2018
Pillar 3 Disclosures Report

santander.com

Pillar 3 Disclosures Report

2018

1

Introduction (Ch.1)

2

Capital (Ch. 2)

3

Risks (Ch. 3, 4, 5, 6, 7 and 8)

4

Santander Group (Ch. 9 and 10)

Other appendices available on the Santander Group website.
Pillar 2 editable format tables.

Access files **2018 Pillar 3 Appendices & 2018 Pillar 3 tables** available on the Santander Group website

Navigability Enhancements

LINKS ACROSS SECTIONS (web version of the Report)
Links across sections are included in every chapter of the Pillar 3 Disclosures Report, indicated by the following icons:

BOOKMARKS (web version of the Report)
The inclusion of bookmarks for the different sections allow improved navigability across the Pillar 3 Disclosures Report

QR CODES (written version of the Report)
QR codes are included in the Report to facilitate further consultation on other relevant documents of Santander Group

EXCEL TABLES
Every table disclosed in the Pillar 3 Disclosures Report is published in Excel format (editable) for further analysis

CRR CROSS REFERENCES
Incorporation of an Appendix containing all disclosures required under part VIII of the Capital Requirements Regulation (CRR), and its location in the Pillar 3 Disclosures Report

1

Introduction

1.Introduction

1.1. Executive summary*

At December 2018, Santander was the largest banking group in the Eurozone by market capitalisation (EUR 64,508 million) and the 16th in the world.

The Group engages in all types of activities, operations and services that are typical of the banking business in general. Its business model is focused on commercial banking products and services with the aim of meeting the needs of its 144 million customers, including private banking customers, SMEs, businesses and corporates.

Santander's strategy remained focus on customer loyalty. The number of loyal customers (19.9 million) rose by 2.6 million in the year (+15%), with individuals as well as companies rising. The number of digital customers (32.0 million) rose by 6.6 million in 2018 (+26%), underscoring the strength of our multichannel strategy.

The Group operates through a global network of 13,217 branches, the largest excluding Chinese banks and Sberbank Group, as well as digital channels, in order to provide top-quality service and flexibility. Santander is among the top three banks in customer satisfaction in seven of our main countries.

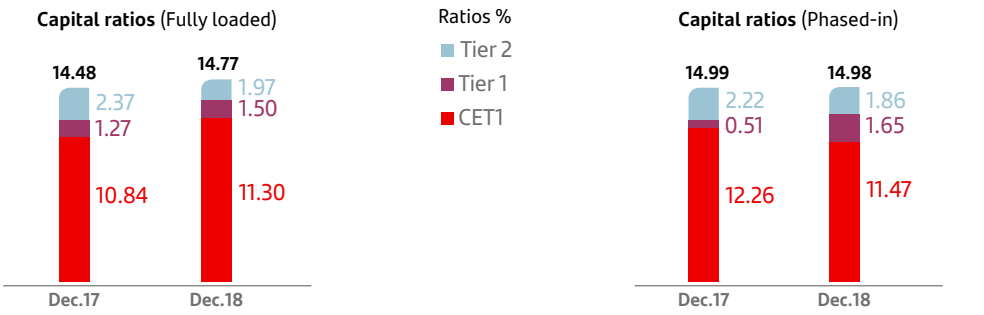
Santander has EUR 1,459,271 million assets and manages EUR 980,562 million of total customer funds across all its customer segments. It has more than four million shareholders and over 200,000 employees. Retail Banking accounts for 87% of the Group's total income.

The Group is highly diversified and operates mainly in 10 core units, where it maintains significant market shares.

In terms of solvency, Santander is bolstering its capital ratios and improving credit quality, while remaining one of the most profitable banks.

We exceeded our 2018 target of 11% fully loaded CET1

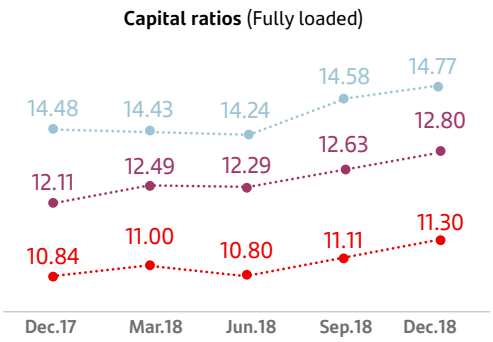
Changes in main Capital ratios' figures

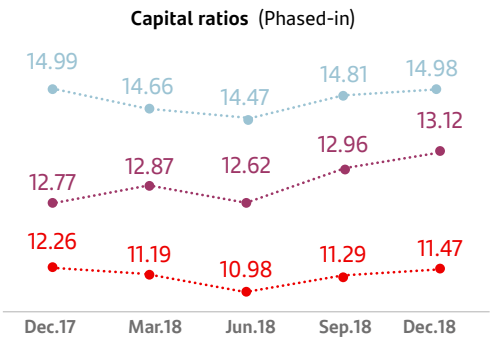


	Fully loaded		Phased-in	
EUR million	Dec-2018	Dec-2017	Dec-2018	Dec-2017
Common Equity (CET1)	66,904	65,563	67,962	74,173
Tier 1	75,838	73,293	77,716	77,283
Total capital	87,506	87,588	88,725	90,706
Risk weighted assets	592,319	605,064	592,319	605,064
CET1 Ratio	**11.30%**	**10.84%**	**11.47%**	**12.26%**
Tier 1 Ratio	**12.80%**	**12.11%**	**13.12%**	**12.77%**
Total capital ratio	**14.77%**	**14.48%**	**14.98%**	**14.99%**
Leverage Ratio	**5.10%**	**5.02%**	**5.22%**	**5.28%**

* 2018 data has been calculated under application of IFRS9 transitory dispositions, unless otherwise indicated.

Note: this English version is a translation of the original in Spanish for information purposes only. In the event of discrepancy, the original Spanish-language version prevails.

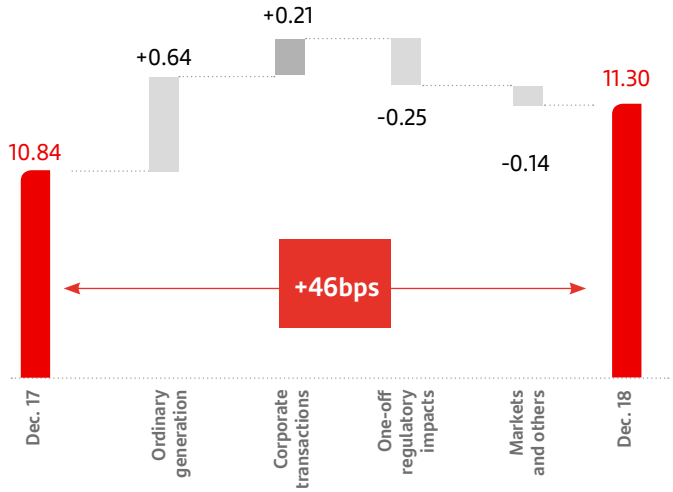




The fully loaded CET1 ratio stood at 11.30% after generating 46 bps in the year

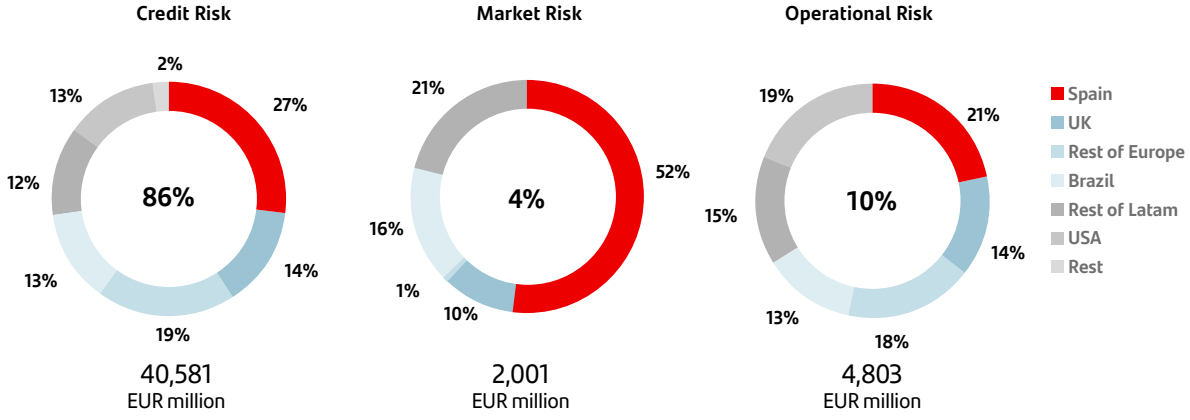
2018 CET1 Fully Loaded evolution

%



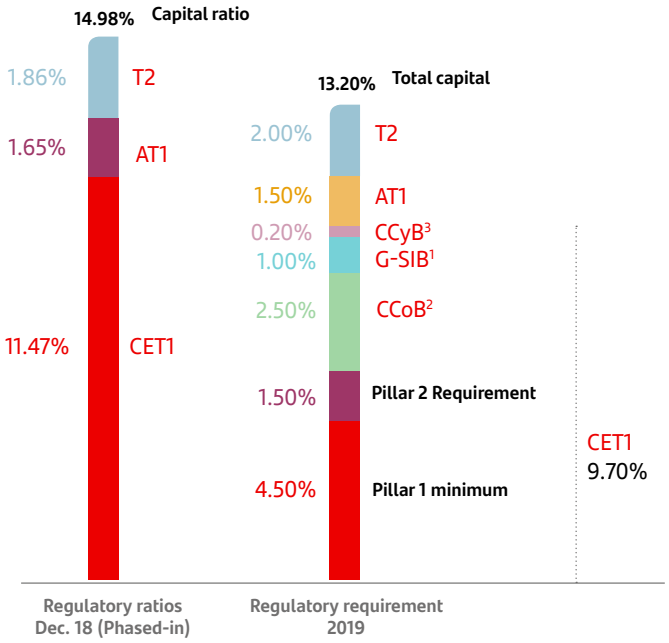
Distribution of capital requirements by risk type and geography

31 Dec. 2018



We comfortably met the minimum ratios set by the ECB on a consolidated basis

Regulatory Capital vs Regulatory requirement



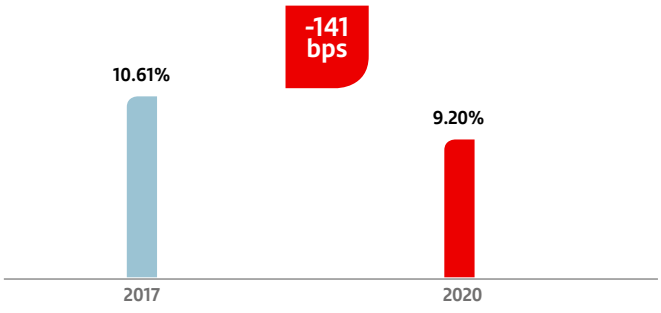
1. Global systemically important Banks buffer
2. Conservation capital buffer
3. Countercyclical capital buffer

The stress test results demonstrate the sturdiness and diversification of our model

In the adverse scenario, Santander was the Bank that destroyed the least capital (-141 bps) in its peer group.

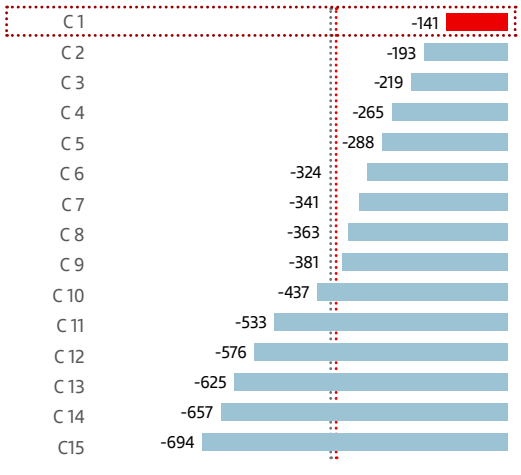
Fully loaded CET1 ratio - stress test adverse scenario

%



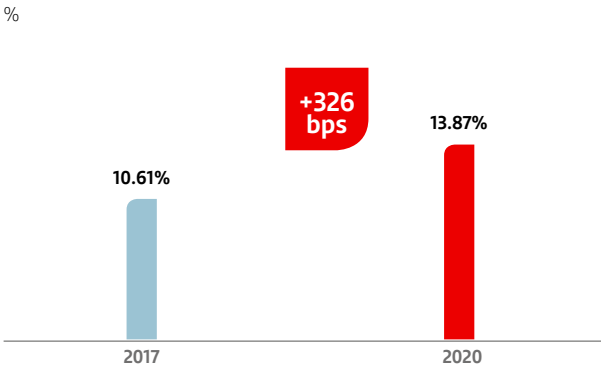
2017 FL CET1 vs adverse 2020

bps

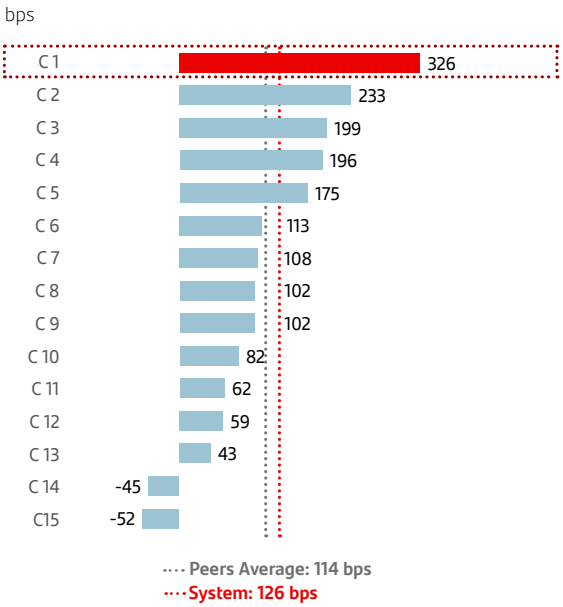


In the base scenario, the Group also generated the most profit among its peers.

Fully loaded CET1 ratio - stress test baseline scenario



2017 FL CET1 vs baseline 2020



1.2. Santander Group Pillar 3 report overview

This section looks at general aspects applicable to Santander Group and describes the governance for approval and publication of the Pillar 3 report, in addition to the disclosure criteria used in the report.

1.2.1. Background information on Santander Group

Banco Santander, S.A. is a private-law company, subject to the rules and regulations applicable to banks operating in Spain. In addition to its own activities, Banco Santander is the parent of a group of subsidiaries engaged in a variety of activities, which together make up Santander Group. The CRR and CRD IV and their transposition in Spain through Bank of Spain Circular 2/2016, on supervision and solvency, apply on a consolidated level across the entire Santander Group.

Santander Group does not make use of the exemption contemplated in article 49 of the CRR, therefore the disclosure of table INS1 (Non-deducted participations in insurance undertakings) does not apply.

As of 31 December 2018, under Article 7 and 9 of the CRR, the subsidiaries Santander Leasing S.A. EFC and Santander Factoring y Confirming S.A. EFC are exempt from the minimum capital requirements, the limit on large exposures and the internal corporate governance obligations. No use of the exemptions under the applicable regulations has been made for any other Santander Group subsidiaries.

Santander Group is one of the banks that have not required state aid in any of the countries in which it operates.

For all those aspects for which disclosure is required under Part Eight of the CRR and which are not applicable to Santander Group, see Appendix II – CRR Mapping – , where they are reported as "N/A" (not applicable).

As of 31 December 2018, none of the financial institutions included in Santander Group consolidated had less than the minimum capital required under applicable regulation.

1.2.2. Governance: approval and publication

Pursuant to the official disclosure policy, Santander Group publishes its annual Pillar 3 disclosures report following board approval. Prior to the board of directors' approval on 26 February 2019, the report was reviewed by the risk supervision, regulation and compliance committee at a meeting held on 25 February, and also by the capital committee at a meeting held on 8 February 2019.

Additionally, on 21 February 2019, the report was reviewed by the audit committee.

Furthermore, a set of quarterly information has been published since March 2015 in compliance with the EBA's: Guidelines on materiality, proprietary and confidentiality and on disclosure frequency, pursuant to article 432, sections 1 and 2 and article 433 of Regulation (EU) 575/2013.

No exceptions have been made to the publication of information considered proprietary or confidential.

Appendix II contains a list showing the location of the information disclosed in accordance with the relevant articles of Part Eight of the Regulation.

The information contained in this report has been subject to review by the external auditor (PwC), who did not find any issue with regard to the reasonableness of the disclosures and compliance with the reporting requirements established in the CRD IV and the CRR.

Governing bodies' certification
The board of directors of Santander Group certifies that the publication of the Pillar 3 disclosures report is compliant with the guidelines of Part Eight of Regulation (EU) 575/2013 and consistent with the "Pillar 3 Disclosures Policy" adopted by the board of directors.

The Pillar 3 Disclosures Report relies on a range of processes relating to the internal control framework, with duties and responsibilities having been defined for review and certification of the information set out in the report at several levels of the organisation.

In addition, the external auditors carry out an ex ante review, and the work plans for recurring reviews by internal audit also cover this report.

The Pillar 3 disclosures report is available in the Shareholders and Investors section of the Santander Group website (www.santander.com), under "Financial and Economic Information".

Access **2018 Pillar 3** available on the Santander Group website.

Disclosures of Santander Group subsidiaries
In addition to the information contained in this report, Santander Group subsidiaries that are considered to have significant importance for their local market, pursuant to article 13 of the CRR (Application of disclosure requirements on a consolidated basis), publish information at individual level on their websites in relation to: own funds, capital requirements, capital buffers, credit risk adjustments, remuneration policy and the application of credit risk mitigation techniques.

1.2.3. Transparency enhancements

In recent years, Santander Group has taken note of the recommendation issued by different international bodies with the aim of improving the transparency of the information published each year in the Pillar 3 disclosures report.

In December 2016, the European Banking Association (EBA) published its final guidelines on disclosure requirements under Part Eight of the Capital Requirements Regulation. These guidelines provide guidance to financial institutions on how to comply with applicable regulations.

Further, in March 2017 and December 2018 the Basel Committee published the second and third phase of its Revised Pillar 3 Disclosure Requirements.

Santander Group has now incorporated all of this year's applicable enhancements. Appendix II provides a list showing the location of the information required under the different articles of Part Eight of the CRR, while the Santander Group website includes a file containing all of the tables shown in this document in editable format to facilitate their treatment.

A detail of the applicable enhancements can be found in the Appendix I.

1.2.4. Disclosure criteria used in this report

This report has been prepared in accordance with the applicable European Capital Requirements Regulation (CRR).

Below are the details of the type of information that best reflects the discrepancies between the regulatory information shown in this report, and the information shown in the Annual Report and the accounting information:

- The measures of credit risk exposure used for calculating regulatory capital requirements include:
  - not only current exposures, but also potential future risk exposures arising from future commitments (contingent liabilities and commitments) or changes in market risk factors (derivative instruments)
  - the mitigating factors of these exposures (netting agreements and collateral agreements for derivative exposures, and collateral and personal guarantees for on-balance-sheet exposures).
- Criteria used when classifying defaulted exposures in portfolios subject to advanced approaches for calculation of regulatory capital are more conservative than those used for preparing the disaggregated information provided in the Annual Report.

1.3. Scope of consolidation

Santander Group companies included in the scope of consolidation for the purposes of calculating the capital adequacy ratio under the CRR are the same as those included in the scope of consolidation for accounting purposes under Bank of Spain Circular 2/2018.

1.3.1. Differences between the consolidation method for accounting purposes and the consolidation method for regulatory capital calculation purposes

In application of Part I (General Provisions) of the CRR, certain Santander Group companies are consolidated using a different method to that used for accounting consolidation.

The companies for which a different consolidation method is used, based on the regulations applied are listed in Appendix V of the 2018 Pillar 3 Appendix document available on the Santander Group website. To this day, both the participations in significant financial institutions and insurance companies are exempt from deductions under CRR´s article 48.

Access file **2018 Pillar 3 Appendices** available on the Santander Group website.

For the purposes of calculating the capital adequacy ratio based on the nature of their business activities, Santander Group units included in the prudential scope of consolidation are consolidated using the full consolidation method, with the exception of jointly controlled entities, which uses proportionate consolidation. All companies that cannot be consolidated based on their business activities are accounted for using the equity method and so are treated as equity exposures.

The basis of the information used for accounting purposes differs from that used for the calculation of regulatory capital requirements. The measures of risk exposure may differ depending on the purpose for which they are calculated, such as financial reporting, regulatory capital reporting or management information. The exposure data included in the quantitative disclosures in this document are used for calculating regulatory capital.

The following table shows the relationship between the various categories of the financial statements and the risk categories in accordance with prudential requirements.

Table 1. Differences between accounting and regulatory scopes of consolidation and mapping of financial statements categories with regulatory risk categories (LI1)

EUR million

	31 Dec. 2018						
			Carrying values of items:				
	Carrying values as reported in published financial statements	Carrying values under scope of regulatory consolidation	Subject to credit risk framework	Subject to counterparty credit risk framework	Subject to securitisation framework	Subject to market risk framework	Not subject to capital requirements or subject to deduction from capital
Assets							
Cash and cash balances at central banks	113,663	113,640	113,640	-	-	-	-
Financial assets held for trading	92,879	92,940	-	55,990	25	92,915	-
Financial assets designated at fair value through income statements	68,190	65,598	-	34,071	-	56,373	-
Available-for-sale financial assets	121,091	107,811	103,720	-	4,091	-	-
Loans and receivables	946,099	949,027	928,792	17,252	2,933	-	50
Held-to-maturity investments	-	-	-	-	-	-	-
Derivatives - Hedge accounting	8,607	8,607	-	8,607	-	-	-
Fair value changes of the hedged items in portfolio hedge of interest rate risk	1,088	1,088	-	-	-	-	1,088
Investments in subsidiaries, joint ventures and associates	7,588	8,762	7,322	-	-	-	1,440
Reinsurance assets	324	-	-	-	-	-	-
Tangible assets	26,157	23,308	23,308	-	-	-	-
Intangible assets	28,560	28,551	-	-	-	-	28,551
Tax assets	30,251	30,298	26,013	-	-	-	4,285
Other assets	9,348	10,683	9,668	-	-	-	1,015
Non-current assets and disposal groups classified as held for sale	5,426	5,593	5,593	-	-	-	0
TOTAL ASSETS	**1,459,271**	**1,445,907**	**1,218,056**	**115,920**	**7,049**	**149,288**	**36,430**
Liabilities							
Financial liabilities held for trading	-70,343	-70,405	-	-55,403	-	-70,405	-
Financial liabilities designated at fair value through profit or loss	-68,058	-49,147	-	-20,894	-	-49,147	-
Financial liabilities measured at amortised cost	-1,171,630	-1,177,925	-	-	-	-	-1,177,925
Derivatives – Hedge accounting	-6,363	-6,360	-	-6,360	-	-	-
Fair value changes of the hedged items in portfolio hedge of interest rate risk	-303	-303	-	-	-	-	-303
Liabilities under insurance contracts	-765	-	-	-	-	-	-
Provisions	-13,225	-13,283	-779	-	-	-	-12,504
Tax liabilities	-8,135	-8,131	-	-	-	-	-8,131
Other liabilities	-13,088	-13,033	-	-	-	-	-13,033
TOTAL LIABILITIES	**-1,351,910**	**-1,338,587**	**-779**	**-82,657**	**-**	**-119,552**	**-1,211,897**

Shown below are the main differences between the carrying amounts appearing on the financial statements and the exposures for prudential purposes:

Table 2. Main sources of differences between regulatory exposure amounts and carrying amounts in financial statements (LI2)

EUR million

	31 Dec. 2018				
		Items subject to:			
	Total	Credit risk framework	CCR framework	Securitisation Framework	Market risk framework
Asset carrying value amount under scope of regulatory consolidation (as per template EU LI1)	**1,490,313**	**1,218,056**	**115,920**	**7,049**	**149,288**
Liabilities carrying value amount under regulatory scope of consolidation (as per template EU LI1)	**-202,988**	**-779**	**-82,657**	**-**	**-119,552**
Total net amount under regulatory scope of consolidation	**1,287,325**	**1,217,277**	**33,263**	**7,049**	**29,736**
Off-balance sheet amounts	295,276	293,707		1,569	
Regulatory Add-on	74,234	-	74,234	-	-
Differences in valuations	-	-	-	-	-
Differences due to different netting rules, other than those already included in row 2	-84,244	-	-54,508	-	-29,736
Non-eligibility of the balances corresponding to accounting hedges (derivatives)	-8,607	-	-8,607	-	-
CCPs	15,307	-	15,307		
Securitisations with risk transfer	-3,052	-28,211	-	25,159	-
Others	3,104	3,229	-	-125	-
Differences due to consideration of provisions	-16,814	-16,801	-1	-13	-
Differences due to CRMs	-16,826	-5,131	-11,695	-	-
Differences due to CCFs	-205,199	-205,199	-	-	-
Exposure amounts considered for regulatory purposes (EAD)	**1,340,504**	**1,258,871**	**47,993**	**33,640**	**-**

The reconciliation of public and non-public balance sheets is shown in Appendix VI on the Santander Group website.

Access file **2018 Pillar 3 Appendices** available on the Santander Group website.

1.3.2 Substantial amendments due to a change in perimeter and corporate transactions

A breakdown is provided below of the main purchases and sales of stakes in other companies, and other major corporate transactions by Santander Group last year:

i. Sale of the 49% stake in Wizink

On 6 November 2018, once the pertinent regulatory permits had been secured, the transactions arising from the agreement between the companies managed by Värde Partners, Inc. ("Varde") and WiZink Bank, S.A. ("WiZink") disclosed by the Group on 26 March 2018 were carried out, by virtue of which:

i. Banco Santander sold Varde its 49% stake in WiZink for EUR 1,043 million, with no material impact on the Group's profit or loss; and

ii. Banco Santander and Santander Totta acquired the debit and credit card business sold through Banco Popular in Spain and Portugal that WiZink had acquired in 2014 and 2016. The Group paid a total of EUR 681 million in the transaction, receiving net assets of EUR 306 million (mostly loans and receivables worth EUR 315 million). The business combination produced EUR 375 million of goodwill, which will be managed by the businesses in Spain.

With these transactions Santander Group is resuming Banco Popular's debit and credit card business, which improves the marketing strategy and facilitates the integration of Banco Popular.

ii. Acquisition of the retail banking and private banking business of Deutsche Bank Polska, S.A.
On 14 December 2017, the Group announced that its subsidiary, Santander Bank Polska, S.A. (Formerly Bank Zachodni WBK S.A.), and Banco Santander, S.A., had reached an agreement with Deutsche Bank, A.G. to acquire (through a carve out) the retail and private banking business of Deutsche Bank Polska, S.A., excluding its foreign currency mortgage portfolio and CIB (Corporate & Investment Banking) business, and including asset management company DB Securities, S.A. (Poland).

In November 2018, after the pertinent regulatory authorisations were secured and approval was given at the respective annual general meetings of Santander Bank Polska, S.A. and Deutsche Bank Polska, S.A, the acquisition was completed, with EUR 298 million paid in cash and newly-issued Santander Bank Polska, S.A. shares subscribed in full by Deutsche Bank, A.G. As consideration, it received net assets worth EUR 365 million, mainly customer loans and deposits, and loans and deposits from credit institutions, worth EUR 4,304 million and EUR 4,025 million, respectively, with negative valuation adjustments of EUR 82 million (mainly under "Loans").

A gain of EUR 67 million was recognised on the difference between the fair value of the net assets acquired and the value of the transaction, recorded under "negative goodwill recognised in results" in the Group's consolidated income statement.

iii. Sale agreement of Banco Popular's real estate business
In relation to Banco Popular's real estate business, on 8 August 2017, Banco Santander announced the transaction with the Blackstone Fund entailing the acquisition by the fund of a 51% stake and, accordingly, control over the real estate business, which comprises the portfolio of repossessed properties, real estate asset holding companies, non-performing loans relating to the real estate sector and other assets related to this activity of Banco Popular and its subsidiaries (including deferred tax assets) registered on certain specified dates (31 March 2017 or 30 April 2017).

The agreements were entered into following receipt of the European Commission's unconditional authorisation of the acquisition of Banco Popular by Banco Santander for the purposes of competition law.

The transaction was completed on 22 March 2018, after the required regulatory authorisations were secured. The transaction involved the creation of several companies, with Project Quasar Investments 2017, S.L. as parent, in which Banco Popular holds a 49% stake and Blackstone the remaining 51%, and to which Banco Popular and certain subsidiaries transferred the business composed of the aforementioned assets and the stake in Aliseda Servicios de Gestión Inmobiliaria, S.L. The price attributed to the assets contributed was approximately EUR 10,000 million, with the vehicle funding approximately 70% with bank borrowings. Following the contribution by shareholders of the required liquidity to the vehicle so its business could operate, the 49% stake was recognised in the Group's balance sheet at an amount of EUR 1,701 million, under "Investments in joint ventures and associates - associates". The transaction did not have a material impact on the Group's income statement.

iv. Merger by absorption by Banco Santander of Banco Popular, S.A.U.
On 23 April 2018, the boards of directors of Banco Santander and Banco Popular Español approved and subscribed the planned merger by absorption of Banco Popular, S.A.U. by Banco Santander.

On 28 September 2018, the deed of the merger by absorption of Banco Popular Español, S.A.U. by Banco Santander, S.A. was placed on file with the Mercantile Register Office of Cantabria. As a result of the merger, Banco Santander acquired, by universal succession, all the rights and obligations of Banco Popular, including those acquired by Banco Pastor and Popular Banca Privada through their merger with Banco Popular, which was also approved by their respective boards on 23 April 2018. This transaction did not have a significant impact on the Group's income statement.

v. Agreement with Aegon Group as business partner in several insurance lines
On 3 July 2018, the Group announced that it had reached an agreement with the Aegon Group whereby the latter will be the insurance partner in Spain in life-risk and certain lines of general insurance. The agreement and scope under which it will be implemented are subject to several conditions and to the process of termination of the alliance between Banco Popular and its current partner. Therefore, it is not possible to determine when the transactions will be closed. They are not inspected to have a significant impact on the Group's income statement.

1.4. Regulatory framework

On 26 June 2013 the Basel III legal framework was incorporated in the European legal order via Directive 2013/36 (CRD IV), which repeals Directives 2006/48 and 2006/49, and Regulation 575/2013 on prudential requirements for credit institutions and investment firms (the CRR).

CRD IV was introduced into Spanish law through Law 10/2014 on the regulation, supervision and solvency of credit institutions, and its subsequent regulatory implementation via Royal Decree 84/2015 and Circular 2/2016 of the Bank of Spain, which completes its adaptation to Spanish law.

The CRR, which is immediately applicable in all European countries, provides for a phased-in period that will allow institutions to adapt gradually to the new requirements in the European Union. The phased-in arrangements have been introduced into Spanish law through Bank of Spain Circular 2/2014 affecting both the new deductions from capital and the instruments and elements of capital that cease to be eligible as capital under the new regulation. In March 2016, the ECB published Regulation 2016/445/EU, adjusting certain timelines established in Bank of Spain Circular 2/2014, especially the calendar for (Deferred Tax Assets) DTAs. The capital buffers provided for CRD IV will also be phased-in gradually, starting in 2016 and reaching full implementation in 2019.

The review of the capital regulatory framework in force (CRR/CRD IV) by the European governance bodies is nearing completion. The new framework (CRR II/CRD V), which is expected to be approved in early 2019, will include different Basel standards, such as the Fundamental Review of the Trading Book for market risk, the Net Stable Funding Ratio for liquidity risk, or the SA-CCR for calculation

of the EAD by counterparty credit risk or interest rate risk in the banking book (IRRBB). Amendments will also be made relating to the treatment of central counterparties, the MDA, Pillar 2, the leverage ratio and Pillar 3 among others.

The most significant change is the implementation of the TLAC Term Sheet, established internationally by the Financial Stability Board (FSB) within the European capital framework, known as the Minimum Requirement of Eligible Liabilities (MREL), whereby systemically important banks will have to comply with MREL requirements under Pillar 1. Changes also include the amendment of the Resolution Directive (BRRD), which will be replaced by BRRD II establishing MREL requirements under Pillar 2 for all resolution entities, both systemic and otherwise, whereby the resolution authority will decide the requirements on a case-by-case basis.

In 2018, the SRB set target MREL requirements based on the 2017 policy. These targets are set for each resolution group, both Multiple Point of Entry (MPE) strategies, as is the case for Banco Santander, and Single Point of Entry (SPE) strategies.

In January 2019, the SRB published the 2018 MREL policy. Among its key points we would highlight the hybrid approach under which eligible liabilities issued are only computed at the level of the point of entry, along with the Resolution Group's own funds. The policy also establishes that individual requirements will be set for relevant entities of each Resolution Group and there will be guidance on internal MREL so as to align the policy with the regulatory changes to be introduced in the BRRD.

1.4.1. Regulatory changes in 2018

In 2018, significant progress was made on the capital review and crisis management process, while issues such as sustainability and digital transformation started to take on a leading role in the regulatory agenda.

International framework
In 2018, the Basel Committee continued to work on the following issues, among others:

- *Market risk.* In March, the consultation on the Review of Minimum Capital Requirements for Market Risk was launched, to be completed in June 2018, to conclude the review of the market risk standard.

- *Simple, transparent and comparable short-term securitisations.* In May, the Basel Committee published: i) Criteria for identifying simple, transparent and comparable short-term securitisations, together with IOSCO; and ii) Capital treatment for simple, transparent and comparable short-term securitisations.

- *Global systemically important banks (G-SIBs).* In July, the Basel Committee published a document entitled *Global Systemically Important Banks: revised assessment methodology and the higher loss absorbency requirement*, which includes the first review of the framework for global systemically important banks. This revised methodology is expected to be implemented by the national jurisdictions by 2021, when it will be revised again.

- *Pillar III disclosure requirements.* The Basel Committee published the Third Review of its Pillar III Disclosure Requirements in December 2018.

- *Sovereign debt.* In March 2018, the consultation on the discussion paper published in 2017 reviewing the treatment of sovereign debt was completed. The main options raised in the paper involved additional disclosure requirements (Pillar 3) and capital surcharges (Pillar 1 and Pillar 2) for sovereign debt exposures except for exposures to central banks denominated in domestic currency (of the central bank) and for exposures to central banks in countries where monetary policy is centred on the exchange rate.

With respect to **crisis management,** in 2018, the Financial Stability Board (FSB) continued to address the definition and design of elements in the crisis management process to ensure its effectiveness and practical application. Two main sets of guidelines were released during the year:

- *Funding strategy for the implementation of a resolution plan.* These guidelines covered, among others: the need for entities to have sufficient capacity to estimate and control their funding requirements in the event of resolution; the need to have sufficient assets and private funding channels in the event of resolution; and the need to have temporary access to industry funds, in addition to funding from central banks.

- *Bail-in implementation procedures.* The aim of the guidelines is to facilitate the implementation of a resolution strategy based on the absorption of losses by creditors. The guidelines include the obligation of the institution to disclose any instruments that may be the object of a bail-in and the need for securities regulations to contain the option of cancelling the securities, informing creditors and issuing new securities after the resolution.

Further, in the summer of 2018, the FSB asked for feedback following the implementation of the Total Loss Absorbing Capacity (TLAC) process in the different jurisdictions. The objective is to assess the degree of consistency in its implementation in relation to the content and dates established in the TLAC term sheet published in 2015. The feedback collected and the FSB's own analysis will be included in the report published by the FSB in the summer of 2019. No changes are expected with regard to the definition of the TLAC, but as a result of this report, the FSB could issue guidelines to facilitate the implementation of the standard.

In November 2018, the Financial Stability Board (FSB) updated the list of G-SIBs for 2020. Santander remains within the least systemic group of banks and is subject to the minimum additional capital surcharge for banks of systemic importance (1%).

In the digital arena, the fintech phenomenon and the need to review the regulatory and supervisory framework are increasingly pressing points on the agendas of international authorities. In 2018, these authorities published several papers on this subject.

In February, the Basel Committee (BCBS) published a report on sound practices and implications of fintech developments for banks and bank supervisors. The report looks at the challenges involved in adopting financial technologies and the appearance of new business models for banks. Among other considerations, the BCBS proposes the supervisory framework to be developed ensuring appropriate supervision without hampering innovation.

Along these lines, in October, the International Monetary Fund (IMF) and the World Bank (WB) presented their Bali fintech agenda. This agenda includes a set of 12 policy elements aimed at helping member countries to harness the benefits and opportunities of financial technology to develop solutions to improve financial services, mitigate risk and achieve stable and inclusive growth.

Among other points, the agenda recommends modernising legal frameworks to enable innovation, in addition to increased monitoring of new market participants, products and activities by the authorities. The IMF and WB suggest reviewing the competition policy framework for fintech to take account of the new business models.

The document also suggests that the determination of what constitutes a systemically important entity may need to be expanded to include non-bank financial institutions and entities providing critical fintech infrastructure, and exploring the implications of this in areas such as security networks, including deposit insurance or issues relating to crisis management and the resolution of problems affecting these entities.

European regulation

In 2018, work continued at European level on the review of the **capital framework and the resolution framework (review of CRR/CRD/BRRD**). In December 2018, agreement was achieved in several key areas:

- The option not to deduct software from capital resources in certain circumstances, to be determined by the EBA.
- The SME supporting factor will be expanded, and an infrastructure supporting factor introduced.
- The subordination requirement is established at a minimum of 8% of total liabilities and equity. The entity may reduce this level with a limit; but the fully subordinated requirement may also be demanded.
- The M-MDA concept is created, whereby for nine months the resolution authority may decide, at its discretion, although in consultation with the competent authority, whether to apply the restriction in the event of non-compliance with MREL. This decision is reviewed on a monthly basis.
- The moratorium tool may not be used before an institution is classified as Failing or Likely to Fail, and for a maximum duration of two days.

The implementation process of the definitive **Basel III** framework, approved by the Group of Governors and Heads of Supervision of the Central Banks (GHOS) on 7 December, in the European Union has commenced.

The objective of this text seeks to review the frameworks for calculating capital requirements in relation to credit, market and operational risk, and is intended to ensure that they are more simple, readily comparable and risk-sensitive, while also reducing any variability in risk-weighted assets that is not justified with regard to the different risk profiles.

Therefore, to progress with the draft regulation to be implemented by Basel in Europe, the European Commission launched a Consultation on the finalisation of Basel III to be completed in April 2018. A request was also submitted to the EBA for a quantitative and qualitative assessment of the implementation of the Basel III framework, which involved a complete analysis of the potential impact of the different elements in the reform of the banking sector and the general economy of the European Union.

Meanwhile, the European Commission has yet to determine the equivalence of the jurisdictions of third countries, based on EBA questionnaires. The work was put on hold in 2016 but resumed in late 2017, with Argentina being one of the jurisdictions to undergo an assessment. For the qualification of CCPs, the Commission once again extended the phased-in period until 15 June 2019.

With respect to supervision, the supervisory activity conducted by the Single Supervisory Mechanism (SSM) within the framework of the Supervisory Review and Evaluation Process (SREP) is notable. In this area, Banco Santander's Joint Supervisory Team from the European Central Bank worked tirelessly in 2018, holding over 100 meetings with the bank, most of which were related to its inspection and monitoring activities.

Along with a busy supervisory agenda, in 2018 the SSM continued to make great strides towards the harmonisation of supervisory policies across countries, and improving the transparency of their expectations.

Europe also continues to make progress in the implementation of the **crisis management framework.** The Single Resolution Mechanism (SRM), the second pillar of the Banking Union after the Single Supervisory Mechanism, has been operational since 1 January 2016. In January 2018, the definitive system under which banks contribute to the administrative expenditure of the SRB came into effect, replacing the transitory system of November 2014. The Single Resolution Board, together with the national resolution authorities, have defined the framework for establishing MREL (minimum requirement of eligible liabilities) and continue to work towards ensuring the effectiveness of the resolution framework.

Turning to the Single Resolution Fund managed by the Single Resolution Board, the period of gradual mutualisation will allow for a transition from the national resolution funds, in place in several euro area countries until 2016, to the Single Resolution Fund, which will be fully implemented by 2024. The funding target of the Single Resolution Fund is 1% of covered deposits in 2024. The first year was calculated at 60% nationally (BRRD perimeter) and 40% across the euro area (SRM perimeter). In 2017, these percentages were inverted, with 40% of funding in the BRRD perimeter and 60% within the SRM perimeter. In 2018, 33% was in the BRRD perimeter and 67% in the SRM perimeter. Funding under the SRM perimeter will be steadily raised to reach 100% in 2024.

In 2018, debate continued over the creation of a backstop for the Single Resolution Fund, after an agreement was reached on the design and allocation for funds for the European Stability Mechanism (ESM), which will act as the backstop. However, the issue of the provision of liquidity on resolution remains unresolved.

Negotiations on Pillar 3 of the banking union, the European Deposit Insurance Scheme (EDIS), for which the European Commission already submitted a proposal in 2015, are advancing slowly. A route map is being prepared to commence policy negotiations. For this purpose, a high-level work group will be set up, which will publish a report in June 2019.

Further, in March 2018, the Commission published a raft of measures to address the high rates of non-performing loans (NPLs). These included a draft regulation governing minimum cover for losses deriving from NPL exposures, which is expected to be approved in early 2019.

In May 2018, the Commission published its legislative proposal for a framework to create Sovereign Bond-Backed Securities (SBBS). No progress is expected to be made in 2019.

In the digital area, in March 2018, the Commission presented its Fintech action plan: for a more competitive and innovative European financial sector. The plan encompasses 23 initiatives through which the Commission aims to enable the financial sector to benefit from advances in new technologies (such as artificial intelligence, blockchain or the cloud), while at the same time ensuring that innovation is safer for customers. These initiatives, which the Commission has already started to develop, include:

- Enabling innovative business models to scale-up across the EU through clear and consistent licensing requirements (e.g. the Commission has presented a proposal to establish a European passporting regime for crowdfunding service providers for companies).

- Increasing competition and cooperation between market players through common standards and interoperable solutions (e.g. encouraging the development of APIs compatible with PSD2 and GDPR).

- Facilitating the emergence of innovative business models across the EU through innovation facilitators such as sandboxes, and increasing cooperation between the authorities and the industry (e.g. creation of EBA Fintech Knowledge Hub for the purpose of exchanging knowledge and experiences with financial institutions, new entrants and technology providers).

- Reviewing the suitability of the rules and ensuring technology neutrality (e.g. setting up an expert group to assess whether there are regulatory obstacles to financial innovation).

- Removing obstacles to cloud services (e.g. setting up work groups to develop safety certification systems for providers, and facilitate data portability between providers).

- Enabling the development of blockchain applications (e.g. creation of the Blockchain Observatory and Forum and two special expert groups to define the policy, legal and regulatory terms required for the roll-out of applications, and assess and promote the most promising cases).

- Enhancing the security and integrity of the financial sector (e.g. assess barriers limiting information sharing on cyber threats in the financial markets).

The European Commission has also progressed in the implementation of its strategy to create a Digital Single Market, focusing on three main issues:

- Building a European data economy.

- Online platforms and how to ensure these continue contributing to the economy and to society as a whole.

- Strengthening cyber security.

In regard to building a data economy, the Commission has been working on several initiatives to protect privacy and create trust in the digital economy: the GDPR came into force in May 2018, establishing a common European framework for personal data protection. In 2018, the free flow of non-personal data regulation was approved, which will come into force in May 2019. The draft ePrivacy regulation, which is still at the discussion phase, has yet to be approved.

Further, to address the challenges raised by the use of artificial intelligence and big data, the Commission is working on defining a suitable legal framework for data analysis and automatic decision-making. With this aim, in 2018 it set up an expert group on artificial intelligence to draw up some ethical guidelines to govern the use of this technology and recommendations on how to enable policies for the development of this technology.

In the area of platforms, in April the Commission submitted a draft regulation for online brokerage services to ensure fairness and transparency for business users. The EC also set up a group of experts for the observatory on the online platform economy to monitor the legislative proposal.

In the area of cyber security, in 2018 the Commission worked on three main aspects: 1) strengthening the role of ENISA as a permanent European cyber security agency, while also making it a key body for pan-European cyber security certification, 2) strengthening cooperation between member states to protect against potential large-scale cyber-attacks, 3) promoting the concerted implementation of the NIS directive in the different member states.

In the last few years, and particularly from 2015 following the signing of the Paris Agreement on **climate change and sustainable financing,** there has been a re-directing of environmental policies at international and European level. Specifically, key regulatory proposals have been made given the major role that financial institutions can play in the transition to a sustainable economy.

Therefore, in 2018, the European Commission implemented the legislative package known as “EU action plan on sustainable finance” which sets out the route map for reaching the EU’s targets for 2030, including a 40% reduction in greenhouse gas emissions. Highlights of the action plan, which is currently being debated by the European parliament and the council, include:

- Establishing a common language for sustainable finance, i.e. a unified classification system (‘taxonomy’) within the EU that defines what can be considered sustainable, and signals the areas where sustainable investment may have the greatest impact.

- Establishing EU labels for green financial products based on the EU classification system: this will help investors to easily identify products that comply with green or low-carbon criteria.

- Clarifying asset managers' and institutional investors' duties to consider sustainability in the investment process and strengthen disclosure requirements.

- Introducing sustainability in prudential requirements: banks and insurance companies are a major source of external financing for the European economy. The Commission will assess the viability of recalibrating the capital requirements for banks (green supporting factor) for sustainable investors, when this is justified from the standpoint of risk.

- Increasing the transparency of corporate reports.

It should also be noted that at December 2018, as part of the European agreement to review the CRD and CRR, certain key factors exist relating to sustainable finance: the possibility of including environmental, social and corporate governance risks (ESG) in the SREP; greater transparency for companies with regard to ESG risk and the mandate enabling the EBA to carry out an analysis to assess the viability of recalibrating the capital requirements for banks (green/brown factor).

Santander Group voices the concerns and thoughts of its corporate offices and local teams on matters relating to the financial sector where these affect its business. The corporate and local public policy function, in coordination with the business units and support divisions concerned in each case, identifies the regulatory alerts and establishes the Santander Group's stance.

The main courses of action taken along these lines are as follows:

- Santander Group has been a keen participant in the main banking associations worldwide and in Europe, and in the main markets in which it operates. Among other assistance, it contributes inputs to the replies drawn up in connection with ongoing regulatory consultations.

- Santander Group has maintained proactive, constructive dialogue with policy-makers through the existing channels (hearings) and sends individual replies to official consultations on issues considered relevant to the Santander Group.

- In particular, Santander Group has worked to consolidate and make known the sturdiness of its organisational model through subsidiaries that are fully independent when it comes to capital and liquidity. It also has the benefits of geographic diversification and recognition of the issuance of capital instruments from third countries and equivalence of the jurisdictions of third countries where the bank operates. In addition, one of the bank's main objectives is for subsidiaries to adopt return- and advanced-capital-based management systems via internal models, given the improvements in comprehensive risk management and adequacy in the calculation of capital these provide.

- Santander also maintains that the regulatory framework should enable banks to play an active role in the new digital economy, and implement their transformation so that they can continue to respond to changing consumer needs.

2

Capital

2. Capital

This chapter looks at Santander Group's principle capital management and capital adequacy aspects, in addition to the main capital figures and solvency ratios, including Pillar 2 metrics.

For further information on own funds requirements by risk type, see the chapters dedicated to each specific risk.

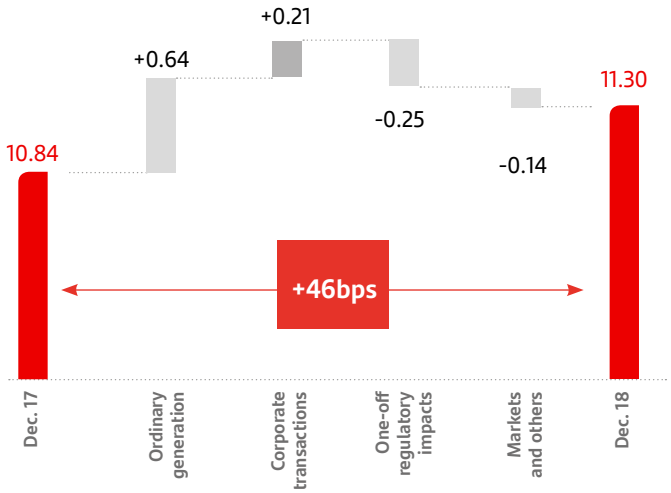
Table 3. Main capital figures and capital adequacy ratios

EUR million

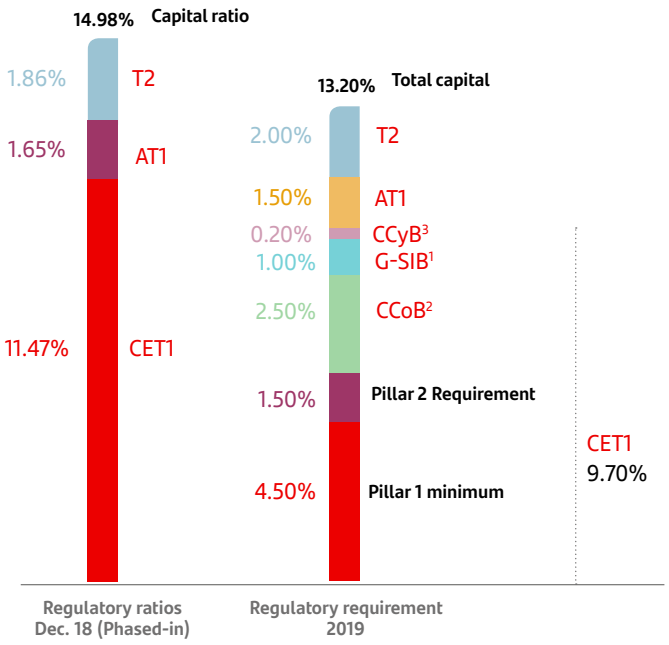
	Fully loaded		Phased-in	
	Dec-2018	Dec-2017	Dec-2018	Dec-2017
Common Equity (CET1)	66,904	65,563	67,962	74,173
Tier 1	75,838	73,293	77,716	77,283
Total capital	87,506	87,588	88,725	90,706
Risk weighted assets	592,319	605,064	592,319	605,064
CET1 Ratio	**11.30%**	**10.84%**	**11.47%**	**12.26%**
Tier 1 Ratio	**12.80%**	**12.11%**	**13.12%**	**12.77%**
Total capital ratio	**14.77%**	**14.48%**	**14.98%**	**14.99%**
Leverage Ratio	**5.10%**	**5.02%**	**5.22%**	**5.28%**

2018 CET1 Fully Loaded evolution

%



Regulatory Capital vs Regulatory requirement



1. Global systemically important Banks buffer
2. Conservation capital buffer
3. Countercyclical capital buffer

2.1. Capital

Capital management and control at Santander Group is a fully transversal process that seeks to guarantee the bank's capital adequacy, while complying with regulatory requirements and maximising profitability. It is determined by the strategic objectives and by risk appetite set by the board of directors. To achieve this, the following policies have been established to shape the approach that the Group applies to capital management:

- Establish adequate capital planning, so as to meet current needs and provide the necessary resources to meet the needs of the business plans, regulatory requirements and the associated risks in the short and medium term, while maintaining the risk profile approved by the board.
- Ensure that the Group and its companies maintain sufficient capital to cover requirements during stress scenarios due to the increase in risks as the macroeconomic climate deteriorates.

Note: All figures for 2018 calculated applying the transitional arrangements of IFRS 9 unless specified otherwise.

- Optimise capital use through appropriate allocation of capital among the businesses, based on the relative return on regulatory and economic capital and taking the risk appetite, growth and strategic objectives into account.

Santander Group maintains a very comfortable capital adequacy position, well above the levels required by applicable regulations and by the European Central Bank.

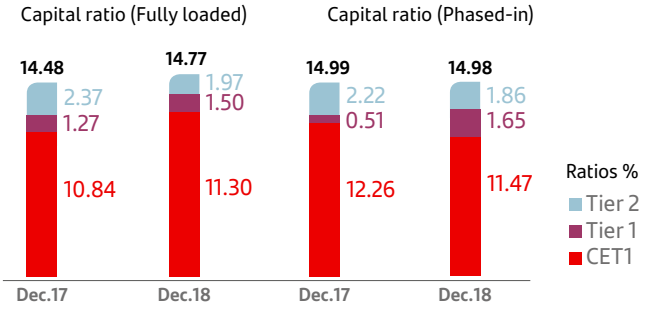
Santander Group's solvency ratios at 31 December 2018 are as shown in table 3. Phased-in ratios are calculated applying the transitory schedules for implementation of Basel III, whereas fully loaded ratios are calculated without applying any schedules, hence, using the final regulation.

IFRS 9 became effective on 1 January 2018, implying changes in accounting that affect capital ratios. Santander decided to applying the transitional arrangements, implying a 5-year transitional period.

Had it not applied the IFRS 9 transitional arrangements, the total impact on the fully loaded CET 1 ratio at December would be -27 bps. For further details, see Appendix XII.

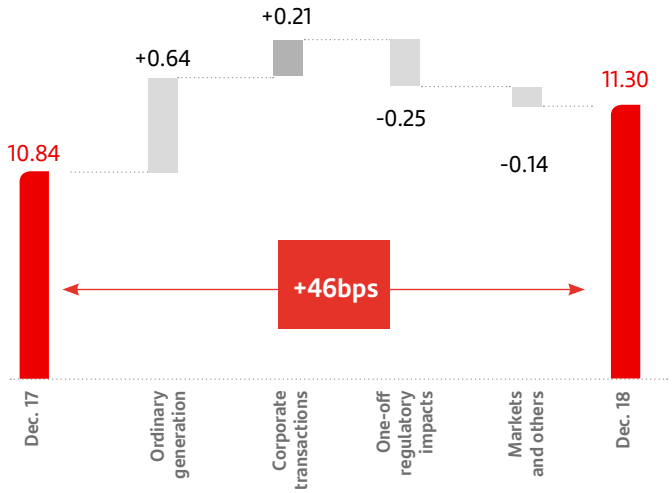
Access file **2018 Pillar 3 Appendices** available on the Santander Group website.

Capital and solvency ratios



In fully-loaded terms CET1 in December stood at 11.30%, increasing by 46 bps during the year and reaching the goal at year-end which was announced at the beginning of the year. The fully-loaded capital ratio was 14.77%, up by 29 bps during the year.

2018 CET1 Fully Loaded evolution

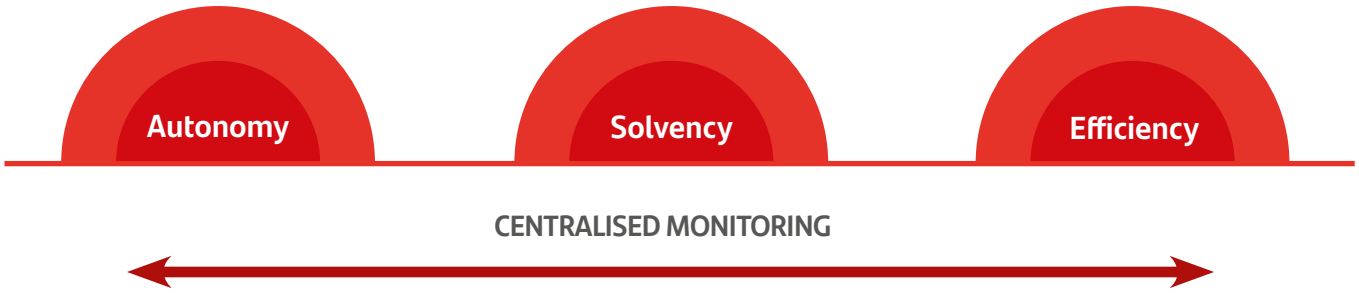


The increase of 46 bps in the year is mainly due to profit generation and risk assets management, which put the ordinary generation for the year at 64 bps, together with 21 bps from the perimeter (mainly Blackstones and Wizink), partially offset by -25 bps from regulatory impacts/one-offs (mainly minorities of SC USA and restructuring costs), and another 14 bps from various causes, including the valuation of available for sale portfolios.

From a qualitative point of view, Santander Group has solid ratios that are suited to its business model, the structure of its balance sheet and its risk profile. Santander Group exceeds the 2019 minimum regulatory capital requirements for the total ratio by 179 basis points, taking into account the surpluses and shortfalls of AT1 and T2.

For further information, see section 2.1.5.

Strategic principles of the capital function



- Autonomy. The Group's corporate structure is based on a legally independent subsidiary model, each responsible for its own capital and liquidity. This provides advantages when raising funds and limits the risk of contagion, thus reducing systemic risk. Under this structure, subsidiaries are subject to two tiers of supervision and internal control: local and global. Each unit must raise and manage its own financial resources accordingly in order to maintain the required levels of capital at all times. Local units must have the necessary capital to carry on their activity autonomously and meet local regulatory requirements and the expectations of their local market.

- Solvency. The Group and its subsidiaries must ensure at all times that the structure and level of their capital is suitable in view of the risks to which they are exposed. Capital must be allocated accordingly so as to ensure the effective management of the risks assumed within the subsidiaries and it must be assigned proportionately among all those risks.

- Efficiency. The Group and its subsidiaries must roll out mechanisms to actively seek and promote an efficient use of capital and to ensure that the value created by an investment exceeds at least the cost of the capital invested. Capital is a scarce commodity that must be used as efficiently as possible, given the high cost of generating capital, whether organically or through the markets. Subsidiaries must have ongoing monitoring mechanisms in place to optimise their capital consumption.

- Centralised monitoring. The capital management model must ensure a holistic view, through a corporate environment of global coordination and review (every business, every geography). The first level of monitoring, by the local units themselves, is supplemented by the monitoring activity of the corporate units. One of the main ways the Group achieves this is by defining and applying standard policies, metrics, methodologies and tools across the Group, though these may be adapted accordingly to bring them in line with local regulations and supervisory requirements and to reflect the degree of progress made by each subsidiary.

2.1.1. Capital function

The core principles provide the basic guidelines for the Group entities in managing, monitoring and controlling capital.

2.1.1.1. Organisation

The organisational structure has been defined with a view to achieving compliance with the principles of capital management while ensuring that the relationship between each subsidiary and the corporation in this function facilitates the subsidiary's financial autonomy, subject to strict monitoring coordinated at Group level.

Santander Group's risk management and control model is based on three lines of defence. The first line comprises the business functions or activities that assume or generate exposure to risk. Risks undertaken or generated within the first line of defence must be compatible with the risk appetite and limits in place. To carry out its function, the first line of defence must have the resources to identify, measure, address and report the risks assumed. The second line of defence comprises the function of controlling and supervising risk, along with the compliance function. This second line of defence is charged with effective control of risks and ensures that they are managed in accordance with the risk appetite defined.

