risk
				  • Litigation
				  • Other...
				• Maximum operational risk losses
				• Maximum risk profile

Volatility of results

Its object is to limit the potential negative volatility of the results projected in the strategic and business plan in the event of stress conditions.

This axis contains metrics which measure the behaviour and evolution of real or potential losses in the business.

The stress tests included in this level, measure the results maximum fall under adverse conditions, in the main types of risk to which the Bank is exposed, with a feasible probability of occurrence and similar by risk type (thus allowing aggregation).

Solvency

The object of this axis is to ensure that the risk appetite adequately considers the maintenance and upkeep of the Entity's equity, keeping capital higher than the levels set by regulatory requirements and market demand.

Its purpose is to determine the minimum level of capital for which the Entity considers necessary to maintain, in order to cope with potential losses under both normal and stressed conditions and derived from its activity, its business and strategic plans.

This capital approach included in the risk appetite model is supplementary and consistent with the capital objective approved within the Group's capital planning process, which extends to a period of three years (more detail is available in the Pillar III disclosures).

Liquidity position

Santander Group has developed a funding model based on autonomous subsidiaries that are responsible for covering their own liquidity needs.

On this basis, liquidity management is conducted by each subsidiary within a corporate management framework that develops its basic principles (decentralisation, equilibrium in the medium and long term of sources-applications, high weight of customer deposits, diversification of wholesale sources, reduced appeal to short-term financing, sufficient liquidity reserve) and revolves around three main pillars: governance model, balance sheet analysis and measurement of liquidity risk, and management adapted to business needs.

Santander's liquidity risk appetite establishes demanding objectives of liquidity positions and horizons under systemic and idiosyncratic stress scenarios (local and global). In addition, a limit is set for the structural funding ratio that relates customer deposits, equity and medium and long-term issuances to structural funding needs, together with a limit on the minimum liquidity coverage position.

Concentration

Santander wants to maintain a widely diversified risk profile from the standpoint of its exposure to large risks, certain markets and specific products. In the first instance, this is achieved by virtue of Santander's business orientation to retail banking with a high degree of international diversification.

This axis includes, among others, the individual maximum exposure limits with customers, aggregated maximum exposure with major counterparties, and maximum exposure by activity sectors, in Commercial Real Estate and in portfolios with a high risk profile. Customers with an internal rating lower than investment grade or equivalent, or which have excessive exposure of a certain degree, are also monitored.

Non-financial and transversal risks

This involves qualitative and quantitative metrics that help pinpoint exposure to non-financial risks. These include specific indicators for fraud, technological risk, security and cyber-risk, money laundering prevention, regulatory compliance, product governance and customer protection, reputational risk and model risk.

A.4.2. Risk identification and assessment (RIA)

Santander Group carries out the identification and assessment of the different risks it is exposed to involving the different lines of defence to strengthen its advanced and proactive risk management practice, establishing management standards that not only meet regulatory requirements but also reflect best practices in the market, and being also a risk culture transmission mechanism.

The function includes all the risk identification and assessment processes, as well as its integration, within the Santander Group risk profile, its units and activities, thereby keeping the risk map up to date.

In addition to **identifying and assessing the Group's risk profile** by risk type and unit, RIA analyses the evolution of risks and identifies improvement areas in each of the blocks that compose it:

- **Risk performance,** enabling understanding of residual risk by risk type through a set of metrics and indicators calibrated using international standards.
- **Assessment of the control environment,** measuring the degree of implementation of the target operating model, pursuant to advanced standards.
- **Forward-looking analysis of the unit,** based on stress metrics and identification and/or assessment of the main threats to the strategic plan **(Top Risks)**, enabling specific action plans to be put in place to mitigate potential impacts and monitoring these plans.

Each block of these methodologies strengthens risk management and provide a comprehensive and holistic view of the risk profile. RIA uses, among others, the assessment of the risk level of the different risk metrics and indicators and their integration in risk management policies and limits, the control environment assessment consideration in internal audit annual planning, the use of Top risks as inputs to generate idiosyncratic scenarios in capital and liquidity planning and recovery and resolution plans, and the analysis of the risk profile of the Group and its units, used as a comparison with other external assessments of the Bank.

RIA strengthens Santander Group's risk management and control capacity to carry out more and better business in the markets in which it operates without jeopardising its P&L, or its defined strategic targets, and reducing earnings volatility.

In 2017, the function evolved along three main lines, ensuring the simplification and reinforcement of the interaction among the communities of control and the completeness of the risk profile:

- Updated control environment standards based on industry performance, internal management models and regulatory requirements:

  i) Homogeneous conceptual architecture developed to enable consistent analysis and assessments, and to simplify data execution/exploitation, as well as the reporting to senior management.

  ii) Environment control assessments simplification.

  iii) Greater involvement of the different stakeholders of the control functions particularly local and corporate risk control functions and internal audit (communities of control).

  iv) Prioritisation of areas for improvement identified according to their materiality.

- New technology platform to facilitate data exploitation and process implementation:

  i) Manual processes automatization.

  ii) Real time access to information in the different units and for all stakeholders.

  iii) Internal technology solution with improved data safety and enhanced user experience.

  iv) Information reporting module to design and produce ad hoc reports.

- Wider scope by risk type and geography.

As part of the ongoing review and improvement process, over the next few months the RIA will focus on the review of **risk indicators and metrics,** increasing the scope of application by risk type and geography, and further strengthening the risk culture in the Group's different lines of defence.

A.4.3. Scenario analysis

Santander conducts advanced management of risks by analysing the impact that different scenarios could trigger in the environment in which the Bank operates. These scenarios are expressed both in terms of macroeconomic variables, as well as other variables that alter management.

Scenario analysis is a very robust and useful tool for management at all levels. It enables the assessment of the Bank's resistance to stressed environments or scenarios, and puts into force a set of measures that reduce its risk profile to these scenarios. The objective is to maximise the stability of the income statement and capital and liquidity levels.

The robustness and consistency of the scenario analysis exercises are based on the following pillars:

- Development and integration of mathematical models that estimate the future evolution of metrics (e.g. credit losses), based on both historic information (internal to the Bank and external from the market), as well as simulation models.

- Inclusion of expert judgement and know-how of portfolios, questioning and backtesting the models results.

- The backtesting of the models results against the observed data, ensuring that the results are adequate.

- The governance of the whole process, covering the models, scenarios, assumptions and rationale of the results, and their impact on management.

The application of these pillars within the EBA (European Banking Authority) stress test, executed and reported bi-annually, has enabled Santander to satisfactorily meet the requirements set down - both quantitative and qualitative - and to contribute to the excellent results obtained by the Bank, particularly with regard to its peers.

From 1 January 2018, the processes, models and scenario analysis methodology will be included in the new regulatory provisions requirements (IFRS 9).

Uses of scenario analysis

The EBA guidelines establish that the scenario analysis should be integrated in the risk management framework and entities' management processes. This requires a forward-looking vision in risk management and strategic, capital and liquidity planning.

Scenario analysis is included in the Group's control and management framework, ensuring that any impact affecting the Group's solvency or liquidity can be rapidly identified and addressed.

With this objective, a systematic review of exposure to the different types of risk is included, not only in the baseline scenario but also in the simulation of various adverse scenarios, to ensure that the risk levels assumed comply with the established targets and thresholds.

The scenario analysis forms an integral part of several key processes of the Bank:

- **Regulatory uses.** Stress tests exercises are performed using the guidelines set by the European regulator or each local supervisor.
- **ICAAP or ILAAP.** In which, while the regulator can impose certain requirements, the Bank develops its own methodology to assess its capital and liquidity levels in the face of different stress scenarios. These tools enable capital and liquidity management to be planned.
- **Risk appetite.** Contains stressed metrics on which maximum levels of losses (or minimum of liquidity) are established that the Bank is not willing to exceed. These exercises are related to those for capital and liquidity, although they have different frequencies and present different granularity levels. Santander continues to work to improve the use of analysis of scenarios in the risk appetite and to ensure an adequate relation of these metrics with those used in the daily risk management. For more detail see sections A.4.1. Risk appetite and structure of limits and B.2.4. Liquidity risk in this report.
- **Recurrent risk management** in different processes/tests:
  - **Budgetary and strategic planning process,** in the generation of commercial policies for risk approval, in the global risk analysis made by senior management and in specific analyses of activities and portfolios.
  - Identification of **emerging and plausible risks** ("Top Risks"). After a systematic process to identify and assess all the risks to which the Group is exposed, the "Top Risks" are selected and the Entity's risk profile is established. Each "Top Risk" has an associated macroeconomic or idiosyncratic scenario. To assess the impact of these risks on the Group, internal scenario analysis and stress testing models and methodologies are employed.
  - **Recovery plan** performed annually to establish the available measures the Bank will have, in order to survive an extremely severe financial crisis. The plan sets out a series of financial and macroeconomic stress scenarios, with differing degrees of severity, that include idiosyncratic and/or systemic events that are relevant for the Entity.

Further details are provided in the sections on credit risk (C.1.5.1. Planning) and market risk (C.2.2.1.6., C.2.2.2.3. and C.2.4.2. Scenario analysis).

Additionally, the Bank is working together with other financial institutions on a joint project, led by UNEP FI[2] to implement the recommendations issued by the Task force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board (FSB). These recommendations incorporate, for the first time, stress exercises that include different climate scenarios.

Scenario analysis aims to assess the impact derived from climate change, both in the form of physical risks (i.e. natural disasters caused by climate change) or by the transition to an economy with lower emissions (due to the impact of regulatory, technological and market changes).

As an internal management tool, Banco Santander has a Map of Uses in place to strengthen the alignment of scenario analysis for each risk type, along with the continuous improvement of such uses. The goal is to reinforce the integration among the different regulatory and management exercises (ICAAP, ILAAP, risk appetite, recovery plan, budget, etc.).

Stress test and scenario analysis programme

The stress test and scenario analysis programme is a pluri-annual plan containing the requirements for the development of these activities as part of the Group´s risk management processes. The development of the programme and its objectives are reviewed and updated regularly. It is structured along five axis, as follows:

- **Processes and procedures:** performance of calculation processes and associate documentation, facilitating execution with suitable frequency, aligning the stress test with regulatory requirements and advanced risk management.

2. UN Environment Programme Finance Initiative.

- **Methodologies and models:** preparation of development plans for statistical stress models that are sufficiently precise and granular to meet the programme objectives, improving the capacity to assess the sensitivity to different scenarios and associated impacts.

- **Governance:** establishment and update (where applicable) of stress tests and scenario analysis governance, reviewing the defined structure efficiency, its interpretation and documentation.

- **Data and infrastructure:** implementation and development of a flexible calculation tool and a multi-user reporting environment with capacity to handle data with different levels of granularity, project parameters and losses with greater accuracy and automation, aggregate different types of risk during the process and report the results.

- **Integration into management:** expansion and improvement of the uses of scenario analysis in the different risk management areas.

A.4.4. Risk Reporting Framework (RRF)

In recent years, Santander Group has developed and implemented the necessary structural and operating improvements to reinforce and consolidate enterprise-wide risk, based on complete, precise and regular data. This has enabled the Group's senior management to assess risk and act accordingly. In this sense, the strategic risk transformation plan is aligned with regulatory requirements, as evidenced in the review performed by the European supervisor with regard to compliance with the standards defined by the Basel Committee (BCBS 239).

In 2017, the Group has worked to consolidate the comprehensive data and information management model, and the implementation and renewal of technology systems, thereby enabling a balanced reporting taxonomy to be maintained that covers all the key risk areas within the Organisation, in compliance with the Group's size, risk profile and activity.

Therefore, three reports are submitted each month to senior management relating to risk management issues and the subsequent decision-making: the Group risks report, the risks report for each unit and a report for each risk factor.

B. Background and upcoming challenges

The global economy grew at a higher rate in 2017 compared to 2016 (3.6% vs 3.2%), the strongest performance seen in the past few years, fuelled by favourable financial conditions, buoyant trade, the recovery of commodity prices, improved confidence and a political environment in which uncertainties were reduced. Both the advanced and emerging economies participated in this revitalisation.

In the United States, the growth acceleration was combined with a moderation in underlying inflation. The Federal Reserve embarked on a gradual monetary policy normalisation. It increased interest rates in three ocassions during the year, and in October began reducing its balance sheet.

The Eurozone saw a notable economic reactivation, broadly based by component and countries. With inflation still low, the ECB has extended its debt repurchases until September 2018, although the programme has been scaled back, and its policy stance remains accommodative.

The UK economy has fared well in face of the uncertainties thrown up by the Brexit, although growth was slower. Inflation stood at around 3%, surpassing the 2% target, which prompted the Bank of England to raise its official interest rate to 0.5% at the end of the year, reversing the adjustment that followed the referendum.

Among the emerging markets, China unexpectedly sustained a slightly stronger growth than in 2016, and Latin America has recovered from the recession thanks to the economic revival in Brazil and Argentina.

Monetary policies remain uneven, according to the different inflation trends. Therefore, in Brazil and Chile, the central banks have cut the official rates in a context of reduced inflation, while in Argentina and Mexico, the monetary authorities increased the official interest rates to strengthen their anti-inflationary stance and setinflation expectations in a context of rising prices.

In general, the international banking sector continued to be characterised by the ongoing strengthening of balance sheets following improvements in capital adequacy, liquidity positions and impaired assets. As a result, in the developed nations, especially in Europe, entities continue to face significant challenges to boost profitability, in the midst of strong competition and low interest rates. Business volumes have been affected in the same way, although in both cases the trend is gradually becoming more favourable.

Top Risks

As part of its traditional forward-looking risk management strategy, the Group identifies, assesses and monitors potential threats affecting the development of its strategic plan, through regular assessment of the top risks.

The main strategic risks identified by the Group at present are subject to regular monitoring by the Bank's senior management, through a governance process that enables appropriate management and mitigation, using the following four categories as follows:

Macroeconomic and political risks

The **Eurozone economy** is in an expansion phase. Economic growth in 2017 was sound and well-founded. The unemployment rate has fallen to its lowest level since 2008. Nonetheless, inflation remains low. The growth rhythm is currently above its potential, suggesting a more moderate growth rates in the coming years.

The main risks affecting this favourable evolution derive from the political environment and the impact of the normalisation of US monetary policy on interest rates in the Eurozone. The ECB is also scaling back its asset purchase programme and while rates are expected to remain stable in 2018 given the lack of inflationary pressure, there could be hikes starting in 2019.

The performance of the **UK economy** will depend on the outcome of its negotiations to exit the EU, expected to take place in March 2019.

After phase I negotiations, an agreement has been reached with the European Commission on citizens' rights, in addition to a soft deal on the Irish border and the exit bill.

However, phase II will kick off with differences between the two parties with regard to the future relationship between the UK and the EU and the conditions of the transition period. The transition period and trade agreements eventually reached will be key for the UK economy in the short-medium term.

After years of recession, **confidence in the Brazilian economy** continues to grow and the outlook for the next few years is favourable. This trend is expected to run parallel with structural reforms, mainly relating to the tax deficit, which should continue irrespective of the result of the forthcoming election in order to maintain the growth expected.

In the **United States**, economic performance remains positive, with stable growth and a projected drop in the unemployment rate, which will have both a positive impact domestically and in emerging markets.

Given these macroeconomic and geopolitical risks, Banco Santander's business model, based on geographical diversification - balanced between mature and emerging markets - and on a retail banking business supported by customer loyalty, reduces the volatility of its results maintaining a medium-low risk profile.

Competitive environment and customer relations

Santander Group's business model is facing the challenge of adapting to changes in demand and consumer behaviour, the possibilities offered by new technologies, new value propositions and also changes in the strategic positioning of competitors.

The new technologies have had, have and will have a permanent impact on the banking industry, enabling a highly competitive environment, with the emergence of new and innovative financial participants that also offer ease of access to their services. This is also favoured by new regulation, such as PSD2 (Payment Services Directive 2) in force in 2018, which allows access to other operators to the data held by banks and thereby favours financial disintermediation. All this, and especially the growing tendency to open financial data without symmetrical initiatives for the data guarded by the large technological platforms, makes it imperative to adapt to this new environment with agility.

Therefore, constant innovation and review of the processes in place is required to allow the Bank to proactively adapt to the industry and its competitors in order to maintain its market share against new digital rivals - financial start-ups, big technology companies. The Santander Group sees this change in the industry as an opportunity to improve its market position, gain market share and optimise its business model, focusing on customers, shareholders, employees and society as a whole through innovation and digital transformation.

The automotive industry is undergoing a continuous process of innovation, driven in part by the more stringent regulatory environment, with environmental measures that imply an important transformation towards the use of technology with lower environmental impact, as well as due to possible strategic changes in the sector with the emergence of autonomous vehicles, shared mobility, higher taxes according to vehicle type, potential restrictions on access to cities, etc. This will trigger a shift in consumer behaviour and the perception held of this industry, making it essential to adapt to the new situation.

Regulatory environment

There has been intense activity in the regulatory field to improve the capitalisation of banks and their resilience to economic shocks, having a stronger impact in those institutions that are considered systemic.

This new regulation focuses mainly on capital, liquidity and resolution requirements, consistent information management and the adequacy of the internal governance of entities.

There is also increasing supervisory and regulatory pressure affecting mainly, aspects of conduct, transparency, consumer protection and the sale of products that are appropriate to customer needs, is due in part to relevant poor practices in the sector over recent years.

In addition, there is a growing interest in social and environmental aspects, for which different initiatives are emerging under the regulatory scope.

Entities have had to make significant efforts to respond to these increasing demands, which has led to a drop in profitability.

For the financial industry, it is crucial to have a stable and enduring regulatory framework, allowing banks to apply valid medium-term strategies, and to constantly assess the global impact of that framework so as to ensure a healthy balance between financial stability and economic growth. This framework must pursue the same level playing field for all competitors and must follow the activity principle, regulating what is done and not who does it. The reference should be: the same regulation and supervision should apply to the same activity and risks.

Systems threats (cyber risk)

In an increasingly digital environment, cyber attacks have become one of the main global risks, not only for the financial sector, but for all industries across the world. There has a been a noticible and high increase in such attacks in recent years.

Threats include espionage, cyber crime, data leaks, hacking and cyber warfare through the unauthorised access to networks or the release of viruses that threaten the confidentiality of the Bank's internal data and customer data, in addition to the strength of the systems themselves as security weaknesses are revealed.

The Group works intensively to enhance protection based on international standards and preventive measures, in order to be ready to respond to incidents of this type. These measures are set out in the Operational risk section C.3.4 Mitigation measures.

EXECUTIVE SUMMARY
A. RISK MANAGEMENT AND CONTROL MODEL
B. BACKGROUND AND UPCOMING CHALLENGES
C. RISK PROFILE
1. Credit risk
2. Trading market risk, structural risk and liquidity risk
3. Operational risk
4. Compliance and conduct risk
5. Model risk
6. Strategic risk
7. Capital risk

C. Risk profile

C.1. Credit risk

C.1.1. Introduction to credit risk treatment

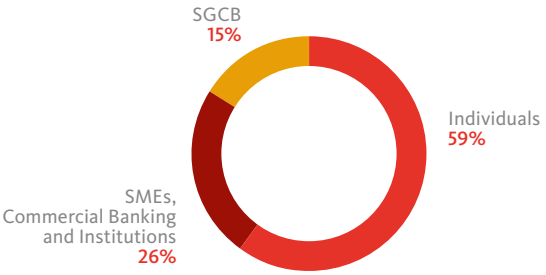
Credit risk is the risk of financial loss arising from the default or credit quality deterioration of a customer or other third party, to which the Santander Group has either directly provided credit or for which it has assumed a contractual obligation.

The Group's risks function is organised on the basis of three types of customers:

- The **Individuals segment** includes all individuals, except those with a business activity. This segment is, in turn, divided into sub-segments by income levels, which enables risk management adjusted to the type of customer.
- The **SMEs, Commercial Banking and Institutions segment** includes companies and individuals with business activity. It also includes public sector activities in general and private sector non-profit entities.
- The **Santander Global Corporate Banking** (SGCB) segment consists of corporate customers, financial institutions and sovereigns, comprising a closed list that is revised annually. This list is determined on the basis of a full analysis of the company (business type, level of geographic diversification, product types, volume of revenues it represents for the Bank, etc.).

The following chart shows the distribution of credit risk on the basis of the management model:

CREDIT RISK DISTRIBUTION



Notes: Excluding Popular. Risk segmentation.

The Group's profile is mainly retail, accounting for 85% of total risk generated by the retail and commercial banking businesses.

C.1.2. Key figures and change over time

C.1.2.1. Changes in scope

Banco Popular

On 7 June 2017, Santander Group acquired Banco Popular Español, S.A. (Popular) within the framework of the "resolution" adopted by the Single Resolution Board (SRB) and executed by the Fund for Orderly Bank Restructuring (FROB).

The transaction had a sound strategic and business fit that came at an attractive moment in the cycle, reinforcing the Group's position in Spain and Portugal.

After the adjustments associated with the acquisition, Banco Popular contributed[3] net loans of EUR 82,589 million and deposits of EUR 64,814 million, concentrated mainly in Spain. Additionally, it incorporated EUR 10,003 million in investment funds and EUR 8,118 million of other off-balance sheet assets.

At that date, Banco Popular had EUR 20,969 million of non-performing loans, with an NPL ratio of 20%. To cover this amount, an insolvency fund of EUR 12,689 million was set up, offering coverage of 61%.

Further, on 8 August, with the intention of reducing the Santander Group's unproductive assets, Banco Popular signed an agreement with Blackstone whereby the fund would acquire 51%, a controlling stake, of Banco Popular's real estate business comprising the foreclosed assets portfolio, non-performing loans from the real estate sector, and other assets relating to this activity owned by Banco Popular and its subsidiaries.

The transaction gave rise to the creation of a company to which Banco Popular would transfer the business unit containing these assets and 100% of the share capital of Aliseda. Since that date, Blackstone has been responsible for managing the assets included in the joint venture.

Citibank-Argentina

Having obtained the relevant regulatory authorisation, on 31 March 2017 an irrevocable offer was received and accepted to acquire the assets and liabilities of the retail banking business of the Citibank N.A. branch set up in Argentina with effect from 1 April. As a result of the transaction, the Bank obtained a network of 70 branches, with their employees and a portfolio of around 518 thousand new customers, increasing its volume of loans and deposits by EUR 604 million and EUR 1,261 million, respectively.

C.1.2.2. Changes in key figures in 2017

The tables below set out the main items related to credit risk derived from activity with customers:

KEY FIGURES OF CREDIT RISK ARISING FROM ACTIVITY WITH CUSTOMERS — Data at 31 December 2017

	Credit risk with customers[1] (million euros)			Non-performing loans (million euros)			NPL ratio (%)		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
Continental Europe	**337,768**	**331,706**	**321,395**	**15,184**	**19,638**	**23,355**	**4.50**	**5.92**	**7.27**
Spain	172,176	172,974	173,032	8,120	9,361	11,293	4.72	5.41	6.53
Santander Consumer Finance	92,589	88,061	76,688	2,319	2,357	2,625	2.50	2.68	3.42
Portugal	32,816	30,540	31,922	1,875	2,691	2,380	5.71	8.81	7.46
Poland	24,391	21,902	20,951	1,114	1,187	1,319	4.57	5.42	6.30
UK	**247,625**	**255,049**	**282,182**	**3,295**	**3,585**	**4,292**	**1.33**	**1.41**	**1.52**
Latin America	**165,683**	**173,150**	**151,302**	**7,462**	**8,333**	**7,512**	**4.50**	**4.81**	**4.96**
Brazil	83,076	89,572	72,173	4,391	5,286	4,319	5.29	5.90	5.98
Mexico	28,939	29,682	32,463	779	819	1,096	2.69	2.76	3.38
Chile	40,406	40,864	35,213	2,004	2,064	1,980	4.96	5.05	5.62
Argentina	8,085	7,318	6,328	202	109	73	2.50	1.49	1.15
US	**77,190**	**91,709**	**90,727**	**2,156**	**2,088**	**1,935**	**2.79**	**2.28**	**2.13**
Puerto Rico	2,944	3,843	3,924	210	274	273	7.13	7.13	6.96
Santander Bank	44,237	54,040	54,089	536	717	627	1.21	1.33	1.16
SC USA	24,079	28,590	28,280	1,410	1,097	1,034	5.86	3.84	3.66
Total Group (excl. Popular)	**832,655**	**855,510**	**850,909**	**28,104**	**33,643**	**37,094**	**3.38**	**3.93**	**4.36**
Banco Popular	88,313			9,492			10.75		
Total Group	**920,968**	**855,510**	**850,909**	**37,596**	**33,643**	**37,094**	**4.08**	**3.93**	**4.36**

3. 30 June 2017 figures.

	Coverage ratio (%)			Net ASR provisions[2] (million euros)			Cost of credit (% /risk)[3]		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
Continental Europe	**58.0**	**60.0**	**64.2**	**995**	**1,342**	**1,975**	**0.32**	**0.44**	**0.68**
Spain	45.9	48.3	48.1	513	585	992	0.33	0.37	0.62
Santander Consumer Finance	101.4	109.1	109.1	266	387	537	0.30	0.47	0.77
Portugal	59.1	63.7	99.0	(12)	54	72	(0.04)	0.18	0.29
Poland	68.2	61.0	64.0	137	145	167	0.62	0.70	0.87
UK	**32.0**	**32.9**	**38.2**	**205**	**58**	**107**	**0.08**	**0.02**	**0.03**
Latin America	**84.8**	**87.3**	**79.0**	**4,973**	**4,911**	**4,950**	**3.17**	**3.37**	**3.36**
Brazil	92.6	93.1	83.7	3,395	3,377	3,297	4.36	4.89	4.50
Mexico	97.5	103.8	90.6	905	832	877	3.08	2.86	2.91
Chile	58.2	59.1	53.9	462	514	567	1.21	1.43	1.65
Argentina	100.1	142.3	194.2	159	107	148	1.85	1.72	2.15
US	**170.2**	**214.4**	**225.0**	**2,780**	**3,208**	**3,103**	**3.42**	**3.68**	**3.66**
Puerto Rico	55.2	54.4	48.5	73	96	85	2.22	2.58	2.12
Santander Bank	102.2	99.6	114.5	116	120	64	0.25	0.23	0.13
SC USA	212.9	328.0	337.1	2,590	2,992	2,954	9.84	10.72	10.97
Total Group (excl. Popular)	**70.8**	**73.8**	**73.1**	**8,997**	**9,518**	**10,108**	**1.12**	**1.18**	**1.25**
Banco Popular[4]	48.7			114			0.23		
Total Group	**65.2**			**9,111**			**1.07**		

1. Includes gross lending to customers, guarantees and documentary credits.
2. Recovered write-off assets (EUR 1,621 million).
3. Cost of credit = loan-loss provisions twelve months / average lending.
4. Provisions carried out since the Bank's acquisition in June 2017.

Risk is diversified among the main regions where the Group operates: Continental Europe[4] (41%), UK (30%), Latin America (20%) and the US (9%), with a suitable balance between mature and emerging markets.

Credit risk with customers fell by 3% in 2017, considering an unchanged perimeter, mainly due to the US, UK and Brazil (as a result of exchange rate effects). Growth in local currency was generalised across all units with the exception of the United States and Spain.

These levels of lending, together with lower non-performing loans (NPLs) of EUR 28,104 million (-16% vs. 2016) reduced the Group's NPL ratio to 3.38% (-55 bp against 2016).

For coverage of these NPLs, the Group recorded provisions of EUR 8,997 million (-5.5% vs. December 2016), after deducting write-off recoveries. This fall is materialised in a decrease in the cost of credit to 1.12% (6 bp less than the previous year).

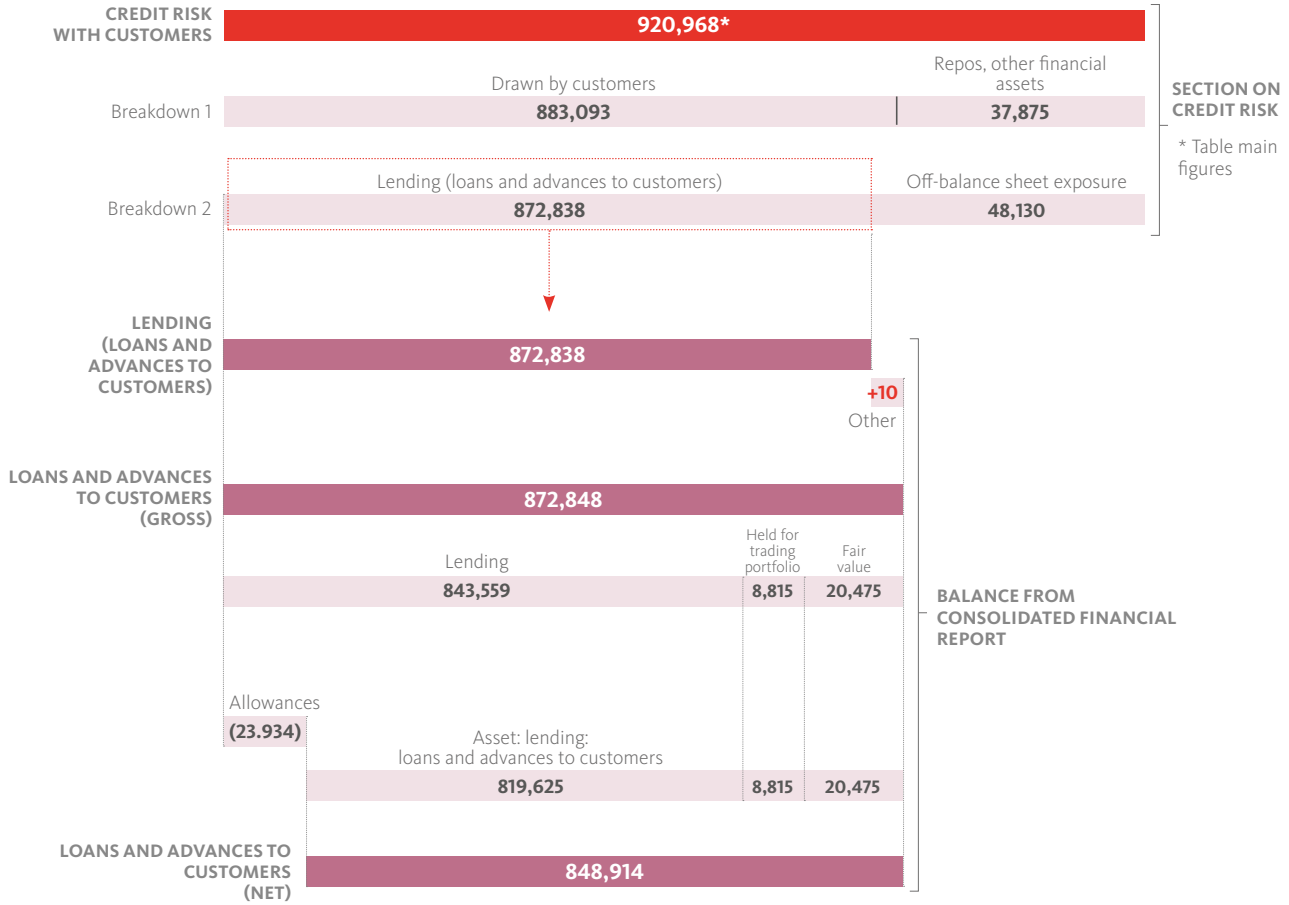
Total loan-loss allowances were EUR 19,906 million, bringing the Group's coverage ratio to 71%. It is important to bear in mind that this ratio is affected downwards by the weight of mortgage portfolios (particularly in the UK and Spain), since by having collateral, less provisions are required.

4. Excluding Popular.

Reconciliation of the key figures

The consolidated financial report details the portfolio of customer loans, both gross and net of funds. Credit risk also includes off-balance sheet risk. The following table shows the relation between the concepts that comprise these figures:

Million euros

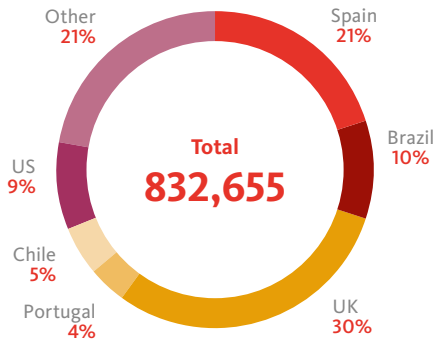


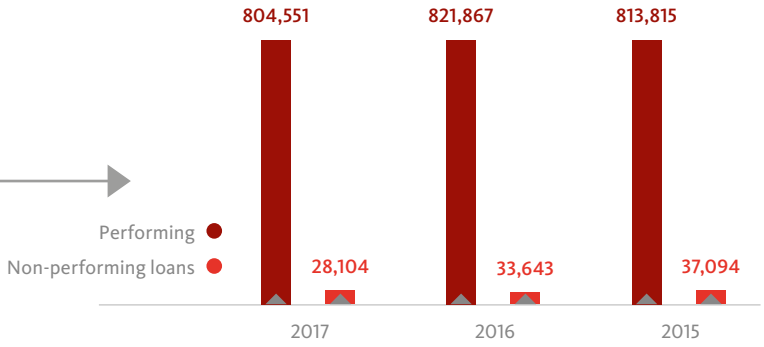
Geographical distribution and segmentation

On the basis of the aforementioned segmentation, the geographical distribution and situation of the portfolio is shown in the following charts (excl. Popular):

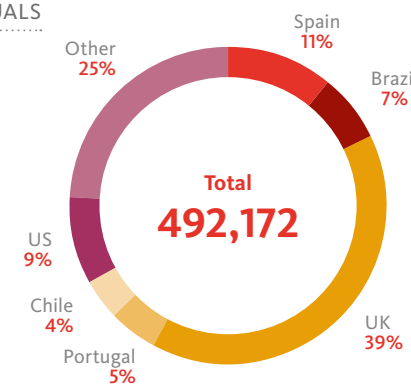
Million euros

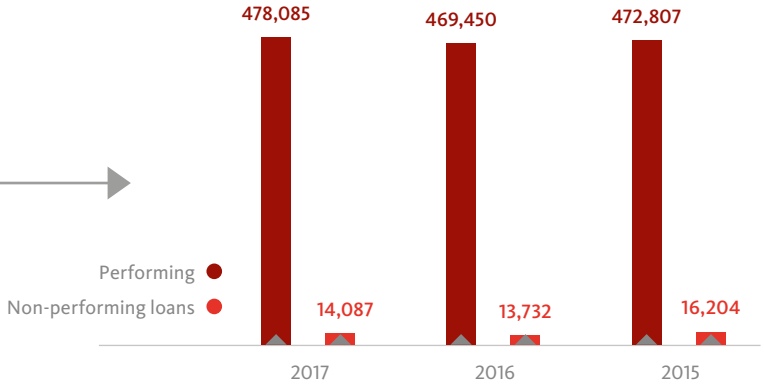
TOTAL



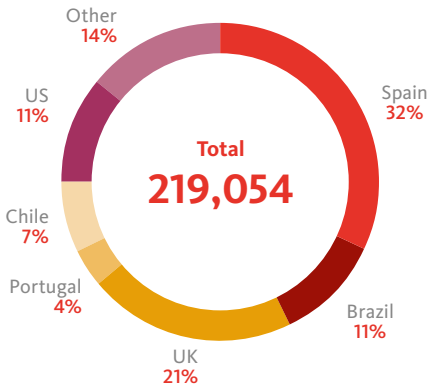


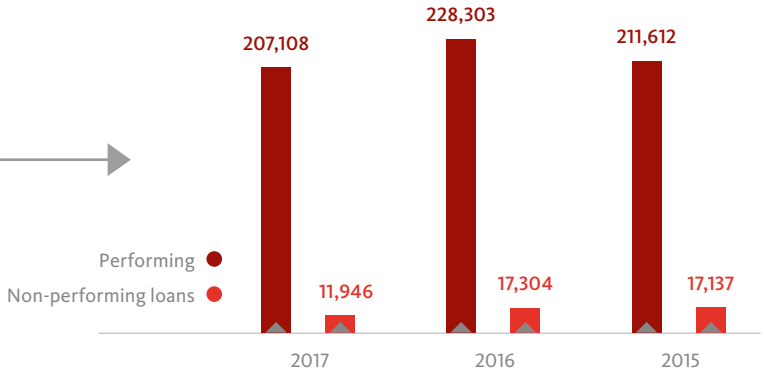
INDIVIDUALS



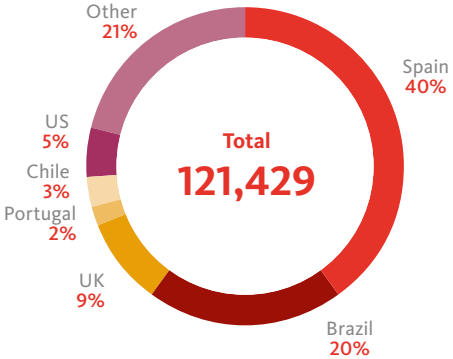


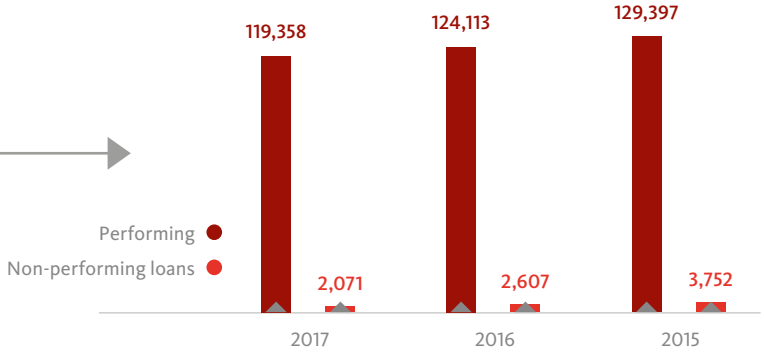
SMES, COMMERCIAL BANKING AND INSTITUTIONS





SGCB





Key figures by geographical area are shown below:

- **Continental Europe**
  - In **Spain**[5], the NPL ratio dropped to 4.72% (-69 bp compared to 2016), due mainly to the proactive management of non-performing loans and, to a lesser extent, portfolio sales and forbearance positions regularisation. The coverage ratio was 46%.
  - In **Portugal** the lower default entries and a proactive management of the portfolio have allowed to continue with the decreasing trend of non-performing loans putting the NPL ratio at 5.71% (-310 bp regarding 2016). The coverage ratio was 59%.
  - In **Poland** the NPL ratio decreased further to stand at 4.57% (-85 bp vs. 2016). The coverage ratio was 68%.
  - At **Santander Consumer** the NPL ratio was 2.50% (-18 bp in the year), with a strong overall performance by portfolios in most countries, with a coverage ratio higher than 100%.
  - At **Banco Popular**, the non-performing loans rise to EUR 9,492 million, representing an NPL ratio of 10.75%, a decrease of 9 pp in the quarter following the formalization, with Blackstone, of the acquisition agreement of 51% of the real estate business of Banco Popular. The coverage ratio was 49%.
- In the **UK**[6] the NPL ratio was reduced to 1.33% (-8 bp in the year), due to strong performance across all segments, particularly SMEs and individual customers. The coverage ratio maintains stable at 32%, thanks to an important presence of real guarantees.
- In **Brazil**[7], a sound risk culture based on preventive management, together with the improved macroeconomic scenario, pushed the NPL ratio down to 5.29% (-61 bp in the year) at the close of December 2017. The coverage ratio was 93%.
- **Chile** reduced its NPL ratio to 4.96% (-9 bp in the year), thanks to the good performance in non-performing loans mainly in the mortgage and SGCB segment. The coverage ratio was 58%.
- The NPL ratio in **Mexico** fell to 2.69% (-7 bp in the year), due to a fall in non-performing loans mainly in the SGCB segment. The coverage ratio was 98%.
- The NPL ratio in the **United States**[8] stood at 2.79% (+51 bp in the year), with the coverage ratio remaining high, at 170%.
  - At Santander Bank the NPL ratio was 1.21% (-12 bp), due to the strong performance of the individuals portfolio, proactive management of certain positions and customers credit profile improvement from the Oil&Gas sector. The coverage ratio was 102%.
  - SC USA reported an increase in its NPL ratio to 5.86%, due mainly to the forbearance portfolio. The coverage ratio stood at 213%.
  - Puerto Rico maintains its NPL ratio at 7.13% whilst the coverage ratio at 55%.