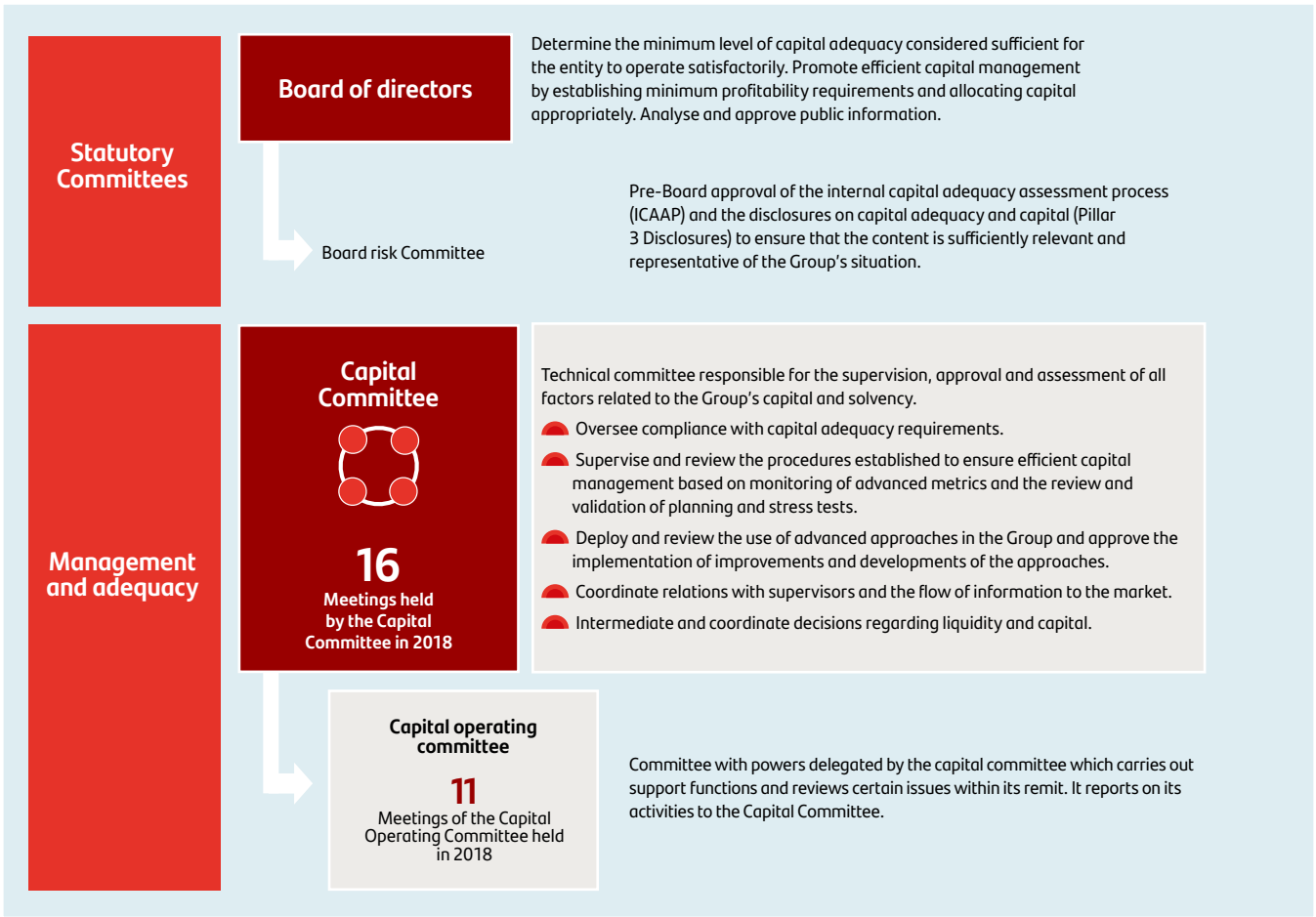
Internal audit is the third line of defence and the last layer of control, and regularly assesses policies, methods and procedures to ensure they are suitable, and also checks they are operational.

The risk control function, the compliance function and the internal audit function are sufficiently separate and independent from each other and also regarding the other functions they control and supervise when carrying out their tasks. They likewise have access to the board of directors and/or to its committees at the highest level.

2.1.1.2. Capital governance

To ensure the capital function operates properly when it comes to both decision-making and supervision and control, Santander Group has developed a structure of responsive and efficient governance bodies so as to ensure the involvement of all the areas concerned and the necessary involvement of senior management. Because of the Group's hallmark subsidiary-based structure, the governance structure of the capital function must be adapted to preserve the subsidiaries' capital autonomy, while allowing centralised monitoring and coordinated management at Group level. There are also various committees that have responsibilities at regional level and also for coordination at Group level. The local committees must report to the corporate committees as and when required on any relevant aspects of their activity that may affect capital so as to ensure proper coordination between the subsidiaries and the corporate centre.

Governance of the Capital function



2.1.2. Capital management and adequacy

The goal of capital management and adequacy at Santander Group is to guarantee the entity's capital adequacy and maximise its profitability, while ensuring compliance with internal capital goals and regulatory requirements. Capital management is a fundamental strategic tool for decision making at both local and corporate level and serves to create a common framework of action by establishing uniform definitions of capital management criteria, policies, functions, metrics and processes.

Key capital figures

The Group works with the following variables relating to the concept of capital:

Regulatory capital

- **Capital requirements:** The minimum amount of capital the supervisory authority requires the entity to hold to safeguard its solvency, based on the amount of risk assumed, in terms of credit, market and operational risk.
- **Eligible capital:** The capital the regulator considers eligible to meet capital requirements. The main components of eligible capital are accounting capital and reserves.

Economic capital

- **Internal capital requirements:** The minimum amount of capital that the Group needs with a specified level of probability to absorb unexpected losses deriving from its current exposure to all risks taken on by the entity (including risks additional to those contemplated under the regulatory capital requirements).
- **Available capital:** The amount of capital the Group itself considers eligible, on management criteria, to meet capital needs.

Cost of Capital

The minimum return required by investors (shareholders) as compensation for the opportunity cost incurred and the risk assumed on investing their capital in the entity. This cost of capital represents a "cut-off rate" or "minimum return" to be achieved and allows comparisons to be made between the different business units and their efficiency to be assessed.

Leverage ratio

Regulatory measure that monitors the financial solidity and strength of the Entity by linking size and capital. This ratio is calculated dividing the Tier 1 by the leverage exposure, which takes into account the balance sheet exposure and adjustments due to derivatives, secured financing transactions (SFTs) and off-balance sheet items.

Return on risk-adjusted capital (RoRAC)

The return (understood as net profit after tax) on internally required economic capital, Therefore, the higher the economic capital, the lower the RoRAC. For this reason, the Bank must demand a higher return from transactions or business units that consume more capital.

RoRAC takes the investment risk into account and so provides a risk-adjusted measure of return.

The use of RoRAC allows the Bank to better manage its activities, assess the real risk-adjusted return of businesses and be more efficient in decision-making relating to investments.

Return on Risk Weighted Asset (RoRWA)

Defined as the return (understood as net profit after tax) on a business' risk-weighted assets.

The use of RoRWA allows the Bank to set up strategies to allocate regulatory capital and ensure the maximum return is obtained.

Value creation

Any profit generated above and beyond the cost of economic capital.

The Bank will create value when the risk-adjusted return, measured by RoRAC, is higher than its cost of capital. Otherwise value will be destroyed. It measures the risk-adjusted return in absolute terms (monetary units), supplementing the RoRAC result.

Expected loss

Average NPL losses expected by the entity over the course of an economic cycle. From the point of view of expected loss, defaults are considered a "cost" that could be eliminated or reduced through appropriate selection of borrowers.

The Group's capital function is performed at two levels:

- **Regulatory capital:** regulatory capital management is based on an analysis of the capital base, the capital adequacy ratios as defined by applicable regulations and the scenarios used in capital planning. The aim is for the capital structure to be as efficient as possible, in terms of both cost and compliance with regulatory requirements. Active capital management includes strategies for capital allocation and for efficient usage of business units, securitisation, asset sales and issuances of capital instruments (hybrid capital instruments and subordinated debt).

- **Economic capital:** the economic capital model ensures that sufficient capital is available and allocated accordingly to cover all the risks to which the Group is exposed as a result of its business activity and according to its risk appetite. It also aims to optimise value creation at the Group and across all its business units.

  By effectively measuring the capital needed for a given business activity, together with the return on that business, the Group is able to optimise value creation by selecting those business activities that offer the best return on capital. This capital allocation process is carried out under different economic scenarios and with the level of capital adequacy determined by Santander Group in each case. The scenarios include those that are expected to occur and those that are far less likely though still plausible.

2.1.3. Capital management priorities

The Group's most notable capital management activities are:

- Establishing solvency objectives and the capital contributions aligned with the minimum regulatory requirements and internal policies, in order to guarantee a solid level of capital, coherent with the Group's risk profile, and an efficient use of capital to maximise shareholder value.

- Developing a capital plan to meet the objectives coherent with the strategic plan. Capital planning is an essential part of executing the three-year strategic plan.

- Assessing capital adequacy in order to ensure that the capital plan is coherent with the Group's risk profile and with its risk appetite framework also in stress scenarios.

- Developing the annual capital budget as part of the Group's budgetary process.

- Monitoring and controlling budget execution and drawing up action plans to correct any deviation from the budget.

- Calculating capital metrics.

- Drawing up internal capital reports, as well as reports for the supervisory authorities and for the market.

Details of the most significant actions undertaken in 2018 are set out below:

Issues of financial instruments with the legal status of capital
In March 2018, Banco Santander S.A. made one issue of contingent convertible bonds (CoCos) for EUR 1,500 million in a bid to strengthen its AT1 capital.

In February, Banco Santander, S.A. carried out an issuance of subordinated debt for EUR 1,250 million, and in April, Bank Polska S.A. for EUR 229 million. These placements are intended to enhance the total capital ratio, as it qualifies as Tier 2 capital.

Dividend policy*
The board of directors' intention is to distribute EUR 0.23 charged to 2018's earnings in four dividends, three of them in cash and one a scrip dividend (Santander Dividendo Elección).

For further details, see the Corporate Governance Chapter (section 3.3: Dividend policy) on the 2018 Annual Report.

Access **2018 Annual Report** available on the Santander Group website.

In December 2015, the European Central Bank issued a recommendation on dividend allocation policies applicable to all euro area credit entities as of 2016. The recommendation calls for conservative dividend policies and prudent assumptions and has been fully observed by Banco Santander S.A.

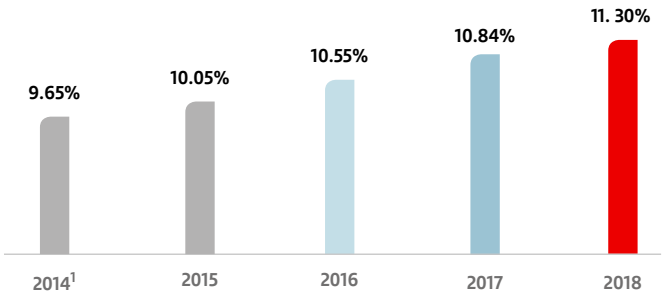
Lastly, in some regions, restrictions on the payment of dividends have been implemented, such as in Poland, where the national authority (KNF) has imposed stricter minimum restrictions on the payment of dividends, with additional limits for entities with large mortgage exposures in foreign currency, or in Argentina, where BCRA notice "A"6464 was issued in 2018, amending the rules on distributing profits and coupons on perpetual instruments, making them more restrictive.

(*) Dividends charged to 2018 results are subject to approval of the shareholders meeting.

2.1.4. Capital targets

Santander Group works towards a fully loaded CET1 ratio from 11% to 12% in the medium term.

Fully loaded CET1 Capital evolution



Note 1: Pro-forma including January 2015 capital increase

The continuous improvement seen in the capital ratios is a product of the profitable growth strategy pursued by Santander Group and a culture of active capital management across all levels of the organisation.

Highlights:

- The reinforcement of teams dedicated to capital management and greater coordination with the Corporate Centre and local teams.
- All countries and business units have drawn up individual capital plans focused on achieving a business that maximises the return on capital.
- Greater weighting of capital as part of incentive schemes. Certain aspects relating to capital management and returns are now taken into account when setting the variable remuneration payable to members of the senior management.
  - The relevant metrics include the Group's fully-loaded CET1, the capital contribution of the different countries and the return on risk-weighted assets (RoRWA).
  - The qualitative aspects considered include the proper management of regulatory changes affecting capital, effective management of capital relating to business decisions, sustainable capital generation and effective capital allocation.

In tandem, the Group continues to develop a programme to ensure the ongoing improvement of infrastructure, processes and methodologies supporting all aspects relating to capital. The aim here is to ensure more active management of capital, enable the Group to respond rapidly to the already numerous and still growing number of regulatory requirements and carry out all associated activities more efficiently.

2.1.5. Capital buffers and eligible capital requirements

Santander Group must comply, at all times, with the combined capital buffer requirement, defined as the total CET1 capital necessary to meet the following obligations:

- Capital conservation buffer (CCoB): mandatory for all entities and to be phased-in from 1 January 2016. The buffer for banks in 2019 will therefore be 2.5%.
- Buffers for systemically important banks: applicable from 1 January 2016. There are two types:
  - Systemically important institutions: for entities designated as systemically important, using a common methodology. Here, there are two different surcharges. The largest buffer rate of the two is applied:
    i) G-SIB buffer (Global Systemically Important Banks): common methodology whereby banks are classified into buckets based on their global systemic risk.
    ii) D-SIB buffer (Domestic Systemically Important Banks)
  - Systemicallyrisk buffer (SRB): The competent authority may require a systemic risk buffer, where these risks are understood to be those that could trigger a disturbance in the financial system causing serious consequences for said system and the real economy. This buffer is discretionary and applies to all or some of an entity's exposures (domestic and/or foreign risks, risks specific to certain business sectors, etc.), as decided by the authorities.

    If the SRB covers all types of exposures, the greatest of the three systemic buffer rates will be applied. If the SRB only applies to a certain type of exposure, the SRB buffer will be added to the greater of the other two systemic buffers (G-SIB or D-SIB).
- Countercyclical capital buffer (CCyB): the CCyB will be applied when the authorities deem that lending is growing excessively in a certain jurisdiction and it will be applied in order to constrain this excessive growth. This buffer is specifically calculated for each bank or group and consists of the weighted average of percentages of countercyclical buffers applied in regions in which the bank's relevant exposures are located. It is also applicable from 1 January 2016.

The table below summarises the required regulatory rates based on the different capital buffers to be applied and Banco Santander's position in 2019:

Application	Buffers (% RWAs)	2019
All entities	Conservation (CCoB)	2.5%
Designated entities	G-SIB entities (1%-3.5%)(1)	100% of the buffer
	D-SIB entities (2)	100% of the buffer
At the discretion of competent national authority	Systemic risk (SRB) (3)	0%-5%
	Countercyclical (CCyB) (4)	0% - 2.5%
	Consolidated combined buffer	CCoB + CCyB + Max (5) (G-SIB, D-SIB, SRB)

(1) According to the list of Global Systemically Important Banks (G-SIBs) published by the FSB for 2019, a combined buffer of 1% is required for Santander Group.

(2) Domestic Systemically Important Banks. The Bank of Spain requires a 1% buffer for Santander.

(3) This requirement is 0% for Santander.

(4) Applicable countercyclical buffer:

a) Exposures to customers resident in Spain: 0%, according to Bank of Spain data for the first quarter of 2019

b) Exposures to customers resident in Norway and Sweden: 2%

c) Exposures to customers resident in the UK: 1%

d) Exposures to customers resident in Slovakia and Iceland: 1.25%

e) Exposures to customers resident in the Czech Republic: 1%

(5) The greatest of the 3 buffers applies if the SRB buffer covers all exposures. Otherwise, the higher of G-SIB and D-SIB plus the SRB buffer applies.

The geographic distribution of relevant lending exposures for calculating the countercyclical capital buffer is available in Appendix XI on the Santander Group website.

Access file **2018 Pillar 3 Appendices** available on the Santander Group website.

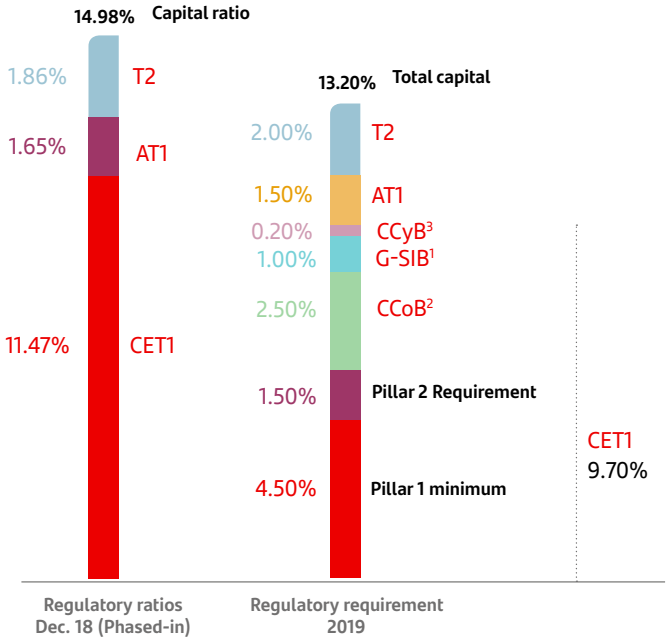
Eligible capital requirements

The decision on capital resulting from the Supervisory Review and Evaluation Process (SREP) under the European Central Bank's (ECB) Single Supervisory Mechanism comprises a Pillar 2 Requirement (Pillar 2R) and Pillar 2 Guidance (Pillar 2G). Pillar 2R is binding, and failure to comply may have direct consequences for banks. Pillar 2G is not directly binding, and failure to comply has no bearing on the Maximum Distributable Amount (MDA) threshold. Moreover, Pillar 2G does not automatically trigger action by the ECB. However, the ECB does expect compliance with Pillar 2G at all times. If a bank is not compliant with Pillar 2G, the ECB will give careful consideration to the reasons and circumstances and may define additional supervisory control measures.

Pursuant to notification received from the ECB, in 2019, Santander Group must report a Common Equity Tier 1 (CET1) ratio of at least 9.70% on a consolidated level. This requirement includes the Pillar 1 requirement (4.5%); the Pillar 2 requirement (1.5%); the capital conservation buffer (2.5%); the requirement deriving from its status as a global systemically important bank (1%) and the countercyclical capital buffer requirement (0.20% de CET1). Santander Group must also maintain a minimum capital ratio of 11.20% for T1 and a minimum total ratio of 13.20%.

At 31 December 2018, Banco Santander had a CET1 regulatory capital ratio of 11.47% and a total ratio of 14.98% in application of IFRS9 transitional arrangements.

Regulatory Capital vs Regulatory requirement



1. Global systemically important Banks buffer
2. Conservation capital buffer
3. Countercyclical capital buffer

As of 31 December 2018, Santander Group meets all the minimum capital requirements under current regulations.

2.1.5.1. Global systemically important institutions

Santander Group is one of the 29 institutions designated as global systemically important institutions (G-SIIs).

The position of a global systemically important institution may pose a risk to financial stability.

The insolvency of a systemically important institution, or even just the expectation that it might become insolvent, is difficult to predict but could certainly undermine the financial system and even the real economy.

This warrants special prudential treatment, which has led to the introduction of specific capital buffer requirements for both global (G-SIIs) and domestic (D-SIIs) systemically important institutions.

This designation requires Santander Group to meet additional requirements mainly relating to the following:

- Its capital buffer (Santander Group is included in the group of banks with the smallest capital buffer, 1%)
- TLAC (Total Loss-Absorbing Capacity) requirements
- The requirement to publish relevant information more often than other banks
- Stricter regulatory requirements for the internal control bodies
- Special supervision
- Requirement to submit special reports to the supervisors.

The Basel Committee and the Financial Stability Board decide which banks qualify as global systemically important institutions, using a method based on five indicators: size, cross-jurisdiction activity, interconnectedness with other financial institutions, substitutability of financial services/infrastructure and complexity (with each category given an equal weighting of 20%). This methodology has been changed and will come into effect from January 2021. The main changes in the methodology are as follows: change in the definition of cross-jurisdiction indicators, inclusion of a trading volume indicator modifying the weighting of the remaining indicators in the substitutability category and inclusion of insurance companies in the reporting scope.

Indicators for systemically important institutions

Category	Individual indicator	Supervisor jurisdiction
Size	Exposure used for the leverage ratio calculation	An indicator of the weight of the bank in the financial system
Cross-jurisdictional activity	Cross-jurisdictional assets	Snapshot of a bank's global footprint
	Cross-jurisdictional liabilities	
Interconnectedness	Intra-financial system assets	Measures a bank's interconnectedness with other financial institutions
	Intra-financial system liabilities	
	Securities outstanding	
Substitutability/financial infrastructure	Assets under custody	Measures whether the bank's activity can be substituted by other banks
	Payments activity	
	Transactions subscribed in debt and equity markets	
Complexity	Notional amount of over-the-counter (OTC) derivatives	Measures the complexity of a financial entity
	Level 3 assets	
	Held for trading and available-for-sale securities	

The information needed to evaluate the indicators is requested yearly from banks whose leverage exposure exceeds EUR 200,000 million, or from any other banks at the supervisor's discretion (in December 2017 a total of 76 banks were considered). All these institutions are then required to publish the information before 30 April of the following year.

The information is used to draw up a global indicator. The score obtained by each bank will determine the size of the capital buffer required of it, which is based on a set of buckets defined by the regulators (CET1 surcharge ranging from 1% to 3.5%).

In November 2018, the Financial Stability Board (FSB) published the list of global systemically important institutions based on December 2017 data. This list applies to 2020. Compliance with these requirements gives Santander Group greater solidity than its domestic peers. Santander Group is currently subject to a systemic buffer surcharge of 1%, which will become fully effective in 2019.

For more details regarding Quantitative Indicators, access file **"G-SIBs indicadores cuantitativos",** under section Shareholders and Investors/Other presentations (April month) on the Santander Group website.

Global systemically important institutions

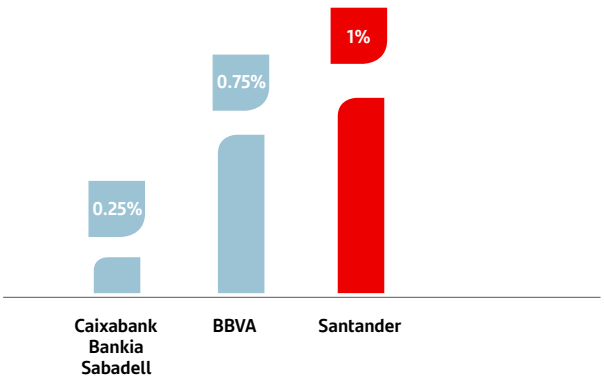
Capital buffer	Entity
5 (3.50%)	(Empty)
4 (2.50%)	JP Morgan Chase
3 (2.00%)	Citigroup Deutsche Bank HSBC
2 (1.50%)	Bank of America Bank of China Barclays BNP Paribas Goldman Sachs Industrial and Commercial Bank of China Limited Mitsubishi UFJ FG Wells Fargo
1 (1.00%)	Agricultural Bank of China Bank of New York Mellon China Construction Bank Credit Suisse Group BpsCE Group Crédit Agricole ING Bank Mizuho FG Morgan Stanley Royal Bank of Canada Santander Société Générale Standard Chartered State Street Sumitomo Mitsui FG UBS Unicredit Group

2.1.5.2. Domestic Systemically Important Institutions

When identifying Domestic Systemically Important Institutions (D-SIIs), the Bank of Spain, according to the methodology established on rule 14 of Circular 2/2016, applies a mix of guidelines based on size, importance, complexity (cross-jurisdiction activity) and the degree of interconnectedness between the institutions and the financial system. The Bank of Spain conducts a yearly review of this classification and the following institutions are included on its list for 2019:

Systemical buffer

Domestic Systemically Important Institutions



Santander Group appears on the lists of both global and domestic systemically important institutions. The Bank of Spain, based on rule 23 of Circular 2/2016, requires that the higher of the two buffers be applied. Since both buffers are the same for Banco Santander, the surcharge applicable in 2019 will be 1%.

2.2. Pillar 1 - Regulatory capital

The current regulatory framework for capital calculation is based on three pillars:

- Pillar 1 sets the minimum capital requirements for credit risk, market risk and operational risk, allowing internal ratings and models to be used. The aim is to make regulatory requirements more sensitive to the risks actually incurred by financial institutions when carrying out their business activities.
- Pillar 2 establishes a system of supervisory review, aimed at improving banks' internal risk management and capital adequacy assessment in line with their risk profile.
- Pillar 3 is intended to enhance market discipline by developing a set of disclosure requirements that will allow market agents to appraise key information relating to the application of Basel II, capital, risk exposures, risk assessment processes and, by extension, the bank's capital adequacy.

2.2.1. Eligible capital

Equity at 31 December 2018 stood at EUR 107,361 million, up EUR 529 million from the year before.

The reconciliation between equity and capital eligible as Tier 1 is set out below:

Table 4. Reconciliation of accounting capital with regulatory capital

EUR million

	31 Dec. 2018	31 Dec. 2017
Subscribed capital	8,118	8,068
Share premium account	50,993	51,053
Reserves	53,988	52,577
Treasury shares	-59	-22
Attributable profit	7,810	6,619
Approved dividend	-2,237	-2,029
Shareholders' equity on public balance sheet	**118,613**	**116,266**
Valuation adjustments	-22,141	-21,777
Non-controlling interests	10,889	12,344
Total equity on public balance sheet	**107,361**	**106,832**
Goodwill and intangible assets	-28,644	-28,537
Eligible preference shares and participating securities	9,754	7,635
Accrued dividend	-1,055	-968
Other adjustments	-9,700	-7,679
Tier 1 (Phased-in)	**77,716**	**77,283**

The following table provides a breakdown of the Group's eligible capital and a comparison with the previous year:

Table 5. Eligible capital

EUR million

	31 Dec. 2018	31 Dec. 2017
Common Equity Tier 1 (CET1)	**67,962**	**74,173**
Capital	8,118	8,068
(-) Treasury shares and own shares financed	-64	-22
Share premium	50,993	51,053
Reserves	55,036	52,241
Other retained earnings	-23,022	-22,363
Minority interests	6,981	7,991
Attributable profit net of dividends	4,518	3,621
Deductions	-34,598	-26,416
Goodwill and intangible assets	-28,644	-22,829
Others	-5,954	-3,586
Additional Tier 1 (AT1)	**9,754**	**3,110**
Eligible instruments AT1	9,666	8,498
T1 excesses - subsidiaries	88	346
Residual value of intangibles	-	-5,707
Deductions	-	-27
Tier 2 (T2)	**11,009**	**13,422**
Eligible instruments T2	11,306	9,901
Gen. funds and surplus loan loss prov. IRB	-	3,823
T2 excesses - subsidiaries	-297	-275
Others	-	-27
TOTAL ELIGIBLE CAPITAL	**88,725**	**90,706**

Common equity Tier 1 capital (CET1) comprises the elements of Tier 1 capital (after applying prudential filters) and CET1 deductions after applying the threshold exemptions specified in the CRR. The regulation provides for a phased-in period that will give institutions time to adapt to the new requirements in the European Union. This phased-in applies to Santander Group under Regulation (EU) 2016/445 of the European Central Bank on the exercise of options and national discretions, published on 14 March 2016.

Without considering the phased-in schedule, CET1 is made up of:

- Subscribed share capital, which stood at EUR 8,118 million at the end of December 2018.
- Other tier 1 capital items: (i) paid-up share premium; (ii) effective and disclosed reserves generated against profits and those amounts that are not taken to the income statement but are recorded under "Other reserves" (any item); (iii) other retained earnings, which includes certain valuation adjustments, primarily for exchange differences and for hedges of net investments in foreign operations.
- The paid-up portion of any non-controlling interests arising from the issue of ordinary shares by consolidated subsidiaries, subject to the limits set in the CRR.
- Profit net of dividends, which stood at EUR 4,518 million in December 2018.
- The prudential filters exclude any gain or loss on cash flow hedges. They also exclude gains or losses on liabilities and derivative liabilities measured at fair value resulting from changes in the institution's own credit quality. In addition, prudential filters include the additional value adjustments considered according to art. 34 of the CRR.
- Deductions from CET1 items include mainly treasury shares; current-year losses; goodwill and other intangible assets recognised in the balance sheet; deferred tax assets that rely on future earnings (subject to the limits set in the CRR); and the shortfall in allowances relative to expected loss on exposures using internal credit risk models and defined benefit pension fund assets shown on the balance sheet.

Tier 1 Capital comprises CET1 capital plus Additional Tier 1 capital (AT1) including preferred securities issued by Santander Group.

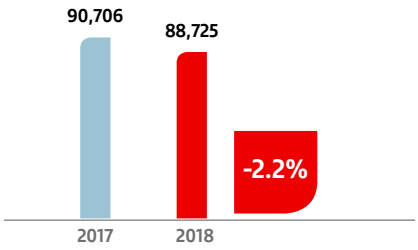
Tier 2 capital comprises Tier 1 capital plus Tier 2 capital (T2 and includes, inter alia, capital instruments and subordinated loans where the conditions laid down in the CRR are met.

Table 6. Regulatory capital. Changes

EUR million

Common Equity Tier 1 capital (CET1)	
Starting figure (31/12/2017)	**74,173**
Shares issued during the year and share premium account	-10
Treasury shares and own shares financed	-42
Reserves	-826
Attributable profit net of dividends	4,518
Other retained earnings	-659
Minority interests	-1,010
Decrease/(increase) in goodwill and other intangibles	-5,815
Other deductions	-2,367
Ending figure (31/12/2018)	**67,962**
Additional Tier 1 (AT1)	
Starting figure (31/12/2017)	**3,110**
Eligible instruments AT1	1,168
T1 excesses - subsidiaries	-258
Residual value of intangibles	5,707
Deductions	27
Ending figure (31/12/2018)	**9,754**
Tier 2 (T2)	
Starting figure (31/12/2017)	**13,422**
Eligible instruments T2	1,406
Gen. funds and surplus loan loss prov. IRB	-3,823
T2 excesses - subsidiaries	-22
Deductions	27
Ending figure (31/12/2018)	**11,009**
Deductions from total capital	
FINAL FIGURE FOR TOTAL CAPITAL (31/12/2018)	**88,725**

Eligible capital evolution



Total eligible capital decreased by EUR 1,981 million in 2018 to EUR 88,725 million.

In addition to movements in equity, changes in regulatory capital reflect the dividend not distributed in 2018 of EUR 1,055 million. The impact on reserves includes the impact of applying IFRS 9, which Santander Group is doing according to the progressive phase-in regime over the 5-year transitional period under Regulation (EU) 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.

Profit net of dividends amounted to EUR 4,518 million.

The movement in "Other retained earnings" reflects mainly exchange differences.

The change in minority interests, beyond accounting movements, reflects the impact of applying the transitional period provided for in Regulation (UE) No 575/2013 amounting to EUR -759 million.

Goodwill reflects the impact of exchange rate movements and corporate activity during the year. The increase in the deduction to this item was mostly due to the expiry of this period, with an impact of EUR -5,707 million.

Similarly, the change included in deductions and prudential filters was due mainly to the expiry of the period applied to the rest of the deductions, trends in the shortfall of provisions for expected loss and the change in deductions for defined benefit pension fund assets shown on the balance sheet.

Over the course of 2018, instruments eligible for inclusion as both Tier 1 and Tier 2 capital increased through new issues made by Banco Santander, S.A., of preferred securities for EUR 1,500 million applicable to Tier 1 capital and of subordinated debt for EUR 1,250 million applicable to Tier 2. Also, Santander Bank Polska, S.A. has issued subordinated debt applicable to Tier 2 capital for EUR 229 million.

Moreover, since IFRS 9 became effective, Tier 2 no longer considers the general credit risk adjustments included previously with the limits considered in prevailing regulations, with an impact on the total ratio of EUR -3,823 million.

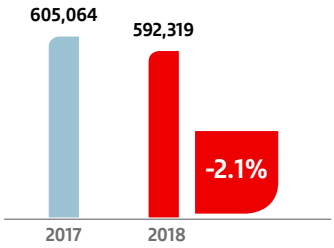
2.2.2. Capital requirements

This section gives details of capital requirements by geography (see table 8).

Table 7 shows that capital requirements have barely changed from 2017, maintaining a Pillar I risk distribution similar to that of the prior year: credit risk 86%, market risk 4% and operational risk 10%.

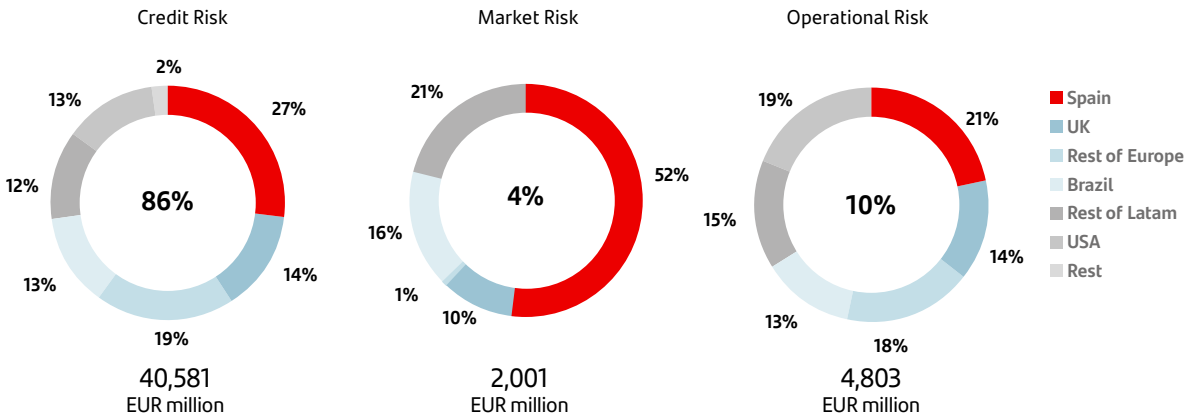
Capital requirements for credit risk decreased by 2.4% compared to 2017 to EUR 40,481 million, while capital requirements for market risk increased by 3.6% and those for operational risk barely changed compared to the previous year.

RWA Evolution



Distribution of capital requirements by risk type and geography

31 Dec. 2018



Shown below is a general overview of the total RWAs by risk.
The following sections provide additional breakdowns.

Table 7. Overview of RWAs (OV1)

EUR million

	RWA	RWA	Minimum Capital Requirements	
	2018	2017	2018	
Credit risk (excluding CRR)	**469,074**	**480,221**	**37,526**	
Of which standardised approach (SA)	277,394	280,082	22,191	
Of which the foundation IRB (FIRB) approach*	37,479	37,207	2,998	Chapter 3. Credit Risk
Of which the advanced IRB (AIRB) approach	150,373	158,777	12,030	
Of which Equity IRB under the Simple risk weight or the IMA	3,828	4,155	306	
CCR	**11,987**	**14,668**	**959**	
Of which mark to market method (IRB)	7,867	8,529	629	
Of which mark to market method (Standardised)	1,795	3,586	144	Chapter 4. Counterparty Credit Risk
Of which risk exposure amount for contributions to the default fund of a CCP	233	313	19	
Of which CVA	2,092	2,240	167	
Settlement risk	**1**	**1**	**-**	
Securitisation exposures in banking book (after cap)	**5,014**	**3,678**	**401**	
Of which IRB approach	4,276	2,482	342	Chapter 5. Credit Risk - Securitisations
Of which IRB supervisory formula approach (SFA)	1,915	708	153	
Of which standardised approach	738	1,196	59	
Market risk	**25,012**	**24,161**	**2,001**	
Of which standardised approach	11,858	9,702	949	Chapter 6. Market Risk
Of which IMA	13,154	14,459	1,052	
Operational risk	**60,043**	**61,217**	**4,803**	Chapter 7. Operational Risk
Of which standardised approach	60,043	61,217	4,803	
Amounts below the thresholds for deduction (subject to 250% risk weight)	**21,188**	**21,118**	**1,695**	
Floor adjustment	**-**	**-**	**-**	
TOTAL	**592,319**	**605,064**	**47,386**	

* Includes equities under the PD/LGD approach.

As of 31 December 2018, Santander Group had no additional capital requirements arising from the floors set by Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms, in Part Ten, Title 1.

The table below shows capital requirements by geography:

Table 8. Capital requirements by geographical region

EUR million

	TOTAL	Spain	UK	Rest of Europe	Brazil	Rest of Latin America	USA	Rest of world
Credit risk	**38,155**	**9,887**	**5,488**	**7,532**	**4,872**	**4,580**	**5,043**	**753**
Of which internal rating-based (IRB) approach (*)	**14,809**	**5,604**	**3,617**	**2,953**	**653**	**984**	**411**	**586**
- Central governments and Central Banks	66	2	3	-	5	7	-	48
- Institutions	737	167	130	179	12	126	54	68
- Corporates – SME	8,505	3,587	1,310	1,492	635	848	356	277
- of which Corporates - Specialised Lending	1,148	410	289	214	2	180	17	36
- of which Corporates – Other	1,488	976	192	242	-	78	-	-
Retail - Secured by real estate SME	3,051	959	1,832	253	-	2	1	5
Retail - Secured by real estate non-SME	82	82	-	-	-	-	-	-
Retail - Qualifying revolving	319	120	171	28	-	-	-	-
Retail - Other SME	382	279	1	100	-	-	-	1
Retail - Other non-SME	1,667	408	171	900	-	1	-	187
Other non-credit-obligation assets	-	-	-	-	-	-	-	-
Of which standardised approach (SA)	**22,191**	**3,160**	**1,871**	**4,579**	**4,194**	**3,589**	**4,631**	**167**
Central governments or central banks	1,146	484	-0	11	410	231	6	4
Regional governments or local authorities	40	-	-	4	22	13	1	-
Public sector entities	33	-	-	3	-	14	16	-
Multilateral Development Banks	-	-	-	-	-	-	-	-
International Organisations	-	-	-	-	-	-	-	-
Institutions	470	130	9	55	95	57	122	2
Corporates	5,585	562	930	1,233	950	886	997	27
Retail	8,244	610	536	2,149	1,961	1,074	1,791	124
Secured by mortgages on immovable property	3,178	308	51	705	316	843	954	-
Exposures in default	730	165	13	139	141	128	142	1
Items associated with particular high risk	185	-	11	9	-	152	11	2
Covered bonds	38	-	34	4	-	-	-	-
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-
Collective investments undertakings (CIU)	22	21	1	-	-	-	-	-
Equity exposures	18	-	-	17	-	-	-	-
Other items	2,503	880	285	251	299	192	591	6
Of which Equity IRB	**1,155**	**1,123**	**-**	**-**	**25**	**7**	**-**	**-**
Under the simple method	212	212						
Under the PD/LGD method	849	817			25	7		
Under internal models	94	94						
Counterparty credit risk	**330**	**136**	**59**	**39**	**31**	**45**	**12**	**7**
Of which mark-to-market method (Standard)	144	35	20	34	22	18	11	2
Of which: risk exposure amount for contributions to the default fund of a CCP	19	15	4	-	-	-	-	-
Of which: CVA	167	86	35	5	9	26	1	4
Settlement risk	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Securitisations exposures in banking book (after cap)	**401**	**215**	**52**	**90**	**-**	**33**	**10**	**-**
Of which IRB ratings-based approach (RBA)	342	213	47	61		21		
Of which Standardised approach (SA)	59	2	5	29	-	13	10	-
Market risk	**2,001**	**1,037**	**207**	**21**	**316**	**411**	**9**	**-**
Of which Standardised approach (SA)	949	498	21	21	316	84	9	-
Of which internal model approaches (IMA)	1,052	539	186			326		
Operational risk	**4,803**	**1,034**	**689**	**852**	**606**	**714**	**909**	**-**
Of which standardised Approach	4,803	1,034	689	852	606	714	909	-
Amount below the threshold for deduction (subject to 250% risk weight)	**1,695**	**906**	**11**	**131**	**365**	**200**	**80**	**2**
Floor adjustments	-	-	-	-	-	-	-	-
TOTAL	**47,386**	**13,214**	**6,507**	**8,665**	**6,190**	**5,983**	**6,063**	**762**

* Including counterparty credit risk

2.2.2.1. Plan to deploy advanced internal models and supervisory approval

Santander Group remains committed to adopting the Basel II advanced internal ratings-based (AIRB) approach for its banks, increasing the amount of exposure managed using internal models. This approach will be applied progressively over the coming years. The commitment assumed with the supervisor means adapting the advanced models in the core markets in which Santander Group operates.

Santander Group continued to pursue this objective during 2018 through its plan to gradually implement the necessary technology platforms and methodological improvements to enable the progressive application of AIRB models for calculating regulatory capital at the rest of the Group's units.

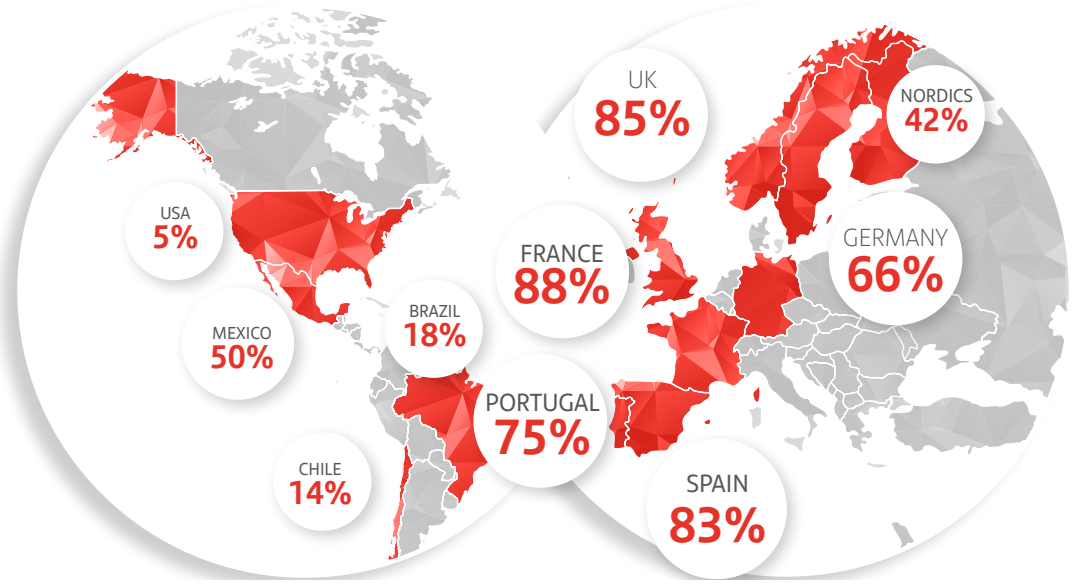
Santander Group has supervisory approval to use advanced approaches for calculating regulatory capital for credit risk for the parent and its main subsidiaries in Spain, the United Kingdom and Portugal, in addition to some portfolios in Germany, Mexico, Brazil, Chile, Nordics (Sweden, Finland and Norway), France and the United States.

The strategy to implement Basel regulations in the Group focuses on the use of advanced approaches for the main American and European banks.

The following chart shows the percentage of IRB coverage by region:

IRB coverage by region

%

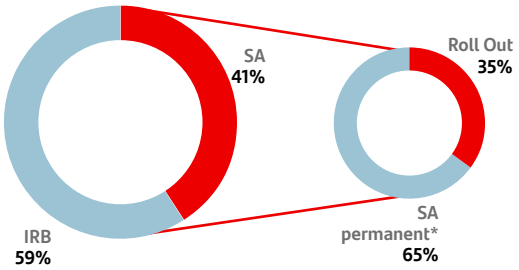


Isolating sovereign bonds in local currency and non-financial assets, which are not subject to the internal model deployment plan, as of December 2018 Santander Group reports 60% of the EAD in IRB.

By geography, the main contributors are Spain (26%), the United Kingdom (22%), the global portfolio of companies in Chile, Brazil and the USA (3%), Portugal (3%), Germany (3%), Mexico (2%), Nordics (1%) and France (1%).

Of the remaining exposure, which is currently calculated using the standard method, 35% is subject to advanced model implementation plans, with the objective of obtaining supervisory approval, in order to calculate requirements of capital per IRB model.

The remaining portfolios not included in the advanced model deployment plan are subject to analysis in order to assess the suitability of including them in the plan; additionally, these other portfolios include the portfolios authorised by the supervisor to remain permanently under the standardised approach. The distribution of exposure to credit and counterparty credit risk according to the capital requirements calculation method is shown in the chart below.



* To simplify: the 65% permanent SA includes those portfolios already authorised by the regulator and those pending approval (candidates for permanent SA or roll out).

The medium-term objective of achieving a high degree of IRB model coverage in the main markets in which the Group operates is conditioned by the acquisition of new business as occurred in 2017 with the integration of the various established Banco Popular units or during 2018 with the acquisition of Deutsche Bank Polska S.A. business.

In addition, the combination of declining business in some standard portfolios, especially in the United States, United Kingdom and Brazil, coupled with an increase in business in some advanced model portfolios in Portugal and Spain (Popular integration) has contributed significantly to an increase in Degree of IRB coverage at a consolidated level. During 2017, exchange rate movements had a positive impact, especially the major rise of the euro against the US dollar, Brazilian real and Mexican peso, due to the ECB's monetary policy.

The following table shows the geographical scope of the internal models for credit risk (AIRB or FIRB) in the different portfolios:

List of authorised IRB models by legal entity

Country	Legal Entity	IRB portfolio (AIRB or FIRB)
United Kingdom	Santander UK PLC	Institutions, Corporates, Corporates SMEs, Corporates Project Finance, Mortgages, Qualifying Revolving, Other Retail.
	Abbey National Treasury Services	Institutions, Corporates, Corporates SMEs, Corporates Project Finance.
	Abbey Covered Bonds LLP	Institutions
Spain	Banco Santander, S.A.	Sovereigns, Institutions, Corporates, Corporates SMEs, Corporates Project Finance, Mortgages, Qualifying Revolving, Retail SMEs, Other Retail
	Santander Factoring y Confirming S.A.	Institutions, Corporates, Corporates SMEs, Corporates Project Finance, Mortgages, Retail SMEs, Other Retail
	Santander Lease, S.A. E.F.C.	Institutions, Corporates Corporates SMEs, Mortgages, Retail SMEs, Other Retail
	Santander Consumer EFC, S.A.	Corporates, Corporates SMEs, Qualifying Revolving, Other Retail.
	Santander Consumer Finance, S.A.	Corporates, Corporates SMEs, Qualifying Revolving, Other Retail.
Portugal	Banco Santander Totta	Institutions, Corporates, Corporates SMEs, Corporates Project Finance, Mortgages, Qualifying Revolving, Retail SMEs, Other Retail.
Brazil	Banco Santander Brazil	Corporates
	Santander Brazil EFC	Corporates
Germany	Santander Consumer Bank AG	*Corporates, Corporates SMEs, Mortages, Revolving and Other Retail*
Mexico	Banco Santader Mexico	Institutions, Corporates, Corporates SMEs, Corporates Project Finance
USA	Santander Bank, National Association	Corporates
France	Société Financiére de Banque - SOFIB	*Corporates, Corporates SMEs, Retail SMEs, Other Retail*
Nordics	Santander Consumer Bank A.S.	Other Retail
	Santander Consumer Finance OY	*Other Retail*
Chile	Banco Santader - Chile	Sovereigns, Institutions and Corporates

The following table shows the market risk internal models (IMA) of the different portfolios distributed by geography:

List of authorised IMA models by legal entity

Country	Legal entity	IMA portfolio (product)
Spain	Banco Santander, S.A.	Trading book
Chile	Banco Santander - Chile	Trading book
	Santander Agente de Valores Limitada	Trading book
	Santander Investment Chile Limitada	Trading book
	Santander Corredores de Bolsa Limitada	Trading book
Mexico	Banco Santander México	Trading book
	Casa de Bolsa Santander, S.A. de C.V.	Trading book
Portugal	Banco Santander Totta	Trading book
United Kingdom	Santander UK PLC	Trading book less FX and specific interest rate risk
	Abbey National Treasury Services	Trading book less FX and specific interest rate risk

For further information on the Market Risk, see chapter 6.

For operational risk, Santander Group currently uses the standardised approach for calculating regulatory capital, as set out in the CRR. In 2017, the European Central Bank granted authorisation for the Alternative Standardised Approach to be used to calculate consolidated capital requirements at Banco Santander Mexico, following the approval granted in 2016 for Brazil.

For further information on the Operational Risk, see chapter 7.

As additional information, Appendix XIII shows a breakdown of exposure according to the capital calculation method employed in each region and for each portfolio.

Supervisory validation process

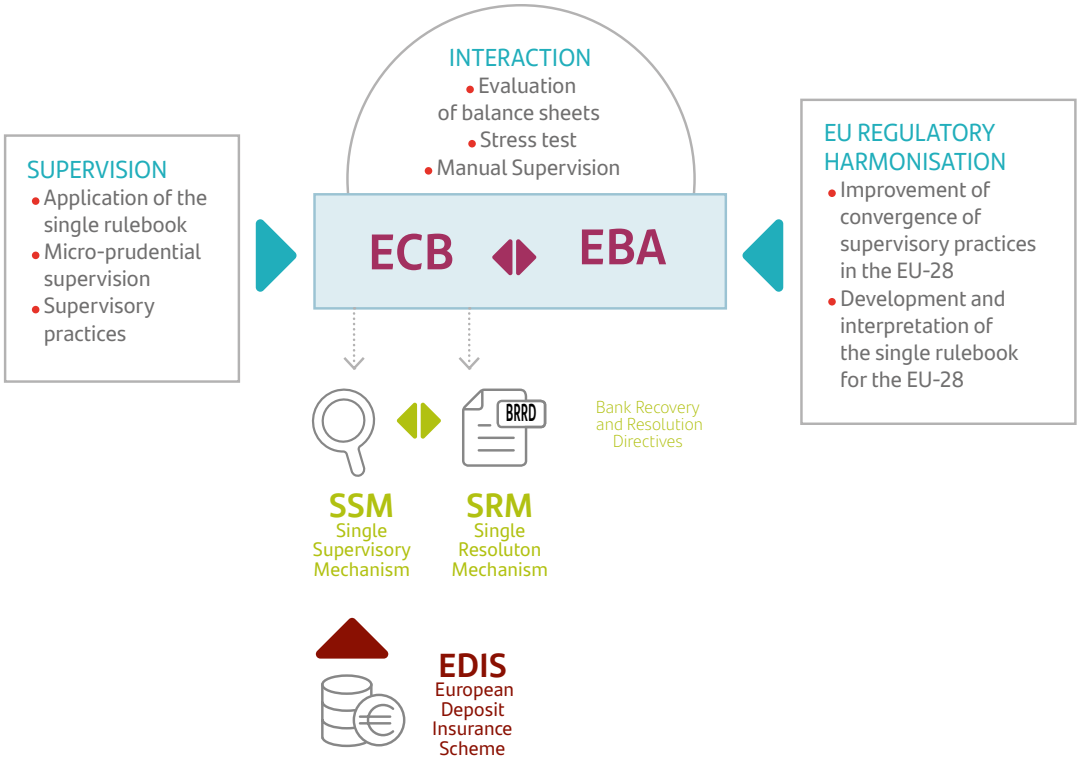
As established by the European Parliament, the primary element of the banking union is the Single Supervisory Mechanism (SSM). Under this mechanism, direct banking supervision falls to the European Central Bank, thus ensuring that the largest European banks are independently supervised by just one entity and are subject to a set of standard regulations. Eurozone countries are required to participate, while participation is voluntary for non-eurozone EU member states.

The second key element is the Single Resolution Mechanism (SRM), which oversees the preparation in the event of worst-case scenario, meaning bank failure. The aim is to ensure that any such situation can be resolved in an orderly fashion and at a minimum cost for taxpayers. The focus on keeping taxpayers from bearing the cost of future bank resolutions led to a change in the underlying regulations, namely the Bank Recovery and Resolution Directive (BRRD). Under the BRRD, a bank's shareholders and creditors will bear the brunt of resolution costs. Under certain circumstances, banks may also obtain supplementary financing from the recently-created Single Resolution Fund (SRF), which is financed by the banking sector.

Both the SSM and the SRM are operational: the SSM became effective on 4 November 2014, but the SRM was not applied until 1 January 2016. Moreover, the SRF is expected to meet its target funding level by 2023.

The European Central Bank has gradually been deploying its new structure and functions to effectively become the single European supervisor. The European Banking Authority (EBA) will continue to actively collaborate in adapting regulations. Each body's responsibilities are as follows:

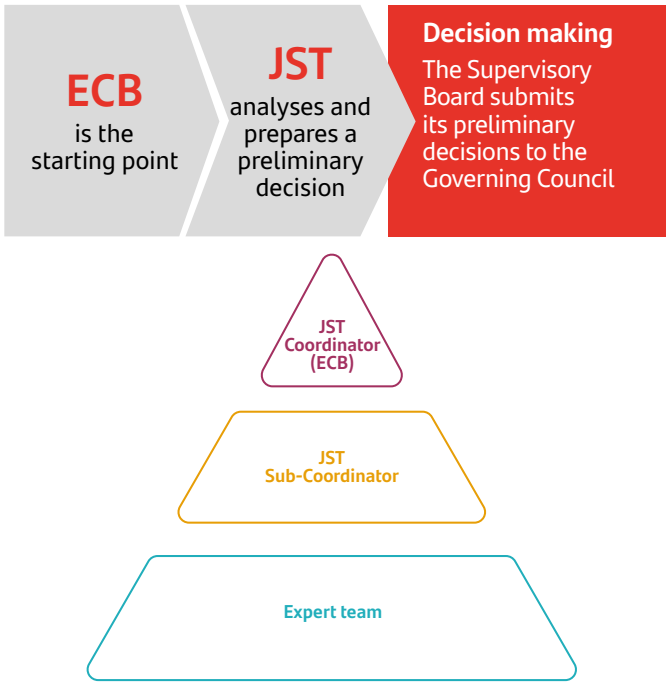
Supervisory validation process



The European supervisor has put in place a new governance process, involving the following steps:

- The Joint Supervisory Team (JST), consisting of a mixed team of experts, analyses the entity's situation and issues a technical report to the ECB's Supervisory Board.
- The Supervisory Board then submits its preliminary decisions to the Governing Council.
- The Governing Council then issues its final decision authorising or not the use of the internal models.

The supervisor uses the documentation provided by the entity as the basis for its assessment of whether the minimum requirements for using advanced models to calculate regulatory capital have been met. This information must be sufficiently thorough and detailed to provide a third party with a clear idea of the entity's rating systems, methodologies, technological infrastructure, capital calculation process and internal governance and must be able to replicate the outputs of the model. The unit itself is responsible for preparing this documentation, which forms part of the formal application required for the validation process established by the supervisors of entities seeking to implement advanced models to calculate regulatory capital.



A preparatory pre-assessment of regulatory models stage has now been added to the supervisory validation process. This involves the entity providing the supervisor, in advance, with the documentation it needs to assess whether the minimum requirements for continuing the formal validation process have been met. If the European Central Bank considers the entity to be initially ready, a request is sent and the supervisor begins a formal validation of the regulatory models, which may conclude with authorisation to use advanced models to calculate regulatory capital.

The supervisory validation process is made somewhat more complicated by the fact that multinational companies such as Santander are present in various countries and regions. This requires the involvement of supervisors from different jurisdictions, which are often subject to different laws and employ different criteria and timeframes. This sometimes hinders and slows joint decisions on the approval of advanced models to calculate regulatory capital with a consolidated scope and can also affect authorisations at a local level.

With regard to the supervisory validation processes being organised by the ECB across the euro area, there is currently no established timeframe for processing modifications of previously approved IRB models and responding to new requests for authorisation. However, Santander is aware that progress is being made and it expects requests will soon be answered more rapidly than is currently the case, especially when the nature of the changes does not require a detailed review of the model, unlike what happens when formal authorisation is requested for the use of advanced approaches for calculating regulatory capital with an IRB model for the first time.

Finally, it would be good to achieve international consensus on a maximum timeline for reviewing requests for authorisation of IRB models. This should not exceed six months, also bearing in mind all the governance required to draw up the requests.

Targeted Review on Internal Models

In 2016 and 2017, the European Central Bank (ECB) launched a review of internal regulatory capital models known as "TRIM" (Targeted Review of Internal Models) with the main aim of helping restore credibility, regulating any divergences of capital requirements that do not match the risk profile of the exposures, and standardising regulatory practices through better knowledge of the models.

Throughout 2018, Banco Santander has reviewed several portfolios through on-site inspections, in which the ECB has carried out an in-depth assessment of the credit and market risk internal models. After each on-site inspection, the ECB sends a report containing its findings, giving the entity the option to comment on these. Lastly, the ECB issues a decision letter which may include various obligations, recommendations and/or restrictions, and the bank must prepare a plan to address these issues as and when required.

Further, in 2019, inspections are expected to be made of the low default portfolios and a horizontal analysis of the inspections already completed will be carried out, with the final results obtained at the end of the TRIM exercise.

Pursuant to the TRIM guidelines published in 2017, in 2018, the ECB released an update of its guidelines for internal models, aimed at ensuring a common and standardised approach for the key regulatory aspects applicable to internal models for banks supervised directly by the ECB, which will serve as the basis for future investigations. The guidelines, which were published in two parts (the first addressing general aspects, and the second containing specific chapters for each type of risk: credit, market and counterparty), were submitted for public consultation in 2018. The final version of the first part of the guidelines on general aspects has already been published, and the ECB is expected to publish the full version, including the final version of the second part dedicated to each risk type, in 2019.

2.2.3. Leverage ratio

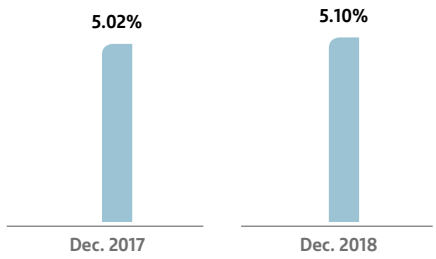
Basel III established the leverage ratio as a non-risk-sensitive measure designed to limit the excessive growth of the balance sheet relative to available capital.

The ratio is calculated as the coefficient between Tier 1 divided by the leverage exposure. This exposure is calculated as the sum of the following components:

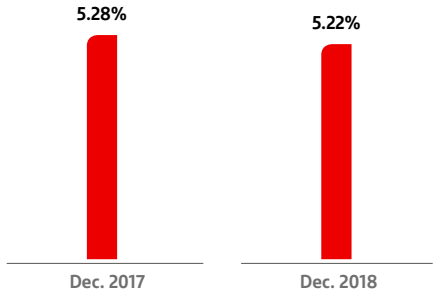
- Asset value, without derivatives and without elements considered as deductions in Tier 1 (for example, the loan balance is included but not goodwill).
- Off-balance-sheet accounts (primarily, guarantees, undrawn credit limits, letters of credit) weighted by the conversion factors of the standard credit risk method.
- Inclusion of the net value of derivatives (gains and losses against a single counterparty are netted, minus collateral - provided certain criteria are met) plus a surcharge for potential future exposure.
- A surcharge for the potential risk of security financing transactions.
- Lastly, a surcharge is included for risk relating to credit derivatives (CDS) in the unhedged part.

The following tables illustrate the ratios published by Santander Group since December 2017. These show that the bank's ratio is stable, and with an upward trend.

Fully loaded leverage ratio



Phased-in leverage ratio



The BCBS revised the definition of the leverage ratio in 2017. In particular, a series of technical adjustments were made to the method for calculating total exposure (the denominator of the leverage ratio), mainly relating to exposure to derivatives and the treatment of off balance sheet exposure.

The definitive calibration of the leverage ratio was set at 3% for all institutions, while G-SIBs are subject to an additional surcharge of 50% of the G-SIB buffer (which depends on which systemic importance bucket the bank falls into).

Banks must implement the final definition of the leverage ratio and comply with the new ratio calibration (the additional surcharge for G-SIBs) from January 2022.

The Group's leverage ratio as of 31 December 2018 was as follows:

Table 9. Leverage ratio

EUR million

	31 Dec. 2018	
	Fully loaded	Phased-in
Tier 1	75,838	77,716
Exposure	1,488,036	1,489,094
Leverage Ratio	**5.10%**	**5.22%**

The following table gives a breakdown of the ratio calculation:

Table 10. Leverage ratio details

EUR million

				31 Dec. 2018	
Item	Amounts Consol. Balance Sheet	To be eliminated	To be included	Leverage exposure	Comment
Derivatives	64,597	64,597	29,864	29,864	Substitution of book value by EAD netted of collateral
Securities financing transactions	76,423		2,666	79,089	Surcharge is added for these operations
Assets deducted in Tier 1	33,999	33,999	-	-	Remove not to duplicate
DTAs	652	652			Book value of the adjusted balance sheet asset for the variation in DTAs, as a result of recognition of lower provisions account of reserves due to the transitory application of IFRS9.
Rest of Assets	1,270,238			1,270,238	Entirely included
Total Assets	1,445,908	99,247	32,530	1,379,190	
Total Off-Balance-Sheet items	304,678	194,775	-	109,903	Balances are weighted according to its risk
Total Exposure (denominator)	**-**	**-**	**-**	**1,489,094**	
Tier 1 (numerator)	**-**	**-**	**-**	**77,716**	
Leverage Ratio				**5.22%**	**Minimum recommended 3%**

The leverage ratio is calculated by the Group every month and reported to the Capital Committee and other governance bodies, thus ensuring adequate monitoring of the **risk of excessive leverage** at its most restrictive measurement: fully loaded. In addition, estimations are made of the leverage ratio at a three year time horizon under different macroeconomic scenarios, including scenarios of recession.

No significant changes occurred in the ratio in 2018. Tier 1 is stable and leverage exposure has responded to changes in balance sheet figures, attributable to business activity and exchange rate movements.

Tables LRSum, LRCom, LRSpl y LRQua can be found in Appendix X of the file 2018 Pillar 3 Appendices that is available on the Santander Group website.

Access file **2018 Pillar 3 Appendices** available on the Santander Group website.

2.3. Pillar 2 - Economic capital

Economic capital is the capital needed to support all business risks with a certain level of capital adequacy. It is sized according to an internal model. In our case the capital adequacy level is determined by our long-term rating target of 'A' (above Spain's rating), which means applying a confidence level of 99.95% (above the regulatory 99.90%) when calculating the necessary capital.

Santander's economic capital model includes in its measurement all the significant risks incurred by the Group in its operations (concentration risk, structural interest rate risk, business risk, pensions risk, DTA risk, goodwill risk, and other risks beyond the sphere of Pillar 1 regulatory capital). Economic capital also incorporates the diversification effect which, in the case of Santander Group, due to its multinational nature and multi-business structure, is key when determining and properly understanding the risk and capital adequacy profile of a global group.

Santander Group's business is carried out in multiple countries by means of a structure of legally distinct entities, with a variety of customer and product segments and exposure to different kinds of risk. This means that Santander Group's performance is less vulnerable to adverse situations in any of the specific markets, portfolios, customers or risks. Although economies are now highly globalised, economic cycles are not identical, nor are they as intense, in the different geographies. Groups with a global presence therefore benefit from steadier performance and greater resilience when facing downturns in specific markets or portfolios, and this translates into lower risk. Hence the risk and the related economic capital which Santander Group sustains as a whole are less than the risk and capital of the sum of all the separate parts.

Meanwhile, and in contrast to regulatory criteria, Santander Group believes that certain intangible assets, such as deferred tax assets, goodwill and software, retain their value even in the hypothetical case of resolution, given the geographical structure of Santander Group's subsidiaries. As such, these assets are measured and their unexpected loss estimated as part of capital.

Economic capital is a key tool for the internal management and development of the Group's strategy, both from the standpoint of assessing capital adequacy, as well as risk management of portfolios and businesses.

From the standpoint of capital adequacy, the Group uses, in the context of Basel Pillar 2, its economic model for the capital adequacy self-assessment process (ICAAP). For this purpose, business development and capital needs are planned under a central scenario and alternative stress scenarios. In this planning, the Group ensures that its capital adequacy targets are met, even in adverse scenarios.

Economic capital metrics also enable risk-return objectives to be assessed, transaction prices to be set on the basis of risk, the economic viability of projects, units and lines of business to be evaluated, with the overriding objective of maximising the generation of shareholder value.

As a harmonised measurement of risk, economic capital can be used to explain the risk distribution throughout the Group, putting activities and different types of risk in a comparable metric.

Given its importance for internal management, the Group includes a series of metrics relating to economic capital, from the standpoint of capital needs and risk/return, within a conservative risk appetite framework established for both the Group and for the different regions.

The economic capital requirement at December 2018 was EUR 69,443 million, which, compared with the available economic capital of EUR 99,566 million, implies a capital surplus of EUR 30,123 million.

The main difference with respect to regulatory CET1 comes from the treatment of the goodwill, other intangible assets and DTAs, which we consider as another capital requirement instead of a deduction of available capital.

Table 11. Available economic capital

EUR million

	2018	2017
Net capital and issue premium	59,046	59,098
Reserves and Retained earnings	57,939	55,862
Valuation adjustments	-23,606	-23,108
Minority interests	6,893	7,228
Prudential filter	-706	-453
Available economic capital	**99,566**	**98,627**
Economic Capital required*	69,443	71,893
Capital surplus	30,123	26,734

* To increase comparability with regulatory capital, exchange differences on goodwill are included in the economic capital required.

Table 12. Regulatory and Economic CET1

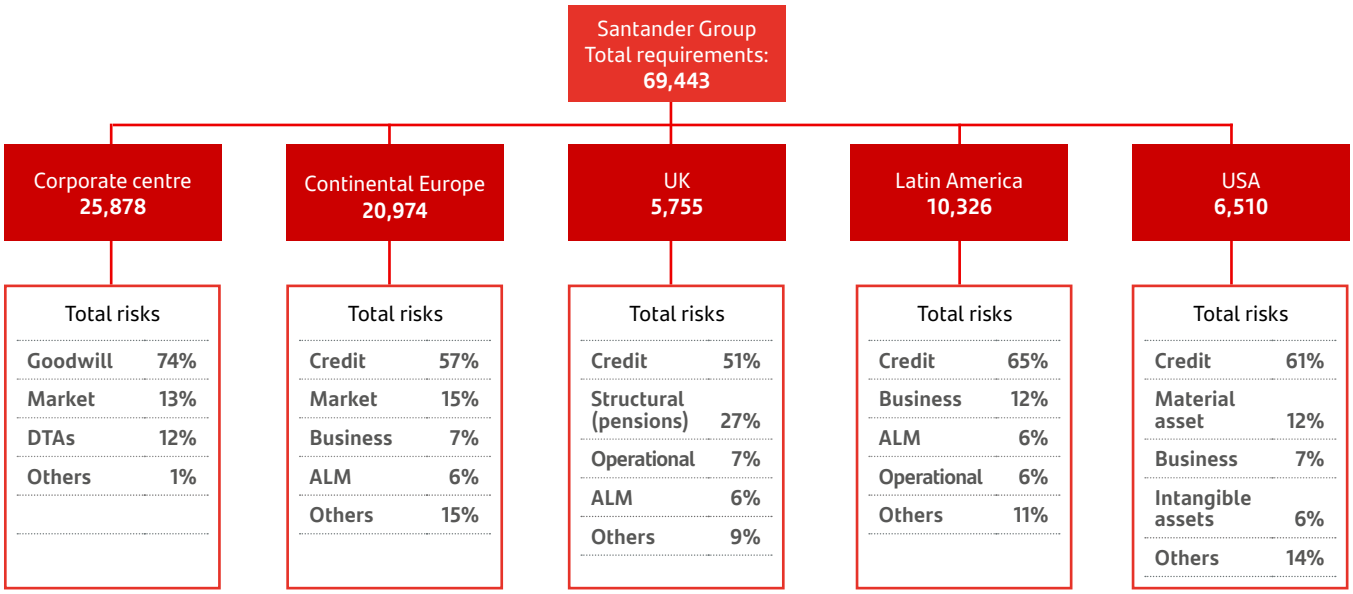
EUR million

	2018	2017
Net capital and issue premium	59,046	59,098
Reserves and Retained earnings	57,939	55,862
Valuation adjustments	-23,606	-23,108
Minority interests	6,893	7,228
Prudential filters	-706	-453
Available economic capital	**99,566**	**98,627**
(-) Deductions	-32,662	-33,064
(-) Goodwill	-25,630	-25,585
(-) Other intangible assets	-3,014	-2,952
(-) Deferred tax asset	-3,754	-3,820
(-) Other	-264	-707
Regulatory capital (FL CET1) - Available capital	**66,904**	**65,563**
Available economic capital	**99,566**	**98,627**
Economic capital required*	69,443	71,893
Capital surplus	30,123	26,734

* To increase comparability with regulatory capital, exchange differences on goodwill are included in the economic capital required

The table below sets out Santander Group's distribution of economic capital needs by region and within each region by risk type, as of 31 December 2018.

Distribution of economic capital needs by region

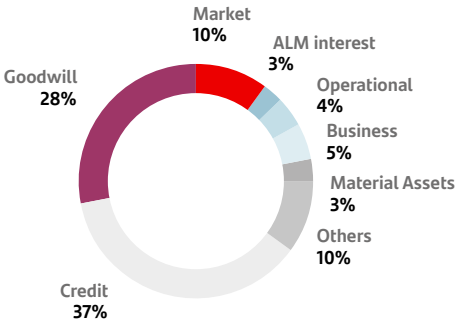


The distribution of economic capital among the main business areas reflects the diversified nature of the Group's activity and risk. Continental Europe represents 48% of capital, Latin America including Brazil 24%, United Kingdom 13% and United States 15%.

Outside the operating areas, the corporate centre assumes, mainly, the goodwill risk and risks related to structural foreign currency risk (risk related to holding of shares of subsidiaries abroad in currencies other than euro).

The diversification benefit provided by the economic capital model, including both intra-risk (similar to geographic) and inter-risk diversification, amounts to approximately 30%.

Distribution of economic capital needs



2.3.1. RoRAC and value creation

Santander Group has been using RoRAC methodology as part of its credit risk management process since 1993 in order to:

- Calculate the consumption of economic capital and the return on this capital at the Group's business units, as well as segments, portfolios and customers, in order to facilitate the optimal allocation of economic capital.
- Measure the management of the Group's units via the budgetary monitoring of capital consumption and RoRAC.
- Analyse and set prices in the decision-taking process for transactions (approval) and customers (monitoring).

RoRAC methodology enables comparisons to be made, on a like-for-like basis, of the return on transactions, customers, portfolios and businesses, identifying those that obtain a risk-adjusted return that is higher than the cost of the Group's capital and aligning risk and business management in a bid to maximise value creation; the ultimate aim of the Group's senior management.

The Group regularly assesses the level and performance of its value creation (VC) and the risk-adjusted return (RoRAC) and those of its main business units. VC is the profit generated after the cost of the economic capital (EC) employed, and is calculated as follows:

VC = consolidated profit – (average EC x cost of capital)

The profit used is obtained by making the necessary adjustments in the consolidated profit to eliminate those factors that are outside the ordinary course performance of our business, and obtain the ordinary result that each unit obtains for its activity in the year.

The minimum return on capital that an operation must attain is determined by the cost of capital, which is the minimum required by shareholders. It is calculated objectively by adding the premium that shareholders demand for investing in the Group to the risk-free return. This premium depends essentially on the degree of volatility in the price of the Banco Santander share in relation to the market's performance. The cost of capital for the Group in 2018 was 8.86% (versus 8.6% in 2017).

As well as reviewing the cost of the Group's capital for the purposes of internal management each year, the cost of capital for each business unit is also estimated, taking into account the specific features of each market and based on the assumption that all subsidiaries are autonomous when it comes to capital and liquidity. The aim is to assess whether each business is capable of generating value individually.

While a positive return from an operation or portfolio means it is contributing to the Group's profits, it is only creating shareholder value when that return exceeds the cost of capital.

Value creation and RoRAC for the Group's main business areas at December 2018 are as follows:

Table 13. RoRAC and value creation*

EUR million

	Dec-18		Dec-17	
Main segments	RoRAC	Value creation	RoRAC	Value creation
Continental Europe	18.1%	2,083	17.3%	1,716
UK	17.3%	662	18.5%	839
Latin America	35.1%	2,905	31.9%	2,563
US	10.7%	39	8.1%	-120
TOTAL GROUP [1]	**12.6%**	**2,835**	**12.4%**	**2,739**

* Value creation has been calculated with the cost of capital of each unit.

[1] Includes operating units and the corporate centre, reflecting all the Group's economic capital as well as the return generated.

The decline in RWAs in the year (-7,327 million) is mainly due to securitisation origination (-8,323 million) and improved risk parameters (-7,105 million) mostly in the mortgage segment partially offset by the calibration of models largely in the UK (+2,922 million) and acquisitions in the year (+3,393 million) mostly due to the creation of the Holding Quasar to comprise the Popular mortgage portfolio.

2.3.2. Capital planning

Stress tests on capital have assumed particular importance as a tool for the dynamic assessment of the risks and capital adequacy of banks.

It is a forward-looking assessment, based on macroeconomic and idiosyncratic scenarios that are unlikely to materialise but are still plausible. To that end, it is necessary to have robust planning models in place, capable of transferring the impact defined in projected scenarios to the different elements that influence a bank's capital adequacy.

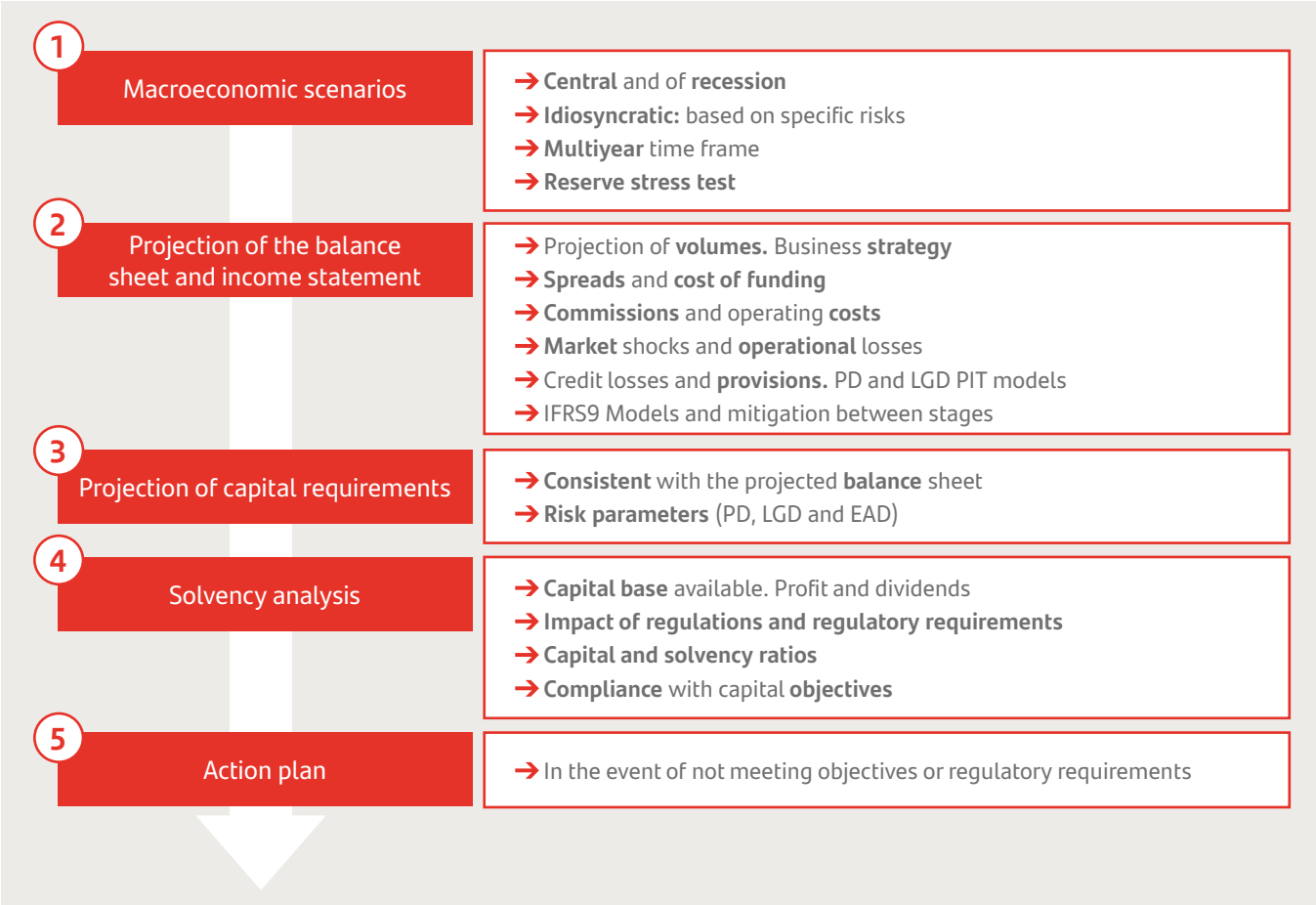
The ultimate objective of the stress tests is to carry out a full assessment of the risks and capital adequacy of the banks, which enables possible capital requirements to be calculated if they are needed because of banks' failure to meet the capital objectives set, both regulatory and internally.

Internally, Santander has defined a process of capital stress and planning, not only to respond to the various regulatory exercises, but also as a key tool of the Group's management and strategy.

The goal of the internal stress and capital planning process is to ensure sufficient current and future capital, even in the event of unlikely but plausible economic scenarios. Based on the Group's initial situation (defined by its financial statements, capital base, risk parameters and regulatory and economic ratios), the results are estimated for different business environments (including severe recessions as well as expected macroeconomic situations), and the Group's capital adequacy ratios are obtained, generally for over a three-year period.

This planned process provides a comprehensive view of the Group for the time frame analysed and in each of the scenarios defined. The analysis includes both regulatory capital and economic capital metrics.

The structure of the current process is shown below:



This structure helps to achieve the ultimate objective of capital planning by making it an element of strategic importance for the Group that:

- Ensures the adequacy of current and future capital, even in adverse economic scenarios.
- Enables the comprehensive management of capital and incorporates an analysis of specific impacts, facilitating their integration into the Group's strategic planning.
- Enables capital to be used more efficiently.
- Supports the design of the Group's capital management strategy.
- Facilitates communication with the market and supervisors.

Further, the whole process is closely supervised and carried out with the maximum involvement of the senior management, under a framework that optimises governance and ensures that all component elements are subject to proper scrutiny, review and analysis.

One of the key elements in capital planning and stress analysis exercises, due to their particular importance in forecasting the income statement under defined stress scenarios, consists of calculating the provisions needed under these scenarios, mainly those to cover losses on the credit portfolio.

Santander Group uses a methodology that ensures sufficient provisioning at all times to cover all credit losses forecast by its internal models of expected loss, based on the parameters of exposure at default (EAD), probability of default (PD) and loss given default (LGD).

This methodology is widely accepted and is similar to that used in the European Banking Authority's (EBA) 2018 stress test, its previous exercises in 2011, 2014 and 2016, and the stress test for the Spanish banking sector conducted in 2012.

In 2018, this methodology was adapted to include the changes deriving from the entry into force of the international financial reporting standard known as IFRS 9, and therefore the Group has models in place to calculate balances in stages (S1, S2, S3) in addition to migrations between these and the allocation of credit losses in accordance with the new standard.

The capital planning and stress testing process is rounded off with a capital adequacy assessment under the different scenarios established, over the defined time horizon, in order to assess capital adequacy and ensure that the Santander Group both meets its internal capital targets in addition to all regulatory requirements.

In the event capital targets are not met, an action plan will be prepared, setting out the measures needed to be able to attain the desired minimum capital. These measures are analysed and quantified as part of the internal exercises, although they do not need to be implemented because Santander exceeds the minimum capital thresholds.

This internal process of capital stress testing and planning is conducted transversally across the entire Group, not only at consolidated level, but also locally at the Group's units. These units use the capital stress and planning process as an internal management tool and to meet their local regulatory requirements.

Since the 2008 economic crisis Santander Group has undergone seven stress tests, all of which demonstrated its strength and capital adequacy in the most extreme and severe macroeconomic scenarios. All the tests showed that, thanks mainly to the business model and geographic diversification existing, Santander is capable of continuing to generate profits for its shareholders and complying with the strictest regulatory requirements.

In the first of these (CEBS 2010), Santander Group was the institution that reported the smallest impact on its capital adequacy ratio, with the exception of those banks that benefited from not distributing a dividend. In the second test, carried out by the EBA in 2011, Santander was not only one of the small group of banks that improved their capital adequacy in the stress scenario, but it also earned the highest profits.

In the stress exercises conducted by Oliver Wyman on Spanish banks in 2012 (top-down and then bottom-up), Banco Santander again showed its strength to face the most extreme economic scenarios with full capital adequacy. It was the only bank that improved its core capital ratio, with a surplus of more than EUR 25,000 million over the minimum requirement.

Lastly, in the recent stress test carried out in 2014 by the European Central Bank, in conjunction with the European Banking Authority, Santander Group was the bank with the smallest impact on the adverse scenario among its international peers, with a capital surplus of approximately EUR 20,000 million with respect to the minimum requirement.

The 2016 stress test marked a departure from previous tests by not insisting on a minimum level of capital. Instead, the results are to be used as a further input for the Supervisory Review and Evaluation Process (SREP). Santander Group was the bank that destroyed the least capital among its peers. The fully loaded CET1 capital ratio fell by 199 basis points (versus an average of -335 bps).

In the 2018 stress text, the results of which were published on 2 November, Santander Group was again the bank that destroyed the least capital among its peers, delivering better results than in 2016. The fully loaded CET1 capital ratio fell by 141 basis points (versus a system average of -395 bps).

The results of the exercises have shown that Santander Group's business model, based on retail and commercial banking and geographic diversification, renders it more sturdy when it comes to addressing worst-case international crisis scenarios.

As already mentioned, and in addition to the regulatory stress exercises, Santander Group has been conducting annual internal stress tests since 2008 as part of its capital self-assessment process (Pillar 2). All of them similarly showed Santander Group's capacity to stand up to the most difficult tests, both globally as well as in the main regions in which it operates.

2.3.3. EBA / ECB 2018 stress test

As described in the section above, in November 2018, the EBA published the results of the stress tests undergone by the 48 leading EU banks.

As in previous exercises, no minimum capital threshold was set to pass the test but the results were considered as a further variable to be used by the ECB to establish the minimum capital requirements for each bank (under the Supervisory Review and Evaluation Process – SREP).

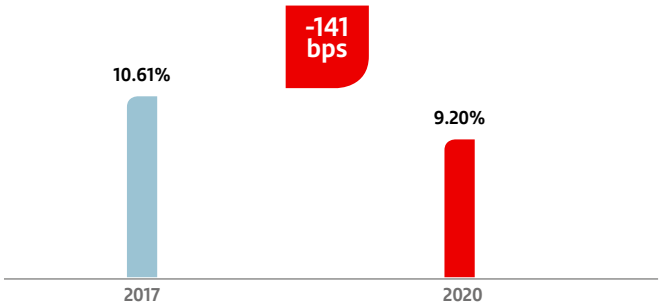
The test involved two macroeconomic scenarios (baseline and adverse), starting from the banks' balance sheets at year-end 2017 and running over a three-year time horizon, concluding in 2020.

The adverse scenario, which had a very low probability of occurrence, was marked by a sharp macroeconomic slowdown and financial market slump in both Europe and other countries in which Banco Santander operates. For instance, for the euro area as a whole the simulated impact was a cumulative fall of 2.7%

GDP, with unemployment rising to 9.7% in 2020 and a cumulative decline of 19.1% in housing prices in the same year.

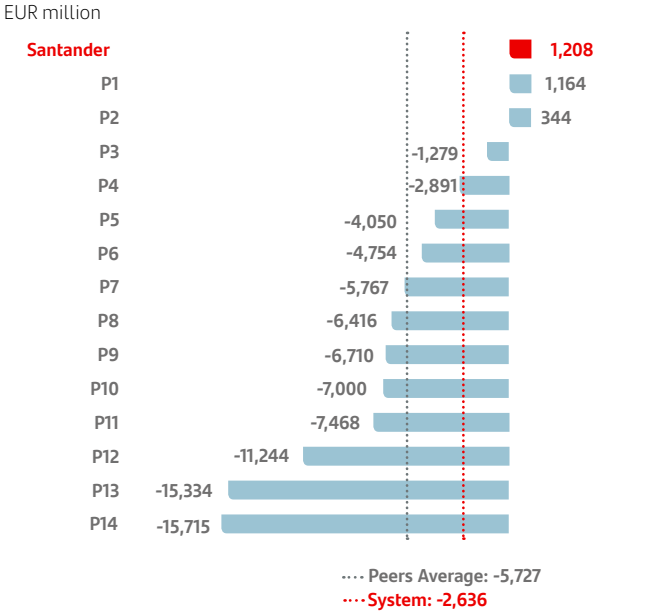
In the adverse scenario, Santander was the bank that destroyed the least capital in its peer group, and also destroyed less capital than in the previous exercise (-199bps). The CET1 fully-loaded ratio was reduced by -141 basis points (vs a system average of -395) from 10.61% in 2017 to 9.2% in 2020.

Fully loaded CET1 ratio - stress test adverse scenario



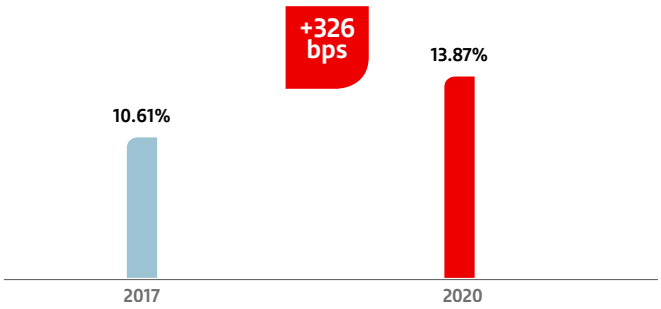
Additionally, Santander Group generated the most profit among its peers and showed no cumulative losses over the three-year period.[1]

Profit after tax - stress test adverse scenario



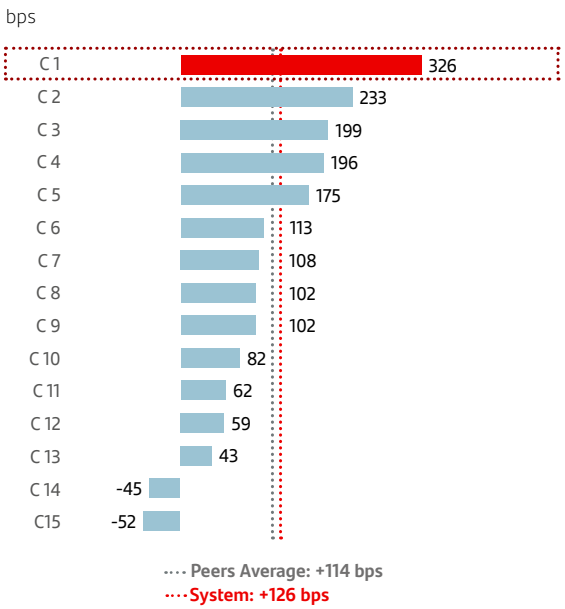
In the baseline scenario, Santander Group also generated the most profit among its peers[2].

Fully loaded CET1 ratio - stress test baseline scenario



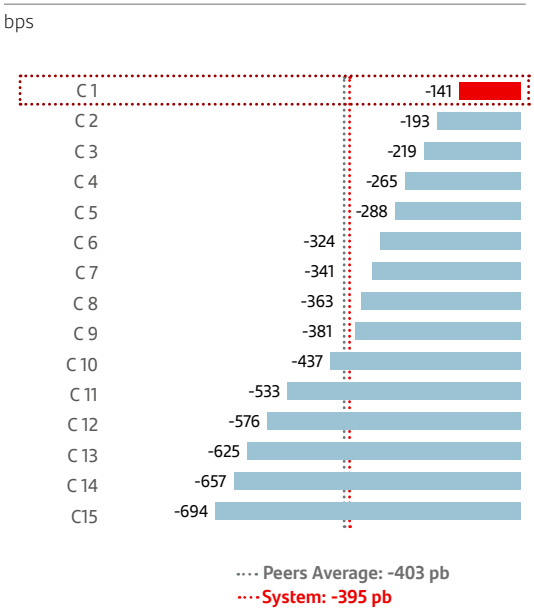
In sum, Santander evidences greater resilience than its European peers due to its high recurrent income and profit. This is due to the strength and diversification of the bank's business model, which enhances confidence in the Group's capital levels.

2017 FL CET1 vs baseline 2020



1. Fully loaded regarding both Basel III and IFRS9.
2. Peers: BBVA, Intesa San Paolo, Nordea, BNP, Unicredit, Commerzbank, Société Générale, ING, Crédit Agricole, HSBC, Deutsche Bank, RBS, Barclays and Lloyds.

2017 FL CET1 vs adverse 2020



2.4. Recovery and resolution plans and special situation response framework

This section summarises the main developments made by Santander Group in the area of crisis management. Specifically, the main developments in viability and resolution plans, and the special situation response framework.

2.4.1. Viability plans

Overview. The ninth version of the corporate viability plan was prepared in 2018. The most relevant part of this plan addresses the measures the bank would be able to rely on in order to fend off an extreme crisis unassisted.

The plan's two primary objectives are firstly to ascertain the feasibility, effectiveness and credibility of the recovery measures it contains, and secondly to determine the suitability of the recovery indicators and the respective thresholds which, were they to be breached, would trigger the escalation process when making the right decisions in response to stress situations.

For these purposes, the corporate plan envisages different macroeconomic and/or financial crisis scenarios that include Group-relevant idiosyncratic and/or systemic events that could trigger the activation of the plan. The plan was also drawn up on the premise that, once deployed, there would be no extraordinary public financial support, as per article 5.3 of the BRRD.

It should be noted that the plan is not a stand-alone instrument that bears no relationship with the other structural mechanisms in place to measure, manage and supervise the risk assumed by the Group. In fact, the plan includes the following tools, among others: the risk appetite framework ("RAF"), the risk appetite statement ("RAS"), the risk identification assessment process ("RIA"), the business continuity management system ("BCMS"), and the internal capital adequacy assessment process and the internal liquidity adequacy assessment process ("ICAAP" and "ILAAP", respectively). The plan is also an integral part of the Group's wider strategic plans.

Developments in 2018. Improvement work continued during the year, in line with the requirements and expectations of the European supervisor and reflecting best practices in the industry. This work included:

(i) Additional assessment of recovery options. More detailed descriptions of intra-group interconnectedness and the impact that this interdependency could have on the sale of any subsidiary.

(ii) Improvements in the escalation procedure for recovery indicators, speeding up the process.

(iii) Improvements in early warning indicators (EWIs), which are now almost fully harmonised thanks to the corporate policy for liquidity EWIs.

(iv) Analysis of Banco Popular and assessment of the implications.

The main **conclusions** drawn from the analysis of the 2018 corporate plan reveal that:

- There are no material interdependences between the Group's regions.
- The measures in place guarantee a broad recovery capacity for all the scenarios contemplated in the plan. The Group's geographic diversification model has proved to be an advantage from the point of view of viability.
- Each subsidiary has sufficient recovery capacity to exit a recovery situation unassisted, which enhances the strength of the Group's model based on subsidiaries that are independent in terms of capital and liquidity.
- The occurrence of serious financial or capital adequacy problems at any given subsidiary would not be considered sufficiently important to constitute a breach of the worst-case scenarios established for recovery indicators, potentially triggering the activation of the corporate plan.
- The Group has sufficient mitigation mechanisms in place to minimise any negative economic impact that could result from damage to its reputation under various stress scenarios.

It may therefore be inferred that the Group's model and strategy of geographic diversification, based on a model of subsidiaries that

1 and 2: Fully loaded both with respect to Basel III and IFRS 9.

are independent in terms of capital and liquidity, remains suitably strong from a viability standpoint.

Regulation and governance. The plan has been drawn up in accordance with the regulations applicable in the European Union[1]. The plan also embraces the non-binding recommendations emanating from international bodies such as the Financial Stability Board (FSB)[2].

As with the previous versions, the Group's new plan was presented to the single supervisor in September. From that time, the authority has a period of six months in which to submit official feedback on the plan.

The Group's plan comprises both the corporate plan (relating to Banco Santander, S.A.) and the local plans for its main regions (United Kingdom, Brazil, Mexico, United States, Germany, Argentina, Chile, Poland and Portugal), which are attached to the corporate plan. It should be noted that all regions apart from Chile are subject to local regulatory requirements in addition to the corporate requirement to draw up a local plan.

The board of directors of Banco Santander S.A. is ultimately responsible for approving the corporate plan, although its content and relevant data are first presented and discussed on the bank's primary management and control committees (capital committee, global ALCO committee, and risk supervision, regulation and compliance committee). The local plans are also approved by the relevant local bodies, in close coordination at all times with the Group since these plans are attached to the Group's wider corporate plan.

2.4.2. Resolution plans

Santander Group continues to work alongside the competent authorities on preparing the resolution plans by supplying all the information required of it.

The competent authorities belonging to the Crisis Management Group (CMG) reached consensus on the strategy to be deployed for the resolution of Santander Group, called the "Multiple Point of Entry (MPE)"[3].

This strategy is based on the legal and business structure of Santander Group and is structured into nine "Resolution Groups", all of which could be resolved independently without involving the other parts of the Group.

In May 2018, the Single Resolution Board (SRB) notified the Bank of the preferred resolution strategy and of the work priorities to enhance the resolvability of Santander Group.

Santander Group has continued to make progress on projects to improve resolvability. Defining four main lines of action:

1) Ensuring the Group has a sufficient buffer of loss-absorbing instruments.

In 2018, the bank issued EUR 7,000 million in senior non-preferred debt, with which to absorb losses before any senior debt.

To prevent legal uncertainty when resorting to a bail-in, all debt issue agreements now include a clause whereby the bond holder recognises that the resolution authority is entitled to effect the bail-in using their instruments.

2) Ensuring the Group has reporting systems in place to guarantee rapid delivery of the necessary information in the event of resolution.

In 2018, the Group finished work on automating information on the liabilities that could be subject to a bail-in in the event of resolution. Work is also ongoing to systematise and strengthen the governance of the rest of the information to be delivered to the resolution authority for the purpose of drawing up the resolution plan.

This process is expected to be completed in 2019.

Meanwhile, various projects are still under way to create information repositories on:

1. Legal entities belong to Santander Group

2. Critical suppliers

3. Critical infrastructure

4. Financial contracts in accordance with article 71.7 of the BRRD

3) Guaranteeing operational continuity in resolution situations

Operational continuity clauses in contracts with internal suppliers have been reinforced and the Group is currently analysing the clauses to include in contracts with external suppliers.

The first stage of the survey completed by the Group's main market infrastructures has been completed, to discover their policy should any member of that infrastructure be faced with resolution. In the second stage, an analysis of the policies of the infrastructures is being carried to ascertain the financial impairment of entities prior to their resolution.

Lastly, contingency plans are being drawn up to cover any situation whereby one of those infrastructures ceases to provide service to Santander Group in the event of resolution.

1. Directive 2014/59/EU (EU Crisis Management Directive); current EBA regulations on recovery plans (EBA/RTS/2014/11, EBA/GL/2014/06 and EBA/GL/2015/02); EBA recommendations to the Commission on key lines of business and critical functions (EBA/op/2015/05); EBA regulation pending approval (EBA/CP/2015/01 on ITS templates for resolution plans); EBA regulation not directly related to recovery, but with significant implications in this field (EBA/GL/2015/03 on triggers for use of early intervention measures); and domestic Spanish regulations: Spanish Law 11/2015, on recovery and resolution of credit entities and investment services companies, and Royal Decree 1012/2015 implementing that law.
2. FSB Key attributes of effective resolution regimes for financial institutions (15 October 2014, update of the first publication in October 2011), guidelines on the identification of critical functions and critical shared services (15 July 2013) and guidance on recovery triggers and stress scenarios (15 July 2013).
3. By way of an exception to the above, resolution plans in the United States are drawn up by the companies individually.

4) Fostering a culture of resolvability within the Group

The Group has been working here to increase the involvement of the senior management by making it the board's responsibility to address matters relating to the resolvability of Santander Group and setting up a steering committee to specialise in matters relating to resolution.

2.4.3. Special situation management framework

When it comes to the governance of crisis situations, the special situation management framework was approved and implemented in 2016 both at the corporation and across the main countries and regions of Santander Group.

This is a holistic framework governing special events or situations that differ from what is expected or what ought to emerge from the ordinary management of business and that could compromise business or trigger a serious downturn in the financial position of the entity or of Santander Group by straying too far from its risk appetite and limits.

The main features of this framework are as follows:

1. Defining a set of standardised crisis indicators.

2. Defining a traffic light system based on the extent of financial impairment or risk of financial impairment and consistent with the limits used for BAU management.

3. Defining the role of Crisis Management Director to coordinate the response to a crisis situation.

4. Defining the escalation of responsibilities in crisis events.

5. Creating a high-level crisis committee supported by a technical crisis committee.

In 2018, progress was made on the implementation of the model described above in order to achieve a standardised roll-out in the Group's main subsidiaries.

Further progress was also made during the year on developing tools to facilitate rapid and effective crisis management (such as by automating communications in special situations and setting up specific crisis rooms) and to raise awareness and increase the training of the Group's human resources and governing bodies involved in escalating and managing this type of incident, mainly by preparing and conducting simulations known as war games.

2.5. Total Loss Absorbing Capacity (TLAC) and Minimum Required Eligible Liability (MREL)

On 9 November 2015, the FSB published its final principles and term sheet containing an international standard to enhance the loss absorbing capacity of G-SIIs.

The definitive standard consists of an elaboration of the principles on loss absorbing and recapitalisation capacity of G-SIIs in resolution and a term sheet setting out a proposal for the implementation of these proposals in the form of an internationally agreed standard on total loss absorbing capacity ("TLAC") for G-SIIs. Once implemented in the relevant jurisdictions, these principles and terms will form a new minimum TLAC standard for G-SIIs, and in the case of G-SIIs with more than one resolution group, each resolution group within the G-SII. The FSB will undertake a review of the technical implementation of the TLAC principles and term sheet by the end of 2019.

The TLAC principles and term sheet require a minimum TLAC requirement to be determined individually for each G-SII at the greater of (a) 16% of risk weighted assets as of 1 January 2019 and 18% as of 1 January 2022, and (b) 6% of the Basel III Tier 1 leverage ratio exposure measure as of 1 January 2019, and 6.75% as of 1 January 2022.

Furthermore, the BRRD provides that member states shall ensure that institutions meet, at all times, a minimum requirement for own funds and eligible liabilities ("MREL"). The MREL shall be calculated as the amount of own funds and eligible liabilities expressed as a percentage of the total liabilities and own funds of the institution. The MREL requirement was scheduled to come into force by January 2016. However, resolution authorities were given discretion to determine appropriate transitional periods for each institution. In the specific case of Banco Santander S.A., in May 2018 formal notification was received of the MREL requirement, which must be complied with from 1 January 2020.

The European Commission has committed to review the existing MREL rules with a view to ensuring its full consistency with the TLAC standard. As mentioned above, although TLAC and MREL pursue the same regulatory objective, there are, nevertheless, some differences in the way they are constructed.

The European Commission is proposing to integrate the TLAC standard into the existing MREL rules and to ensure that both requirements are met with largely similar instruments, with the exception of the subordination requirement, which will be institution-specific and determined by the resolution authority. Under these proposals, institutions such as Banco Santander would continue to be subject to an institution-specific MREL requirement (i.e., a "Pillar 2" add-on MREL requirement), which may be higher than the requirement of the TLAC standard (which would be implemented as a "Pillar 1" MREL requirement for G-SIIs).

The EU Directive on the recovery and resolution of credit institutions (BRRD), approved in July 2014, establishes a minimum requirement for own funds and eligible liabilities (MREL). This requirement, which came into effect in 2016, is calculated for each institution by the resolution authority on the basis of an individualized analysis. Meanwhile, in November 2015 the FSB published the term sheet for TLAC (Total Loss Absorbing Capacity) with the same aim, to ensure that institutions have sufficient liabilities to absorb losses and to be recapitalised in case of resolution.

The rules of the TLAC term sheet are only applicable to systemic institutions (G-SIBs), while the MREL applies to over 6,000 European institutions. With the aim of avoiding the need for systemic institutions in Europe to comply with two regulatory requirements, the European Commission proposed that the European regulations should be revised to introduce the main features of the TLAC.

The result is therefore a single requirement with one methodology to be applied by the resolution authority, and common rules for the eligibility of liabilities. For the G-SIBs, the minimum set out in the term sheet (16%-18%) is introduced. They will have to be composed of subordinated liabilities, with the exception of a percentage of senior debt (2.5%-3.5%). For non-systemic institutions, the subordinated requirement will be determined by the resolution authority on a case-by-case basis.

In May, the Bank of Spain formally announced the binding minimum requirement for own funds and eligible liabilities (MREL) for the Banco Santander S.A. Resolution Group at a sub-consolidated level which must be met by 1 January 2020. This MREL requirement was set at 22.90% of own funds and liabilities based on information at December 2016 and represents 24.35% of the Resolution Group's risk-weighted assets.

A new MREL requirement is expected in the third or fourth quarter of 2019 based on information at December 2017. This will be based on the SRB's 2018 MREL policy for banking groups with a resolution college.

For further details on TLAC and MREL see Fixed Income Presentation available on the Santander Group website.

Access **Fixed Income Presentation** available on the Santander Group website.

3

Credit risk

3. Credit risk

Credit risk is the risk of financial loss due to failure to comply with or deterioration of the credit rating of a customer or a third party, that has been financed or through which a contractual obligation has been assumed.

This chapter provides a detailed analysis of Santander Group's credit risk profile from several angles: region, activity sector, residual maturity, etc. with a focus on regulatory indicators (EAD and RWA).

Main figures

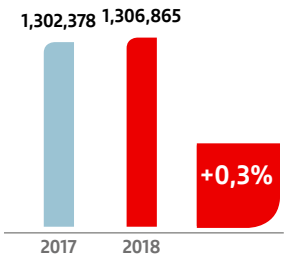
EUR million

	EAD		RWA	
	2018	2017	2018	2017
Credit Risk	**1,306,865**	**1,302,378**	**499,924**	**513,455**
Of which, with standard method (SA)	710,272	704,321	294,593	299,430
Of which, with FIRB method	41,133	47,837	29,044	33,435
Of which, AIRB method	544,532	542,235	156,063	164,834
Of which, IRB equities (Table 26)	10,927	7,985	20,224	15,755

It does not inlcude securitizations and includes Counterparty credit risk.

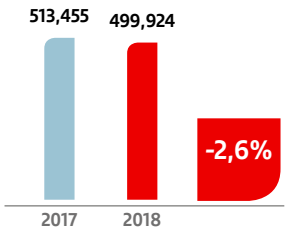
EAD Variation

EUR million



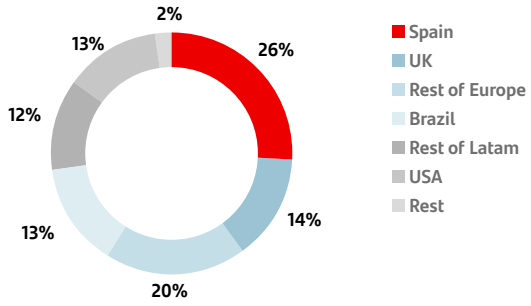
RWA Variation

EUR million



RWA by Geography

* Includes Counterparty Credit risk



Santander Group ensures that its risk profile remains within the defined risk appetite levels and other limits through the advanced and comprehensive management of all risks, in a robust control environment, based on pillars aligned with its strategy.

For further details on policies and objectives of risk management (CRR article 435) see Corporate Governance Chapter and Risk Management Report (Sections 1 and 2) in the Annual Report.

Access **2018 Annual Report** available on the Santander Group website.

3.1. General aspects

The credit risk management process involves the identification, assessment, control and decision-making in relation to the credit risk incurred in the Group's operations. It factors in operational aspects, in addition to customer and portfolio factors and the overall view of the credit risk cycle. The business and risk areas, and senior management are involved in the process.

Santander Group's profile is mainly retail, with an adequate diversification of credit risk between mature and emerging markets.

Table 14. Credit risk exposure and CRM effects (IRB approach) (CR4)

EUR million

	31 Dec. 2018					
	Exposures before CCF and CRM		Exposures post CCF and CRM		RWAs and RWA density	
	On-balance-sheet amount	Off-balance-sheet amount	On-balance-sheet amount	Off-balance-sheet amount	RWAs	RWA density
Central governments or central banks	2,328	1,666	2,268	275	819	32.21%
Institutions	40,731	10,391	34,198	4,803	9,212	23.62%
Corporates	164,360	110,884	156,915	37,825	106,307	54.59%
Of Which: Specialised Lending	16,031	3,297	16,031	1,189	14,344	83.30%
Of Which: SME	32,134	6,430	31,817	2,643	18,601	53.98%
Retail	326,041	38,228	326,232	23,150	68,769	19.68%
Secured by real estate property	269,715	13,373	270,081	8,651	39,160	14.05%
SME	4,560	147	4,547	67	1,028	22.29%
Non-SME	265,156	13,225	265,534	8,584	38,132	13.91%
Qualifying Revolving	3,234	17,720	3,274	10,526	3,988	28.90%
Other Retail	53,091	7,136	52,878	3,972	25,621	45.07%
SME	12,673	4,130	12,437	1,922	4,777	33.27%
Non-SME	40,418	3,006	40,441	2,050	20,843	49.05%
Equity	10,927	-	10,927	-	20,224	185.07%
TOTAL IRB APPROACH	**544,388**	**161,169**	**530,541**	**66,052**	**205,331**	**34.42%**

Note: Securitisations not included. Including counterparty credit risk.

Table 15. Credit risk exposure and CRM effects (Standardised approach) (CR4)

EUR million

	31 Dec. 2018					
	Exposures before CCF and CRM		Exposures CCF and CRM		RWAs and RWA density	
	On-balance-sheet amount	Off-balance-sheet amount	On-balance-sheet amount	Off-balance-sheet amount	RWAs	RWA density
Central governments or central banks	232,619	10,389	241,477	5,000	30,172	12.24%
Regional governments or local authorities	10,822	2,332	23,179	437	496	2.10%
Public sector entities	8,964	210	8,598	148	415	4.75%
Multilateral Development Banks	1,655	-	4,036	-	-	-
International Organisations	-	-	-	-	-	0.00%
Institutions	19,466	22,001	17,792	18,239	6,343	17.60%
Corporates	68,101	29,142	63,996	8,490	70,634	97.45%
Retail	146,704	75,402	140,832	2,743	103,086	71.80%
Secured by mortgages on immovable property	93,374	8,963	93,031	1,170	39,721	42.17%
Exposures in default	8,456	363	8,336	269	9,119	105.96%
Items associated with particularly high risk	1,538	20	1,538	6	2,317	150.00%
Covered bonds	3,480	-	3,480	-	470	13.51%
Claims on institutions and corporates with a short-term credit assessment	2	-	2	-	2	100.00%
Collective investments undertakings (CIU)	82	1,314	753	47	283	35.42%
Equity exposures	221	-	221	-	221	100.00%
Other exposures	60,717	16,995	63,359	3,090	31,312	47.12%
TOTAL STANDARDISED APPROACH	**656,201**	**167,131**	**670,632**	**39,640**	**294,593**	**41.48%**

Note: Securitisations not included. Including counterparty credit risk.

3.2. Capital requirements for credit risk

3.2.1. Internal ratings-based approach (IRB)

The following table shows the main changes in capital requirements for credit risk under the IRB approach:

Table 16. RWA flow statement of credit risk exposures under IRB (CR8)*

EUR million

	31 Dec. 2018	
	RWA	Capital Requirements
RWA as Dec- 2017	**211,150**	**16,892**
Asset size	2,000	160
Asset quality	-	-
Model updates	2,922	234
Methodology and policy	-7,105	-568
Acquisitions and disposals	3,393	271
Foreign exchange movements	-215	-17
Other	-8,323	-666
RWA as Dec- 2018	**203,823**	**16,306**

* Includes capital requirements of equity. securitisations and counterparty credit risk (excluding CVA and CCP)

The decline in RWAs in the year (-7,327 million) is mainly due to securitisation origination (-8,323 million) and improved risk parameters (-7,105 million) mostly in the mortgage segment partially offset by the calibration of models largely in the UK (+2,922 million) and acquisitions in the year (+3,393 million) mostly due to the creation of the Holding Quasar to comprise the Popular mortgage portfolio

The tables in this section show, for each business segment, the distribution by rating grade (internal and Standard & Poor's) of the value of exposures, credit risk parameters and capital under the IRB approach, distinguishing between foundation IRB (FIRB) and advanced IRB (AIRB).

Table 17. AIRB approach. Central banks and central governments (CR6)

EUR million

31 Dec. 2018

PD scale	S&P Levels	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF	EAD	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density	EL	Value adjustments and provisions
0,00 to <0,15	AAA to BBB+	457	753	34.53%	2,070	0.04%	20	46.94%	1,648	549	26.51%	0.3	-
0,15 to <0,25	BBB+ to BBB	751	12	31.93%	97	0.15%	8	49.99%	562	34	35.20%	0.1	-
0,25 to <0,50	BBB to BB+	9	-		-	0.37%	1	50.00%	360	-	51.69%	-	
0,50 to <0,75	BB+ to BB	13	0.001	23.50%	13	0.58%	3	50.00%	360	9	66.19%	-	-
0,75 to <2,50	BB to B+	1,308	27	22.03%	81	1.10%	9	46.67%	1,604	117	144.17%	0.4	-
2,50 to <10,00	B+ to B-	382	3	12.80%	28	6.13%	7	70.18%	463	66	240.41%	1.2	-1
10,00 to <100,00	B- to C	-	1	100.00%	2	22.50%	3	60.86%	1,373	6	353.95%	0.2	-
100,00 (default)	D	33	30	12.80%	37	100.00%	3	69.88%	1,700	9	24.05%	25.3	-25
TOTAL 2018		**2,954**	**825**	**33.31%**	**2,328**	**1.77%**	**54**	**47.72%**	**1,580**	**789**	**33.92%**	**27**	**-27**
TOTAL 2017		**2,156**	**852**	**32.98%**	**2,019**	**3.00%**	**36**	**45.58%**	**1,536**	**686**	**34.00%**	**29**	**-37**

89% of the portfolio is rated A+. Average portfolio consumption is 34%. Average PD falls due to NPL exits mainly at Spain. Exposure increased by 15% compared to 2017 due to increased business in this segment.

Table 18. AIRB approach. Institutions (CR6)

EUR million

31 Dec. 2018

PD scale	S&P Levels	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF	EAD	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density	EL	Value adjustments and provisions
0,00 to <0,15	AAA to BBB+	23,487	9,315	36.59%	29,075	0.05%	1,178	43.92%	451	4,455	15.32%	6	-6
0,15 to <0,25	BBB+ to BBB	1,769	644	45.84%	1,745	0.20%	282	42.71%	494	702	40.24%	1	-1
0,25 to <0,50	BBB to BB+	3,258	155	30.32%	583	0.37%	122	43.04%	711	387	66.32%	1	-1
0,50 to <0,75	BB+ to BB	983	98	18.72%	894	0.63%	122	56.67%	1,398	1,168	130.68%	3	-3
0,75 to <2,50	BB to B+	3,988	840	32.03%	1,902	1.53%	320	21.95%	1,342	1,065	56.00%	6	-6
2,50 to <10,00	B+ to B-	429	38	45.13%	104	4.79%	44	25.59%	1,252	97	93.48%	1	-1
10,00 to <100,00	B- to C	15	2	43.48%	2	24.22%	7	44.65%	903	6	258.92%	-	-
100,00 (default)	D	16	-		16	100%	134	23.96%	1,365,0	8	49.38%	3	-3
TOTAL 2018		**33,945**	**11,093**	**36.6%**	**34,321**	**0.22%**	**2,209**	**42.90%**	**535**	**7,888**	**22.98%**	**22**	**-22**
TOTAL 2017		**35,109**	**8,540**	**37.6%**	**31,868**	**0.20%**	**2,549**	**42.40%**	**573**	**7,820**	**24.54%**	**19**	**-98**

The portfolio's average consumption is 22.98%, 156 bp less than in 2017. Its exposure increased by 7.7%, causing RWAs to rise by EUR 68 million.

Table 19. AIRB approach. Corporates (CR6)

EUR million

31 Dec. 2018

PD scale	S&P Levels	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF	EAD	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density	EL	Value adjustments and provisions
0.00 to <0.15	AAA to BBB+	37,658	47,787	38.15%	53,528	0.08%	2,606	42.63%	863	13,739	25.67%	19	-19
0.15 to <0.25	BBB+ to BBB	15,348	14,328	32.68%	20,829	0.22%	5,772	43.78%	734	9,242	44.37%	20	-20
0.25 to <0.50	BBB to BB+	27,797	14,834	31.75%	32,936	0.37%	16,384	43.73%	733	18,090	54.92%	53	-52
0.50 to <0.75	BB+ to BB	16,869	6,710	31.33%	12,955	0.67%	7,067	42.88%	637	9,410	72.64%	36	-36
0.75 to <2.50	BB to B+	22,168	5,838	33.85%	19,938	1.30%	32,184	41.64%	685	15,185	76.16%	106	-104
2.50 to <10.00	B+ to B-	9,226	3,384	50.94%	8,587	5.05%	12,411	36.95%	869	9,407	109.56%	157	-154
10.00 to <100.00	B- to C	1,983	442	40.96%	1,750	18.67%	4,051	38.19%	1,138	3,115	177.95%	121	-118
100.00 (default)	D	7,672	1,298	27.14%	7,978	100.00%	7,782	39.13%	1,079	429	5.38%	3,095	-3.046
TOTAL 2018		**138,721**	**94,621**	**35.89%**	**158,501**	**5.86%**	**88,256**	**42.37%**	**792**	**78,617**	**49.60%**	**3,607**	**-3.550**
TOTAL 2017		**136,678**	**83,847**	**37.52%**	**156,426**	**8.70%**	**90,330**	**40.23%**	**828**	**76,723**	**49.05%**	**5,292**	**-6.150**

The portfolio increased, bringing the following rise in RWAs:

- In the UK in the first quarter there was a considerable increase, mainly due to the extension to utilise MRL portfolio.
- This increase was partially compensated mainly in Spain due to the NANSA securitisation which also affected exposure and expected loss.
- Despite the higher exposure, the portfolio's expected loss declined due to an improvement in the PD.