C.1.2.3. Amounts past due (performing loans)

Amounts past due by three months or less represented 0.26% of total credit risk with customers. The following table shows the structure at 31 December 2017, classified on the basis of the first maturity:

AMOUNTS PAST DUE. MATURITY DETAIL

Million euros

	Less than 1 month	1 to 2 months	2 to 3 months
Loans and advances to credit institutions	5	-	0
Loans and advances to customers	1,381	623	373
Public administrations	1	1	1
Other private sector	1,380	622	372
Debt instruments	-	-	-
Total	**1,386**	**623**	**373**

C.1.2.4. Non-performing loans portfolio and provisions: change over time and mix

Non-performing assets are classified as:

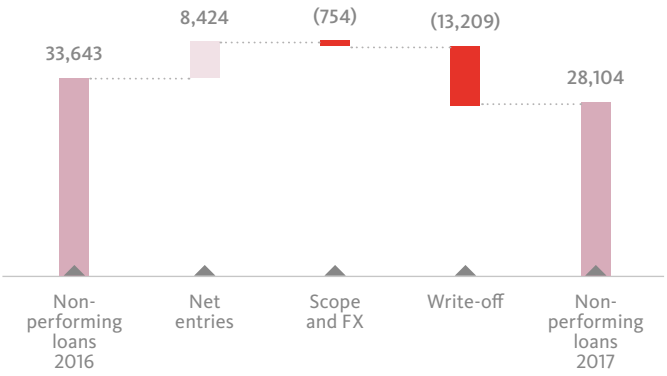
- **Assets classified as non-performing due to the delinquency of the counterparty:** debt instruments that are more than 90 days past due, irrespective of their holder or collateral. In the case of individually significant exposures, these assets are covered for the difference between the carrying value of the asset and the current value of expected future cash flows.
- **Assets classified as non-performing for reasons other than the delinquency of the counterparty:** debt instruments for which there are reasonable doubts about collection in the contractually agreed terms, even though there are no reasons to classify them as non-performing loans due to delinquency. In the case of individually significant exposures, these assets are covered for the difference between the carrying value of the asset and the current value of expected future cash flows.

5. Does not include real estate activity. Further details in section C.1.3.2. Spain.
6. Further details in section C.1.3.1. UK
7. Further details in section C.1.3.4. Brazil
8. Further details in section C.1.3.3. US

The table below shows the change over time in non-performing loans by constituent items:

CHANGE OVER TIME IN NON-PERFORMING LOANS BY CONSTITUENT ITEM (EXCL.POPULAR)

Million euros



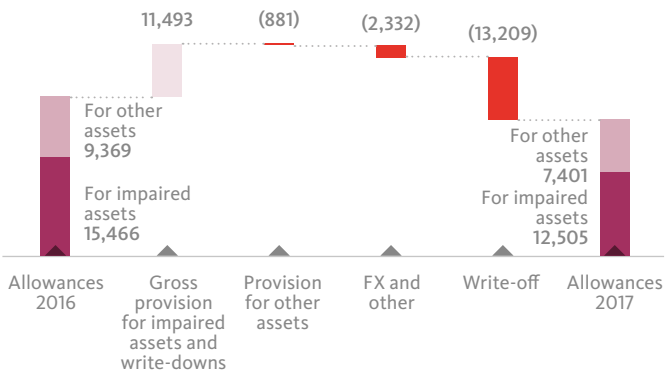
PERFORMANCE 2015-2017

Million euros

	2017	2016	2015
NPL (start of period)	**33,643**	**37,094**	**41,709**
Net entries	8,424	7,362	7,705
Scope	18	734	106
FX and other	(772)	1,211	(65)
Write-off	(13,209)	(12,758)	(12,361)
NPL (end of period excl. Popular)	**28,104**	**33,643**	**37,094**
Banco Popular	9,492		
NPL (end of period)	**37,596**	**33,643**	**37,094**

CHANGE OVER TIME IN ALLOWANCES, ACCORDING TO CONSTITUENT ITEM (EXCL. POPULAR)

Million euros



PERFORMANCE 2015-2017

Million euros

	2017	2016	2015
Allowances (start of period)	**24,835**	**27,121**	**28,046**
For impaired assets	15,466	17,706	19,786
For other assets	9,369	9,414	8,260
Gross provision for impaired assets and write-downs	**11,493**	**11,045**	**10,670**
Provision	11,493	11,045	10,670
Write-downs	-	-	-
Provision for other assets	**(881)**	**52**	**814**
FX and other	**(2.332)**	**(625)**	**(48)**
Write-off	**(13,209)**	**(12,758)**	**(12,361)**
Allowances (end of period excl. Popular)	**19,906**	**24,835**	**27,121**
Banco Popular	4,623		
Allowances (end of period)	**24,529**	**24,835**	**27,121**

C.1.2.5. Forbearance portfolio

The Group has a detailed corporate policy for forbearance which acts as a reference in the various local transpositions of all the subsidiaries that form part of the Group. These share the general principles established by the Bank of Spain and the European Banking Authority.

This policy defines forbearance as the modification of the payment conditions of a transaction that allow a customer who, is experiencing financial difficulties (current or foreseeable), to fulfil their payment obligations, on the basis that if this modification were not made it would be reasonably certain that they would not be able to meet their financial obligations. The modification could be made to the original transaction or through a new transaction replacing the previous one.

In addition, this policy also sets down rigorous criteria for the evaluation, classification and monitoring of such transactions, ensuring the strictest possible care and diligence in their granting and monitoring. Therefore, the forbearance transaction must be focused on recovery of the amounts due, the payment obligations must be adapted to the customer's actual situation and losses must be recognised as soon as possible if any amounts are deemed irrecoverable.

Forbearances may never be used to delay the immediate recognition of losses or to hinder the appropriate recognition of risk of default.

Further, the policies define the classification criteria for the forbearance transactions in order to ensure that the risks are suitably recognised, bearing in mind that they must remain classified as non-performing or watch-list for a prudential period of time to attain reasonable certainty that repayment capacity can be recovered.

FORBEARANCE PORTFOLIO

Million euros

	Performing	Non-performing loans	Total risk	
	Amount	Amount	Amount	% Coverage /total
Total forbearance	**27,661**	**20,044**	**47,705**	**24%**

The forbearance portfolio stood at EUR 47,705 million at the end of December. In terms of credit quality, 42% is classified as non-performing loans, with average coverage of 58% (24% of the total portfolio).

Regarding its evolution, and considering a constant perimeter, the Group's forbearance exposure has decreased by 19.8%, in line with the trend marked in prior years.

IFRS 9 Financial instruments - Classification and measurement, hedging and impairment (required for annual periods starting on 1 January 2018)

IFRS 9 establishes the recognition and measurement requirements for financial instruments and certain classes of contracts for trades involving non-financial assets. These requirements should be applied in a retrospective manner, by adjusting the opening balance at 1 January 2018, without restating the comparative financial statements. The main aspects of the new standard are:

a) **Classification of financial instruments:** the classification criteria depends on the business model, which refers to how an entity manages its financial assets in order to generate cash flows. Depending on these factors, the asset can be measured at amortised cost, at fair value with changes reported in other comprehensive income, or at fair value with changes reported through profit and loss for the period. IFRS 9 also establishes an option to designate an instrument at fair value with changes in profit or loss, under certain conditions. Santander Group uses the following criteria for the classification of financial debt instruments:

- Amortised cost: financial instruments under a business model whose objective is to collect principal and interest cash flows, over those where no significant unjustified sales exist and fair value is not a key factor in managing these financial assets. In this way, unjustified sales are those that are different from sales related with an increase in the asset's credit risk, unanticipated funding needs (stress case scenario), even if such sales are significant in value, changes in the investment policy no longer meet the credit criteria or sales imposed by third parties, except if the regulator requires to demonstrate that the assets are liquid. Additionally, the contractual flow characteristics substantially represent a "basic financing agreement".

- Fair value with changes recognised through other comprehensive income: financial instruments held in a business model whose objective is to collect principal and interest cash flows and the sale of these assets, where fair value is a key factor in their management. Additionally, the contractual cash flow characteristics substantially represent a "basic financing agreement".

- Fair value with changes recognised through profit or loss: financial instruments included in a business model whose objective is not obtained through the above-mentioned models, where fair value is a key factor in managing these assets, and financial instruments whose contractual cash flow characteristics do not substantially represent a "basic financing agreement".

Santander Group's main activity revolves around retail and commercial banking operations, and its exposure does not focus on complex financial products. The Group's main objective is to achieve consistent classification of financial instruments in the portfolios as established under IFRS 9. To this end, it has developed guidelines containing criteria to ensure consistent classification across all of its units. Additionally, the Group has analysed its portfolios under these criteria, in order to assign its financial instruments to the appropriate portfolio under IFRS 9, with no significant changes being identified. Based on this analysis, Santander Group concludes that:

- Most of its financial assets classified as loans and advances under IAS 39 will continue to be recognised at amortised cost under IFRS 9. As a consequence of the contractual cash flows characteristics analysis of the financial instruments, a 0.2% of the total balance under IAS 39 for the period will be reclassified to fair value with changes reported through profit and loss . As a result of the business model definition according to the assets management, a 0.2% of the total balance under IAS 39 will be reclassified to fair value with changes recognised in other comprehensive income.

- In general, debt instruments classified as available-for-sale financial assets will be measured at fair value with changes recognised through other comprehensive income. As a consequence of the contractual cash flows characteristics analysis of the financial instruments, a 0.2% of the total balance under IAS 39 for the period, will be reclassified to fair value with changes reported through profit and loss. As a result of the business model definition according to the assets management, a 5.1% of the total balance under IAS 39 will be reclassified to fair value with changes recognized in other comprehensive income.

However, the expected impact in shareholders' equity due to the reclassifications mentioned above is not considered significant.

Available-for-sale equity instruments will be classified at fair value under IFRS 9, with changes recognised through profit or loss, unless the Group decides, for non-trading assets, to classify them at fair value with changes recognised through other comprehensive income (irrevocably).

IAS 39 financial liabilities classification and measurement criteria remains substantially unchanged under IFRS 9. Nevertheless, in

most cases, the changes in the fair value of financial liabilities designated at fair value with changes recognised through profit or loss for the year, due to the entity credit risk, are classified under other comprehensive income.

On 12 October 2017, the International Accounting Standards Board (IASB) published a clarification on the treatment of certain prepayment options in relation to the assessment of contractual cash flows of principal and interest on financial instruments, which is currently pending approval by the European Union. However, the Group does not expect a significant impact in the transition period prior to the adoption of this amendment.

b) **Credit risk impairment model:** the most important new development compared with the current model is that the new accounting standard introduces the concept of expected loss, whereas the current model (IAS 39) is based on incurred loss.

- Scope of application: The IFRS 9 impairment model applies to financial assets valued at amortised cost, debt instruments valued at fair value with changes reported in other comprehensive income, lease receivables, and commitments and guarantees given not valued at fair value.

- Use of practical expedients: IFRS 9 includes a number of practical expedients that may be implemented by entities to facilitate implementation. However, in order to achieve full and high quality implementation of the standard, considering industry best practices, these practical expedients will not be widely used:

  - Rebuttable presumption that the credit risk has increased significantly, when payments are more than 30 days past due: this threshold is used as an additional – but not primary - indicator of significant risk increase. Additionally, there may be cases in the Group where its use has been rebutted as a result of studies that show a low correlation of the significant risk increase with this past due threshold.

  - Assets with low credit risk at the reporting date: in general, the Group assesses the existence of significant risk increase in all its financial instruments.

- Impairment estimation methodology: the portfolio of financial instruments subject to impairment is divided into three categories, based on the stage of each instrument with regard to its level of credit risk:

  - Stage 1: financial instruments for which no significant increase in risk is identified since its initial recognition. In this case, the impairment provision reflects expected credit losses arising from defaults over the following 12 months from the reporting date.

  - Stage 2: if there has been a significant increase in risk since the date of initial recognition but the impairment event has not materialised, the financial instrument is classified as Stage 2. In this case, the impairment provision reflects the expected losses from defaults over the residual life of the financial instrument.

  - Stage 3: a financial instrument is catalogued in this stage when shows effective signs of impairment as a result of one or more events that have already occurred resulting in a loss. In this case, the amount of the impairment provision reflects the expected losses for credit risk over the expected residual life of the financial instrument.

Additionally, the amount relative to the impairment provision reflects expected credit risk losses through the expected residual life in those financial instruments purchased or originated credit impaired (POCI).

The methodology required for the quantification of expected loss due to credit events will be based on an unbiased and weighted consideration of the occurrence of up to five possible future scenarios that could impact the collection of contractual cash flows, taking into account the time-value of money, all available information relevant to past events, and current conditions and projections of macroeconomic factors deemed relevant to the estimation of this amount (e.g. GDP, house pricing, unemployment rate, etc.).

In estimating the parameters used for impairment provisions calculation (EAD, PD, LGD and discount rate), the Group leverages on its experience of developing internal models for calculating parameters for regulatory and internal management purposes. The Group is aware of the differences between such models and regulatory requirements for provisions. As a result, it has focused on adapting to, such requirements the development of its IFRS 9 impairment provisions models.

- Determination of significant increase in risk: with the purpose to determine whether a financial instrument has increased its credit risk since initial recognition, proceeding with its classification into Stage 2, the Group considers the following criteria.

Quantitative criteria	Changes in the risk of a default occurring through the expected life of the financial instrument are analyzed and quantified with respect to its credit level in its initial recognition. With the purpose of determining if such changes are considered as significant, with the consequent classification into Stage 2, each Group unit has defined the quantitative thresholds to consider in each of its portfolios taking into account corporate guidelines ensuring a consistent interpretation in all geographies.
Qualitative criteria	In addition to the quantitative criteria mentioned above, the Group considers several indicators that are aligned with those used in ordinary credit risk management (e.g. over 30 days past due, forbearances, etc.). Each unit has defined these qualitative criteria for each of its portfolios, according to its particularities and with the policies currently in force. The use of these qualitative criteria is complemented with the use of expert judgement.

- Default definition: the definition considered for impairment provisioning purposes is consistent with that used in the development of advanced models for regulatory capital requirements calculations.

- Use of present, past and future information: estimation of expected losses requires a high component of expert judgement and it must be supported by past, present and future information. Therefore, these expected loss estimates take into consideration multiple macroeconomic scenarios for which the probability is measured considering past events, current situation and future trends and macroeconomic indicators, such as GDP or unemployment rate. The Group already uses forward looking information in internal management and regulatory processes, considering several scenarios. In this sense, the Group has leveraged its experience in the management of such information, maintaining consistency with the information used in the other processes.

  - Expected life of the financial instrument: with the purpose of its estimation all the contractual terms have been taken into account (e.g. prepayments, duration, purchase options, etc.), being the contractual period (including extension options) the maximum period considered to measure the expected credit losses. In the case of financial instruments with an uncertain maturity period and a component of undrawn commitment (e.g. credit cards), expected life is estimated considering the period for which the entity is exposed to credit risk and the effectiveness of management practices mitigates such exposure.

  - Impairment recognition: the main change with respect to the current standard related to assets measured at fair value with changes recognised through other comprehensive income. The portion of the changes in fair value due to expected credit losses will be recorded at the current profit and loss account while the rest will be recorded in other comprehensive income.

c) **Hedge accounting:** IFRS 9 includes new hedge accounting requirements which have a twofold objective: to simplify current requirements, and to bring hedge accounting in line with risk management, allowing to be a greater variety of derivative financial instruments which may be considered to be hedging instruments. Furthermore, additional breakdowns are required providing useful information regarding the effect which hedge accounting has on financial statements and also on the entity's risk management strategy. The treatment of macro-hedges is being developed as a separate project under IFRS 9. Entities have the option of continuing to apply IAS 39 with respect to accounting hedges until the project has been completed. According to the analysis performed until now, the Group will continue to apply IAS 39 in hedge accounting.

Transition

The European Union has already endorsed IFRS 9. The criteria established by this rule for the classification, measurement and impairment of financial assets, will be applied in a retrospective way, adjusting the first opening balances in the first application date (1 January 2018). This new international standard is aligned with the credit risk directives of the EBA and Bank of Spain Circular 4/2017.

Santander Group has estimated an impact in CET1 fully loaded of -20 bp. The Group will apply a progressive phased-in regime in the period of 5 years based on Regulation (EU) No 2017/2395 of the European Parliament and of the Council amending Regulation (EU) No 575/2013 as regards transitional arrangements for mitigating the impact of the introduction of IFRS 9 on own funds that would suppose an impact of the new impairment model of IFRS 9 of -1 bp on Common Equity Tier 1 capital during the period from 1 January 2018 to 31 December 2018 in 2018 or 5% of total impact. The increase in impairment provisions amounts to approximately EUR 2,200 million.

The main causes of this impact are the requirements to record impairment provisions for the whole life of the transaction for instruments where a significant risk increase has been identified after initial recognition, in addition to forward-looking information in the estimates of impairment provisions.

IFRS 9 implementation strategy and governance

The Group has established a global and multidisciplinary workstream with the aim of adapting its processes to the new classification standards for financial instruments, accounting of hedges and estimating credit risk impairment, ensuring that these processes have been applied in a uniform way for all Group units, and, at the same time, have been adapted to each unit's individual features.

Accordingly, since 2016, the Group has been working towards defining an objective internal model and analysing all the changes which are needed to adapt accounting classifications and credit risk impairment estimation models in force in each unit to the previous definitions. The process was completed in 2017.

Regarding the governance structure, the Group established a regular committee to manage the project, and a task force, which is responsible for its tasks, ensuring that the pertinent responsible teams take part in coordination with all geographical areas.

Hence, the main divisions involved in the project at the highest level, and which are thus represented in the project governance bodies, are: Risks, Financial Accounting & Management Control and Technology and Operations. Internal Audit division was involved in the project, having kept regular meetings regarding the status of the project.

The governance structure currently implemented at both corporate level and in each unit, complies with the requirements set out in the new standards both in IFRS 9, and in other related regulatory standards (e.g. EBA credit risk guidelines).

Main project stages and milestones

In relation to the entry into force of this new international standard, in its 2016 consolidated financial statements the Group reported the progress and main milestones achieved to that date regarding the implementation plan for its adoption. This report includes an update on this information included in the 2016 consolidated financial statements.

The work undertaken by Santander Group includes an assessment of the financial instruments included in the classification and measurement requirements of IFRS 9 and the development of impairment methodology for calculating expected loss impairment provisions.

The Group has drawn up the accounting policies and methodological framework for the implementation developments carried out by each local unit. These internal regulations have been approved by all relevant corporate bodies before the new standard comes into force.

With regard to classification and measurement, since 2016 the Group has been carrying out an analysis of its stock of products, focusing mainly on those that could trigger a change in accounting

methodology, due to the business model involved and failure to meet SPPI test requirements (solely payments of principal and interest).

Additionally, using information from 2017, the Group has updated this analysis and reviewed any new products during the period, assessing both its asset management strategies (identifying the corresponding business model), and broadening the review of products in stock.

The local units have now finished developing impairment models for all their portfolios. The implementation of these impairment methodologies has enabled the Group to assess the cause of impact in each portfolio, the impact of each material Group unit, and to consider the total impact at group level.

The Group has started, in the second half of 2017, the parallel calculation of impairment provisions under IFRS 9 formally, without prejudice to the fact that a preliminary parallel calculation was already being made at consolidated level for monitoring, performance tracking and impact purposes. Based on the preliminary results obtained from the impairment provisions calculations, the Group has addressed the disclosure requirements of the EBA's second Quantitative Impact Study (QIS).

The governance process has been completed for the development, validation and approval of the model that started with a validation of the first models by the Corporate Internal Validation team and the Internal Validation units of the countries where these exist.

Further, given the importance of the control environment in the processes, the corporate development of the governance model of the impairment provisions calculation process as well as aspects related to the classification of financial instruments has been completed. The proposed model includes a reference design of the controls to be implemented in the new developments made in the implementation of the new standard. Also, as part of the proposed government model, has defined a process of periodic review of the main elements including, among others, the following areas:

- Business models defined in each Group unit.
- Quantitative and qualitative criteria defined for significant increase in risk.
- Macroeconomic scenario defined for impairment provisions calculation.
- Model adequacy for impairment provisions calculation.

C.1.3. Details of main geographies

The portfolios of the geographies where the Santander Group has the highest risk concentrations are set out below, based on the data in section C.1.2.2. Changes in key figures in 2017.

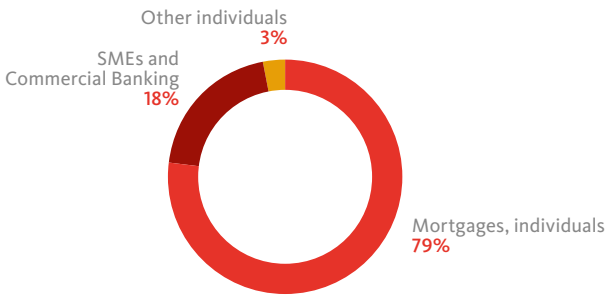
C.1.3.1. UK

C.1.3.1.1. Portfolio overview

Credit risk with customers in the UK amounted to EUR 247,625 million at the end of December 2017, accounting for 30% of the Group total.

Santander UK portfolio is divided into the following segments:

PORTFOLIO SEGMENTATION



C.1.3.1.2. Mortgage portfolio

It is worth highlighting the individuals mortgage portfolio because of its importance for Santander UK and all of the Group's lending. This stood at EUR 174,930 million at the end of 2017.

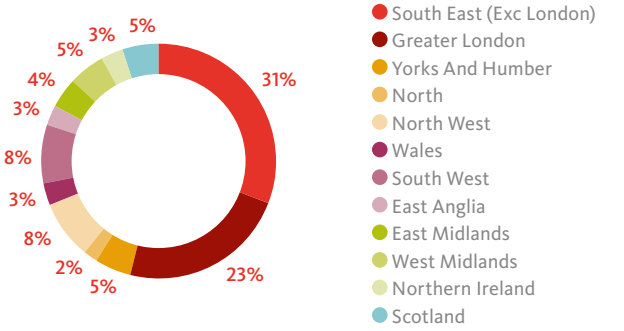
This portfolio consists of mortgages for the housing acquisition, granted to new, as well as existing customers and always constituting the first mortgage. There are no operations that entail second or successive liens on mortgaged properties.

The real estate market has shown price growth of 2,7% in the year – higher than expected – and a stable number of transactions.

The NPL ratio fell from 1.35% in 2016 to 1.13% in December 2017. This was due to the implementation of prudent policies and a resilient housing markets. The volume of non-performing loans therefore dropped by 10%, continuing the trend seen in 2016.

Geographically, the credit exposures are predominantly concentrated in the south east area of the UK and, particularly, in the metropolitan area of London.

GEOGRAPHICAL CONCENTRATION



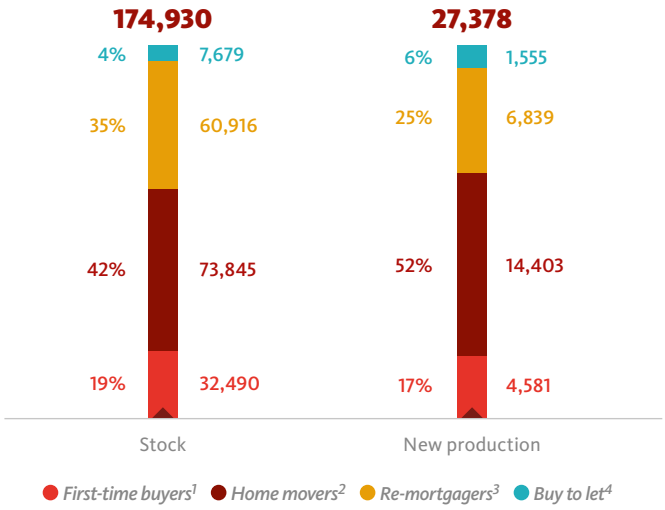
All properties are valued independently before each new transaction is approved, in accordance with the Group's risk management principles.

The value of the property used as collateral for mortgages that have already been granted is updated quarterly by an independent agency, using an automatic valuation system in accordance with market practices and in compliance with the prevailing legislation.

The distribution of the portfolio by type of borrower is shown in the chart below:

MORTGAGE PORTFOLIO LOAN TYPE

Million euros



1. First-time buyers: customers who purchase a home for the first time..
2. Home movers: customers who change houses, with or without changing the bank granting the loan.
3. Re-mortgages: customers who switch the mortgage from another financial entity.
4. Buy to let: houses bought for renting out.

Santander UK offers a wide range of mortgage products, in alignment with its policies and risk limits. Most of the portfolio contains standard products (repayment including principal and interest) but also other specific type of products:

- **Interest only loans** (25.1%)[9] : the customer pays the interest every month and repays the capital at maturity. An appropriate repayment vehicle such as a pension plan, mutual funds, etc. is required. This is a common product in the UK market for which Santander UK applies restrictive policies in order to mitigate the inherent risks. For example: a maximum loan to value (LTV) of 50%, more stringent approval criteria and assessment of payment capacity, simulating the repayment of capital and interest instead of just interest.

- **Flexible loans** (9.8%): the contract for this type of loan enables the customer to modify their monthly payments or make additional drawdowns of funds up to a previously pre-established limit, under various conditions.

- **Buy to let** (4.4%): buy to let mortgages (purchase of a property to rent out) account for a small percentage of the total portfolio. These loans were halted between 2009 and 2013, although they were reactivated following the improvement in market conditions, with approval subject to strict risk policies. In December 2017, they represented approximately 6% of total underwriting and 4% of the remaining portfolio.

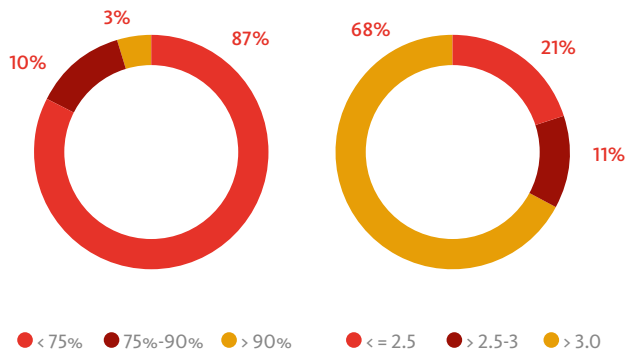
It is also necessary to point out the more conservative approach adopted in Santander UK's definition of an NPL, in line with the criteria set by the Bank of Spain and Santander Group, with regard to the standard applied in the UK market.

The application of these prudent policies has brought the average LTV of the portfolio to 42% and the weighted average LTV to 38.5%. The proportion of the portfolio with an LTV of more than 100% was down to 1.0% in December 2017, from 1.2% in 2016 and 1.7% in 2015.

The following charts show the LTV structure for the stock of residential mortgages and their breakdown according to the income multiple for new loans as of December 2017:

LOAN TO VALUE (AVERAGE 42%)[1]

INCOME MULTIPLE (AVERAGE 3.0)[2]



1. Loan to value: relation between the amount of the loan and the appraised value of the property. Based on indices.
2. Income multiple: relation between the total original amount of the mortgage and annual gross income declared in the customer loan application.

9. Percentage calculated for loans with total or some interest only component.

The credit risk policies currently used explicitly forbid loans regarded as high risk (subprime mortgages) and establish demanding requirements for credit quality, both for operations and for customers. For example, as of 2009 mortgages with a loan-to-value of more than 100% have not been allowed.

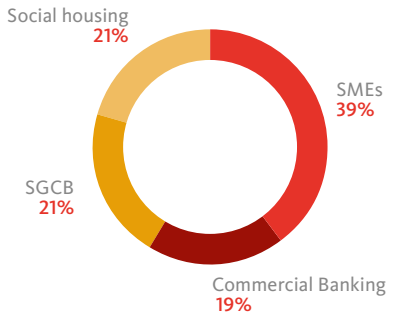
An additional indicator of the portfolio's good performance is the reduced volume of foreclosed properties, which in December 2017 amounted to EUR 30.1 million, less than 0.02% of total mortgage exposure.

C.1.3.1.3 SMEs and Commercial Banking

As shown in the portfolio segmentation chart at the beginning of this section, lending to SMEs and Commercial Banking (EUR 40,142 million) represented 18% of total lending at Santander UK as of December 2017.

The following sub-segments are included in these portfolios:

SMES AND COMMERCIAL BANKING PORTFOLIO SEGMENTS (1%)



SMEs: this segment includes firms that are served through small business banking and regional busines centres. Total lending was EUR 15,748 million, with an NPL ratio of 2.9%.

Commercial Banking: this includes companies to which a risk analyst is assigned. Total lending was EUR 7,600 million, with an NPL ratio of 1.8 %. It also includes portfolios considered to be non strategic (legacy and non-core).

SGCB: includes companies under the Santander Global Corporate Banking risk management model. Lending amounted to EUR 8,269 million with an NPL ratio of 5.5%.

Social housing: this includes lending to companies that build, sell and rent social housing. This segment is supported by local and central government and has no NPLs. Investment stood at EUR 8,525 million.

C.1.3.2. Spain (excl. Popular)

C.1.3.2.1. Portfolio overview

Total credit risk (including guarantees and documentary credits) at Santander Spain (excluding the real estate unit, which is discussed subsequently in more detail) amounted to EUR 172,176 million (20.7% of the Group total), with an adequate level of diversification by both product and customer segment.

Growth in new production in the main portfolios for individuals and corporates continued in 2017, underpinned by the improved economic situation and the different strategies implemented by the Bank.
Total credit risk was down 0.5% in year-on-year terms, mainly due to decreased funding extended to public administrations and the pace of repayments that exceeded growth in new production in the housing mortgages segment. All other individuals loans (consumer loans and credit cards) returned to growth tendency, and the commercial banking segment consolidated its tendency started in 2016.

CREDIT RISK BY SEGMENT

Million euros

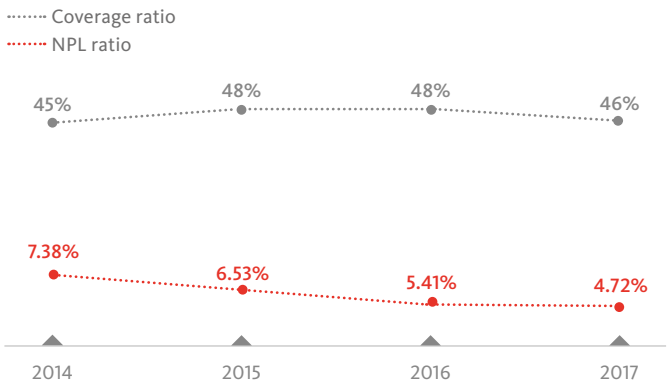
	2017	2016	2015	Var 17/16	Var 16/15
Total credit risk*	172,176	172,974	173,032	(0.5%)	0%
Household mortgages	45,483	46,213	47,924	(2%)	(4%)
Other credit for individuals	17,053	16,614	16,729	3%	(1%)
Business portfolio	96,726	96,082	92,789	1%	4%
Public administrations	12,914	14,065	15,590	(8%)	(10%)

* Including guarantees and documentary credits

The NPL ratio for the total portfolio was 4.72% 69 bp less than in 2016. The fall in lending (which increased the NPL ratio by 3 bp) was offset by the better NPL figure (which reduced the ratio by 72 bp). This improvement was mainly due to gross NPL entries, which were 19% lower than in 2016, and to the normalisation of several restructured positions and portfolio sales.

The coverage rate stood at 46%, a year-on-year decline of 2 pp, as a result of portfolio sales.

NPL AND COVERAGE RATIO



The more relevant portfolios are described in the following subsections.

C.1.3.2.2. Household mortgages

Home acquisition mortgages in Spain amounted to EUR 45,775 million at the end of 2017 (26% of total credit risk), 99% of which have a mortgage guarantee.

HOME MORTGAGES*

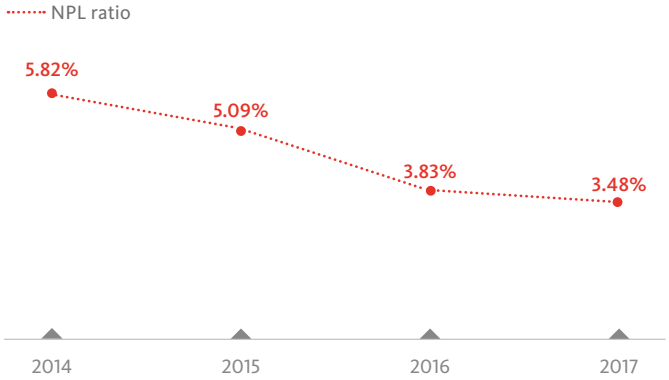
Million euros

	2017	2016	2015
Gross amount	**45,775**	**46,858**	**48,404**
Without mortgage guarantee	292	645	480
With mortgage guarantee	45,483	46,213	47,924
of which non-performing loans	**1,624**	**1,796**	**2,477**
Without mortgage guarantee	39	27	40
With mortgage guarantee	1,585	1,769	2,437

* Does not include the Santander Consumer Spain mortgage portfolio (EUR 2,007 million, with EUR 83 million of non-performing loans)

The NPL ratio of mortgages extended to households to acquire a home was 3.48%, 35 bp less than in 2016, supported by a continuing decline in gross NPL entries.

NPL RATIO, HOME MORTGAGES, SPAIN

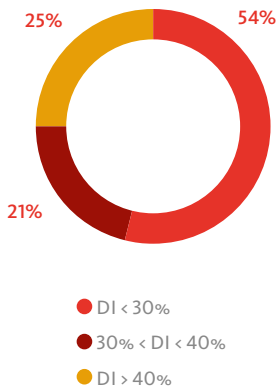


The portfolio of mortgages extended to acquire homes in Spain kept its medium-low risk profile with an limited:

- The principal is repaid on all mortgages from the start.
- Early repayment is usual and so the average life of the transaction is well below that of the contract.
- High quality of collateral concentrated almost exclusively in financing the first home.
- Average affordability rate stood at 28%.

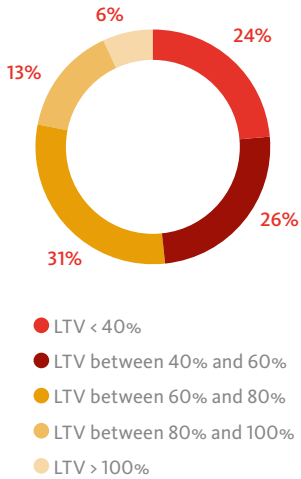
DEBT TO INCOME

Average 28.2%



LOAN TO VALUE

%



Loan to value: percentage indicating the total risk/latest available house appraisal.

Debt to income: relation between the annual instalments and the customer's net income.

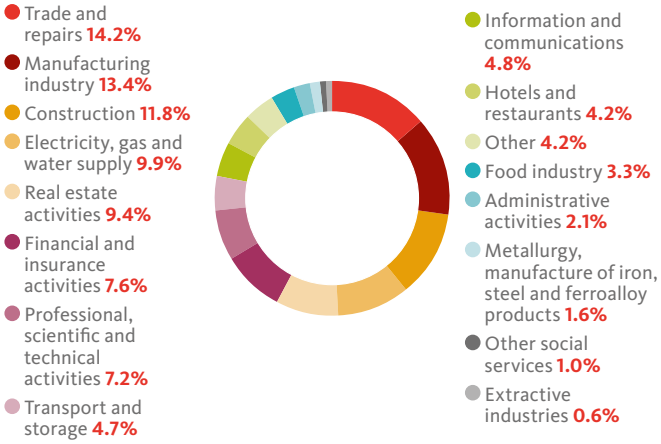
C.1.3.2.3. Business portfolio

Credit risk assumed directly with SMEs, Corporates and SGCB (EUR 96,726 million) is the main lending segment in Spain (56% of the total).

Most of the portfolio (95%) corresponds to customers who have been assigned an analyst to monitor them continuously throughout the risk cycle.

The portfolio is highly diversified, with more than 200,817 active customers and with no significant concentrations by activity sector.

BUSINESS PORTFOLIO DISTRIBUTION



The NPL ratio for this portfolio stood at 4.88% in 2017, 91 bp lower than in 2016, with gross NPL entries falling vs. the previous year, normalisation of several restructured positions and portfolio sales.

C.1.3.2.4. Real estate activity (incl. Popular)

The Group manages, as a separate unit, the real estate business portfolio as result of the previous year's sector crisis and the new business identified as viable. In both cases the Group has specialised teams not only involve in the risk areas, but also complement and support all these transactions life cycle: commercial management, legal treatment and an eventual recovery function.

In recent years the Group's strategy has been geared towards reducing these assets. The changes in property development loans to customers were as follows:

REAL ESTATE PORTFOLIO EVOLUTION

Million euros

	2017	2016	2015
Balance at beginning of year	**5.515**	**7.388**	**9.349**
Foreclosed assets	(27)	(28)	(62)
Banco Popular (Perimeter)	2.934	-	-
Reductions*	(1.620)	(1.415)	(1.481)
Written-off assets	(330)	(430)	(418)
Balance at end of year	**6.472**	**5.515**	**7.388**

* Includes portfolio sales, cash recoveries and third-party subrogations.

The NPL ratio of this portfolio ended the year at 29.96% (compared with 61.87% at December 2016) due to the increase in the proportion of non-performing assets in the troubled loan portfolio and, in particular, to the sharp reduction in lending in this segment. The coverage ratio of the real estate non-performing exposure in Spain stands at 38.7%.

C.1.3.3. US

Credit risk at Santander Holding USA (SHUSA) increased to EUR 77,190[10] million at the end of December (representing 9% of the total Group), is made up of the following business units:

- **Santander Bank N.A.:** with total loans, including off-balance sheet exposure, of EUR 44,237 million (57% of Santander US total). It focuses on retail and commercial banking, of which 38% is with individuals and approximately 62% with companies. One of the main strategic goals for this unit is to continue to roll out its transformation plan. This focuses on compliance with all regulatory programmes, together with the development of the retail and commercial banking model towards a comprehensive solution for its customers.

- **Santander Consumer USA (SC USA):** vehicles finance company, with lending of EUR 24,079 million (31% of the total for the USA), with a vehicle leasing portfolio amounting to EUR 9,439 million. This activity is mainly based on its business relationship with the Fiat Chrysler Automobiles (FCA) group, which dates back to 2013. Through this agreement, SC USA became the preferred finance provider for Chrysler vehicles in the USA.

- **Other USA businesses:** Banco Santander Puerto Rico (BSPR) is a retail and commercial bank operating in Puerto Rico. Its lending stood at EUR 2,944 million at December 2017, 4% of the total. Santander Investment Securities (SIS), the New York, is dedicated to wholesale banking, with total lending at the end of December 2017 of EUR 2,451 million (3% of total in the USA). Finally, Banco Santander International (BSI), the Miami, focuses mainly on private banking. Its lending portfolio stood at EUR 3,471 million at the close of December 2017 with 4% of the total in the USA.

10. Includes EUR 11 million of lending under the holding company.

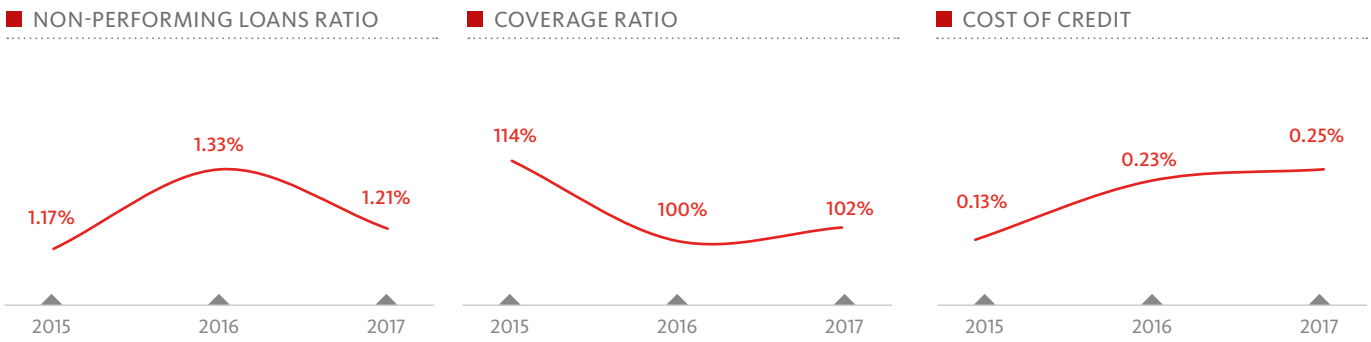
In consolidated terms, US reported a 16% drop in lending compared to year-end 2016 due to the pricing policy implemented from the second quarter by SC USA, the disposal of non-strategic assets from SBNA and the sale of the finance provider in Puerto Rico. NPLs and the cost of credit remain at moderate levels thanks to the stricter underwriting policy for new loans adopted by SC USA, and following the good performance of loans to individuals and Commercial Banking at Santander Bank. The NPL ratio stood at 2.79% (+52 bp) at the close of December, with a cost of credit of 3.42% (-26 bp). US main units performance details are set out below.

Additionally, great progress has been made in projects related to existing regulatory commitments, particularly with regard to stress testing and CCAR (Comprehensive Capital Analysis and Review) exercises, passing both the qualitative and quantitative tests set by the Federal Reserve and allowing SHUSA once again to distribute dividends in the third quarter of the year.

C.1.3.3.1. Santander Bank N.A. performance

Most of the lending of Santander Bank is secured - around 59% of the total - mainly through mortgages and lending to Commercial Banking. This explains its low NPL ratio and cost of credit. Lending has decreased by 16% over 2017, due to the sale of non-core assets in a bid to optimise its balance sheet and improve profitability, and due to the exchange rate effect.

The NPL ratio remains very low, and continues to decline, as shown in the charts below, standing at 1.21% in December (-12 bp). This reduction is explained by a proactive management of certain positions and the improvement of customer's credit profile in the Oil&Gas sector due to more favourable oil prices, in addition to the good performance of loans to individuals, mainly mortgage loans. Higher coverage in some segments means that despite the good performance of NPLs, the cost of credit remains stable at 0.25% (+2 bp). The coverage ratio remains at comfortable levels, ending the year at 102%.



The unit's strategic priority is its transformation plan, which seeks to ensure regulatory compliance and the alignment of management and governance standards with the corporate model. Significant progress was made throughout the year.

C.1.3.3.2. Santander Consumer USA business performance

The risk indicators for SC USA are higher than those of the other US units, due to the nature of its business, which focuses on vehicle financing through loans and leasings. The credit profile of the unit's customers covers a wide spectrum as SC USA seeks to optimise the risk assumed and the associated returns. As a result, the cost of credit is higher than in other Group units, but this is offset by the returns generated.

This is facilitated by one of the most advanced technological platforms in the industry, including a servicing structure for third parties that is scalable and extremely efficient. Other competitive advantages include its excellent knowledge of the market and the use of internally-developed pricing, underwriting, monitoring and recovery models, based on effective management of comprehensive databases. This is complemented by the availability of numerous other business tools, such as discounts from the brands (OEM - Original Equipment Manufacturers), pricing policies with highly responsive recalibration capacity, strict monitoring of new production and optimised recovery management.

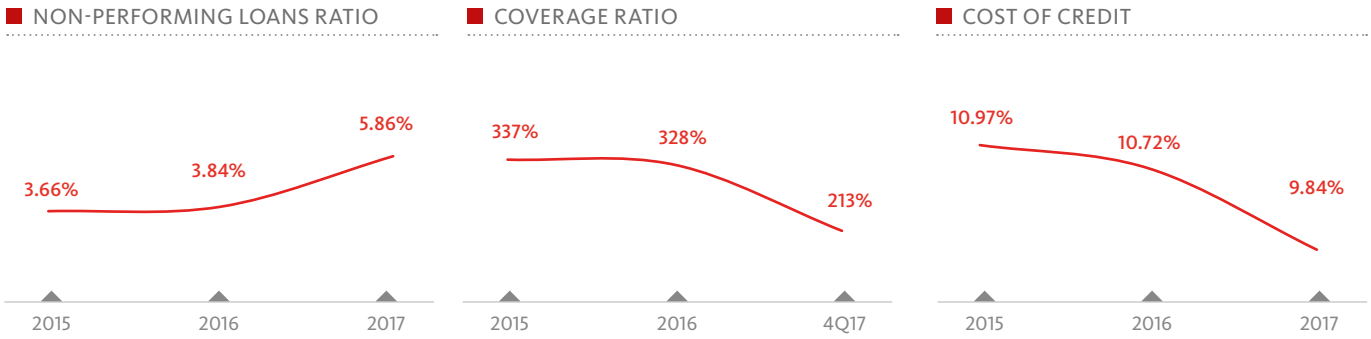
On a residual basis, SC USA lending also includes the personal lending portfolio, which is considered non-strategic.

The NPL ratio stands at 5.86%, compared to 3.84% at year-end 2016, due mainly to the forbearance portfolio, although it remains at moderate levels thanks to the early management of NPLs resulting from the nature of the business. The cost of credit improved to 9.84% at 31 December, from 10.72% at year-end 2016. This was due to new pricing policy implemented from the second quarter and more stringent requirements on new production, in terms of both risk and price, resulting in a higher quality new lending mix, and lower new lending volumes for vehicle financing.

The leasing portfolio - business carried out exclusively under the FCA agreement and focused on customers with high quality credit profiles - grew by 4% in the year, to EUR 9,439 million, providing stable and recurrent earnings. The performance of customers has been positive, and the focus is now on managing and mitigating the residual value risk of leasing: i.e. the difference between the estimated residual vehicle value at the contract signature and the real vehicle value at the end of the contract.

These mitigating actions are carried out in accordance with the prudent risk appetite, through the definition of limits, and through business management, with rapid and efficient sales of the vehicles when the agreements end, in addition to accelerated depreciation policies to mitigate future potential losses on the value of the vehicles. The mark to market of the vehicles held by SC USA on its balance sheet remain positive, standing at EUR 241 million at the end of December.

Coverage dropped to 213% (-115 pp) due to the reduction in funds and an improved portfolio mix, in addition to the rise in NPLs associated with the forbearance portfolio. Despite the reduction, coverage remains high, surpassing the average figure for its competitors.



The main strategic focus is to improve the return obtained on the different portfolios, by improving risk-related predictability and pricing policies, in addition to the optimisation of control and monitoring processes deriving from events related to regulatory compliance and customer practices.

C.1.3.4. Brazil

Credit risk in Brazil amounts to EUR 83,076 million, down approximately 7% against 2016 and largely due to the depreciation of the Brazilian currency. Santander Brazil therefore accounts for 10% of the Group lending.

Santander Brazil is adequately diversified and has an increasingly marked retail profile, with more than 60% of loans extended to individuals, consumer financing and SMEs.

In December 2017, growth in local currency was approximately 7.5%. This increase was more pronounced in retail segments with a more conservative risk profile, at the same time boosting customer relations and loyalty and business attracted through digital channels.

In the individuals loan segment, it is noteworthy the increase in payroll discount loans through the *Olé Consignado* brand, in addition to credit cards. It is also significant the growing interest in increasing the mortgage loan portfolio, under stricter admission requirements. At the same time, *Santander Financiamentos* has reported strong growth thanks to the new *+Negócios* (auto financing) and *+Vezes* (financing for goods and services) platforms and has enabled the Bank to increase its leadership position in the market, attaining a market share of over 20%.

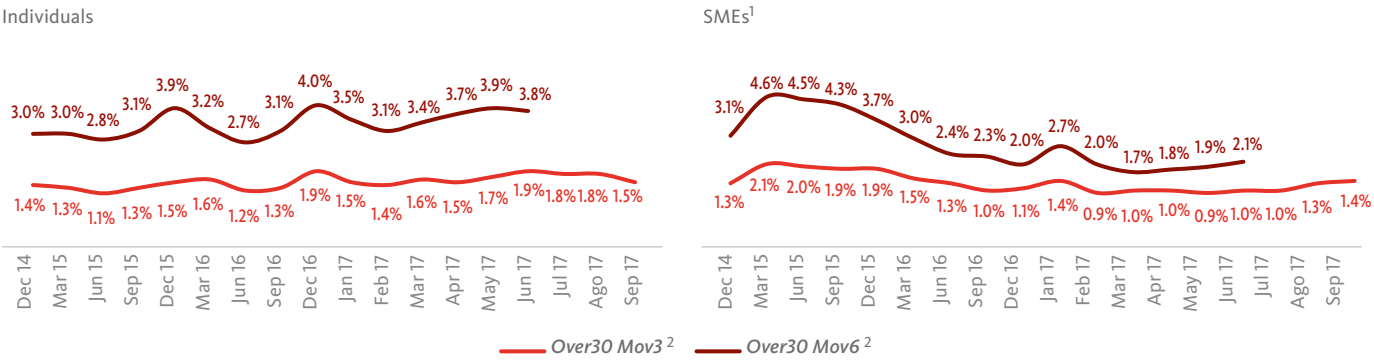
In the SME segment, the main highlight is the increase in rural loans, with low risk profile and the continued growth of *Adquirência*.

Finally, the Corporate and SGCB portfolios (with significant dollar positions in both cases) were once again hit by the depreciation in the last quarter of the brazilian real against the US dollar. On the other hand the strategy of reducing exposure to certain sectors, while boosting exposure to the agricultural and foreign trade segments. Other products, such as financing working capital continue to hold a substantial weighting in the portfolio.

The leading indicators for the credit profile of new loans (vintages) are continuously tracked. These are shown below, confirming the Entity's resilience. The vintages show transactions over 30 days in arrears at three and six months respectively from their origination date, in order to anticipate any possible portfolio impairment. This enables the entity to define corrective measures if any deviations from expected scenarios are detected.

As observable in the following chart, vintages have been kept at historically low levels thanks to proactive risk management. The rebound observed in individuals loans was rapidly identified (concentration in a specific product) and the appropriate measures taken to improve performance.

VINTAGES. PERFORMANCE OF THE *OVER 30** RATIO AT THREE AND SIX MONTHS FROM EACH VINTAGE ADMISSION



* Ratio calculated as the total value of business more than 30 days in arrears over the total value of the vintage.

1. Based on the new SME segmentation.

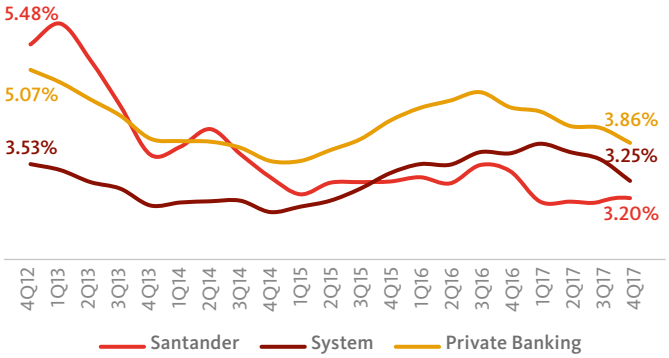
2. Months on Book.

The NPL ratio stood at 5.29% at year-end 2017 (-61 bp compared to the year-end of 2016). This fall was due to the preventive management of risks on the portfolio, in addition to the improved macroeconomic outlook and the implementation of certain structural reforms that were well received by the market.

The outlook is optimistic since the economy returned to growth, with GDP rising on the back of private consumption and exports. This is significant as it marks a trend change after several years of recession. Investment has also picked up, supported by the improved business confidence climate. Additionally, inflation is below the government's target, which has allowed the Monetary Policy Committee to significantly reduce the country's official interest rate (SELIC). The unemployment rate, while still high, has also shown improvement signs.

The Santander Brazil impairment rate on the lending portfolio, known locally as "over 90 rate", stood at 3.20% year-end 2017, below the average for private Brazilian banks for the second consecutive year, despite of the occasional rise in the last quarter due to a specific client.

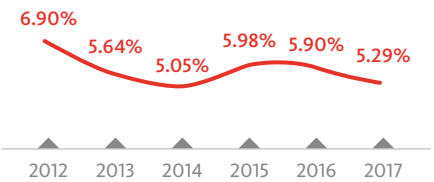
OVER 90 TOTAL



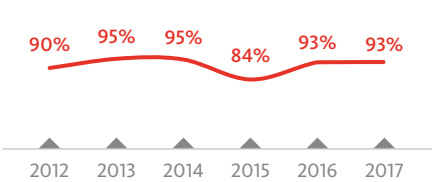
In general terms, and taking into consideration the last years evolution, a decreasing trend is observable in the cost of credit (4.36% at the end of 2017), falling by 53 pp compared to the previous year. This is due, mainly, to the increase in coverage achieved in 2016 in certain economic groups for the Corporates and SGCB portfolios (overall impact on the local financial system). As a result, in 2017 provisioning requirements for these portfolios were reduced, which, in addition to the ongoing positive performance of the retail portfolios, has consolidated its cost of credit downward tendency, for which there is confidence that it will remain stable in the year in spite of the new regulatory requirements.

The coverage ratio at year-end stood at 92.6%, at a comfortable level and presenting stability regarding the previous year.

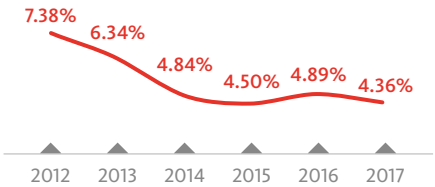
NON-PERFORMING LOANS RATIO



COVERAGE RATIO



COST OF CREIDT



C.1.4. Other credit risk aspects

C.1.4.1. Credit risk by activity in the financial markets[11]

This section covers credit risk generated in treasury activities with customers, mainly with credit institutions. The operations are developed through money market financial products with different financial institutions and through counter-party risk products which serve the Group's customers.

According to chapter six of the CRR (EU regulation 575/2013), the counterparty credit risk is the risk that the client in an operation could default before the definitive settlement of the cash flows of the operation. It includes the following types of operations: derivative instruments, operations with repurchase commitment, stock and commodities lending, operations with deferred settlement and financing of guarantees.

There are two methodologies for measuring this exposure: (i) mark to market (MtM) methodology (replacement value of derivatives) plus potential future exposure (add on) and (ii) the calculation of exposure using Monte Carlo simulation for some countries and products. The capital at risk or unexpected loss is also calculated, i.e. the loss which, once the expected loss has been subtracted, constitutes the economic capital, net of guarantees and recovery.

After markets close, exposures are re-calculated by adjusting all operations to their new time frame, adjusting the potential future exposure and applying mitigation measures (netting, collateral, etc.), so that the exposures can be controlled directly against the limits approved by senior management. Risk control is performed through an integrated system and in real time, enabling the exposure limit available with any counterparty, product and maturity and in any Group unit to be known at each moment.

Exposures in counterparty risk: over the counter (OTC) operations and organised markets (OM)

As of December 2017, total exposure on the basis of management criteria in terms of positive market value after applying netting agreements and collateral for counterparty risk activities was EUR 14,869 million (net exposure of EUR 32,876 million).

COUNTERPARTY RISK: EXPOSURE IN TERMS OF MARKET VALUE AND CREDIT RISK EQUIVALENT, INCLUDING MITIGATION EFFECT[1]

Million euros

	2017	2016	2015
Market value, netting effect[2]	31,162	34,998	34,210
Collateral received	16,293	18,164	15,450
Market value with netting effect and collateral [3]	14,869	16,834	18,761
Net CRE[4]	32,876	44,554	52,148

1. Figures with management criteria. Listed derivatives have a market value of zero. No collateral is received for these types of transactions.
2. Market value used to include the effects of mitigation agreements so as to calculate exposure for counterparty risk.
3. Considering the mitigation of netting agreements and having deducted the collateral received.
4. CRE (credit risk equivalent): net value of replacement plus the maximum potential value, minus collateral received. Includes regulatory EAD for organised markets (EUR 90 million in December, EUR 3 million in December 2016 and EUR 41 million in 2015).

11. Includes Banco Popular derivative positions with wholesale customers, excluding repos notional of EUR 9,222 million.

In the following table the distribution is shown, both in nominal and market value terms, of the Group's different products that generate counterparty credit risk. The latter, is mainly concentrated in interest and exchange rate hedging insturments:

COUNTERPARTY RISK: DISTRIBUTION BY NOMINAL RISK AND GROSS MARKET VALUE *

Million euros

	2017			2016			2015		
		Market value			Market value			Market value	
	Nominal	Positive	Negative	Nominal	Positive	Negative	Nominal	Positive	Negative
CDS protection bought**	18,134	36	(95)	23,323	83	(384)	32,350	80	(529)
CDS protection sold	12,097	266	(0)	19,032	339	(33)	26,195	428	(52)
Total credit derivatives	**30,231**	**302**	**(95)**	**42,355**	**422**	**(416)**	**58,545**	**508**	**(581)**
Equity forwards	733	4	(0)	134	48	(0)	980	5	(6)
Equity options	10,572	770	(2,841)	15,154	448	(426)	23,564	959	(1,383)
Spot equities	-	-	-	234	0	(0)	20,643	794	-
Equity swaps	25,264	859	(554)	15,388	631	(461)	28	-	(1,210)
Equities - ETF	26,088	-	-	36,512	-	-	6,480	-	-
Total equity derivatives	**62,657**	**1,633**	**(3,395)**	**67,421**	**1,127**	**(888)**	**51,695**	**1,758**	**(2,598)**
Fixed income forwards	8,660	89	(13)	6,357	37	(83)	11,340	39	(66)
Fixed income options	-	-	-	483	5	(2)	789	8	-
Spot fixed income	-	-	-	5,159	5	(2)	3,351	-	-
Fixed income - ETF	-	-	-	349	-	-	831	-	-
Total fixed income derivatives	**8,660**	**89**	**(13)**	**12,348**	**48**	**(88)**	**16,311**	**47**	**(66)**
Spot and term exchange rates	128,914	2,604	(3,870)	150,095	3,250	(6,588)	148,537	5,520	(3,315)
Exchange rate options	37,140	256	(343)	31,362	479	(624)	32,421	403	(644)
Other exchange rate derivatives	963	23	(17)	606	7	(27)	189	1	(4)
Exchange rate swaps	488,671	18,264	(15,892)	510,405	25,753	(24,175)	522,287	20,096	(21,753)
Exchange rate - organised markets	1,404	-	-	824	-	-	-	-	-
Total exchange rate derivatives	**657,092**	**21,147**	**(20,122)**	**693,292**	**29,489**	**(31,413)**	**703,434**	**26,019**	**(25,716)**
Asset swaps	22,736	1,194	(817)	22,948	1,178	(758)	22,532	950	(1,500)
Call money swaps	376,596	2,544	(2,301)	223,005	2,006	(1,581)	190,328	2,460	(1,792)
Interest rate structures	4,180	977	(594)	7,406	2,321	(593)	8,969	2,314	(3,031)
Forward rate agreements - FRAs	190,476	23	(39)	370,433	41	(106)	178,428	19	(78)
IRS	3,219,369	71,346	(75,391)	3,182,305	92,268	(92,873)	3,013,490	85,047	(85,196)
Other interest rate derivatives	185,925	2,816	(2,113)	210,061	3,762	(2,985)	194,111	3,838	(3,208)
Interest rate - ETF	127,288	-	-	117,080	-	-	26,660	-	-
Total interest rate derivatives	**4,126,570**	**78,900**	**(81,255)**	**4,133,238**	**101,576**	**(98,896)**	**3,634,518**	**94,628**	**(94,806)**
Commodities	221	0	-	539	108	(5)	468	130	(40)
Commodities - ETF	124	-	-	47	-	-	59	-	
Total commodity derivatives	**345**	**0**	**-**	**586**	**108**	**(5)**	**526**	**130**	**(40)**
Total OTC derivatives	**4,730,651**	**102,071**	**(104,880)**	**4,794,429**	**132,770**	**(131,706)**	**4,431,000**	**123,089**	**(123,805)**
Total derivatives organised markets* **	**154,904**			**154,812**			**34,028**		
Repos	**165,082**	**2,322**	**(2,363)**	**122,035**	**2,374**	**(2,435)**	**128,765**	**3,608**	**(3,309)**
Securities lending	**54,923**	**15,469**	**(16,580)**	**33,547**	**9,449**	**(4,124)**	**30,115**	**10,361**	**(1,045)**
Total counterparty risk	**5,105,560**	**119,862**	**(123,823)**	**5,104,823**	**144,593**	**(138,265)**	**4,623,908**	**137,058**	**(128,159)**

* Figures with management criteria.

** Credit derivatives acquired including hedging of loans.

*** Refers to transactions involving listed derivatives (proprietary portfolio). Listed derivatives have a market value of zero. No collateral is received for these types of transactions.

The following chart shows a breakdown of nominals in counterparty operations by maturity. The Bank's derivatives transactions focus on terms of less than five years, repos and securities loans maturing in less than one year.

COUNTERPARTY RISK: DISTRIBUTION OF NOMINALS BY MATURITY*

Million euros

	Up to 1 year	Up to 5 years	Up to 10 years	More than 10 years	TOTAL
Credit derivatives**	40%	50%	0%	10%	30,231
Equity derivatives	71%	25%	4%	0%	62,657
Fixed income derivatives	100%	0%	0%	0%	8,660
Exchange rate derivatives	51%	29%	15%	5%	657,092
Interest rate derivatives	26%	43%	21%	10%	4,126,570
Commodity derivatives	100%	0%	0%	0%	345
Total OTC derivatives	**29%**	**41%**	**20%**	**10%**	**4,730,651**
Total derivatives organised markets* **	**68%**	**30%**	**2%**	**0%**	**154,904**
Repos	**96%**	**4%**	**0%**	**0%**	**165,082**
Securities lending	**100%**	**0%**	**0%**	**0%**	**54,923**
Total counterparty risk	**33%**	**39%**	**19%**	**9%**	**5,105,560**

* Figures with management criteria.

*** Credit derivatives acquired including hedging of loans.

*** Refers to transactions involving listed derivatives (proprietary portfolio). Listed derivatives have a market value of zero. No collateral is received for these types of transactions.

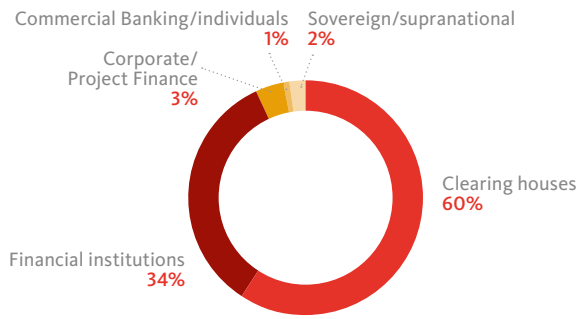
From the client´s perspective, counterparty credit risk exposure is concentrated in those clients with high credit quality (90.5% counterparty risk with a rating equal or higher than A), and mainly with clearing houses (60%) and financial institutions (34%).

DISTRIBUTION OF COUNTERPARTY RISK BY CUSTOMER RATING (IN NOMINAL TERMS)*

AAA	0.87%
AA	9.92%
A	79.70%
BBB	7.15%
BB	2.30%
B	0.06%
Other	0.00%

* Ratings based on equivalences between internal ratings and credit agency ratings .

COUNTERPARTY RISK BY CUSTOMER TYPE

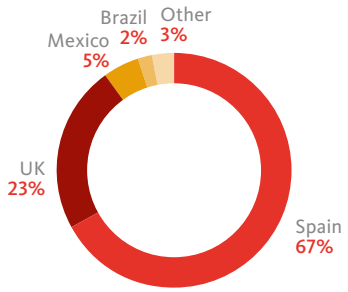


In general, transactions with financial institutions are performed under netting and collateral agreements, and constant efforts are made to ensure that all other operations are covered under this type of agreement. Generally, the collateral agreements that the Group signs are bilateral with counted exceptions, mainly with multilateral institutions and securitisation funds, in which are unilateral in favour of the client.

The collateral received under the different types of collateral (CSA, OSLA, ISMA, GMRA, etc.) signed by the Group amounted to EUR 16,293 million (of which EUR 11,398 million corresponded to collateral received by derivatives), mostly cash (81.2%), and the rest of the collateral types are subject to strict policies of quality regarding the issuer type and its rating, debt seniority and haircuts applied.

In geographical terms, the collateral received is distributed as shown in the following chart:

COLLATERAL RECEIVED. GEOGRAPHICAL DISTRIBUTION



As a consequence of the risk associated with the credit exposure that is taken on with each counterparty, Santander Group includes a valuation adjustment for OTC (over the counter) derivatives due to the risk associated with credit exposure assumed with each counterparty, i.e. a Credit Valuation Adjustment (CVA)[12], and a valuation adjustment due to the risk relating to the Group itself assumed by counterparties on OTC derivatives, i.e. Debt Valuation Adjustment (DVA).

At year-end, there were CVAs of EUR 322.5 million (-49.9% compared to December 2017) and DVA of EUR 219.6 million (-43.7%). The decrease is due to the fact that credit spreads have been reduced by percentages greater than 40% in the most liquid terms and reductions in the main counterparty's exposure.

Counterparty risk, organised markets and clearing houses

The Group's policies seek to anticipate, wherever possible, the implementation of measures resulting from new regulations regarding operations of OTC derivatives, repos and securities lending, whether settled by clearing house or traded bilaterally. In recent years, there has been a gradual standardisation of OTC operations in order to conduct clearing and settlement of all new trading operations through clearing houses, as required by the recent regulation and to foster internal use of electronic execution systems.

Furthermore, the Group actively manages operations not settled through clearing houses and seeks to optimise their volume, given the spread and capital requirements imposed by new regulations.

With regard to organised markets, regulatory credit exposure has been calculated for such operations since 2014 and the entry into force of the new CRD IV (Capital Requirements Directive) and CRR (Capital Requirements Regulation), transposing the Basel III principles for calculating capital, even though counterparty risk management does not consider credit risk on such operations[13].

The following tables show the weighting of trades settled through clearing houses as a portion of total counterparty risk at December 2017:

DISTRIBUTION OF COUNTERPARTY RISK BY SETTLEMENT CHANNEL AND PRODUCT TYPE*

Nominal in million euros

	Bilateral		CCP**		Organised markets ***		
	Nominal	%	Nominal	%	Nominal	%	Total
Credit derivatives	27,707	91.6%	2,524	8.4%	-	0.0%	**30,231**
Equity derivatives	36,568	58.4%	0	0.0%	26,088	41.6%	**62,657**
Fixed income derivatives	8,660	100%	-	0.0%		0.0%	**8,660**
Exchange rate derivatives	655,501	99.8%	188	0.0%	1,404	0.2%	**657,092**
Interest rate derivatives	1,175,774	28.5%	2,823,508	68.4%	127,288	3.1%	**4,126,570**
Commodity derivatives	221	64.2%	-	0.0%	124	35.8%	**345**
Repos	100,996	61.2%	64,086	38.8%	-	0.0%	**165,082**
Securities lending	54,923	100%	-	0.0%	-	0.0%	**54,923**
General total	**2,060,350**		**2,890,306**		**154,904**		**5,105,560**

* Figures with management criteria.

** Central counterparties (CCP).

*** Refers to transactions involving listed derivatives (proprietary portfolio). Listed derivatives have a market value of zero. No collateral is received for these types of transactions.

12. The definition and methodology for calculating the CVA and DVA are set out in C.2.2.2.6. Credit Valuation Adjustment (CVA) and Debt Valuation Adjustment (DVA) in this report.

13. Credit risk is eliminated when organised markets act as the counterparty in the transaction, as they have in place mechanisms that enable them to protect their financial position through deposit and guarantee replacement systems and processes that ensure the liquidity and transparency of transactions.

DISTRIBUTION OF RISK SETTLED BY CCP AND ORGANISED MARKETS, BY PRODUCT AND CHANGE OVER TIME (*)

Nominal in million euros

	2017	2016	2015
Credit derivatives	2,524	3,916	1,778
Equity derivatives	26,088	36,568	6,522
Fixed income derivatives	-	349	896
Exchange rate derivatives	1,592	1,419	11,755
Interest rate derivatives	2,950,796	2,732,103	2,069,802
Commodity derivatives	124	47	59
Repos	64,086	29,763	44,679
Securities lending	-	4	-
General total	**3,045,210**	**2,804,170**	**2,135,489**

* Figures with management criteria.

Off-balance sheet credit risk[14]

The off-balance sheet risk corresponding to funding and guarantee commitments with wholesale customers was EUR 90,453 million, with the following distribution by products:

OFF BALANCE SHEET EXPOSURE

Million euros

	Maturity				
Product	< 1 year	1-3 years	3-5 years	> 5 years	Total
Funding*	13,834	19,231	27,229	3,004	63,298
Technical guarantees	5,657	7,242	819	328	14,046
Financial and commercial guarantees	6,936	3,944	965	637	12,482
Foreign trade**	459	143	22	3	627
General total	**26,886**	**30,560**	**29,035**	**3,972**	**90,453**

* Mainly including committed bilateral and syndicated credit lines.

** Mainly including stand-by letters of credit.

Activity in credit derivatives[15]

Santander Group uses credit derivatives to cover loans, customer business in financial markets and trading operations. The volume of this activity is small compared to that the main peers and, moreover, is subject to a solid environment of internal controls and minimising operational risk.

The risk of these activities is controlled via a broad series of limits, such as Value at Risk (VaR)[16], nominal by rating, spread sensitivity by rating and name, and recovery rate and correlation sensitivity. Jump-to-default limits are also set by individual name, geographical area, sector and liquidity.

In notional terms, the CDS position incorporates EUR 13,019 million of protection acquired[17] and EUR 12,117 million of protection sold.

At 31 December 2017, the lending sensitivity to increases in spreads of one basis point was EUR -3.7 million, whilst the average VaR at year-end 2017 was EUR 2.3 million, lower than the 2016 figure (EUR 1.7 million).

C. 1.4.2. Concentration risk[18]

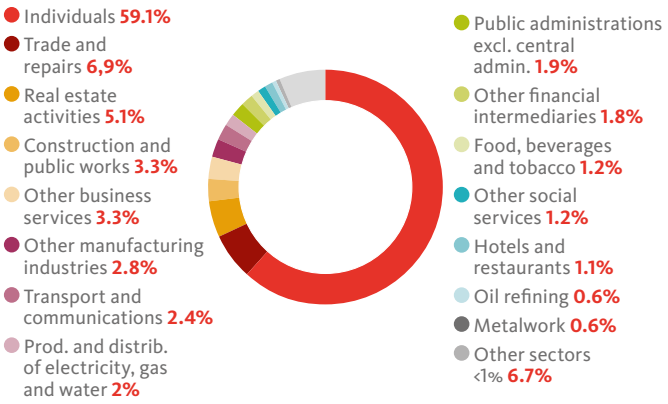
The concentration risk control is a vital part of management. The Group continuously tracks the degree of concentration of its credit risk portfolios using various criteria: geographical areas and countries, economic sectors, products and groups of customers.

The board, via the risk appetite, determines the maximum levels of concentration, as detailed in section A.4.1. Risk appetite and structure of limits. In line with the risk appetite, the Executive Risk Committee establishes the risk policies and reviews the appropriate exposure levels for the adequate management of the degree of concentration of credit risk portfolios.

As indicated at the beginning of this chapter, in geographical terms, credit risk with customers is diversified in the main markets where the Group operates (UK 30%, Spain 21%, USA 9%, Brazil 10%, etc.).

In terms of diversification by sector, approximately 59% of the Group's credit risk corresponds to individual customers, who, due to their inherent nature, are highly diverse. In addition, the lending portfolio is well distributed, with no significant concentrations in specific sectors. The following chart shows the distribution at the end of the year:

SECTOR DIVERSIFICATION



14. Excluding Popular.
15. Excluding Popular.
16. The definition and calculation methodology for VaR is set out in section C.2.2.2.1. Value at Risk (VaR).
17. This figure excludes CDSs with an approximate value of EUR 2,293 million used to hedge loans that for accounting purposes are recorded as financial guarantees rather than credit derivatives, as their change in value has no impact on results or reserves, in order to avoid accounting asymmetry.
18. Excluding Popular.

The Group is subject to the regulation on large risks contained in the fourth part of the CRR (EU regulations 575/2013), according to which the exposure contracted by an entity with a customer or group of customers linked among themselves will be considered a large exposure when its value is equal or greater than 10% of eligible capital. In addition, in order to limit large exposures, no entity can assume exposure exceeding 25% of its eligible capital with a single customer or group of linked customers, after taking into account the impact of the reduction of credit risk contained in the regulation.

Having applied the risk mitigation techniques, no groups triggered these thresholds at the end of December.

Regulatory credit exposure with the 20 largest groups within the scope of large risks represented 4.7%[19] of outstanding credit risk with customers (lending plus balance sheet risks) at December 2017.

The Group's Risk division works closely with the Financial division to actively manage credit portfolios. Its activities include reducing the concentration of exposures through various techniques, such as using credit derivatives and securitisations to optimise the risk-return relationship for the whole portfolio.

C.1.4.3. Country risk

Country risk is a component of credit risk in all cross-border credit operations for circumstances other than normal commercial risk. The main elements involved are sovereign risk, transfer risks and other risks that affect international financial activity (wars, natural disasters, balance of payments crises, etc.).

At 31 December 2017, the provisionable exposure to country-risk was EUR 184 million (EUR 181 million in 2016). At the end of December 2017, total provisions stood at EUR 37 million, compared to EUR 29 million at the end of the previous year.

The principles of country risk management continued to follow criteria of maximum prudence; country risk is assumed very selectively in operations that are clearly profitable for the Bank, and which enhance the global relationship with customers.

C.1.4.4. Sovereign risk vis-á-vis the rest of public administrations

As a general criteria, sovereign risk is that contracted in transactions with a central bank (including the regulatory cash reserve requirement), the Treasury risk issuer or similar entity (public debt portfolio) and that arising from operations with public institutions with the following features: their funds only come from the state's budgeted income and the activities are of a non-commercial nature.

This criteria, historically used by the Group, differs in some respects from that requested by the EBA for its regular stress exercises. The main differences are that the EBA's criterion does not include deposits with central banks, exposures with insurance companies, indirect exposures via guarantees and other instruments. On the other hand, it includes public administrations in general (including regional and local bodies), not only the state sector.

Exposure to sovereign risk (according to the criteria applied in the Group) mainly emanates from the obligations to which the Bank´s subsidiaries are subject regarding the establishment of certain deposits in central banks, the establishment of deposits with liquidity excess and fixed-income portfolios held as part of the structural interest rate risk-management strategy for the balance sheet and treasury trading books. The vast majority of such exposure is in local currency and is funded on the basis of customer deposits captured locally, also in the local currency.

Local sovereign exposure in currencies other than the official currency of the country of issuance is not very significant (EUR 13,175 million, 5% of total sovereign risk), and exposure to non-local sovereign issuers involving cross-border[20] risk is even less significant (EUR 2,886 million, 1.2% of total sovereign risk).

In general, over the past few years, total exposure to sovereign risk has remained at adequate levels to support the regulatory and strategic motives of this portfolio.

The investment strategy for sovereign risk also takes into account the credit quality of each country when setting the maximum exposure limits. The following table shows percentage exposure by rating levels[21]:

EXPOSURE BY RATING

	2017	2016	2015
AAA	13%	16%	34%
AA	19%	17%	4%
A	29%	29%	22%
BBB	14%	8%	33%
Lower than BBB	25%	30%	7%

The sovereign risk distribution by rating level has been affected by several rating reviews for the sovereign issuers of the countries where the Group operates over the last few years (Brazil, UK, etc.).

19. Including Popular.
20. Countries that are not considered as "low risk" by the Bank of Spain.
21. Internal ratings used.

On the basis of the EBA criteria already mentioned, the exposure to public administrations at the end of each of the last three years is shown in the table below (figures in million euros)[22].