Table 20. AIRB approach. Retail portfolios (CR6)

EUR million

31 Dec. 2018

PD scale	S&P Levels	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF	EAD	Average PD	Number of obligors	Average LGD	RWA	RWA density	EL	Value adjustments and provisions
Residential Mortgages												
0,00 to <0,15	AAA to BBB+	31,710	1,136	98.93%	32,870	0.07%	511,768	12.81%	859	2.61%	3	-3
0,15 to <0,25	BBB+ to BBB	33,671	3,647	63.26%	36,073	0.2%	325,202	9.0%	1,337	3.71%	6	-6
0,25 to <0,50	BBB to BB+	59,039	5,417	59.60%	62,357	0.38%	530,677	9.22%	3,667	5.88%	21	-19
0,50 to <0,75	BB+ to BB	16,340	1,229	79.09%	17,333	0.63%	123,827	13.06%	2,111	12.18%	14	-11
0,75 to <2,50	BB to B+	76,421	1,628	52.70%	77,371	1.22%	590,923	9.28%	10,424	13.47%	89	-80
2,50 to <10,00	B+ to B-	32,549	232	60.96%	32,705	4.35%	245,871	12.14%	13,247	40.50%	183	-145
10,00 to <100,00	B- to C	11,645	44	31.12%	11,676	27.6%	109,565	11.50%	6,918	59.26%	356	-305
100,00 (default)	D	8,340	40	17.06%	8,347	100%	87,370	29.81%	598	7.16%	2,442	-1,907
TOTAL 2018		**269,716**	**13,373**	**64.69%**	**278,732**	**5.16%**	**2,525,203**	**10.93%**	**39,160**	**14.05%**	**3,114**	**-2,476**
TOTAL 2017		**270,449**	**14,754**	**65.52%**	**280,480**	**5.40%**	**2,587,817**	**13.09%**	**48,319**	**17.23%**	**3,662**	**-2,678**
Qualifying revolving												
0,00 tO <0,15	AAA to BBB+	517	5,006	48.21%	2,930	0.09%	2,466,449	59.29%	100	3.41%	2	-1
0,15 tO <0,25	BBB+ to BBB	109	4,192	84.74%	3,661	0.17%	6,342,192	67.99%	246	6.72%	4	-3
0,25 tO <0,50	BBB to BB+	99	3,312	38.23%	1,365	0.31%	2,143,147	48.66%	105	7.70%	2	-2
0,50 tO <0,75	BB+ to BB	41	573	69.5%	440	0.66%	607,206	63.71%	82	18.61%	2	-1
0,75 tO <2,50	BB to B+	741	2,914	58.24%	2,444	1.45%	2,834,352	58.94%	762	31.19%	21	-16
2,50 tO <10,00	B+ to B-	1,059	1,434	68.07%	2,045	5.07%	2,219,809	60.12%	1,545	75.54%	63	-47
10,00 tO <100,00	B- to C	530	254	85.56%	770	24.95%	768,644	60.20%	1,130	146.65%	116	-86
100,00 *(default)*	D	138	35	17.91%	145	100.00%	107,047	77.79%	19	12.98%	112	-83
TOTAL 2018		**3,234**	**17,720**	**59.41%**	**13,801**	**3.57%**	**17,488,846**	**60.99%**	**3,988**	**28.90%**	**321**	**-239**
TOTAL 2017		**3,031**	**17,291**	**61.22%**	**13,654**	**3.48%**	**17,189,648**	**60.77%**	**4,141**	**30.33%**	**299**	**-152**
Retail Others												
0,00 to <0,15	AAA to BBB+	1,284	490	47.42%	1,694	0.08%	168,393	38.10%	134	7.92%	1	-
0,15 to <0,25	BBB+ to BBB	3,157	879	52.07%	3,776	0.18%	559,304	43.51%	613	16.24%	3	-3
0,25 to <0,50	BBB to BB+	7,817	587	56.12%	8,182	0.33%	897,035	39.05%	1,802	22.02%	10	-9
0,50 to <0,75	BB+ to BB	6,696	862	74.56%	7,303	0.59%	1,164,379	45.58%	2,633	36.06%	19	-16
0,75 to <2,50	BB to B+	18,966	2,547	61.73%	20,231	1.27%	2,821,776	45.7200%	9,997	49.41%	118	-98
2,50 to <10,00	B+ to B-	11,148	1,032	58.42%	11,192	4.01%	1,354,396	48.22%	7,486	66.89%	217	-182
10,00 to <100,00	B- to C	2,674	163	41.26%	2,704	27.35%	1,191,717	45.78%	2,622	96.98%	344	-286
100,00 (default)	D	1,701	222	30.13%	1,767	100.00%	287,589	68.62%	333	18.86%	1,203	-1,026
TOTAL 2018		**53,444**	**6,783**	**58.56%**	**56,850**	**5.79%**	**8,444,589**	**45.57%**	**25,621**	**45.07%**	**1,915**	**-1,620**
TOTAL 2017		**53,735**	**6,890**	**62.23%**	**57,789**	**6.15%**	**8,090,618**	**46.04%**	**27,144**	**46.97%**	**2,054**	**-1,792**

Retail portfolios. Residential mortgages.
47% of mortgage exposure is rated above BB+. The average RW in this segment decreased due mainly to the improvement in the average PD and LGD parameters.

Retail portfolios. Qualifying revolving
58% of exposure is rated above BB+. The improved average CCF caused a slight reduction in RWAs.

Retail other
Exposure in the portfolio declined, due mainly to the new securitisations: Santorini, Esparta, FT Pymes Magdalena 2, and KIMI VII. Recalibration of parametres in Spain also helped lower the segment's RWAs.

Table 21. FIRB approach. Sovereign (CR6)

EUR million

31 Dec. 2018

PD scale	S&P Levels	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF	EAD	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density	EL	Value adjustments and provisions
0,00 to <0,15	AAA to BBB+	215	-		215	0.03%	1	45.00%	900	30	13.78%	0.02	-
TOTAL 2018		**215**	**-**	**-**	**215**	**0.03%**	**1**	**45.00%**	**900**	**30**	**13.78%**	**0.02**	**-**
TOTAL 2017		**202**	**-**	**-**	**202**	**0.03%**	**2**	**45.00%**	**900**	**28**	**13.78%**	**0.02**	**-**

Portfolio fairly stable with a slight increase in exposure and associated RWAs.

Table 22. FIRB approach. Institutions (CR6)

EUR million

31 Dec. 2017

PD scale	S&P Levels	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF	EAD	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density	EL	Value adjustments and provisions
0,00 to <0,15	AAA to BBB+	2,943	1,796	31.66%	3,610	0.06%	624	44.72%	486	692	19.17%	1	-1
0,15 to <0,25	BBB+ to BBB	289	203	41.85%	375	0.20%	100	44.87%	718	172	45.72%	-	-
0,25 to <0,50	BBB to BB+	540	159	39.48%	603	0.36%	123	44.94%	849	382	63.47%	1	-1
0,50 to <0,75	BB+ to BB	43	30	64.96%	62	0.66%	41	45.00%	887	54	87.54%	-	-
0,75 to <2,50	BB to B+	1	38	20.36%	9	1.02%	39	44.49%	474	11	124.47%	-	-
2,50 to <10,00	B+ to B-	-	11	24.25%	3	2.51%	12	45.00%	460	4	157.32%	-	-
10,00 to <100,00	B- to C	-	-	-	-	-	-			-		-	-
100,00 (default)	D	--	-	45.40%	-	100.00%	2	31.74%	913	-	-	-	-
Alternative treatment		18	12	-	18	-	-	-	-	9	1	-	-
TOTAL 2018		**3,835**	**2,250**	**33.36%**	**4,679**	**0.12%**	**941**	**44.76%**	**557**	**1,324**	**28.30%**	**3**	**-3**
TOTAL 2017		**4,133**	**2,232**	**35.07%**	**5,010**	**0.13%**	**1,216**	**43.55%**	**546**	**1,412**	**28.19%**	**3**	**-15**

77% of the portfolio is rated above BBB+. There are no significant changes in the segment compared to 2017.

RWAs declined compared to the previous year, largely due to the inclusion of certain investment projects in a securitisation issued in Spain, which also affected exposure.

Table 23. FIRB approach. Corporates (CR6)

EUR million

31 Dec. 2018

PD scale	S&P Levels	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF	EAD	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density	EL	Value adjustments and provisions
0,00 to <0,15	AAA to BBB+	2,327	2,202	47.56%	4,092	0.09%	95	44.96%	847	1,197	29.24%	2	-2
0,15 to <0,25	BBB+ to BBB	1,517	623	19.72%	1,381	0.21%	1,076	44.29%	787	603	43.69%	1	-1
0,25 to <0,50	BBB to BB+	2,083	893	26.02%	2,264	0.38%	373	44.22%	835	1,407	62.14%	4	-4
0,50 to <0,75	BB+ to BB	1,656	471	74.32%	1,987	0.63%	879	44.56%	896	1,607	80.88%	6	-6
0,75 to <2,50	BB to B+	3,849	1,240	44.83%	4,223	1.47%	1,245	43.62%	833	4,265	100.99%	27	-27
2,50 to <10,00	B+ to B-	3,097	552	52.09%	3,143	4.20%	2,740	40.90%	895	3,599	114.50%	54	-52
10,00 to <100,00	B- to C	289	47	73.92%	323	13.63%	287	28.79%	901	406	125.71%	13	-13
100,00 (default)	D	943	126	18.90%	967	100.00%	224	42.78%	910	-	-	414	-408
Alternative treatment	-	618	40	-	639	-	-	-	-	262	41.02%	-	-2
TOTAL 2018		**16,379**	**6,195**	**42.85%**	**19,019**	**6.71%**	**6,919**	**43.37%**	**855**	**13,346**	**70.17%**	**520**	**-514**
TOTAL 2017		**18,309**	**8,008**	**38.76%**	**21,432**	**7.29%**	**7,235**	**43.35%**	**815**	**14,221**	**67.01%**	**654**	**-798**

41% of the exposure is rated above BB+. The portfolio's average PD improved slightly. The new Santa Fe securitisation in Mexico brought savings in RWAs, EAD and EL.

In 2018, EAD rose with a corresponding increase in RWAs mainly due to the integration of Banco Popular holdings. Some holdings with a high materiality such as Testa Residencial underwent a change in parameters using a more conservative LGD, which directly impacted RW calculation. Accounting criteria changed in the year which led to higher capital consumption.

The distribution of exposures and average parameters by segment and geography is as follows:

Table 24. Exposures and parameters by segment and geography*

EUR million

	31 Dec. 2018							
	Central governments and central banks	Institutions	Corporates	Retail Mortgages	Retail SME	Retail Other	Retail Qualifying Revolving	TOTAL
Santander Group								
EAD	2,506	38,984	168,575	270,385	13,683	41,400	13,656	549,189
Average LGD in %	46.83%	43.10%	42.38%	10.14%	40.50%	45.48%	60.69%	27.22%
Average PD in %	0.16%	0.17%	0.67%	2.23%	2.69%	2.79%	2.54%	1.66%
Spain								
EAD	2,290	28,684	85,649	50,805	3,667	6,025	4,324	181,445
Average LGD in %	47.01%	44.13%	44.32%	16.41%	51.15%	46.89%	60.17%	37.11%
Average PD in %	0.17%	0.10%	1.03%	1.52%	3.73%	4.26%	1.74%	1.19%
Rest of Europe								
EAD	-	4,768	49,152	219,580	10,016	35,374	9,332	328,222
Average LGD in %	-	44.27%	38.27%	8.68%	36.60%	45.23%	60.92%	19.90%
Average PD in %	-	0.21%	1.42%	2.40%	2.31%	2.54%	2.92%	2.25%
Latam				-	-	-	-	
EAD	215	5,532	28,631	-	-	-	-	34,379
Average LGD in %	45.00%	36.74%	43.16%	-	-	-	-	42.14%
Average PD in %	0.03%	0.50%	0.57%	-	-	-	-	0.55%
Rest of world								
EAD	-	-	5,143	-	-	-	-	5,143
Average LGD in %	-	-	44.94%	-	-	-	-	44.94%
Average PD in %	-	-	0.29%	-	-	-	-	0.29%

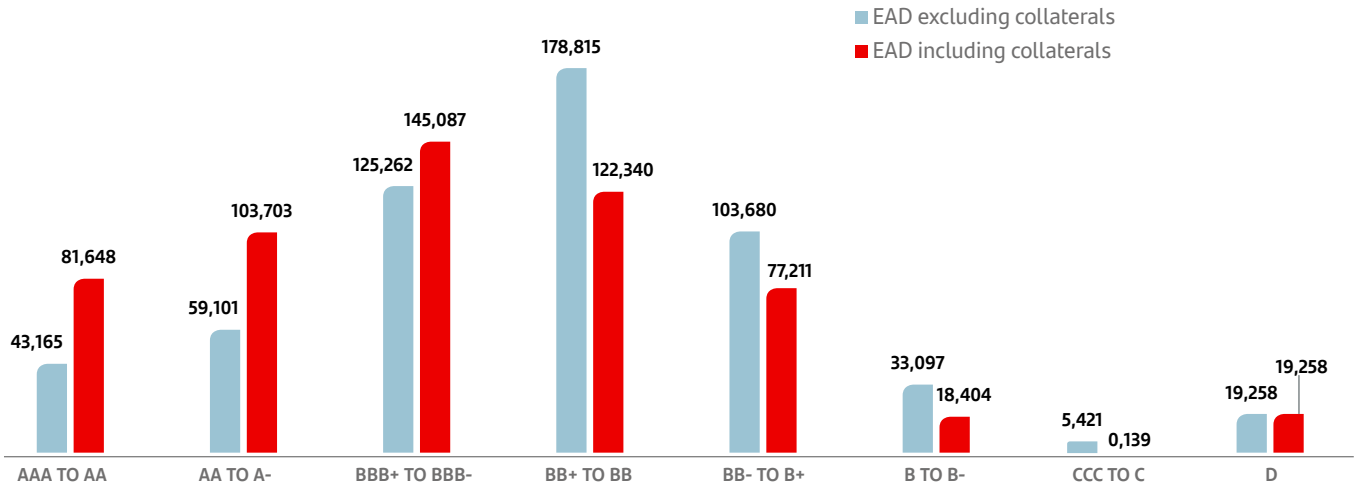
* EAD and parameters without default.

* EAD does not include neither equities nor specialised lending.

The following chart depicts exposures using the IRB approach approved in December 2018 (excluding Specialised Lending), based on the internal credit quality associated with its external rating.

Distribution of IRB exposures associated with its external rating (Dec. 2018)

EUR million



Note: Does not include exposures with alternative treatment in FIRB Institution and FIRB Corporates (EUR 657 million).

For EAD distribution including guarantees, expected losses have been assigned to the different tranches of PD taking a LGD of 45% in each bucket. It shows that the risk profile of the whole portfolio improves significantly when factoring in guarantees, especially mortgage collateral.

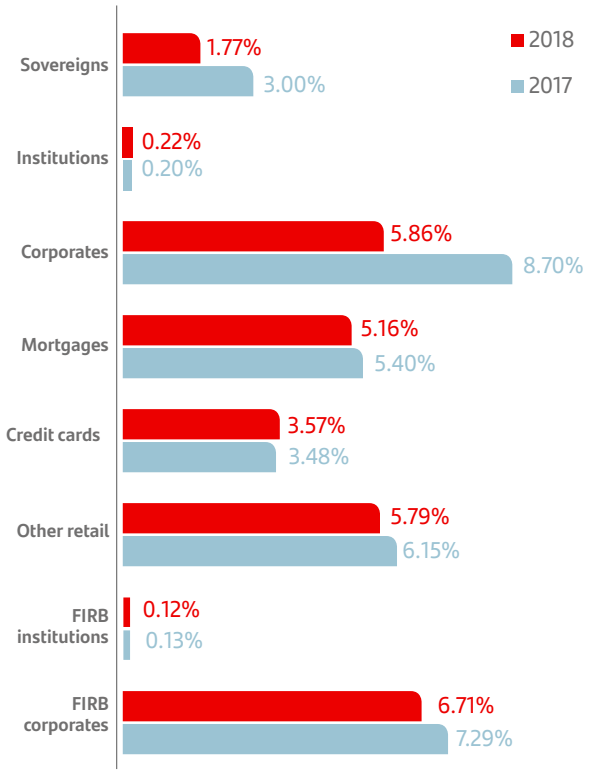
Table 25. Specialised lending (CR10)

EUR Million

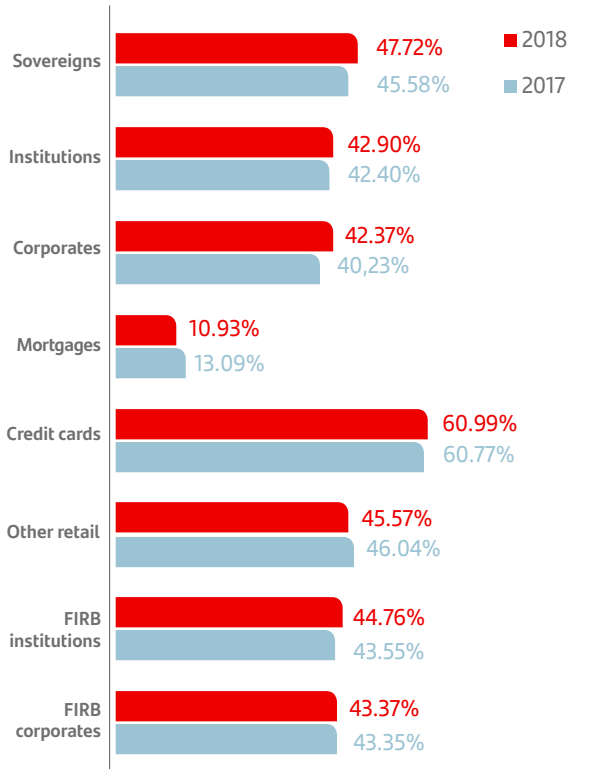
							31 Dec. 2018
Regulatory categories	Remaining maturity	On-balance-sheet amount	Off-balance-sheet amount	RW	EAD	RWA	Expected Loss
Category 1	< 2.5 years	256	123	50%	294	139	-
	>= 2.5 years	2,793	429	70%	2 889	1,999	12
Category 2	< 2.5 years	1,968	980	70%	2,418	1,691	10
	>= 2.5 years	8,919	1,486	90%	9,455	8,478	75
Category 3	< 2.5 years	201	19	115%	204	228	5
	>= 2.5 years	689	55	115%	707	811	20
Category 4	< 2.5 years	57	-	250%	57	144	5
	>= 2.5 years	326	181	250%	364	855	27
Category 5	< 2.5 years	43	4	-	43	-	22
	>= 2.5 years	781	20	-	787	-	394
TOTAL	**< 2.5 years**	**2,525**	**1,127**	**-**	**3,017**	**2,202**	**41**
	>= 2.5 years	**13,506**	**2,170**	**-**	**14,202**	**12,143**	**527**

RWAs declined compared to the previous year, largely due to the inclusion of certain investment projects in a securitisation issued in Spain, which also affected exposure.

EAD-weighted average PD

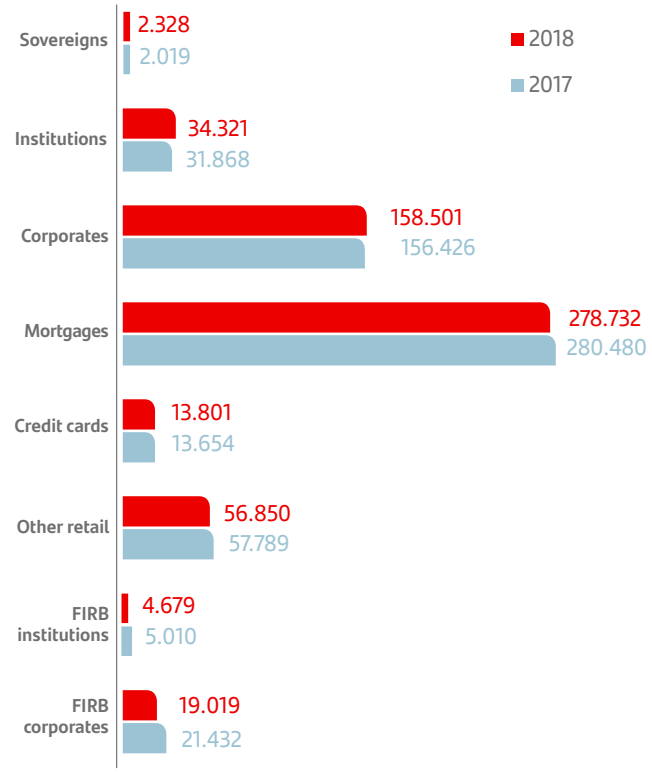


EAD-weighted average LGD

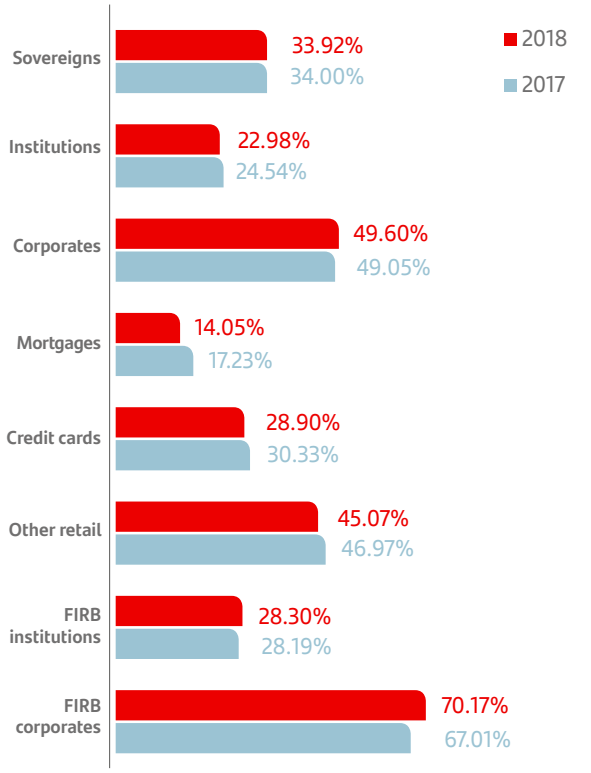


Exposure

EUR million



RWA/EAD



3.2.2. Equity investments and capital instruments not included in the trading book

This section provides definitions of investments in associates, equity instruments classified as other financial assets at fair value through other comprehensive income, and financial assets with mandatory classification at fair value through profit or loss. It also defines the accounting policies and measurement methods applied. Information is also provided on the amounts of those equity instruments not included in the held for trading portfolio.

Investments in associates are those stakes affording Santander Group significant influence, but not control or joint control. This capacity is usually observed with 20% or more of the voting power at the investee.

Capital instruments not held for trading issued by entities other than subsidiaries, jointly controlled entities and associates are required to be classified at fair value through profit or loss, unless the entity opts to classify them as financial assets at fair value through other comprehensive income, irrevocably, on initial recognition.

Investments in associates are recognised at cost and are periodically tested for impairment.

Capital instruments classified as other financial assets at fair value through other comprehensive income are recognised and measured at fair value with a corresponding entry in equity, under valuation adjustments. Instruments classified as financial assets with mandatory recognition at fair value through profit or loss are recognised and measured at fair value with a corresponding entry in profit or loss.

Table 26. Equities (CR10)

EUR million

	Tranches	Weighted average PD	Original exposure	EAD	EAD-weighted average LGD	RWA	PE/EAD	RWA/EAD
								31 Dec. 2018
PD/LGD approach								
	1	0.14%	1,013	1,013	89.9%	1,218	0.13%	120%
	2	0.14%	1,425	1,425	88.8%	1,705	0.13%	120%
	3	0.27%	1,587	1,587	87.3%	2,448	0.23%	154%
	4	1.38%	2,570	2,570	65.0%	5,242	0.90%	204%
	5	-	-	-	-	-	-	-
	Default	100.00%	9	9	65.0%	-	65.00%	-
TOTAL 2018		**0.79%**	**6,603**	**6,603**	**79.3%**	**10,612**	**0.54%**	**161%**
TOTAL 2017		**0.99%**	**4,089**	**4,089**	**77.7%**	**6,243**	**0.67%**	**153%**
Simple-risk weighted approach								
	Exposure in private equity	-	-	-	-	-	-	-
	Exposure in equity traded in organised markets	-	1,270	1,270	-	2,412	0.80%	190%
	Other exposures in equities	-	83	83	-	242	0.80%	290%
TOTAL 2018		**-**	**1,353**	**1,353**	**-**	**2,654**	**-**	**-**
TOTAL 2017		**-**	**1,164**	**1,164**	**-**	**2,642**	**-**	**-**
Internal models approach 2018		**-**	**658**	**658**	**-**	**1,174**	**-**	**178%**
Internal models approach 2017		**-**	**589**	**589**	**-**	**1,513**	**-**	**257%**
Financial participations Dec. 2018		**-**	**2,313**	**2,313**	**-**	**5,784**	**-**	**250%**
Financial participations Dec. 2017		**-**	**2,143**	**2,143**	**-**	**5,357**	**-**	**250%**
TOTAL 2018		**-**	**10,927**	**10,927**	**-**	**20,224**	**-**	**-**
TOTAL 2017		**-**	**7,985**	**7,985**	**-**	**15,755**	**-**	**-**

In 2018, EAD rose with a corresponding increase in RWAs mainly due to the integration of Banco Popular holdings. Some holdings with a high materiality such as Testa Residencial underwent a change in parameters using a more conservative LGD, which directly impacted RW calculation. Accounting criteria changed in the year which led to higher capital consumption.

The total unrealised losses of equity and capital instruments not included in the trading book included in CET1 as of december 18 were EUR -872 million.

Table 27. Equity instruments through other comprehensive income

EUR million

	31 Dec. 2018		
	Carrying value	Fair value	Valuation adjustement
Quoted	1,943	1,943	844
Unquoted	725	725	-172
TOTAL	**2,668**	**2,668**	**672**

Table 28.Equity instruments mandatorily at fair value through profit and loss

EUR million

	31 Dec. 2018
	Fair value
Quoted	342
Investment funds	495
Unquoted	1,043
TOTAL	**1,880**

Refer to notes 2.d.iii and 8 of the Auditor's Report and Financial Statements in the Anual Report for further information on the portfolio of capital instruments classified as other financial assets at fair value through other comprehensive income and with mandatory classification at fair value through profit or loss.

Access **2018 Anual Report** available on the Santander Group website.

Table 29. Equity instruments through other comprehensive income. Consolidated gross valuation adjustments

EUR million

	31 Dec. 2018
Prior-year balance	**1,008**
Revaluation gains and losses	-336
Current-year balance	**672**

Refer to note 29.c of the Auditor's Report and Financial Statements in the Anual Report for further information on the portfolio of capital instruments classified as other financial assets at fair value through other comprehensive income.

Access **2018 Anual Report** available on the Santander Group website.

With respect to holdings accounted for using the equity method at year-end 2018, the amounts for associates and jointly controlled entities were EUR 6,619 million and EUR 404 million respectively.

There are also investments in Group entities totalling EUR 1,739 million which are accounted for using the full consolidation method in the public perimeter.

The Group tests these investments for impairment on a regular basis. No evidence of significant impairment was found in 2018.

3.2.3. Standardised approach

For the calculation of regulatory capital under the standardised approach, Santander Group uses the external rating agencies designated as eligible by the Bank of Spain. The agencies used for the capital calculation as of 31 December 2018 are Fitch, Moody's, DBRS and Standard & Poor's.

Additionally, for the central government and central banks category, if the requirements of article 137 of the CRR are met, Santander Group uses the OECD's Country Risk Classification of the Participants to the Arrangement on Officially Supported Export Credits.

Different risk weights are applied to credit exposures, depending on the rating assigned by the credit rating agencies (e.g. Fitch, Moody's and Standard & Poor's for the segments approved under Part III, Title II, Chapter II of the CRR) or the minimum export insurance premium rating (e.g. OECD for the central government and central bank segment, as explained above).

The assignment of weights according to credit ratings complies with the regulatory requirements, aligning the alphanumeric scale of each agency used with the credit quality steps set down in Chapter II, Section II of the CRR, as follows:

Credit quality step	S&P	Moody's	Fitch	DBRS
1	AAA to AA-	AAA to AA3	AAA to AA-	AAA to AAL
2	A+ to A-	A1 to A3	A+ to A-	AH to AL
3	BBB+ to BBB-	BAA1 to BAA3	BBB+ to BBB-	BBBH to BBBL
4	BB+ to BB-	BA1 to BA3	BB+ to BB-	BBH to BBL
5	B+ to B-	B1 to B3	B+ to B-	BH to BL
6	Inferior to B-	Inferior to B3	Inferior to B-	CCCH and inferior

Credit quality step	Central governments and central banks	Public sector entities	Institutions ≤ 3 months rated	Institutions > 3 months rated	Institutions not rated	Corporates
1	0%	20%	20%	20%	20%	20%
2	20%	50%	20%	50%	50%	50%
3	50%	100%	20%	50%	100%	100%
4	100%	100%	50%	100%	100%	100%
5	100%	100%	50%	100%	100%	150%
6	150%	150%	150%	150%	150%	150%

At present, Santander Group has no process in place for assigning the credit ratings of publicly issued securities to comparable assets that are not included in the trading book.

In accordance with art. 150 of the CRR, Santander Group always uses the standardised approach for sovereign exposures denominated and funded in the member state's local currency, applying a 0% risk weighting.

The tables below show the value of the net exposure after impairment loss allowances after risk mitigation, by segment and credit quality grade. Guarantees are applied by reallocating exposures to the corresponding asset categories and risk weightings.

Table 30. Standardised approach (including a breakdown of exposures post conversion factor and post mitigation techniques) (CR5)

EUR million

	31 Dec. 2018																
Risk weight	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deduc.	Total
Central governments or central banks	216,812	-	-	-	3,526	-	2,338	-	-	12,869	-	6.162	-	-	-	-	241,707
Regional government or local authorities	22,909	-	-	-	260	-	5	-	-	442	-	-	-	-	-	-	23,615
Public sector entities	7,225	-	-	-	1,190	-	43	-	-	156	-	-	-	-	-	-	8,614
Multilateral development banks	4,036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,036
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	127	-	-	-	15,729	-	819	-	-	2,070	6	-	-	-	-	-	18,751
Corporates	-	-	-	-	89	-	184	-	-	71,236	106	-	-	-	-	-	71,615
Retail	-	-	-	-	-	-	-	-	143,363	-	-	-	-	-	-	-	143,363
Secured by mortgages on immovable property	-	-	-	-	-	71,508	12,073	-	4,428	6,192	-	-	-	-	-	-	94,201
Exposures in default	-	-	-	-	-	-	-	-	-	7,580	1,026	-	-	-	-	-	8,606
Higher-risk categories	-	-	-	-	-	-	-	-	-	-	1,545	-	-	-	-	-	1,545
Covered bonds	-	-	-	2,259	1,221	-	-	-	-	-	-	-	-	-	-	-	3,480
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	2
Collective investment undertakings	-	-	-	-	705	-	-	-	-	-	-	-	-	-	82	-	787
Equity	-	-	-	-	-	-	-	-	-	221	-	-	-	-	-	-	221
Other items	21,404	5,000	-	-	10,992	-	8	-	139	28,887	-	-	-	-	-	-	66,429
TOTAL	**272,514**	**5,000**	**-**	**2,259**	**33,711**	**71,508**	**15,469**	**-**	**147,930**	**129,654**	**2,683**	**6,162**	**-**	**-**	**82**	**-**	**686,973**

3.3. Distribution of exposures

The tables below show information on the Santander Group's exposures to credit and dilution risk, broken down as follows:

- Exposure category
- Business sector
- Geographical area
- Residual maturity

It also contains information on defaulted exposures, impairment loss allowances, and provisions for contingent liabilities and commitments.

The amounts shown in the tables in this section include the amounts for counterparty credit risk excluding securitisations.

Table 31. Credit quality of exposures by exposure classes and instruments (CR1-A)

EUR million

31 Dec. 2018

	Gross carrying values of					
	Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges of the period	Net values
IRB approach						
Central governments or central banks	63	3,931	27	-	-	3,967
Institutions	16	51,106	24	2	1	51,098
Corporates	10,888	264,356	4,595	1,463	465	270,649
Of Which: Specialised Lending	847	18,480	531	6	65	18,797
Of Which: SME	3,707	34,858	1,490	262	139	37,075
Retail	10,478	353,792	4,335	984	713	359,934
Secured by real estate property	8,381	274,707	2,476	357	159	280,612
SME	1,391	3,317	464	82	6	4,243
Non-SME	6,990	271,391	2,012	275	153	276,369
Qualifying Revolving	173	20,781	239	42	76	20,715
Other Retail	1,923	58,304	1,620	585	478	58,607
SME	977	15,826	622	371	98	16,181
Non-SME	947	42,478	998	214	380	42,426
Equity	9	10,919	-	-	-	10,927
Total IRB approach	**21,454**	**684,103**	**8,981**	**2,449**	**1,179**	**696,576**
Standard approach						
Central governments or central banks	2	243,017	9	-	-	243,008
Regional governments or local authorities	4	13,200	46	-	-	13,153
Public sector entities	1	9,180	6	-	-	9,175
Multilateral Development Banks	-	1,655	-	-	-	1,655
International Organisations	-	-	-	-	-	-
Institutions	9	41,471	4	20	1	41,467
Corporates	3,639	97,797	554	1,792	1,048	97,243
of which: SME	1,164	23,895	126	363	446	23,768
Retail	8,939	228,214	6,108	7,932	9,044	222,106
of which: SME	2,216	32,536	644	912	558	31,892
Secured by mortgages on immovable property	4,907	102,912	575	348	379	102,337
of which: SME	1,514	18,285	169	45	89	18,116
Items associated with particularly high risk	-	1,583	24	-	-	1,558
Covered bonds	-	3,480	-	-	-	3,480
Claims on institutions and corporates with a short-term credit assessment	-	2	-	-	-	2
Collective investments undertakings (CIU)	-	1,397	-	-	-	1,397
Equity exposures	-	221	-	-	-	221
Other exposures	47	78,458	747	37	40	77,712
Total Exposures in default (SA Approach only)*	17,548	-	8,729	90	-	8,819
Total Standardised approach	**17,548**	**822,586**	**16,802**	**10,219**	**10,513**	**823,332**
TOTAL	**39,002**	**1,506,689**	**25,783**	**12,668**	**11,692**	**1,519,908**

* The row of Total Exposures in default (SA approach only) is the sumatory of all the defaulted exposures and is included to show the defaulted exposures' Specific credit risk adjustment.

The following two tables show all exposures by industry and geographical area.

Table 32. Credit quality of exposures by industry or counterparty type (CR1-B)

EUR million

	31 Dec. 2018					
	Gross carrying values of:					
	Defaulted exposures	Non-defaulted exposures	Adjustment for specific Credit risk	Accumulated write-offs	Credit risk adjustment charges of the period	Net values
Agriculture, forestry and fishing	933	14,586	561	67	239	14,958
Mining and quarrying	351	7,773	156	28	85	7,967
Manufacturing	3,242	59,327	1,521	404	510	61,048
Electricity, gas, steam and air conditioning supply	540	25,739	341	46	150	25,938
Water supply	26	1,613	11	7	1	1,628
Construction	2,338	21,507	1,024	312	409	22,821
Wholesale and retail trade	3,714	63,758	2,110	927	930	65,361
Transport and storage	1,107	15,268	455	100	202	15,920
Accommodation and food service activities	950	10,873	337	41	114	11,486
Information and communication	281	11,677	184	94	87	11,774
Real estate activities	791	46,828	511	205	249	47,108
Professional, scientific and technical activities	667	12,252	477	54	183	12,443
Administrative and support service activities	804	10,579	463	266	227	10,920
Public administration and defence, compulsory social security	73	263,170	96	60	5	263,147
Education	142	6,131	120	12	64	6,154
Human health services and social work activities	621	16,018	216	206	101	16,423
Arts, entertainment and recreation	96	3,230	64	8	32	3,261
Other services	22,325	916,360	17,136	9,830	8,103	921,549
TOTAL	**39,002**	**1,506,689**	**25,783**	**12,668**	**11,692**	**1,519,908**

Table 33. Credit quality of exposures by geography (CR1-C)

EUR million

	31 Dec.					
	Gross carrying values of					
	Defaulted exposures	Non-defaulted exposures	Credit risk adjustment charges of the period	Accumulated write-offs	Credit risk adjustment charges of the period	Net values
Spain	18,986	416,977	8,629	2,814	1,183	427,335
United Kingdom	2,711	339,021	966	717	159	340,766
European Union ex Spain	5,699	245,983	4,180	1,661	1,171	247,502
EEUU and Puerto Rico	5,673	168,004	5,371	2,565	1,735	168,305
Rest of OCDE	3,195	145,491	2,701	1,672	1,546	145,986
LatAm (no OCDE)	2,523	155,295	3,746	3,152	5,819	154,071
Rest of world	214	35,918	189	88	79	35,943
TOTAL	**39,002**	**1,506,689**	**25,783**	**12,668**	**11,692**	**1,519,908**

The following table shows the age of exposures with past due balances, by product type.

Table 34. Ageing of past-due exposures (CR1-D)

EUR million

	Gross carrying values. 31 Dec. 2018				
	≤ 30 days	> 30 days ≤ 90 days	> 90 days ≤ 180 days	> 180 days ≤ 1year	> 1year
Loans	24,526	12,435	4,426	3,807	12,703
Debt Securities	3	9	11	39	23
TOTAL EXPOSURES	**24,529**	**12,444**	**4,437**	**3,846**	**12,726**

Note: Does not include portfolios of assets held for trading or assets at fair value through profit or loss.

The following table shows the volume of NPLs and debt restructurings.

Table 35. Non-performing and forborne exposures (CR1-E)

EUR million

	31 Dec. 2018											
	Carrying values of:											
	Carrying amount of performing and non-performing exposures						Accumulated impairment and provisions and negative fair value adjustments due to credit risk				Collaterals and financial guarantees received	
		Of which: performing but past due >30 days and <=90 days	of which: performing forborne	Of which non-performing			On performing exposures		On non-performing exposures		On non-performing exposures	of which: forborne exposures
					of which: impaired	of which: forborne		of which: forborne		of which: forborne		
Debt securities	147,438	5	81	889	870	812	-39	-7	-610	-556	43	43
Loans and advances	1,097,977	9,820	21,147	35,047	34,997	20,196	-8,480	-2,161	-15,126	-8,221	14,970	21,628
Off-balance sheet exposures	304,678	-	418	1,462	-	18	-513	-	-265	-	263	27
TOTAL	**1,550,093**	**9,825**	**21,646**	**37,398**	**35,867**	**21,026**	**-9,032**	**-2,168**	**-16,001**	**-8,777**	**15,276**	**21,698**

The following table shows the annual change in impairment losses on financial assets

Table 36. Changes in stock of general and specific credit risk adjustments (CR2-A)

EUR million

	Stage 3	Stage 1 and 2
Opening balance	**17,496**	**9,540**
Increases due to amounts set aside for estimated loan losses during the period	14,499	3,605
Decreases due to amounts reversed for estimated loan losses during the period	-4,400	-3,239
Decreases due to amounts taken against accumulated credit risk adjustments	-12,668	-
Impact of exchange rate differences	-592	-157
Business combinations, including acquisitions and disposals of subsidiaries	-	-
Other adjustments	1,359	-1,229
Closing balance	**15,694**	**8,520**
Recoveries on credit risk adjustments recorded directly to the statement of profit or loss	1,585	-
Specific credit risk adjustments recorded directly to the statement of profit or loss	-	-

The following table shows the lending stock and debt instruments classified as non-performing between the close of the previous year and the year in progress.

Table 37. Changes in stock of non-performing loans and debt securities (CR2-B)

EUR million

	Gross book value of non-performing exposures
Opening balance	**38,194**
Loans and debt securities in non-performing status since the last reporting period [1]	10,653
Returned to performing status	-
Amounts written off	-12,668
Other changes	-243
Closing balance	**35,936**

1 Figures are referred to net new non-performing.

Table 38. Net amount of exposures (CRB-B)

EUR million

	31 Dec. 2018	
	Net exposure at the end of the period	Average exposure over the period
Central governments or central banks	3,967	4,117
Institutions	51,098	52,468
Corporates	270,649	269,473
Of Which: Specialised Lending	18,797	20,908
Of Which: SME	37,075	37,215
Retail	359,934	363,481
Secured by real estate property	280,612	282,670
SME	4,243	4,344
Non-SME	276,369	278,325
Qualifying Revolving	20,715	20,697
Other Retail	58,607	60,114
SME	16,181	15,973
Non-SME	42,426	44,141
Equity	10,927	11,498
Total IRB approach	**696,576**	**701,036**
Central governments or central banks	243,008	244,909
Regional governments or local authorities	13,153	10,841
Public sector entities	9,175	10,965
Multilateral Development Banks	1,655	1,614
International Organisations	-	-
Institutions	41,467	42,530
Corporates	97,243	95,245
of which: SME	23,768	20,778
Retail	222,106	214,767
of which: SME	31,892	32,707
Secured by mortgages on immovable property	102,337	99,604
of which: SME	18,116	17,850
Exposures in default	8,819	8,747
Items associated with particularly high risk	1,558	1,539
Covered bonds	3,480	3,392
Claims on institutions and corporates with a short-term credit assessment	2	2
Collective investments undertakings (CIU)	1,397	1,133
Equity exposures	221	221
Other exposures	**77,712**	**68,444**
Total Standardised approach	**823,332**	**803,953**
TOTAL	**1.519.908**	**1.504.989**

Note: Securitisations not included.

The Group's average EAD increased by 1,2%, mainly due to the growth of exposure in the categories of central governments or central banks under the standard method, and to the increase of the EAD in the corporate, and retailers segments under the IRB method.

The following graph shows the distribution, by geographical area, of Santander Groups's exposure to credit and dilution risk.

Table 39. Geographical breakdown of exposures (CRB-C)

EUR million

	31 Dec. 2018							
Net original exposure	Spain	UK	Continental Europe	Brazil	Rest of Latam	EEUU	Rest of world	Total
IRB approach								
Central governments or central banks	2,764	115	45	65	315	330	334	3,967
Institutions	17,993	8,249	8,651	491	6,008	4,859	4,847	51,098
Corporates	99,474	42,819	49,947	19,342	21,825	21,460	15,781	270,649
Retail	107,302	196,757	49,919	48	175	71	5,662	359,934
Equity	10,706	-	-	176	45	-	-	10,927
Total IRB approach	**238,239**	**247,939**	**108,563**	**20,122**	**28,369**	**26,720**	**26,625**	**696,576**
Standard approach								
Central governments or central banks	88,473	39,585	31,197	43,907	21,463	10,717	7,667	243,008
Regional governments or local authorities	11,454	1	596	698	375	24	5	13,153
Public sector entities	798	-	591	873	295	6,618	-	9,175
Multilateral Development Banks	1	1,600	55	-	-	-	-	1,655
International Organisations	-	-	-	-	-	-	-	-
Institutions	15,889	1,886	3,620	7,192	3,546	9,208	125	41,467
Corporates	11,571	14,440	25,629	14,305	14,599	16,672	28	97,243
Retail	20,547	18,458	49,603	59,092	35,405	37,631	1,369	222,106
Secured by mortgages on immovable property	10,476	1,159	20,687	9,285	25,988	34,644	96	102,337
Exposures in default	2,048	147	1,613	1,559	1,664	1,771	16	8,819
Items associated with particularly high risk	-	98	82	-	1,287	92	-	1,558
Covered bonds	-	3,011	469	-	-	-	-	3,480
Claims on institutions and corporates with a short-term credit assessment	2	-	-	-	-	-	-	2
Collective investments undertakings (CIU)	74	8	-	5	1,309	-	-	1,397
Equity exposures	-	-	217	-	4	-	-	221
Other exposures	27,763	12,432	4,581	11,268	11,682	9,973	11	77,712
Total SA approach	**189,096**	**92,827**	**138,940**	**148,183**	**117,617**	**127,351**	**9,318**	**823,332**
TOTAL	**427,335**	**340,766**	**247,502**	**168,305**	**145,986**	**154,071**	**35,943**	**1,519,908**

Note: Securitisations not included.

The geographical distribution of standard portfolios is concentrated mainly in Brazil, Continental Europe and Spain. The most important segments remain central administrations (with strong presence in Spain, the United Kingdom and Brazil), retailers and corporates, which have a prominent presence in Continental Europe (excluding Spain).

Regarding the IRB portfolios, most of the exposure is concentrated in retailers and corporates segments from Spain and UK.

Exposures by geographical area

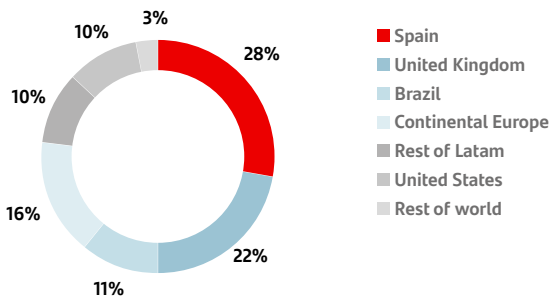


Table 40. Concentration of exposures by industry or counterparty type (CRB-D)

EUR million

31 Dec. 2018

Net original exposure	Real estate activities	Professional Services	Accommodation and food service activities	Construction	Manufacturing	Other services	Other Retail (Individuals)	Primary Sector	PublicSector	Utilities	Transport and storage	Total
IRB Approach												
Central governments or central banks	-	-	-	-	3,752	-	-	-	-	215	-	3,967
Institutions	855	3,024	1,166	2,436	34,751	-	174	523	3,205	4,199	764	51,098
Corporates	18,269	23,786	7,602	31,862	146,609	-	8,474	6,077	6,689	14,302	6,980	270,649
Retail	856	7,334	2,621	4,904	1,204	334,191	2,937	1,520	2,405	381	1,580	359,934
Equity	3,111	-	364	50	7,026	-	-	288	1	8	80	10,927
Total IRB approach	**23,091**	**34,145**	**11,753**	**39,252**	**193,341**	**334,191**	**11,585**	**8,408**	**12,299**	**19,106**	**9,403**	**696,576**
Standardised Approach	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Central governments or central banks	-	-	-	-	8,510	-	-	234,497	-	-	-	243,008
Regional governments or local authorities	-	-	-	-	-	-	-	13,153	-	-	-	13,153
Public sector entities	28	-	25	4	5	-	1	8,424	22	448	217	9,175
Multilateral Development Banks	-	-	-	-	1,655	-	-	-	-	-	-	1,655
International Organisations	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	-	-	-	41,467	-	-	-	-	-	-	41,467
Corporates	3,181	19,844	4,811	13,009	26,737	-	7,246	7,151	6,062	5,917	3,284	97,243
Retail	514	14,784	2,765	3,569	1,694	189,276	2,063	2,688	2,513	408	1,832	222,106
Secured by mortgages on immovable property	19,852	3,999	1,301	2,758	69,426	-	1,459	1,323	1,339	202	678	102,337
Exposures in default	94	1,470	784	980	3,891	-	515	398	349	102	236	8,819
Items associated with particularly high risk	160	8	1,357	9	17	-	-	2	3	3	0	1,558
Covered bonds	-	-	-	-	3,480	-	-	-	-	-	-	3,480
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	2	-	-	-	-	-	-	2
Collective investments undertakings (CIU)	-	-	-	-	1,397	-	-	-	-	-	-	1,397
Equity exposures	-	-	-	-	221	-	-	-	-	-	-	221
Other exposures	189	2,597	25	1,467	67,426	-	56	3,527	775	1,380	270	77,712
Total standardised approach	**24,017**	**42,703**	**11,068**	**21,796**	**225,928**	**189,276**	**11,340**	**271,163**	**11,064**	**8,460**	**6,517**	**823,332**
Total	**47,108**	**76,848**	**22,821**	**61,048**	**419,270**	**523,467**	**22,925**	**279,571**	**23,363**	**27,566**	**15,920**	**1,519,908**

Note: Securitisations not included.

In order to simplify the exposures analysis, some sectors have been grouped from 19 to 11 based on its representability:

- Primary sector: Agriculture, forestry and fishing; Mining and quarrying.
- Utilities: Electricity, gas, steam and air conditioning supply; Water supply.
- Trade, Accommodation and food service activities; Wholesale and retail trade.
- Professional Services: Professional, scientific and technical activities; Administrative and support service activities.
- Other services: Information and communication; education; arts, entertainment & recreation and another services.
- Public sector: Public administration and defense, compulsory social security; human health services and social work activities.

For the Standard Approach the business sectors with greater exposure are: individuals, public sector and other services. As for IRB, the sectors with the highest exposure are: real estate activities; individuals and other services.

Table 41. Maturity of exposures (CRB-E)

EUR million

						31 Dec. 2018
Net original exposure	On demand	≤ 1 year	r > 1 year ≤ 5 years	> 5 years	No stated maturity	Total
IRB Approach						
Central governments or central banks	-	225	3,742	-	-	3,967
Institutions	45	18,204	31,933	868	48	51,098
Corporates	424	125,112	115,192	28,888	1,033	270,649
Retail	4,882	13,547	108,857	229,206	3,442	359,934
Equity	-	-	10,927	-	-	10,927
Total IRB approach	**5,351**	**157,089**	**270,651**	**258,962**	**4,523**	**696,576**
Standardised Approach						
Central governments or central banks	53,753	121,948	26,228	32,663	8,416	243,008
Regional governments or local authorities	7	9,709	2,468	799	169	13,153
Public sector entities	-	1,273	777	7,029	95	9,175
Multilateral Development Banks	-	70	1,271	315	-	1,655
International Organisations	-	-	-	-	-	-
Institutions	3,412	18,812	5,260	12,316	1,667	41,467
Corporates	3,589	35,669	39,292	14,853	3,840	97,243
Retail	17,214	50,302	119,296	30,176	5,117	222,106
Secured by mortgages on immovable property	315	9,334	25,336	64,158	3,194	102,337
Exposures in default	286	3,145	1,952	3,100	336	8,819
Items associated with particularly high risk	21	290	537	709	1	1,558
Covered bonds	-	554	2,617	309	-	3,480
Claims on institutions and corporates with a short-term credit assessment	2	-	-	-	-	2
Collective investments undertakings (CIU)	-	-	1,397	-	-	1,397
Equity exposures	-	-	-	-	221	221
Other exposures	5,697	43,849	12,682	5,424	10,059	77,712
Total standardised approach	**84,297**	**294,955**	**239,112**	**171,853**	**33,116**	**823,332**
TOTAL	**89,647**	**452,044**	**509,763**	**430,815**	**37,639**	**1,519,908**

Note: Securitisations not included.

3.4. Internal rating systems

Since 1993 Santander Group has been using its own internal rating and scoring models to measure the credit quality of customers and transactions. Each rating or score indicates a probability of default, measured on the basis of the bank's historical default experience (except in the case of low default portfolios). More than 400 internal rating models are used in the Group's credit approval and risk monitoring process.

The global rating tools are those used for SCIB segments: corporates, sovereigns, financial institutions and specialised funding, which are managed centrally at the Santander Group, in terms of both allocating the rating and risk monitoring. The rating these tools assign to each customer is obtained using an expert-judgement model, which relies on an analyst's opinion, supported by a quantitative or automatic module based on balance sheet ratios or macroeconomic variables.

In the global models, the quantitative module is calibrated using the market price of credit default swaps. A model is constructed that relates the market-implied probability of default (PD) extracted from the CDS spreads to country macroeconomic data or company balance sheet data. Consequently, this data can be used to estimate PD even for entities for which no liquid CDS quotes are available.

The analyst takes this information as a reference but will revise and adjust it to obtain the final rating, which therefore is decisively expert judgement-based. Occasionally, as in the case of SCIB, the rating is also adjusted where the company belongs to a group from which it receives explicit support.

For the Corporates and Institutions segment (including SMEs with the highest turnover), the parent of Santander Group has established a single methodology for constructing a rating in each country. In this case the rating is determined by an automatic module which uses initial analyst input and which may or may not be supplemented at a later stage. The automatic module determines the rating in two phases: a quantitative phase and a qualitative phase. The qualitative phase is based on a corrective questionnaire, which allows the analyst to modify the automatic score by a limited number of rating points. Santander Group is moving towards a new rating methodology that aims to incorporate all available information (internal behaviour, external sources, etc.) in a more structured manner, so as to statistically assign a weight to the (automatic) objective score and the (expert) subjective score in accordance with a customer's characteristics and analyst's view of its capacity to add value, thus simplifying and improving the assignment of ratings.

Customer ratings are reviewed at periodic intervals to take account of new available information. Ratings are reviewed more frequently when certain automatic alerts are triggered and in the case of customers placed on special watch. The rating tools themselves are also reviewed in order to fine-tune the ratings they generate.

For the retail segment (Natural Persons and SMEs), Santander Group has scoring tools that automatically assign a score to transactions submitted for approval.

These credit approval systems are supplemented by behavioural rating models, which provide greater predictability of the risks assumed and are used not only when accepting new risks but also when monitoring risk setting limits.

The models committee has approved the following list of internal ratings and their probability of default for the global portfolios

Mapping of internal ratings and PD

Santander Corporate & Investment Banking		Banks		Financial institutions non banks	
Rating	PD	Rating	PD	Rating	PD
9.3	0.008%	9.3	0.008%	9.3	0.002%
9.2	0.008%	9.2	0.009%	9.2	0.002%
9.0	0.010%	9.0	0.011%	9.0	0.003%
8.5	0.017%	8.5	0.018%	8.5	0.006%
8.0	0.029%	8.0	0.030%	8.0	0.012%
7.5	0.049%	7.5	0.050%	7.5	0.024%
7.0	0.083%	7.0	0.083%	7.0	0.050%
6.5	0.140%	6.5	0.138%	6.5	0.103%
6.0	0.236%	6.0	0.229%	6.0	0.212%
5.5	0.397%	5.5	0.378%	5.5	0.437%
5.0	0.668%	5.0	0.624%	5.0	0.900%
4.5	1.122%	4.5	1.030%	4.5	1.853%
4.0	1.879%	4.0	1.694%	4.0	3.814%
3.5	3.128%	3.5	2.776%	3.5	7.853%
3.0	5.166%	3.0	4.515%	3.0	16.169%
2.5	8.415%	2.5	7.264%	2.5	33.289%
2.0	13.418%	2.0	11.483%	2.0	45.000%
1.5	20.723%	1.5	17.687%	1.5	45.000%
1.0	30.600%	1.0	26.248%	1.0	45.000%

These PDs are applied uniformly across the whole Santander Group in line with the global management of the portfolios. As we can observe, the PD assigned to any given internal rating is not exactly the same in different portfolios. Regulatory requirements require a differentiated PD calibration.

3.5. Rating assignment process and parameter estimation

Measuring the credit risk of a transaction involves calculating both the expected and the unexpected loss on the transaction. The unexpected loss is the basis for the calculation of both regulatory and economic capital and refers to a very high, albeit improbable, level of loss that is not considered a recurring cost but must be absorbed by capital. Measuring risk involves two separate steps: estimating the risk, and then assigning the credit risk parameters: PD, LGD and EAD.

PD, or probability of default, estimates the likelihood that a customer or a contract will default within 12 months. PD used for regulatory capital is long-term, or TTC (through-the-cycle) PD, which is not linked to a specific point in the cycle.

The default event being modelled is based on the definition given in article 178 of the Capital Requirements Regulation (CRR)[1], which considers that default is defined for a customer/contract when at least one of the following circumstances arises:

- The institution considers there is a reasonable doubt that the obligor will not pay its credit obligations in full.
- The customer/contract is past due by more than 90 days on any material credit obligation.

The event to be modelled in corporate portfolios is customer default, whereas PD is estimated on the basis of the contract in retail portfolios.

Calculations of PD are based on the entity's own internal experience, i.e. on past observations of defaults in ratings or scorings.

LGD or Loss Given Default is defined as the mathematical expectation of the percentage of economic loss in the event of a default event. Calculations of LGD are based on internal data concerning income and expense incurred by the institution during the recovery process once the default event has arisen, discounted at the date of commencement of default.

LGD calculated to determine regulatory capital is "downturn" LGD, i.e. considered for a worst-case scenario in the economic cycle.

In addition to the estimation of downturn LGD to be used for normal operations, a specific loss estimate is made for operations in default. This is determined using LGD and ELBE (Expected Loss Best Estimate) parameters. ELBE attempts to provide, at any given time, the best estimate of economic loss based mainly on the time during which the operation has been in default, with due regard to the prevailing economic situation, while LGD for transactions in default is increased by any further unexpected losses that may be reported during the recovery period[2].

Lastly, EAD, or exposure at default, is calculated, defined as the value of the debt at the time of default. For lending products or any product with no off-balance-sheet amount, EAD equals the balance of the transaction plus any interest accrued but not yet payable. For facility type products, however, it is necessary to estimate any future drawdowns that will be made between the present time and the eventual future default event. The CCF or Credit Conversion Factor is calculated for this reason, to show the percentage of the balance not currently utilised (off-balance-sheet amount) that would be utilised at the time of default.

Past information on portfolios is essential for estimating regulatory parameters, as established in the Capital Requirements Regulation (CRR)[2]. The minimum data periods to be used in estimates is five or seven years, depending on the parameter and the portfolio, although the period used in the estimate can be broader, in line with the historical information available. The bank has an internal data model containing past information on portfolios, which is subject to review by the internal supervisory divisions (Validation and Audit) and by the supervisory authorities.

The method used to estimate the credit risk parameters will be updated accordingly pursuant to the new regulatory guidelines, set down mainly in the Guidelines on PD estimation, LGD estimation and treatment of defaulted assets, as well as the RTS relating to the definition of default so as to incorporate the requirements and interpretations deriving from these articles.

As already mentioned, for regulatory purposes, observations of frequency of default and the associated losses must be averaged out over an entire economic cycle, in the case of PD, or represent a downturn situation in the case of LGD or EAD, or represent the current economic cycle in the case of ELBE for default transactions.

For this reason, recent observations are not directly comparable to regulatory parameters, and backtesting exercises should be treated with due caution. As explained in section 3.9 that the default frequencies (FDOs) recently observed are below regulatory PDs in regions with growth rates above the average for the cycle. Conversely, in regions where economic growth falls short of the average, default observations may exceed regulatory PDs.

The risk parameters must be estimated separately for each entity, country and segment and need to be reviewed at least once a year.

The parameters are then assigned to the transactions recorded on each unit's balance sheet, so as to calculate the expected losses and capital requirements associated with the unit's exposure.

In certain portfolios there is so little default experience that alternative approaches to parameter estimation must be adopted. These are known as low default portfolios.

Low default portfolios: GCB corporates, Banks, Non-bank financial institutions and Central governments

Estimates of PD and LGD in low default portfolios rely chiefly on studies performed by external rating agencies, which reflect the pooled experience of the large numbers of entities and countries rated by the agencies. These databases contain in-depth historical information to help identify complete economic cycles and analyse downturn situations.

The definition of default employed by the agencies is compared in detail with the regulatory requirements. Even if this does not produce a perfect match, the process has sufficient items in common to enable it to be used.

For PD, the agencies do not directly report Through the Cycle (TTC) estimates, but rather the number of annual default observations. The observations are averaged out over an economic cycle by external ratings in order to obtain the TTC PD. This TTC PD is assigned to all counterparties with external ratings, which later helps to calibrate the internal rating. Therefore, the PD will not depend on the counterparty's external rating, but on its internal rating, and may also be applied to customers with no external rating.

The parameters estimated for global portfolios are the same for all the Group's units. Thus, a financial institution with a rating of 8.5 will have the same PD, regardless of the unit in which the exposure is booked.

Notes 1 and 2:
Regulation (EU) 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms.

Corporates (including SMEs, specialised lending and receivables)
For portfolios of customers that have an account manager assigned to them with sufficient experienced in internal defaults, the estimation is based on the entity's own internal experience. The PD is calculated for customers by observing new NPLs in the portfolio and relating these to the ratings assigned to the customers concerned. To this end, long-run observed default frequencies (FDO LR) are calculated for a rating or a group of ratings, and are adjusted to the average PD observed for each portfolio over a complete economic cycle.

In contrast to low default portfolios, Corporates portfolios have specific rating systems in each Santander Group unit, requiring specific PD calibrations in each case.

In Corporates portfolios, LGD is calculated on the basis of observed recoveries of defaulted transactions. This calculation takes into account not only the cash inflows and outflows associated with the recovery process but also the timing of these flows, so as to calculate their present value. As well as the direct and indirect costs of recovery. For regulatory use, LGD estimates must be associated with a period of economic crisis or downturn. The existence of major variables (known as "drivers") is modelled to explain the emergence of different LGDs for different groups of operations. The main drivers used are the seniority of the transactions, whether there are any guarantees in place, the type of guarantee, the loan to value, etc. These explanatory variables must be of statistical significance and make good business sense. Estimated ELBE and LGD are also calculated for operations in default.