EXPOSURE TO SOVEREIGN RISK (EBA CRITERION)

Million euros

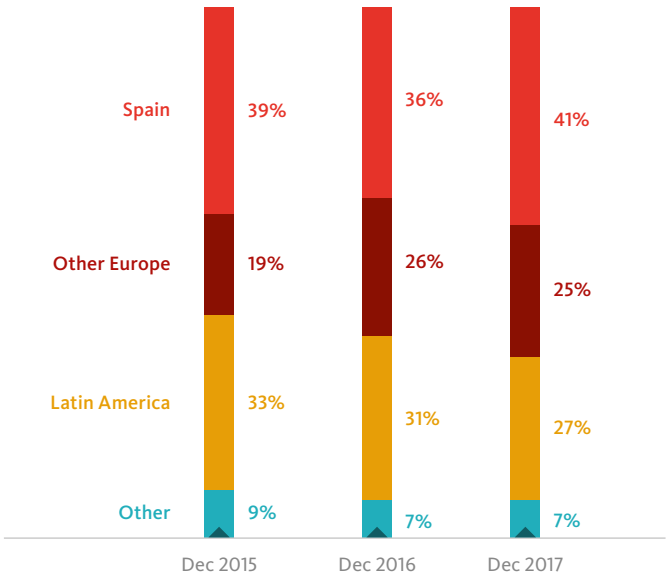
	31 Dec 2017					31 Dec 2016	31 Dec 2015
	Portfolio						
	Trading and other at fair value	Available for sale	Lending	Held-to-maturity portfolio	Total net direct exposure	Total net direct exposure	Total net direct exposure
Spain	4,928	37,748	18,055	1,906	62,637	45,893	48,694
Portugal	53	5,220	3,541	3	8,817	7,072	10,007
Italy	1,479	4,613	16	-	6,108	1,952	2,717
Greece	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-
Rest Eurozone	(1,192)	497	81	-	(614)	(341)	1
UK	2	1,751	7,236	7,414	16,403	17,639	5,163
Poland	1,034	5,566	40	-	6,640	6,290	5,401
Rest of Europe	172	358	40	-	570	791	670
US	2,548	2,616	765	-	5,929	5,713	5,093
Brazil	3,202	20,201	1,171	2,720	27,294	24,286	23,929
Mexico	1,780	5,152	2,586	-	9,518	10,461	10,519
Chile	428	2,985	312	-	3,725	3,525	5,362
Rest of America	147	424	940	-	1,511	1,172	1,802
Rest of the world	3,422	512	920	-	4,854	3,475	5,890
Total	**18,003**	**87,643**	**35,703**	**12,043**	**153,392**	**127,930**	**125,248**

Exposure is moderate and remained on an upward tendency in 2017, The sovereign risk exposure of Spain (where the Group has its headquarters) is not high in terms of total assets (4.3% at the end of December 2017), compared to its peers.

Sovereign exposure in Latin America is mostly in local currency, being recognised in the local accounts and concentrated in short-term maturities with lower interest rate risk and greater liquidity.

SOVEREIGN RISK AND VIS-Á-VIS OTHER PUBLIC ADMINISTRATIONS: NET DIRECT EXPOSURE (EBA CRITERION)

Million euros



22. In addition at 31 December 2017, the Group maintained direct net exposures in derivatives with a fair value of EUR 1,681 million, and indirect net exposures in derivatives with a fair value of EUR 15 million.

C.1.4.5. Social and environmental responsibility

Social and environmental policy

Banco Santander contributes with society for sustainable economic growth, promoting the protection, conservation and recovery of the environment, and human rights protection. To this end, Santander has included the social, environmental and reputational risk assessment of its operations and customers in the decision-making processes across the whole Organisation, in line with its sustainability policy.

The sustainability policies are annually revised. After the 2015 review, they apply to more activities, more customers and follow the best international practices and standards. These policies define the banking activity behaviour framework regarding sectors of defence, energy and soft commodities. A summary of these policies is provided in Santander´s website. It is noteworthy the approval in 2017, by the board, of a new mining and metal sector.

The policies were implemented throughout the Group by creating social-environmental risk task forces in the main geographies in which all functions involved in the decision making of the banking activities are represented. These groups were created as a replica of the corporate working group headed by the Group Chief Compliance Officer to assess and issue a collegiate opinion on the transactions and customers affected by these policies, as a prior step to the imposition of sanctions by the corresponding decision-making bodies.

In addition to the above, the Group has applied the Equator Principles (EP) since 2009, to project finance and corporate funding for a known purpose, including bridge loans before finance is granted for building or remodelling a specific project. An in-depth report is available on the Equator Principles website and in the Santander Group Sustainability Report.

Climate change

As indicated in section A.4.3 Scenario analysis, the Task Force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board recently published a series of recommendations for corporate governance, strategy, risk management, measurements and targets in relation to climate change. These recommendations will imply a significant advance in the reporting of risk and opportunities associated with climate change by financial institutions.

The banking sector is key in the transition, both in terms of investment opportunities that it will present and the importance in terms of risk management derived from adjusting the system and world economic activities to the new climate change challenges.

Santander Group integrates the risks related to climate change in its control module through, among other aspects, social and environmental policies incorporated in the decision-making process and the periodic risk identification exercise (for further detail consult section B. Background and upcoming challenges). In addition, to implement some of the TCFD recommendations, the Group is participating together with other entities in an UNEP FI financial initiative aforementioned in section A.4.3. Scenario analysis.

As a result of the Paris climate agreement, governments in the different countries are currently working to develop and implement the financial mechanisms necessary to meet the established targets and facilitate the transition to a lower emission economy. In Europe, the High Level Expert Group on Sustainable Finance of the European Commission is the main developer of this type of measure, seeking to adjust the financial system for a more sustainable future.

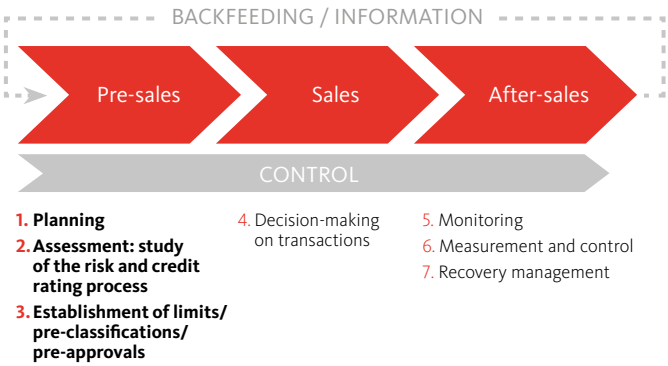
C.1.5.Credit risk cycle

Credit risk management is organised around a sound organisational and governance model, with the participation of the board of directors and the Executive Risk Committee, which establishes the risk policies and procedures, the limits and delegation of powers, and approves and oversees the framework of the credit risk function.

Exclusively within the field of credit risk, the Credit Risk Control Committee is the collegiate body responsible for its oversight and control within the Santander Group. The aim of the committee is to effectively control credit risk, ensuring and advising the Chief Risk Officer and the Risk Control Committee that credit risk is managed in accordance with the level of risk appetite approved by the board of directors.

The cycle that includes credit risk management, with the involvement of the business areas of risk and senior management, is predicated on the key risk management, and control processes mentioned in section A.4. Management processes and tools, Specifically for credit risk, these processes are split into three interrelated phases, including the results of the post sales phase in the risk study and planning pre sales phase.

Each of these phases is associated with specific decision models established for decision-making in line with the business objectives and credit policies defined by the Group.



C.1.5.1. Planning

When defining joint business objectives among business and risks areas, including the types and levels of risk to be assumed, the following factors stand out:

Identification

The identification of credit risk is a key component for the active management and an effective control of portfolios. The identification and classification of external and internal risk in each business allows corrective and mitigating measures to be adopted.

Planning (strategic commercial plan-SCP)

Strategic commercial plans (SCPs) are a basic management and control tool for the Group's credit portfolios. The plans are prepared jointly by the commercial and risks areas, and define the commercial strategies, risk policies and measures/infrastructures required to meet the annual budget targets. These three factors are considered as a whole, ensuring a holistic view of the portfolio to be planned and allowing a map of all the Group's credit portfolios to be drawn up.

Planning allows business targets to be set and specific action plans to be defined, within the risk appetite established by the Entity, and these targets to be met by assigning the necessary means (models, resources, systems).

The comprehensive management of the SCP means that an up-to-date view of the credit quality of the portfolios is available at all times, credit risk can be measured, internal controls carried out, in addition to regular monitoring of the planned strategies, to anticipate deviations and identify significant changes in risk and their potential impact, along with the application of corrective measures.

SCPs are approved by each entity's most senior executive Risks Committee, and validated at corporate level in the Executive Risks Committee or equivalent body. The regular monitoring, established by the governance in place, is performed by the same bodies that approve and validate the plans.

Scenario analysis

As described in section A.4.3. Scenarios analysis of this report, credit risk scenario analysis enables senior management to better understand the portfolio's evolution in the face of market conditions and changes in the environment. It is a key tool for assessing the sufficiency of the provisions made and the capital to stress scenarios.

Scenario analysis is applied to all of the Group's significant portfolios, usually over a three year horizon. The process involves the following main stages:

- Definition of **benchmark scenarios**, both central or most likely scenarios (baseline), as well as economic scenarios that although less likely to occur can be more adverse (stress scenarios). A global stress scenario is defined describing a world crisis situation and the way it would affect each of the countries in which the Group operates. In addition, a local stress scenario is defined which affects in an isolated way some of the main units with a greater degree of stress than the global stress scenario.

  These scenarios are defined by the Santander Group's research department in coordination with each unit, using figures published by leading international institutions as a benchmark. All scenarios are backed by a rationale and are verified and reviewed by all areas involved in the simulation process.

- Determination of the value of risk parameters and metrics (probability of default, loss given default, etc.) for the scenarios defined. These parameters are established using internally developed **statistical-econometric models**, based on portfolio and historical losses for which they are developed, in relation to historical data for macroeconomic variables. The simulation models employed by the Group use data from a complete economic cycle in order to calibrate the risk factors performance regarding changes in macroeconomic variables.

  These forecasting models follow the same development, validation and governance cycles as with other internal models of the Group. They are subject to regular backtesting and recalibration to ensure they correctly capture the relationship between macroeconomic variables and the risk parameters.

- Adaptation of the new projection methodology to the new regulatory requirements (IFRS 9), with an impact on the estimation of the **expected loss** associated with each of the scenarios put forward, as well as with other **important credit risk metrics** deriving from the parameters obtained (NPLs, provisions, allowances, etc.).

- Analysis and rationale for the credit risk profile evolution at portfolio, segment, unit and Group levels, in the face of different scenarios and compared to previous years.

- **Integration of management indicators** to supplement the analysis of the impact caused by macroeconomic factors on risk metrics.

- A series of controls and comparisons are run to ensure that the **controls and backtesting** are adequate, thus completing the process.

The entire process takes place within a corporate governance framework, and is thus adapted to the growing importance of this framework and to best market practices, assisting the Group's senior management in gathering knowledge for their decision making.

C.1.5.2. Assessment: study of the risk and credit rating process

Generally speaking, risk study consists of analysing a customer's capacity to meet their contractual commitments with the Bank and other creditors. This entails analysing the customer's credit quality on a short and medium term horizon, risk operations, solvency and expected return on the basis of the risk assumed.

With this objective, the Group uses customer credit decision models in all segments in which it operates: SGCB (Santander Global Corporate Banking: sovereign, financial institutions and corporate companies), Commercial Banking, institutions, SMEs and individuals.

The decision models applied are based on credit rating drivers. These models and drivers are monitored and controlled to calibrate and precisely adjust the decisions and ratings they assign. Depending on the segment, drivers may be:

- Rating: resulting from the application of mathematical algorithms incorporating a quantitative model based on balance sheet ratios or macroeconomic variables, and a qualitative module supplemented by the analyst's expert judgement. Used for the SGCB, Commercial Banking, institutions and SMEs (treated on an individual basis) segments.

- Scoring: an automatic assessment system for credit applications. It automatically assigns an individual assessment of the customer for subsequent decision making. There are two types: approval or performance and it is used in the individuals and SMEs (treated on a standard basis) segments.

The resulting ratings are regularly reviewed, incorporating the latest available financial information and experience in the development of banking relations. The reviews are increased in the case of customers who reach certain levels previously determined in the automatic warning systems and are classified as special watch.

C.1.5.3. Establishment of limits, pre-classifications and pre-approvals

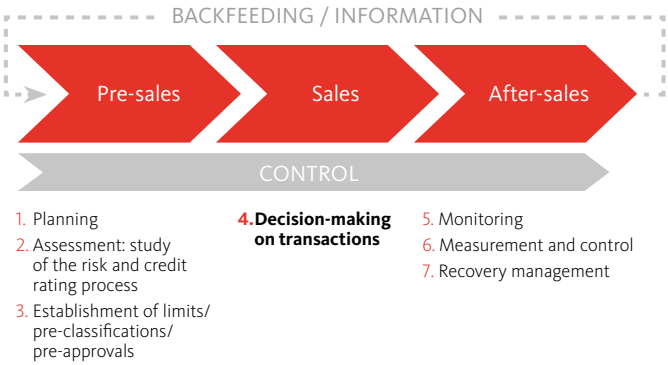
This process establishes the risk that each customer is able to assume. These limits are set jointly by the business and risks areas and have to be approved by the executive Risks Committee (or committees delegated by it) and reflect the expected risk-return by the business.

Different models are used according to the segment:

- A pre-classification model based on a system for measuring and monitoring economic capital is used for **large corporate groups**. The result of pre-classification is the maximum risk level that a customer or group can assume, in terms of amount or maturity.

- For **commercial banking and institutions** that meet certain requirements (high knowledge, rating, etc.) a more simplified pre-classification model is used.

- For **SMEs and individuals**, in specific situations where a series of requirements are met, pre-approved operations are established for customers, or pre-approved operations for potential customers (campaigns and policies to encourage the use of limits).



C.1.5.4. Decision-making on transactions

The sales phase consists of the decision-making process, which analyses and resolves operations. Approval by the risk area is a prior requirement before contracting any risk operation. All decisions regarding risks must consider the risk appetite, limits and management policies defined in the planning stage, in addition to other factors relevant to the risk and profitability equilibrium.

According to the segment, decision-making follows different procedures:

- For SGCB, and according to the prior limit-setting phase, two types of decision will be available: (1) automatic, within the limits set under the pre-classification framework, (2) approval from a risk analyst or committee (although the operation meets the amount, maturity and other conditions set in the pre-approved limit).

- For commercial banking and institutions, approval is required from a risk analyst or committee (although the operation meets the amount, maturity and other conditions set in the pre-approved limit).

- In terms of individual customers and SMEs with low turnover, large volumes of credit operations can be managed more easily with the use of automatic decision models for classifying the customer/ transaction binomial.

Mitigation measures

Santander Group applies various credit risk mitigation techniques on the basis, among other factors, of the type of customer and product. Some are inherent to specific operations (e.g. real estate guarantees) while others apply to a series of operations (e.g. netting and collateral). The different mitigation techniques can be grouped into the following categories:

Personal guarantees and credit derivatives

This type of guarantees correspond to those that place a third party in a position of having to respond to obligations acquired by another to the Group. It includes, for example, sureties, guarantees, stand-by letters of credit, etc. The only ones that can be recognised, for the purposes of calculating capital, are those provided by third parties that meet the minimum requirements set by the supervisor.

Credit derivatives are financial instruments whose main objective is to cover credit risk by acquiring protection from a third party, through which the Bank transfers the issuer risk of the underlying asset. Credit derivatives are over the counter (OTC) instruments that are traded in non-organised markets. Hedging with credit derivatives, mainly through credit default swaps (CDS), is contracted with front-line banks.

Real guarantees

These are assets that are subject to compliance with the guaranteed obligation. They can be provided by the customer or by a third party. The real goods or rights used for the guarantee may be financial (cash, securities deposits, gold, etc.) or non-financial (property, other moveable property, etc.). Therefore guarantees can be in the form of:

- **Pledges / financial assets:** debt/equity instruments or other financial assets received as the guarantee.

  A very important example of a real financial guarantee is **the collateral**, which is used for the purpose (as with the netting technique) of reducing counterparty risk. This is a series of instruments with a certain economic value and high liquidity that are deposited/transferred by a counterparty in favour of another in order to guarantee/reduce the credit risk of the counterparty that could result from portfolios of transactions of derivatives with risk existing between them. The operations subject to the collateral agreement are regularly valued (normally daily) applying the parameters defined in the contract so that a collateral amount is obtained (usually cash or securities), which is to be paid to or received from the counterparty.

- **Real estate mortgages:** real estate assets used in transactions with an ordinary or maximum mortgage guarantee. There are regular appraisal processes, based on real market values, for the different types of property, which meet the requirements established by local and the Group regulators.

- **Other real guarantees:** any other type of real guarantee.

As a general rule, the repayment capacity is the most important aspect in decisions on the acceptance of risks, although this is no impediment to seek the highest level of real or personal guarantees. In order to calculate the regulatory capital, only those guarantees that meet the minimum qualitative requirements set out in the Basel agreements are taken into consideration.

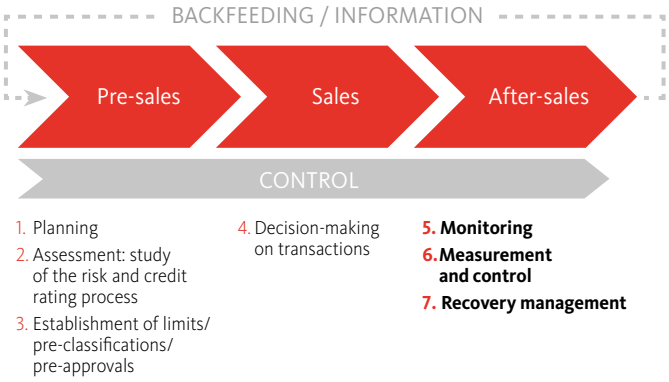
Implementation of the mitigation techniques follows the minimum requirements established in the guarantee management policy: legal certainty (possibility of legally requiring the settlement of guarantees at all times), the lack of substantial positive correlation between the counterparty and the value of the collateral, the correct documentation of all guarantees, the availability of documentation for the methodologies used for each mitigation technique and appropriate monitoring, traceability and regular control of the goods/assets used for the guarantee.

Determination of a net balance by counterparty

The concept of netting is the possibility of determining a net balance between operations of the same type, under the umbrella of a framework agreement such as the ISDA or similar.

It consists of aggregating the positive and negative market values of derivative transactions that Santander has with a certain counterparty, so that in the event of default it owes (or Santander owes, if the netting off is negative) a single net figure and not a series of positive or negative values corresponding to each operation with the counterparty.

An important aspect of framework contracts is that they represent a single legal obligation that covers all operations. This is fundamental when it comes to being able to net the risks of all operations covered by the contract with the same counterparty.



C.1.5.5. Monitoring

Monitoring business performance on a regular basis, and comparing performance against agreed plans is a fundamental task. Monitoring is performed in several areas:

Monitoring / Anticipation of customers

All customers must be monitored in an ongoing and holistic manner that enables the earliest detection possible of any incidents that may arise in relation to risk impacting the customer's credit rating, so that specific measures (predefined or ad-hoc) can be implemented to correct any deviations that could have a negative impact for the entity. This responsibility is shared by the commercial and risk functions.

Monitoring is carried out by local and global risk teams, supplemented by internal audit. It is based on customer segmentation:

- In the commercial banking, institutions and SMEs with individual treatment, the function consists of identifying and tracking customers whose situations require closer monitoring, reviewing ratings and continuously analysing indicators.

- In the individual customers, businesses and SMEs with a low turnover segment monitoring is carried out through automatic alerts for the main indicators, in order to detect shifts in the performance of the loan portfolio with respect to the forecasts in strategic plans.

Portfolio measurement and control

In addition to the monitoring customer credit quality, Santander establishes the control procedures needed to analyse portfolios and their performance, as well as possible deviations regarding planning or approved alert levels.

The function is developed through an integrated and holistic vision of credit risk, establishing as the main elements the control by countries, business areas, management models, products, etc., facilitating early detection of specific attention points, as well as preparing action plans to correct any deteriorations.

Portfolio analysis permanently and systematically controls the evolution of credit risk with regard to budgets, limits and benchmark standards, assessing the impacts of future situations, both exogenous and resulting from strategic decisions, to establish measures to bring the risk portfolio profile and volumes within the parameters set by the Group and in line with its risk appetite.

The credit risk control phase uses, among others and, in addition to traditional metrics such as:

- **Cost of credit:** is the result of dividing credit risk allowances net of recovery of write-offs at 12 months, by the average gross loans and advances to customers on the balance sheet for those 12 months. The monitoring and control of this metric reflect a direct relationship between the risk appetite of the Group and the business units, giving rise to a medium-low risk profile.

- **Concentration:** in the individuals and SMEs segments, the monitoring of HRP (high risk profile) portfolios prevent concentration in portfolios with a risk profile that does not fit with the Group's medium-low risk profile target. In the SGCB, commercial banking and institutions segment concentration limits are monitored in sectors, single names, large exposure, underwriting, specialised lending and counterparties with ratings of < 5.0.

- **Expected loss:** is the estimate of the economic loss that would occur during the next year of the current portfolio at a given moment. It is an additional activity cost that must impact on the operations price.

C.1.5.6. Recovery management

Recovery activity is a significant element in the Bank's risk management. This function is carried out by the recovery area, which defines a global strategy and an enterprise-wide focus for recovery management.

The Group has a corporate recovery management model that sets the guidelines and general lines of action to be applied in the various countries, always taking into account the local particularities that the recovery activity requires (economic environment, business model or a mixture of both).

Recovery activity has been aligned with the socio-economic reality of the Group's countries and different risk management mechanisms are used with adequate prudential criteria on the basis of age, guarantees and unpaid debt conditions.

The recovery areas are business areas that directly manage customers for which the corporate model has a business focus, where sustained value creation is based on effective and efficient collection management The new digital channels are becoming increasingly important in recovery management, and new forms of customer relations are developing.

The diverse features of Santander´s customers make segmentation necessary in order to manage recoveries adequately. Mass management of large groups of customers with similar profiles and products is conducted through processes with a high technological and digital component, while personalised management focuses on customers who, because of their profile, require a specific manager and more individualised management.

Recovery management is divided into four phases: irregularity or early non-payment; recovery of non-performing loans; recovery of write-offs; and management of foreclosed assets.

The management scope for the recovery function includes management of non-productive assets (NPAs), corresponding to the forbearance portfolios, NPLs, write-off loans and foreclosed assets, where the Bank may use mechanisms to rapidly reduce these assets, such as disposals of loan portfolios or foreclosed assets.

The Bank employs specific policies for recovery management that include the principles of the different recovery strategies, while ensuring the required rating and provisions are maintained. Therefore, the Group is constantly seeking alternative solutions to legal channels for collecting debt.

In countries with a high exposure to real estate risk, very efficient sales management instruments have been put in place that enable capital to be recovered by the Bank, reducing the stock on the balance sheet.

C.2. Trading market risk, structural risk and liquidity risk

C.2.1. Activities subject to market risk and types of market risk

The **perimeter** of activities subject to market risk involve those operations where patrimonial risk is assumed as a consequence of variations in market factors. Thus, they include trading risks and also structural risks, which are also affected by market shifts.

This risk comes from changes in **risk factors** - interest rates, inflation rates, exchange rates, share prices, the spread on loans, commodity prices and the volatility of each of these elements - as well as from the liquidity risk of the various products and markets in which the Group operates, and balance sheet liquidity risk.

- **Interest rate risk** is the possibility that changes in interest rates could adversely affect the value of a financial instrument, a portfolio or the Group as a whole. It affects loans, deposits, debt securities, most assets and liabilities in the trading books and derivatives, among others.

- **Inflation rate risk** is the possibility that changes in inflation rates could adversely affect the value of a financial instrument, a portfolio or the Group as a whole. It affects instruments such as loans, debt securities and derivatives, where the return is linked to inflation or to a change in the actual rate.

- **Exchange rate risk** is the sensitivity of the value of a position in a currency other than the base currency to a movement in exchange rates. Hence, a long or open position in a foreign currency will produce a loss if that currency depreciates against the base currency. Among the positions affected by this risk are the Group's investments in subsidiaries in non-euro currencies, as well as any foreign currency transactions.

- **Equity risk** is the sensitivity of the value of positions in equities to adverse movements in market prices or expectations of future dividends. Among other instruments, this affects positions in shares, stock market indices, convertible bonds and derivatives using shares as the underlying asset (put, call, equity swaps, etc.).

- **Credit spread risk** is the risk or sensitivity of the value of positions in fixed income securities or in credit derivatives to movements in credit spread curves or in recovery rates associated with issuers and specific types of debt. The spread is the difference between financial instruments listed with a margin over other benchmark instruments, mainly the IRR of Government bonds and interbank interest rates.

- **Commodities price risk** is the risk derived from the effect of potential changes in prices. The Group's exposure to this risk is not significant and is concentrated in derivative operations on commodities with customers.

- **Volatility risk** is the risk or sensitivity of the value of a portfolio to changes in the volatility of risk factors: interest rates, exchange rates, shares, credit spreads and commodities. This risk is incurred by all financial instruments where volatility is a variable in the valuation model. The most significant case is financial options portfolios.

All these market risks can be partly or fully mitigated by using options, futures, forwards and swaps.

Other types of market risk require more complex hedging. For example:

- **Correlation risk.** Correlation risk is the sensitivity of the portfolio to changes in the relationship between risk factors (correlation), either of the same type (for example, two exchange rates) or different types (for example, an interest rate and the price of a commodity).

- **Market liquidity risk.** Risk when a Group entity or the Group as a whole cannot reverse or close a position in time without having an impact on the market price or the cost of the transaction. Market liquidity risk can be caused by a reduction in the number of market makers or institutional investors, the execution of a large volume of transactions, or market instability. It increases as a result of the concentration of certain products and currencies.

- **Prepayment or cancellation risk.** When the contractual relationship in certain transactions explicitly or implicitly allows the possibility of early cancellation without negotiation before maturity, there is a risk that the cash flows may have to be reinvested at a potentially lower interest rate. This mainly affects mortgage loans and mortgage securities.

- **Underwriting risk.** This occurs as a result of an entity's involvement in underwriting a placement of securities or another type of debt, assuming the risk of partially owning the issue or the loan due to non-placement of all of it among potential buyers.

In addition to market risks, balance sheet liquidity risk must also be considered: unlike market liquidity risk, **liquidity risk** is defined as the possibility of not meeting payment obligations on time, or doing so at excessive cost. Among the losses caused by this risk are losses due to forced sales of assets or margin impacts due to the mismatch between expected cash inflows and outflows.

Pension and actuarial risks, which are described below, also depend on shifts in market factors.

Depending on the nature of the risk, activities are segmented as follows:

a) Trading: financial services for customers and purchase-sale and taking positions in fixed-income, equity and currency products, mainly. The SGCB (Santander Global Corporate Banking) division is responsible for managing this risk.

b) Structural risks: market risks inherent in the balance sheet, excluding the trading portfolio. Management decisions on these risks are taken by the Assets and Liabilities Committee (ALCO) of each country in coordination with the Group's ALCO and are executed by the Financial division. This management seeks to inject stability and recurrence into the financial margin on the Group's commercial activity and economic value, maintaining adequate levels of liquidity and solvency. The risks are:

- **Structural interest rate risk:** this arises from maturity mismatches and re-pricing of all assets and liabilities.

- **Structural exchange rate risk/hedging:** exchange rate risk occurs when the currency in which the investment is made is different from the euro, irrespective of whether the company consolidates or not (structural exchange rate). Exchange-rate hedging positions for future profits in currencies other than the euro (hedging of profits) are also included under this heading.

- **Structural equity risk:** this involves investments via stakes in financial or non-financial companies that are not consolidated, as well as available-for-sale portfolios consisting of equity positions.

c) Liquidity risk: when measuring liquidity risk, the following types of risk are considered:

- **Financing risk** (or short-term liquidity risk): this identifies the possibility that the entity is unable to meet its obligations as a result of the inability to sell assets or obtain financing.

- **Mismatch risk** (or long term liquidity risk): this identifies the possibility that differences between the maturity structures of assets and liabilities generate an additional cost to the entity as a consequence of unappropriated management or a market situation that might affect the availability or the cost of funding sources.

- **Contingency risk**: this identifies the possibility that adequate management levers will be unavailable to raise liquidity as a result of an outlier event that entails greater financing needs or more strict collateral requirements to raise funds.

- **Concentration risk:** this identifies the possibility that the entity is overly concentrated as to sources of funding in terms of counterparties, maturities, products or geographies that might give rise to issues if such concentration were to lead to non-renewal of financing.

- **Market risk for liquidity risk purposes:** the risk of loss of value of the entity's liquid assets buffer and that changes in the value of the entity's transactions (derivatives and guarantees, among others) may imply additional collateral needs and therefore impair liquidity.

- **Asset encumbrance risk** or risk of excess assets committed in financing transactions and other types of market dealing: the risk of not having sufficient unencumbered assets available to meet collateral or margin requirements or to execute actions under the liquidity contingency plan.

d) Pension and actuarial risk:

- **Pension risk:** the risk assumed by the Bank in relation to pension commitments with its employees. The risk lies in the possibility that the fund will not cover these commitments in the accrual period for the provision and the profitability obtained by the portfolio will not be sufficient, requiring the Group to increase its contributions.

- **Actuarial risk:** unexpected losses resulting from an increase in commitments to holders of insurance policies, as well as losses from unforeseen cost increases.

C.2.2. Trading market risk

C.2.2.1. Key figures and change over time[23]

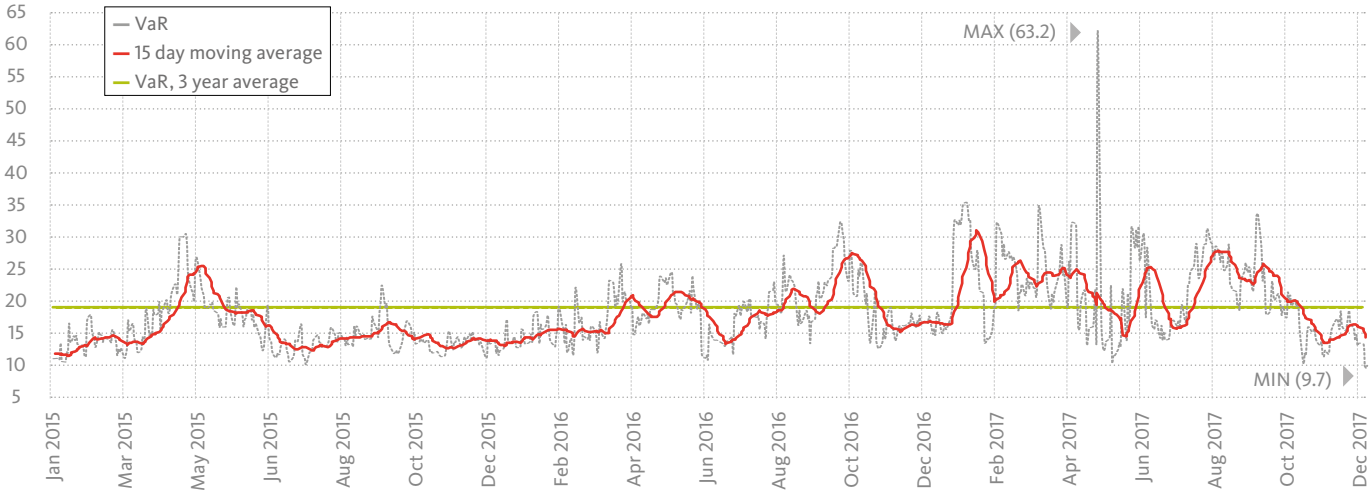
Santander Group's trading risk profile remained relatively low in 2017, in line with previous years, due to the fact that the Group's activity has traditionally focused on providing services to its customers, with only limited exposure to complex structured assets, as well as geographic diversification and by risk factors.

C.2.2.1.1. VaR analysis[24]

In 2017, Santander Group maintained its strategy of concentrating its trading activity on customer business, minimising where possible exposures to directional risk in net terms. This is reflected in the Value at Risk (VaR) of the SGCB trading book, which, despite the volatility in Brazil in May in terms of interest rates and exchange rates owing to the political turmoil, rose slightly above its average path over the last three years, ending 2017 at EUR 10.2 million, close to the minimum level of the year[25].

VAR 2015-2017 (EXCL. POPULAR)

Million euros. VaR at 99% over a one day horizon.



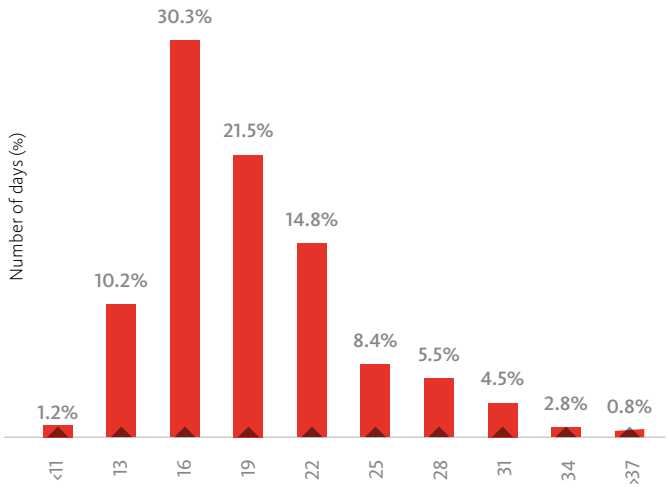
VaR during 2017 fluctuated between EUR 9.7 million and EUR 63.2 million. The most significant changes were related to variations in exchange and interest rate exposures and also market volatility.

The average VaR in 2017 was EUR 21.5 million, slightly higher than in the two previous years (EUR 18.3 million in 2016 and EUR 15.6 million in 2015).

The following histogram shows the distribution of risk in VaR terms from 2015 to 2017. The accumulation of days with levels of between EUR 13 million and EUR 31 million (95.2%) is shown. Values higher than EUR 31 million (3.6%) largely occur in periods affected by temporary spikes in volatility, mainly in the Brazilian real against the dollar and also in the Brazilian interest rates.

HISTOGRAM VaR 2015-2017

VaR at 99% over a one day horizon
Number of days (%) in each range



VaR in million euros

23. Excluding Popular. Trading portfolios of Popular represents less than 1% of the equivalent market risk of Santander Group with very low activity and complexity.
24. Value at Risk. The definition and calculation methodology for VaR is set out in section C.2.2.2.1. Value at Risk (VaR).
25. Regarding trading activity in SGCB (Santander Global Corporate Banking) financial markets. In addtion to the trading activity of SGCB, there are other positions catalogued for accounting purposes. The total VaR of trading of this accounting perimeter was EUR 9.9 million.

Risk per factor

The following table displays the average and latest VaR values at 99% by risk factor over the last three years, the lowest and highest values in 2017 and the Expected Shortfall (ES) at 97.5%[26] at the close of 2017:

VAR STATISTICS AND EXPECTED SHORTFALL BY RISK FACTOR[27, 28]

Million euros. VaR at 99% and ES at 97.5% with one day time horizon.

		2017					2016		2015	
		VaR (99%)				ES (97.5%)	VaR		VaR	
		Minimum	Average	Maximum	Latest	Latest	Average	Latest	Average	Latest
Total trading	**Total**	**9.7**	**21.5**	**63.2**	**10.2**	**11.5**	**18.3**	**17.9**	**15.6**	**13.6**
	Diversification effect	(2.1)	(8.0)	(39.9)	(7.6)	(7.9)	(10.3)	(9.6)	(11.1)	(5.8)
	Interest rate	7.7	16.2	70.4	7.9	10.0	15.5	17.9	14.9	12.7
	Equities	1.0	3.0	5.9	1.9	2.1	1.9	1.4	1.9	1.1
	Exchange rate	2.1	6.6	15.7	3.3	2.8	6.9	4.8	4.5	2.6
	Credit spread	2.3	3.6	5.1	4.6	4,6	4.2	3.3	5.2	2.9
	Commodities	0.0	0.0	0.1	0,0	0.0	0.1	0.1	0.2	0.1
Europe	**Total**	**4.8**	**7.0**	**12.0**	**6.4**	**6.9**	**9.0**	**9.4**	**11.6**	**11.1**
	Diversification effect	(3.2)	(6.1)	(11.1)	(6.0)	(5.6)	(9.1)	(7.6)	(8.3)	(5.6)
	Interest rate	4.3	6.1	11.5	5.7	5.7	8.2	9.1	10.6	10.9
	Equities	0.3	1.1	2.9	0.5	0.6	1.6	1.5	1.4	1.0
	Exchange rate	0.3	2.1	5.7	1.4	1.5	4.1	3.0	3.3	1.9
	Credit spread	2.4	3.7	5.7	4.7	4.7	4.1	3.4	4.4	2.8
	Commodities	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.1
Latin America	**Total**	**7.7**	**20.1**	**72.8**	**8.4**	**9.2**	**13.7**	**13.5**	**10.6**	**9.7**
	Diversification effect	1.6	(3.7)	(34.9)	(4.1)	(4.3)	(3.6)	(2.7)	(4.8)	(4.4)
	Interest rate	7.2	15.1	82.3	7.5	8.7	11.4	13.0	10.7	9.3
	Equities	0.5	3.3	6.5	1.9	2.2	1.4	0.8	1.5	0.5
	Exchange rate	1.5	5.5	14.7	3.1	2.6	4.5	2.4	3.2	4.3
USA and Asia	**Total**	**1.2**	**2.1**	**3.7**	**1.2**	**1.5**	**1.3**	**2.7**	**0.9**	**0.9**
	Diversification effect	0.5	(0.6)	(1.7)	(0.4)	(0.2)	(0.5)	(0.6)	(0.5)	(0.4)
	Interest rate	1.2	2.0	2.9	1.2	1.4	1.3	2.7	0.8	0.8
	Equities	0.0	0.2	1.4	0.0	0.0	0.1	0.0	0.1	0.0
	Exchange rate	0.1	0.5	1.3	0.4	0.2	0.4	0.5	0.4	0.4
Global activities	**Total**	**0.1**	**0.4**	**0.7**	**0.2**	**0.2**	**0.6**	**0.5**	**1.6**	**0.4**
	Diversification effect	(0.0)	(0.1)	(0,2)	(0,1)	(0.0)	(0.1)	(0.1)	(0.6)	(0.2)
	Interest rate	0.0	0.1	0.3	0.0	0.0	0.1	0.1	0.5	0.1
	Credit spread	0.1	0.4	0.6	0.2	0.2	0.5	0.5	1.6	0.4
	Exchange rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

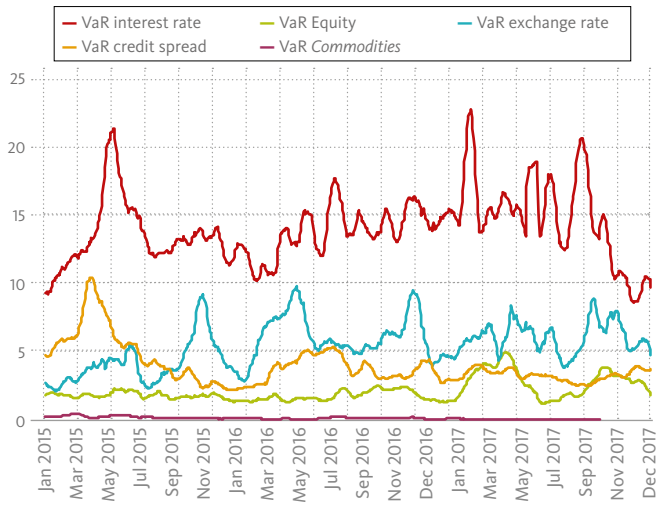
26. This metric is defined in detail in section C.2.2.2.2. Following the recommendation of the Basel Committee in its Fundamental review of the trading book: a revised market risk framework (October 2013), the confidence level of 97.5% approximates a risk level similar to that captured by VaR with a 99% confidence level.
27. The VaR of global activities includes operations that are not assigned to any particular country.
28. In Latin America, the United States and Asia, VaR levels are not shown separately for credit spreads and commodities, because of their scarce or zero materiality.

At the end of 2017, VaR decreased by EUR 7.7 million regarding year-end 2016, increasing average VaR by EUR 3.2 million. By risk factor, average VaR increased in interest rate and equity risk, but fell in exchange rate, credit spread and commodities. By geographies, there was a slight increase in Latin America and the United States/Asia, although it fell in the other geographies.

The evolution of VaR by risk factor has, in general, been stable over the last few years. The temporary rises in VaR for various factors are explained more by temporary increases in the volatility of market prices than by significant changes in positions.

HISTORICAL VAR BY RISK FACTOR

Million euros. VaR at 99% with one day time horizon (15 day moving average)



Lastly, the table below compares the VaR with stressed VaR[29] figures for the trading activity of the two units with the highest average VaR in 2017.

VAR VS. STRESSED VAR IN 2017: MAIN PORTFOLIOS

Million euros. VaR and stressed VaR at 99% with one-day time horizon

		2017				2016	
		Mín	Average	Max	Latest	Average	Latest
Spain	VaR (99%)	2.3	3.9	5.6	5.3	5.7	4.7
	Stressed VaR (99%)	12.8	17.6	25.0	17.9	14.9	14.3
Brazil	VaR (99%)	6.2	18.6	72.7	6.3	12.0	10.6
	Stressed VaR (99%)	9.0	31.4	66.7	11.7	22.2	23.0

C.2.2.1.2. Gauging and backtesting measures

The real losses can differ from the VaR forecasts for various reasons related to the limitations of this metric. This is set out in more detail in the section C.2.2.2. Methodologies. The Group regularly analyses and contrasts the accuracy of the VaR calculation model in order to confirm its reliability.

The most important test consists of backtesting exercises, analysed at local and global levels and in all cases with the same methodology. Backtesting consists of comparing the VaR forecast measurements, with a certain level of confidence and time frame, with the real results of losses obtained in a same time frame. This enables anomalies in the VaR model of the portfolio in question to be detected (for example, shortcomings in the parameterisation of the valuation models of certain instruments, not very adequate proxies, etc.).

Santander calculates and evaluates three types of backtesting:

- "Clean" backtesting: daily VaR is compared to the results obtained without taking into account intraday results or changes in portfolio positions. This method compares the effectiveness of the individual models used to assess and measure the risks of positions.
- Backtesting on complete results: the daily VaR is compared with the day's net results, including the results of intraday operations and those generated by fees.
- Backtesting on complete results without mark-ups or fees: the daily VaR is compared to the day's net results from intraday operations but excluding those generated by mark-ups and fees. This method aims to give an idea of the intraday risk assumed by Group treasuries.

In 2017, for the total portfolio, there were two exceptions for Value at Earnings (VaE)[30] at 99% (day on which daily profit was higher than VaE). The first, on 23 May, explained by the major shifts in the exchange rates of the euro and US dollar against the Brazilian real and the interest rate curves for Brazil, as a result of political events in the country, and the second on 28 December due to a general markets movement favourable to the portfolio positions.

There was also an exception to VaR at 99% (day on which the daily loss was higher than the VaR) on 18 May, for the same reason as the exception to VaE of the same month.

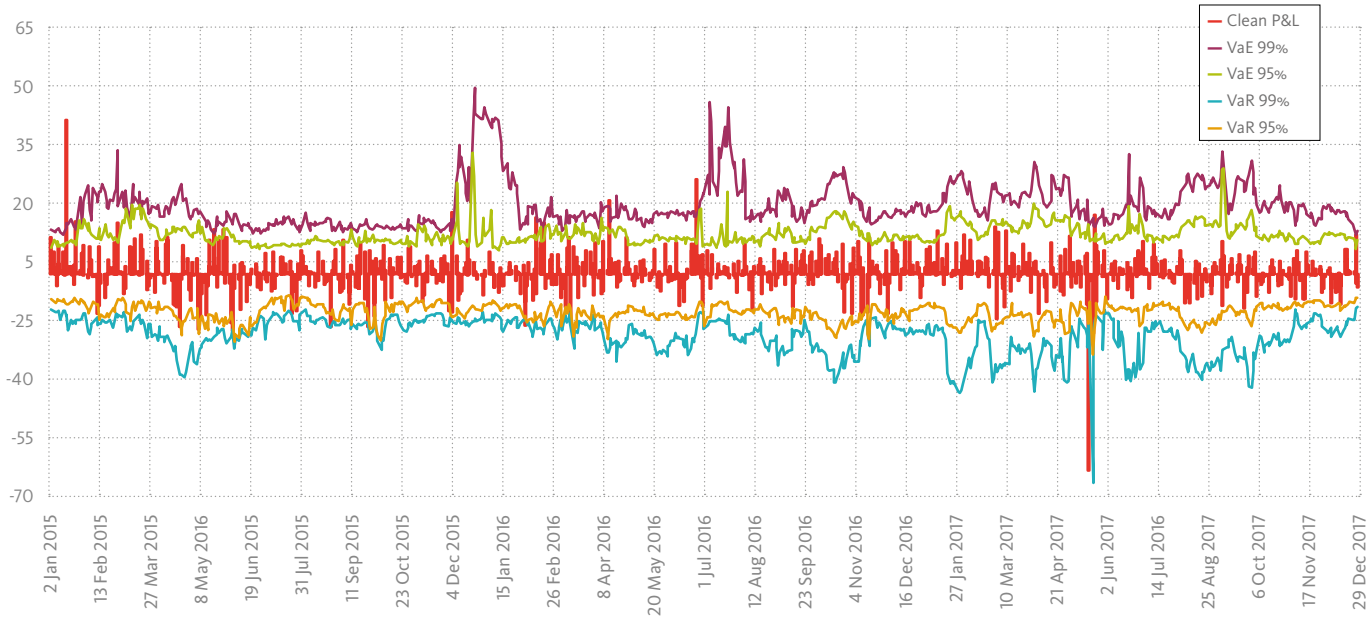
The number of exceptions which occurred is consistent with the assumptions specified in the VaR calculation model.

29. Description in section C.2.2.2.2.

30. The definition and calculation methodology for VaE is set out in section C.2.2.2.1.

BACKTESTING OF TRADING PORTFOLIOS: DAILY RESULTS VS. VAR FOR PREVIOUS DAY

Million euros



C.2.2.1.3. Distribution of risks and management results[31]

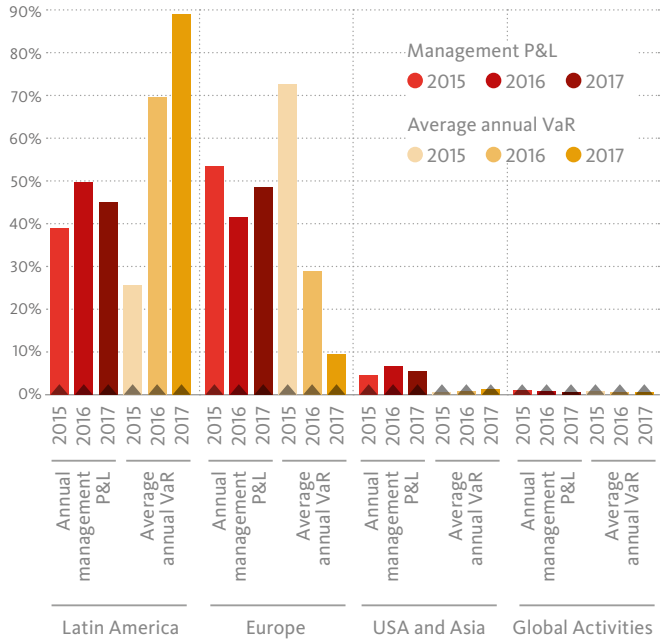
Geographical distribution

In the trading activity, the average contribution of Latin America to the Group's total VaR in 2017 was 88.4% compared with a contribution of 43.8% in economic results. Europe, with 10.6% of global risk, contributed 50.5% of results. In relation to prior years, there was a gradual homogenisation in the profile of activity in the Group's different units, focused generally on providing service to professional and institutional clients.

Below is the geographic contribution (by percentage) to the Group total, both in risks, measured in VaR terms, as well as in results, measured in economic terms.

VAR / MANAGEMENT P&L: GEOGRAPHICAL DISTRIBUTION

Average VaR (at 99% with a 1 day time horizon) and Annual cumulative management P&L (EUR million), % of annual totals



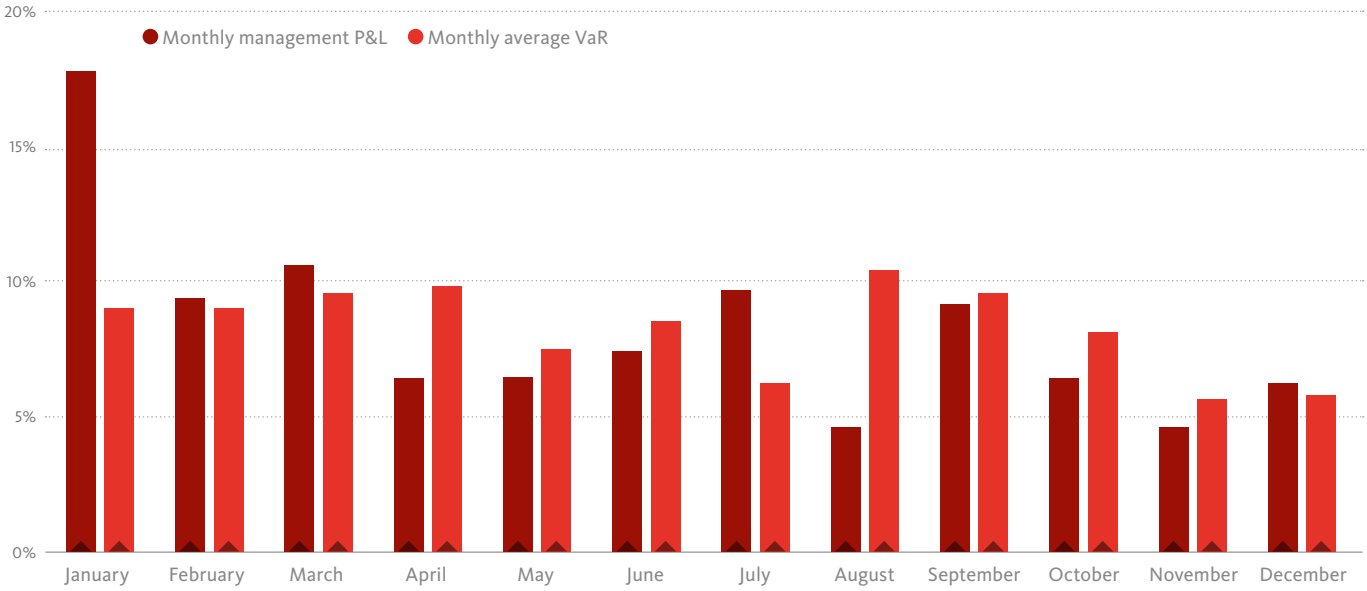
31. Results similar in terms to Gross Margin (excluding operating costs, the financial margin would be the only cost).

Distribution of risk by time

The next chart shows the risk assumption profile, in terms of VaR, compared to results in 2017. The average VaR remained relatively stable in the first half, as did results, although they displayed higher volatility in the second half owing to market instability.

TIME DISTRIBUTION OF RISKS AND P&L IN 2017: PERCENTAGES OF ANNUAL TOTALS

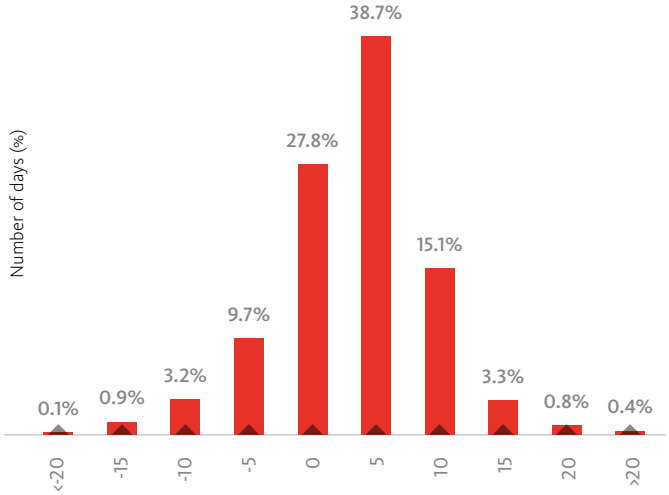
VaR (at 99% with a 1 day time horizon) and annual cumulative management P&L (million euros), % of annual totals.



The following frequency histogram shows the distribution of daily economic results on the basis of their size between 2015 and 2017. It shows that in more than 94.5% of the days with open markets, the daily returns[32] were between a range of EUR -10 and +10 million.

DAILY MANAGEMENT P&L (MTM) 2015-2017 FREQUENCY HISTOGRAM

Daily management P&L "clean" of fees and intraday operations (EUR mn). Number of days (%) in each range.



C.2.2.1.4. Risk management of derivatives

Derivatives activity is mainly focused on marketing investment products and hedging risks for customers. Management is focused on ensuring that the net risk opened is the lowest possible.

These transactions include options on equities, fixed-income and exchange rates. The units where this activity mainly takes place are: Spain, Brazil, UK and Mexico.

The following chart shows the VaR Vega[33] performance of structured derivatives business over the last three years. It fluctuated at around an average of EUR 4 million. In general, the periods with higher VaR levels related to episodes of significant rises in volatility in the markets.

Although in 2015, VaR Vega was similar to the previous year in the first quarter of the year, in the two next quarters it was affected by high market volatility due to events such as Greece's bail-out, high stock market volatility in China currency depreciation, and rating downgrade in Brazil, as well the strong depreciation of its currency against the euro and the dollar.

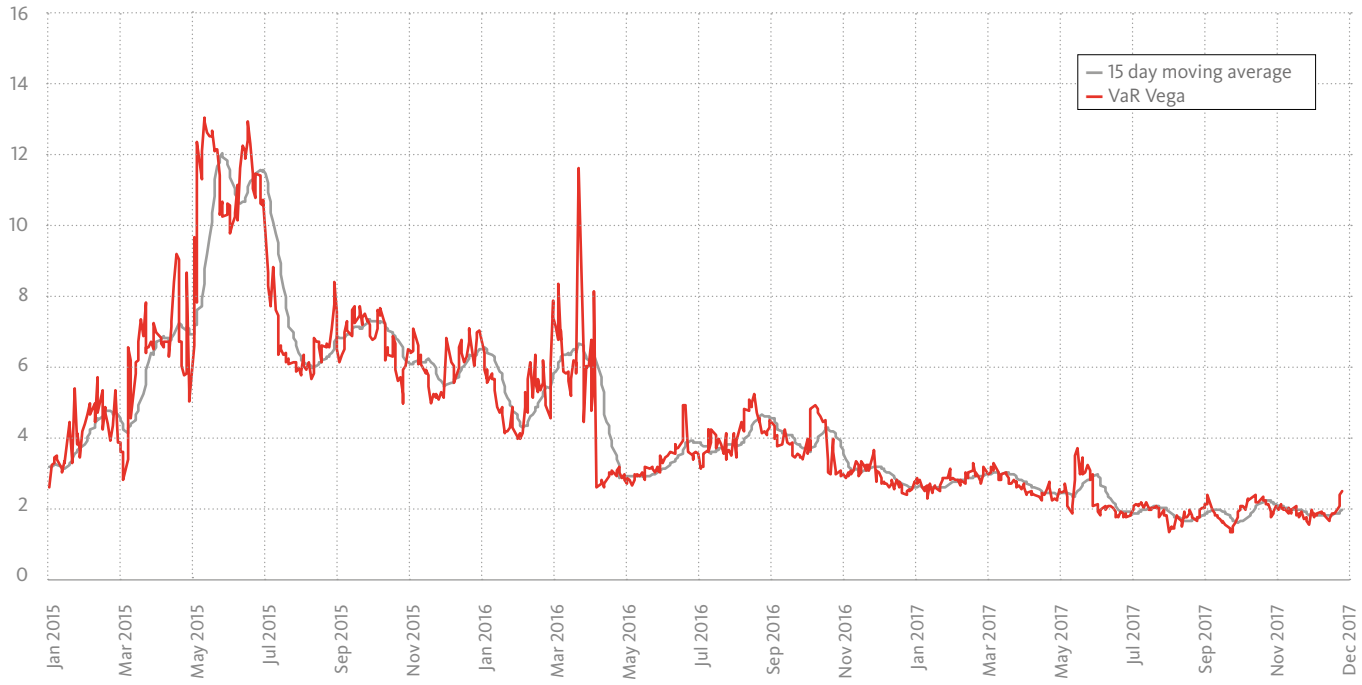
During 2016, a number of different events pushed up market volatility (Brexit, general elections in Spain and the US, political-economic situation in Brazil, constitutional referendum in Italy).

32. Yields "clean" of fees and results of intraday derivative operations.
33. Vega, a Greek term, means here the sensitivity of the value of a portfolio to changes in the price of market volatility.

2017, excluding certain occasions, was less volatile than the two previous years, which means less risk and, hence a lower VaR Vega.

CHANGE IN RISK OVER TIME (VAR) OF THE DERIVATIVES BUSINESS

Million euros. VaR vega at a 99% over a one day horizon.



Regarding the VaR by risk factor, on average, the exposure was concentrated, in this order: equities, interest rates, exchange rates and commodities. This is shown in the table below:

FINANCIAL DERIVATIVES. RISK (VAR) BY RISK FACTOR

Million euros. VaR at a 99% over a one day horizon.

	2017				2016		2015	
	Minimum	Average	Maximum	Latest	Average	Latest	Average	Latest
Total VaR Vega	**1.4**	**2.3**	**3.7**	**2.5**	**4.0**	**2.5**	**6.8**	**7.0**
Diversification effect	(0.6)	(1.5)	(3.1)	(0.6)	(2.4)	(2.3)	(2.3)	(1.7)
VaR interest rate	0.6	1.3	2.5	0.7	3.6	2.6	6.5	7.3
VaR equities	0.9	1.5	2.2	1.4	1.7	1.3	1.5	0.8
VaR exchange rate	0.4	0.9	2.4	1.0	1.1	0.9	1.1	0.6
VaR commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0

Exposure by business unit was mainly concentrated in Spain, Brazil, UK and Mexico (in that order).

FINANCIAL DERIVATIVES. RISK (VAR) BY UNIT

Million euros. VaR at a 99% over a one day horizon.

	2017				2016		2014	
	Minimum	Average	Maximum	Latest	Average	Latest	Average	Latest
Total VaR Vega	**1.4**	**2.3**	**3.7**	**2.5**	**4.0**	**2.5**	**6.8**	**7.0**
Spain	1.0	1.9	3.0	1.7	3.6	2.3	6.6	6.9
Santander UK	0.5	0.6	0.8	0.6	1.3	0.9	0.9	0.9
Brazil	0.4	0.8	3.1	0.9	0.8	0.7	0.7	0.4
Mexico	0.2	0.5	1.2	0.7	0.4	0.2	0.8	0.3

The average risk in 2017 (EUR 2.3 million) is lower compared to 2016 and 2015, for the reasons explained above.

Santander Group continues to have a very limited exposure to instruments or complex structured vehicles, reflecting a management culture one of whose hallmarks is prudence in risk management. In both cases exposure has once again been reduced compared to the prior year, and the Group therefore holds:

- Hedge funds: the total exposure is not significant (EUR 32.6 million at close of December 2017) and is all indirect, acting as counterparty in derivatives transactions. The risk with this type of counterparty is analysed case by case, establishing percentages of collateralisation on the basis of the features and assets of each fund.

- Monolines: exposure to bond insurance companies (monolines) as of December 2017 was EUR 27.3 million, all of it indirect, by virtue of the guarantee provided by this type of entity for various financing or traditional securitisation transactions. The exposure in this case is to double default, as the primary underlying assets are of high credit quality.

This was mainly due to the integration of positions of institutions acquired by the Group, as Sovereign in 2009. All these positions were known at the time of purchase, having been duly provisioned. These positions, since their integration in the Group, have been notably reduced, with the ultimate goal of eliminating them from the balance sheet.

Santander's policy for approving new transactions related to these products remains very prudent and conservative. It is subject to strict supervision by the Group's senior management. Before approving a new transaction, product or underlying asset, the Risk division verifies:

- The existence of an appropriate valuation model to monitor the value of each exposure: mark-to-market, mark-to-model or mark-to-liquidity.

- The availability in the market of observable data (inputs) needed to apply this valuation model.

  And provided these two points are always met:

  - The availability of appropriate systems, duly adapted to calculate and monitor the results, positions and risks of new operations every day.

  - The degree of liquidity of the product or underlying asset, in order to make possible their coverage when deemed appropriate.

C.2.2.1.5. Issuer risk in trading portfolios

Trading activity in credit risk is mainly conducted in the Treasury Units in Spain. It is done by taking positions in bonds and credit default swaps (CDS) at different maturities on corporate and financial references, as well as indices (Itraxx, CDX).

The accompanying table shows the major positions at year-end in Spain, distinguishing between long (purchases of bonds and sales of CDS protection) and short (sales of bonds and purchases of CDS protection) positions.

LONG AND SHORT MAJOR POSITIONS

Million euros

	Top 'long' positions (sales of protection)		Top 'short' positions (purchase of protection)	
	Exposure at *default* (EAD)	**% of total EAD**	**Exposure at *default* (EAD)**	% of total EAD
1st reference	129	2.9%	(166)	2.8%
2nd reference	89	2.0%	(25)	0.4%
3rd reference	68	1.5%	(16)	0.3%
4th reference	64	1.4%	(14)	0.2%
5th reference	60	1.3%	(9)	0.2%
Sub-total top 5	**410**	**9.1%**	**(230)**	**3.9%**
Total	**4,462**	**100%**	**(5,863)**	**100%**

Note: zero recoveries are supposed (LCR=0) in the EAD calculation

C.2.2.1.6. Scenario analysis

Various stress scenarios were calculated and analysed regularly in 2017 (minimum monthly) at the local and global levels for all the trading portfolios and using the same risk factor assumptions.

Maximum volatility scenario (worst case)

This scenario is given particular attention as it combines historic movements of risk factors with an ad-hoc analysis in order to reject very unlikely combinations of variations (for example, sharp falls in stock markets together with a decline in volatility). A historic volatility equivalent to six standard deviations is applied. The scenario is defined by taking for each risk factor the movement which represents the greatest potential loss in the portfolio, rejecting the most unlikely combinations in economic-financial terms.

At year-end, that scenario implied, for the global portfolio, interest rate rises in Latin American markets and falls in core markets, stock market falls, depreciation of all currencies against the euro, and increased credit spreads and volatility.

The results for this scenario at the close of 2017 are shown in the following table:

STRESS SCENARIO: MAXIMUM VOLATILITY *(WORST CASE)*

Million euros

	Interest rate	Equities	Exchange rate	Credit spread	Commodities	Total
Total trading	**(32.5)**	**(8.7)**	**(5.3)**	**(18.7)**	**(0.0)**	**(65.2)**
Europe	(10.3)	(3.3)	(1.9)	(18.2)	(0.0)	(33.7)
Latin America	(21.0)	(5.4)	(3.0)	(0.0)	(0.0)	(29.4)
US	(0.1)	(0.0)	(0.3)	(0.0)	(0.0)	(0.4)
Global activities	(0.1)	(0.0)	(0.0)	(0.5)	(0.0)	(0.6)
Asia	(1.0)	(0.0)	(0.1)	(0.0)	(0.0)	(1.1)

The stress test shows that the economic loss suffered by the Group in its trading portfolios, in terms of the mark to market (MtM) result, would be EUR 65.2 million, if the stress movements defined in the scenario materialised in the market. This loss would be concentrated in Europe (in the following order: credit spread, interest rate, equities and exchange rate) and in Latin America (in the following order: interest rates, equities and exchange rate).

Other global stress scenarios

"Abrupt crisis": an ad hoc scenario with sharp market movements. Rise in interest rate curves, sharp falls in stock markets, strong appreciation of the dollar against other currencies, rise in volatility and in credit spreads.

"Subprime crisis": historic scenario of the US mortgage crisis. The objective of the analysis was to capture the impact on results of the reduction in liquidity in the markets. Two time horizons were used (one day and 10 days), and in both cases there were falls in stock markets and in interest rates in core markets and rises in emerging markets, and dollar appreciation against other currencies.

"Plausible Forward Looking Scenario": a hypothetical plausible scenario defined at local level in market risk units, based on the portfolio positions and their expert judgement regarding short-term changes in market variables which can have a negative impact on such positions.

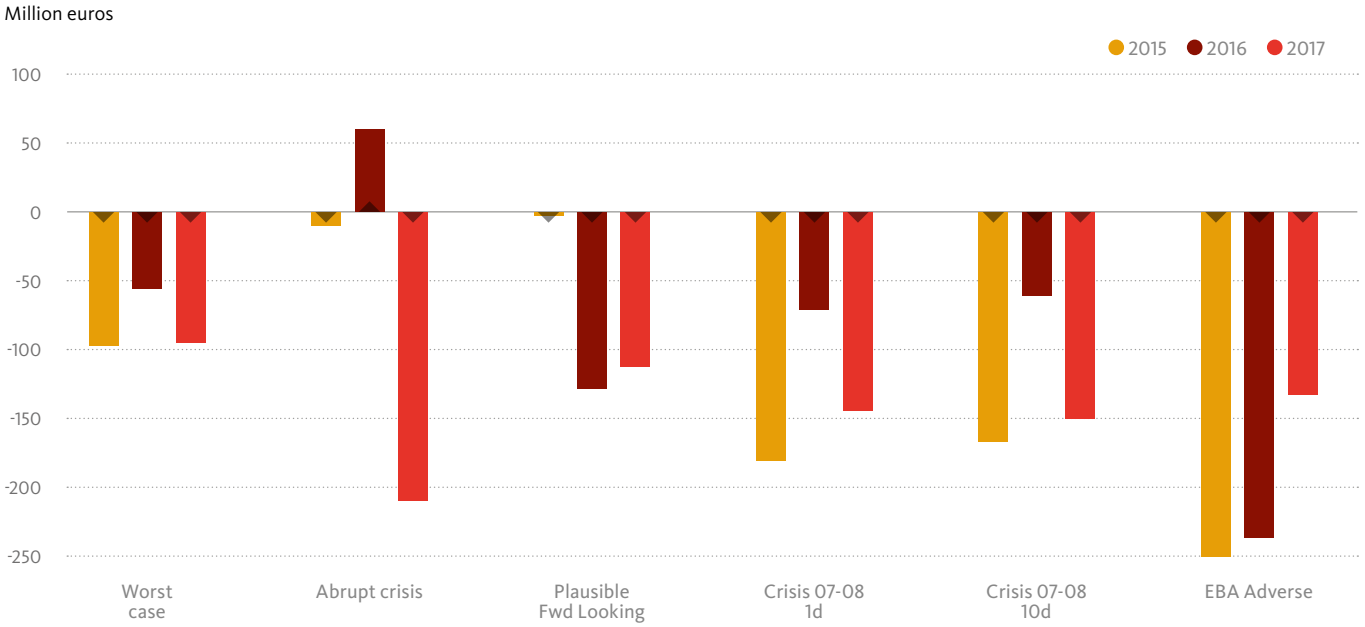
"EBA adverse scenario": the scenario proposed by the EBA in April 2014 as part of the EBA 2014 EU-Wide Stress Test and updated in January 2016. It was initially conceived as an adverse scenario proposed by European banks thinking in terms of a 2014-2016 time horizon and updated last year to the 2016-2018 time horizon. It reflects the systemic threats which are considered to be the most serious threats to the stability of the banking sector in the European Union.

Reverse stress tests analysis, which are based on establishing a predefined result (unfeasibility of a business model or possible insolvency) and subsequently the risk factor scenarios and movements which could cause that situation are identified.

Every month a consolidated stress test report is performed with explanations of the main changes in results for the various scenarios and units. An early warning mechanism has also been established so that when the loss for a scenario is high in historic terms and/or in terms of the capital consumed by the portfolio in question, the relevant business executive is informed.

The results of these global scenarios for the last three years are shown in the following table:

STRESS TEST RESULTS. COMPARISON OF 2015-2017 SCENARIOS (ANNUAL AVERAGES)



C.2.2.1.7. Linkage with balance sheet items. Other alternative risk measures

Below are the year-end 2017 balance sheet items in the Group's consolidated position that are subject to market risk, distinguishing the positions whose main risk metric is the VaR from those where monitoring is carried out with other metrics. The items subject to market trading risk are highlighted.

RELATION OF RISK METRICS WITH BALANCES IN GROUP'S CONSOLIDATED POSITION

Million euros

		Main market risk metric		
	Balance sheet amount	VaR	Other	Main risk factor for 'Other' balance
Assets subject to market risk	**1,444,305**	**167,943**	**1,276,362**	
Cash and deposits at central banks	110,995		110,995	Interest rate
Trading portfolio	125,458	124,924	534	Interest rate, credit spread
Other financial assets at fair value	34,782	34,500	282	Interest rate, credit spread
Available-for-sale financial assets	133,271	-	133,271	Interest rate; equities
Investments	6,184	-	6,184	Equities
Hedging derivatives	8,537	8,519	18	Interest and exchange rates
Loans	916,504		916,504	Interest rate
Other assets financials[1]	47,390		47,390	Interest rate
Other non-financial assets[2]	61,184		61,184	
Liabilities subject to market risk	**1,444,305**	**175,088**	**1,269,217**	
Trading portfolio	107,624	107,442	182	Interest rate, credit spread
Other financial liabilities at fair value	59,616	59,609	7	Interest rate, credit spread
Hedging derivatives	8,044	8,037	7	Interest and exchange rates
Financial liabilities at amortised cost[3]	1,126,399		1,126,399	Interest rate
Provisions	14,489		14,489	Interest rate
Other financial liabilities	8,709		8,709	Interest rate
Equity	106,833		106,833	
Other non-financial liabilities	12,591		12,591	

1. Includes adjustments to macro hedging, non-current assets held for sale, reinsurance assets, and insurance contracts linked to pensions and fiscal assets.
2. Includes intangible assets, material assets and other assets.
3. Macro-hedging adjustment.

For activity managed with metrics other than VaR, alternative measures are used, mainly: sensitivity to different risk factors (interest rate, credit spread, etc.).

In the case of the trading portfolio, the securitisations and "level III" exposures (those in which non-observable market data constitutes a significant input in the corresponding internal valuation models) are excluded from the VaR measurement.

Securitisations are mainly treated as if they were part of the credit risk portfolio (in terms of default, recovery rate, etc.). For "level III" exposures, which are not very significant in the Santander Group (basically derivatives linked to the home price index - HPI - in market activity in the UK, and interest rate and correlation derivatives for share prices in the parent bank's market activity), as well as for inputs, in general, that cannot be observed in the market (correlation, dividends, etc.), a very conservative policy is followed: this is reflected in valuation adjustments as well as sensitivity.

C.2.2.2. Methodologies

C.2.2.2.1. Value at Risk (VaR)

The standard methodology Santander Group applies to trading activities is Value at Risk (VaR), which measures the maximum expected loss with a certain confidence level and time frame. The standard for historic simulation is a confidence level of 99% and a time frame of one day. Statistical adjustments are applied enabling the most recent developments affecting the levels of risk assumed to be incorporated efficiently and on a timely manner. A time frame of two years or at least 520 days from the reference date of the VaR calculation is used. Two figures are calculated every day: one applying an exponential decay factor that accords less weight to the observations furthest away in time and another with the same weight for all observations. The higher of the two is reported as the VaR.

Value at Earnings (VaE) is also calculated. This measures the maximum potential gain with a certain level of confidence and time frame, applying the same methodology as for VaR.

VaR by historic simulation has many advantages as a risk metric (it sums up in a single number the market risk of a portfolio; it is based on market movements that really occurred without the need to make assumptions of functions forms or correlations between market factors, etc.), but it also has its limitations.

Some limitations are intrinsic to the VaR metrics, regardless of the methodology used in their calculation, including:

- The VaR calculation is calibrated at a certain level of confidence, which does not indicate the levels of possible losses beyond it.
- There are some products in the portfolio with a liquidity horizon greater than that specified in the VaR model.
- VaR is a static analysis of the portfolio risk, and the situation could change significantly during the following day, although the likelihood of this occurring is very low.

Using the historic simulation methodology also has its limitations:

- High sensitivity to the historic window used.
- Inability to capture plausible events that would have significant impact, if these do not occur in the historic window used.
- The existence of valuation parameters with no market input (such as correlations, dividend and recovery rate).
- Slow adjustment to new volatilities and correlations, if the most recent data receives the same weight as the oldest data.

Some of these limitations are overcome by using Stressed VaR and Expected Shortfall, calculating VaR with exponential decay and applying conservative valuation adjustments. Furthermore, as previously stated, the Group regularly conducts analysis and backtesting of the VaR calculation model accuracy.

C.2.2.2.2. Stressed VaR (sVaR) and Expected Shortfall (ES)

In addition to standard VaR, Stressed VaR is calculated daily for the main portfolios. The calculation methodology is the same as for VaR, with the two following exceptions:

- The historical observation period for the factors: when calculating Stressed VaR a window of 260 observations is used, rather than 520 for VaR. However, this is not the most recent data: rather, the data used is from a continuous period of stress for the portfolio in question. This is determined for each major portfolio by analysing the history of a subset of market risk factors selected based on expert judgement and the most significant positions in the books.
- Unlike VaR, Stressed VaR is obtained using the percentile with uniform weighting, not the higher of the percentiles with exponential and uniform weightings.

Moreover, the Expected Shortfall (ES) is also calculated, estimating the expected value of the potential loss when this is higher than the level set by VaR. Unlike VaR, ES has the advantages of capturing the risk of large losses with low probability (tail risk) and being a subadditive metric[34]. The Basel Committee considers that ES with a 97.5% confidence interval delivers a similar level of risk to VaR at a 99% confidence interval. ES is calculated by applying uniform weights to all observations.

C.2.2.2.3. Scenario analysis

The Group uses other metrics in addition to VaR, giving it greater control over the risks it faces in the markets where it is active. These measures include scenario analysis, which consists in defining alternative behaviours for various financial variables and obtaining the impact on results of applying these to activities. These scenarios may replicate events that occurred in the past (such as a crisis) or determine plausible alternatives that are unrelated to past events.

The potential impact on earnings of applying different stress scenarios is regularly calculated and analysed, particularly for trading portfolios, considering the same risk factor assumptions. Three scenarios are defined, as a minimum: plausible, severe and extreme. Taken together with VaR, these reveal a much more complete spectrum of the risk profile.

A number of trigger thresholds have also been established for global scenarios, based on their historical results and the capital associated with the portfolio in question. When these triggers are activated, the portfolio managers are notified so they can take appropriate action. The results of the global stress exercises, and any breaches of the trigger thresholds, are reviewed regularly, and reported to senior management, when this is considered appropriate.

C.2.2.2.4. Analysis of positions, sensitivities and results

Positions are used to quantify the net volume of the market securities for the transactions in the portfolio, grouped by main risk factor, considering the delta value of any futures or options. All risk positions can be expressed in the base currency of the unit and the currency used for standardising information. Changes in positions are monitored on a daily basis to detect any incidents, so they can be corrected immediately.

Measurements of market risk sensitivity estimate the variation (sensitivity) of the market value of an instrument or portfolio to any change in a risk factor. The sensitivity of the value of an instrument

34. According to the financial literature, subaddivity is a desirable property for a coherent risk metric. This property establishes that f(a+b) is less than or equal to f(a)+f(b). Intuitively, it assumes that the more instruments and risk factors there are in a portfolio, the lower the risks, because of the benefits of diversification. Whilst VaR only offers this property for some distributions, ES always does so.

to changes in market factors can be obtained using analytical approximations by partial derivatives or by complete revaluation of the portfolio.

Furthermore, the daily definition of the income statement by the Risks area is an excellent indicator of risks, as it allows the impact of changes in financial variables on portfolios to be identified.

C.2.2.2.5. Derivatives activities and credit management

Also noteworthy is the control of derivative activities and credit management which, because of its atypical nature, is conducted daily with specific measures. First, the sensitivities to price movements of the underlying asset (delta and gamma), volatility (vega) and time (theta) are controlled. Second, measures such as the sensitivity to the spread, jump-to-default, concentrations of positions by level of rating, etc., are reviewed systematically.

With regard to the credit risk inherent to trading portfolios, and in line with the recommendations of the Basel Committee on Banking Supervision and prevailing regulations, a further metric is also calculated: the Incremental Risk Charge (IRC). This seeks to cover the risks of non-compliance and ratings migration that are not adequately captured in VaR, through changes in the corresponding credit spreads. This metric is essentially applied to fixed-income bonds, both public and private, derivatives on bonds (forwards, options, etc.) and credit derivatives (credit default swaps, asset backed securities, etc.). IRC is calculated using direct measurements of loss distribution tails at an appropriate percentile (99.9%), over a one year horizon. The Montecarlo methodology is used, applying one million simulations.