Lastly, EAD, or exposure at default, is estimated by comparing the percentage of use of committed facilities at the time of default and in normal circumstances, in order to estimate the extent to which customers make more use of their credit facilities as they approach default. To estimate CCF, information on past defaults is gathered from databases and balances (on and off the balance sheet) are compared between the time of default and previously, when the downturn in a customer's credit quality had yet to be observed.

Retail
In portfolios where customers do not have an account manager assigned to them but are treated on a pooled or standardised basis, PDs are also estimated based on the entity's internal experience, although the data unit for assigning PDs is the transaction, not the customer.

PDs are calculated by observing new NPLs and relating each new NPL to the score assigned to the transaction at the time of approval or, for transactions beyond a certain seniority, to the customer rating. As with the Corporates portfolios, LGD is calculated on the basis of an observed recovery process, adjusted to downturn conditions. Estimated ELBE and LGD are also calculated for operations in default. The EAD estimation is also similar to that of Corporates.

For further details, see Appendix XIV, which contains several tables summarizing the parameter models' by region.

Access file **2018 Pillar 3 Appendices** available on the Santander Group website.

3.6. Uses of internal parameter estimates

One major application of the PD, LGD and EAD credit risk parameters is to determine minimum capital requirements within the CRR framework.

The CRR states that these parameters and their associated metrics, including expected and unexpected loss, are to be used not only for regulatory purposes but also for internal credit risk management.

The Group has adapted its projection methodology to IFRS 9 standards, resulting in an impact on the estimation of the expected loss in each of the IFRS 9 stages associated with scenarios put forward, as well as with other important credit risk metrics deriving from the parameters obtained (NPLs, provisions, allowances, etc.).

For Santander Group, the internal credit risk parameter estimates are used in a variety of management tools, including pre-classifications, economic capital allocation, RoRAC (return on risk-adjusted capital) calculation, stress testing, IFRS 9, and scenario analyses, the results of which are reported to senior management through various internal committees.

The pre-classification tool is used to assign limits to customers based on their risk characteristics. For the Corporate Investment Banking (SCIB) segment, limits are established for capital at risk (CaR), nominal CAP and with maximum terms according to the type of transaction (limits for financial institutions are managed using REC models).

Through the calculation and allocation of economic capital, all the different types of risks arising from the lending business are integrated in a single measurement, combining credit risk measurement with the measurement of other risks, including market, operational, business and on-balance-sheet interest rate risk. The economic capital allocation at the business unit level provides a view of the distribution of risk by business activity and geographical area, taking the benefits of diversification into account. By relating economic capital to financial results, it is possible to calculate the risk-adjusted return (RoRAC), which can be compared with the cost of capital to get an idea of how each unit contributes to value creation at Santander Group.

The use of economic capital figures in determining management compensation and setting capital and RoRAC-related targets for the business units further reinforces the integration of economic capital in management.

In scenario analyses, the credit risk parameters (including provisions for IFRS 9) are related to economic variables such as the unemployment rate, GDP growth, interest rates, etc, using statistical models. This allows credit risk to be quantified under different macroeconomic scenarios, and in particular, to assess potential risk levels in stress situations.

For further details on credit risk key metrics', see the Risk Management Chapter (section 3.3) on the 2018 Annual Report

Access **2018 Annual Report** available on the Santander Group website.

3.7. Credit risk mitigation techniques

Santander Group applies various credit risk mitigation techniques based on customer type and product type, among other factors. Some are inherent in specific operations (such as real estate collateral) while others apply to a series of transactions (such as netting and collateral).

The various mitigation techniques can be grouped into the following categories:

Personal guarantees
A personal guarantee is an agreement that makes one person liable for another person's obligations as before the Group. Examples include sureties, guarantees, stand-by letters of credit etc. Only personal guarantees provided by persons who meet the minimum requirements established by the supervisor can be recognised for capital calculation purposes.

Guarantees arising on credit derivatives
Credit derivatives are financial instruments that are used mainly to hedge credit risk. By buying protection from a third party, the Bank transfers the risk of the issuer of the underlying instrument. Credit derivatives are over-the-counter (OTC) instruments that are traded in non-organised markets. Hedging with credit derivatives, mainly through credit default swaps, is contracted with front-line financial institutions.

In compliance with one of the transparency recommendations originally issued by the Basel Committee, the distribution of personal guarantees and credit derivatives for the corporates, banks, non-financial institutions and sovereigns segments by rating grade is shown below.

Table 42. Guarantees by external rating

EUR million

	31 Dec. 2018	
Corporates	Exposures in default	Exposures not in default
AAA/AA	-	-
A	-	5,842
BBB	-	13,225
BB	6	2,745
B	48	314
Rest	48	220
Unrated	-	-
TOTAL	**102**	**22,346**

Banks	Exposures in default	Exposures not in default
AAA/AA	-	5,207
A	-	7,437
BBB	-	379
BB	-	-
B	-	-
Rest	-	-
Unrated	-	-
TOTAL	**-**	**13,023**

Other financial institutions	Exposures in default	Exposures not in default
AAA/AA	-	329
A	-	3,762
BBB	-	155
BB	-	-
B	-	-
Rest	-	-
Unrated	-	58
TOTAL	**-**	**4,306**

Sovereign	Exposures in default	Exposures not in default
AAA/AA	-	8,619
A	-	5,632
BBB	-	3,182
BB	-	16
B	-	-
Rest	-	-
Unrated	-	-
TOTAL	**-**	**17,449**

Specifically, approximately 99.6% of operations were accounted for by 15 credit institutions, all of them with a BBB+ rating or better (96.5% with an A- rating or better) on the Standard & Poor's scale.

Collateral
Collateral is property pledged by a customer or third party to secure the guaranteed obligation. Collateral assets may be financial (cash, securities deposits, gold, etc.) or non-financial (property, other moveable property, etc.). Therefore, the different types of security will be:

- Collateral pledged by a third party: This collateral grants the creditor a personal right or entitlement that affects the equity of the guarantor. Such a guarantee is provided by third parties other than the debtor in either the credit agreement or in a separate agreement.

- Collateral pledged by the customer: This is collateral pledged on assets (movable or immovable) or rights that are specific and determinate. They are rights that secures for the creditor performance of the main obligation via the special attachment of an asset. As a result of this special attachment, in the event of default on the secured obligation, the creditor may realise the economic value of the asset through a regulated procedure and collect the proceeds, where preference in this method of collection may be upheld against other creditors. Collateral may also be classified as follows:

  - Real estate guarantees implemented as first charge real estate mortgages. There are regular appraisal processes, based on real market values, for the different types of property, which meet the requirements established by local and Group regulators.

  - Pledges on financial instruments (cash deposits, debt instruments).

    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 credit risk. Collateral consists of instruments with economic value and high liquidity that are deposited or transferred by one party in favour of another in order to guarantee or reduce any counterparty credit risk arising from portfolios of risk-bearing transactions between the two. Transactions backed by collateral are marked to market periodically (usually daily) and the parameters defined in the collateral agreement are applied, so as to obtain an amount of collateral (usually cash or securities) to be called from, or returned to, the counterparty.

  - Other collateral (second and successive mortgages).

As a general rule, and from a risk acceptance perspective, lending criteria are linked to the borrower's capacity to fulfil, in due time and proper form, all financial obligations, although this is no impediment to seeking the highest level of collateral or personal guarantees.

Payment capacity will be assessed on the basis of the funds or net cash flows from their businesses or usual sources of income, without depending on guarantors or assets delivered as a security. These must always be taken into account when considering the granting of the transaction as a second and exceptional method of recovery when the first method has failed. As a general rule, a security is defined as a reinforcement that is added to a credit operations for the purpose of mitigating any loss arising from non-performance of the payment obligation.

Effective securities, for these purposes, are collateral and personal guarantees for which their validity is shown as mitigating the credit risk and whose valuation is compliant with the policies and procedures set out in this document. An analysis of a security must take into account, among other things, the time necessary for the execution of the security and its capacity of realisation.

Only collateral that meets the minimum qualitative requirements specified in the Basel agreements is taken into account for regulatory capital calculation purposes.

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 the documented methodologies used for each mitigation technique and appropriate monitoring, traceability and regular control of the goods/assets used for the guarantee.

Establishing a net balance by counterparty
The concept of netting involves offsetting gains and losses on multiple transactions of the same type under the umbrella of a master agreement such as ISDA or similar (CSA, OSLA, ISMA, GMRA, etc.).

Market gains and losses on derivative transactions entered into with a given counterparty are offset against one another, so that if the counterparty defaults, the settlement figure is a single net amount, rather than a large number of positive and negative amounts relating to the individual transactions entered into with that counterparty.

An important feature of a master netting agreement is that it entails a single legal obligation, encompassing all the transactions covered by the agreement. This is what makes it possible to offset the risks of all the transactions covered by the agreement with a given counterparty.

For the measurement of exposure there are two methodologies: a Mark to Market (MtM) methodology (replacement cost in the case of derivatives), plus an add-on for potential future exposure, and another methodology for certain regions and some products, which includes a calculation of exposure using Montecarlo simulation. The capital at risk or unexpected loss, i.e. the loss which, once the expected loss is subtracted, constitutes the economic capital, net of guarantees and recoveries, is also calculated.

The exposures are recalculated at market close, adjusting all transactions to their new time horizon. The potential future exposure is adjusted and mitigation measures (netting, collateral, etc.) are applied, so that the exposures can be checked on a daily basis against the limits approved by senior management. Risk is controlled using an integrated system that provides real-time information on exposures to any counterparty, product or maturity and in any Group unit.

3.7.1. Recognition of credit risk mitigation

When calculating regulatory capital, credit risk mitigation techniques affect the value of the risk parameters used to determine capital. Identifying and valuing the security associated with the contracts is key here and a distinction is drawn between type of guarantee: collateral and personal guarantees. This mitigation process is carried out whenever the validity of the guarantee has been checked and it is believed they may be enforced. The mitigation process is described in the following section.

Firstly, in portfolios where PD is assigned at customer level, personal guarantees are assessed. Personal guarantees affect the final PD value by effectively replacing the counterparty's PD under the transaction with the guarantor's PD. Here, we compare the Risk Weight (RW) of the transaction obtained by applying the customer's PD with the RW of the transaction calculated

by employing the guarantor's PD. The final PD is the one that generates the lowest RW value.

Secondly, the existence of any associated collateral is verified for all transaction types (retail and non-retail). Under the IRB approach, the existence of collateral impacts the final value of the LGD used to calculate the capital. The process also factors in potentially significant factors such as product type and transaction balance. In the case of mortgage collateral, the LGD of the transaction will depend on the loan-to-value (LTV) ratio, as well as the length of time the loan has been on the bank's balance sheet.

Mitigation with collateral is carried out by securing part of the EAD with one or more guarantees. Accordingly, the final LGD on the transaction will be the average LGD obtained by adding the LGD of each guarantee divided by the amount covered by the guarantee, to the original LGD divided by the part of the exposure not secured by guarantees. This sum is then divided by the full original exposure and the result is the final adjusted LGD.

$$\overline{LGD}_{final} = \frac{\sum LGD_{guarantee_i} * EAD_{guarantee_i} + LGD_{original} * (EAD_{original} - \sum EAD_{guarantee_i})}{EAD_{original}}$$

$$EAD_{guarantee} = Guarantee\ value * (1 - Haircut)$$

The tables below show the original hedged exposure by collateral type and exposure category for cases where the collateral could be used to reduce capital requirements.

Table 43. Credit risk mitigation techniques - IRB and SA (CR3)

EUR million

	31 Dec. 2018				
	Exposures unsecured – Carrying amount	Exposures to be secured	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
Total IRB exposures	**371,058**	**314,590**	**310,566**	**4,024**	**-**
of which: default	4,989	9,111	9,044	67	-
Total SA exposures	**794,973**	**28,359**	**8,732**	**19,627**	**-**
of which: default	8,695	124	111	13	-

Note: Net original expousure. Equity not included.

Table 44. IRB approach. Credit risk mitigation techniques: credit derivatives and personal guarantees

EUR million

	31 Dec. 2018		31 Dec. 2017	
Original hedged exposure by collateral type and exposure category	Financial guarantees	Personal guarantees	Financial guarantees	Personal guarantees
IRB Approach				
Central administrations and banks	-	3,095	-	1,901
Institutions	-	12,414	-	13,425
Corporates	5,170	25,156	3,999	24,275
Retail	-	1,623	-	1,429
TOTAL	**5,170**	**42,288**	**3,999**	**41,030**

The following table shows the impact of the credit derivatives used as credit mitigation techniques in RWAs.

Table 45. Effect on RWA of credit derivatives used as CRM techniques (CR7)

EUR million

	31 Dec. 2018	
	Pre-credit derivatives RWAs	Actual RWAs
Exposures under Foundation IRB		
Central governments or central banks	30	30
Institutions	1,325	1,324
Corporates - SME	3,647	3,647
Corporates - Specialised Lending	14,344	14,344
Corporates - Other	9,699	9,699
Exposures under Advanced IRB		
Central governments or central banks	789	789
Institutions	7,888	7,888
Corporates - SME	14,954	14,954
Corporates - Specialised Lending	-	-
Corporates - Other	63,662	63,662
Retail - Secured by real estate SME	1,028	1,028
Retail - Secured by real estate non-SME	38,132	38,132
Retail - Qualifying revolving	3,988	3,988
Retail - Other SME	4,777	4,777
Retail - Other non-SME	20,843	20,843
Equity IRB	20,224	20,224
Other non credit-obligation assets	-	-
TOTAL	**205,332**	**205,331**

* It does not include CCPs.

3.8. Internal rating system control

A fundamental part of the process carried out by Santander Group to implement advanced models entails establishing robust control and review mechanisms by the Internal Validation and Internal Audit areas so as to effectively monitor and validate the valuation models and their integration in risk management, risk parameters, integrity and quality of information, documentation of the capital calculation process, governance, risk model, technological environment, etc.

The functional segregation model applicable to Santander Group involves a model with different levels of control structured around three lines of defence with an organisational structure and independent, clearly defined functions:

- 1st line (model owner and methodology),
- 2nd line (Model Risk, Internal Validation, Capital Risk, and Risk Control and Supervision Units) and
- 3rd line (Internal Audit).

This separate organisational and functional structure ensures compliance with the regulatory requirements established in the IRB models:

a) Existence of a strong governance model.

b) Existence, separation and independence of the Risk Control and Supervision, Internal Validation and Internal Audit areas.

c) Independent annual reviews by Internal Validation and Internal Audit.

d) Communication procedures with management, which ensure all associated risks are reported.

3.8.1. Model risk

1. Introduction

Santander Group has wide experience in the use of models to help make all kinds of decisions, especially risk management decisions.

A model is defined as a system, approach or quantitative method that applies theories, techniques and statistical, economic,

financial and mathematical facts to transform input data into quantitative estimates. Models are simplified representations of real-world relationships between characteristics, values and observed facts. This simplification allows for focusing attention on specific aspects considered to be the most important for the application of a given model.

The use of models exposes the Bank to model risk, which is defined as the potential adverse consequences of decisions based on incorrect, inadequate or improperly used models.

According to this definition, the sources of this risk are as follows:

- The model itself, due to the use of incorrect or incomplete data, or due to the modelling method used and its implementation in systems.
- Improper use of the model.

Model risk may result in financial loss, inappropriate commercial or strategic decisions or damage to the Group's reputation.

Santander Group has been working on the definition, management and control of model risk in recent years, and in 2015 a specific department was set up within its risks division to control this risk.

Management and control functions are performed at both the Corporate Centre and at the Group's main companies and entities. To properly regulate the risk management model there are a series of policies and procedures in place which establish the principles, responsibilities and processes to be following throughout the models' life cycle, detailing aspects relating to the organisation, governance, model management and validation, among others.

The supervision and control of the risk model is proportional to the importance of each one. For this purpose, a tiering structure is defined as the attribute to synthesise the level of importance or significance of a model, which is used to determine the intensity of the model risk management processes to be followed.

At the end of 2017, Santander launched a strategic plan, Model Risk Management 2.0 (MRM 2.0), as an anticipatory measure to strengthen model risk management, revisiting each of the governance steps in the models, and suitably addressing the new supervisory expectations set down in the ECB guidelines for internal models.

MRM 2.0, which is currently being developed, has three phases (2018, 2019 and 2020) and encompasses ten initiatives structured into four lines:

- Key aspects: Initiatives relating to governance, risk appetite, risk management and policies.
- Processes: Initiatives relating to the life cycle phases of the models.
- Communication: Internal and external communication (monitoring, reports, training...)
- Model risk facilitators: Infrastructure, tools and resources.

2. Governance

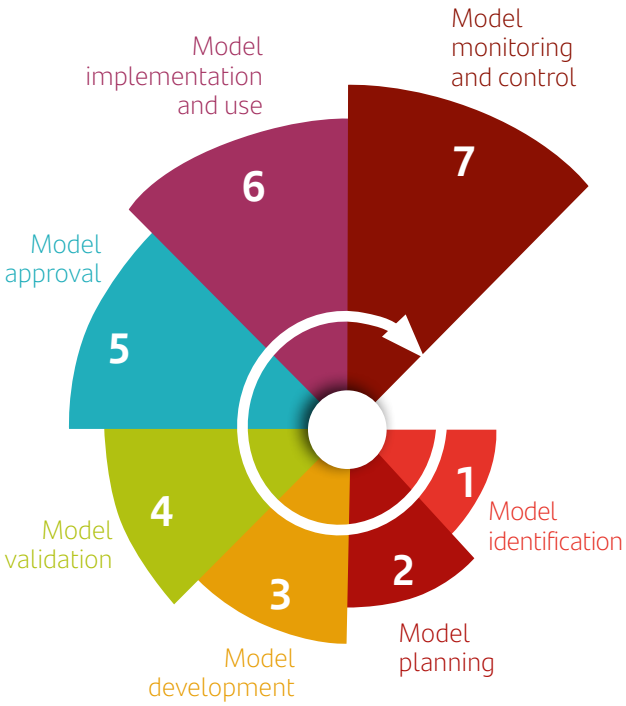
The model risk control committee, chaired by the Chief Risk Officer, is the collegiate body tasked with supervising and controlling model risk at Santander Group. The purpose of the committee is to effectively control model risk, while advising the head of the risk function and the risk control committee and ensuring that model risk is monitored and remains within the Group's risk appetite approved by the board of directors. This process requires the committee to identify and track both existing and emerging model risk and determine its impact on the Group's risk profile.

The model approval corporate sub-committee is largely responsible for authorising use of the models. However, there is a system in place for delegating powers whereby models with the least relative importance are approved locally and reported periodically to the model approval corporate sub-committee.

The senior management at Santander Group possesses in-depth knowledge of the more important models. It also regularly monitors model risk through a set of reports that provide a consolidated view of the risk and enable the right decisions to be taken.

3. Risk management

The task of managing and controlling model risk is structured around a set of processes spanning the model's life cycle. The following diagram shows the various phases of the model life cycle at Santander Group.



1. Identification

As soon as a model is identified, it must be included within the model risk control process.

To ensure proper management of model risk, a complete and exhaustive inventory of all models in use is essential.

Santander Group keeps 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 tiering.

The inventory enables transversal analyses to be conducted on the information (by geographic area, model type, importance, etc.), thus facilitating the task of making strategic decisions in relation to the models.

2. Planning
Planning is an annual corporate exercise, approved by the local governance bodies and validated at the corporate centre, aimed at establishing a strategic action plan for all models included in the management of the model risk function. It identifies the resource requirements relating to the models to be developed, reviewed and implemented over the year.

3. Development
This is essentially the model's construction phase, based on the needs laid down in the models plan and the relevant information provided by specialists.

Development takes the form of a standard process defined by the corporation for the entire Group. This effectively guarantees the quality of the models used for decision-making.

4. Internal validation
Independent model validation is not only a regulatory requirement in certain cases, but also a key element to ensure the proper management and control of model risk at Santander Group.

The Group has therefore set up a specialised unit that is fully independent of both developers and users. This unit issues an expert opinion on the fitness for purpose of the internal models and a set of conclusions on their robustness, utility and effectiveness. The validation opinion takes the form of a rating that summarises the model risk associated with the model.

Internal validation brings all models within the model risk control process, ranging from the models used in the risk function (models for credit risk, market risk, structural or operational risk, models for economic and regulatory capital risk, models for provisions, stress test models, etc.) to other types used in different functions that support decision making.

The scope of the validation extends not only to the more theoretical or methodological aspects, but also technological systems and the quality of the data relied on to ensure their effectiveness. All relevant aspects are typically included in the management process: controls, reporting, uses, involvement of the senior management, etc.

This corporate internal validation environment at Santander Group is fully aligned with the internal validation criteria of advanced models emanating from the Group's various supervisors. This maintains the criterion of a separation of functions for units developing and using the models (first line of defence), internal validation units (second line of defence) and internal audit (third line of defence) 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.

The internal validation function is decentralised through five validation units. The coordination of the validation work and harmonisation of validation practices and processes is ensured through a specific initiative, reinforced by the MRM 2.0 project that includes ten basic action pillars to guarantee this objective is met.

One of these pillars is the consistency analysis process performed by the validation units, which involves a review of the recommendations issued, loss given default and the rating allocated. It therefore acts as an important point of control for the consistency and comparability of the validation work. Validation work will only be finalised after the consistency stage has been completed.

5. Approval
Before being implemented and used, a model must be submitted for approval at the relevant bodies, in accordance with the internal regulations in effect and approved delegation processes.

6. Implementation and use
In this phase the newly developed model is implemented within the system in which it is to be used. As already mentioned, the implementation phase is another possible source of model risk, and it is therefore essential that tests are conducted by technical units and the owners of the model so as to certify that it has been implemented in accordance with the methodological definition and to check that it functions as expected.

7. Monitoring and control
Models must be regularly reviewed to ensure that they continue to function correctly and that they remain fit for purpose. If they are not, they must be adapted or redesigned accordingly.

In addition, control teams ensure that model risk is being managed in accordance with the principles and standards laid down in the model risk framework and related internal rules and regulations.

4. Key metrics

The risk level of a model is reflected in the rating allocated to it, which in most cases is generated by an independent validation of the model.

Risk appetite at Group and local level establishes thresholds based on the average rating of the models.

Changes in the distribution of the ratings is also monitored, with a focus on the lowest scores.

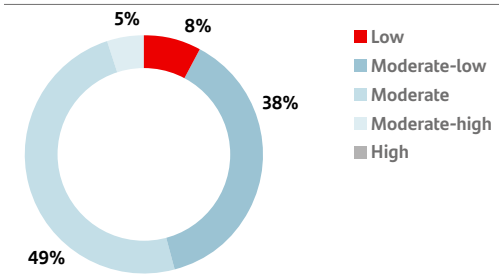
Another key metric is model coverage, which synthetically quantifies the level of use of the models for decision-making, in addition to the management of the different risks.

Appetite metrics therefore focus on the quality of the models, based on internal validation ratings. Appetite levels differ according to the relevance of the models, and are the most demanding for the main models.

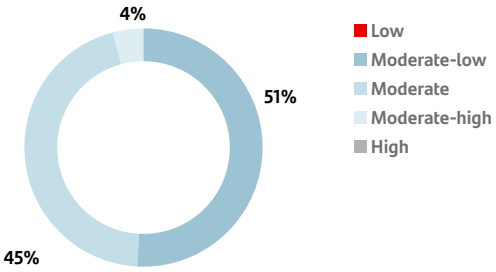
The metrics are monitored on a monthly basis, and action plans are required if there are any deviations from established levels. Additionally, the proper monitoring of recommendations and the inclusion of the impact on metrics in the planning process are a natural management process to align the quality of the models with the appetite trends established in the event of deviation.

The following table summarises the scores assigned to the credit risk models as a result of Internal Validation's review of credit risk parameters and rating models during 2018.

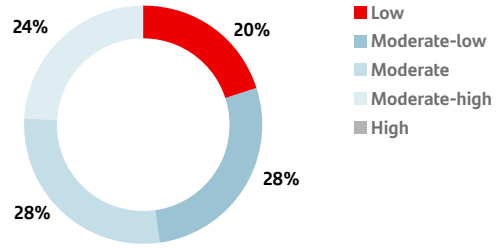
PD



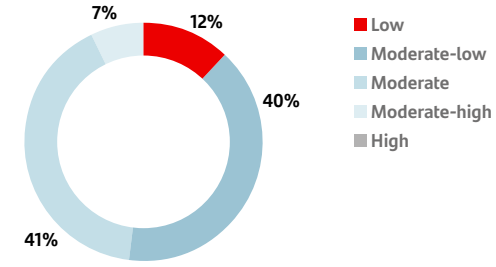
LGD



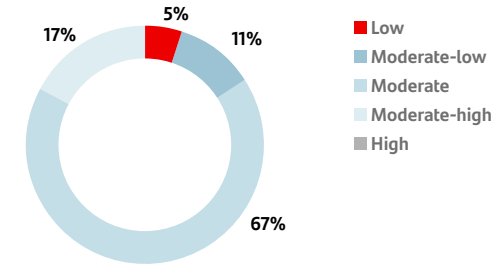
EAD



Scoring



Rating



The quality of the model is shown by its final rating, which indicates the model's risk on the following scale:

1) Low: model is used correctly and performs adequately. The quality of the data used in developing the model is good. The methodology employed complies with the defined standards and best practices. The documentation on regulatory aspects and processes relating to the model is clear and complete. Any deficiency is immaterial and does not affect the model's performance.

2) Moderate-low: model is used correctly and performs adequately. The assumptions used in developing the model are reasonable. There are aspects that need to be improved but they are not crucial or material. There are not thought to be any problems affecting implementation and use of the model. The benefits of any changes to the model must be considered in relation to the costs of the changes.

3) Moderate: model is used correctly and performs adequately. The assumptions used in developing the model are reasonable. There are aspects of the model that need to be improved. Any deficiencies should be made good in the medium term or based on a cost-benefit analysis.

4) Moderate-high: there are deficiencies in the model's performance or use. The model's assumptions, the quality of the data in the development sample or the model's predictions are questionable. It is highly advisable that certain shortcomings be remedied or plans be made to remedy them in the short term, before the model is implemented or used. Other alternatives in the development to mitigate model risk should be considered.

5) High: the model is not performing properly, the model is not being used for its intended purpose or the model's assumptions are incorrect. Certain aspects must be corrected immediately. It is inadvisable to implement or use the model as presented.

3.8.2. Internal Audit

Internal Audit is part of the third line of defence. The analysis carried out by this independent team covers five main areas of activity:

1) Reviewing compliance with the Santander Group internal governance model and supervisory requirements for the approval and maintenance of advanced models. Assessing the existence and sufficiency of an organisational and control structure, in addition to a governance model, committee structure and reporting framework, which enable the proper management of IRB models and the calculation of regulatory capital and ensure the involvement of senior executives in management and decision-making tasks.

2) Managing models and their adequacy and integration. Analysing compliance with requirements for managing model life cycles so as to identify and minimise the risks associated with building and using models and making them part of the management and also determining the sufficiency of the controls in place.

3) Analysing correct risk management.

Analysis and testing of the consistency and completeness of data bases and information sources used in model construction.

A review is made to ensure the methodology used in the construction of risk model parameters is consistent with the projected uses and that, overall, the corporate standards and regulatory requirements are followed, in addition to the replication of the calculations made.

Reviewing the reporting control environment and the quality and integrity of the data contained in Basel databases (corporate datamart).

4) Reviewing the capital calculation and reporting process.

5) Analysing the technical aspects and applications of the technological environment. Examining the robustness, reliability and security of the infrastructure and processes that support the estimation of risk parameters and the calculation of capital within the "BDR-Corporate Calculation Engine".

After finishing its review, Internal Audit issues a report containing recommendations and observations arising from the review process signed by the unit and/or areas involved. These will stipulate a deadline in which to submit the relevant action and resolution plans.

The auditors and the affected areas both regularly monitor that the improvements are carried out. It should be noted that the IRB model review reports are submitted directly to senior management at Santander Group and are available to supervisors (European Central Bank, Bank of Spain and other local supervisors).

Internal Audit also reports at the same time to the Group's autonomous audit committee on those recommendations that have not been suitably implemented so that the underlying causes can be examined and their implementation effectively enforced. Last but not least, Internal Audit remains in direct contact with the supervisors and does so completely independently of the Risk Control and Supervision functions.

3.9. Impairment losses: influencing factors and comparative analysis

In addition to the advanced approaches described above (details of which are given in the section on economic capital), other standard metrics are employed to help ensure prudent and effective credit risk management based on an assessment of losses on the portfolios.

Credit risk should be monitored continuously and holistically, in order to ensure the early identification of incidents arising in the area of risk, which could affect customers' credit ratings. This monitoring is carried out through the periodic review of all customers, the allocation of a monitoring score, the establishment of pre-defined actions associated with each category and the implementation of specific measures (predefined or ad-hoc) to correct potential deviations that could have negative impact on the entity.

In the analysis of credit risk, its performance compared to budgets, limits and standards are continuously and systematically assessed,

with an evaluation of the effects of future external events or strategic decisions, to establish measures that ensure the profile and volume of the risk profile falls within the established and are aligned with the appetite established by the Group.

To measure and control the cost of credit risk at Santander Group, the following key metrics are used, among others:

- Cost of Credit: obtained by dividing credit risk provisions net of NPL recoveries over 12 months by average loans and advances to customers, gross, as shown on the balance sheet in those same 12 months. Monitoring and controlling this metric reveals a direct relationship between the Group's risk appetite and that of its units, allowing it to achieve a medium-low risk profile.

- Concentration: for individuals and SMEs, the monitoring of high risk profile portfolios prevents concentration in portfolios with a risk profile that does not correspond to the Group's medium-low risk target. For SCIB segments, corporates and institutions concentration limits are monitored for sectors, single names, large exposures, underwriting, specialised lending and counterparties with ratings of < 5.0.

- EL (expected loss): estimation, at a specific point of time, of the economic loss the current portfolio is expected to sustain during the following year. It is a further business cost that must be reflected in the transaction price.

The recovery function also includes the management of non-productive assets (NPAs) relating to the forbearance portfolio, doubtful loans and foreclosed assets in addition to NPLs. Here, the Bank is able to use accelerated reduction mechanisms for these portfolios, such as by selling portfolios of loans or foreclosed assets.

While these metrics measure the same reality and therefore converge in the long term, differences may exist at certain points in time and these become especially significant at the start of a change of cycle. These differences may be down to applicable accounting law and regulations (mortgages, for example, have a different write-off timeline than consumer loans), shifting policies (such as coverage or write-off), changes in portfolio composition, doubtful assets acquired from new investees, changes in accounting law (such as IFRS 9), sales of portfolios, etc.

An overview of the main performance metrics from the activity with customers can be found in the Annual Report.

For further details on credit risk key metrics', see the Risk Management Chapter (section 3.3) on the 2018 Annual Report.

Access **2018 Annual Report** available on the Santander Group website.

3.10. Backtesting of IRB parameters

3.10.1. PD backtest

The aim of the PD backtest is to assess the suitability of regulatory PDs by comparing them with the Observed Default Frequencies (ODFs) during the most recent period.

The most important Retail and Commercial Banking IRB portfolios were selected:

- Santander Spain: Individualised Corporates, Mortgages, Consumer, Cards and Loans to Individuals.

- Santander Totta: Corporates and Mortgages.

- Santander UK: Personal mortgages.

- Santander Consumer Spain: Corporates, Cards, Consumer and New Auto.

- Santander Consumer Germany: Corporates, Mortgages, Retail Qualifying Revolving, other Retail.

- Santander Consumer Nordics: Finland, Norway and Sweden auto.

- Santander Mexico: Corporates.

For each portfolio, regulatory PD buckets are established and for each of these the average PD assigned for regulatory capital purposes is compared with the ODF. To observe defaults, a sample of transactions and customers that were not in default at a reference date is selected, and the rate of new NPLs among this sample over the subsequent 12-month period is observed.

Regulatory PD is a through-the-cycle (TTC) PD, meaning a long-term average that is not tied to any particular point in the cycle. Default frequency, in contrast, is observed at a particular point in time (2018). Given the different nature of these two measurements, the comparison cannot be used to test the predictive capacity of the regulatory PDs, but it can be useful to gauge the size of the cycle adjustment used to determine TTC PD.

Results of the PD backtesting can be found in Appendix XV. A summary of the conclusions drawn from the results obtained can be found below.

CORPORATES ODF VS. PD

Corporate portfolios are showing volatile behaviour due to the low number of defaults. Nevertheless, a significant pattern can be seen in all geographies. These portfolios present, to a greater or lesser extent, PD TTC levels that are higher than the default frequencies observed in 2017. This is a reflection of the currently favourable economic situation, as new defaults are either below or quite near average levels of the cycle. As an exception to this behaviour, the Mexico portfolio shows certain ODFs that are slightly higher than the estimated TTC PDs.

MORTGAGES ODF VS. PD
Mortgages show a similar performance to corporates: new NPLs are typically lower than the cycle average. The UK shows far higher TTC PDs than ODFs. Meanwhile, amid the ongoing recovery in Spain, the ODF series is closer to long-term PDs, but well above the previous year's levels.

CONSUMER AND CREDIT CARDS ODF VS. PD
In the consumer finance and cards portfolios, the situation is highly similar to that seen in Corporates and Mortgages. In Spain, these portfolios show the same trend, with a certain widening between ODF and average PD levels of the cycle, except in loans, where the results are similar to last year's, with levels slightly below TTC PDs. In Santander Consumer (Germany, Spain and Nordics), TTC PDs remain above observed defaults, particularly in the highest PD buckets.

Complementary to the above analyses, confidence intervals have been calculated for the PIT PD and the upper and lower limits of the forecasts have been compared with the defaults actually observed. The larger the number of transactions considered, the narrower the intervals, thus reflecting the greater accuracy of the estimates.

CORPORATES ODF VS. LIMIT
As noted, corporate portfolios are show the highest degree of volatility due to the relatively low number of defaults. This is reflected in the wide confidence intervals in all cases except Spain. For Santander Consumer Spain, Santander Consumer Germany and Mexico, ODFs are very centrally located within confidence intervals except in PD buckets with fewer observations and, therefore, greater volatility. Spain and Totta generate far narrower intervals due to higher transaction volumes. ODFs are close to the lower limit for most buckets of both portfolios, with greater volatility in buckets with higher PDs and a lower number of observations.

MORTGAGES ODF VS. LIMIT
In mortgages, the intervals are very narrow due to the high number of transactions. In all cases, ODFs typically concentrate around the defined confidence intervals apart from SC Germany's lower credit quality buckets, where they are near the upper limit, and in the UK, where they are slightly below the lower limit in the most populated buckets.

CONSUMER AND CREDIT CARDS ODF VS. LIMIT
Confidence intervals are typically narrow among the rest of the retail portfolios, especially in the cards portfolio in Spain due to the high number of transactions. As an exception, intervals are wide in the SC Spain Auto-New portfolio, where ODF values are concentrated in those intervals, apart from the occasional lower credit quality bucket with a lower number of observations.

Specifically, for Santander Consumer Germany, the ODFs of the two portfolios analysed are above the upper limit in high PD buckets, but slightly below the lower limit in lower PD and more populated buckets.

All Santander Spain portfolios show the same trend, with extremely narrow intervals due to the high number of observations. ODFs are typically within the confidence intervals, with some exceptions in the less populated and lower credit quality buckets.

As noted, in Santander Consumer Spain intervals are far wider in Auto-Net, although ODFs are still within the interval in most buckets. The rest of the portfolios show no exceptions worth commenting, since the ODFs are concentrated within intervals that tend to be narrow, except Cards, where the ODF is slightly below the lower limit in buckets with average PDs.

Lastly, Santander Consumer Nordics shows a similar trend, with narrower intervals due to the high number of observations, but with ODFs within or slightly below confidence intervals except in less populated buckets, which show greater volatility.

For further details on PD backtesting, see Appendix XV.

Access **2018 Pillar 3 Appendices** available on the Santander Group website.

Transparency improvement from the Basel Committee (CR9)
The analysis above may be supplemented with the quantitative study required by the European Banking Authority (EBA) in its document, Guidelines on disclosure requirements under part eight of the capital requirements regulation (EU) number 575/2013, of August 2017.

Detailed information for PD backtesting, reported in the table CR9, can be found in Appendix XVI. Main conclussions derived from the obtained results are described below:

1) There is no major difference between the average exposure-weighted PD and the simple average in each band, indicating that exposure is distributed fairly uniformly among the different transactions. This result is quite typical of retail portfolios, but may be less so in the case of corporate portfolios, where certain borrowers may have significant exposures. Nevertheless, and as can be seen in the results shown in the previously mentione Appendix, the corporate portfolios (of SAN Spain, Mexico and Santander Consumer) do not reveal any appreciable differences either.

2) Additionally, for a set of the Group's significant portfolios, in general regulatory PDs are fairly similar to actual default rates, though the following aspects should be noted:

   In general, regulatory PDs are higher than actual default rates. However, there are some exceptions to this rule. For example, Mortgage and Corporate portfolios in Spain. This is because the adjustment applied to obtain regulatory TTC PDs covers a longer period than the last five years.

   In the case of Mortgages and Corporates in Spain, the situation in recent years is a product of the economic crisis, which has taken actual default rates above their cyclical averages, although if we compare these results with those reported in previous years, we can begin to discern a convergence towards mid-range values in the cycle. In retail, however, the situation is similar to that of the portfolios of Germany or the UK, with observed rates below the cyclical averages. These are portfolios with a higher rotation which, together with stricter credit policies, have brought down observed delinquency rates.

For further details on PD backtesting, according to table CR9, see Appendix XVI.

Access **2018 Pillar 3 Appendices** available on the Santander Group website.

3.10.2. EAD backtest

To test Credit Conversion Factors (CCF), the balance at which transactions defaulted was compared with the regulatory EAD assigned 12 months prior to the default occurring.

The ratio of estimated EAD to actual EAD, known as the coverage ratio, gives an idea of the accuracy of the EAD estimate.

The following tables and diagrams provide a comparison between estimated EAD and actual EAD for the following portfolios with committed limits.

- Cards and Loans for Individualised and Standardised Corporates of Santander Spain;
- Cards and Loans to individuals of Santander Spain;
- United Kingdom mortgages; and
- Cards and Credit facilities of Standardised Corporates of Santander Totta.

Detailed information for EAD backtesting, can be found in Appendix XVII. Derived from this analysis the following can be concluded:

Coverage ratios in general are broadly accurate, and only in a few cases above 100%, indicating slightly conservative EAD estimates. All buckets show similar coverage ratios, with the highest levels in tranches with the lowest utilisation and more so in Cards portfolios, both Micro-enterprises (Standardised Corporates) and Non-Standard Corporates. The tranche with the highest off-balance sheet exposure of UK Mortgages also shows a high coverage ratio.

For further details on EAD backtesting, see Appendix XVII.

Access **2018 Pillar 3 Appendices** available on the Santander Group website.

3.10.3. Backtest of expected loss (Santander Spain)

To compare regulatory Expected Loss with actual losses on the portfolio, a procedure has been devised to compare observed loss figures with estimated losses under regulatory parameters.

This exercise allows us to reach conclusions on the following points:

- Stability of estimated losses over the life of the study.
- Volatility of the observed losses based on the macroeconomic environment, meaning the extent to which these values exceed estimated losses in periods of economic recession and fall short of the estimates in periods of expansion.

Following on from the previous point, it is important to note that study period (2008 to 2018) was largely characterised as being a period of economic recession, whereas the estimated losses are based on parameters that embrace a longer period in which the years of recession and expansion better reflect the typical life of an economic cycle.

The tables and charts in Appendix XVIII refer to Santander Spain's key portfolios: Personal mortgages and Individualised corporates. Main conclussions, derived from its analysis, are described below:

RETAIL MORTGAGES

Estimated losses based on regulatory parameters remain stable in the period under analysis. In the case of observed losses, the results are more volatile, as expected. Aside from the fluctuations caused by the macroeconomic climate, it is important to note that this comparison is highly sensitive to any one-off or sporadic collection policies that may be pursued in a given year, where the losses observed in that year can be attributed to default events originating in previous years. This occurred, for instance, in the case of the peak losses observed in 2012 and 2013.

In the early years of the analysis (2008 to 2011), levels of expected loss exceeded actual observed losses. However, expected losses can be seen to rise from 2010 onward and exceed estimated losses. This is largely down to the large number of defaults that occurred during the period of economic recession. Lastly, and for the more recent periods (2016, 2017 and 2018), we can observe a certain convergence towards observed average levels of loss, which are even slightly below estimated losses in 2018, increasing its distance in relation to 2017, reflecting the general upturn in the country's economy.

NON STANDARDISED CORPORATES

In the case of individualised Corporates, levels of observed losses fluctuate by year but are roughly in line with the levels of estimated losses based on regulatory parameters. In the first few years of the study (2008 to 2010), observed losses are similar to (slightly below) estimated losses. For following years, observed losses exceed estimated levels, in line with the worst years of economic crisis. Lastly, in the most recent periods observed (2017), observed losses can be seen to converge towards the estimated values. This is partly down to the improved level of severity that can be seen in the cases resolved in recent periods and also because levels of default in the last year are better than in previous years.

For further details on Expected Loss backtesting, see Appendix XVIII.

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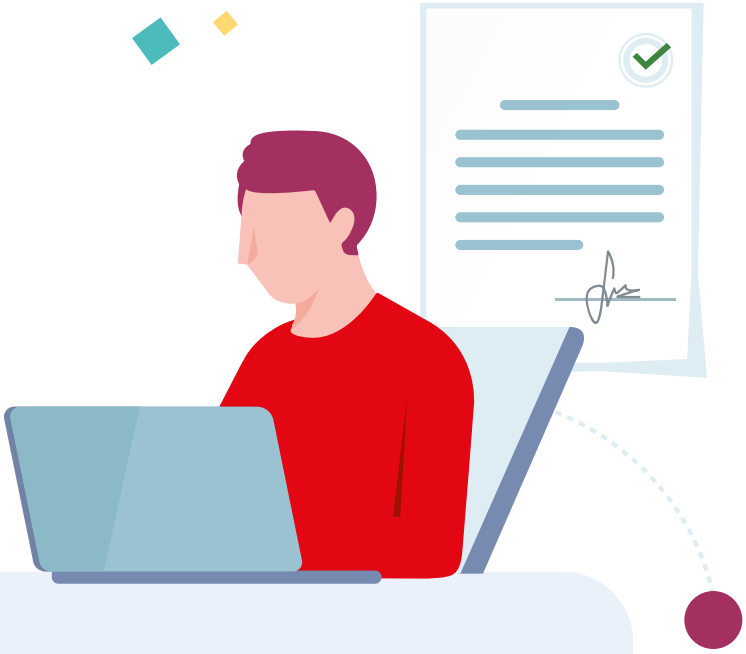
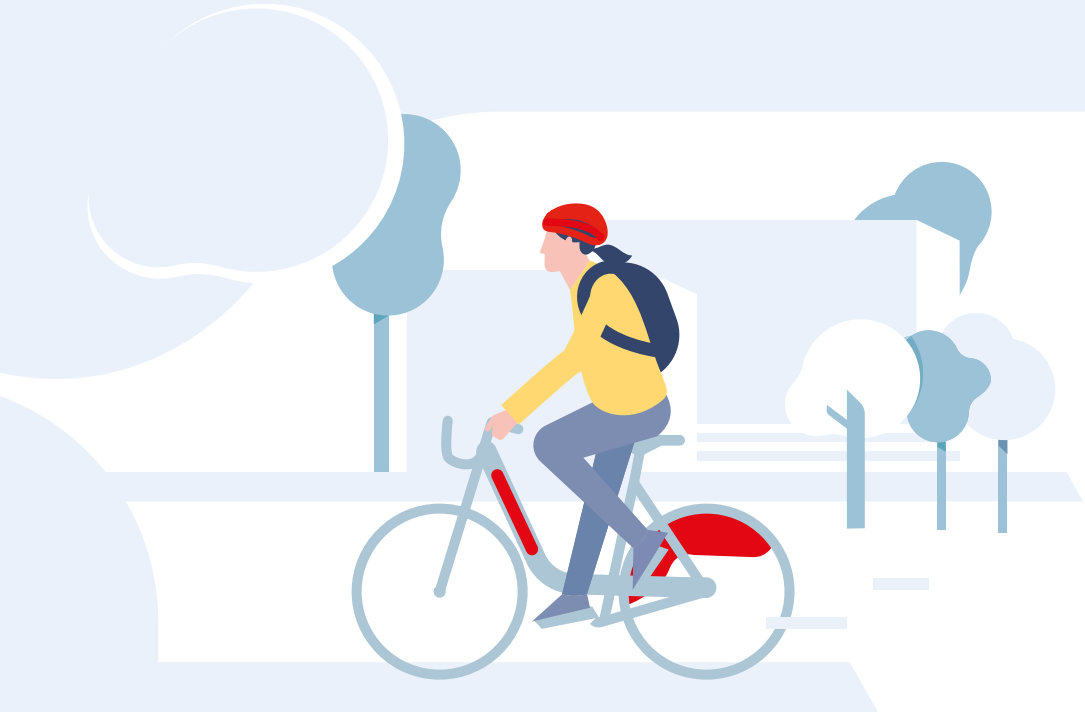
4

Counterparty credit risk





4. Counterparty credit risk

Counterparty credit risk is the risk that a counterparty to a transaction could default before the final settlement of the transaction's cash flows.

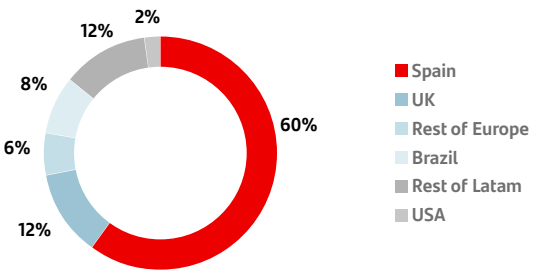
This chapter gives a detailed analysis of Santander Group's counterparty credit risk profile from several angles: region, type of financial contract, calculation method and notional value. It also focuses on regulatory indicators (EAD and RWA).

Main figures

EUR million

	EAD		RWA	
	2018	2017	2018	2017
Counterparty credit risk	**46,181**	**48,024**	**11,987**	**14,668**
Of which, market appreciation	32,691	34,460	9,662	12,115
Of which, CCP default	284	398	233	313
Of which, CVA	13,206	13,166	2,092	2,240

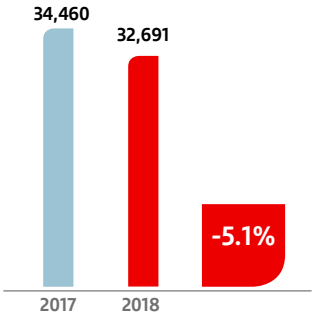
RWA by geography



Note: Does not include CCPs or CVA.

EAD variation

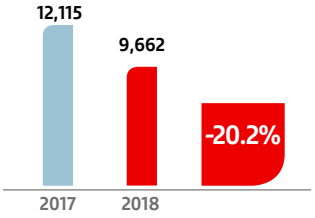
EUR million



Note: Does not include CCPs or CVA.

RWA variation*

EUR million



Note: Does not include CCPs or CVA.

* Basically due to an improvement in the risk profile of all units.

4.1. Counterparty credit risk definition and framework

Chapter 6 of the CRR (Regulation (EU) No 575/2013) describes counterparty credit risk as the risk a counterparty to a transaction could default before the final settlement of the transaction's cash flows. It includes the following transaction types: derivative instruments, repurchase agreements, securities or commodities lending, long settlement transactions and lending transactions with margin replacement.

Santander Group includes counterparty credit risk in its credit risk framework. For management purposes, it also has a specific counterparty credit risk model and policy in place.

Risk is controlled using an integrated system that allows daily exposures vs the limits approved by senior management to be controlled in real time for any counterparty. product or maturity and in any Group unit.

For the measurement of management exposure (CRE or credit risk equivalent), there are two methodologies: a mark-to-market (MtM) methodology (replacement cost in the case of derivatives), plus an add-on for potential future exposure, and another methodology for certain regions and some products, which includes a calculation of exposure using Monte Carlo simulation.

The capital at risk or unexpected loss, i.e., the loss which, once the expected loss is subtracted, constitutes the economic capital, net of guarantees and recoveries, is also calculated.

4.2. Collateral agreements and guarantees

Transactions subject to collateral agreements are marked to market daily and the parameters agreed in the collateral agreement are applied, giving an amount of collateral to be called from, or returned to, the counterparty.

The counterparty that receives the margin call checks the valuation, at which point discrepancies may arise.

A monitoring committee (discrepancies committee) meets weekly to analyse transactions in which significant discrepancies have been detected.

Currently, most collateral as part of collateral agreements is posted and received in cash. However, the current market trend shows that the use of non-cash collateral is increasing. Santander Group is taking this trend into account in its active collateral management.

4.3. Wrong-way risk

Wrong-way risk exists when the potential exposure of a transaction with a counterparty is highly and positively (adversely) correlated with the credit rating of said counterparty, and therefore if the counterparty's credit rating deteriorates, its fair value increases.

In regard to wrong way risk (WWR), the criterion used by Santander for calculating the credit exposure to derivatives with specific WWR is very conservative, given than the exposure to the derivatives with WWR resembles the exposure to a basic financing. In very specific exceptions, with the aim of providing incentives for short-term transactions, with customers with a good rating, liquid underlying and which include collateralisation mechanisms in the derivatives, a decision may be taken to calculate a stressed credit exposure of the derivative.

The Corporate Centre is working to develop a broader method for measuring and managing both specific and generic adverse correlation risk and a system of governance.

Where most collateral is in cash, there is practically no risk of adverse effects arising from specific correlations between the collateral and the collateral provider. Any adverse effects arising from correlations in non-cash collateral are immaterial since issuances from the same counterparty and its subsidiaries are excluded from the collateral eligibility policies.

4.4. Credit rating downgrade

It is estimated that in the event the Group's credit rating was downgraded and the Group required to post additional collateral the impact of that collateral would be relatively limited. This is because the Group's credit rating affects only a small percentage of its current collateral agreements. In the event of a hypothetical one-notch downgrade in the parent's credit rating, it is estimated that the resulting impact of the collateral it would have to post would be EUR 97.5 million.

4.5. Credit value adjustment (CVA)

The team responsible for managing counterparty credit risk in each region charges the corresponding treasury desk a credit premium at the start of each transaction, in exchange for assuming the credit risk involved. The team can then cover the CVA sensitivities through a combination of credit derivatives, interest rate derivatives, currency derivatives and other instruments.

Additionally. CVA regulatory capital is also calculated. The purpose of this charge is to improve banks' resilience to potential losses of market value associated with a reduction in the solvency of the counterparty in derivatives transactions that are not settled through clearing houses.

The following table shows the credit value adjustment (CVA) for the counterparty.

Table 46. Credit valuation adjustment (CVA) capital charge (CCR2)*

EUR million

	31 Dec. 2018	
	Exposure value	RWAs
Total portfolios subject to the Advanced Method	-	-
(i) VaR component (including the 3×multiplier)	-	-
(ii) Stressed VaR component (including the 3×multiplier)	-	-
All portfolios subject to the Standardised Method	13,206	2,092
Based on Original Exposure Method	-	-
TOTAL SUBJECT TO THE CVA CAPITAL CHARGE	**13,206**	**2,092**

* Figures applying 1 year floor.

4.6. Central counterparties

Clearing transactions through central counterparties is a habitual market practice for Santander Group. As a member of the clearing houses with which it operates, the bank contributes to their risk management framework through payments into the default fund, in addition to daily margin calls.

The risk associated with this type of counterparty is managed through the credit risk framework.

The following tables show central counterparty (CCP) exposure following risk mitigation techniques.

Table 47. Exposures to central counterparties (CCR8)

EUR million

	31 Dec. 2018	
	EAD (post CRM)	RWA
TOTAL EXPOSURES TO QCCPS	**15,590**	**539**
Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	11,714	234
(i) OTC derivatives	8,581	172
(ii) Exchange-traded derivatives	-	-
(iii) Securities financing transactions	3,132	63
(iv) Netting sets where cross-product netting has been approved	-	-
Segregated initial margin	-	-
Non-segregated initial margin	3,593	72
Pre-funded default fund contributions	284	233
Alternative calculation of own funds requirements for exposures	-	-

4.7. Credit counterparty credit risk indicators

The information in the tables below relates exclusively to exposures subject to counterparty credit risk.

Table 48. Total exposure to counterparty credit risk

EUR million

	31 Dec. 2018	31 Dec. 2017
TOTAL	**32,691**	**34,460**
Of which: derivatives	24,813	23,894

The above table does not include exposures with central counterparty entities to a sum of EUR 15,590 million.

The following table contains information on the gross positive fair value of the derivative contracts, the potential future exposure, the effect of netting and collateral agreements, and the final exposure value.

Table 49. Derivatives exposure*

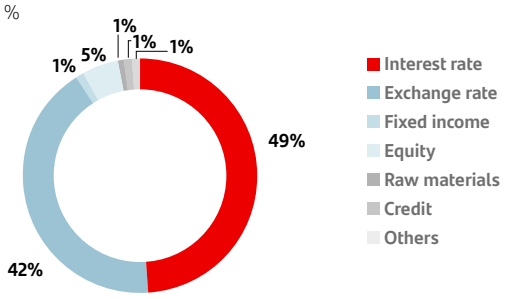
EUR million

	31 Dec. 2018	31 Dec. 2017
Gross positive fair value of contracts (public balance sheet scope)	64,546	65,780
Gross positive fair value of contracts (non-public balance sheet scope)	64,597	65,836
Netting benefits	45,286	48,187
Netted fair value after netting effect	19,311	17,649
Collateral held	10,983	7,688
Netted fair value after netting effect and collateral held	8,328	9,961
Regulatory net add-on	16,485	13,932
EAD	24,813	23,894

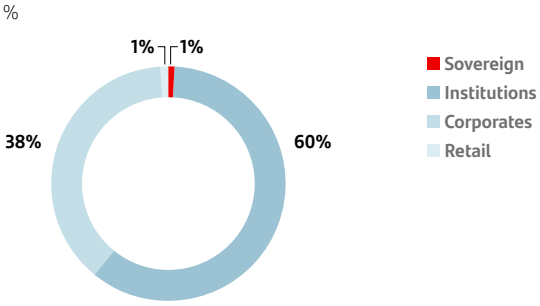
*Note: does not include CCPs.

The following table contains information on the gross positive fair value of the derivative contracts, the potential future exposure, the effect of netting and collateral agreements, and the final exposure value.

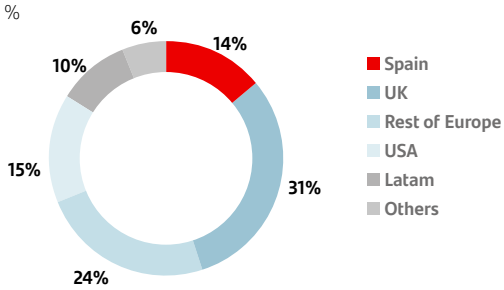
Derivatives exposure by product



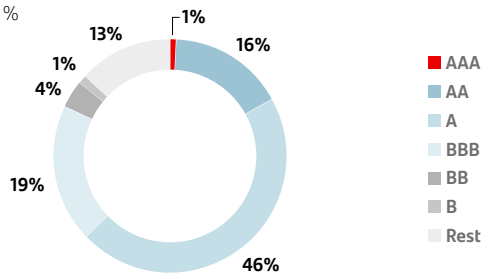
Derivatives exposure by category



Derivatives exposure by geography



Derivatices exposure by rating



In 2018, derivative transactions were concentrated in counterparties with high credit quality, so that around 63% of the exposure was to counterparties rated A or better.

The distribution by type of counterparty was 60% Institutions and 38% Corporates.

As regards the geographic distribution, 31% of the exposure was accounted for by UK counterparties (mainly Santander UK's operations) and, among the other country groupings, mostly by Spain (14%), rest of Europe (24%), the US (15%) and Latin America (10%).

The following table shows exposure to counterparty credit risk based on the calculation methodology employed.

Table 50. Analysis of the counterparty credit risk (CCR) exposure by approach (CCR1)*

EUR million

	31 Dec. 2018						
	Notional	Replacement cost/ Current market value	Potential future exposure	EEPE	Multiplier	EAD postCRM	RWA
Mark to market		191,517	31,217			26,664	9,052
Original exposure							
Standardised approach							
Internal Model Method (for derivatives and SFTs)							
Financial collateral simple method (for SFTs)							
Financial collateral comprehensive method (for SFTs)						6,027	304
VaR for SFTs							
TOTAL							**9,356**

* Does not include CCPs.