C.2.2.2.6. Credit Valuation Adjustment (CVA) and Debt Valuation Adjustment (DVA)

Santander Group incorporates CVA and DVA when calculating the results of trading portfolios. The **Credit Valuation Adjustment (CVA)** is a valuation adjustment of over the-counter (OTC) derivatives, as a result of the risk associated with the credit exposure assumed by each counterparty. The CVA is calculated by taking into account the potential exposures with each counterparty in each future maturity.

The CVA for a particular counterparty is the sum of the CVA for all maturities. For its calculation, the following inputs are considered:

- Expected exposure: including, for each operation the current market value (MtM) as well as the potential future risk (add-on) to each maturity. CVA also considers mitigating factors such as collateral and netting agreements, together with a decay factor for derivatives with interim payments.
- Loss given default: the percentage of final loss assumed in case of credit/ non-payment of the counterparty.
- Probability of default: for cases in which there is no market information (spread curve traded through CDS, etc.), general proxies generated on the basis of companies with listed CDSs for the same sector and external rating as the counterparty are used.
- Discount factor curve.

The **Debt Valuation Adjustment (DVA)** is a valuation adjustment similar to the CVA, but in this case as a result of the Group's risk that counterparties assume in OTC derivatives.

C.2.2.3. System for controlling limits

Setting market risk and liquidity limits is designed to be a dynamic process, responding to the Group's risk appetite level (as described in section A.4.1. Risk appetite and limits structure). This process is part of an annual limits plan defined by the Group's senior management, involving every Group entity.

The market risk limits used in the Group are established based on different metrics and try to cover all activities subject to market risk from many perspectives, applying a conservative approach. The main ones are:

- VaR and Stressed VaR limits.
- Limits of equivalent and/or nominal positions.
- Interest rate sensitivity limits.
- Vega limits.
- Delivery risk limits for short positions in securities (fixed income and securities).
- Limits to constrain the volume of effective losses, and protect results generated during the period:
  - Loss trigger.
  - Stop loss.
- Credit limits:
  - Total exposure limit.
  - Jump to default by issuer limit.
  - Others.
- Limits for origination transaction.

These general limits are complemented by other sub-limits to establish a sufficiently granular limits framework for the effective control of the market risk factors to which the Group is exposed in its trading activities. Positions are monitored on a daily basis globally and for each unit at desk level, as well as with an exhaustive control of changes to portfolios, so as to identify any incidents that might need immediate correction, and thus comply with the Volcker Rule.

Three categories of limits were established based on the scope of approval and control: global approval and control limits, global approval limits with local control, and local approval and control limits. The limits are requested by the business executive of each country/entity, considering the particular nature of the business in order to achieve the budget established, seeking consistency between

the limits and the risk/return ratio. The limits are approved by the corresponding risk bodies.

Business units must comply with the approved limits at all times. In the event of a limit being exceeded, the local business executives have to explain, in writing and on the day, the reasons for the excess and the action plan to correct the situation, which in general might consist of reducing the position until it reaches the prevailing limits or setting out the strategy that justifies an increase in the limits.

If the business unit fails to respond to the excess within three days, the global business executives will be asked to set out the measures to be taken in order to make the adjustment to the existing limits. If this situation lasts for 10 days as of the first excess, senior risk management will be informed so that a decision can be taken: the risk takers could be made to reduce the levels of risk assumed.

C.2.3. Structural balance sheet risks[35]

C.2.3.1. Key figures and change over time

The market risk profile inherent in Santander Group's balance sheet, in relation to its asset volumes and shareholders' funds, as well as the budgeted financial margin, remained moderate in 2017, in line with previous years.

C.2.3.1.1. Structural interest rate risk

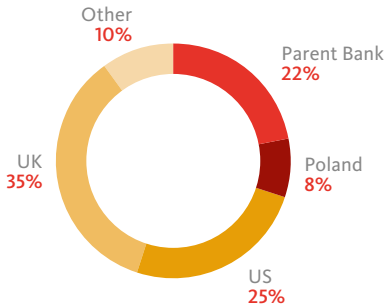
Europe and the United States

The main balance sheets, the Parent, United Kingdom and United States, in mature markets and in a low interest rate setting, usually show positive sensitivities to interest rates in economic value of equity and net interest income.

Exposure levels in all countries are moderate in relation to the annual budget and capital levels.

At the end of 2017, net interest income risk at one year, measured as sensitivity to parallel changes in the worst-case scenario of ±100 basis points, was concentrated in the British pound yield curve, at EUR 246 million, the Euro, at EUR 219 million, the US dollar, at EUR 190 million and the Polish zloty, at EUR 55 million, all relating to risks of rate cuts.

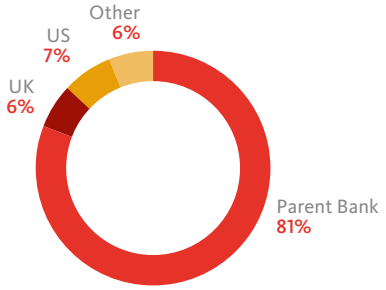
NET INTEREST INCOME (NII) SENSITIVITY[36]



Other: Portugal and SCF.

At the same date, the most relevant risk in economic value of equity, measured as its sensitivity to parallel changes in the worst-case scenario of ±100 basis points, was in the euro interest rate curve, at EUR 4,902 million, followed by the US dollar at EUR 626 million, the British pound at EUR 431 million and the Polish zloty at EUR 72 million, all with a risk of falling interest rates, scenarios which are now very unlikely.

ECONOMIC VALUE OF EQUITY (EVE) SENSITIVITY[37]



Other: Poland, Portugal and SCF.

35. Includes the total balance sheet with the exception of trading portfolios. Excluding Popular with the exception in the VaR metric.
36. Sensitivity to the worst-case scenario between +100 and -100 basis points.
37. Sensitivity to the worst-case scenario between +100 and -100 basis points.

The tables below set out the balance-sheets interest-rate risk of the Parent Bank and UK by maturity, at the end of 2017:

PARENT: INTEREST RATE REPRICING GAP[38]

Million euros

	Total	3 months	1 year	3 years	5 years	> 5 years	Not sensitive
Assets	377,668	107,820	71,307	25,701	16,939	33,876	122,026
Liabilities	430,024	108,696	49,425	60,258	47,721	72,469	91,455
Off balance sheet	52,355	51,431	734	4,605	321	(4,735)	0
***Net* gap**	**0**	**50,555**	**22,615**	**(29,952)**	**(30,461)**	**(43,329)**	**30,571**

SANTANDER UK: INTEREST RATE REPRICING GAP[39]

Million euros

	Total	3 months	1 year	3 years	5 years	> 5 years	Not sensitive
Assets	324,613	151,018	39,066	66,785	21,128	18,318	28,297
Liabilities	327,639	200,826	20,291	28,727	20,002	29,841	27,953
Off balance sheet	3,027	(11,703)	(3,409)	4,919	6,353	6,867	0
***Net* gap**	**0**	**(61,511)**	**15,366**	**42,977**	**7,479**	**(4,655)**	**344**

In general, the gaps by maturities are at reasonable levels in relation to the size of the balance sheet.

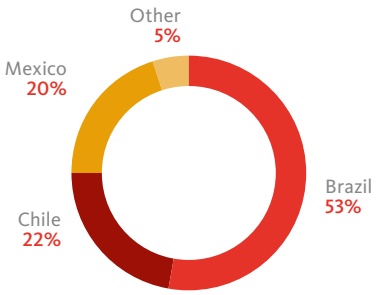
Latin America

Latin American balance sheets are usually positioned for interest rate cuts for both economic value and net interest income, except for net interest income in Mexico, where liquidity excess is invested in the short term in the local currency.

In 2017, exposure levels in all countries were moderate in relation to the annual budget and capital levels.

At the end of the year, net interest income risk over one year, measured as sensitivity to parallel changes in the worst-case scenario of ±100 basis points, was concentrated in three countries: Brazil (EUR 95 million), Chile (EUR 39 million) and Mexico (EUR 36 million), as shown in the chart below:

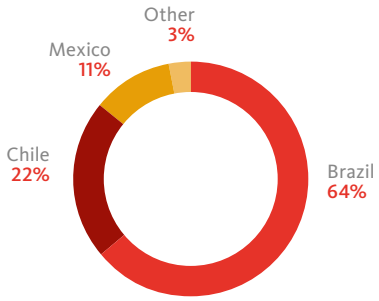
NET INTEREST INCOME (NII) SENSITIVITY[40]



Other: Argentina, Peru and Uruguay.

Risk to the economic value of equity over one year, measured as sensitivity to parallel ± 100 basis point movements in the worst-case scenario, was also concentrated in Brazil (EUR 521 million), Chile (EUR 179 million) and Mexico (EUR 91 million).

ECONOMIC VALUE OF EQUITY (EVE) SENSITIVITY[41]



Other: Argentina, Peru and Uruguay.

38. Aggregate gap for all currencies on the balance sheet of the parent bank unit, in euros.
39. Aggregate gap for all currencies on the balance sheet of the Santander UK unit, in euros.
40. Sensitivity to the worst-case scenario between +100 and -100 basis points.
41. Sensitivity to the worst-case scenario between +100 and -100 basis points.

The table below shows the interest-rate risk maturity structure of the Brazil balance sheet in December 2017:

BRAZIL: INTEREST RATE REPRICING GAP[42]

Million euros

	Total	3 months	1 year	3 years	5 years	> 5 years	Not sensitive
Assets	172,337	52,940	20,807	17,673	8,180	14,355	58,382
Liabilities	172,337	77,555	6,722	7,973	3,757	8,457	67,873
Off balance sheet	0	5,689	(268)	(4,231)	598	(1,367)	(421)
***Net* gap**	**0**	**(18,926)**	**13,818**	**5,469**	**5,021**	**4,531**	**(9,912)**

Balance sheet structural interest rate VaR

In addition to sensitivities to interest rate movements (in which, assessments of ±100 bp movements are complemented by assessments of +/-25 bp, +/-50 bp and +/-75 bp movements to give a fuller understanding of risk in countries with very low rates), Santander also uses other methods to monitor structural balance sheet risk from interest rates: these include scenario analysis and VaR calculations, applying a similar methodology to that for trading portfolios.

The table below shows the average, minimum, maximum and year-end values of the VaR of structural interest rate risk over the last three years:

BALANCE SHEET STRUCTURAL INTEREST RATE RISK (VAR)

Million euros. VaR at a 99% over a one day horizon.

	2017			
	Minimum	Average	Maximum	Latest
Structural interest rate VaR*	**280.9**	**373.9**	**459.6**	**459.6**
Diversification effect	(198.6)	(230.3)	(256.5)	(169.1)
Europe and USA	362.6	433.6	517.8	511.8
Latin America	116.9	170.6	198.4	116.9

* Includes credit spread VaR on ALCO portfolios.

	2016			
	Minimum	Average	Maximum	Latest
Structural interest rate VaR*	**242.5**	**340.6**	**405.8**	**327.2**
Diversification effect	(129.2)	(271.0)	(294.3)	(288.6)
Europe and USA	157.7	376.8	449.3	365.0
Latin America	214.0	234.9	250.8	250.8

* Includes credit spread VaR on ALCO portfolios.

	2015			
	Minimum	Average	Maximum	Latest
Structural interest rate VaR*	**250.5**	**350.0**	**775.7**	**264.2**
Diversification effect	(90.8)	(181.1)	(310.7)	(189.1)
Europe and USA	171.2	275.2	777.0	210.8
Latin America	170.1	255.9	309.3	242.6

* Includes credit spread VaR on ALCO portfolios.

Structural interest rate risk, measured in terms of VaR at one-day and at 99%, averaged EUR 373.9 million in 2017. It is important to note the high level of diversification between Europe and United States balance sheets and those of Latin America.

C.2.3.1.2. Structural exchange-rate risk/hedging of results

Structural exchange rate risk arises from Group operations in currencies, mainly related to permanent financial investments, and the results and hedging of these investments.

This management is dynamic and seeks to limit the impact on the core capital ratio of movements in exchange rates[43]. In 2017, hedging levels of the core capital ratio for exchange rate risk were maintained at approximately 100%.

At the end of 2017, the largest exposures of permanent investments (with their potential impact on equity) were, in order, in Brazilian reais, UK pounds sterling, US dollars, Chilean pesos, Polish zlotys and Mexican pesos. The Group hedges some of these positions of a permanent nature with exchange-rate derivatives.

In addition, the Financial area is responsible for managing exchange-rate risk for the Group's expected results and dividends in units where the base currency is not the euro.

C.2.3.1.3. Structural equity risk

Santander maintains equity positions in its banking book in addition to those of the trading portfolio. These positions are maintained as available for sale portfolios (capital instruments) or as equity stakes, depending on the percentage or control.

The equity portfolio available for the banking book at the end of 2017 was diversified in securities in various countries, mainly Spain, China, USA, Morocco and the Netherlands. Most of the portfolio is invested in financial activities and insurance sectors. Among other sectors, to a lesser extent, are for example the public administrations or the professional, scientific and technical activities.

Structural equity positions are exposed to market risk. VaR is calculated for these positions using market price data series or proxies. At the close of 2017, the VaR at 99% with a one day time frame was EUR 261.6 million (EUR 323 and EUR 208.1 million at the end of 2016 and 2015, respectively).

42. Aggregate gap for all currencies on the balance sheet of the Brazil unit, in euros.
43. In early 2015, the criterion for coverage of the core capital ratio was changed from phase-in to fully loaded.

C.2.3.1.4. Structural VaR

A standardised metric such as VaR can be used for monitoring total market risk for the banking book, excluding the trading activity of Santander Global Corporate Banking (the VaR for this activity is described in section 2.2.1.1.), distinguishing between fixed income (considering both interest rates and credit spreads on ALCO portfolios), exchange rates and equities.

In general, structural VaR is not high in terms of the Group's volume of assets or equity.

STRUCTURAL VAR

Million euros. VaR at a 99% over a one day horizon.

	2017				2016		2015	
	Minimum	Average	Maximum	Latest	Average	Latest	Average	Latest
Structural VaR	**754.9**	**878.0**	**991.6**	**815.7**	**869.3**	**922.1**	**698.5**	**710.2**
Diversification effect	(258.9)	(337.3)	(407.5)	(376.8)	(323.4)	(316.6)	(509.3)	(419.2)
VaR interest rate*	280.9	373.9	459.6	459.6	340.6	327.2	350.0	264.2
VaR exchange rate	471.2	546.9	621.1	471.2	603.4	588.5	634.7	657.1
VaR equities	261.6	294.5	318.4	261.6	248.7	323.0	223.2	208.1

* Includes credit spread VaR on ALCO portfolios.

C.2.3.2. Methodologies

C.2.3.2.1. Structural interest rate risk

The Group analyses the sensitivity of its net interest income and equity value to changes in interest rates. This sensitivity arises from gaps in maturity dates and the review of interest rates in the different asset and liability items.

The financial measures to adjust the positioning to that sought by the Group are agreed on the basis of the positioning of balance sheet interest rates, as well as the situation and outlook for the market. These measures range from taking positions in markets to defining the interest rate features of commercial products.

The metrics used by the Group to control interest rate risk in these activities are the repricing gap, the sensitivities of net interest income and of economic value of equity to changes in interest rate levels, the duration of equity and Value at Risk (VaR), for the purposes of calculating economic capital.

Interest rate gap on assets and liabilities

This is the basic concept for identifying the entity's interest rate risk profile and measures the difference between the volume of sensitive assets and liabilities on and off the balance sheet that re-price (i.e. that mature or are subject to rate revisions) at certain times (called, buckets). This provides an immediate approximation of the sensitivity of the entity's balance sheet and its net interest income and equity value to changes in interest rates.

Net interest income (NII) sensitivity

This is a key measure of the profitability of balance sheet management. It is calculated as the difference which arises in the net interest income during a certain period of time due to a parallel movement in interest rates. The standard period for measuring net interest income sensitivity is one year.

Economic value of equity (EVE) sensitivity

This measures the interest rate risk implicit in equity value (which for the purposes of interest rate risk is defined as the difference between the net current value of assets and the net current value of liabilities outstanding), based on the impact that a change in interest rates would have on those current values.

Treatment of liabilities without defined maturity

In the corporate model, the total volume of the balances of accounts without maturity is divided between stable and unstable balances which are obtained from a model that is based on the relation between balances and their own moving averages.

From this simplified model, the monthly cash flows are obtained and used to calculate NII and EVE sensitivities.

This model requires a variety of inputs:

- Parameters inherent in the product.
- Performance parameters of the client (in this case analysis of historic data is combined with the expert business view).
- Market data.
- Historic data of the portfolio.

Pre-payment treatment for certain assets
The pre-payment issue mainly affects fixed-rate mortgages in units where the relevant interest rate curves for the balance sheet are at low levels. This risk is modelled in these units, and this can also be applied, with some modifications, to assets without defined maturity (credit card businesses and similar).

The usual techniques used to value options cannot be applied directly because of the complexity of the factors that determine borrower pre-payments. As a result, the models for assessing options must be combined with empirical statistical models that seek to capture pre-payment performance. Some of the factors conditioning this performance are:

- **Interest rate:** the differential between fixed rates on the mortgage and the market rate at which it could be refinanced, net of cancellation and opening costs.
- **Seasoning:** trend that the pre-payment is downward at the beginning of the instrument life-cycle (contract signature) and then increases, stabilising as time passes.
- **Seasonality:** redemptions or early cancellations tend to take place at specific dates.
- **Burnout:** decreasing trend in the speed of pre-payment as the instrument's maturity approaches, which includes:

  a) Age: defines low rates of pre-payment.

  b) Cash pooling: define those loans that have already overcome various waves of interest rate falls as more stable. In other words, when a loan portfolio has passed one or more cycles of downward rates and thus high levels of pre-payment, the "surviving" loans have a significantly lower pre-payment probability.

  c) Other: geographic mobility, demographic, social and available income factors, etc.

The series of econometric relations that seek to capture the impact of all these factors is the probability of pre-payment of a loan or pool of loans and is denominated the pre-payment model.

Value at Risk (VaR)
For balance sheet activity and investment portfolios, this is defined as the 99% percentile of the distribution function of losses in equity value, calculated based on the current market value of positions and returns over the last two years, at a particular level of statistical confidence over a certain time horizon. As with trading portfolios, a time frame of two years or at least 520 days from the reference date of the VaR calculation is used.

The Group is working on implementing the guidelines published by the Basel Committee in its review of the treatment of Interest Rate Risk in the Banking Book (IRRBB), published in April 2016, applicable in 2018.

C.2.3.2.2. Structural exchange-rate risk/hedging of results
These activities are monitored via position measurements, VaR and results, on a monthly basis.

C.2.3.2.3. Structural equity risk
These activities are monitored via position measurements, VaR and results, on a monthly basis.

C.2.3.3. System for controlling limits
As already stated for the market risk in trading, under the framework of the annual limits plan, limits are set for balance sheet structural risks, responding to the Group's risk appetite level.

The main limits are:

- Balance sheet structural interest rate risk:
  - Limit on the sensitivity of net interest income to 1 year.
  - Limit of the sensitivity of equity value.
- Structural exchange rate risk:
  - Net position in each currency (for hedging positions of results).

In the event of exceeding one of these limits or their sub limits, the risk management responsibles must explain the reasons it occured and provide an action plan to correct it.

C.2.4. Liquidity risk

C.2.4.1. Key figures and change over time
The Group has a strong liquidity and financing position based on a decentralised liquidity model, where each of the Group's units is autonomous in managing its liquidity and maintains large buffers of highly liquid assets.

As a rule, short-term liquidity metrics, the Liquidity Coverage Ratio (LCR), remains stable, with regulatory ratios above the threshold (the minimum required in 2017 is 80%).

LIQUIDITY COVERAGE RATIO (LCR)

LCR	2017	2016
Group	133%	146%
Spain	130%	134%
UK	120%	139%
Brazil	126%	165%
US	118%	136%

Santander has an effective management of its liquidity buffers to face the challenge of maintaining a proper liquidity profile (regulatory limits) while protecting the profitability of our balance sheet.

Furthermore, most of the Group's units maintain sound balance sheet structures, with a stable financing structure based on a broad customer deposit base, which covers structural needs, with low dependence on short-term financing and liquidity metrics well above regulatory requirements, both locally and at Group level, and within the limits of risk appetite.

Hence, for long-term liquidity, the regulatory metric, Net Stable Funding Ratio (NSFR), remains above 100% for the Group's core units and for the consolidated ratio.

As to structural asset encumbrance risk, i.e. the risk of facing an excess of assets bearing charges or encumbrances in connection with financing transactions and other market dealings, at Group level the risk is in line with our European peers, where the main sources of encumbrance are collateralised debt issues (securitisations and covered bonds) and collateralised funding facilities provided by central banks.

The soundness of units' balance sheets is also demonstrated by stress scenarios constructed in accordance with uniform corporate criteria across the Group. All units would survive the worst-case scenario for at least 45 days, meeting liquidity requirements with their liquid asset buffers alone.

C.2.4.2. Methodologies

The Group measures liquidity risk using a range of tools and metrics that account for the risk factors identified within this risk.

Liquidity buffer

The buffer is a portion of the total liquidity available to an entity to deal with potential withdrawals of funds (liquidity outflows) that may arise as a result of periods of stress. Specifically, a buffer consists of a set of unencumbered liquid resources that are available for immediate use and capable of generating liquidity promptly, without incurring any loss or excessive discount. The Group uses the liquidity buffer as a tool that forms part of the calculation of most liquidity metrics and is also a metric in its own, with specified limits for each entity.

Liquidity Coverage Ratio (LCR)

LCR, or liquidity coverage ratio, is one of the short-term liquidity metrics used by the Group. LCR has a regulatory definition. It is intended to reinforce the short-term resistance of banks' liquidity risk profile by ensuring that they have available sufficient high-quality liquid assets to withstand a stress scenario (idiosyncratic stress or market stress) of considerable severity for thirty calendar days.

Wholesale liquidity metric

This metric takes the form of a liquidity horizon assuming non-renewable wholesale financing outflows; it measures the number of days the entity would survive using its liquid assets to cover that loss of liquidity. The Group uses this figure as an internal short-term liquidity metric which also reduces the risk of dependence on wholesale funding.

Net Stable Funding Ratio (NSFR)

NSFR, or net stable funding ratio, is one of the metrics used by the Group to measure long-term liquidity risk. It is a regulatory metric defined as the coefficient of the available amount of stable funding and the required amount of stable funding. This metric requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance sheet activities.

Structural funding ratio

The structural funding ratio measures the volume of structural funding sources used by the entity in relation to all assets regarded as structural. This internal metric is used by each Group unit to measure long-term liquidity risk. It is intended to limit recourse to short-term wholesale funding and encourage the use of medium- and long-term instruments to fund requirements arising from the entity's core business.

Asset encumbrance metrics

The Group uses at least two types of metric to measure asset encumbrance risk: (i) the asset encumbrance ratio, which calculates the proportion of total encumbered assets, which are unavailable for raising funds, to the entity's total assets; and (ii) the structural asset encumbrance ratio, which measures the proportion of assets encumbered by reason of structural funding transactions (mainly long-term collateralised issues and funding from central banks).

Other liquidity indicators

Aside from traditional liquidity risk measurement tools for short-term risk and long-term or funding risk, the Group has constructed a range of additional liquidity indicators that supplement the conventional toolset and measure other liquidity risk factors not otherwise covered. Most of these indicators are concentration metrics, such as concentration facing the five largest liability -side counterparties, or concentration of financing by time to maturity.

Liquidity scenario analysis
The Group uses four standard scenarios as liquidity stress tests: (i) an idiosyncratic scenario featuring events that adversely affect the Entity alone; (ii) a local market scenario, which considers events having serious adverse effects on the financial system or real economy of the Entity's base country; (iii) a global market scenario, which considers events having serious adverse effects on the global financial system; and (iv) a combined scenario, coupling idiosyncratic events with severe (local and global) market events arising simultaneously and interactively.

Santander uses the outcomes of the stress scenarios in combination with other tools to determine risk appetite and support business decision-making.

Liquidity early warning indicators
The system of liquidity early warning indicators, or EWIs, comprises quantitative and qualitative indicators that enable us to foresee liquidity stress situations and potential weaknesses in Group entities' funding and liquidity structure. EWIs are both external (environmental), relating to market financial variables, or internal, relating to the Entity's own actions.

C.2.5. Pension and actuarial risk

C.2.5.1. Pension risk
When managing the pension fund risks of employees (defined benefit), the Group assumes the financial, market, credit and liquidity risks it incurs for the assets and investment of the fund, as well as the actuarial risks derived from the liabilities, and the responsibilities for pensions to its employees.

The Group's objective in the sphere of controlling and managing pension risk focuses on identifying, measuring, monitoring, controlling, mitigating and communicating this risk. The Group's priority is thus to identify and mitigate all the focuses of risk.

This is why the methodology used by the Group estimates every year the combined losses in assets and liabilities in a defined stress scenario from changes in interest rates, inflation, stocks markets and properties, as well as credit and operational risk.

C.2.5.2. Actuarial risk
Actuarial risk is produced by biometric changes in the life expectancy of those with life insurance, from the unexpected increase in the indemnity envisaged in non-life insurance and, in any case, from unexpected changes in the performance of insurance takers in the exercise of the options envisaged in the contracts.

The following are actuarial risks:

Risk of life liability: risk of loss in the value of life assurance liabilities caused by fluctuations in risk factors that affect these liabilities:

- Mortality/longevity risk: risk of loss from movements in the value of the liabilities deriving from changes in the estimation of the probability of death/survival of those insured.
- Morbidity risk: risk of the loss from movements in the value of the liabilities deriving from changes in estimating the probability of disability/incapacity of those insured.
- Redemption/fall risk: risk of loss from movements in the value of the liabilities as a result of the early cancellation of the contract, of changes in the exercise of the right of redemption by the insurance holders, as well as options of extraordinary contribution and/or suspending contributions.
- Risk of costs: risk of loss from changes in the value of the liabilities derived from negative variances in envisaged costs.
- Catastrophe risk: losses caused by catastrophic events that increase the Entity's life liability.

Risk of non-life liability: risk of loss from the change in the value of the non-life insurance liability caused by fluctuations in risk factors that affect these liabilities:

- Premium risk: loss derived from the insufficiency of premiums to cover the disasters that might occur.
- Reserve risk: loss derived from the insufficiency of reserves for disasters, already incurred but not settled, including costs from management of these disasters.
- Catastrophe risk: losses caused by catastrophic events that increase the Entity's non-life liability.

C.3. Operational risk

C.3.1. Definition and objectives

Following the Basel framework, Santander Group defines operational risk (OR) as the risk of losses from defects or failures in its internal processes, people or systems, or external events, thus covering risk categories such as fraud, and technological, cyber, legal and conduct risk.

Operational risk is inherent to all products, activities, processes and systems and is generated in all business and support areas. For this reason, all employees are responsible for managing and controlling the operational risks generated in their sphere of action.

This chapter refers to operational risks in general (these are also referred to as non-financial risks in Santander). Particular aspects of some risk factors are set out in more detail in specific sections (e.g. section C.4. Compliance and conduct risk).

The Group's target in the area of OR management and control is to identify, assess and mitigate risk concentrations, regardless of whether they produce losses or not. Analysing exposure to OR helps to establish priorities in managing this risk.

During 2017, the Group has sought further improvement in its management model through a number of different initiatives designed by the Risks division. One of these initiatives is to continue the AORM (Advanced Operational Risk Management) transformation project. This programme is designed to enhance operational risk management capacities through an advanced risk measurement approach, helping to reduce future exposure and losses impacting the income statement.

Risk analysis has improved through a range of information quality enhancement initiatives, allocation of the Group's appetite and legal entities to the main business units, and integrated self-assessment of risks and controls.

Santander has been calculating regulatory capital by OR using the standardised approach set forth in the European Capital Directive. The AORM programme helps the Group develop capital estimation models in its main geographic areas, both for economic capital and stress testing, and for potential application as regulatory capital.

The Pilar III disclosure includes information on the calculation of capital requirements for operational risk.

C.3.2. Operational risk management and control model

C.3.2.1. Operational risk management cycle

In Santander Group, operational risk is managed in accordance with the following elements:

The various phases of the operational risk management and control model are the following:

- Identify the inherent risk in all the Group's activities, products, processes and systems.
- Define the target profile for the risk, specifying the strategies by unit and time frame, by establishing the OR appetite and OR tolerance for the annual losses estimation and monitoring thereof.
- Measure and assess operational risk objectively, continuously and consistently with regulatory and sector standards.
- Continuously monitor operational risk exposure, and implement control procedures and improve the internal control environment.
- Establish mitigation measures that eliminate or minimise the risk.
- Develop regular reports on operational risk exposure and its level of control for senior management and the Group's areas and units, and inform the market and regulatory bodies.
- Define and implement the methodology needed to calculate internal capital in terms of expected and unexpected loss.

The following are needed for each of the aforementioned processes:

- Define and implement systems that enable operational risk exposure to be monitored and controlled, taking advantage of existing technology and achieving the maximum automation of applications.
- Define and document policies for managing and controlling operational risk, and implement management tools for this risk in accordance with regulations and best practices.
- Define common tools, taxonomies and metrics for the entire Organisation.

The advantages of Santander's operational risk management and control model include:

- It fosters the development of a risk culture, assigning responsibilities in risk management to all functions within the Organisation.
- It allows comprehensive and effective operational risk management (identification, measurement, assessment, control and mitigation, and reporting).
- It improves knowledge of existing and potential operational risks and assigns them to business and support lines.
- Operational risk information helps to improve processes and controls, and reduces losses and the volatility of revenues.
- It prioritises risks and the associated mitigation measures for decision making.

The Group has put in place a **management structure** for operational risk that complies with all regulatory requirements and is aligned with the Group's risk culture and the risk profile of its activities.

This structure includes the lines of defence and interaction with corporate governance, ensuring the coverage of all operational risks and the involvement of the Group's senior management in managing operational risk.

The Corporate Operational Risk Committee (CORC) is a transversal committee in which all corporate division involved in the management and control of OR participate, and is responsible for the oversight of the identification, mitigation, monitoring and reporting of operational risk in the Group. It ensures compliance with the model, the risk tolerance limits and the policies and procedures set down in this area. The CORC oversees the identification and control of actual and emerging operational risks and their impact on the Group's risk profile, and the integration of the identification and management of operational risk into decision making. This Corporate committee is replicated in the different units of the Group.

The Group has also set up a number of specific committees and forums in response to the scale of this risk and the specifics of each category. These include the Marketing and Anti-money Laundering Committees (for more detail, see chapter C.4 Compliance and conduct risk), the suppliers and Cyber-security Committees, and the fraud management, damage to physical assets and operations forums. These involve the first and second lines of defence. This risk and the mitigation measures implemented in the Organisation are subject to special monitoring.

C.3.2.2. Risk identification, measurement and assessment model

A series of quantitative and qualitative corporate techniques and tools have been defined by the Group to identify, measure and assess operational risk. These are combined to produce a diagnosis on the basis of the risks identified and an assessment of the area or unit through their measurement and evaluation.

The **quantitative analysis** of this risk is carried out mainly with tools that register and quantify the level of potential losses associated with operational risk events. **Qualitative analysis** seek to assess aspects (coverage, exposure) linked to the risk profile, enabling the existing control environment to be captured.

The most important operational risk tools used by the Group are as follows:

- **Internal events database**. The objective is to capture the Group's operational risk events. This is not restricted by thresholds (i.e. there are no exclusions for reasons of amount), and events with both accounting (including positive effects) and non-accounting impact are entered.

  Accounting reconciliation processes have been put in place to guarantee the quality of the information in the databases. The main events for the Group and each operational risk unit are specifically documented and reviewed.

  Internal databases are supplemented by the process of events escalation treated as significant (by reason of their financial impact or other factors, such as number of customers affected, regulatory impact or media coverage), which alerts senior management to the key operational risk events arising across the Group on a timely basis.

- **Operational risk control self-assessment (RCSA)**. Self-assessment of operational risks and controls is a qualitative process that seeks, using the criterion and experience of a pool of experts in each function, to determine the main operational risks for each function, the control environment and their allocation to the different functions of the Organisation.

  The RCSA identifies and assesses the material operational risks that could stop a business or support unit achieving its objectives. Once they are assessed in inherent and residual terms, and the design and working of the controls are evaluated, mitigation measures are identified if the risk levels prove to be above the tolerable profile.

  The Group has put in place an on-going operational risk self-assessment process: this ensures that material risks are assessed at least once a year. This process combines expert judgement and participation in workshops involving all interested parties, particularly the first-line managers responsible for the risks and their control. These workshops are run by a facilitator, who is neutral and has no decision-making authority, helping the Group achieve its desired results.

  The Group also elaborates risk assessments for specific sources of operational risk, enabling transversal identification of risk levels at a greater degree of granularity. These are applied in particular to technological risks, fraud and factors that could lead to regulatory non-compliance, and areas that are exposed to money laundering and terrorism financing risks. The two latter areas, together with the conduct risks factor, are set out in greater detail in section C.4 Compliance and conduct risk.

- **External events database[44].** The use of external data bases has been stepped up, providing quantitative and qualitative information leading to a more detailed and structured analysis of events in the sector, comparison of the loss profile with the wider industry, locally and globally, and the scenario analysis exercises described below have been adequately prepared.

- **Analysis of OR scenarios.** The objective is to identify potential events with a very low probability of occurrence, but which could result in a very high loss for the Bank. The possible effects of these are assessed and extra controls and mitigating measures are identified to reduce the likelihood of high economic impact. Expert opinion is obtained from the business lines and risk and control managers.

- **Corporate indicators system.** These are various types of statistics and parameters that provide information on an institution's risk exposure and control environment. These indicators are regularly reviewed in order to flag up any changes that could reveal risk problems.

  In 2017, Santander evolved its corporate indicators to monitor the main risk concentrations in the Group and the industry. It has also fostered the use of indicators in all levels of the Organisation, from front-line risk managers down. The objective is to incorporate the most relevant risk indicators into the metrics that form the basis for constructing the operational risk appetite.

- **Audit and regulatory recommendations**. These provide relevant information on inherent risk due to internal and external factors, enabling weaknesses in the controls to be identified.

- **Customer complaints**. The Group's increasing systemisation of the monitoring of complaints and their root causes also provides relevant information for identifying and measuring risk levels. In this regard, the compliance and conduct function prepares detailed analysis, as set out in section C.4.5. Product governance and consumer protection.

- **Other specific instruments**. Enable more detailed analysis of technology risk, such as control of critical system incidents and cyber-security events.

- **Internal data model**. Application of statistical models are used to capture the Group's risk profile, mainly based on information collected from the internal loss database, external data, and scenarios. The main application of the model in 2017 was to help determine economic capital and estimate expected and stressed losses, as a tool for specifying operational risk appetite.

The risk profile is part of the appetite of the non-financial risks that are structured as follows:

- A general statement setting out that Santander Group is, in principle, averse to operational risk events that could lead to financial loss, fraud and operational, technological, legal and regulatory breaches, conduct problems or damage to its reputation.

- General metrics of expected loss, stressed losses and overdue audit recommendations.

- An additional statement is included for the most important risk factors, together with a number of forward-looking monitoring metrics. Specifically, these cover: internal and external fraud, technological, cyber, legal, anti-money laundering, commercialisation of products, regulatory compliance and supplier management risk.

44. Santander takes part in international consortiums such as the ORX (Operational Risk Exchange).

C.3.2.3. Implementation of the model and initiativess

Almost all the Group's units are now incorporated into the model with a high degree of homogeneity.

As set out in section C.3.1. Definition and objectives, the Group completed its transformation to an advanced operational risk management (AORM) approach in 2017. The programme has a twofold objective: on one hand, to consolidate the current operational risk model, and, on the other, to adopt the best market practices and to use monitoring of an integrated and consolidated operational risk profile to direct the business strategy and tactical decisions in a proactive way.

This programme involves a number of key areas (risk appetite, self-assessment, scenarios, metrics, etc.) that enable the Group to refine the improvements it is implementing, covering the ten main geographic areas. A monitoring structure has been set up at the highest organisational levels, both at the corporate centre and in the local units, to ensure adequate monitoring of progress.

This programme is supported by the development of a customised and integrated operational risk solution (*Heracles*[45]), and has been implemented in all the Group's geographies.

The main activities and global initiatives adopted in 2017 for an effective operational risk management are:

- Information enhancement, especially the internal loss database, key to ensuring the integration of all instruments and the Bank´s ability to cross-check analysis of the data.

- Creation of a new methodology of objective qualification to evaluate the reporting of the main risks (Top risks) that include risk exposure and the environment control taking into account the actual and forecasted elements.

  This approach constitutes a more detailed process for final determination of risk level and trend. It encourages prioritisation in risk management and the framing of specific mitigation plans, while supporting ongoing communication of risks to senior management.

- Reinforcement of governance and the operational risk instruments in the first lines of defence, among which it is noteworthy the operational risk appetite scope for the most relevant business and support units.

- Incorporation of additional risk appetite metrics related to internal fraud in the market approach, external fraud in cards and with the supplier management control.

- Development of processes for the determination, identification and assessment of critical theoretical controls. The purpose if this initiative is to strengthen and standardize the control environment in the Organisation, by means of analysis of the minimum control aspects that must be covered in the different units of the Group.

- Deployment of more robust cross-checking processes between different operational risk instruments, to ensure a better understanding of the relevant risks of the Organisation.

- Fostering of mitigation plans for aspects of particular relevance (information security and cyber-security in the widest sense, control of suppliers, among others): monitoring of the implementation of corrective measures and projects under development.

- Improvements to contingency, business-continuity and, in general, crisis-management plans (initiative linked to the recovery and resolution plans), also providing coverage to emerging risks (cyber).

- Fostering the control of risk associated with technology (control and supervision over the system design, infrastructure management and applications development).

For the control of suppliers referred to previously, in 2017 a new version of the corporate reference framework, was approved covering the new requirements issued by the regulator in this field, widening the scope of types with relevant third parties, and aligning them with relationship the best practices in the sector. The Bank has also made progress in defining and deploying policies, procedures and tools in the Group entities in order to adapt current processes to the model's principles and requirements. In 2017, the efforts have been focused on:

- Identifying and assigning roles and responsibilities to cover the various activities described in the model to manage the complete life cycle of the relationship with the supplier or other party (decision, approval, contracting, monitoring and termination) and ensure adaptation to the three lines of defence structure, where the first lines are responsible for the management functions and the OR function carries out the control procedure to check that the model's principles are fulfilled.

- Evolving the corporate supplier management system to cover the new framework requirements and anticipate upcoming regulatory changes (e.g. GDPR), particularly regarding:

  - Adding a decision making tool which can be used to discriminate services by their relevance and level of associated risk (e.g. based on the sensitivity of the information processed), so that the most appropriate controls for each can be set up in other phases of the service life cycle.

45. *Heracles* is a GRC (Governance, Risk & Compliance) application for enterprise-wide risk management.

- Reviewing specific questionnaires and criteria used in the supplier approval stage to ensure that adequate controls are in place to cover the risks associated with the service given.
- Setting up approval flows to guide the whole decision-making, approval, negotiations and contracting process.

- Creation of specific committees by geography for the monitoring and decision-making regarding the relevant services and suppliers and the review of the escalation procedures and criteria.
- Including third-party risk as one of the main risks on Risk Committee and senior management agendas at the Group's main entities.
- Definition and monitoring of indicators and dashboard concerning the model implementation. Including specific suppliers metrics in the Group's and the core entities' risk appetite reports.
- Review and enhancing quality of data of inventories of relevant services and associated suppliers.
- Moving forward with implementing a management system that automates the various stages of the supplier management cycle to achieve enhanced process control and higher information quality.
- Training and awareness raising of risks associated with suppliers and other third parties.

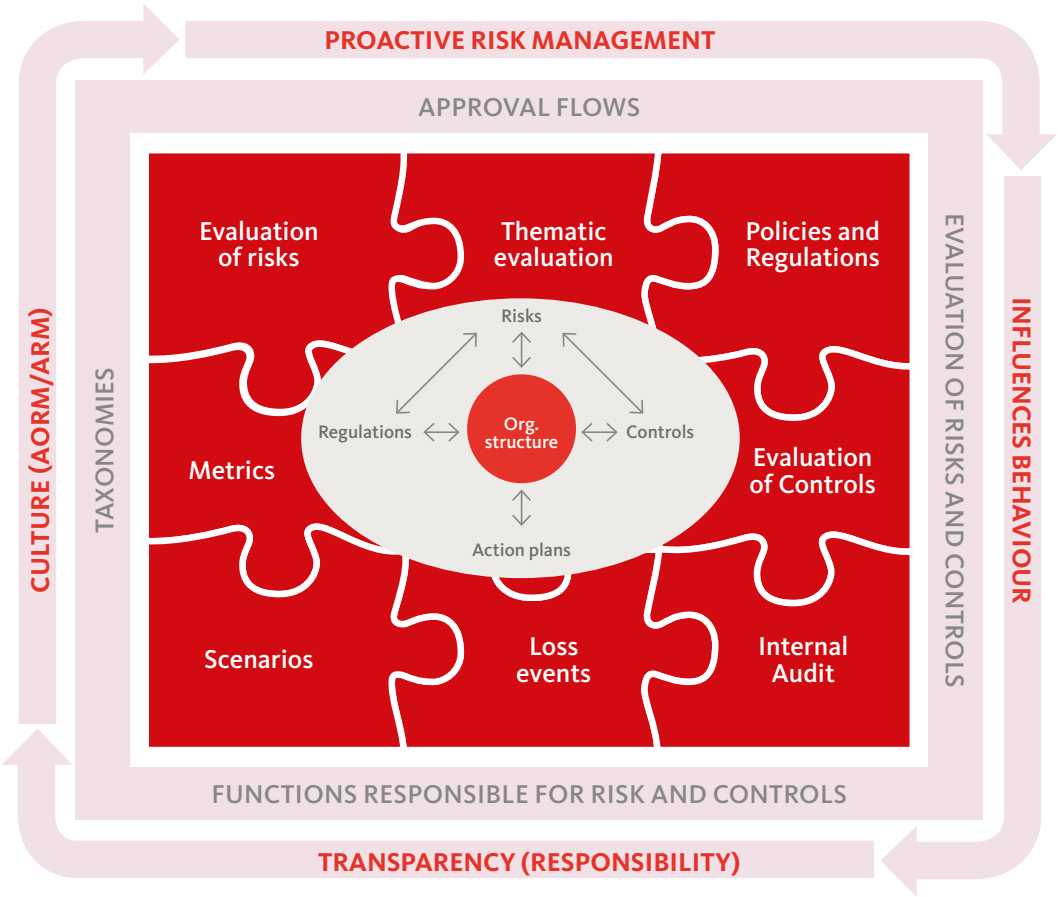
The Group is continuing to work on the implementation and consolidation of the model, reinforcing and standardising the activities to be carried out throughout the management life cycle for suppliers and other third parties.

C.3.2.4. Operational risk information system

The Group's corporate information system, called Heracles, supports operational risk management tools, providing information for reporting functions and needs at both local/corporate levels. The objective of *Heracles* is to improve decision making for OR management throughout the Organisation.

This objective will be achieved by ensuring that those responsible for risks in every part of the Organisation have a comprehensive vision of the risk, and the supporting information they need, when they need it. This comprehensive and timely vision of risk is facilitated by the integration of various programmes, such as assessment or risks and controls, scenarios, events and metrics, using a common taxonomy and methodological standards. This integration provides a more accurate risk profile and significantly improves efficiency by cutting out redundant and duplicated effort.

Heracles also enables the interaction of everybody involved in operational risk management with the information in the system with specific needs or limited to a particular level based on the premise of only one source of information.



In 2017, the Group achieved the aim of having fully fledged functionality, through the incorporation of the metrics, thematic assessment and scenario modules. In addition, the decision-making capacity has been improved through the definition of approval flows. Work was also done on improving the reporting capacity, to comply with regulations on Risk Data Agreggation.

In order to achieve this last goal, a reference technological architecture has been developed, providing solutions for information capture and feeding an integrated and reliable database (Golden Source) that is used for the generation of operational risk reports.

In addition, furhter work has been carried out by the Group regarding the data supply automatization from the local systems of the units.

C.3.2.5. Training initiatives and risk culture

The Group fosters awareness and knowledge of operational risk at all levels of the Organisation through its risk-pro culture. During 2017, a number of different training sessions were conducted using the e-learning format, and which addressed general knowledge of OR. These sessions have been designed for all the Group's employees and are explicitly aimed at directors.

To raise consciousness of cyber-security issues, "phishing" awareness campaigns were launched among all employees to enhance their ability to identify and report this form of malicious conduct.

The compliance and conduct function has prepared and launched a number of training actions, as described in section C.4.9. Transversal corporate projects in this report.

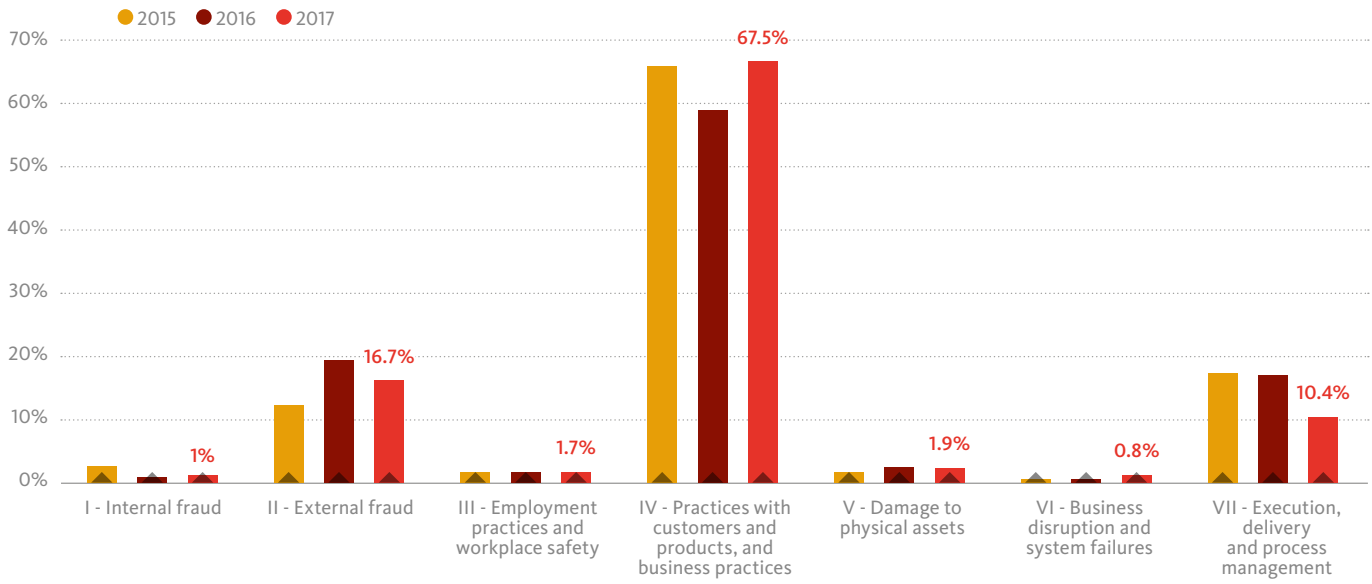
Further, in 2017 training initiatives were developed such as dissemination sessions and specific face-to-face sessions (Executive Operational Risk programme, training for the Heracles tool, etc.).

Likewise, the Group uses an number of different initiatives to enhance its implementation of a better operational risk culture, one of which is the OR newsletter, with the aim of raising awareness about the importance of this risk, distribution of procedure and guidelines, significant external events, related subjects of interest and events which have occurred in the Group.

C.3.3. Evolution of the main metrics

The evolution of net losses (including both incurred loss and net provisions) by Basel[46] risk category over the last three years is the following:

DISTRIBUTION OF NET LOSSES BY OPERATIONAL RISK CATEGORY (EXCL. POPULAR)[47]



46. The Basel categories include the risks set out in chapter C.4. Compliance and conduct risk.

47. In accordance with local practices, the remuneration of employees in Brazil is managed as personnel expenses for the Entity, without prejudice to its treatment under the Basel operational risk framework, and is therefore not included.

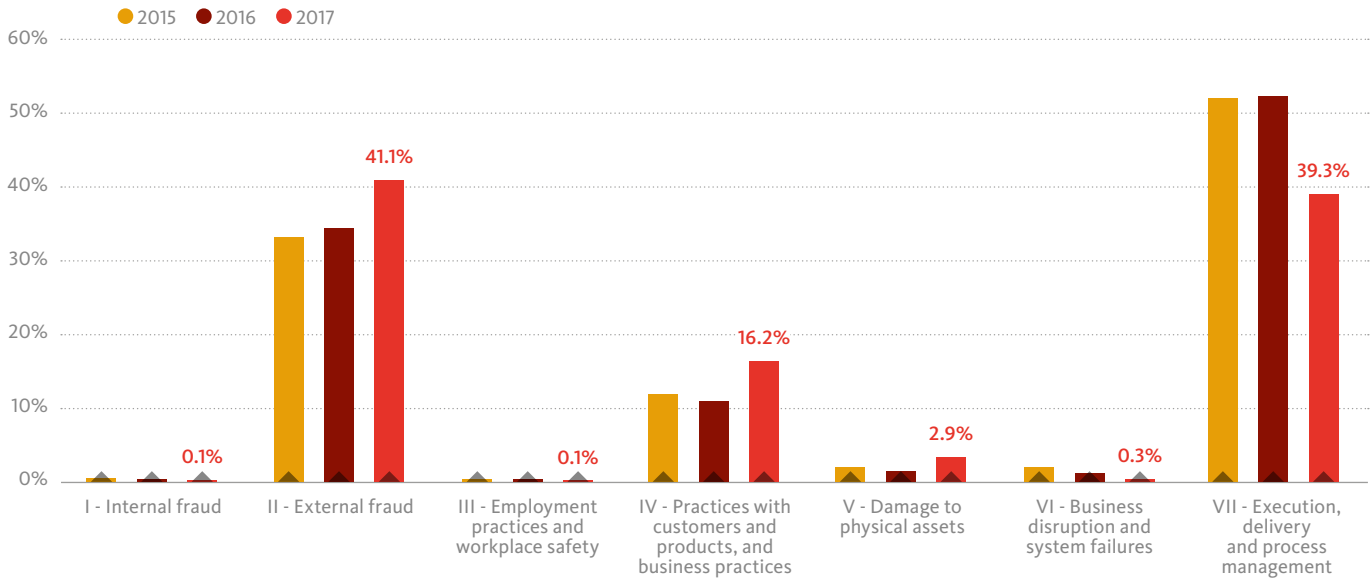
In general terms, the losses in the category of practices with customers and products, and business practices increase regarding the previous year, although for external fraud and processes failures they have reduced.

During 2017, the most relevant losses by category and geography correspond to judicial causes in Brazil where a group of measures to improve customer service (gathered in a complete mitigation plan, as descried in section 4.3 Mitigation measures) is maintained. On the other hand, in 2017 the volume of losses in the UK has decreased due to the decrease of provisions to cover future complaints by the sale of the Payment Protection Insurance (PPI) and other cases of product commercialisation.

The main risk concentrations in external fraud still concern the fraudulent use of debit and credit cards, with a significant rise in fraud in card not present, and distance channels (Internet banking and mobile banking).

The chart below shows the evolution of the number of operational risk events by Basel category over the last three years:

DISTRIBUTION OF NUMBER OF EVENTS BY OPERATIONAL RISK CATEGORY (EXCL. POPULAR)[48]



C.3.4. Mitigation measures

The Group uses the model to monitor the mitigation measures for the main risk foci which have been identified through the internal OR management tools (internal event database, indicators, self-assessment, scenarios, audit recommendations, etc.) and other external information sources (external events and industry reports).

Active mitigation management became even more important in 2017, with the participation of the first line of defence and the operational risk control function, through which specialist business and support functions exercise additional control. Furthermore, the Group continued to move forward with pre-emptive implementation of operational risk management and control policies and procedures.

The most significant mitigation measures have been centred on improving the security of customers in their usual operations, management of external fraud, continued improvements in processes and technology, and management of the sale of products and adequate provision of services.

Regarding the reduction of fraud, the main specific measures were:

Card fraud:
Use of EMV-standard chip cards based on advanced authentication technology in the geographies where Santander Group is present.

- Card protection against electronic commerce fraud attacks (the fastest-growing fraud pattern in the industry):

48. In accordance with local practices, the remuneration of employees in Brazil is managed as personnel expenses for the Entity, without prejudice to its treatment under the Basel operational risk framework, and is therefore not included.

- Implementation of a secure e-commerce standard (3DSecure), with reinforced robustness via two-step authentication based on one-time passwords.
- Innovative solutions based on mobile applications that let users deactivate cards for e-commerce use.
- Issue of virtual cards using dynamic authentication passwords.

- Use in Brazil of a biometric authentication system in ATMs and branch cashier desks. Customers can use this new system to withdraw cash from ATMs using their fingerprint to sign off their transactions.
- Integration of monitoring and fraud detection tools with other systems, internally and externally, to enhance suspicious activity detection capabilities.
- Reinforced ATM security by incorporating anti-skimming devices to prevent card cloning.

Online/mobile banking fraud:

- Validations of online banking transactions through a second security factor based on one-time use passwords. Evolution of technology, depending on the geographic area (for example, based on image codes (QR) generated from data for the transaction).
- Enhanced online banking security by introducing a transaction risk scoring system that requests further authentication when a given security threshold is crossed.
- Implementation of specific protection measures for mobile banking, such as identification and registration of customer devices (Device Id).

Cyber-security and data security plans:

Throughout 2017, Santander continued paying full attention to cyber-security risks, which affect all companies and institutions, including those in the financial sector. This situation is a cause of concern for all entities and regulators, prompting the implementation of preventative measures to be prepared for any attack of this kind.

One particularly noteworthy technical improvement has been in protection measures to cope with service denial attacks.

The Group has evolved its cyber regulations by adopting a new Cyber Security Framework and the Cyber Risk Supervision Model, along with a range of related policies.

A new organisational structure has been specified and Group governance for management and control of this risk has been reinforced. Specific committees have been set up and cyber-security metrics have been included in the Group's risk appetite. These metrics have been monitored and reported in the geographies and at global level.

The Group's intelligence and analysis function has also been reinforced, by contracting Bank threat monitoring services. In addition, progress is being made in mitigation activities related to the identification and access management in all geographies, with the backing of senior management.

Progress has also been made in the incident registration, notification and escalation mechanisms for internal reporting and reporting to supervisors.

Additionally, the Group units take part in different coordinated cyber-exercises in the different countries with public bodies, and also carrying out internal cyber-security and crisis management scenarios such as risk assessment mechanisms, and response capacity tests when faced with these kinds of events.

Also, observation and analytical assessment of the events in the sector and in other industries enables Santander to update and adapt its models for emerging threats.

Other relevant mitigating measures:

The Group sets as a priority the establishment of mitigation measures in order to optimise the processes management according to the Bank's customer needs.

With regard to mitigation measures relating to customer practices, products and business, Santander Group is involved in continuous improvement and implementation of corporate policies on aspects such as the selling of products and services and prevention of money laundering and terrorism financing.

In particular and in general terms, during 2017, two policies that develop the corporate framework for commercialization of products and services and consumer protection were approved, in regard to the Fiduciary risk management and Consumer Protection. In addition, the risk identification processes and the development of mandatory training regarding this matter has been strengthen in the Group. Further detail is available in section C.4.5. Product governance and consumer protection.

Furthermore, it is noteworthy the analysis of incidents and customer complaints made by local units, establishing root-cause working groups with permanent monitoring (as an illustrative example, Chile during 2017 established 12 root-cause working groups where 157 initiatives were discussed regarding customer problems mitigation and the improvement of user experience, from which 100 have been implemented).

It is also significant, the continuous customer relation improvement in Brazil, where with focus on electronic channels fraud, an executive first level quorum was established in which all the Bank's areas participate with two work streams: one tactical (customer communication, contact centre attention reinforcement, customer training adaptation to processes changes, concepts and behaviours) and other structural (changes in systems and processes security to reduce the fraud events).

C.3.5. Business continuity plan

The Group has a business continuity management system (BCMS), which ensures that the business processes of the Bank's entities continue to operate in the event of a disaster or serious incident.

The basic objective is to:

- Minimise the possible damage from an interruption to normal business operations on people, and adverse financial and business impacts for the Group.
- Reduce the operational effects of a disaster, providing predefined and flexible guidelines and procedures to be used to re-launch and recover processes.
- Restart time-sensitive business operations and associated support functions, in order to achieve business continuity, stable profits and planned growth.
- Protect the public image of, and confidence in, the Santander Group.
- Meet the Group's obligations to its employees, customers, shareholders and other stakeholders.

During 2017, the Group continued to advance in implementing and continuously improving its business continuity management system. The Bank has reviewed the methods and approaches to reinforce governance of the review and approval of continuity strategies and plans, to ensure that this process is implemented at the appropriate level within the Organisation, to comply with new regulatory requirements and to cover emerging risks (such as cyber-risk).

Throughout the year Santander conducted several crisis simulation exercises based on scenarios that might affect the continuity of critical business operations (including cyber-attacks), involving the Group's various crisis management committees and senior management. The Group has worked towards reinforcing response protocols facing these scenarios and ensuring that the required logistics capabilities will be available to respond effectively and in a coordinated way to crisis situations.

The Group has also updated the corporate application which is used to register and store the Group's continuity plans, improving integration with other repositories housing significant Group assets (people, applications and suppliers).

C.3.6. Other aspects of control and monitoring of operational risk

Analysis and monitoring of controls in market operations

Due to the specific nature and complexity of financial markets, the Group considers it necessary to continuously improve operational control procedures to keep them in line with new regulations and best practices in the market. Throughout the year, the Bank has accordingly continued to cement the integration of OR management with business strategy, through holistic follow-up of business risks and their mitigating controls. This has considerably enhanced the control environment, with a focus on:

- Implementing a new model to deal with unauthorised trading and developing a specific risk appetite metric to the trading business to measure the robustness of the environment in each geography.
- Adapting the control model to new regulatory requirements, such as MiFID II, EMIR, PRIIPS and GDPR, among others.
- Reviewing compliance in the core geographies with the principles of the Global FX Conduct Code, involving the entire Organisation.
- Strengthening business continuity plans by incorporating – among other improvements – new scenarios reflecting new risks in the industry.
- Reinforcing the controls ensuring appropriate functional separation in market operation systems.
- Intensified scrutiny of markets-related suppliers, given the critical nature of this topic in view of market trends in online trading.

For more information on issues relating to regulatory compliance in markets, refer to section C.4.4. Regulatory compliance.

Lastly, it is important to note that the business is also undertaking a global transformation that involves modernising its technology platforms and operational processes to incorporate a robust control model, enabling a reduction of the operational risk associated with its business.

Corporate information

The OR function has a management information system that provides data on the Group's main elements of risk. In 2017, Santander introduced the operational risk consolidation and reporting procedure with the goal of defining the minimum requirements of information, frequency, as well as validation, consolidation and its use in the reporting to the Entity's governance bodies.

The information available at the operational risk level is consolidated to give a global vision with the following features:

- Two levels of information: corporate with consolidated information, and individual for each country or unit.
- Dissemination among Santander Group's units of the best practices identified through a combined study of the results of qualitative and quantitative analysis of operational risk.

Information on the following aspects is developed:

- The Santander Group's operational risk management model and the Group's main units and countries.
- The scope of operational risk management.
- Operational risk regulatory capital.
- Monitoring of risk appetite metrics.
- The consolidated operational risk profile, through identifying, assessing and prioritising the key foci of risk.
- The risk profile by country and risk category, and the main aspects of operational risk monitoring in each of these dimensions.
- The action plans associated with each risk source.
- Distribution of losses by geographic area and risk category.
- Evolution of losses and provisions (accumulated annual, deviation on previous year and against budget).
- Analysis of significant external events.
- Analysis of the most relevant risks detected by self-assessment exercises for operational and technological risk and operational risk scenarios.
- Assessment and analysis of risk indicators.
- Mitigating measures/active management.
- Business continuity and contingency plans.

This information forms the basis for complying with reporting requirements to the Executive Risk Committee, the Risk Supervision, Regulation and Compliance Committee, the Operational Risk Committee, senior management, regulators, rating agencies, etc.

Insurance in the management of operational risk

Santander Group regards insurance as a key element in the management of operational risk. In 2017, the Group has continued to develop procedures with a view to achieving better coordination between the different functions involved in management cycle of insurance policies used to mitigate operational risk. Once the functional relationship between the own insurance and operational risk control areas is established, the primary objective is to inform the different first line risk management areas of the adequate guidelines for the effective management of insurable risk. The following activities are particularly important:

- Identification of all risks in the Group that can be covered by insurance, including identification of new insurance coverage for risks already identified in the market.
- Establishment and implementation of criteria to quantify the insurable risk, backed by loss analysis and the scenarios that enable the Group's level of exposure to each risk to be determined.
- Analysis of coverage available in the insurance market, as well as preliminary design of the conditions that best suit the identified and assessed needs.
- Technical assessment of the protection provided by the policy, its costs and the elements retained in the Group (franchises and other elements at the responsibility of the insured) in order to make contracting decisions.
- Negotiating with suppliers and contract in allocation accordance with the procedures established by the Group.
- Monitoring of incidents declared in the policies, as well as of those not declared or not recovered due to an incorrect declaration, establishing protocols for action and specific monitoring forums.
- Analysis of the adequacy of the Group's policies for the risks covered, taking appropriate corrective measures for any shortcomings detected.
- Close cooperation between local operational risk executives and local insurance coordinators to strengthen operational risk mitigation.
- Active involvement of both areas in the own insurance forum, the Group's highest technical body for defining coverage strategies and contracting insurance, (replicated in each geography to monitor the activities mentioned in this section), the claim monitoring forum, and the Corporate Operational Risk Committee.

The own insurance area has also played a more active role in different Group forums (damages in physical assets, fraud, scenarios, special situation management, etc.), thereby increasing its interaction with other Group functions and its capacity to properly identify and assess insurable risks and optimise the protection of the income statement.

C.4. Compliance and conduct risk

C.4.1. Scope, aim, definitions and objective

The compliance and conduct function fosters the adherence of Santander Group to the rules, supervisory requirements, principles and values of good conduct, by setting standards, and discussing, advising and reporting in the interest of employees, customers, shareholders and the community as a whole.

This function addresses all matters related to regulatory compliance, prevention of money laundering and terrorism financing, governance of products and consumer protection, and reputational risk.

Compliance and Conduct has cemented progress made in the two previous years. In 2017, the function has taken a leap forward at the corporate level and in the various units of the Group, as part of the strategic compliance programme now underway.

Under the current corporate configuration of the three lines of defence at Santander Group, compliance and conduct is an independent second-line control function under the CEO, reporting directly and regularly to the board of directors and its committees, through the GCCO (Group Chief Compliance Officer). This configuration is aligned with the requirements of banking regulation and with the expectations of supervisors.

The following are defined as compliance risks:

- Conduct risk: risk arising from practices, processes or behaviours that are inappropriate or in breach of internal regulations, the law or the supervisor's requirements.
- Reputational risk: risk of current or potential negative economic impact to the Bank due to damage to the perception of the Bank on the part of employees, customers, shareholders/investors and the wider community.

The Group's objective is to minimise the probability that irregularities occur and that any irregularities that should occur are identified, assessed, reported and quickly resolved.

Other control functions (risks and audit) also take part in controlling these risks.

C.4.2. Compliance risk control and supervision

The first lines of defence have the primary responsability for managing compliance and conduct risks jointly with the business units where such risks originate, as well as the compliance and conduct function. This is performed either directly or through assigning compliance and conduct activities or tasks.

The function is also responsible for setting up, fostering and ensuring that units begin to use the standardised frameworks, policies and standards applied throughout the Group. For this purpose, in 2017 a standard regulatory tree has been developed throughout the Group, as well as a process for its monitoring and systematic control.

The GCCO is responsible for reporting to Santander Group's governance and management bodies, and must also advise and inform, as well as promote the development of the function. This is independently of the Risks function's other reporting to the governance and management bodies of all Group risks, which also includes compliance and conduct risks.

In 2017, the Bank has reinforced and evolved the new compliance and conduct model, especially at the Group's units. The Corporation has put in place the necessary components to ensure ongoing control and oversight by creating robust governance schemes, and systems for reporting and interacting with units in accordance with the parent/subsidiaries governance model operated by the Group.

Furthermore, Internal Audit - as part of the third line of defence functions - performs the tests and audits necessary to verify that adequate controls and oversight mechanisms are being applied, and that the Group's rules and procedures are being followed.

In 2017, the Bank has reviewed, updated and streamlined corporate frameworks for the compliance and conduct function. These are first-level documents that regulate the function, with which the management bodies of the various units must comply.

- General compliance framework.
- Products and services marketing and consumer protection framework.
- Anti-money laundering and anti-terrorist financing framework.

The General Code of Conduct enshrines the ethical principles and rules of conduct that govern the actions of all Santander Group's employees. It is supplemented in certain matters by the rules found in other codes and their internal rules and regulations.

In addition, the General Code of Conduct sets out:

- Compliance functions and responsibilities.
- The rules governing the consequences of non-compliance with it.
- A whistle-blowing channel for the submission and processing of reports of allegedly irregular conduct.

The compliance and conduct function, under the supervision of the Risk Supervision, Regulation and Compliance Committee (RSRCC), is responsible for ensuring effective implementation and oversight of the General Code of Conduct, as the board is the owner of the Code and the corporate frameworks that implement it.

A highlight of 2017 was the development of a reputational risk model that captures the key elements for managing risk in this area. The model is being gradually implemented in the units.

This model identifies the main sources of reputational risk, establishing a preventive approach for its correct management, determines the functions involved in the management and control of this risk and its governance bodies.

C.4.3. Governance and the organisational model

In accordance with the mandate entrusted by the board to the compliance and conduct function, in 2017, great strides were made in the strategic compliance programme. In the two previous years, the scope and objectives of the model were defined, and the initiative was implemented at Corporate level. In 2017, it was implemented at the Group's various units, so that by the end of 2018 the Bank will have achieved compliance and conduct function in line with the highest standards of the finance industry.

C.4.3.1. Governance

The following corporate committees - each of which has a corresponding local replica - are collegiate complaince and conduct governance bodies:

The **Regulatory Compliance Committee** is the collegiate body for regulatory compliance matters. It has the following key functions:

i) Controlling and overseeing regulatory compliance risk in the Group, as a second line of defence;

ii) Specifying the regulatory compliance risk control model throughout the Santander Group, based on common regulations applicable to several countries where the Group operates.

iii) Deciding on significant regulatory compliance issues that might pose a risk to the Group.

iv) Fixing the correct interpretation of the General Code of Conduct and specialised codes, and making proposals for improvement.

In 2017, the Regulatory Compliance Committee held four meetings.

The **Corporate Commercialisation Committee** is the collegiate governance body for the approval of products and services. It has the following key functions:

i) Validating new products or services proposed by the parent company or by any subsidiary/Group unit, prior to their launch.

ii) Establishing the commercialisation risk control model in the Group, including risk assessment indicators, and proposing the commercialisation and consumer protection risk appetite to the Compliance Committee.

iii) Establishing interpretation criteria and approving the reference models to develop the corporate product and service marketing and consumer protection framework, and its rules, and to validate the local adaptations of those models.

iv) Assessing and deciding which significant marketing questions might pose a potential risk for the Group, depending on the authorities granted or the powers required to be exercised under legal obligations.

The Corporate Commercialisation Committee met 12 times in 2017 and presented a total of 148 proposals of new products/services and models or other reference documents regarding commercialisation, having validated all of them except one.

The **Monitoring and Consumer Protection committee** is the Group's collegiate governance body for the monitoring of products and services, and the assessment of customer protection issues in all Group units. It has the following key functions:

i) Monitoring the marketing of products and services by country and by product type, reviewing all the available information and focusing on products and services under special monitoring, and costs of conduct, compensation to customers, sanctions, etc.

ii) Monitoring the common claim measurement and reporting methodology, based on root-cause analysis, and the quality and sufficiency of the information obtained.

iii) Establishing and assessing how effective corrective measures can be when risks are detected in the governance of products and consumer protection within the Group.

iv) Identifying, managing and reporting preventively on the problems, events, significant situations and best practices in commercialisation and consumer protection in a transversal way across the Group.

The Monitoring and Consumer Protection committee met 23 times in 2017.

The **Anti-money Laundering/Anti-terrorism Financing Committee** is the collegiate body in this field. It has the following key functions:

i) Controlling and overseeing the risk of anti-money laudering and anti-terrorism financing (AML/ATF) in the Group, as second line of defence.

ii) Defining the AML/ATF risk control model in Santander Group.

iii) Creating the reference models for the develoment of the AML/ATF frameworks and their development regulations.

iv) Monitor projects for improvement and transformation plans for AML/ATF and, where appropriate, set in motion supporting or corrective measures.

During 2017, this committee met four times.

The **Reputational Risk Steering committee.** This governance body was created in September 2016 to safeguard proper implementation of the reputational risk model.

The committee is chaired by the Group Chief Compliance Officer, whose main functions are:

i) Supporting implementation of the corporate reputational risk model.

ii) Evaluating sources of reputational risk, and their criticality.

iii) Defining action plans to prevent reputational risk.

iv) Analysing reputational risk events.

v) Specifying processes for escalation and reporting to senior management in matters of reputational risk.

The committee met four times in 2017.

The **Corporate Compliance and Conduct Committee** is the high-level collegiate body of the dompliance and conduct function, bringing together the objectives of the committee's referred to above.

Its main functions are as follows:

i) Monitoring and assessing compliance and conduct risk which could impact Santander Group, as the second line of defence.

ii) Proposing updates and modifications to the general compliance framework and corporate function frameworks for ultimate approval by the board of directors.

iii) Reviewing significant compliance and conduct risk events and situations, the measures adopted and their effectiveness, and proposing that they be escalated or transferred, whenever the case may be.

iv) Setting up and assessing corrective measures when risks of this kind are detected in the Group, either due to weaknesses in established management and control, or due to new risks appearing.

v) Monitoring new regulations which appear or those modified, and establishing their scope of application in the Group, and, if applicable, the adaptation or mitigation measures necessary.

The Corporate and Conduct Committee met nine times in 2017.

C.4.3.2. Organisational model

Derived from the strategic compliance programme and with the objective of attaining an integrated view and management of the different compliance and conduct risks, the function is structured using a hybrid approach in order to combine specialised risks (vertical functions) with an aggregated and homogenised overview of them (transversal functions).

This functional structure was cemented at the Corporate level in the course of 2017.

Transversal functions

Governance, planning and consolidation

a) Governance. Governing and managing the functioning of the compliance and conduct function at the corporate level. Development of training, culture, talent and professional development initiatives and elements in the function, with a long-term approach. Interacting and ensuring the consistency of the relationship with other control and support functions.

b) Planning. Planning and fostering the definition of the compliance and conduct strategy and the necessary resources, carrying out the corresponfing annual planning. Maintaining the compliance and conduct regulatory map and policies. Managing and coordinating the function's internal organisational and human resources processes.

c) Consolidation. Consolidating the various compliance and conduct risks at global level, in coordination with the Risks function. Supervising the application of the mitigation measures and risk assessment plans defined, and monitoring responses to, and the implementation of, requests from regulators. Developing compliance and conduct risk appetite proposals for the Group's risk appetite, through the integration of different local level proposals, as well as coordinating and integrating the different risk assessments carried out. In addition, supervising the monitoring of Internal Audit recommendations.

d) Regulatory radar. Developing and coordinating the creation and administration of the policies and regulation global repository applicable to all units, through a multi-disciplinary process in which different functions participate. Manages the governance aimed at assigning regulatory implementation responsibilities, making the appropriate monitoring.

Coordination with units

Supporting the relationship among compliance and conduct functions of the corporation and of the different units of Santander Group in accordance with its Group/Subsidiaries Governance Model.

This task is carried out through the involvement in the appointment of the CCO of each unit, the establishment of his or her functional goals; coordination, together with specialist teams, of the framing and follow-up of annual compliance and conduct programmes, as well as encouraging an exchange of knowledge and best practices related to the function.

Compliance processes and information systems

a) **Compliance and conduct information systems.** Defining the information management model for the function and developing key indicators.

b) **Information quality, systems and operations.** Defining the function's systems plan, providing a comprehensive compliance and conduct approach to system needs, and prioritising these. Acting as the main channel with the technology and operations function.

c) **Improving processes.** Identifying the map of the function's key processes and associated metrics. Defining and supervising application of the continuous improvement methodology for the processes identified.

d) **Projects.** Leading the function's projects and other projects related to the transformation plan. Coordinating management of requirements with technology and operations teams. Implementing the execution methodology and monitoring projects.

Vertical functions

Regulatory compliance

Control and supervision of regulatory compliance risk events related to employees, organisational aspects, international markets and securities markets, developing policies and regulations, ensuring the units compliance.

Governance of products and consumer protection

Management, control and supervision of governance of products and services in the Group, and risks relating to marketing conduct with customers, consumer protection, and fiduciary and custody risk for financial instruments, developing specific policies and regulations in this regard.

Anti-money laundering and anti-terrorism financing

Management, control and supervision of the application of the anti-money laundering and anti-terrorism financing framework, coordinating analysis of local and Group information to identify new risks that might attract domestic or international sanctions. Analysis of new suppliers and participants in corporate transactions for approval and ensuring units comply with the rules and policies established in this regard.

Reputational risk

Defines, controls and oversees the reputational risk model through prevention and early detection of risks and events and mitigation of any potential impact on the Group's reputation or any impairment to how the Group is perceived by stakeholders (customers, shareholders, investors, employees, public opinion and the wider community).

C.4.4. Regulatory compliance

Functions

The following functions are in place for adequate control and supervision of regulatory compliance risks:

- Implement the Group's General Code Of Conduct and other codes and rules developing the same. Advise on resolving doubts that arise from such implementation.
- Receive and handle the accusations made by employees or third parties via the whistle blowing channel.
- Direct and coordinate investigations into non-compliance, being able to request support from Internal Audit and proposing the sanctions that might be applicable in each case to the Irregularities Committee.
- Control and oversee compliance risk relating to: (i) employee-related events (Corporate Defence); (ii) regulations affecting the Organisation (General Data Protection Regulation – GDPR – and Foreign Account Tax Compliance Act –FATCA); (iii) compliance with specific regulations on international markets (Volcker Rule, EMIR, Dodd-Frank); (iv) publication of relevant Santander Group information; and (v) implementation of policies and rules to prevent market abuse.
- Report significant Group information to the Comisión Nacional del Mercado de Valores, Spain's securities market regulator, and the regulators of other exchanges on which Santander is listed.
- Oversee mandatory training activities on regulatory compliance.

The most relevant areas of the regulatory compliance function are described below:

Employees

The objective - based on the General Code of Conduct - is to establish standards for the prevention of criminal risks and conflicts of interest and from a regulatory perspective, to cooperate with other areas in setting guidelines for remuneration and dealings with suppliers.

In corporate defence (prevention of criminal risks), the responsibility is undertaken to minimize the impact of the criminal responsibility of legal persons for any crimes committed on their account or for their benefit, by their administrators or representatives and by employees as a result of a lack of control.

The Group has in place a corporate defence model designed to implement awareness-raising activities as to the main crime risks across the Organisation. The corporate model began to be introduced

in 2016, in the Argentina, Brazil, Chile, Mexico, Poland, Portugal, Consumer (Germany and Headquarters) units, and in the Private Banking units (Bahamas and Switzerland). In 2017, the model was approved locally in Spain, UK and US units.

In June 2017, the Group hosted the First Global Corporate Defence Summit to encourage networking among Group subject matter experts and create a broadly based forum for sharing criminal risk prevention best practices and conduct guidelines for employees across the Group.

In accordance with the General Code of Conduct, Santander Group has whistleblower channels in place in all its geographies. Specifically, in the Group's 10 core units and in Banco Popular there are in place a total 14 whistleblower channels available to employees, with some countries having more than one channel.

Furthermore, in 2017 the Bank created whistleblower channels available to the Group's suppliers in six geographies (Argentina, Brazil, Chile, Spain, Mexico and Portugal). Via these channels, Group suppliers can report conduct breaches in the context of their contractual relationship.

As a rule, whistleblower channels are managed by the compliance and conduct function. Confidentiality is assured and whistleblowers are protected reprisals against the complainants. Santander Group employees can access the whistleblower channels by email, over the web or using an app.

Whistleblower complaints are reported to the relevant governing bodies. In the course of 2017, the management of Compliance and Conduct reported on two occasions on the general state of whistleblower channels and on the irregularity committees attached to the Bank's Audit Committee.

In 2017, a total of 1.300 whistleblower complaints were received across the Group. The main topics of complaint were employment relationships (61%), operational irregularities (23%) and mis-selling (9%).

Approximately 30% of whistleblower complaints led to disciplinary sanctions for at least one of the persons complained of.

A key aspect of the model is mandatory training for all Group employees. In 2017, Santander continued to teach the mandatory training course on the General Course of Conduct and corporate defence.

Finally, in the light of the experience of the compliance and conduct function in managing and applying the General Code of Conduct, over the course of the year, the Bank identified areas for improvement, and the Code has been revised accordingly. Such modifications in this review were presented to and approved by the Bank´s board of directors in November.