The following table details the breakdown of counterparty credit risk exposures. calculated using the standardised approach, by portfolio (counterparty type) and risk weighting (by risk grade attributed to the standardised approach):

Table 51. Standardised approach – CCR exposures by regulatory portfolio and risk (CCR3)

EUR million

	31 Dec. 2018												
	Risk weight												
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	Deduc.	Total
Central governments or central banks	4,714	-	-	-	40	-	-	-	-	16	-	-	4,770
Regional government or local authorities	1	-	-	-	-	-	-	-	-	-	-	-	1
Public sector non-profit entities	133	-	-	-	-	-	-	-	-	-	-	-	133
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	16,116	-	-	715	-	412	-	-	38	-	-	17,280
Corporates	-	-	-	-	1	-	2	-	-	862	5	-	870
Retail	-	-	-	-	-	-	-	-	212	-	-	-	212
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-
Exposure against collective investment institutions (CIIs)	-	-	-	-	-	-	-	-	-	13	-	-	13
Other items	-	-	-	-	-	-	-	-	-	19	-	-	19
TOTAL	**4,848**	**16,116**	**-**	**-**	**756**	**-**	**413**	**-**	**212**	**948**	**5**	**-**	**23,299**

The following table shows more detailed information on exposure to counterparty credit risk (does not include CCPs) by counterparty region, category and rating:

Table 52. IRB approach. CCR exposures by portfolio and PD scale (CCR4)

EUR million

								31 Dec. 2018
Brazil	PD Scale	EAD post CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
AIRB. Corporates								
	0.00 % < 0.15%	270	0.10%	66	45.00%	1.73	77	28.39%
	0.15 % < 0.25%	51	0.24%	34	45.00%	0.81	19	37.31%
	0.25 % < 0.50%	95	0.41%	72	45.00%	1.17	54	56.32%
	0.50 % < 0.75%	39	0.68%	70	45.00%	1.56	31	79.48%
	0.75 % < 2.50%	14	1.15%	23	45.00%	3.21	18	123.73%
	2.50 %< 10.00%	2	5.27%	2	45.00%	0.03	3	143.42%
	10.00 % < 100%	-	-	-	-	-	-	-
	100%	7	100.00%	1	45.00%	1.29	-	-
TOTAL		**478**	**1.77%**	**268**	**45.00%**	**1.54**	**200**	**41.92%**

								31 Dec. 2018
Chile	PD Scale	EAD post CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
AIRB. Corporates								
	0.00 % < 0.15%	181	0.10%	38	45.00%	0.95	38	21.18%
	0.15 % < 0.25%	55	0.24%	26	45.00%	0.73	20	36.40%
	0.25 % < 0.50%	13	0.41%	15	45.00%	2.88	10	78.66%
	0.50 % < 0.75%	14	0.68%	6	45.00%	2.68	14	95.45%
	0.75 % < 2.50%	0	1.15%	1	45.00%	1.00	0	90.55%
	2.50 %< 10.00%	-	-	-	-	-	-	-
	10.00 % < 100%	-	-	-	-	-	-	-
	100%	-	-	-	-	-	-	-
Sub-total		**263**	**0.17%**	**86**	**45.00%**	**1.10**	**82**	**31.22%**
FIRB. Institutions								
	0.00 % < 0.15%	1,643	0.05%	13	45.00%	1.20	253	14.36%
	0.15 % < 0.25%	136	0.20%	27	45.00%	3.23	57	41.51%
	0.25 % < 0.50%	49	0.36%	16	45.00%	2.91	25	55.31%
	0.50 % < 0.75%	31	0.65%	15	45.00%	2.50	28	0.00%
	0.75 % < 2.50%	0	0.69%	2	45.00%	2.50	0	137.51%
	2.50 %< 10.00%	-	-	-	-	-	-	-
	10.00 % < 100%	-	-	-	-	-	-	-
	100%	-	-	-	-	-	-	-
Sub-total		**1,859**	**0.08%**	**73**	**45.00%**	**1.42**	**363**	**19.54%**
TOTAL		**2,122**	**0.07%**	**159**	**45.00%**	**1.38**	**445**	**20.98%**

31 Dec. 2018

Mexico	PD Scale	EAD post CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
FIRB. Institutions								
	0.00 % < 0.15%	632	0.07%	33	45.00%	2.50	201	31.74%
	0.15 % < 0.25%	23	0.23%	11	45.00%	2.50	16	69.42%
	0.25 % < 0.50%	9	0.39%	6	45.00%	1.36	5	57.50%
	0.50 % < 0.75%	0	0.64%	3	45.00%	2.47	0	92.82%
	0.75 % < 2.50%	-	-	-	-	-	-	-
	2.50 % < 10.00%	-	-	-	-	-	-	-
	10.00% < 100%	-	-	-	-	-	-	-
	100%	-	-	-	-	-	-	-
Sub-total		**664**	**0.08%**	**53**	**45.00%**	**2.49**	**222**	**33.40%**
FIRB. Corporates								
	0.00 % < 0.15%	207	0.11%	18	45.00%	2.50	73	35.49%
	0.15 % < 0.25%	6	0.24%	11	45.00%	2.50	4	56.59%
	0.25 % < 0.50%	20	0.41%	11	45.00%	2.50	15	73.65%
	0.50 % < 0.75%	17	0.68%	5	45.00%	2.50	16	92.91%
	0.75 % < 2.50%	0	1.15%	1	45.00%	2.50	0	112.90%
	2.50 % < 10.00%	-	-	-	-	-	-	-
	10.00% < 100%	-	-	-	-	-	-	-
	100%	-	-	-	-	-	-	-
Sub-total		**251**	**0.18%**	**46**	**45.00%**	**2.50**	**108**	**43.09%**
TOTAL		**915**	**0.11%**	**99**	**45.00%**	**2.49**	**330**	**36.06%**

31 Dec. 2018

Mexico	PD Scale	EAD post CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
AIRB. Institutions								
	0.00 % < 0.15%	-	-	-	-	-	-	-
	0.15 % < 0.25%	-	-	-	-	-	-	-
	0.25 % < 0.50%	-	-	-	-	-	-	-
	0.50 % < 0.75%	-	-	-	-	-	-	-
	0.75 % < 2.50%	13	1.76%	8	45%	3.34	16	129%
	2.50 % < 10.00%	-	-	-	-	-	-	-
	10.00% < 100%	-	-	-	-	-	-	-
	100%	-	-	-	-	-	-	-
Sub-total		**13**	**1.76%**	**8**	**45.00%**	**3.34**	**16**	**128.71%**
AIRB. Corporates								
	0.00 % < 0.15%	-	-	-	-	-	-	-
	0.15 % < 0.25%	-	-	-	-	-	-	-
	0.25 % < 0.50%	11	0.27%	41	40.83%	3.13	6	53.61%
	0.50 % < 0.75%	-	-	-	-	-	-	-
	0.75 % < 2.50%	11	1.19%	594	40.83%	3.01	10	88.41%
	2.50 % < 10.00%	2	4.66%	77	40.83%	3.45	2	120.47%
	10.00% < 100%	0	24.20%	1	40.83%	1.95	0	144.92%
	100%	0	100.00%	12	40.83%	4.01	-	-
Sub-total		**24**	**1.42%**	**725**	**40.83%**	**3.10**	**18**	**74.16%**
TOTAL		**37**	**1.54%**	**733**	**42.27%**	**3.18**	**34**	**92.98%**

31 Dec. 2018

Portugal	PD Scale	EAD post CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
AIRB. Institutions								
	0.00 % < 0.15%	50	0.03%	3	39.98%	2.97	2	4.85%
	0.15 % < 0.25%	1	0.23%	1	45.00%	1.00	0	38.66%
	0.25 % < 0.50%	-	-	-	-	-	-	-
	0.50 % < 0.75%	91	0.60%	1	47.54%	5.00	107	118.33%
	0.75 % < 2.50%	-	-	-	-	-	-	-
	2.50 % < 10.00%	-	-	-	-	-	-	-
	10.00% < 100%	-	-	-	-	-	-	-
	100%	-	-	-	-	-	-	-
Sub-total		**142**	**0.40%**	**5**	**44.86%**	**4.25**	**110**	**77.66%**
AIRB. Corporates								
	0.00 % < 0.15%	9	0.07%	60	22.50%	4.02	5	57.04%
	0.15 % < 0.25%	1	0.24%	4	45.00%	1.53	1	45.52%
	0.25 % < 0.50%	89	0.38%	27	46.33%	3.92	76	84.77%
	0.50 % < 0.75%	-	-	-	-	-	-	-
	0.75 % < 2.50%	11	1.10%	52	47.28%	4.17	11	103.10%
	2.50 % < 10.00%	0	5.21%	15	47.54%	1.47	0	140.91%
	10.00% < 100%	-	-	-	-	-	-	-
	100%	0	100.00%	3	47.54%	4.37	0	25.05%
Subtotal		**111**	**0.86%**	**161**	**46.10%**	**3.94**	**93**	**83.87%**
TOTAL		**253**	**0.60%**	**166**	**45.40%**	**4.11**	**203**	**80.39%**

31 Dec. 2018

UK	PD Scale	EAD post CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
AIRB. Institutions								
	0.00 % < 0.15%	1,898	0.05%	40	44.99%	2.08	527	27.76%
	0.15 % < 0.25%	32	0.23%	1	46.70%	0.03	9	28.77%
	0.25 % < 0.50%	26	0.39%	1	47.18%	1.98	23	89.93%
	0.50 % < 0.75%	-	-	-	-	-	-	-
	0.75 % < 2.50%	-	-	-	-	-	-	-
	2.50 % < 10.00%	-	-	-	-	-	-	-
	10.00% < 100%	-	-	-	-	-	-	-
	100%	-	-	-	-	-	-	-
Sub-total		**1,956**	**0.06%**	**42**	**45.05%**	**2.04**	**560**	**28.61%**
AIRB. Corporates								
	0.00 % < 0.15%	526	0.07%	38	45.46%	4.45	135	25.68%
	0.15 % < 0.25%	9	0.24%	9	46.80%	2.15	5	58.18%
	0.25 % < 0.50%	39	0.58%	25	47.53%	1.34	29	74.33%
	0.50 % < 0.75%	-	-	-	-	-	-	-
	0.75 % < 2.50%	-	-	-	-	-	-	-
	2.50 % < 10.00%	-	-	-	-	-	-	-
	10.00% < 100%	-	-	-	-	-	-	-
	100%	-	-	-	-	-	-	-
Sub-total		**574**	**0.25%**	**72**	**46.22%**	**3.32**	**169**	**29.52%**
TOTAL		**2,530**	**0.10%**	**114**	**45.00%**	**2.33**	**729**	**28.81%**

31 Dec. 2018

SAN Spain	PD Scale	EAD post CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
AIRB. Sovereign								
	0.00 % < 0.15%	28	0.03%	10	42.35%	2.63	3	9.72%
	0.15 % < 0.25%	0	0.18%	2	46.61%	3.68	0	31.75%
	0.25 % < 0.50%	-	-	-	-	-	-	-
	0.50 % < 0.75%	-	-	-	-	-	-	-
	0.75 % < 2.50%	7	1.43%	1	0.00%	1.00	8	106.00%
	2.50 % < 10.00%	-	-	-	-	-	-	-
	10.00% < 100%	0	37.34%	1	66.53%	1.00	2	364.82%
	100%	0	100.00%	1	10.74%	1.00	0	27.25%
Sub-total		**36**	**0.91%**	**15**	**34.25%**	**2.29**	**12**	**33.52%**
AIRB. Institutions								
	0.00 % < 0.15%	10,077	0.06%	678	44.20%	3.04	1,214	12.05%
	0.15 % < 0.25%	359	0.22%	78	44.08%	2.84	116	32.36%
	0.25 % < 0.50%	281	0.37%	70	42.52%	7.25	205	73.08%
	0.50 % < 0.75%	60	0.66%	29	42.78%	0.17	35	58.78%
	0.75 % < 2.50%	95	1.37%	67	40.52%	2.08	76	80.67%
	2.50 % < 10.00%	9	3.38%	17	40.31%	1.25	10	117.16%
	10.00% < 100%	0	23.28%	2	39.40%	0.23	0	248.40%
	100%	4	100.00%	5	46.05%	5.00	3	77.93%
Sub-total		**10,884**	**0.13%**	**946**	**44.11%**	**3.15**	**1,661**	**15.26%**
AIRB. Corporates								
	0.00 % < 0.15%	3,835	0.09%	207	45.00%	4.42	1,299	33.86%
	0.15 % < 0.25%	554	0.24%	340	41.55%	4.19	312	56.26%
	0.25 % < 0.50%	689	0.38%	1,065	23.20%	4.47	574	83.35%
	0.50 % < 0.75%	255	0.68%	438	42.99%	4.79	239	93.85%
	0.75 % < 2.50%	181	1.71%	2,018	35.39%	6.36	266	146.97%
	2.50 % < 10.00%	75	4.81%	939	1.86%	7.34	81	107.69%
	10.00% < 100%	4	16.34%	143	2.55%	4.59	5	113.97%
	100%	19	100.00%	281	3.25%	6.18	0	0.02%
Sub-total		**5,612**	**0.62%**	**5,431**	**40.83%**	**4.86**	**2,775**	**49.46%**
AIRB. Retail								
	0.00 % < 0.15%	1	0.12%	104	36.43%	0.00	0	5.99%
	0.15 % < 0.25%	1	0.20%	126	34.66%	0.00	0	11.23%
	0.25 % < 0.50%	1	0.39%	181	36.39%	0.00	0	17.78%
	0.50 % < 0.75%	0	0.65%	74	37.02%	0.00	0	23.38%
	0.75 % < 2.50%	1	1.32%	252	36.86%	0.00	0	34.59%
	2.50 % < 10.00%	3	6.92%	110	35.82%	0.00	1	44.21%
	10.00% < 100%	23	11.70%	9,765	39.95%	3.39	15	63.23%
	100%	6	100.00%	109	40.03%	5.00	1	13.73%
Sub-total		**35**	**24.43%**	**10,721**	**39.28%**	**3.71**	**17**	**49.42%**
TOTAL		**16,567**	**0.35%**	**17,113**	**42.97%**	**3.50**	**4,465**	**26.95%**

USA	PD Scale	EAD post CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
								31 Dec. 2018
AIRB. Corporates								
	0.00 % < 0.15%	9	0.09%	8	45%	2.90	3	36.84%
	0.15 % < 0.25%	1	0.24%	3	45%	1.00	0	39.50%
	0.25 % < 0.50%	0	0.41%	1	45%	1.00	0	54.15%
	0.50 % < 0.75%	0	0.68%	1	45%	1.00	0	71.53%
	0.75 % < 2.50%	5	1.15%	1	45%	1.00	5	90.55%
	2.50 % < 10.00%	-	-	-	-	-	-	-
	10.00% < 100%	1	24.33%	1	45%	1.00	2	270.18%
	100%	-	-	-	-	-	-	-
TOTAL		**16**	**1.45%**	**15**	**45%**	**2.06**	**10**	**64.61%**

The following table shows the effects of netting agreements and collateral for exposure to counterparty credit risk. in addition to the type of collateral exchanges in derivatives transactions and SFTL.

Table 53. Impact of netting and collateral held on exposure values (CCR5-A)*

EUR million

	Gross positive fair value or net carrying amount[1]	Add-on	Netting benefits	Netted current credit exposure	Collateral held	EAD
						31 Dec. 2018
Derivatives	64,597	30,796	59,596	35,796	10,983	24,813
SFTs	150,543	3,397	27,437	126,502	118,624	7,878
Cross-product netting	-	-	-	-	-	-
TOTAL	**215,139**	**34,192**	**87,034**	**162,298**	**129,607**	**32,691**

* Does not include CCPs.
(1) Gross positive fair value before applying any mitigation technique. In case of securities financing operations, information is included on the value of the securities or cash delivered to the counterparty.

Table 54. IRB approach. Composition of collateral for exposures to counterparty credit risk (CCR5-B)

EUR million

	31 Dec. 2018					
	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair value of collateral received		Fair value of posted collateral			
	Segregated	Unsegregated	Segregated	Unsegregated	Fair value of collateral received	Fair value of posted collateral
Cash - domestic currency	88	4,466	-	7,001	37,278	66,333
Cash - other currencies	-	3,943	-	2,210	7,443	28,356
Domestic sovereign debt	20	1,124	166	218	40,786	32,896
Other sovereign debt	151	652	552	621	15,295	15,904
Government agency debt	-	-	-	-	-	-
Corporate bonds	172	170	113	-	12,865	17,254
Shares	199	-	339	-	4,958	2,510
Other collateral	-	-	-	-	-	-
TOTAL	**629**	**10,354**	**1,171**	**10,050**	**118,624**	**163,253**

The following tables show the notional amount of the credit derivatives bought and sold, in addition to the perfectly hedged credit derivatives that are used for risk mitigation in the capital calculation and the exposure of the hedged transactions, broken down by exposure category.

Table 55. Credit derivatives hedge under IRB

EUR million

	31 Dec. 2018	
	EAD of hedged transactions	Notional amount of credit derivative hedges
Institutions	-	2,403
Corporates	1,916	-
Securitisation positions or exposures	-	-
TOTAL	**1,916**	**2,403**

Table 56. Counterparty credit risk. Credit derivative classification. Bought protection*

EUR million

	Bought protection. 31 Dec. 2018		Bought protection. 31 Dec.2017	
Portfolio type	CDS	TRS	CDS	TRS
Banking book	54	-	-	521
Trading book	9,916	-	13,019	-
TOTAL	**9,970**	**-**	**13,019**	**521**

* Bougth credit derivatives do not include loan coverage.

Table 57. Counterparty credit risk. Classification sold protection

EUR million

	Sold protection. 31 Dec. 2018	Sold protection. 31 Dec. 2017
Portfolio type	CDS	CDS
Banking book	-	-
Trading book	8,966	12,117
TOTAL	**8,966**	**12,117**

Table 58. Credit derivatives exposures (CCR6)*

EUR million

	31 Dec. 2018	
	Protection bought	Protection sold
Notionals		
Single-name credit default swaps	**6,928**	**2,385**
Index credit default swaps	6,571	6,581
Total return swaps	-	-
Credit options	-	-
Other credit derivatives	-	-
TOTAL NOTIONALS	**13,498**	**8,966**
Fair values		
Positive fair value (asset)	**7**	**123**
Negative fair value (liability)	-187	-5

* Bought credit derivatives do include loan coverage.

For further details, see the Risk Management Chapter (sections 3.2 and 3.5) on the 2018 Annual Report.

Access **2018 Annual Report** available on the Santander Group website.

5

Credit risk - Securitisations

5. Credit risk - Securitisations

This chapter describes Santander Group's securitisation activity.

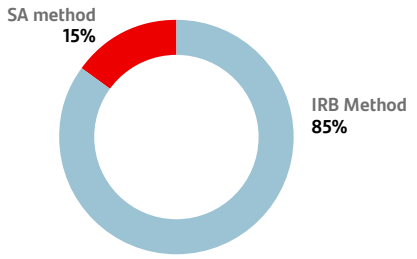
It also looks at the basic concepts relating to securitisations and summarises the goals and functions of the securitisation management activity at Santander Group.

Main figures

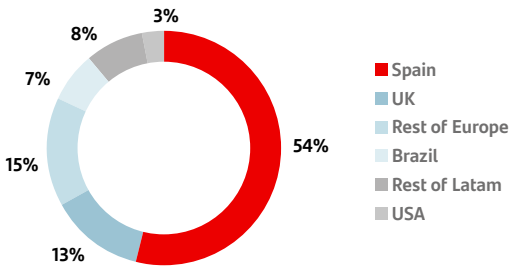
EUR million

	EAD		RWA	
	2018	2017	2018	2017
Securitisation exposures in banking book	**33,639**	**19,933**	**5,014**	**3,678**
Of which IRB approach	32,025	16,763	4,276	2,482
Of which IRB supervisory formula approach (SFA)	14,701	4,907	1,915	708
Of which standardised approach (SA)	1,614	3,170	738	1,196

RWA by calculation method

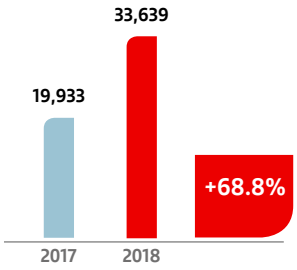


RWA by geography



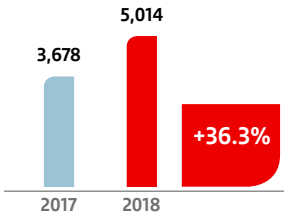
EAD variation

EUR million



RWA variation

EUR million



5.1. Theoretical considerations on securitisation

At Santander Group, securitisation is given the treatment stipulated in chapter five of the CRR. The assessment of the characteristics to determine whether or not a securitisation exists, and consequently a transaction that has to be processed under the conditions described in this section, is performed in compliance with the legal format and economic basis of the transaction.

Pursuant to the CRR, the following concepts shall be interpreted using the following regulatory definitions:

Securitisation: a financial transaction or scheme, whereby the credit risk associated with an exposure or pool of exposures is tranched, having both of the following characteristics:

a. Payments in the transaction or scheme are dependent upon the performance of the exposure or pool of exposures.

b. Subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme.

Securitisation position: exposures arising from securitisations. For these purposes, the providers of credit risk hedges for a specific securitisation position are considered to hold positions in the securitisation.

Tranche: contractually established segment of the credit risk associated with an exposure or a number of exposures, where a position in the segment entails a risk of credit loss greater than or less than a position of the same amount in each other such segment, without taking account of credit protection provided by third parties directly to the holders of positions in the segment or in other segments. In this respect, the whole securitisation position either forms part of a tranche or is a trance in itself. The following terms can also be defined:

- **First loss tranche:** this tranche is given a weighting of 1,250%.
- **Mezzanine tranche:** this is the tranche, other than the first loss tranche, that ranks below the most senior position in the securitisation and below any position in the securitisation assigned a credit rating of 1 in the case of securitisations under the standardised approach or a rating of 1 or 2 in the case of securitisations under the IRB approach.
- **Senior tranche:** All tranches other than the first loss or mezzanine tranches. Within the senior tranche, the super senior tranche is the top tranche in the priority of payments, without taking into account for these purposes any amounts owed under interest rate or currency derivatives, brokerage charges or similar payments.

Traditional securitisations: means a securitisation involving the economic transfer of the exposures being securitised to a securitisation special purpose vehicle that issues securities. This may be accomplished by the transfer of ownership of the securitised exposures from the originator institution to an SSPE or through sub-participation by an SSPE, which shall include, for this purpose, mortgage participations mortgage transfer certifications and similar securities. The securities issued do not represent payment obligations of the originator institution.

Synthetic securitisations: means a securitisation where the transfer of risk is achieved by the use of credit derivatives or guarantees, and the exposures being securitised remain exposures of the originator institution.

Resecuritisations: means securitisation where the risk associated with an underlying pool of exposures is tranched and at least one of the underlying exposures is a securitisation position.

Asset-backed commercial paper (ABCP) programme: means a programme of securitisations the securities issued by which predominantly take the form of commercial paper with an original maturity of one year or less.

Investment entity: any institution or subject, other than the originator or sponsor institution, holding a securitisation position.

Originator institution: Means an institution that:

a. Itself or through related entities, directly or indirectly, was involved in the original agreement which created the obligations or potential obligations of the debtor or potential debtor giving rise to the exposure being securitised; or...

b. ... Purchases a third party's exposures for its own account and then securitises them.

Sponsor institution: institution other than the originator that establishes and manages an asset-backed commercial paper programme, or other securitisation scheme that purchases exposures from third-party entities and to which liquidity or credit facilities or other credit enhancements are generally granted.

5.2. Securitisation accounting policies

The rule for derecognising securitised assets is that set by IFRS 9 Financial Instruments for the derecognition of a financial asset. The accounting treatment of transfers of financial assets depends on the extent to which the risks and rewards associated with the transferred assets are transferred to third parties:

1. Where substantially all the risks and rewards are transferred to third parties, e.g. in asset securitisations in which the transferor neither retains subordinated debt nor grants any credit enhancement to the new holders, the transferred financial assets are derecognised and any rights or obligations retained or created in the transfer are recognised simultaneously. The result is recognised in the accounts.

2. Where substantially all the risks and rewards associated with the transferred financial asset are retained (as in securitisations in which subordinated debt or some other type of credit enhancements are retained that absorb substantially all of the expected losses for the transferred asset or the probable variation of its net cash flows), the transferred financial asset is not derecognised and continues to be measured by the same criteria as before the transfer. The following is also recognised in the accounts:

   a. An associated financial liability in an amount equal to the consideration received, thereafter measured at amortised cost, unless the requirements for classification as liabilities at fair value through profit or loss are met, in which case it is measured at fair value.

   b. The income from the financial asset that has been transferred but not derecognised and any expense incurred on the new financial liability, without netting.

3. Where substantially all the risks and rewards associated with the transferred financial asset are neither transferred nor retained, e.g. in securitisations in which the transferor takes on subordinated debt or some other type of credit enhancement for a portion of the transferred asset and thus significantly but not substantially reduces its exposure to the variation in the present value of future net cash flows, the following distinction is made:

   a. Where the transferor does not retain control, the transferred financial asset is derecognised and any right or obligation retained or created in the transfer is recognised.

   b. Where the transferor retains control of the transferred financial asset, it continues to recognise the transferred financial asset on its balance sheet for an amount equal to its exposure to possible changes in value and recognises a financial liability associated with the transferred financial asset. The net amount of the transferred asset and associated liability is the amortised cost of the rights and obligations retained, if the transferred asset is measured at amortised cost, or the fair value of the rights and obligations retained, if the transferred asset is measured at fair value.

Accordingly, financial assets are only derecognised when the rights to the cash flows they generate expire or when substantially all the inherent risks and rewards have been transferred to third parties and when substantially all the risks and rewards are neither transferred nor retained but control of the assets is transferred.

There have been no changes with respect to the previous year in the methods, assumptions and key data used to assess securitised exposures.

There is no specific accounting treatment for synthetic securitisations or assets awaiting securitisation.

5.3. Management of the securitisation activity at Santander Group

5.3.1. Santander Group securitisation objectives and management

Through its securitisation activity Santander Group has several objectives:

- Manage and diversify its credit risk: securitisation transactions and the subsequent sale of the securitisation bonds in the market serve to reduce the credit risk concentrations that can arise naturally from the Group's commercial activity. The effective transfer of risks achieved through these transactions enables the Group to optimise its credit risk exposure and contributes to value creation by reducing the bank's need to retain own funds.

- Obtain liquidity: securitisation enables the Group to mobilise its balance sheet by transforming illiquid assets into liquid assets and obtain wholesale funding by selling or collateralising those transformed assets. Also, the retained securitisation positions can be used as collateral for to obtain ECB funding.

- Diversify funding sources: the liquidity obtained from securitisation allows the Group to diversify its funding sources in terms of duration and product.

- Optimise capital consumption: eight new securitisations were originated in 2018, all involving a significant transfer of risk.

Each year, based on the liquidity plan and taking into account certain prudential limits on raising short-term market funding, Santander Group establishes a yearly issue and securitisation plan for each subsidiary/global business. This task is carried out by financial management.

5.3.2. Santander Group securitisation functions

Santander Group's role in the securitisation process is mainly that of originator of the underlying assets being securitised. Nevertheless, in addition to originating the underlying payments, the Group also plays a role in servicing the loans and granting subordinated loans. It also acts as counterparty, when needed, to the interest rate swap agreement for the SSPE that acquires the loans.

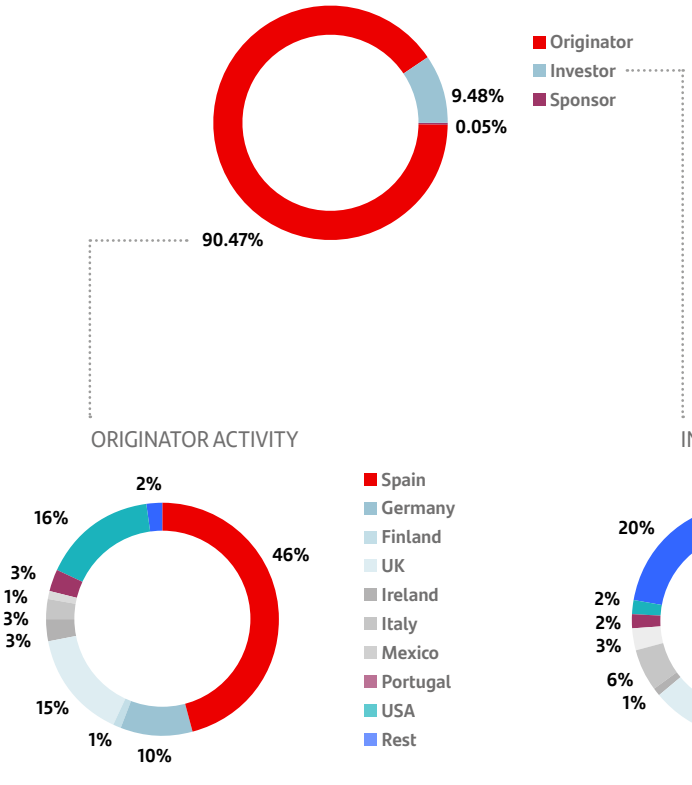
Santander Group also acts as an investor, acquiring positions in SSPEs originated by non-Group entities and/or retaining a portion of the positions originated by the bank itself.

Santander Group is sponsor of a securitisation transaction whose underlying consists of loans granted by various financial institutions to SSPEs of mortgage-backed bonds to cover the reserve fund.

Santander Group also structures and places its own securitisations, as it does for third parties, and leads and promotes new structures in different jurisdictions for both funding and risk transfer purposes. This activity is situated in the context of a revival of securitisation as a tool for channelling credit to the real economy, with a special focus on SMEs.

The following diagram depicts the geographical distribution of Santander Group's securitisation activity as of 31 December 2018.

Distribution of the group's securitisation function



The information on the securitisation positions of the investment and trading portfolio of Santander Group is included. In originator activity, Rest includes Austria (0.3%), the Netherlands (0.3%), Norway (0.3%), Poland (0.6%) and Sweden (0.5%).

The information on the securitisation positions of the investment and trading portfolio of Santander Group is included. In investor activity, Rest includes Luxembourg (0.1%), Austria (0.2%), Finland (0.1%), Ireland (0.2%), Mexico (0.2%), the Netherlands (0.4%), Norway (0.3%), Poland (0.2%), Sweden (0.1%) and Brazil (0.2%).

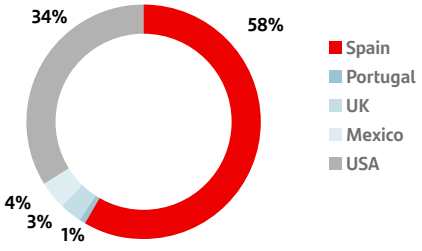
As indicated in the graph, originator activity accounts for more than 90% of Santander Group securitisation activity, with investment activity accounting for 9.48% and sponsoring accounting for 0.05% (the latter being concentrated in Spain).

87% of the volume of securitisations originated by Santander Group is concentrated Spain, the United States, the United Kingdom and Germany.

On the investment side, 93% of acquisitions of investment positions are concentrated in Spain (59%) and the United Kingdom (34%) as shown in the next graph.

Furthermore, regarding the distribution of positions by country from the debtor, it can be seen that 43.70% of the final risk is in UK (because the positions that are invested from the United Kingdom are located in the same), 19.65% is in the United States; 10.87% in France, 7.23% in Spain and the rest are essentially distributed throughout Europe, as it can be seen in the investor activity graph on the previous page:

Distribution by investor country



5.3.3. Risk inherent to the securitisation activity at Santander Group

Securitisation offers advantages in terms of lower funding costs and better risk management. However, it exposes investors to certain inherent risks. Santander Group is not exposed to any additional risk by acting as originator or sole investor in any given SSPE. In fact, doing so reduces liquidity risk by transforming illiquid assets (originated loans) into liquid assets (securitisation bonds).

When Santander Group acts as originator and as one of the investors in the issue, it is subject to the following risks:

- **Credit risk:** the risk that borrowers will fail to meet their contractual obligations in due time and form, with the consequent impairment of the underlying assets backing the securitisation positions. Credit risk is assessed by external credit rating agencies, which assign ratings to the securitisation positions. At Santander Group, the maximum exposure in the banking book is limited by rating (AAA, AA, A, BBB, BB) and by type of underlying. In addition, the Group continuously monitors published data on default of the underlying, credit quality of the originator and mandatory minimum ratios and ratings in the structure, as well as data on granularity, geographical distribution and type of underlying.

- **Prepayment risk:** the risk of early repayment of all or part of the assets underlying the securitisation, so that the securitisation positions mature before the contractual maturity date of the underlyings. The calculation of the average life, return and duration of the securitisation positions is subject, among other things, to assumptions about the rate at which the underlying loans will be prepaid, which may vary. This risk is practically non-existent at Santander Group as the contractual maturity of the securities issued is usually longer than that of any underlying.

- **Basis risk:** this risk arises when there is a mismatch between the interest rates or maturities of the securitised assets and those of the securitisation positions. At Santander Group this risk is usually hedged with swaps.

- **Exchange rate risk:** comes into play in securitisations where the securitised assets and the securitisation positions are denominated in a different currencies. At Santander Group, the risk arising from the currency mismatch between the underlying and the issue is usually hedged in the structure via a swap. The risk to PnL assumed in non-euro bonds is managed by the Active Credit Portfolio Management (ACPM) area.

- **Liquidity risk:** is diminished through the securitisation process, whereby naturally illiquid assets are transformed into debt securities that can be traded on exchanges. In some securitisations, however, such as those which issue commercial paper, liquidity risk is still significant and is manifested in the need to cover potential timing mismatches between interest payments on the underlying assets and payments of interest on the securities. At Santander Group this risk tends to be very small and is mitigated by liquidity lines included in the structure. The liquidity risk associated with bond positions is also managed by establishing maximum holding periods.

5.4. Credit risk - Securitizations

5.4.1. Methodology for calculating risk-weighted exposures in securitisation activities

Santander Group calculates regulatory capital under the securitisation approach only if the securitisation special purpose entity (SSPE) meets the regulatory conditions established in the CRR for significant risk transfer. Otherwise, capital is calculated for the securitised exposures as if they had never been securitised. Capital is also calculated for investment positions in securitisation funds originated by third parties.

Capital requirements for securitisation positions are calculated by applying the appropriate risk weight to the exposure value of each position, depending on the approach (standardised or IRB) used by the entity to calculate the risk-weighted exposure amounts of the securitised portfolio. If the entity uses both approaches for the various securitised exposures that make up the underlying portfolio, the method that applies to the predominant proportion of exposures in the portfolio is used.

Entities that use the standardised approach to calculate capital requirements apply the risk weights stipulated in the CRR (see folllowign table), based on the credit quality level assigned to the external credit ratings issued by eligible External Credit Assessment Institutions (ECAIs) for each securitisation or re-securitisation position:

RW of securitisations for the standardised approach

	Short-term ratings	Long-term ratings	Securitisation positions	Resecuritisation positions
1	A-1+, A-1	AAA to AA-	20%	40%
2	A-2	A+ to A-	50%	100%
3	A-3	BBB+ to BBB-	100%	225%
4	N/A	BB+ to BB-	350%	650%
Other levels			1250%	1250%

Where no external credit rating is available, the entity assigns the weighted-average risk weight applied to securitised exposures, multiplied by the concentration ratio (look through method). If the entity has insufficient information on the underlying portfolio, a risk weight of 1,250% is assigned.

Entities that adopt the IRB approach when calculating capital requirements use the external-ratings-based approach, applying the risk weights stipulated in the CRR (see following tables). These weights ultimately depend on whether it is a securitisation or re-securitisation, whether it is the most senior position in the securitisation or not, the effective number of exposures (granularity of the underlying) and the credit quality level assigned to the external credit ratings issued by eligible ECAIs or the ratings inferred from each securitisation position. These risk weights are multiplied by 1.06 to calculate the risk-weighted exposure amounts, except for tranches that already have the maximum weighting of 1,250%.

Where no external credit rating is available but PD and LGD estimates are available, the supervisory formula method may be used. The inputs for this method are tranche thickness, average capital charge and expected loss on the underlying (KIRB), the average LGD of the underlying and the effective number of exposures.

As for the external ratings method, the relationship is as follows when the ratings are long-term:

RWs of securitisations with long-term rating (RBA-IRB approach)

		Securitisation positions			Resecuritisation positions	
Credit quality levels	Long-term ratings	Senior tranche and effective no.of positions >6	Effective no. Of positions >6 and junior tranche	Effective no. of positions <6	Senior tranche	Junior tranche
1	AAA	7%	12%	20%	20%	30%
2	AA+, AA, AA-	8%	15%	25%	25%	40%
3	A+	10%	18%	35%	35%	50%
4	A	12%	20%	35%	40%	65%
5	A-	20%	35%	35%	60%	100%
6	BBB+	35%	50%	50%	100%	150%
7	BBB	60%	75%	75%	150%	225%
8	BBB-	100%	100%	100%	200%	350%
9	BB+	250%	250%	250%	300%	500%
10	BB	425%	425%	425%	500%	650%
11	BB-	650%	650%	650%	750%	850%
Other levels		1250%	1250%	1250%	1250%	1250%

While for securitisation positions with short-term external ratings the relationship is as follows:

RWs of securitisations with short-term rating (RBA-IRB approach)

		Securitisation positions			Resecuritisation positions	
Credit quality levels	Long-term ratings	Senior tranche and effective no.of positions >6	Effective no. Of positions >6 and junior tranche	Effective no. of positions <6	Senior tranche	Junior tranche
1	A-1+, A-1	7%	12%	20%	20%	30%
2	A-2	12%	20%	35%	40%	65%
3	A-3	60%	75%	75%	150%	225%
Other levels		1250%	1250%	1250%	1250%	1250%

The following table shows positions in securitisations with risk transfer and in investment and sponsoring positions on the banking book, based on the approach used to calculate regulatory capital:

Table 59. Breakdown of repurchased positions in SSPE with risk transfer, distributed by function and approach used

EUR million

	31 Dec. 2018					31 Dec. 2017				
	Onbalance sheet amount	Offbalance sheet amount	EAD	EAD after capital reductions	RWA	Onbalance sheet amount	Offbalance sheet amount	EAD	EAD after capital reductions	RWA
Originator – standardised approach	1,163	-	1,150	1,150	450	2,816	-	2,810	2,810	963
Originator – RBA approach	10,581	-	10,581	10,581	1,702	5,776	-	5,776	5,776	1,019
Originator – SFA approach	13,415	1,286	14,701	14,701	1,915	4,907	-	4,907	4,907	708
Total originator	**25,159**	**1,286**	**26,432**	**26,432**	**4,067**	**13,499**	**-**	**13,493**	**13,493**	**2,690**
Investor – standardised approach	464	-	464	464	288	360	-	360	360	233
Investor – RBA approach	6,420	284	6,703	6,703	633	4,264	1,775	6,039	6,039	729
Total investor	**6,884**	**284**	**7,168**	**7,168**	**921**	**4,624**	**1,775**	**6,399**	**6,399**	**962**
Sponsor – standardised approach	-	-	-	-	-	-	-	-	-	-
Sponsor – RBA approach	-	40	40	40	25	-	40	40	40	26
Total sponsor	**-**	**40**	**40**	**40**	**25**	**-**	**40**	**40**	**40**	**26**
Total	**32,043**	**1,609**	**33,640**	**33,640**	**5,014**	**18,123**	**1,815**	**19,933**	**19,933**	**3,678**
Of which: traditional securitisations	15,493	1,609	17,090	17,090	2,741	9,547	1,659	11,199	11,199	2,253
Of which: synthetic securitisations	16,550	-	16,550	16,550	2,273	8,577	157	8,733	8,733	1,425

On and off-balance sheet totals before provisions and after outflows to other regulatory reports.

EAD IRB (RBA & SFA): exposures net of collateral, before provisions and deductions and after outflows to other regulatory reports.

EAD SA: exposures net of collateral, before deductions and after provisions and outflows to other regulatory reports.

RWA IRB (RBA & SFA): after provisions, deductions and outflows to other regulatory reports and before application of the limit.

RWA SA: after provisions, deductions and outflows to other regulatory reports and before application of the limit.

It should be noted that for all securitisations which qualify for a risk weight of 1,250%, the entity has opted to calculate its risk-weighted exposures instead of deducting the exposure amount from equity. Accordingly, the EAD before and after the deductions is the same.

As shown in Table 59, exposure has increase in an 68% due to both the increase in exposures in securitisations originated by Santander and in investment positions in third parties. In 2018, eight new securitisations with risk transfer were originated with the main goal of optimizing capital consumption.

Meanwhile, securitisation positions in the trading book are eliminated from the regulatory capital calculation based on an internal market risk model and are included in the calculation of capital for specific risk, in accordance with art. 335 of the CRR. The correlation trading portfolio is also included among these positions. This portfolio consists of securitisation positions and nth-to-default derivatives that meet all the criteria stated in art. 338.1 of the CRR. Therefore, none of these positions are taken into consideration in the VaR spread and IRC calculation, although they are included in the interest rate VaR calculation (general risk). Capital requirements for these securitisation positions are calculated as if the positions were in the banking book, distinguishing between:

- Securitisation positions that are rated by an external rating agency, for which capital requirements are calculated using the external-ratings-based approach described above, and

- Unrated securitisation positions, to which the risk weight resulting from the supervisory formula method is applied.

Lastly, from 1 January 2019, Regulation (EU) 2017/2402 on securitisations came into force, to which all new positions from that date will be required to comply with, and there will be a one-year grandfathering period for existing positions. This regulation will change the prudential requirements for credit institutions and investment firms, establishing a new treatment for securitisation positions. One of the most significant changes is that positions in preferential securitisation tranches may not consume more capital than the loan portfolio. It also establishes more favourable treatment for preferential tranches of STS securitisation tranches or those which, with certain conditions, favour funding for SMEs.

5.4.2. Securitisation funds with risk transfer

Santander Group, as an originator institution, retains positions in the funds with the transfer of risks issued by Group entities. The Group also acquires positions in SSPEs originated by non-Group entities and is the sponsor of one securitisation fund. The following tables contain information on the balances of securitisation positions purchased from third parties and retained in funds originated by Santander Group with risk transfer, both in the banking book and in the trading book.

Table 60. Aggregate amount of securitisation positions purchased and retained with risk transfer. Banking book IRB approach

EUR million

	31 Dec. 2018									
	EAD					RWA				
	Securitisations		Resecuritisations		Total RWA	Securitisations		Resecuritisations		Total RWA
IRB approach. Distribution by exposuere type and risk weigth	On-balance sheet exposures	Off-balance sheet and derivative exposures	On-balance sheet exposures	Off-balance sheet and derivative exposures	TOTAL	On-balance sheet exposures	Off-balance sheet and derivative exposures	On-balance sheet exposures	Off-balance sheet and derivative exposures	TOTAL
Investor positions										
7-10%	5,387	254	-	-	5,641	382	20	-	-	402
12-18%	743	-	-	-	743	119	2	-	-	121
20-35%	234	30	-	-	264	50	6	-	-	57
40-75%	55	-	-	-	55	50	-	-	-	50
100%	-	-	-	-	-	4	-	-	-	4
Total	**6,420**	**284**	**-**	**-**	**6,703**	**606**	**28**	**-**	**-**	**633**
Originator positions										
7-10%	21,578	1,286	-	-	22,863	1,580	90	-	-	1,670
12-18%	1,119	-	-	-	1,119	141	-	-	-	141
20-35%	687	-	-	-	687	143	-	-	-	143
40-75%	286	-	-	-	286	216	-	-	-	216
100%	113	-	-	-	113	103	-	-	-	103
425%	6	-	-	-	6	23	-	-	-	23
650% - 850%	21	-	-	-	21	224	-	-	-	224
1250%	188	-	-	-	188	1,098	-	-	-	1,098
Total	**23,996**	**1,286**	**-**	**-**	**25,282**	**3,527**	**90**	**-**	**-**	**3,617**
Sponsor positions										
40-75%	-	-	-	40	40	-	-	-	25	25
Total	**-**	**-**	**-**	**40**	**40**	**-**	**-**	**-**	**25**	**25**
TOTAL IRB APPROACH	**30,416**	**1,569**	**-**	**40**	**32,025**	**4,132**	**118**	**-**	**25**	**4,276**

EAD IRB: exposures net of collateral, before provisions and deductions and after outflows to other regulatory reports.

RWA IRB: after provisions, deductions and outflows to other regulatory reports and before application of the limit.

As shown in Table 60, with the IRB approach, more than 88% of the exposures have a risk weight lower than 10%, which reflects an improvement compared to the previous years.

This portfolio distribution reflects the good quality of the investments made by Santander Group.

Table 61. Aggregate amount of securitisation positions purchased and retained with risk transfer. Investment portfolio. Standardised approach

EUR million

	31 Dec. 2018									
	EAD					RWA				
	Securitisations		Resecuritisations		Total EAD	Securitisations		Resecuritisations		Total EAD
IRB approach. Distribution by exposure type and risk weight	On-balance sheet exposures	Off-balance sheet and derivative exposures	On-balance sheet exposures	Off-balance sheet and derivative exposures	TOTAL	On-balance sheet exposures	Off-balance sheet and derivative exposures	On-balance sheet exposures	Off-balance sheet and derivative exposures	TOTAL
Investor positions										
40-75%	353	-	-	-	353	176	-	-	-	176
100%	111	-	-	-	111	111	-	-	-	111
Total	**464**	**-**	**-**	**-**	**464**	**288**	**-**	**-**	**-**	**288**
Originator positions										
20-35%	1,024	-	-	-	1,024	205	-	-	-	205
40-75%	82	-	-	-	82	41	-	-	-	41
100%	29	-	-	-	29	29	-	-	-	29
350%	1	-	-	-	1	4	-	-	-	4
1250%	14	-	-	-	14	171	-	-	-	171
Total	**1,150**	**-**	**-**	**-**	**1,150**	**450**	**-**	**-**	**-**	**450**
TOTAL SA APPROACH	**1,614**	-	-	-	**1,614**	**738**	-	-	-	**738**

EAD SA: exposures net of collateral, before deductions and after provisions and outflows other regulatory reports.

RWD SA: after provisions, deductions and outflows to other regulatory reports and before application of the limit.

Note: Under the standardised approach, the investment positions with no rating, which use capital based on the avergage RW of the underlying net multiplied by the concentration coefficient, are kept in the balance sheet.

As shown in Table 61, within the standardised approach, we can see that 63% of the exposures have a risk weight equal or less than 35% (rating between AAA and AA-), reflects the good quality of the investments made by Santander Group, despite the decrease when compared to the previous year.

Table 62. Agregate amount of securitisation positions purchased and retained. Trading book

EUR million

	31 Dec. 2018					
	Investor positions		Originator positions		Sponsor positions	
ABS PORTFOLIO						
RBA approach	Mark to market	RWA	Mark to market	RWA	Mark to market	RWA
20-35%	0.91	0.24	0.28	0.1	-	-
100%	0.10	0.11	-	-	-	-
Total ABS Portfolio	**1.01**	**0.35**	**0.28**	**0.1**	**-**	**-**
CORRELATION PORTFOLIO						
RBA approach						
Supervisory formula method	-	-	-	-	-	-
Total correlation portfolio	**-**	**-**	**-**	**-**	**-**	**-**
TOTAL	**1.01**	**0.35**	**0.28**	**0.1**	**-**	**-**

Note: The table does not include the RWA of short position correlation, since it does not consume capital.

As it can be observed in the Table 62, in the trading portfolio, more than 92% of the Mark to Market have risk weight equal or less than 35% (rating above A-).

The following table gives a breakdown of the securitisation positions purchased or retained by securitised asset class and the Bank's role in the securitisation.

Table 63. Securitisation positions purchased and retained with risk transfer by exposure type in the banking book

EUR million

	31 Dec..2018						31 Dec. 2017					
	Exposure			RWA			EAD			RWA		
	Originator	Investor	Sponsor	Originator	Investor	Sponsor	Originator	Investor	Sponsor	Originator	Investor	Sponsor
Traditional securitisations	**9,882**	**7,168**	**-**	**1,795**	**921**	**-**	**5,086**	**6,069**	**-**	**1,338**	**887**	**-**
Residential mortgages	13	3,367	-	18	365	-	27	4,066	-	49	440	-
Commercial mortgages	-	-	-	-	-	-	-	-	-	-	-	-
Credit cards	-	164	-	-	16	-	-	117	-	-	12	-
Leasing	-	22	-	-	4	-	-	38	-	-	3	-
Loans to corporates or to SMEs treated as corporates	4,159	2,134	-	374	375	-	-	1,008	-	-	285	-
Mortgage covered bonds	5,710	573	-	1,403	61	-	5,058	411	-	1,290	44	-
Receivables	-	-	-	-	-	-	-	-	-	-	-	-
Securitisation positions	-	50	-	-	19	-	-	54	-	-	20	-
Others	-	857	-	-	80	-	-	374	-	-	82	-
Resecuritisations	**-**	**-**	**40**	**-**	**-**	**25**	**-**	**5**	**40**	**-**	**1**	**26**
Securitisation positions	-	-	40	-	-	25	-	5	40	-	1	26
Synthetic securitisations	**16,550**	**-**	**-**	**2,273**	**-**	**-**	**8,408**	**326**	**-**	**1,351**	**74**	**-**
Loans to corporates or to SMEs treated as corporates	10,105	-	-	1,490	-	-	2,717	-	-	487	-	-
Mortgage covered bonds	3,310	-	-	334	-	-	3,688	-	-	555	-	-
Others	3,134	-	-	448	-	-	2,003	326	-	309	74	-
TOTAL	**26,432**	**7,168**	**40**	**4,067**	**921**	**25**	**13,493**	**6,399**	**40**	**2,690**	**962**	**26**

As shown in Table 63, more than 99% of the retained positions are in securitisations (not resecuritisations). In comparison with the previous year, main increase is related to the originator exposure.

The increase of iriginator positions is motivated by the origination of eight new securitisations in 2018.

Turning to originated securitisations with risk transfer, the following table shows the current situation of the underlying portfolio and the changes compared to 2017.

Table 64. Securitisation structures with risk transfer

EUR million

	31 Dec. 2018					31 Dec. 2017				
Traditional SPVs	Outstanding balance	of which: in default	of which: write-offs	Value adjustments in the period	RWA	Outstanding balance	of which: in default	of which: write-offs	Value adjustments in the period	RWA
Residential mortgages	921	-	-	-	18	1,042	-	-	-	49
Commercial mortgages	-	-	-	-	-	-	-	-	-	-
Loans to corporates or to SMEs treated as corporates	4,150	2	-	-	374	-	-	-	-	-
Mortgage covered bonds	7,025	5	96	-25	1,403	5,698	90	6	-9	1,290
Others	-	-	-	-	-	-	-	-	-	-
Resecuritizations										
Securitisation position	33	-	17	-	25	33	-	17	-	26
Total traditional SPVs	**12,128**	**7**	**114**	**-25**	**1,820**	**6,773**	**90**	**23**	**-9**	**1,364**
Synthetic securitisation SPVs	-	-	-	-	-	-	-	-	-	-
Loans to corporates or to SMEs treated as corporates	9,672	5	-	-1	1,490	2,767	6	-	-3	487
Mortgage covered bonds	3,705	9	59	-	334	4,100	66	-	-32	555
Others	2,845	87	-	-22	448	2,154	-	-	-	309
Synthetic securitisation SPVs	**16,222**	**101**	**59**	**-23**	**2,273**	**9,021**	**72**	**-**	**-35**	**1,351**
TOTAL	**28,350**	**108**	**172**	**-49**	**4,093**	**15,794**	**162**	**23**	**-44**	**2,716**

Note: The value adjustments in the period include the value adjustments by asset and provision (generic and specific) deterioration.

As shown in Table 64, during 2018, the outstanding balance of the originated securitisations has increased due to the securitisations with risk transfer originated in the year.

5.4.3. Securitisation funds without risk transfer

As Santander Group retains most of the positions in the originated securitisation funds, they do not meet the regulatory conditions for significant risk transfer. For these funds, capital is calculated for the securitised exposures is calculated as if the exposures had not been securitised.

The following table gives a breakdown, by type of underlying asset, of the outstanding balance of the securitised exposures in funds without risk transfer as of 31 December 2018:

Table 65. Securitisation structures without risk transfer

EUR million

	31 Dec. 2018				31 Dec. 2017			
	Outstanding balance				Outstanding balance			
Traditional SPVs	Outstanding balance	of which in default	Value adjustments in the period	RWA	Outstanding balance	of which in default	Value adjustments in the period	RWA
Residential mortgages	37,005	-	-	-	39,157	-	-	-
Commercial mortgages	35	-	-	-	42	-	-	-
Credit cards	-	-	-	-	955	-	-	-
Finance leases	2,997	-	-	-	2,833	-	-	-
Loans to corporates or to SMEs treated as corporates	7,806	-	-	593	3,027	-	-	-
Consumer loans	31,297	-	-	597	41,394	-	-	-
Mortgage covered bonds	-	-	-	-	-	-	-	-
Receivables	-	-	-	-	1,111	1,111	-	-
Securitisation positions	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-
TOTAL	**79,140**	**-**	**-**	**1,190**	**88,519**	**1,111**	**-**	**-**

As shown in Table above, the underlying securitised assets in the SPVs originated by Santander Group continue to be comprised of residential mortgages and consumer loans. The securitisation exposure with no risk transfer suffers a slight reduction with regard to 2017.

5.5. Santander Group securitisation activity

Santander Group originated eight securitisations in 2018 with the aim of achieving a significant transfer of risk.

Furthermore, Santander Group originates and holds positions in traditional securitisation funds whose underlying portfolios are composed mainly of mortgages, consumer and corporate loans. The Group is also the originator of eleven synthetic securitisation funds (six originated in 2018) whose underlying assets comprise project finance loans refinancing one fund, in one case a loan to SMEs, in two cases, loans to corporates, commercial mortgage loans in the fifth case and auto loans in the last case.

For each of these traditional structures, and no matter the underlying product, Santander Group is awarded a rating by one or more of the following external rating agencies: Standard & Poors', Moody's, Fitch, DBRS, Arc and Scope. Where a traditional securitisation is placed on the market, the Group obtains ratings from at least two of those agencies.

For three of the synthetic securitisations, two external ratings have been requested.

As for investment activity, Santander Group holds positions in securitisation funds originated by entities outside Santander Group whose underlying assets mainly comprise corporate loans, SME loans and mortgage. As Santander Group limits its maximum exposure by rating (AAA,AA, A, BBB, BB), it does not commonly employ hedging techniques to mitigate the risk.

Monitoring changes in associated risk:

- Securitisation positions originated: periodic monitoring is the responsibility of the different securitisation fund managers (trustees/management companies) that prepare regular reports containing an update of the rating performance of the bonds' underlying portfolios.
- Inverse securitisation positions: published NPL metrics (90+, default, recoveries) and prepayments are monitored regularly using specialised software, which additionally checks whether the established rating-based limits are being met.

The processes mentioned above serve to monitor changes in credit and market risks of both securitisation and re-securitisation exposures.

The performance of the underlying assets particularly affects the duration of the tranches and it is unlikely that this will affect the principal bearing in mind the high levels of subordination and continuous monitoring.

The following tables show the distribution, by type of underlying asset, of the securitisation positions issued and repurchased by Santander Group as originator, as investor and as sponsor as of 31 December 2018, in both the banking book and trading portfolio.

As of 31 December 2018, there are no assets awaiting securitisation.

The following table shows new securitisations by type of securitisation and type of exposure being securitised:

Table 66. Securitisation positions purchased or retained. Banking book

EUR million

	31 Dec. 2018				31 Dec. 2017			
		Originator	Investor	Sponsor		Originator	Investor	Sponsor
	Issued positions	Retained positions	Purchased positions	Purchased positions	Issued positions	Retained positions	Purchased positions	Purchased positions
Traditional securitisations	**88.623**	**50.815**	**7.168**	**-**	**85.541**	**53.293**	**6.069**	**-**
Residential mortgages	32,886	23,571	3,367	-	30,976	23,974	4,066	-
Commercial mortgages	66	36	-	-	75	36	-	-
Credit cards	-	-	164	-	468	468	117	-
Finance leases	2,547	218	22	-	2,713	1,231	38	-
Loans to corporates or to SMEs treated as corporates	9,714	9,283	2,134	-	3,510	2,722	1,008	-
Consumer loans	43,410	17,707	573	-	44,351	21,413	411	-
Receivables	-	-	-	-	3,449	3,449	-	-
Mortgage covered bonds	-	-	50	-	-	-	54	-
Others	-	-	857	-	-	-	374	-
Resecuritisations	**-**	**-**	**-**	**40**	**-**	**-**	**5**	**40**
Residential mortgages	-	-	-	-	-	-	-	-
Commercial mortgages	-	-	-	-	-	-	-	-
Loans to corporates or to SMEs treated as corporates	-	-	-	-	-	-	-	-
Consumer loans	-	-	-	-	-	-	-	-
Others	-	-	-	40	-	-	5	40
Synthetic securitisations	**19.575**	**17.621**	**-**	**-**	**9.183**	**8.408**	**326**	**-**
Residential mortgages	-	-	-	-	-	-	-	-
Commercial mortgages	-	-	-	-	-	-	-	-
Loans to corporates or to SMEs treated as corporates	11,850	10,618	-	-	2,954	2,717	-	-
Consumer loans	4,175	3,868	-	-	3,936	3,688	-	-
Others	3,550	3,134	-	-	2,293	2,003	326	-
TOTAL	**108,198**	**68,436**	**7,168**	**40**	**94,725**	**61,701**	**6,399**	**40**

The following table shows the exposure of all securitisations in the banking book, distinguishing between wholesale and retail underlying:

Table 67. Securitisation exposures in the banking book (SEC1)*

EUR million

	31 Dec. 2018								
	Bank acting as originator			Bank acting as sponsor			Bank acting as investor		
	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal
Retail (total)	**41,279**	**3,868**	**45,147**	**-**	**-**	-	**4,104**	**-**	**4,104**
Residential mortgages	23,571	-	23,571	-	-	-	3,276	-	3,276
Credit card	-	-	-	-	-	-	164	-	164
Other retail exposures	17,707	3,868	21,576	-	-	-	664	-	664
Resecuritisation	-	-	-	-	-	-	-	-	-
Wholesales (total)	**9,537**	**13,752**	**23,289**	**40**	**-**	**40**	**3,063**	**-**	**3,063**
Corporate loans	-	513	513	-	-	-	373	-	373
Commercial mortgage	36	-	36	-	-	-	-	-	-
Finance leases and receivables	218	-	218	-	-	-	22	-	22
Other wholesale exposures	9,283	13,239	22,522	-	-	-	2,668	-	2,668
Resecuritisation	-	-	-	40	-	40	-	-	-
TOTAL	**50,815**	**17,621**	**68,436**	**40**	**-**	**40**	**7,168**	**-**	**7,168**

* The securitisation portfolio has been considered as a whole (positions bought and retained).

As shown in Table 67, regardless of the role played by the Bank, the securitisation portfolio is predominantly focused on retail.

Meanhile, the following table shows the distribution of the trading portfolio, where we can see a large concentration in mortgage securitisations and other (both retail and wholesale).

Table 68. Securitisation exposures in the trading book (SEC2)

EUR million

	31 Dec. 2018								
	Bank acting as originator			Bank acting as sponsor			Bank acting as investor		
	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal
Retail (total)	-	-	-	-	-	-	-	-	-
Residential mortgages	0.06	-	0.06	-	-	-	0.74	-	0.74
Credit card	-	-	-	-	-	-	-	-	-
Other retail exposures	0.22	-	0.22	-	-	-	0.28	-	0.28
Resecuritisation	-	-	-	-	-	-	-	-	-
Wholesales (total)	-	-	-	-	-	-	-	-	-
Corporate loans	-	-	-	-	-	-	-	-	-
Commercial mortgage	-	-	-	-	-	-	-	-	-
Finance leases and receivables	-	-	-	-	-	-	-	-	-
Other wholesale exposures	-	-	-	-	-	-	-	-	-
Resecuritisation	-	-	-	-	-	-	-	-	-
Correlation portfolios	-	-	-	-	-	-	-	-	-
TOTAL	**0.28**	**-**	**0.28**	**-**	**-**	**-**	**1.01**	**-**	**1.01**

The positions held on the trading portfolio are monitored continuously to identify any significant variations.