Organisational aspects

In response to the launch in 2016 of the European General Data Protection Regulation, throughout 2017 the regulatory compliance function has advised on and supported the processes of adapting to the new rules underway at the Group's different units to ensure compliance with the new requirements, which will become effective in May 2018.

The European General Data Protection Regulation brings about a paradigm shift as to the protection of data on individuals (customers, employees, shareholders, etc.). Entities must collect, store and process personal data in accordance with the principle of proactive accountability.

This new regulatory approach has given rise to new requirements and renewed emphasis on existing ones, including:

- Introduction of technical and organisational measures in the collection, storage and processing of data based on detailed analysis of risks to individuals.
- New rights for data subjects (customers, employees, shareholders, etc.), such as rights of portability and the "right to be forgotten".
- Appointment of a Data Protection Officer (DPO), in charge of overseeing compliance with the rules and acting as a point of contact with the controlling authority.
- Security incident communication to the control authority within 72 hours since its acknowledgement and in case they entail a high risk for individuals.
- Consent obtained tacitly for the treatment of personal data is invalid.

The regulatory compliance function has accordingly taken steps to mobilise and raise awareness among affected units, such as:

- Identifying the scope of companies affected by the rules.
- Communication by the Group's Chief Compliance Officer to the various Country Heads of the need to adapt to the new regulation in their respective jurisdictions.
- Support for countries and units to launch their own projects for adaptation to the European General Data Protection Regulation.
- Monthly monitoring governance of local adaptation projects execution, presided by the Group's Chief Compliance Officer.
- Initiatives for raising awareness among employees by alerting them to the main new features of the European General Data Protection Regulation by producing and launching a training video.

In this domain, regulatory compliance also focuses on reporting and due diligence duties relating to financial accounting in the context of automated exchange of tax data among sovereign states (FATCA and Common Reporting Standard Regulation –CRS). The following were key areas of action in 2017:

- Timely and formally correct fulfilment of all units' reporting duties owed to their local authorities.
- The entry into force of CRS regulations in late-adopter countries (Brazil, Chile, Uruguay, Panama, China and Singapore) has prompted follow-up of adaptation efforts.
- Popular´s Group units units have been included in the FATCA Expanded Affiliated Group Santander.

The role of the compliance and conduct function focuses on ensuring fulfilment of the different units' reporting duties. For this purpose, the Bank has in place a detailed compliance programme that has been adapted by local compliance officers to the specific features of their respective arrangements. The programme is regularly monitored by the corporate team. In addition, the relevant regulatory developments are updated and advised to the units on an ongoing basis.

Market regulations

In 2017, the Group create policies, procedures and processes as required by MIFID II, which entered into force on 3 January 2018, focusing on harmonising the rules on securities markets, trading platforms, algorithmic trading, direct electronic access, tradable financial instruments, organisational matters, transparency and investor protection.

In addition, throughout 2017 the regulatory compliance function was involved in the separation of retail banking and investment banking in the United Kingdom – the ring-fencing process – which is part of the banking reforms in that country. We analysed the regulatory impacts on UK-based entities by reason of this change in business model.

Once the corporate project for adaptation to the US Volcker Rule was implemented, the next stage has been to supervise the compliance with this regulation which limits proprietary trading to very specific cases that the Group controls by means of a compliance programme. Compliance with other specific securities market regulations are also monitored: e.g. in the field of derivatives, the provisions of Title VII of the US Dodd Frank Act or its European counterpart, EMIR (European Market Infrastructure Regulation).

Regulatory compliance is responsible for disclosing relevant Group information to the markets. Banco Santander made public 75 relevant facts in 2017, which are available on the Group's web site (www.santander.com) and the National Securities Market Commission (CNMV) web site (www.cnmv.es). Standouts among these relevant facts were the acquisition of Banco Popular and the rights issue launched in June and August 2017.

Code of Conduct in Securities Markets (CCSM)

The CCSM, supplemented by the Code of Conduct for Analysis Activity, and another series of regulations, contains Group policies in this field and defines, inter alia, the following responsibilities in regulatory compliance:

- Register and control sensitive information known and generated by the Group.
- Maintain the lists of securities affected and related personnel, and watch the transactions conducted with these securities.
- Monitor transactions with restricted securities according to the type of activity, portfolios or collectives to whom the restriction is applicable.
- Receive and deal with communications and requests to carry out proprietary trading.
- Control own account trading of the relevant personnel and manage possible non-compliance of CCSM.
- Identify, register and resolve conflicts of interest and situations that could give rise to them.
- Analyse activities suspicious of constituting market abuse and where appropriate, report them to the supervisory authorities.
- Solve questions on the CCSM.

In 2017, the role of the regulatory compliance function in this area focused mainly on improving coordination with various local compliance units to safeguard Group standards as to market abuse prevention measures. The Bank made considerable strides in implementing corporate procedures supplementing the CCSM (sensitive information, lists of insiders, soundings, Chinese walls breaches, inter alia), distributing training courses and installing in-house CCMS management tool in Mexico and Chile, and of Treasury dealing control in Brazil, Mexico and Chile.

C.4.5. Product governance and consumer protection

The products and consumer protection governance function defines the key elements needed for adequate management and control of commercialisation and consumer protection risks, which are defined as risks arising from inadequate practices in customer relations, the customer treatment and the products offered to customers and their suitability for each specific customer.

This function promotes an appropriate culture in the Santander Group, fostering transparency and a Simple, Personal and Fair approach that protects the interests of customers. To do so, the following functions have been established, and organised based on the commercialisation of products and services and consumer protection corporate framework and a set of policies setting out the basic principles and guidelines in this field.

The corporate framework for the commercialisation of products and services and consumer protection defines the key items for adequate management and control of compliance, conduct and reputational risks arising from commercialisation/distribution, encompassing all phases (design, sale and post-sale). The revised version of this framework was approved by the board of directors in July 2017.

Functions

The following functions are in place for adequate control and supervision of these risks:

- Foster units' adherence to aforementioned corporate framework.
- Facilitate the functions of the corporate commercialisation committee, ensuring correct validation of any new product or service proposed by any Group subsidiary or the parent prior to the launch thereof.
- Gather from local units - and analyse and report to the Group's governance bodies - the information needed to adequately monitor and analyse product and service commercialisation risk throughout the entire life cycle, with a twofold purpose: possible impact on customers and over the Group. Identify and follow up on actions taken to mitigate the detected risks.
- Establish and apply methodologies to assess conduct risks in commercialisation and follow up on such assessments.
- Support internal consumer protection with the objective of improving relations with the Group, effectively preserving their rights, following up customer claims, complaints, survey responses and requests and encouraging good practices. Enhance the Bank's customers's financial knowledge and focus the function on the new challenges posed by innovation in the industry by implementing rules and standards.
- Identify, analyse and control fiduciary risk generated by Private Banking, asset management, insurance and outsourced activity of custody services for customers' financial instruments. Fiduciary risk arises from liability for mismanagement of third-party assets causing loss to the customer, with the concomitant financial or reputational impact.
- Identify and disclose the best practices for commercialisation and consumer protection.

The main activities carried out by this function in 2017 were as follows:

- Developing and strengthening the consumer protection function in the Group. The function is governed by the consumer protection policy approved by the Commercialisation and Compliance Committees in April 2017, and sets specific criteria for identifying, regulating and exercising principles for the protection of consumers in their relationship with the Group, and frames specific guidelines for overseeing compliance with the policy.
- Developing and strengthening the fiduciary risk function in the Group. The function is governed by the fiduciary risk acceptance, monitoring and control policy approved by the Commercialisation and Compliance committees in April 2017.
- Updating corporate procedures for approving products and services, monitoring the marketing of products and services, and managing complaints and root-cause analysis.
- Approving the manual that formally documents the methodology for the commercialization conduct risk self-assessment exercise carrying out an annual exercise having a scope of 17 geographies within the Group and 26 legal entities, where the first line of defence functions assess the main conduct risks relating to marketing and the effectiveness of risk mitigation controls, and set in motion action plans where assessed risk exceeds specified risk appetite.
- In addition to the 148 proposals submitted to the Corporate Commercialisation Committee, the product governance function also analysed:
  - 48 products or services considered to be not new.
  - 55 structured notes issued by Santander International Products Plc. (subsidiary fully owned by Banco Santander), for which the compliance with applicable agreement is reviewed.
  - 123 consultations from different areas and countries for resolution.
- Fiduciary risk management includes the following processes:

  Analysis and processing for corporate validation in the fiduciary risks subcommittee of:

  - 572 requests for the launch, renewal or modification of product characteristics (397 collective investment vehicles and profile discretionary management portfolios, 13 saving/investment insurance, 113 products distributed by Private Banking and 49 structured notes/deposits for Commercial Banking).
  - 64 requests relating to policies, fund and ETF distribution focus lists and requests for opinion from other areas.

  Monitoring of products, and the exposure and performance of the assets of customers managed by the Santander Group or whose management is delegated to a third party. This management includes collective investment vehicles, profiled discretionary management portfolios, and saving and investment insurance products, and involves:

  - The regular assessment of compliance of products' mandates, such that the risk associated to customers' position is always handled in the customer's best interest.
  - The monitoring of the final result of the investments both with regard to the fiduciary relations with the client who expects the best result as well as with regard to competitors.

- Analyse and consolidate complaint information and management thereof from 28 local units and 36 business units and 9 branch offices of SGCB.

- In the custody risk management scope, the function has carried out the following activities:

  - The review of 28 custody services files, approved by different custody services demanding units of the Santander Group, for presentation and validation in the Executive Risk Committee.

  - Monitoring the volume and situation, according to corporate procedures regarding the monitoring of providers of custody services, of more than the 51 current providers (42 of them external to Santander Group) that provide custody services for Santander Group in its own or its clients.

Corporate projects

Analysis of the governance and systems of remuneration of the sales force to assess the degree of implementation of the corporate policy on remuneration and identify areas for improvement and introduction of good practices across the Group.

C.4.6. Anti-money laundering and anti-terrorism financing

One of Santander Group's strategic objectives is to maintain an advanced and efficient anti-money laundering and anti-terrorism financing system, constantly adapted to international regulations, with the capacity to confront the development of new techniques by criminal organisations.

Money laundering and terrorism financing are pervasive, globalised phenomena that leverage the opportunities of the international economy and the gradual removal of barriers to worldwide exchange and trade for unlawful purposes. Santander Group acknowledges the importance of the fight against money laundering and terrorism financing, which affect vital aspects of the life of the community. The Group actively cooperates with the competent authorities, in this matter.

- Management and control of money laundering and terrorism financing prevention in the Group is based on the principles set out in the general compliance and conduct framework and in the corporate AML/ATF framework, on the rules, standards and recommendations issued by a range of international bodies and institutions, such as the Basel committee on Banking Supervision and the Financial Action Task Force (FATF), and the duties and obligations arising from EU directives.

- The corporate AML/ATF framework sets out principles of action in this domain, and sets minimum standards of application for local units. Local units are responsible for managing and coordinating the systems and procedures of prevention of money laundering and terrorism financing in the countries in which the Group operates. They also investigate and process communications relating to suspicious transactions and information requirements from supervisory bodies. Each local unit has appointed an officer with responsibilities for this function.

- The Bank has in place a technological infrastructure supporting ongoing improvement of systems and processes in all units, based on technological systems that enable the Corporate function to obtain local management information and data, as well as of reporting, monitoring and control. These systems allow for active and preventive management in the course of analysis, identification and monitoring of activities that might be linked to money laundering or terrorist financing.

- The Santander Group is a founding member of the Wolfsberg Group, with other major international financial entities, which works to establish international standards and develop initiatives to improve the effectiveness of programmes in this area. Supervisory authorities and experts in this area believe that the principles and guidelines set by the Wolfsberg Group represent an important step in the fight against money laundering, corruption, terrorism and other serious crimes. The Group's key actions in this domain include:

  - Participation in a range of working groups and/or sessions regarding different topics.

  - Collaboration and elaboration of the Wolfsberg Knowledge Questionnaire and several best practice guidelines.

  - Participation in consultations with the private sector initiated by international organisations (FATF, UNODC, EU, etc.) and private institutions (FSB, SWIFT, FFIS, etc.).

The prevention organisation covers 167 different Group units established in 34 countries. Over one thousand Group professionals currently carry out the anti-money laundering/anti-terrorism financing function.

The main activity data in 2017 are as follows:

- Subsidiaries reviewed: 167

- Investigations: 152,253

- Disclosure to authorities: 41,204

- Employee training: 166,322

The Group has training plans in place at both local and corporate level, in order to cover all employees. Specific training plans are also in place for the most sensitive areas from the perspective of anti-money laundering and anti-terrorism financing.

C.4.7. Reputational risk

In 2017, the Group made significant progress implementing the corporate reputational risk model, which is now embedded in the Corporation.

The specific characteristics of reputational risk are a vast number of sources that requires a unique approach and control model, separate from other risks. The reputational risk management requires for a global interaction with both first and second lines of defence functions and with management functions in relation to the stakeholders in order to ensure a consolidated supervision of the risk, efficiently supported on the current control frameworks. The aim is for reputational risk to be integrated into both business and support activities, and internal processes, thus allowing the risk control and oversight functions to integrate them in their activities.

The reputational risk model is accordingly based on a prominently preventive approach to risk management and control, and also on effective processes for identification and early warning management of events, and subsequent monitoring of events and detected risks.

So as to achieve suitable control and oversight of reputational risks, the function – as a second line of defence – is in charge of the following:

- Defining and implementing the reputational risk model and related methodologies, highlighting the development and update of the model, the development of a specific methodology for this risk identification, setting reputational risk appetite, and developing reputational risk policies and controls.
- Preventive risk management, highlighting the monitoring of external and internal sources to identify reputational risk events, and advising, monitoring and challenging the first and second lines of defence and decision-making bodies (for decisions carrying reputational risk). In connection with reputational risk-related topics, assess the analysis of stakeholder perceptions and action plans, and validate and challenge risk management action plans.
- Safeguard and support reputational risk event management, offering specialised advice to any function or working group that might be affected by reputational risk.
- Information and reporting management.

Key actions:
Within the reputational risk management and control activities developed during the year, together with its daily management, the following are highlighted:

- Launch and development in the adoption and implementation of the model in the Group's various geographies.
- Coordination with all corporate and local units to implement socio-environmental policies.
- Implementation and development of policies relating to specific sectors (mining, soft commodities, defence and energy).
- Development of specific processes to detect and report risks and events in the Group's various geographies and use of specific management indicators.
- Definition and reporting of risk appetite metrics.
- The Bank has moved forward with identifying and monitoring reputational risk events, focusing on mitigating the effect, as well as a preventive approach when managing reputational risks.
- In conjunction with the relevant functions, development of other reputational risk-related policies, such as financing policy for sensitive sectors.
- Implementation of general training on reputational risk: general training for local CCO´s, and development of an awareness video regarding the implementation of the social-environmental policies featuring top management.

C.4.8. Risk assessment model of Compliance and Conduct and risk appetite

The Group sets out the type of compliance and conduct risks that it is not willing to incur - for which it does not have a risk appetite - in order to clearly reduce the probability of any economic, regulatory or reputational impact occurring within the Group. Compliance risk is organised by a homogeneous process in units, by establishing a common taxonomy, according to the standards of the Risks function, which consists of setting a series of compliance risk indicators and assessment matrices which are prepared for each local unit, as well qualitative statements.

With this objective, during 2017 the development and implementation of said appetite has been carried out in the Group's units within the established perimeter. Likewise, the annual formulation of the risk appetite has been carried out at the end of the year, with the objetive to verify that the current model is adequate to measure the function's risk appetite. To this end, the corporate thresholds of three of the indicators were adjusted, reducing them, in order to provide a more accurate image and be able to show an alignment with the strategy of the function and its risk tolerance. These adjustments were approved in the corresponding committees and transferred to the different units.

As in previous years, the compliance and conduct function carried out a regulatory risk assessment exercise in 2017, focused on the main units of the Group. Annually, this exercise is carried out, following a bottom-up process, where the first lines of the local units identify the inherent risk of those rules and regulations that apply to them. Once the consistency of the controls mitigating this inherent risk is assessed, the residual risk of each of these obligations is determined, establishing, as the case may be, the corresponding action plans.

Similarly, the risk assessment exercise regarding conduct was carried out in the marketing and execution of the annual exercise with a scope of 17 geographies of the Group and 26 legal entities, where the first line defence functions evaluate the main risks of conduct in marketing, the suitability of the controls that mitigate said risks and establish action plans in those cases where risk assessments exceed the defined risk appetite.

In addition, in 2017, the compliance and conduct function carried out the annual money laundering and terrorism financing (ML/TF) risks self-assessment exercise, on the units considered as Obligatory Subjects in this matter (or equivalent) in the Santander Group. This annual self-assessment exercise is carried out by the business units and the local ML/TF prevention officers, under the supervision of the corporation's ML/TF prevention function. In this regard, the methodology adopted by the Group for the assessment of ML/TF risks of each of the units is based on a three-phase process: 1. Evaluation of the unit's inherent risk (derived from its activity), 2. Evaluation of the control environment (as a mitigating element of the inherent risk) and 3. Calculation of the net residual risk (obtained by combining the previous 2 according to a predefined scale). Where appropriate, and depending on the result obtained, the corresponding action plans are linked.

In addition, and in coordination with the risk function, a convergence plan has been established to integrate the joint vision of non-financial risks into a common tool called *Heracles*. To this end, work has been carried out throughout the year on a plan to jointly coordinate all the risk assessments carried out in 2017 for the first line of defence (Regulatory Risk Assessment, Risk Assessment of Conduct and Risk Assessment of Operational Risk) in such a way that they were carried out simultaneously in the same period of time; supported by Heracles, the corporate tool; and their results being jointly presented to the different corporate committees in the first quarter of 2018.

C.4.9. Transversal corporate projects

In accordance with the organisational principles defined in the TOM, transversal functions support specialised vertical functions, providing them with methodologies and resources, management systems and information and support in executing multi-disciplinary projects.

In 2016 -first year of these transversal functions existance- a great deal of progress was made in the four main areas:

- Development of the organisational structure of the function and the necessary needs for its correct functionality and its impact monitoring.
- Development of a new compliance and conduct culture based on the Simple, Personal and Fair culture and aligned with the spirit of the TOM.
- Promoting data systems to support and implement a continuous improvement methodology in the processes of the Bank.
- Organisational development and monitoring TOM's degree of maturity in units.

During 2017, special efforts have been made to recruit new human resources profiles for the compliance and conduct function who promote and assist in transforming the function.

One of the key pillars of all the corporate functions is monitoring the units' deployment of models. To that end, a methodology is currently being developed:

- To acquire an objective knowledge of the TOM's degree of deployment in each one of the units.
- Regularly follow up on progress in deploying the model.
- Be used as a source for joint identification (Group-units) of the work plans defined every year.

At the corporate centre over the course of 2017, documentation was completed on the processes of the compliance and conduct function, identifying teams' core activities and the related risks and operational controls. After the documentation stage, over the course of the year we held meetings for ongoing improvement via a "process enhancement community" involving the "owners" of the processes addressing the various risks, so as to identify and implement improvements in the productivity and effectiveness of compliance activities.

Against this background, in the first quarter of 2018 new digitised processes will be deployed for financial intelligence and corporate transactions. The compliance and conduct function is pioneering the use of BPM (Business Process Management) methods to improve its processes. The Bank plans to extend this practice to the main compliance and conduct processes at the corporate centre and local units over the next two years.

As to Information Systems, the technology strategy agreed with the Technology and Operations unit, continue to roll out. In 2017, the digital compliance and conduct strategy was updated, focusing resources and priorities on the following lines of action:

- Online cooperation with Group units, fostering platforms and structured spaces for information exchange, such as the "Compliance Portal" and the "VERUM platform for TOM maturity assessment".
- Risk assessment, completing existing functionalities on the *Heracles* platform, to which in 2017 we added risk assessment for the AML and corporate defence domains.
- Access to external information sources to enhance compliance control processes (regulatory sources, online media, stakeholder perceptions, etc.).
- Digitalization of internal processes to improve productivity and effectiveness.
- Management information and analytical environments, leveraging new Big Data and Multidimensional Reporting capabilities to enhance generation and distribution of compliance and conduct management reports and optimise the response to money laundering and terrorist financing alerts.

At the corporate centre, compliance and conduct is now rolling out the regulatory management system (Regulatory Radar), which will lead to integration on a single platform of new regulation capture, analysis of applicability and materiality for the Group, break-down into actionable duties and obligations, and follow-up of the process of implementing required changes. The system is expected to be deployed to local units in 2018, along with automatic integration of regulatory sources.

Finally, the implementation and deployment of the APAMA system is being carried out in the Group's units, in order to control market abuse scenarios.

As to information management, the Bank has implemented new report templates that support the governance and reporting of all risk families, and the respective consolidated view of compliance and conduct risks. The new reporting templates are organised into common chapters (executive summary, risk profile, appetite, management metrics, etc.), with dimensions by family (admission of products, sale and after-sale, customer on-boarding, AML alerts, etc.), and combine quantitative metrics and expert qualitative analysis. As mentioned in the systems chapter, Santander is working on automating the generation and distribution of these reports.

As in previous years, the development of these new reporting tools are part of the data governance model spearheaded by the Chief Data Officer (CDO). This assures the quality of information supplied to senior management.

In 2018, a common compliance and conduct risks report template across the Group's various units will be rolled out.

Finally, throughout 2017 the compliance and conduct function continued to drive forward the implementation of MiFID II rules throughout the Group's units attracting the application of this regulation. Headed by the GCCO, the Project Management Office (PMO MiFID) has continued its role of planning, coordinating and monitoring local implementation programs, focusing on the regulatory, business, operational and technology dimensions. Monthly project follow-up meetings have been held (SteerCo), attended by the GCCO and local unit sponsors. A progress report on the project has been submitted to the Group's management committee and the RSRCC. Lastly, within the MiFID II training programme, training sessions are scheduled for compliance governance bodies and the board.

C.5. Model risk

The Santander Group has far-reaching experience in the use of models to help make all kinds of decisions, and risk management decisions in particular.

A model is defined as a system, approach or quantitative methods which applies theories, techniques or statistical, economic, financial or mathematical hypotheses to convert input data into quantitative estimates. The models are simplified representations of real world relationships between observed characteristics, values and observed assumptions. By simplifying in this way, the Group can focus attention on the specific aspects which are considered to be most important to apply a certain model.

Use of models entails model risk, defined as the risk of loss arising from inaccurate predictions that prompt the Bank to take sub-optimal decisions, or misuse of a model.

According to this definition, the sources of Model Risk are as follows:

- the model itself, due to the utilisation of incorrect or incomplete data, or due to the modelling method used and its implementation in systems,
- improper use of the model.

The materialisation of model risk may prompt financial losses, inadequate commercial and strategic decision making or damages to the Group's reputation.

Santander Group has been working towards the definition, management and control of model risk for several years. Since 2015, a specific area has been put aside to control this risk, within the Risk division.

Model risk management and control functions are performed in the Corporation and in each of the Group's core entities. These functions are guided by the model risk management model, with principles, responsibilities and processes that are common across the Group. The model addresses organisation, governance, model management and model validation, among other matters.

The Model Risk Control Committee, chaired by the Deputy Chief Risk Officer, is the collegiate body responsible for supervision and control of model risk at Santander. The aim of the Committee is to effectively control model risk, advising the Chief Risk Officer and the Risk Control Committee to ensure that model risk is managed in accordance with the Group risk appetite approved by the board of directors, which includes identifying and monitoring current and emerging model risk and its impact on the Group's risk profile.

The responsibility of authorising the models use falls under the local model committees and its ratification is provided by the corporate model approval subcommittee. Currently there is a delegation scheme whereby certain models, according to their tier, do not require corporate ratification, being the corporate model approval subcommittee periodically informed.

Senior management at Santander has an in-depth knowledge of the key models. In addition, senior management regularly monitors model risk in a set of reports that provide a consolidated view of the Group's model risk and enable decisions to be taken in this regard.

Model risk management and control is structured around a set of processes regarded as the model life cycle, as described below:

1. Identification

As soon as a model is identified, it is necessary to ensure that it is included in the control of the model risk.

One key feature of proper management of model risk is a complete exhaustive inventory of the models used.

The Group has a centralised inventory, created on the basis of a uniform taxonomy for all models used at the various business units. The inventory contains all relevant information on each of the models, enabling all of them to be properly monitored according to their relevance. One of the key data points in the inventory that determines the management approach to the model is the tier to which the model belongs. The tier reflects the relevance of a model taking into account quantitative criteria and other significant qualitative criteria.

The inventory enables transversal analyses to conducted on the information (by geographic area, types of model, importance etc.), thereby easing the task of strategic decision-making in connection with models.

2. Planning

All parties who take part in the model life cycle play a role in this phase (owners and users, developers, validators, data suppliers, technology, etc.), agreeing on and setting priorities regarding the models which are going to be developed, reviewed and implemented over the course of the year.

This planning takes place once a year at each of the Group's main entities, and is approved by local governance bodies, and ratified by the Corporation.

3. Development

This is the model's construction phase, based on the needs established in the model plan and with the information provided by the model owners for that purpose.

Most of the models used by Santander Group are developed by internal methodology teams, though some models are also outsourced from external providers. In both cases, the development must take place using common standards for the Group, and which are defined by the corporation. By this means, we can assure the quality of the models used for decision-making purposes.

4. Independent validation

Internal validation of models is not only a regulatory requirement in certain cases, but it is also a key feature for proper management and control of the Santander Group's model risk.

Hence, a specialist unit is in place which is independent of both developers and users, draws up a technical opinion of the suitability of internal models to their purposes, and sets out conclusions concerning their robustness, utility and effectiveness. The validation opinion takes the form of a rating which summarises the model risk associated with it.

The internal validation encompasses all models under the scope of model risk control, from those used in the risk function (credit, market, structural or operational risk models, capital models, economic and regulatory models, provisions models, stress tests, etc.), up to types of models used in different functions to help in decision making.

The scope of validation includes not only the more theoretical or methodological aspects, but also IT systems and the data quality they allow, which determines their effectiveness. In general, it includes all relevant aspects of management in general (controls, reporting, uses, senior management involvement etc.).

This corporate internal validation environment at the Bank is fully aligned with the internal validation criteria of advanced models produced by the financial regulators to which the Group is subject. This maintains the criterion of a separation of functions for units developing and using the models, internal validation units and internal audit as the ultimate layer of control, checking the effectiveness of the function and its compliance with internal and external policies and procedures, and commenting on its level of effective independence.

5. Approval

Before being deployed and thus used, each model has to be presented to be approved in the appropriate bodies, as established in the internal regulations in force at any given time, and in the approved delegation schemes.

6. Deployment and use

This is the phase during which the newly developed model is implemented in the system in which it will be used. As indicated above, this implementation phase is another possible source of model risk, and it is therefore essential that tests be conducted by technical units and the model owners to certify that it has been implemented pursuant to the methodological definition and functions as expected.

7. Monitoring and control

Models have to be regularly reviewed to ensure that they function correctly and are adequate for the purpose for which they are being used, or, otherwise, they must be adapted or redesigned.

Also, control teams have to ensure that the model risk is managed in accordance with the principles and rules set out in the model risk management model and related internal regulations.

C.6. Strategic risk

Strategic risk is the risk of loss or harm arising from strategic decisions or poor implementation of decisions affecting the long-term interests of the Group's main stakeholders, or inability to adapt to changes in the environment.

The Entity's **business model** is a key factor for strategic risk. It has to be viable and sustainable, and capable of generating results in line with the Bank's objectives and over time. Within the strategic risk, three components are differentiated:

- **Business model risk:** the risk associated with the Entity's viability business model. This risk is caused both by external factors (macroeconomic, regulatory, social and political questions, changes in the banking industry, etc.) and also internal ones (strength and stability of the income statement, distribution model/channels, revenue and expenses structure, operational efficiency, adequacy of human resources and systems, etc.).

- **Strategy design risk:** the risk associated with the strategy set out in the entity's five-year strategic plan. Specifically, it includes the risk that the strategic plan may not be adequate per se, or due to its assumptions, and thus the Bank will not be able to deliver on its unexpected results. It is also important to consider the cost of opportunity of designing another more adequate strategy.

- **Strategy execution risk:** the risk associated with executing long-term three-year strategic financial plans. The risks to be taken into account include both the internal and external factors described above, the inability to react to changes in the business environment, and, lastly, risks associated with corporate development transactions (those which imply a change in the entity's perimeter and activity, acquisitions or disposals of significant shareholdings and assets, joint ventures, strategic alliances, shareholders' agreements and capital operations) which may also affect the strategic execution.

For Santander, strategic risk is considered to be a transversal risk, and counts with a strategic **risk control and management model** which is used as a reference for Group subsidiaries and contemplates procedures and tools for its adequate monitoring and control:

- **Long-term strategic plan and three-year plan:** the strategic risk function, with the support of different areas of the Risk division, monitors and challenges, in an independent way, the risk management activities performed by the strategy function, incorporating an integrated section, although independent, of the long-term strategic plan and three-year financial plan (risk assessment).

- **Corporate development operations:** the strategic risk function, with the support of different areas of the Risk division, ensures that the corporate development operations consider an adequate risk valuation and its impact in both risk profile and appetite.

- **Top Risks:** according to section B. Background and upcoming challenges, the Group identifies, evaluates and monitors those risks that have a significant impact on the Entity's results, liquidity or capital, or risks that might involve undesirable concentrations affecting the entity's financial health, differentiating four main categories: i) macroeconomic and geopolitical, ii) competitive environment and customers, iii) regulatory environment, and iv) internal factors.

  Awareness of these risks is a necessary input to strategic risk management and control, with the support of all business areas in partnership with the Bank's risk areas. These risks are reported regularly to senior management via a governance process that allows for appropriate monitoring and mitigation.

- **Strategic Risk report:** it is a report performed jointly by the strategy function and strategy risk, as a combined tool for the monitoring and strategy valuation, as well as associated risks. This report is sent to the board of directors and contains: strategy execution, strategical projects, corporate development operations, business model performance, main threats (Top risks) and risk profile.

C.7. Capital risk

C.7.1. Introduction

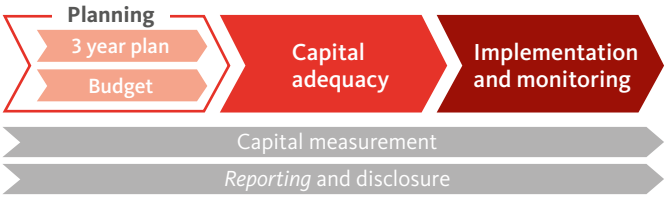
Santander Group defines capital risk as the risk that the Entity does not have sufficient capital, in quantitative or qualitative terms, to fulfil its internal business objectives, regulatory requirements, or market expectations.

The capital risk function, in its capacity as second line of defence, controls and oversees the activities of the first line of defence chiefly by means of the following processes:

- Supervision of capital planning and adequacy exercises through a review of all their components (balance sheet, profit and loss account, risk-weighted assets and available capital).
- Ongoing supervision of the Group's capital measurement activities, including single operations with capital impact.

The function is designed to carry out full and regular monitoring of capital risk by verifying that capital is sufficient and adequately covered in accordance with the Group's risk profile.

Capital risk control focuses on the capital management model established in the Group, bringing together a range of processes, such as capital planning and adequacy and the subsequent budget execution and monitoring, alongside the ongoing measurement of capital and the reporting and disclosure of capital data, as described in the following chart:



C.7.2. Implementation of functions

Supervision of capital planning and adequacy exercises

The review by the Risks function of capital planning and adequacy exercises ensure that capital is consistent with the established risk appetite and risk profile.

With this objective, the process of all significant risks to which the Group is exposed in the course of its business is evaluated. In addition, it contributes to ensure that the methods and assumptions used in capital planning are appropriate and that the capital forecast calculations are reasonable with the scenarios used, volumes forecast, coherence between exercises, among others.

This function is implemented in stages, according to the following scheme:

Definition of scope
The process starts by deciding which units are to be assessed on the basis of their significance for the Group, and which lines of business or portfolios are to be evaluated having regard to their importance within the strategy undertaken by the subsidiary or by the Group, so as to attain an appropriate level of materiality.

Qualitative analysis
At this stage, the overall quality of the process in generating forecasts is assessed. This involves a review of the models used and the macroeconomic scenarios, scope, metrics, granularity, consistency with previous periods, etc.

Quantitative analysis
The specified metrics and components that affect forecasts of pre-provision net revenue (PPNR), of provisions, of risk-weighted assets and available capital are quantitatively assessed. The tests conducted include analysis of volumes, trends, reasonableness and cross-checks against the development of macroeconomic variables and historic data series.

This stage calls for the involvement and appropriate coordination of all subsidiaries within the scope of the process, to conduct analysis of local projections, which in turn underpin Group-level projections.

Conclusions and disclosure
Based on the outcomes from the capital planning and adequacy stages, the Group conducts a final assessment, at least encompassing the scope of analysis and the areas for improvement detected in the course of the supervision process, reporting to senior management in accordance with the established governance.

Ongoing supervision of capital measurement

As mentioned before, another function of capital risk control is the supervision and control of the integrity of the capital measurement process, in order to ensure a suitable capital risk profile.

For this purpose, Santander Group conducts qualitative analysis of the regulatory and supervisory framework and ongoing review of capital metrics and specified thresholds.

Moreover, ongoing compliance monitoring of the capital risk appetite is carried out, maintaining capital above the regulatory requirements and market demands.

To fulfil this function, the following stages have been established, in accordance with the process described below:

Definition of metrics and thresholds
A set of metrics and thresholds that are used in the supervision process and provide the capital risk monitoring and control vision are annually specified.

Preliminary analysis
At this stage of the control process, the qualitative issues, such as process governance and the regulatory framework are analysed.

In addition, the steps taken in connection with capital to fulfil recommendations and instructions issued by supervisory authorities in the exercise of their powers and by the Internal Audit function are examined.

Measurement assessment
At this stage, the scope of the exercise in accordance with the significance of subsidiaries' contribution to the Group is delimited. Moreover, these subsidiaries and/or portfolios are included, despite not being material in themselves, but are regarded by the Group as requiring analysis at that specific juncture.

After delimiting the scope, the specified metrics and thresholds are reviewed, analysing any excess over stipulated thresholds, with a statement of the reasons for the deviation. This allows for detailed review of the reliability of capital measurement.

Furthermore, to ensure the capital measurement integrity, more in-depth analysis of specific aspects of the process are carried out, if deemed necessary.

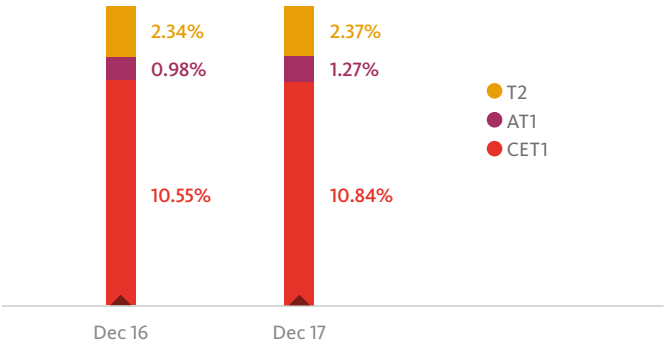
Conclusions and disclosure
Based on the outcomes of the capital measurement stages, a final assessment is conducted that will include the scope of analysis and the improvement aspects detected in the course of the supervision process, reporting to senior management.

Within the capital measurement control process, the Bank uses the following **metrics:**

Capital ratios evolution
During 2017 the Group ratios evolved positively achieving a total capital ratio of 14.48%, demonstrating the Group's ability to generate capital organically.

KEY REGULATORY CAPITAL FIGURES (FL)

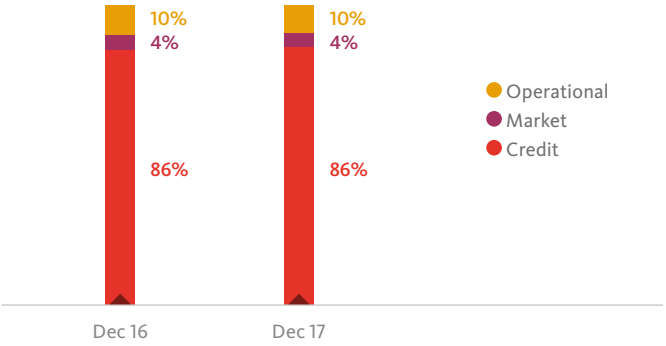
%	2017	2016	Variation bp
CET1 Ratio	10.84%	10.55%	+29
Tier 1 Ratio	12.11%	11.53%	+58
Total Capital Ratio	14.48%	13.87%	+61
Leverage Ratio	5.02%	4.98%	+4
Million euro			Variation %
CET1	65,563	62,068	+5.6%
Tier 1	73,293	67,834	+8.0%
Total capital	87,588	81,584	+7.4%
RWA	605,064	588,089	+2.9%



Change in RWAs by risk type

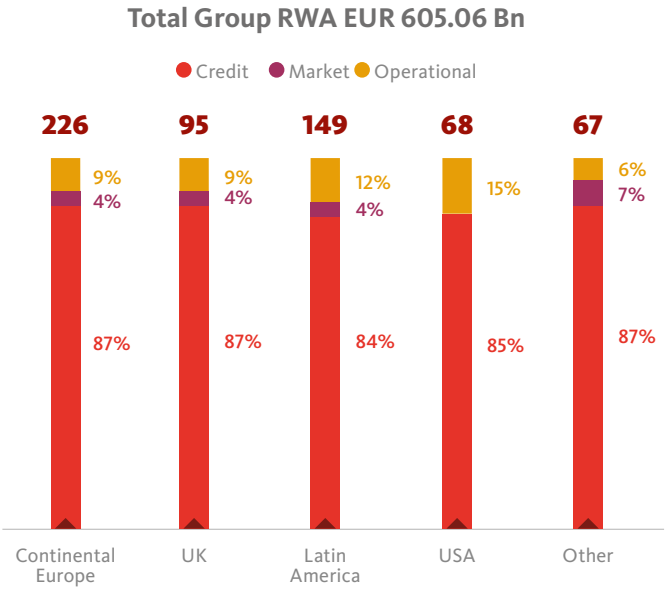
The composition of the Group's RWAs did not change significantly in 2017. A key component was the contribution of credit risk, exceeding 86% in 2017. Market risk was relatively immaterial.

RWA BY RISK TYPE



Breakdown of RWAs by core geographies and risk types

The Group's credit portfolio as of December 2017 stood at 519,643 million euros of RWAs, accounting for 86% of the Group's RWAs. By the main geographies, in which the Group operates, the Group's RWA contribution percentage is the following:

RWA BY GEOGRAPHY

Billion euros