The following table shows securitisations originated by Santander Group with the highest outstanding balance as of 31 December 2018:

Table 69. Inventory of originated securitisations with largest outstanding balance

EUR million

		31 Dec. 2018						
		Balance issued			Repurchased balance			
					Balance issued			
Securitisacion fund	Type	Senior tranches	Mezzanine tranches	First loss tranches	Senior tranches	Mezzanine tranches	First loss tranches	Off-balance sheet exposures
NANSA	Other assets	5,242	372	23	5,242	20	23	-
Red 2	Commercial mortgages	2,560	313	249	2,560	313	-	-
STAR 2016-1	Loans to corporates or to SMEs treated as corporates	2,311	200	50	2,311	-	50	-
FT PYMES MAGDALENA 2	Other assets	2,185	166	23	2,185	-	23	-
RENEW PROJECT FINANCE CLO 2017-1	Other assets	1,646	527	120	1,646	357	1	-
Santander Drive Auto Receivables Trust 2018-3	Consumer loans	439	701	619	-	77	64	-
SC Germany Consumer 2018-1	Consumer loans	1,304	155	148	1,304	79	32	-
Grafton	Loans to corporates or to SMEs treated as corporates	1,076	210	110	1,076	210	-	1,286
Santa Fe	Loans to corporates or to SMEs treated as corporates	1,230	95	14	1,230	-	14	-
FITZROY 2018-1 CLO	Other assets	1,131	63	63	1,131	-	-	-
Santander Retail Auto Lease Funding 2018-A	Leasing	938	166	-	-	166	-	-
GoldenBarStandAlone2016-1	Consumer loans	902	66	132	902	66	132	-
SECUCORFINANCE2013-ILIMITED	Consumer loans	600	-	491	-	-	491	-
RED ONE	Loans to corporates or to SMEs treated as corporates	856	100	69	441	72	-	-
FTA Santander Consumer Spain Synthetic Auto 2018-1	Consumer loans	939	61	10	939	-	10	-
FT CONSUMO SANTANDER 2	Consumer loans	865	122	15	865	100	-	-

Provided below is a breakdown of all securitisations in the banking book together with its corresponding capital consumption arranged by RW interval (risk weight) and calculation method employed when Santander Group acts as originator or sponsor:

Table 70. Securitisation exposures in the banking book and associated regulatory capital requirements (bank acting originator or sponsor) (SEC3)

EUR million

31 Dec. 2018

	Value of the exposure (by RW interval)					Value of the exposure (by regulator method)				RWA (by regulator method)				Capital requirement after ceiling			
	<= 20% RW	> 20% a 50% RW	> 50% a 100% RW	> 100% a 1250% RW	1250% RW	IRB RBA	IRB SFA	SA	1250%	IRB RBA	IRB SFA	SA	1250%	IRB RBA	IRB SFA	SA	1250%
Total exposure	**25,708**	**122**	**427**	**28**	**186**	**10,621**	**14,701**	**1,150**	**-**	**1,728**	**1,915**	**450**	**-**	**138**	**153**	**36**	**-**
Traditional securitisation	6,670	122	171	6	81	4,613	1,286	1,150	-	996	90	450	-	80	7	36	-
Of which, securitisation	6,670	82	171	6	81	4,573	1,286	1,150	-	970	90	450	-	78	7	36	-
Of which, retail underlying	4,654	82	171	6	81	3,843	-	1,150	-	886	-	450	-	71	-	36	-
Of which, wholesale underlying	2,016	-	-	-	-	730	1,286	-	-	85	90	-	-	7	7	-	-
Of which, resecuritisation	-	40	-	-	-	40	-	-	-	25	-	-	-	2	-	-	-
Of which, preference	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which, non-preference	-	40	-	-	-	40	-	-	-	25	-	-	-	2	-	-	-
Synthetic securitisation	19,039	-	256	22	106	6,007	13,415	-	-	732	1,825	-	-	59	146	-	-
Of which, securitisation	19,039	-	256	22	106	6,007	13,415	-	-	732	1,825	-	-	59	146	-	-
Of which, retail underlying	939	-	-	-	10	-	949	-	-	-	172	-	-	-	14	-	-
Of which, wholesale underlying	18,100	-	256	22	95	6,007	12,466	-	-	732	1,652	-	-	59	132	-	-
Of which, resecuritisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which, preference	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which, non-preference	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 71. Securitisation exposures in the banking book and associated regulatory capital requirements (bank acts as an investor) (SEC4)

EUR million

	31 Dec. 2018																	
	Value of the exposure (by RW interval)					Value of the exposure (by regulator method)				RWA (by regulator method				Capital requirement after ceiling				
	<= 20% RW	> 20% a 50% RW	> 50% a 100% RW	> 100% a 1250% RW	1250% RW	IRB RBA	IRB SFA	SA	1250%	IRB RBA	IRB SFA	SA	1250%	IRB RBA	IRB SFA	SA	1250%
Total exposure	**6,428**	**577**	**162**	**-**	**-**	**6,703**	**-**	**464**	**-**	**633**	**-**	**288**	**-**	**51**	**-**	**23**	**-**
Traditional securitisation	**6,428**	**577**	**162**	**-**	**-**	**6,703**	**-**	**464**	**-**	**633**	**-**	**288**	**-**	**51**	**-**	**23**	**-**
Of which, securitisation	6,428	577	162	-	-	6,703	-	464	-	633	-	288	-	51	-	23	-
Of which, retail underlying	3,949	112	43	-	-	4,013	-	91	-	397	-	45	-	32	-	4	-
Of which, wholesale underlying	2,479	465	119	-	-	2,690	-	373	-	237	-	242	-	19	-	19	-
Of which, resecuritisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which, preference	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which, non-preference	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic securitisation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

As shown in Table 71, nearly 93% of the securitisations in which Santander Group invests belong to entities where capital requirements are calculated under the advanced IRB models. This is mainly the case of Santander Spain and Santander UK.

On the other hand, the standardised approach is relevant in the US and Mexico.

Lastly, in its role as originator and investment entity for securitisations, Santander Group complies with the requirements of Part Five of the CRR relating to the retention of economic interest and requirements established in procedure and control policies for all securitisation funds issued later than 1 January 2011. Therefore, for all securitisations originated after 1 January 2011:

- Santander Group consistently retains a minimum of 5% of the net economic interest.

- Santander Group makes available to investors all the necessary information to ensure the risks of the investment are fully known before purchase and to allow the performance of the investment to be monitored on a regular basis. This information includes details of the risk criteria applied to the securitised exposures, which in all cases are the same as for the non-securitised exposures in the originator's balance sheet.

Similarly, for investor positions in securitisations originated after 1 January 2011, Santander Group:

- Santander Group carries out due diligence to ensure that the investment risks are known before purchase and to be able to monitor the performance of the investment on a regular basis.

- Checks that the originator of the securitisations retains a net economic interest of no less than 5%.

As Santander Group complies with these requirements, no capital surcharge is applied.

Santander Group securitisation activity in 2018.
Out of the total issues carried out in 2018, Santander Group retains 55% of the securitisation positions.

The accompanying table gives a breakdown of initial balance of the securitisation positions issued and retained by Santander Group in 2018 on their date of origination.

Table 72. Initial balance of securitisation funds by type of securitised asset

EUR million

	31 Dec. 2018		31 Dec. 2017	
Type of underlying asset	Securitised exposures at the origination date	Repurchased balance	Securitised exposures at the origination date	Repurchased balance
Traditional securitisation	**35.264**	**15.068**	**18.688**	**4.272**
Residential mortgages	2,694	2,510	805	161
Commercial mortgages	-	-	-	-
Credit cards	-	-	519	468
Finance leases	2,656	218	2,380	895
Loans to corporates or to SMEs treated as corporates	8,258	8,502	510	510
Consumer loans	21,656	3,546	14,475	2,238
Others	-	291	-	-
Synthetic securitisation	**11.743**	**10.818**	**4.256**	**3.823**
Loans to corporates or to SMEs treated as corporates	9,476	8,738	1,962	1,820
Others	2,267	2,081	2,293	2,003
TOTAL	**47,007**	**25,886**	**22,944**	**8,095**

This originator activity was concentrated in the United States (38.92%) and Spain (35.26%). For further information, see Appendix IX, which includes the list of special purpose vehicles within the scope of regulatory consolidation.

Access **2018 Pillar 3 Appendices** available on the Santander Group website.

In 2018, Santander Group originated 35 securitisations whose underlying portfolios comprised consumer loans (48.2% of total issues), loans to corporates (37.7%), residential mortgages (5.7%) leasing (5,6%) and mortgages bonds (2.7%). More detail about this securitisations is provided by Table 73, included below:

Origination by country

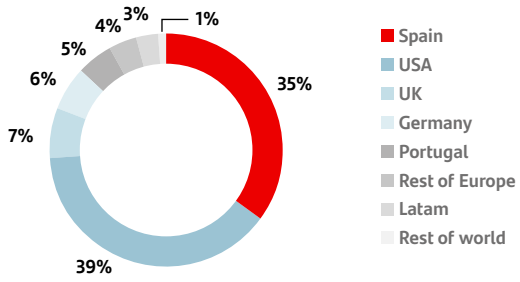


Table 73. List of new securitisations originated in 2018, organised by country and originating institution and ordered by initial issue volume

Name of securitisation	Type of underlying asset	Originator	Initial issue	Country
Santander Drive Auto ReceivablesTrust 2018-3	Consumer loans	SC USA	2,574	
Drive Auto ReceivablesTrust 2018-4	Consumer loans	SC USA	1,475	
DRIVE Auto Receivables Trust 2018-2	Consumer loans	SC USA	1,420	
Santander Retail Auto Lease Trust 2018-A	Leasing	SC USA	1,411	
SANT PRIME AUTO ISSUANCES NOTES TRUST 2018-A	Consumer loans	SC USA	1,288	
Santander Retail Auto Lease Funding 2018-A	Leasing	SC USA	1,245	
SANTANDER DRIVE AUTO RECEIVABLES TRUST 2018-1	Consumer loans	SC USA	1,195	
DRIVE AUTO RECEIVABLES TRUST 2018-5	Consumer loans	SC USA	1,138	
Santander Drive Auto Receivables Trust 2018-5	Consumer loans	SC USA	1,101	USA
SANTANDER DRIVE AUTO RECEIVABLES TRUST 2018-2	Consumer loans	SC USA	1,039	
DRIVE Auto Receivables Trust 2018-1	Consumer loans	SC USA	1,015	
SANT PRIME AUTO ISSUANCES NOTES TRUST 2018-b	Consumer loans	SC USA	962	
Santander Drive Auto Receivables Trust 2018-4	Consumer loans	SC USA	855	
Santander Prime Auto Issuance Notes 2018-EDesigna	Consumer loans	SC USA	750	
Santander Prime Auto Issuance Notes	Consumer loans	SC USA	589	
Santander Prime Auto Issuance	Consumer loans	SC USA	240	
			18,296	**38.92%**
NANSA	Corporate loans	BANCO SANTANDER	5,637	
FT Pymes SANTANDER 13	Corporate loans	BANCO SANTANDER	2,835	
FT Pymes MAGDALENA 2	Corporate loans	BANCO SANTANDER	2,500	
FT Pymes SANTANDER 14	Corporate loans	BANCO SANTANDER	2,310	
FITZROY 2018	Mortgage covered bonds	BANCO SANTANDER	1,257	Spain
FTA Santander Consumer Spain Synthetic Auto 2018-1	Consumer loans	SC ESPAÑA	1,010	
AUTO ABS 2018 FTA	Consumer loans	PSA ESPAÑA	600	
FTA-PRADOVI	Residential mortgages	UCI	428	
			16,576	**35.26%**
RED 2	Corporate loans	SC UK	3,113	**UK**
			3,113	**6.62%**
SC Germany Consumer 2018-1	Consumer loans	SC GERMANY	1,600	
PBD Germany Auto 2018 UG	Consumer loans	PSA ALEMANIA	667	Germany
SC Germany Auto 2018-1	Consumer loans	SC GERMANY	600	
			2,867	**6.10%**
Hipototta nº13	Residential mortgages	TOTTA	2,266	**Portugal**
			2,266	**4.82%**
Santa FE	Corporate loans	MÉXICO	1,339	**Mexico**
			1,339	**2.85%**
AUTO ABS ITALIAN LOANS 2018-1	Consumer loans	PSA ITLIA	742	
Golden Bar Stand Alone 2018-1	Consumer loans	SC ITALIA	478	Italy
			1,220	**2.60%**
SCF Rahoituspalvelut VII DAC	Consumer loans	SC NORDICS	665	**Nordics**
			665	**1.42%**
2018 Second Auto Finance ABS of Xin rong	Consumer loans	SC CHINA	376	**China**
			376	**0.80%**
Santander Leasing Poland Securitization 01DAC	Consumer loans	SANTANDER LEASING	288	**Poland**
			288	**0.61%**
		TOTAL	**47,007**	

6

Market risk

6. Market risk

Market risk is the risk of loss of value of financial instruments arising from changes in market parameters, the volatility of these parameters and correlations between them.

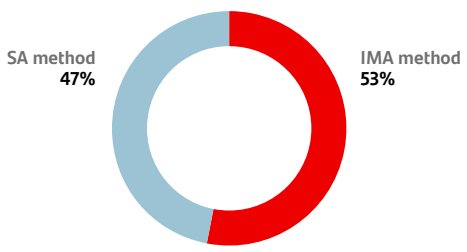
This chapter provides information about activities subject to market risk and the performance of market risks and results in 2018, distinguishing between trading activity and structural risks. It also describes the methodologies and metrics used by Santander Group.

Main figures

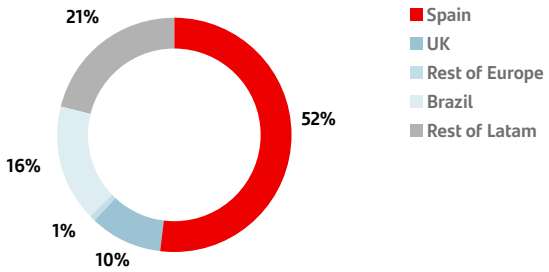
EUR million

	RWA 2018	RWA 2017
Market risk	**25,013**	**24,161**
Of which standardised approach	11,858	9,702
Of which IMA	13,154	14,459

RWA by calculation method



RWA by geography



6.1. Activities subject to market risk

The measurement, control and monitoring of market risk extends to all operations exposed to changes in market prices. This risk arises from changes in the risk factors (interest rate, exchange rate, equities, credit spread, commodity prices and the volatility of each of these factors) and from the liquidity risk of the various products and markets in which Santander Group operates.

The activities are segmented according to the purpose of the risk taken:

a) **Trading:** includes financial services for customers, trading and the taking of positions, mainly in fixed income, equities and currency products.

b) **Structural risks:** these are composed of the market risks inherent in the balance sheet, not including the trading portfolio. Namely:

- Structural interest rate risk: this risk arises from mismatches in the maturities and repricing of all the balance sheet assets and liabilities.
- Structural foreign exchange risk (hedges of results): foreign currency risk arising from the currency in which investments in the consolidated and non-consolidated companies are made (structural exchange rate). This category also includes the positions taken to hedge the foreign currency risk on future results generated in currencies other than the euro (hedges of results).
- Structural equity risk: this includes equity investments in non-consolidated financial and non-financial companies, and the available-for-sale portfolios of equity positions.

6.2. Capital requirements for market risk

This section provides more detailed information on changes in capital requirements for market risk through both internal and standardised models. The Group's consumption of regulatory capital for market risk at the end of December 2018 breaks down as follows:

Table 74. Regulatory capital requirements for market risk

EUR million

	31 Dec. 2018	31 Dec. 2017
Position risk - Trading book* - Standardised approach	**436**	**331**
Commodity Risk - Standardised approach	**15**	**17**
Specific risk in the correlation trading risk portfolio	**-**	**-**
Currency risk - Standardised approach	**498**	**428**
Position and currency risk - Tradingbook - Internal models	**1,052**	**1,157**
Spain	539	563
United Kingdom	58	293
Santander London Branch	129	
Chile	109	113
Portugal	0	0
Mexico	218	187
TOTAL	**2,001**	**1,933**

* Includes structural equity considered as business.

At year-end 2018 Santander Group had authorisation from the Bank of Spain for the use of the internal market risk model for the calculation of regulatory capital in the trading books of the units in Spain, Chile, Mexico, the UK and Portugal. The Group aims to gradually extend this approval to the rest of the units.

Consolidated regulatory capital under the internal market risk model for Santander Group is computed as the sum of the regulatory capital of the units that have the necessary approval from Bank of Spain. This is a conservative criterion when consolidating the Group's capital, as it takes no account of the capital savings arising from the geographical diversification effect.

As a result of this approval, regulatory capital of the trading activity for the perimeter concerned is calculated with advanced approaches, using VaR, Stressed VaR and IRC (incremental risk charge) as the fundamental metrics, in line with the new bank capital requirements under the Basel Accords and, specifically, the CRR.

The Group works closely with the European Central Bank to extend the perimeter of authorisation of internal models (at geographical and operational level) and to analyse the impact of new requirements, in line with the documents published by the Basel Committee to strengthen the capital of financial institutions.

A breakdown of capital requirements in the units that use the internal model is shown below, by geography and component, at year-end:

Table 75. Capital requirements for market risk. Internal model

EUR million

	31 Dec. 2018					
	CR (VaR)	CR (SVaR)	IRC	Risk Not in VaR	Add-On	TOTAL
Spain	68	336	135	-	-	539
United Kingdom	0	0	-	-	58	58
Chile	26	83	20	-	-	129
Santander London Branch	21	81	7	-	-	109
Portugal	0	0	-	-	-	0
Mexico	77	130	11	-	-	218
TOTAL	**193**	**629**	**173**	**-**	**58**	**1,052**

A breakdown of capital requirements in the units that use the internal model is shown below, by geography and component, at year-end:

Table 76. Market risk under IMA approach (MR2-A)

EUR million

	31 Dec. 2018	
	RWA	Capital requirements
VaR (higher of values a and b)	**2,647**	**212**
(a) Previous day's VaR [Article 365(1) of the CRR (VaRt-1)]	414	33
(b) Average of the daily VaR [Article 365(1)] of the CRR on each of the preceding 60 business days (VaRavg) x multiplication factor (mc) in accordance with Article 366 of the CRR	2,647	212
SVaR (higher of values a and b)	**8,105**	**648**
(a) Latest SVaR [Article 365(2) of the CRR (SVaRt-1)]	1,527	122
(b) Average of the SVaR [Article 365(2) of the CRR] during the preceding 60 business days (SVaRavg) x multiplication factor (ms) (Article 366 of the CRR)	8,105	648
IRC (higher of values a and b)	**2,402**	**192**
(a) Most recent IRC value (incremental default and migration risks calculated in accordance with Article 370 and Article 371 of the CRR)	1,800	144
(b) Average of the IRC number over the preceding 12 weeks	2,402	192
Comprehensive risk measure (higher of values a, b and c)	**-**	**-**
(a) Most recent risk number for the correlation trading portfolio (Article 377 of the CRR)	-	-
(b) Average of the risk number for the correlation trading portfolio over the preceding 12 weeks	-	-
8% of the own funds requirement in the standardised approach on the most recent risk number for the correlation trading portfolio (Article 338(4) of the CRR)	**-**	**-**
Other	**-**	**-**
TOTAL	**13,154**	**1,052**

Table 77. RWA flow statements of market risk exposures under IMA (MR2-B)

EUR million

						31 Dec. 2018	
	VaR	SVaR	IRC	Comprehensive risk measure	Other	Total RWAs	Total capital requirements
RWAs Dec. 2017	**2,635**	**9,196**	**1,838**	**-**	**790**	**14,459**	**1,157**
Regulatory adjustment	-	-	-	-	-	-	-
RWAs at the previous quarter-end (end of the day)	2,635	9,196	1,838	-	790	14,459	1,157
Movement in risk levels	-228	-1,332	323	-	-68	-1,304	-104
Model updates/changes	-	-	-	-	-	-	-
Methodology and policy	-	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-	-
Foreign exchange movements	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
RWAs at the end of the reporting period (end of the day)	2,407	7,864	2,161	-	723	13,154	1,052
Regulatory adjustment	-	-	-	-	-	-	-
RWAs Dec. 2018	**2,407**	**7,864**	**2,161**	**-**	**723**	**13,154**	**1,052**

Table 78. Market risk under standardised approach (MR1)

EUR million

	31 Dec. 2018	
	RWA	Capital requirements
Outright products		
Interest rate risk (general and specific)	4,639	371
Equity risk (general and specific)	796	64
Foreign exchange risk	6,221	498
Commodity risk	184	15
Options		
Simplified approach	-	-
Delta-plus method	18	1
Scenario approach	-	-
Securitisation (specific risk)	-	-
TOTAL	**11,858**	**949**

Changes in capital requirements and RWAs for market risk using approved standardised models from 2017 to 2018 are shown below:

Table 79. Capital requirements for market risk. Standardised approach

EUR million

	Capital	RWAs
Starting figure (31/12/2017)	**776**	**9,702**
Changes in business	173	2,156
Ending figure (31/12/2018)	**949**	**11,858**

Prudent Valuation Adjustments (PVA)
Additionally, a breakdown of the constituent elements of the bank's PVA for all assets measured at fair value (marked to market or marked to model) and for which PVA are required can be found in Appendix XIX.

This information is published according to the requirements for Template PV1 contained in the document *Pillar 3 disclosure requirements - consolidated and enhanced framework*, published by the BCBS in March 2017.

Access **2018 Pillar 3 Appendices** available on the Santander Group website.

6.3. Trading activity

The basic metric used to control market risk in trading operations at Santander Group in 2018 was value at risk (VaR). VaR measures the maximum expected loss for a given confidence level and time horizon.

VaR is used because it is easy to calculate and because it provides a good reference for the level of risk incurred. Other measures are also used to give greater control over the risks in the markets in which the Group operates.

One of these other measures is scenario analysis, which consists of defining alternative behaviours for various financial variables and determining the impact on results when these scenarios are applied to the Group's activities. The scenarios may replicate past events (such as crises) or, conversely, they may describe plausible scenarios unrelated to past events. At least three types of scenarios are defined: plausible, severe and extreme. Together with VaR, these three types of scenario provide a much more complete understanding of the risk profile.

In line with the principle of business unit independence, the market risk area monitors positions daily, both at the level of the individual unit and globally, exhaustively controlling for changes in portfolios so as to detect any incidents and correct them immediately. Preparing a daily income statement is an excellent risk indicator because it helps to identify the impact that changes in financial variables have had on the portfolios.

Lastly, derivatives and credit management activities, being atypical, are controlled daily using specific measures. In the case of derivatives, controls are conducted of sensitivity to fluctuations in the price of the underlying (delta and gamma), volatility (vega) and time (theta). For credit management activities, measures such as spread sensitivity, jump-to-default and exposure concentrations by rating level are all systematically reviewed.

6.3.1. Value at Risk

Santander Group's VaR calculation methodology consists of historical simulation with a 99% confidence level and a one-day horizon for internal risk management, and a ten-day horizon when calculating own funds market risk. Statistical adjustments are made to enable swift and efficient incorporation of the most recent events affecting the levels of risk assumed. Currently, all units use historical simulation with full revaluation, except for Market Risk Spain, which, while using this methodology for certain portfolios, applies historical simulation using a Taylor series approximation for the bulk of its portfolios.

The Group uses a two-year window, or 520 daily readings, backwards in time from the VaR calculation reference date. Two figures are calculated each day, one by applying an exponential decline factor that gives a smaller weighting to the earliest readings, and another with uniform weightings for all observations. The reported VaR is the higher of these two figures.

At the end of December 2018, Santander Group had authorisation from the Bank of Spain to use the internal market risk model for calculating regulatory capital in the trading portfolios of the Spain, Chile, Portugal, United Kingdom and Mexico units.

The Group's aim is to gradually extend this approval to the other units that have a trading portfolio, in line with the gradual implementation plan submitted to the Bank of Spain. The total regulatory capital figure using the internal model is calculated as the linear sum of the individual regulatory capital figures of the units that have Bank of Spain approval, that is, without considering diversification between units.

At year-end 2018, VaR by region was as follows:

Table 80. VaR, Stressed VaR and IRC by geography (MR3)

EUR million

Spain		2018	2017	Variation
VaR (10 days - 99%)				
1	Maximum	41	37.6	10%
2	Average	17	20.1	-18%
3	Minimum	9	13.0	-28%
4	End of period	19	18.1	5%
Stressed VaR (10 days - 99%)				
5	Maximum	103	142.0	-27%
6	Average	76	81.2	-7%
7	Minimum	49	60.3	-19%
8	End of period	92	82.1	12%
Incremental Risk Charge (99.9%)				
9	Maximum	165	516.9	-68%
10	Average	136	360.5	-62%
11	Minimum	98	136.6	-28%
12	End of period	129	136.6	-6%

United Kingdom		2018	2017	Variation
VaR (10 days - 99%)				
1	Maximum	14.6	13.4	9%
2	Average	4.8	9.2	-48%
3	Minimum	-	6.7	-100%
4	End of period	-	9.4	-100%
Stressed VaR (10 days - 99%)				
5	Maximum	93.1	76.7	21%
6	Average	22.4	51.9	-57%
7	Minimum	-	33.4	-100%
8	End of period	-	73.3	-100%
Incremental Risk Charge (99.9%)				
9	Maximum	-	-	-
10	Average	-	-	-
11	Minimum	-	-	-
12	End of period	-	-	-

Santander London Branch		2018	2017	Variation
VaR (10 days - 99%)				
1	Maximum	9.4	-	-
2	Average	5.9	-	-
3	Minimum	2.5	-	-
4	End of period	6.8	-	-
Stressed VaR (10 days - 99%)				
5	Maximum	27.7	-	-
6	Average	17.0	-	-
7	Minimum	6.2	-	-
8	End of period	22.2	-	-
Incremental Risk Charge (99.9%)				
9	Maximum	53.4	-	-
10	Average	12.6	-	-
11	Minimum	0.5	-	-
12	End of period	1.4	-	-

Chile		2018	2017	Variation
VaR (10 days - 99%)				
1	Maximum	13.7	15.6	-12%
2	Average	5.4	8.4	-36%
3	Minimum	3.3	4.7	-29%
4	End of period	4.5	12.4	-63%
Stressed VaR (10 days - 99%)				
5	Maximum	23.7	25.7	-8%
6	Average	16.2	17.3	-6%
7	Minimum	11.0	8.9	23%
8	End of period	20.5	19.9	3%
Incremental Risk Charge (99.9%)				
9	Maximum	16.5	13.9	19%
10	Average	4.5	6.4	-30%
11	Minimum	0.6	1.5	-64%
12	End of period	2.4	1.5	54%

Mexico		2018	2017	Variation
VaR (10 days - 99%)				
1	Maximum	55.0	19.8	178%
2	Average	17.0	14.0	21%
3	Minimum	9.7	8.8	10%
4	End of period	9.7	17.3	-44%
Stressed VaR (10 days - 99%)				
5	Maximum	43.9	38.3	15%
6	Average	29.2	26.3	11%
7	Minimum	17.2	14.0	23%
8	End of period	30.6	21.5	42%
Incremental Risk Charge (99.9%)				
9	Maximum	16.2	33.7	-52%
10	Average	9.5	23.0	-59%
11	Minimum	2.7	7.5	-64%
12	End of period	11.4	7.5	52%

Portugal		2018	2017	Variation
VaR (10 days - 99%)				
1	Maximum	0.1	0.1	139%
2	Average	-	-	-40%
3	Minimum	-	-	-74%
4	End of period	-	-	-54%
Stressed VaR (10 days - 99%)				
5	Maximum	0.3	0.1	162%
6	Average	-	-	-
7	Minimum	-	-	-
8	End of period	-	-	-
Incremental Risk Charge (99.9%)				
9	Maximum	-	-	-
10	Average	-	-	-
11	Minimum	-	-	-
12	End of period	-	-	-

By way of a summary, the Group's average VaR for the trading business in 2018 was EUR 9.7 million, despite the continued high market volatility caused by Brexit, the resurgence of protecionism and the increase in global trade tariffs. It could also be said that the Group's trading risk profile is low in comparison to other similar financial groups. Dynamic management of risk enables Santander Group to adopt changes in strategy to unlock opportunities in an uncertain environment.

For further details, see the Risk Management Chapter (section 4) on the 2018 Annual Report

Access **2018 Annual Report** available on the Santander Group website.

6.3.2. Stressed VaR

The methodology for calculating stressed VaR is the same as that used to calculate VaR, but with two differences:

- **Historical window for observing factors:** in the stressed VaR calculation a window of 260 data readings is used, instead of the 520 used for computing the ordinary VaR measurement.
- **Unlike the method used for the ordinary VaR calculation:** stressed VaR is not obtained as the higher of the uniformly weighted percentile and the exponentially weighted percentile; instead, the uniformly weighted percentile is used directly.

All other aspects of the methodology and inputs for calculating the stressed VaR are the same as for the VaR.

When determining the observation period, the methodology area has analysed the history of a subset of market risk factors picked on the basis of expert analysis of the most significant positions

in the books. The scope considered comprises the treasury departments for which Bank of Spain approval has been obtained for the use of the internal model at 31 December 2018: Spain, United Kingdom, Chile, Portugal and Mexico.

The windows currently used to calculate stressed VaR are:

Table 81. Stress window

	Period
Spain	16/09/2008 - 17/09/2009
UK	14/07/2008 - 01/07/2009
Chile	16/09/2008 - 17/09/2009
Brazil	18/11/2008 - 30/11/2009
Mexico	12/06/2012 - 24/06/2013
Portugal	04/09/2008 - 10/09/2009

These stress windows are regularly reviewed, and a daily check is run on the validity of the window to compare both VaR and stressed VaR. This check may determine that an analysis is required of the loss and gain vectors used to calculate the VaR values in order to determine the positions and market movement that made VaR exceed stressed VaR over a continuous period of time.

The aim of the analysis is to identify and attempt to separate the causes of the exceptions into two basic categories:

- **Market movements**: it may be necessary to review the window.
- **Significant changes in the composition of the portfolio:** in this case an analysis will need to be conducted with the Business department so as to ascertain whether the new positions will be permanent, or if they are one-off transactions, and thus decide whether the window should be reviewed.

If the analysis of the exceptions of percentile VaR with respect to stressed VaR reveals that the current window used to calculate daily VaR covers a period with greater market volatility than the stress window used to calculate stressed VaR, then the stress window will be reviewed.

6.3.3. Incremental risk charge

Following the recommendations of the Basel Committee on Banking Supervision and applicable regulations, an additional metric is calculated in relation to the credit risk inherent in the trading portfolios: the incremental risk charge (IRC).

The IRC is intended to measure both rating migration risk and any incremental default risk that is not captured by VaR through changes in the corresponding credit spreads. The IRC metric is calculated, where applicable, for public and private fixed-income bonds, bond derivatives and credit derivatives.

The method used to calculate the IRC, which is essentially similar to that applied to the credit risk of non-trading portfolio exposures, is based on the Merton structural model, which dictates that the default event occurs when the assets of a company fall below a certain level of its debts. This internally developed model comprises direct measurements on the distribution queues of losses caused by the different credit events it contemplates, i.e. default risk and migration of credit quality subject to a confidence interval of 99.9% and a capital horizon of one year for all positions.

The assumed liquidity horizon coincides with the one-year capital horizon, there being no other liquidity horizons of less than one year. The IRC calculation methodology uses a loss distribution generated via Montecarlo simulation, using two transition matrices; one for corporate issues and the other for sovereign issues. The transition matrices used in the IRC model are based on the historical probabilities of transition, published by the rating agencies. These probabilities are processed to remove the non-rated category and adjusted to include the internally estimated probability of default.

This calibration process is run once a year to incorporate the latest information. The model does not assume the periodical renewal of positions (roll-over); but rather a model of constant positions along the one-year capital and liquidity horizon, which consists of maintaining the same positions along this horizon independently of the maturity of each of them.

It is a corporate model that incorporates the portfolios from the different regions in which the IRC has been approved to calculate independent IRC figures.

6.3.4. Stress testing

Various types of stress test scenarios are currently applied:

- **VaR scenarios:** these consist of a new VaR calculation whenever there are changes in risk factors. These scenarios help define a portfolio's risk profile.
- **IRC scenarios:** scenarios defined specifically to stress default risk and the risk of ratings migration in the credit positions in the trading portfolio.
- **Historical scenarios:** scenarios are constructed on the basis of relevant historical events and are used to forecast maximum losses that would occur were these events to repeat themselves.
- **Severe crisis scenarios:** extreme scenarios based on movements in market variables that have no known historical precedent.
- **Plausible scenarios:** another alternative is to conduct the stress test using scenarios based on expectations of future market performance. These expectations are based on scenarios that are not as extreme as the stressed scenarios.

When defining the scenarios in which the portfolios are to be tested a distinction is drawn between the following:

- **Global scenarios:** affecting all units. These are defined globally and each unit is responsible for calculating the movements of the variables that apply to them.
- **Abrupt crisis:** ad hoc scenario with sudden market jolts. 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:** historical scenario of the crisis triggered in the market on the heels of the subprime mortgage crisis in the United States. The analysis seeks to capture the impact on results of the liquidity crunch in the markets. The scenarios will have two different time horizons: 1 day and 10 days. Both scenarios posit plunges in stock markets, interest rate declines in the core markets and increases in emerging markets, and dollar appreciation against all other currencies.

- **Adverse scenario:** reflects the systemic threats which are currently considered to be the most serious threats to the stability of the banking sector in the European Union. Events occurring in this scenario take account of increases in global bond yields along with an incremental fall in the creditworthiness of countries with low demand; stagnation of political reforms jeopardising the sustainability of public finances and a lack of the adjustments necessary to maintain reasonable market funding.

- **Reverse stress test scenarios:** those scenarios that can compromise the Bank's ongoing viability. Here, the potential vulnerabilities of the business are identified, along with hidden risks and interactions between the different risk factors.

These inverse scenarios start from a known stress result (such as non-compliance with certain ratios relating to capital, liquidity or capital adequacy) and from there they identify the extreme scenarios in which the movements of the market variables can cause those events that compromise the viability of the business.

- **Forward-looking scenarios:** where the aim is to anticipate possible negative consequences of changes in market variables and come up with options to prevent the ensuing impacts. They help to detect signs of change in the positioning of portfolios and provide better support for decision-making.

A consolidated monthly stress test is prepared, under the supervision of the global market risk committee, with explanations of the main variations in the results for the different scenarios and units. An alert mechanism is also in place, so that when a scenario returns a loss that is high by historical standards or in terms of the capital consumed by the portfolio in question, the relevant business head is notified. The stress test is performed by applying the same methodologies for all sub-portfolios covered by the internal market risk model.

The table below shows the results as of 31 December 2018, broken down by risk factor (interest rate, equities, foreign currency, credit spread, commodities and the volatility for each), in a scenario in which volatility equivalent to six standard deviations in a normal distribution is applied. The scenario is defined by taking for each risk factor the change that produces the highest potential loss in the global portfolio.

Table 82. Stress scenario: Maximum volatility (worst case)

EUR million

	2018						2017					
	Interest rate	Equities	Foreign currency	Credit spread	Commo-dities	Total	Interest rate	Equities	Foreign currency	Credit spread	Commo-dities	Total
TOTAL TRADING	**-18.9**	**-13.1**	**-29.4**	**-12.8**	**-**	**-74.3**	**-32.5**	**-8.7**	**-5.3**	**-18.7**	**-**	**-65.2**
Europe	-7.9	-3.8	-9.2	-11.1	-	-32.0	-10.3	-3.3	-1.9	-18.2	-	-33.7
Latin America	-2.1	-9.3	-15.8	-0.1	-	-27.3	-21.0	-5.4	-3.0	-	-	-29.4
USA	-8.5	-	-3.8	-	-	-12.3	-0.1	-	-0.3	-	-	-0.4
Global Activities	-0.2	-	-0.2	-1.7	-	-2.1	-0.1	-	-	-0.5	-	-0.6
Asia	-0.2	-	-0.4	-	-	-0.5	-1.0	-	-0.1	-	-	-1.1

The stress test reveals that the economic loss suffered by Santander Group in its trading portfolios, in terms of the mark to market (MtM) result, would be, if the stress movements defined in the scenario materialised in the market, EUR 74.3 million. This loss would be concentrated in Europe (in the following order: interest rates, credit spread and equities) and Latin America (in the following order: interest rates, exchange rates and equities).

6.3.5. Backtesting (MR4)

The general aim of backtesting is to verify the accuracy of the Value at Risk (VaR) calculation model. In other words, whether to accept or reject the model used to estimate the maximum loss on a portfolio with a given level of confidence, over a certain period of time.

Backtesting is analysed at local level by the local market risk control units. The market risk consolidation unit is responsible for backtest reporting at consolidated level. It is important to note that the backtesting methodology is applied identically to all the sub-portfolios covered by the internal market risk model.

The backtesting exercise consists of comparing the VaR forecasts, given a certain confidence level and time horizon, with the actual losses incurred over a time horizon equal to the VaR time horizon.

Three types of backtesting have been defined:

- **Clean backtesting:** the daily VaR is compared with the results obtained without taking into consideration intra-day results or the changes in the positions of the portfolio. This method is used to check the accuracy of the individual models used for valuing and measuring the risks of various positions.

- **Dirty backtesting:** the daily VaR is compared with the net results for the day, including the results of intraday operations and results from fees and commissions.

- **Dirty backtesting without mark ups or commissions**: the daily VaR is compared with the net results for the day, including the results of intraday operations but excluding results from mark ups and fees and commissions. This method seeks to provide an idea of the intraday risk assumed by the Group's treasury departments.

In order to calibrate and control the effectiveness of the internal market risk measurement and management systems, Santander Group regularly performed the required benchmark tests and analyses throughout 2018, with the conclusion that the model was reliable.

Number of exceptions
An exception occurs whenever the losses or gains observed in a day exceed the VaR estimate. The number (or percentage) of exceptions recorded is one of the most intuitive indicators for establishing a model's accuracy.

The confidence level for the VaR calculation is a measure of the number of exceptions expected to occur in a given time window. For example, if the daily VaR is calculated with a confidence level of 99%, the percentiles of interest are the 1st and the 99th percentiles of the P&L distribution, so we should expect 2% of exceptions during the days studied (1% due to excess profit and 1% due to excess loss).

If there are significantly more, or fewer, exceptions, this might be a sign of problems in the VaR model employed. With the observed P&L and estimated VaR data it is possible to construct a hypothesis test to check the validity of the VaR/P&L relationship.

Time between exceptions
The confidence level for the VaR is also a measure of the number of days that can be expected to elapse between two successive exceptions. For instance, if the daily VaR is calculated at 99% confidence (1st and 99th percentiles), we may expect a mean time of approximately 50 days between exceptions.

Similarly to what was explained in relation to the frequency of exceptions, hypothesis-testing can be done based on the time between exceptions as a means of validating the VaR model.

Breadth between exceptions
Whereas the VaR predicts with a certain probability the risk that is assumed, the average excess (or expected shortfall) is a predictor, for that probability, of the average loss once the VaR has been exceeded. This study should be included when analysing the backtesting report in order to obtain the size of the potential losses that exceed the VaR level.

Daily VaR/P&L relationship
To validate the VaR model, it is not enough to analyse the number and type of exceptions that occur in a given time frame. Other indicators must be observed in order to ensure the model's consistency. One such indicator is the daily VaR/P&L relationship. This relationship is defined as follows:

- The P&L figure, as a percentage of VaR, on all the days on which there are no exceptions (losses or gains).

- Calculation of the arithmetic mean of these figures.

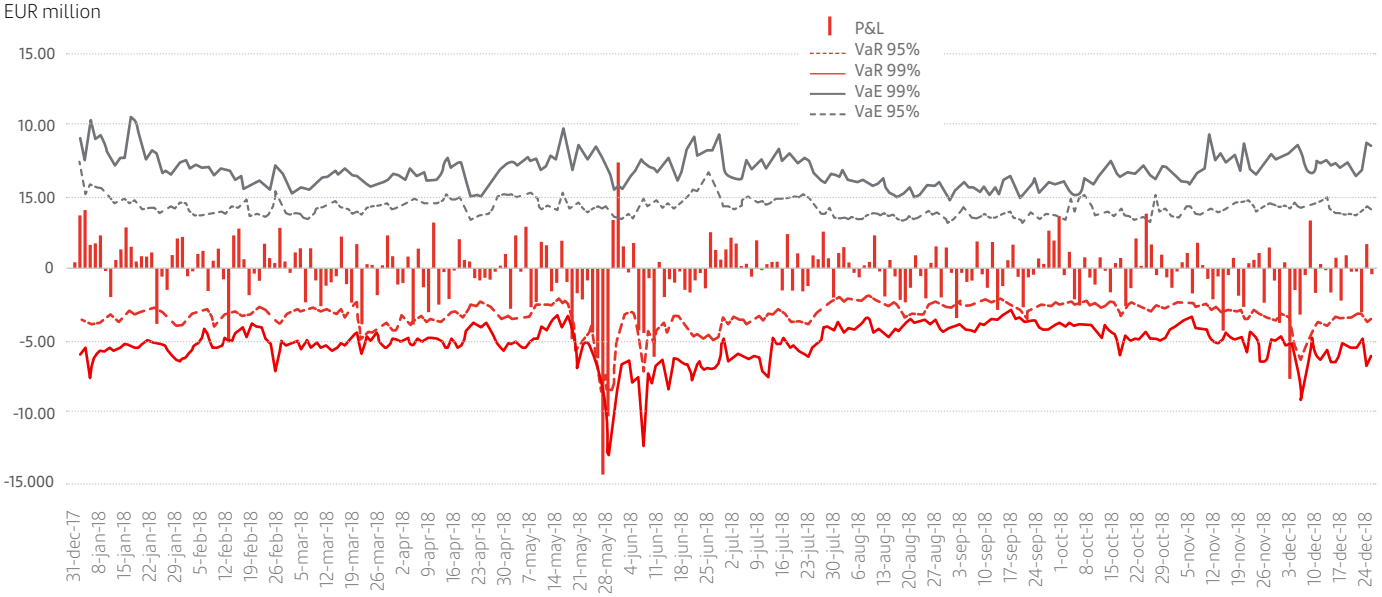
The percentage should be close to a value determined by the VaR confidence level, because the higher the chosen confidence level, the higher the VaR estimate (and the smaller the P&L results as a percentage of that estimate).

If the percentage observed is much higher than expected, the risk is being underestimated, and the model should be reviewed. Conversely, if the percentage is significantly smaller, then the risk is being overestimated and the VaR model should be adjusted. The latter outcome may be desirable, however, if the aim is to maintain conservative risk estimates.

The following diagram shows the annual backtest at the end of December 2018 for each unit with internal model approval:

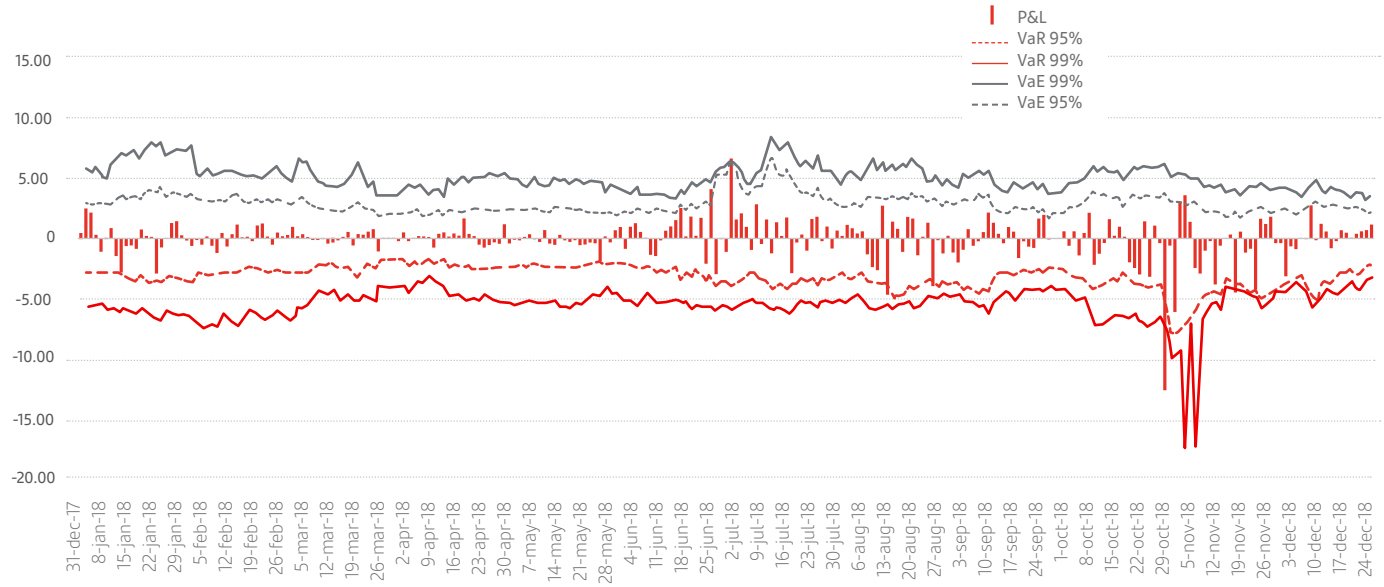
MIR Spain Group

EUR million



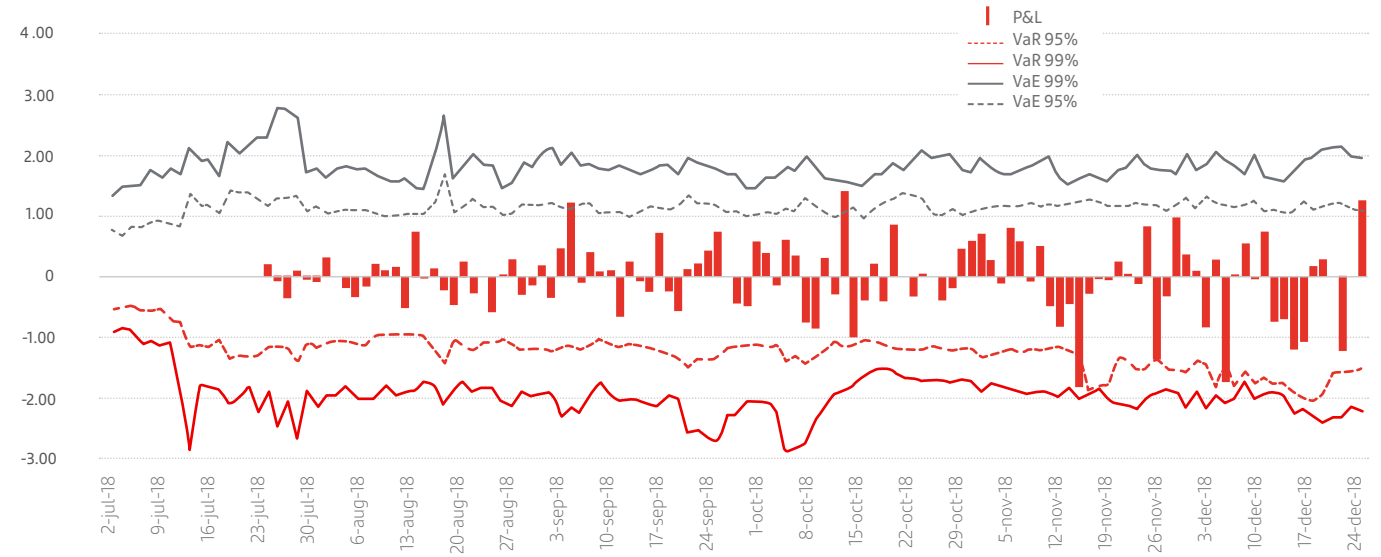
Mexico

EUR million



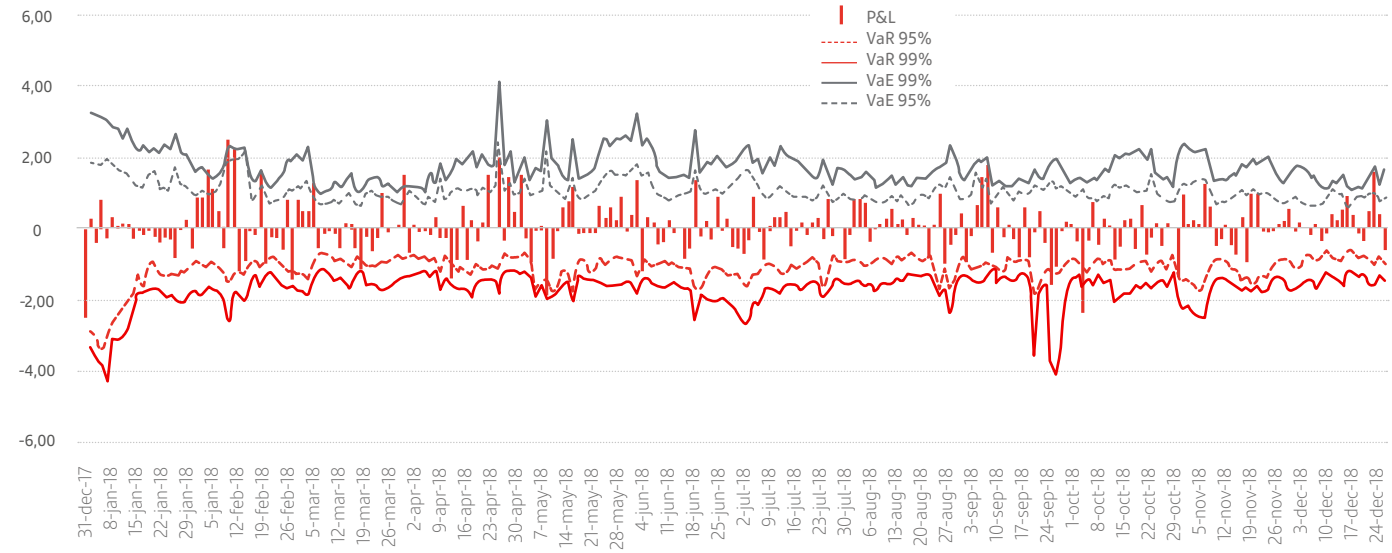
Santander London Branch

EUR million



Chile

EUR million



The following table includes backtesting exceptions for units that account for over 3% of total RWAs for market risk. The number of exceptions at 31 December 2018 for the main units with internal model approval are shown below:

Table 83. Exceptions at units with internal model

	31 Dec. 2018	
	Exceptions	Model Status
Spain	4	VALID
SLB	2	VALID
Chile	3	VALID
Mexico	3	VALID

Exceptions in Spain relate mainly to movements in the interest rates curve, credit spreads and exchange rates.

Exceptions in Mexico relate to abrupt movements in the MXN/USD exchange rate, which also affect movements in the dollar interest rate curve, as in the exception of 20 November.

Exceptions in Chile are mainly the result of movements in the USD/CLP exchange rate, and the dollar interest rate curve.

Valuation adjustments
The fair value of a financial instrument is calculated using the appropriate valuation model. Valuation adjustments may be needed, however, when no market quotations are available for price comparison purposes.

Sources of risk include uncertain model parameters, illiquid issuers of underlying assets, poor quality market data or unavailable risk factors (sometimes the best alternative is to use limited models with controllable risk). In such situations, calculating and applying adjustments to the valuation is a common practice in the industry. It is done by Santander to take account of the sources of model risk described below:

- For fixed-income markets, examples of model risk include correlation between fixed-income indices, the absence of modelling of stochastic basis spreads, calibration risk and modelling volatility. Other sources of risk arise from the estimation of market data.

- In equity markets, examples of model risk include modelling the forward skew and the impact of stochastic interest rates, correlation and multi-curve modelling.

Risk may also derive from managing hedges of digital payments, callables and barriers. Also relevant are risk sources that arise from the estimation of market data such as dividends and correlations for quanto options and composites on baskets.

For specific financial instruments pegged to home mortgage loans guaranteed by financial institutions in the United Kingdom (which are regulated and partly financed by the government) and derivatives on underlying property assets, the Halifax House Price Index (HPI) is the main input. In these cases, the assumptions include estimates regarding the future growth and volatility of the HPI, the mortality rate and implicit credit spreads.

- Inflationary markets are exposed to model risk due to uncertainty regarding modelling of the correlation structure between different inflation rates (consumer price indices). Another source of risk may arise from the bid-offer spread of inflation-linked swaps.

- Currency markets are exposed to model risk in their modelling of forward skew and the impact of modelling stochastic interest rates and correlation for multi-asset instruments. Risk may also arise from market data, due to the existence of specific illiquid foreign exchange pairs.

6.3.6. Internal validation of the models

GLOBAL [PFE (REC), CVA, DVA and IRC]
Santander Group currently uses an advanced model based on Monte Carlo simulations and an analytical model for calculating potential exposure to counterparty credit risk - PFE (REC). In Spain, Mexico and Portugal and at the US subsidiary (Santander New York Branch) and Santander Bank North America (SBNA), the two models coexist (mixed model), whereas the other units only use the analytical model.

The development and validation project was continued in 2018 to replace the existing aggregation systems. This plan will continue to be implemented in 2019.

With regard to corporate CVA and DVA models, which take the expected positions of the PFE (REC) models, the recurring validation process currently in progress is due to finish in early 2019.

The recurring validation process for the model of calculating regulatory capital for issuer risk (Incremental Risk Charge) is nearing completed, and various proposed changes to the current model are being reviewed, in order to improve compliance with the regulatory expectations established in the TRIM.

The objectives of Internal Validation for 2019 will be focused on:

- Recurring validation of REC, CVA/DVA metrics.

- Monitoring of the recommendations associated with the models.

GLOBAL [setting of price of Front XVA]
Work continued throughout 2018 on the process of developing and validating products and improvements to the Quantia environment Framework (QeF) for the construction of the Mark-to-Future bucket. This model is one of the main inputs when calculating valuation adjustments (XVA).

The objectives of Internal Validation for 2019 will be focused on the review of new products and the metrics of the new aggregation engine.

GLOBAL [setting of fixed income prices by Front Office]
In 2018, the Group continued to work on validating market input models (Murex 3 curve module, long-term repo curve, rating transition matrices for the calculation of RVA) and model input models.

Validation documents for native Murex models were improved, and the revalidation process was continued.

Validations were also made of new in-house developments for the operational migration of SANPRO to the trading book (cancellable deposits, swaps and quanto vanilla options) and a new FX model for specific products.

FVAs related to SANPRO models and the long-term repo curve were also validated, in addition to the RVA (replacement valuation adjustment) calculation methodology.

The objectives of Internal Validation for 2019 will be focused on:

- Validating new pay-offs and improving existing ones.
- Validating more sophisticated models for management and valuation adjustments.
- Validating model input and market input models.
- Completing the revalidation of native Murex models.
- Completing the validation of the definitions for risk factor sensitivities.

GLOBAL [setting of FX price by Front Office]
The Group continued its process of validating market inputs models in 2018 and meanwhile the validation documentation for the native Murex models was improved and the new implementation of local volatility models was validated.

The objectives of Internal Validation for 2018 will be focused on:

- Validating input models and new pay-offs.
- Validating more sophisticated models for management and valuation adjustments.

GLOBAL [setting of Equity and Inflation prices by Front Office]
In 2018, the Group continued to work on validating market input models (correlations for equity indices and single stocks, inflation volatility curves and surfaces) and model input models (seasonality of inflation indices).

Validation documents for native Murex models were improved, and the revalidation process was continued.

The definitions of risk factor sensitivities were also validated, in accordance with the Group-wide official pricing systems. This exercise, which is very far advanced, will be completed in 2019.

Lastly, various improvements and new developments for in-house models were reviewed (dynamic basked product; improvements in the treatment of dividends in hybrid equity-interest rate models; autocallables with differing dates).

The objectives of Internal Validation for 2019 will be focused on:

- Validating new pay-offs and improving existing ones.
- Validating more sophisticated models for management and valuation adjustments.
- Completing the revalidation of native Murex models.
- Completing the validation of the definitions for risk factor sensitivities.

GLOBAL [setting of Risk price]
In 2018, the valuation models used to calculate VaR in the risks system were revalidated in accordance with the plan established at year-end 2017. The models with higher materiality used to calculate VaR in Brazil were also validated. A plan was drawn up for 2019 and 2020 to validate the remaining valuation models used in the risks system.

Dashboard [VaR and SVaR]
In 2018, work continued on the quarterly validation dashboard for the Market VaR and SVaR models in Spain, the UK, Brazil, Mexico, Chile and Portugal. The dashboard incorporates a number of key indicators used to monitor the quality of models, namely the SVaR/VaR ratio, the number of backtesting exceptions, the degree of consistency of P&L Front - Risks and the publication use test. These indicators are included in recurring validations, and their early monitoring constitutes proactive control of the model function.

SPAIN [VaR and SVaR]
In 2018, the recurring validation of internal VaR and SVaR models was completed for Spain in line with TRIM guidelines (targeted review of internal models).

Tests were run during this validation process based on a review of p-values and the validity of VaR re-scaling assumptions. The validity of the development models associated with risk factors, in addition to the decline factor applied to weight the different scenarios was also reviewed.

The Group continued to carry out validation exercises based on hypothetical portfolios intended to identify weaknesses in the models. Lastly, a detailed review was commenced of the accuracy of the metrics obtained using the simplified valuation models in the risks system compared to Front platform models, as part of the process to identify risks not contemplated in the models.

The objectives of Internal Validation for 2019 will be focused on:

- Validating new improvements deriving from new regulatory requirements.

CHILE [VaR and SVaR]
In December 2018, the recurring validation of internal VaR and SVaR models was completed for Chile in line with TRIM guidelines. During this validation several recommendations were made to align the model with the regulatory requirements established in the guidelines.

The objectives of Internal Validation for 2019 will be focused on:

- Validating market data models (curves, surfaces, dividends, etc.).
- Validation of improvements deriving from new regulatory requirements.

PORTUGAL [VaR and SVaR]
In December 2018, the recurring validation of internal VaR and SVaR models was completed for Portugal in line with TRIM guidelines. During this validation several recommendations

were made to align the model with the regulatory requirements established in the guidelines.

The objectives of Internal Validation for 2019 will be focused on:

- Validation of improvements deriving from new regulatory requirements.

MEXICO [VaR and SVaR]
In December 2018, the recurring validation of internal VaR and SVaR models was completed for Mexico in line with TRIM guidelines. During this validation several recommendations were made to align the model with the regulatory requirements established in the guidelines.

The objectives of Internal Validation for 2019 will be focused on:

- Validation of improvements deriving from new regulatory requirements.

6.4. Structural balance sheet risks

Structural risk is defined as risk caused by management of different balance sheet items. This risk includes both losses from price changes affecting available-for-sale and held-to-maturity portfolios (banking book), and losses arising from management of assets and liabilities carried at amortised cost of Santander Group.

Specifically, structural risk measures the probability of losses in different balance sheet figures deriving from a change in the levels of different market variables, specifically interest rates and foreign exchange rate.

The principles governing the control of structural risk at Santander Group are as follows:

- Autonomy in management, whereby each entity autonomously manages its balance sheet structure and its capital.
- Control and supervision, which means control and oversight mechanisms of risks must exist.
- Using like-for-like and aggregable metrics.
- Using like-for-like and documented methodologies.
- Setting limits and ensuring these can be adjusted accordingly.
- Adjusting to the global regulatory environment.

For further details, see the Risk Management Chapter (section 4.4) on the 2018 Annual Report

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6.4.1. Main interest rate risk in the banking book (IRRBB) metrics

The market risk profile inherent in the Group's balance sheet, in relation to its asset volumes and shareholders' funds, as well as the budgeted net interest margin, remained moderate in 2018, in line with previous years.

The interest rate risk originated by retail and commercial banking is transferred for management – through an internal risk transfer system – to the local Financial Division that is ultimately responsible for management of the subsidiary's structural risk generated by interest rate fluctuations. The Group's usual practice is to measure interest rate risk by using statistical models, relying on mitigation strategies for structural risk using interest rate instruments, such as fixed income bond portfolios and derivative instruments to maintain the risk profile at levels that are appropriate to the risk appetite approved by senior management.

In cases where derivatives are used to hedge interest rate risk, these are accounted for as fair value hedges or cash flow hedges according to the flows arising from these hedges, in line with accounting standards.

For further details, see the Risk Management Chapter (section 4.5: Structural Interest Rate Risk) on the 2018 Annual Report.

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System for controlling limits
In the framework of the annual limits plan, limits are set for IRRBB (interest rate risk in the banking book), responding to the Group's risk appetite levels. The main limits are:

- Interest rate risk in the banking book:
- Limit on the sensitivity of the net interest margin to 1 year.
- Limit on the sensitivity of the market value of equity.

In the event of that one of these limits or their sub limits is exceeded, the heads of risk management must explain the reasons and facilitate a corrective action plan.

Methodologies

a) Structural interest rate risk

The Group analyses the sensitivity of its net interest margin and market value of equity to changes in interest rates. This sensitivity arises from date and interest rate repricing gaps in the various balance sheet items.

Taking into consideration the balance-sheet interest rate position and the market situation and outlook, the necessary financial measures are adopted to align this position with that desired by the Group. These measures can range from taking positions on the 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 sensitivity of the net interest margin and market value of equity to changes in interest rates, the duration of capital and value at risk (VaR), for the purpose of calculating economic capital.

The internal metrics used to monitor interest rate risk are based on the sensitivity of economic value and net interest margin to interest rate shocks (-100bps, -75bps, -50bps, -25bps, +25bps, +50bps, +75bps and +100bps), to provide a harmonised overview of the risk in the different Group entities. To calculate the VaR used to estimate economic capital, a range of historic scenarios is applied comprising variations in different sections of different rate curves to estimate the potential impact on the Groups economic value and net interest margin.

b) 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 moments in time (called, buckets). This provides an immediate approximation of the sensitivity of the entity's balance sheet and its net interest margin and market value of equity to changes in interest rates.

c) Net interest margin (NIM) 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 margin during a certain period of time due to a parallel movement in interest rates. The standard period for measuring net interest margin sensitivity is one year. To aggregate sensitivities in the different currencies of each local unit, volatilities and correlations obtained from historical data of a sufficiently significant period of time are used.

d) Market value of equity (MVE) sensitivity

This measures the interest rate risk implicit in the market value of equity (which for the purposes of interest rate risk is defined as the difference between the present value of assets and the present value of liabilities outstanding), based on the impact that a change in interest rates would have on those present values. For MVE, the internal metrics include credit spreads on transactions in the calculation of profit margins. Risk-free discount curves are used to discount cash flows. As mentioned above, to aggregate the sensitivities of the different currencies of each local unit, volatilities and correlations obtained from historical data of a sufficiently significant period of time are used.

e) Treatment of liabilities without defined maturity

In the corporate model, the total volume of account balances without maturity is divided into stable balances and unstable balances. This division is performed using a model based on the relationship between the balances and their moving averages. This simplified model is used to obtain the monthly cash flows with which to calculate NIM and MVE sensitivities.

The model requires a variety of inputs, summarised below:

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

The internal policies establish the need to review the prices assigned to the NMDs on an annual basis; more frequently if required by market conditions. The most recent review of the parameters used in the valuation of NMDs in the different Group units has an average of five months.

f) Pre-payment treatment for certain assets

The pre-payment issue mainly affects fixed-rate mortgages in units where the relevant interest rate curves for these portfolios 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 valuation models for 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 whereby 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: defines those loans that have already been through various cycles of downward movements in interest rates as more stable. In other words, when a loan portfolio has been through 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.

g) 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 market value of equity, calculated based on the current

market value of positions and returns over the last two years, at a statistical confidence level over a certain time horizon. The Group uses a two-year window, or 520 daily readings, backwards in time from the VaR calculation reference date.

The Group is working on implementing the guidelines published by the EBA on management of Interest Rate Risk in the Banking Book (IRRBB), published in July 2018, applicable in 2019.

The following tables show the bank's changes in the Economic Value of Equity (EVE) and Net Interest Income (NII) for every interest rate prescribed scenario and for every currency.

Table 84. Quantitative information on IRRBB (IRRBB1)

EUR Millions

Total	ΔEVE		ΔNII	
Period	Dec 18	Dec 17	Dec 18	Dec 17
Parallel up	1,905	2,691	1,447	904
Parallel down	-7,966	-8,188	-804	-535
Steepener	1,636	1,908		
Flattener	-3,025	-4,003		
Short rate up	-1,477	-2,107		
Short rate down	-126	-554		
Maximum	-7,966	-8,188	-804	-535

Period	Dec 18	Dec 17
Tier 1 capital	75,838	73,293

Note: The scenarios assume the shocks established by Basel for each currency before applying management floors limiting their impact on currencies with negative or extremely low interest rates.

The aggregation of EVE sensitivities used follows the criteria set out in the EBA/GL/2018/02 Guidelines on the management of interest rate risk arising from non-trading book activities. For each interest-rate scenario, the positive and negative changes occurring in each currency are added linearly, with a 50% weighting for positive changes.

Euro	ΔEVE		ΔNII	
Period	Dec 18	Dec 17	Dec 18	Dec 17
Parallel up	11,204	10,918	2,369	1,771
Parallel down	-7,065	-6,511	-330	-201
Steepener	1,901	2,023		
Flattener	132	-1,056		
Short rate up	3,642	2,559		
Short rate down	-1,868	-1,995		
Maximum	-7,065	-6,511	-330	-201

Note: The scenarios assume the shocks established by Basel for each currency before applying management floors limiting their impact on currencies with negative or extremely low interest rates.

USD	ΔEVE		ΔNII	
Period	Dec 18	Dec 17	Dec 18	Dec 17
Parallel up	-1,088	71	5	15
Parallel down	-959	-1,465	-40	-66
Steepener	230	586		
Flattener	-1,019	-714		
Short rate up	-883	-221		
Short rate down	800	531		
Maximum	-1,088	-1,465	-40	-66

The scenarios assume the shocks established by Basel for each currency before applying management floors limiting their impact on currencies with negative or extremely low interest rates.

GBP	ΔEVE		ΔNII	
Period	Dec 18	Dec 17	Dec 18	Dec 17
Parallel up	643	335	1,020	907
Parallel down	-1,767	-1,866	-411	-271
Steepener	1,073	947		
Flattener	-1,144	-1,162		
Short rate up	-477	-1,107		
Short rate down	431	64		
Maximum	-1,767	-1,866	-411	-271

Note: The scenarios assume the shocks established by Basel for each currency before applying management floors limiting their impact on currencies with negative or extremely low interest rates.

BRL	ΔEVE		ΔNII	
Period	Dec 18	Dec 17	Dec 18	Dec 17
Parallel up	-1,531	-1,906	-166	-350
Parallel down	1,920	2,337	166	350
Steepener	594	586		
Flattener	-856	-921		
Short rate up	-1,325	-1,525		
Short rate down	1,582	1,817		
Maximum	-1,531	-1,906	-166	-350

Note: The scenarios assume the shocks established by Basel for each currency before applying management floors limiting their impact on currencies with negative or extremely low interest rates.

For further details, see the Risk Management Chapter (section 4) on the 2018 Annual Report.

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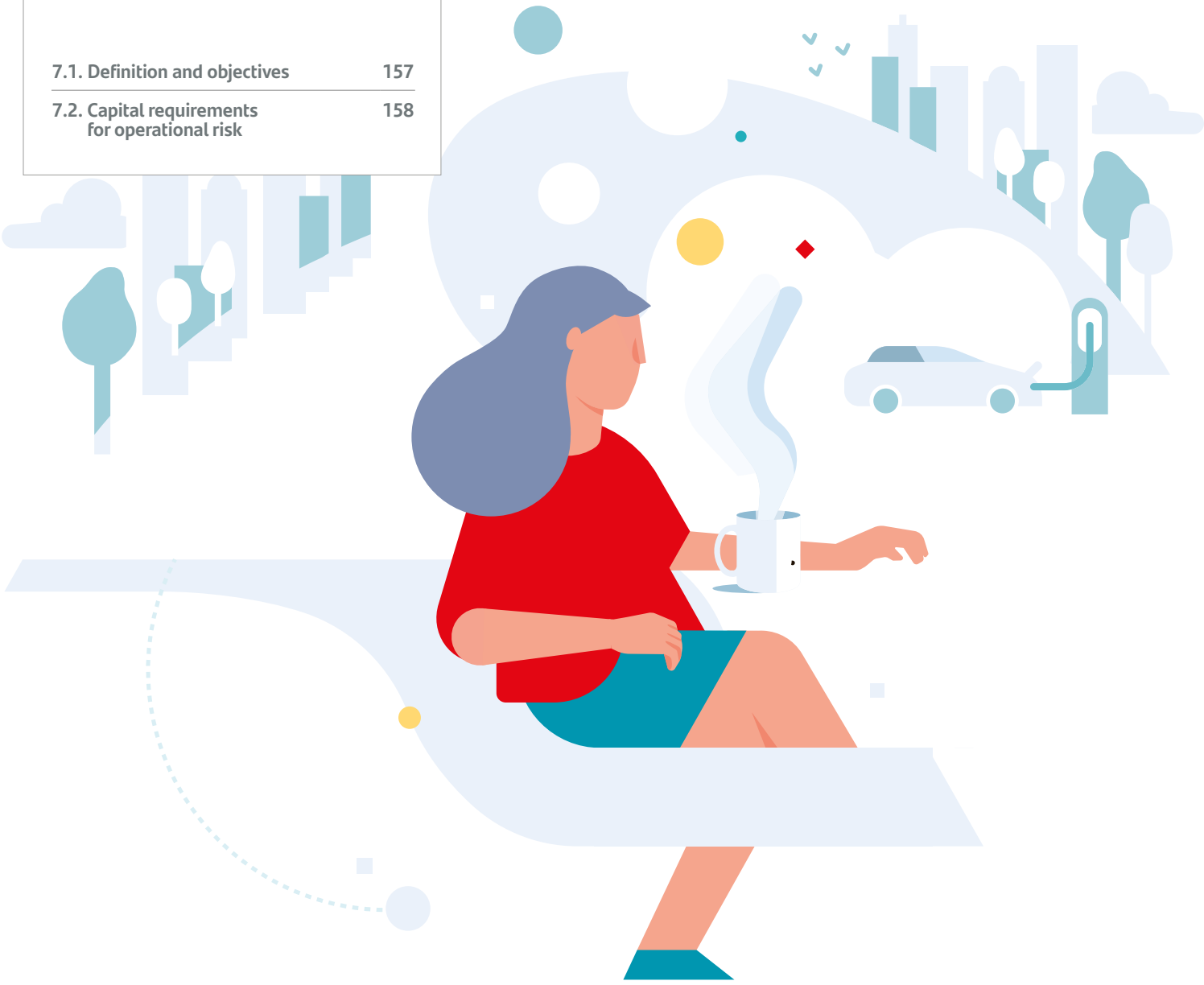
7

Operational risk



7. Operational risk

Operational risk is the risk of losses resulting from deficient or failed processes, people or information systems or from external events to Santander Group.

This chapter looks at the Group's targets in the areas of operational risk management and control, and includes the main capital figures and changes seen in 2018.

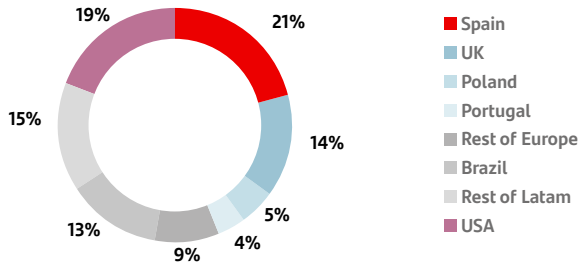
Main figures

EUR million

	RWA 2018	RWA 2017
Operational risk	**60,043**	**61,217**
Of which standardised approach	60,043	61,217

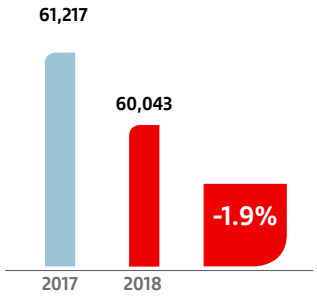
RWA by geography

%



RWA variation

EUR million



* Does not include CCPs or CVA.

7.1. Definition and objectives

The Group's objective when it comes to controlling and managing operational risk is to identify, measure/assess, monitor, control, mitigate and communicate the risk. Santander Group expressly recognises that while a certain volume of expected operational losses may indeed arise, unexpected severe losses as the result of failures in business controls are unacceptable.

In 2018, the improvement in risk assessment should be noted, thanks to various initiatives such as enhancing data quality, the inclusion of additional risk appetite metrics relating to internal fraud in the area of markets and cybersecurity risk, in addition to improvements in the process to establish, identify and assess the critical theoretical controls and improved integration of operational risk in the Group's strategic exercises.

For the management of key risks, mitigation plans have been rolled out in key areas (fraud, data security and cybersecurity,control over providers, etc), focusing on the implementation of corrective measures and the proper monitoring and management of projects in progress. Additionally, improvements have been made to business contingency and continuity plans, and to crisis management in general (initiative linked to viability and resolution plans).

For further details, see the Risk Management Chapter (section 6) on the 2018 Annual Report

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7.2. Capital requirements for Operational Risk

Santander Group uses the standardised method to calculate capital requirements for operational risk, as established by the CRR. The agreement was made by the board of directors on 22 June 2007 and reported to the Bank of Spain's general supervisory department by the second vice-chairman and CEO on 29 June 2007.

Under the standardised approach, capital requirements are calculated on the basis of relevant income, which is defined as the sum of the following components of the income statement:

The following table shows the construction criterion for the public areas of the business lines:

- Interest and similar income
- Interest expense and similar charges
- Return on equity instruments
- Fee and commission income
- Fee and commission expense
- Operating income (net)
- Exchange differences (net)
- Other operating income

For this method, the CRR also defines the following segmentation of business lines:

a) Corporate finance

b) Trading and sales

c) Retail brokerage

d) Commercial banking

e) Retail banking

f) Payment and settlement

g) Agency services

h) Asset management

Relevant income
Under the standardised approach, capital requirements are calculated as the simple average over the last three years of the summation, for each year, of the greater of zero and the sum of relevant income across each of the business lines, multiplied by the weight assigned to each business line.

The mathematical expression of these requirements will be as follows:

$$\{\Sigma \text{years } 1\text{-}3 \text{ Max } [\Sigma(RI1\text{-}8 \times \beta 1\text{-}8), 0]\} / 3$$

Where:

RI1-8 = Relevant income of each business line, with the appropriate sign, in accordance with the CRR.

ß1-8 = Weight applicable to each business line, in accordance with the CRR.

Obtaining data on relevant income, allocating it to the various business lines and calculating capital requirements is the responsibility of Financial Accounting and Control.

Santander Group obtains the figure for relevant income from the consolidated management information by business line. This information is generated from accounting data, the quality of which is assured by the SOX procedure,

- Income statements and balance sheet preparation by business area.
- Operational risk calculation process.

Consolidated management information is published quarterly in aggregate form and is the basis on which the businesses' budgetary compliance is measured. It is prepared by the Management Control department, which regulates the business lines of all the Group's units based on certain corporate criteria, which all units must apply when drawing up their management information.

1) Primary or geographical level:

a) Continental Europe: all retail and commercial banking businesses and Santander Global Corporate. Includes Spain, Santander Consumer Finance, Poland, Portugal and Asia.

b) UK.

c) Latin America: all the Group's activities through subsidiary companies. Includes Chile, Uruguay, Peru, Mexico, Colombia, Argentina, Brazil and Paraguay.

d) United States.

2) Global businesses. The activity of the operating units can be broken down by type of business among Retail and Commercial Banking, Santander Global Corporate Banking, Wealth Management and the Real Estate Management unit in Spain.

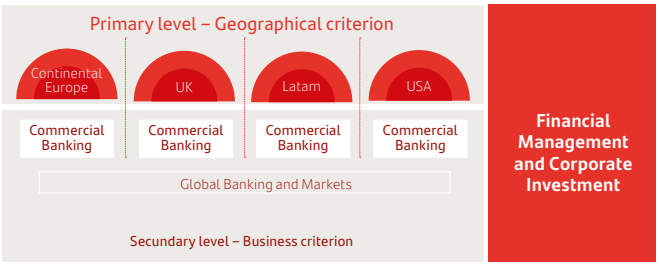
a) Retail and Commercial Banking. Contains all customer banking businesses, including consumer banking, with the exception of corporate banking, which is managed through SCIB.

b) Santander Corporate & Investment Banking (SCIB). Reflects the returns deriving from the global corporate banking business, investment banking and markets across the world, including globally-managed treasury departments (following the corresponding pay-out to Retail and Commercial banking customers), in addition to the equities business.

c) Wealth Management. A global business that includes the corporate Private Banking unit, which comprises all advisory and asset management activity for a selection of customers and the Santander Asset Management business.

In addition to the operating businesses, the Financial Management area includes the businesses of the financial and industrial holdings, the financial management of the parent company's currency and interest rate risk structural position, and the management of liquidity and capital through issues and securitisations.

The following table shows the construction criterion for the public areas of the business lines:

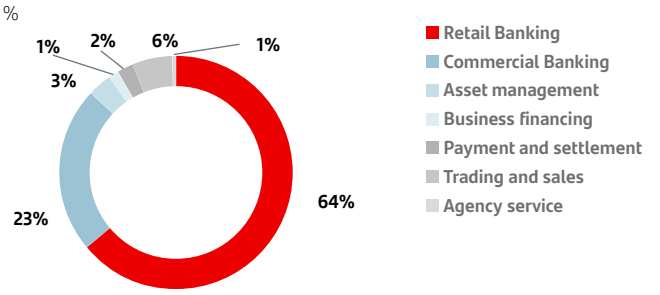


As a supplement to the Management Control area's aggregated business unit-level information, Santander Group uses business area information broken down by segment, product, etc. to distribute relevant income among the business lines defined by the CRR.

Any difference between the total figure of relevant income and the Group's published consolidated information is allocated to the business line with the highest capital consumption.

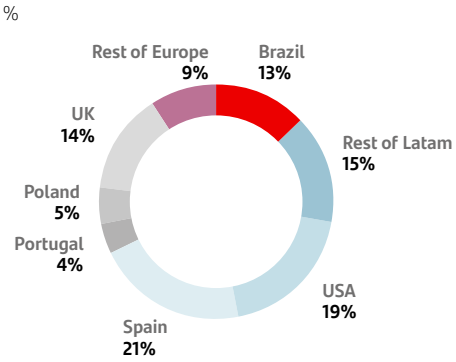
The following chart shows the distribution of capital by business line as of 31 December 2018.

Capital distribution by business line



Shown below is the geographical distribution of capital for operational risk:

Geographical distribution of capital for operational risk



Changes in capital requirements and RWAs for operational risk from 2017 to 2018 are shown below:

Table 85. Changes in capital requirements for operational risk

EUR million

	Capital	RWAs
Starting figure (31/12/2017)	**4,897**	**61,217**
Wizink perimeter	-15	-183
Totalbank perimeter	-10	-124
Deutsche Bank perimeter	25	307
Exchange rate effect	-113	-1,407
Change in business	18	233
Ending figure (31/12/2018)	**4,802**	**60,043**

The standardised approach imposes higher capital requirements for financial institutions operating in jurisdictions with high net interest margins, which are often linked to a high sovereign credit spread but not necessarily with increased operational risk. To avoid this undesired effect, EU legislation (Regulation 575/2013/EU) provides for the use of the alternative standardised approach by businesses that meet certain conditions, subject to approval by the European Central Bank.

This method uses a normalised indicator which is calculated by multiplying certain balances by 3.5% and thereby providing an average which is more in line with the bank's operational risk.

On 3 February 2016, the European Central Bank issued authorisation for the Alternative Standardised Approach to be used to calculate consolidated capital requirements for operational risk at Banco Santander Brasil, S.A.

Similarly, on 12 July 2017, the European Central Bank issued authorisation for the Alternative Standardised Approach to be used to calculate consolidated capital requirements for operational risk at Banco Santander México SA.

8

Other risks and internal control

8. Other risks and internal control

This chapter describes different types of risk, such as liquidity and funding risk, compliance and conduct risk, and capital risk.

It also provides information on Santander Group's internal control model.

8.1. Liquidity and funding risk

Liquidity risk entails the potential losses that may be incurred by an entity as a result of its inability to secure funding on the market and/or the higher borrowing costs of new sources of finance.

The aim of liquidity risk management is to guarantee that funds shall be available at the right time and cost to enable the entity to meet obligations and carry out its operations.

Risk profile:

- Management of liquidity and funding is an essential component of business strategy.
- The liquidity and funding model is decentralised, and is based on autonomous subsidiaries responsible for covering their own liquidity needs.
- Needs arising from business activity in the medium/long term must be funded by medium-term and long-term instruments.
- A large proportion of customer deposits from an essentially retail banking balance sheet.
- Diversification of sources of wholesale funding in terms of instruments/investors, markets/currencies and timelines.
- Limited calls on short-term wholesale funding.
- Availability of a sufficient liquidity reserve, including a discount capacity with central banks to be used in adverse situations.

For further details, see the Risk Management Chapter (section 4) on the 2018 Annual Report.

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8.1.1. Liquidity Coverage Ratio (LCR)

The table below shows quantitative information of LCR which complements Article 435(1)(f) of Regulation (EU) No 575/2013:

Table 86. LCR disclosure template*

EUR million

		Total unweighted value	Total weighted value
Quarter ending on (DD Month YYYY)		31/12/18	31/12/18
Number of data points used in the calculation of averages		12	12
High-quality liquid assets		-	-
1	Total high-quality liquid assets (HQLA)	-	191,181
Cash-outflows		-	-
2	Retail deposits and deposits from small business customers, of which:	449,312	33,000
3	Stable deposits	290,806	14,540
4	Less stable deposits	158,456	18,411
5	Unsecured wholesale funding	192,625	88,692
6	Operational deposits (all counterparties) and deposits in networks of cooperative banks	55,212	12,956
7	Non-operational deposits (all counterparties)	131,503	69,825
8	Unsecured debt	5,911	5,911
9	Secured wholesale funding	-	5,140
10	Additional requirements	161,771	36,422
11	Outflows related to derivative exposures and other collateral requirements	23,784	20,846
12	Outflows related to loss of funding on debt products	1,157	1,157
13	Credit and liquidity facilities	136,829	14,419
14	Other contractual funding obligations	8,136	7,530
15	Other contingent funding obligations	85,361	7,144
16	**Total cash outflows**	**-**	**177,927**
Cash-inflows			
17	Secured lending (eg reverse repos)	45,108	1,811
18	Inflows from fully performing exposures	54,424	34,825
19	Other cash inflows	13,569	11,460
EU-19a	(Difference between total weighted inflows and total weighted outflows arising from transactions in third countries where there are transfer restrictions or which are denominated in non-convertible currencies)	-	-
EU-19b	(Excess inflows from a related specialised credit institution)	-	-
20	**TOTAL CASH INFLOWS**	**113,101**	**48,096**
EU-20a	Fully exempt inflows	-	-
EU-20b	Inflows Subject to 90% Cap	-	-
EU-20c	Inflows Subject to 75% Cap	103,927	48,096
			TOTAL ADJUSTED VALUE
21	**Liquidity buffer**		**191,181**
22	**Total net cash outflows**		**129,831**
23	**Liquidity coverage ratio (%)**		**147%**

* Information calculated as the consolidated LCR simple averages of month-end observations over the twelve months of 2018.

A description of the degree of centralisation of liquidity management and interaction between the group's units
The Group has adopted a decentralised financing model through a structure of autonomous subsidiaries that are self-sufficient when it comes to liquidity. Each subsidiary is responsible for covering the liquidity needs arising from its current and future business, either through deposits captured from its customers in its area of influence or through recourse to the wholesale markets in which it operates, within a framework of management and supervision coordinated at Group level Therefore, each subsidiary manages and monitors its own LCR ratio, ensuring that it remains at all times within the limits specifically established for that subsidiary. These individual limits are more stringent than regulatory requirements and are reflected in the risk appetite of each subsidiary.

This financing model has proven itself to be highly effective during times of high market stress, since it effectively prevents problems at one division from impacting the borrowing capacity of other areas and therefore of the Group as a whole; this being a definite threat in the case of centralised financing models.

The LCR ratio shown here is essentially the sum of the individual ratios at each Group unit, stripping out any one-off intra-group transactions.

Concentration of funding and liquidity sources
To ensure sound liquidity management, the Group seeks to diversify its sources of wholesale financing, meaning diversification by instrument, investor, market, currency and terms. The Group's model relies on its presence in major markets, affording it a large degree of diversification. Since most Group units are commercially-oriented, they obtain a large part of their funding from deposits secured from retail customers, which are inherently more stable than wholesale sources of funding.

In view of all these considerations, there is no significant risk of concentration of funding. Even so, the Group is continuing to implement metrics and limits to control any concentration of funding sources.

Derivative exposures and potential collateral calls
Most transactions with derivatives carried out by Group entities are subject to collateral contracts covering the market value of those transactions. Group units include liquidity risk —involving the impact of an adverse market scenario leading to changes in the market values of those derivatives and therefore generating additional liquidity needs due to the need to post collateral— in their LCR ratio using the *historical look-back approach,* in which the most significant net change in 30 days over the preceding 24 months is calculated and then added as further liquidity needs.

Currency mismatch in the LCR
Santander Group prepares its consolidated LCR ratio for each of its significant currencies, which reflect the regions in which the Group's different units operate: US dollar (USD), pound sterling (GBP), Brazilian real (BRL), Mexican peso (MXN) and Chilean peso (CLP). Individually, each of the entities draws up its own LCR ratio for its significant currency. The main risk here comes from the positions held in Latin American countries, where the local currencies are not directly convertible. Therefore, the positions held in foreign currency are monitored closely; a process that includes currency-specific stress scenarios.

Other items in the LCR calculation that are not captured in the LCR disclosure template but that the institution considers relevant for its liquidity profile

Santander Group's consolidated ratio is largely shaped by the individual ratios of its three main units: Santander Parent, Santander UK and Santander Brazil. These units acquire most of their funding from retail deposits, which are much more stable liabilities that generate potentially fewer outflows from the LCR ratio. Most cash outflows from the LCR ratio stem from wholesale funding, which is considerably more unstable, although the Group typically minimises and diversifies the maturities. Meanwhile, the Group has a high quality *stock* of liquid assets, on average, approximately 93% of the assets that are part of the LCR numerator are Level 1; of which are Level 1 on average. This is because the units' asset portfolios mainly comprise the public debt of the countries in which the Group operates or countries with a good credit rating.

For further details, see the Economic and Financial Report Chapter (section 3.4: Liquidity and funding management) and the Risk Management Chapter (section 4.6) on the 2018 Annual Report.

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8.1.2. Asset Encumbrance

In line with the guidelines established by the European Banking Authority (EBA), the concept of asset encumbrance includes both on-balance sheet assets pledged as collateral in operations to obtain liquidity as well as those off-balance sheet assets received and re-used for a similar purpose, in addition to other assets associated with liabilities other than for funding reasons.

Disclosures on Santander Group required by Commission Delegated Regulation (EU) 2017/2295.

The scope used for the disclosures in this report is the same as the liquidity management scope on a consolidated basis, as regulated in CRR 575/2013.

The amount of exposure shown in the tables below was calculated as the median of the values disclosed in the regulatory information for the four quarters of the year, in line with European Banking Authority guidelines.

Table 87. Encumbered and unencumbered assets (AE1)

EUR million

	Carrying amount of encumbered assets	Fair value of encumbered assets	Carrying amount of unencumbered assets	Fair value of unencumbered assets
Assets of the reporting institution	325,473		1,102,185	
Equity instruments	7,549		11,292	
Debt securities	83,203	83,080	90,410	91,924
of which: covered bonds	797	805	929	924
of which: asset-backed securities	6,573	6,161	2,457	2,198
of which: issued by general governments	72,145	71,808	56,009	57,939
of which: issued by financial corporations	4,784	5,231	22,725	22,353
of which: issued by non-financial corporations	1,022	1,026	9,431	8,977
Other assets	238,500		999,751	
of which: loans	218,257		839,226	

Table 88. Collateral received (AE2)

EUR million

		Unencumbered
	Fair value of encumbered collateral received or own debt securities issued	Fair value of collateral received or own debt securities issued available for encumbrance
Collateral received by the reporting institution	81,545	45,002
Loans on demand	-	17
Equity instruments	3,792	6,243
Debt securities	75,832	38,936
of which: covered bonds	619	515
of which: asset-backed securities	277	2,524
of which: issued by general governments	68,812	30,560
of which: issued by financial corporations	6,341	7,071
of which: issued by non-financial corporations	467	753
Loans and advances other than loans on demand	-	4
Other collateral received	1,736	23
Own debt securities issued other than own covered bonds or asset-backed securities	3	2,810
Own covered bonds and asset-backed securities issued and not yet pledged		7,279
TOTAL ASSETS, COLLATERAL RECEIVED AND OWN DEBT SECURITIES ISSUED	**407,022**	

As table 87 shows, the vast majority of unencumbered assets includes loans that can be pledged as collateral.

The main sources and types of encumbrances and the level of over-collateralisation are set out in the following table

Table 89. Sources of encumbrance (AE3)

EUR million

	Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own debt securities issued other than covered bonds and ABSs encumbered
Carrying amount of selected financial liabilities	273,497	353,608
of which: Derivatives	20,447	21,064
of which: Over-The-Counter	13,204	13,399
of which: Deposits	172,944	212,590
of which: Repurchase agreements	96,156	122,925
of which: central banks	2,015	1,837
of which: Collateralised deposits other than repurchase agreements	76,422	98,368
of which: central banks	67,415	83,082
of which: Debt securities issued	78,175	114,020
of which: covered bonds issued	43,304	54,732
of which: asset-backed securities issued	34,612	60,121
Other sources of encumbrance	42,947	54,182
of which: Nominal of loan commitments received	1,969	2,620
of which: Nominal of financial guarantees received	896	1,124
of which: Fair value of securities borrowed with non cash-collateral	25,672	27,746
Other	10,941	16,852
TOTAL SOURCES OF ENCUMBRANCE	**315,317**	**407,022**

The table below shows the amount of own covered bonds

and asset-backed securities retained and not used as collateral and the value of the related underlying assets.

Table 90. Own covered bonds and asset-backed securities issued

EUR million

	Non-encumbered	
	Carrying amount of the underlying pool of assets	Fair value of debt securities issued available for encumbrance
Own covered bonds and asset-backed securities issued	9,195	7,279
Retained covered bonds issued	2,285	1,832
Retained asset-backed securities issued	6,995	5,407

Where the own covered bonds and asset-backed securities retained are used, the pledged asset is included in table 87 under loans and the related liability in table 89.

The contribution to the Group's level of asset encumbrance on a consolidated basis by the various units is uneven across geographies. European units contribute similarly to the Group, while the United States is the largest contributor given the high weight of the consumer lending business (Santander Consumer USA). The contribution by Latin American units is smaller, as their covered bond and asset-backed securities markets are less developed. Moreover, intra-group asset encumbrance is not material.

In each unit, the encumbered assets are denominated in the same currency as the encumbrance, normally the unit's functional currency.

For further details on encumbered assets (article 433 of the CRR), see the Economic and Financial Report Chapter (section 3.4: Liquidity and funding management) on the 2018 Annual Report.

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8.2. Compliance and conduct risk

According to the configuration of lines of defence at Santander Group, especially within the compliance and conduct function, primary responsibility for management of this function's risks lies with the first line of defence, jointly with the business units that directly originate those risks and the compliance and conduct function. The function is managed by allocating compliance activities or tasks to this first line of defence, or is carried out directly by compliance and conduct. The compliance and conduct function comprises all matters related to regulatory compliance, anti-money laundering and counter-terrorist financing, product governance and consumer protection, as well as reputational risk.

The compliance function fosters adherence by Santander Group to rules, supervisory requirements and principles and values of good conduct by setting standards, discussing, advising and reporting in the interests of employees, customers, shareholders and the wider community.

Santander Group's risk appetite in this area essentially takes the form of a statement of zero appetite for risks of this type, with the clear objective of minimising any economic, regulatory or reputational impact on Santander Group. To this end, units are systematically monitored through a common methodology that establishes a number of compliance risk indicators and assessment matrices that are prepared for each local unit. With this objective, in 2018 as in previous years, the annual process of preparing the risk appetite was completed towards the end of the year, with the aim of verifying that the current model is fit for measuring the function's risk appetite. Here, the corporate thresholds for certain indicators were lowered so as to provide a truer view and to show proper alignment with the function's strategy and risk tolerance. The calculation method of the other indicator was updated with respect to the original calculation to reflect the increasing maturity of the Conduct and Compliance function. These adjustments were approved by the relevant committees and passed on to the units concerned.

For further details on compliance and conduct risk, see the Risk Management Chapter (section 7) on the 2018 Annual Report

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8.3. Capital risk

Capital risk means the risk of Santander Group not having a sufficient quantity or quality of capital to fulfil its internal business targets, regulatory requirements, or market expectations.

The capital risk function controls and supervises first line activities and lays down an independent challenge to these mainly through the following processes:

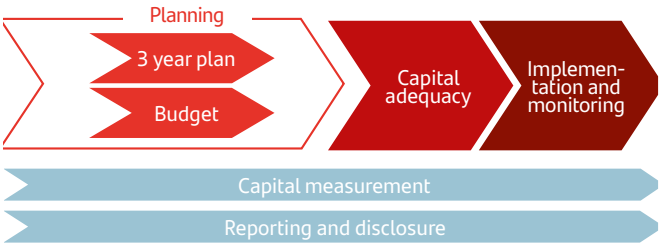
- Supervision of capital planning and adequacy for all component elements (balance sheet, income statement, risk-weighted assets and available capital).

- Continuous supervision of capital measurements at Santander Group by identifying the relevant calculation metrics, establishing tolerance levels for the metrics identified, reviewing their consumption and consistency in the calculations. Including sole transactions with a capital impact.

- Definition of the methodology to assess Significant Risk Transfer (SRT) in securitisations together with the supervision and coordination of the assessments made by local units.

The function aims to provide complete and regular monitoring of capital risk by verifying that capital coverage and adequacy reflect the risk profile of Santander Group.

Capital risk control revolves around the capital management model in place at Santander Group, which brings together different processes such as capital planning and adequacy and the resulting implementation and monitoring of the budget, along with the continuous measurement of capital and reporting and disclosure of information on capital, as shown below:



For further details on capital risk, see the Risk Management Chapter (section 5) on the 2018 Annual Report

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8.4. Santander Group's internal control model

8.4.1. Description of Santander Group's internal control model

Santander Group's internal control model (ICM) comprises processes and procedures by senior management and the rest of the Group's employees to provide reasonable assurance that the goals set by Santander Group, including goals regarding control of corporate strategy, effectiveness and efficiency of operations, reliability of financial reporting and compliance with applicable laws and regulations, are actually met.

Santander Group's ICM complies with all legal and regulatory requirements and is in accordance with the guidelines set by the Committee of Sponsoring Organisations of the Treadway Commission (COSO) on its last Framework published in 2013 (Internal Control Integrated Framework) and the Framework for Internal Control Systems in Banking Organisations issued by the Bank for International Settlements (BIS) in Basel.

The Group's internal control model is based on the following principles:

1. **Culture of senior management control and supervision. This culture is embodied in the following aspects:**

   - The board of directors takes ultimate responsibility for ensuring that an adequate and effective internal control system is in place and is kept up to date.

   - Senior management is responsible for establishing appropriate internal control policies, and ensuring they are put into effect and monitored.

   - The board of directors and senior management are responsible for making all levels of the organisation aware of the importance of internal control. All employees of the organisation involved in internal control processes must have clearly defined responsibilities.

2. **Identification and assessment of the control environment.** The Group's internal control system ensures that all the necessary controls to achieve objectives are properly identified and assessed, and that new controls are assessed on a continuous basis.

3. **Establishment of adequate controls and separation of functions.** A clear structure of control and allocation of responsibilities has been established and control functions are an intrinsic part of the organisation's business and support activities, ensuring sufficient separation of functions to avoid any conflict of responsibilities.

4. **Reporting and communication.** The Group's procedures and systems ensure accurate and comprehensible reporting and communication.

5. **Monitoring of the control system.** In addition to the continuous review of business and operations, control activities undergo regular assessments, the conclusions of which are reported to senior management and the board, along with any matters for special monitoring.

Proper documentation of the Group's ICM is a vital component for achieving these objectives. To that end, those responsible for the organisational structure use a standard methodology to describe their processes through documentation on tasks and controls.

Controls that must be documented in the ICM are identified on the basis of senior management's knowledge and understanding of the business and operational processes, taking into account both criteria of proportions and also qualitative criteria relating to the nature, complexity or actual structure of the business.

Santander Group has a catalogue of theoretical controls in order to guarantee the sufficiency and completeness of the internal controls established by the different functions involved in relation to the Group's control model.

8.4.2. Documentation and updating

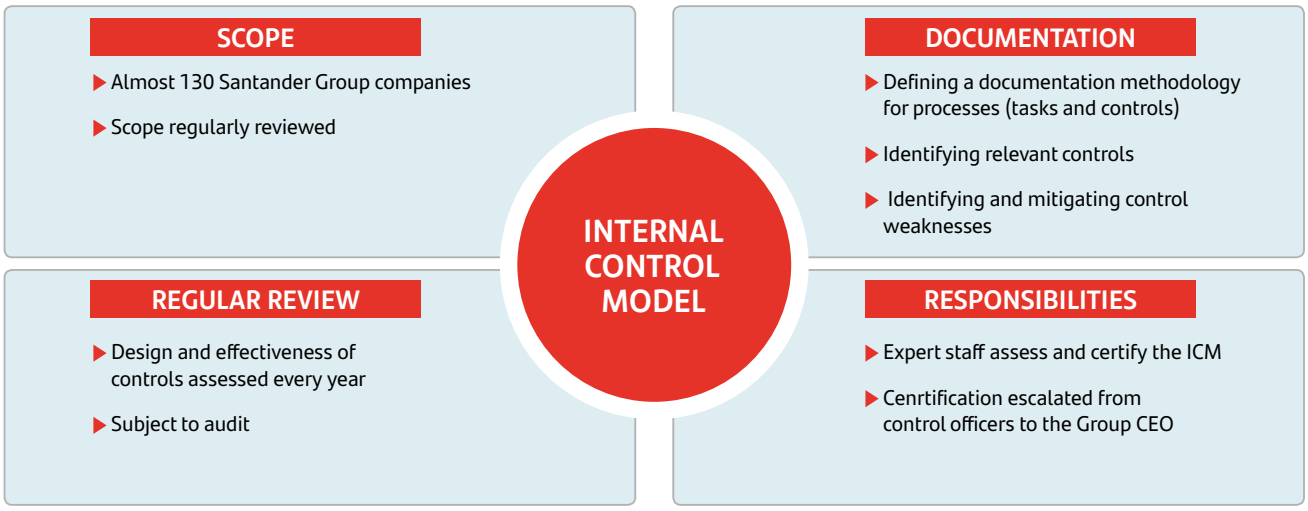
The following are some of the main features of Santander Group's ICM documentation:

- The documentation of the corporate model involves every member of the organisation with control responsibilities, through a framework of direct responsibilities that are individually assigned.
- Internal control is a decentralised process and is therefore managed at the Group's various units. A corporate unit also coordinates all Group units and provides general criteria and guidelines for standardising documentation of procedures, tests for assessing controls, classification criteria for potential deficiencies and regulatory adaptations.
- The documented model is broad and therefore includes not only activities related to the generation of consolidated financial reporting, but also any other procedures carried out in the business and support areas of each entity which, while they may have no direct impact on accounting, could nevertheless give rise to losses or risks in the event of incidents, errors, infringements of regulations and/or fraud.
- The ICM is a forward-looking model and evolves by adapting to the reality of the Group's business and support activities at any given time, clearly identifying any risks that might prevent the achievement of goals and the controls that mitigate such risks.
- It includes detailed descriptions of transactions, criteria for assessing the functioning of controls and the conclusions of an assessment of their functioning.

All the ICM documentation at each Group company is stored in a corporate computer application. This application allows processes, risks and controls to be consulted and updated by users in real time, and reviewed by external auditors or supervisory bodies. It also serves as a support tool for the internal control model assessment and certification process, automatically ensuring the model's integrity.

The chart below shows documentation and responsibilities within the Group's internal control model:

Santander group's internal control model structure



Keeping descriptions of processes (tasks and controls) and identifying the persons responsible for them up to date is a key aspect of Santander Group's ICM.

In 2018 Santander Group's ICM documentation evolved to meet the new regulatory requirements affecting banks' procedures and to reflect the changes in the organisation, including changes to the businesses and operational processes and changes to the Group's organisational and corporate structure.

The ICM is not only documented and updated at the business units; it is also key to identifying, documenting and assessing the risks and controls associated with operational processes outsourced to Santander Group companies.

ICM documentation and its assessment process support compliance with certain regulatory measures such as SOx, Fatca, the Criminal Liability of Legal Entities, Dodd-Frank or Volcker, among others.

Ultimately, the ICM is examined by the Group's auditor, who reports to the audit committee and issues an opinion on the effectiveness of the internal controls applied to the generation of financial reporting in the consolidated financial statements of Santander Group as of 31 December 2018.

The corporate scope of Santander Group's ICM also imposes an obligation to constantly ensure that those involved in the ICM at all levels of the organisation are kept up to date, coordinated and trained as appropriate. The corporate coordination team organises online and classroom training activities and keeps the methodology up to date, and sends proper instructions to Group entities.

8.4.3. Assessment and integration in management

Santander Group has an assessment and certification process for reviewing the performance of the ICM and the effectiveness of the established controls, processes and activities. This process starts with an assessment of the control activities by those responsible for them. Based on the conclusions of this assessment, the various tasks, areas and divisions relating to the control environment are certified (including the generation of financial information), so that following the analysis of all these certifications, the effectiveness of the ICM process is certified by the CEO, finance manager and head of accounting.

Since 2017, the Group has worked to integrate the operational risk control and self-assessment (RCSA) with the process for assessing and certifying the control model. Combining both processes makes the exercise more efficient, consistent and robust and enables the certification process to be brought fully within the Group's risk management.

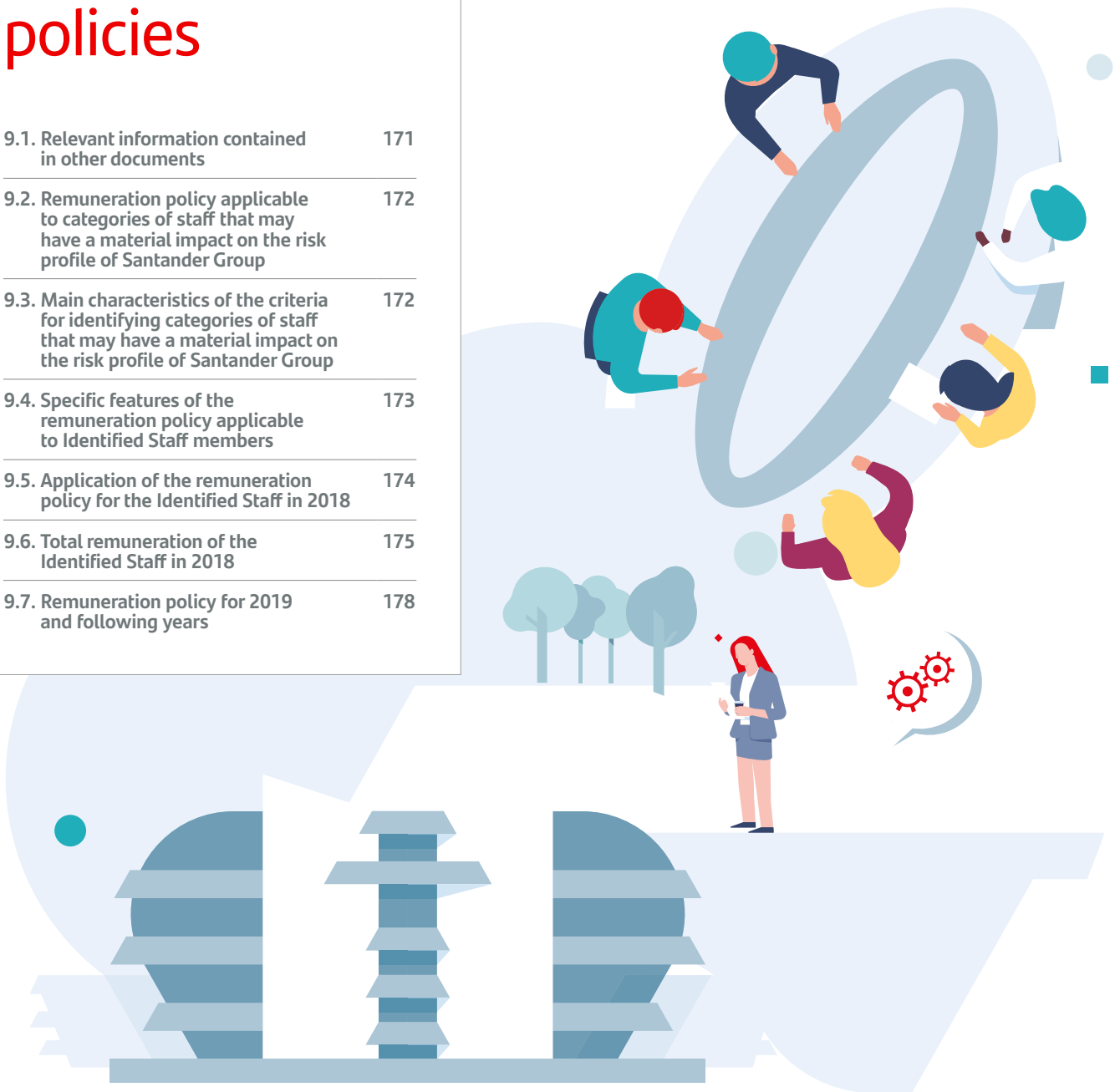
The annual exercise identifies and assesses the criticality of the risks and the effectiveness of the controls in place across Santander Group.

Moreover, the system that supports the integrated risk control and self-assessment exercise also integrates relevant information from other instruments used to manage operational risk: loss events and the readings of indicators tracked by the specialised first and second lines of defence functions.

Lastly, during 2018, the Group has worked to strengthen the identification and documentation of the most relevant controls for the Group (special monitoring controls) in order to ensure an adequate internal control system over financial information. Likewise, in order to continue strengthening the Santander Group MCI, it has been decided that from 2019 the Internal Audit function, within its audits, perform independent testing on these controls.

9

Remuneration policies



9. Remuneration policies

This chapter provides different information on Santander Group's remuneration policies, including the total remuneration for identified staff in 2018, and the remuneration policy for 2019 and thereafter.

9.1.Relevant information contained in other documents

The 2018 remuneration policy for directors and senior management, focusing especially on variable remuneration and how it was applied in the year.

- The functions of the remuneration committee regarding the remuneration of directors, members of senior management and other executives whose work could have a material impact on the Group's risk profile.
- The composition of the remuneration committee, directors' attendance at meetings, the involvement of board members on other committees, the approximate time dedicated to each function and how the committee operates.
- The remuneration policy for both executive and non-executive board members and the corporate governance principles regulating the subject of remuneration.
- The 2018 remuneration policy for directors and senior management, focusing especially on variable remuneration and how it was applied in the year.

The board of directors is responsible for approving director and senior management remuneration, as well as the core payment terms of other executives or employees who, while not belonging to senior management, take on risks, carry out control functions (i.e. internal audit, risk management and compliance) or who receive global remuneration that places them in the same remuneration bracket as senior management and employees who take on risk and whose professional activities may have a material impact on the Group's risk profile (all of these together with the senior management and the Company's board of directors comprise the so-called Identified Staff or Material Risk Takers).

The corporate governance chapter of the annual report also includes the following Pillar 3 significant information:

- The decision-making process for setting the remuneration policy of directors, senior managers and the core elements of the remuneration of the Identified Staff.
- The basic features of the various compensation policies.
- Information on the criteria applied for assessing the metrics that determine director and senior management variable remuneration and their adjustment according to risk, as well as the results of director metrics.
- The deferral policy and other conditions linked to the payment of variable remuneration, including the application of malus and clawback provisions.

For further details, see the Corporate Governance Chapter on the 2018 Annual Report.

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9.2. Remuneration policy applicable to categories of staff that may have a material impact on the risk profile of Santander Group

Santander Group has specific guidelines in its remuneration policy in regard to those professionals qualified internally as Identified Staff or Material Risk Takers. These guidelines contain:

- The principles and criteria that determine which people have a material impact on the Group's risk profile, based on Commission Delegated Regulation (EU) 604/2014 of 4 March 2014, as explained in section 8.3 below.
- The specifics that modify the general remuneration policy for its application to this staff, taking into account all applicable rules and European Banking Authority (EBA) guidelines are described below.
- The mandate to apply the Group's remuneration policy, as adapted in each case so as to comply with local regulatory requirements and recommendations issued by supervisory bodies.

The remuneration of the Identified Staff in 2018 is in line with the criteria set out in the Group's remuneration policy, which is reviewed annually to ensure that it is aligned with the long-term interests of shareholders, the Group's strategic targets and regulatory requirements.

The subsidiaries formally adhere to the Group´s corporate remuneration policy, which implies the alignment of their practices with the principles recognized therein.

9.3. Main characteristics of the criteria for identifying categories of staff that may have a material impact on the risk profile of Santander Group

The Identified Staff of the firm have been defined according to the provisions of Law 10/2014, of 26 June, on the restructuring, supervision and solvency of credit institutions, (Law 10/2014 or LOSS), transposing into Spanish law the text of Directive 2013/36/EU of the European Parliament and Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (CRD IV).

In accordance with the LOSS, professionals that may have a material impact on the bank's risk profile will be deemed to include senior management, employees that assume risks, employees that exercise control functions, and all employees that receive global remuneration that includes them in the same remuneration bracket as senior management and employees that assume risks. In addition to the previous definition, European legislation, through the publication of Commission Delegated Regulation (EU) No 604/2014, of 4 March, supplementing CRD IV with regard to regulatory technical standards with respect to qualitative and appropriate quantitative criteria to identify categories of staff whose professional activities have a material impact on an institution's risk profile (hereinafter, Delegated Regulation 604/2014), has established a closed list of specific criteria that entities must take into consideration in the identification process.

The Group has implemented the quantitative and qualitative criteria provided in the regulation in order to determine the members of the Identified Staff and has further supplemented these criteria with additional internal criteria. The following persons generally qualify as Identified Staff based on this set of criteria:

- Based on qualitative criteria, staff members who work at a material business unit, such as:
  - Members of management, executive or supervisory committees.
  - The first line of the unit.
  - Heads of material business sub-units in that country or business.
  - Heads of risk, audit and compliance and their direct superiors, who effectively perform control functions.
  - Heads of legal or tax advisory services, audit, budget, human resources, compensation and technology and operations.
  - Members of senior risk committees, executives with powers to approve risk proposals and those responsible for making significant risk proposals.
  - Traders authorised to take substantial positions in market risk.
  - Members of the new products committee.
- By quantitative criteria:
  - Executives receiving total remuneration of over EUR 500 thousand in 2017.
  - Executives whose remuneration falls within the top 0.3% band at the Group or in their country.
  - Executives who in the past year earned more than the member of the Identified Staff who earned the least remuneration, factoring in the business positions identified in the qualitative criteria.
- By internal criteria:
  - Executives with significant responsibility for representing the Group at non-material units.
  - Executives with a given level of credit or market risk responsibility at certain non-material units.

Additional criteria have also been defined to identify and classify the units to which the above criteria are applied. These criteria are based on simple and widely recognised parameters, such as capital and gross income, and reflect the relative importance of each identified unit that has an impact on the risk profile of Santander Group.

Current legislation, best practices and market trends are taken into account when defining the proportionality standards. These apply to both the relative importance of the units, as well as the different degrees of responsibility of the positions occupied by the individuals, and facilitate its implementation.

According to these criteria, the Identified Staff comprised 1,384 executives across Santander Group at year-end 2017, accounting for approximately 0.68% of total staff.

9.4. Specific features of the remuneration policy applicable to Identified Staff members

In general:

- Fixed remuneration must represent a significant proportion of total compensation.
- Variable remuneration shall not exceed 100% of the fixed remuneration, in any event, of the members of the independent control functions, and generally for the rest, unless the general Shareholders' Meeting has authorised a higher percentage for these, which may not exceed 200%.

Variable remuneration will typically comprise:

- An incentive to be received partly in cash and partly in shares or other eligible financial instruments. Payment of this incentive is deferred for a period of three to five years (up to seven years in the United Kingdom).
- Performance measurement elements in line with the strategy and long-term interests of shareholders. These elements, which are both short term and, for certain categories, long term oriented, take into consideration quantitative and qualitative criteria that reflect the entity's results, return, capital performance, conduct in respect of customers and quality of the services provided thereto, risk management and compliance with legislation.
- Malus and clawback clauses, which are triggered in situations in which there is poor financial performance of either, the bank as a whole, a specific division or area thereof, or the exposure generated. Following factors should, at least, be taken into account:

  (i) Significant failures in risk management by the bank, or by a business or risk control unit.

  (ii) An increase in capital requirements at the bank or one of its business units not planned at the time that exposure was generated.

  (iii) Regulatory penalties or legal convictions for events that might be attributable to the unit or staff responsible for them. Likewise, failure to comply with the Bank's internal codes of conduct.

  (iv) Improper conduct, whether individual or collective. Negative effects deriving from the marketing of unsuitable products and the liability of persons or bodies making such decisions will be considered especially significant.

- Ban on hedging deferred or retained shares or instruments and on transferring these in the twelve months following their delivery.

For control functions, the total remuneration package must be competitive within the market in order to attract sufficiently qualified and experienced employees. The individual objectives of these positions must be pegged to the performance of the control function rather than business results. Performance of the control function must be assessed by staff members who are independent of the supervised business units.

9.5. Application of the remuneration policy for the Identified Staff in 2018

The remuneration policy and the essential remuneration conditions of the individuals who belong to the Identified Staff have been approved by Banco Santander's board of directors on a proposal from the remuneration committee. The human resources function, jointly with the risk and compliance functions of each Group company, have duly confirmed that this policy and their remuneration practices comply with applicable law and regulations, as confirmed in a third independent report issued in application of article 33.2 of Act 10/2014 of 26 June on the ordering, supervision and solvency of credit institutions. The board risk committee supervises the remuneration policy and large-impact remuneration schemes so as to ensure that they are suitably aligned with risk management.

With regard to variable remuneration, the essential elements include:

- Metrics for determining the variable remuneration of the senior management and other top executives. These metrics are described in section 6.3.B.ii) of the chapter on corporate governance in the 2018 annual report.
- Deferral percentages and periods for the Identified Staff based on their category:

	Percentage paid immediately	Deferred percentage	Deferred periods' (*)
Executive directors and members of the material risk takers group with total variable remuneration of ≥ EUR 2.7 million	40%	60%	5 years
Executive vice-presidents and country heads of countries accounting for at least 1% of the Group's economic capital and other members of the material risk takers with total variable remuneration of over ≥ EUR 1.7 million (< EUR 2.7 million)	50%	50%	5 years
Other members belonging to the material risk takers	60%	40%	3 years

* Up to 7 years in certain jurisdictions.

Note: Variable reference remuneration for standard compliance (100% of objectives).

- Pegging a part of the deferred amounts to fulfilment of multi-year objectives for executive directors, senior management and other executives based on their category. These metrics are described in section 6.3.B.iV) of the chapter on corporate governance in the 2018 annual report.
- The suitability of financial instruments used for the portion of deferred remuneration in financial instruments: use of shares in Banco Santander S.A. or in any of its listed subsidiaries (such as Brazil, Chile, Mexico and Santander Consumer USA) or equivalent instruments (Poland); as well as the ratio between different instruments.
- Defining the events that might trigger the application of malus and clawback provisions on the variable remuneration accruing in 2018. These events, which apply to all members of the Identified Staff, are described above in this chapter.
- No discount is applied to deferred variable remuneration when calculating the ratio of variable to fixed components.

In addition to the general scheme of variable remuneration metrics, the corporate and investment banking business (Santander Corporate & Investment Banking or SCIB) follows a model that is widely applied across all regions in which the division operates. The model provides remuneration for achieving results using a partial pay-out system, pegging variable remuneration to the division's ordinary net profit, including provisions and other assimilated costs, as well as the previously established budgetary objectives. The model includes the same categories of metrics – including capital, risks and customers– as those used for the senior management, although they may be adapted accordingly to the needs and requirements of the individual business.

For further details, see the Corporate Governance Chapter on the 2018 Annual Report.

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9.6. Total remuneration of the Identified Staff in 2018

The following table shows the total remuneration of the Identified Staff in 2018:

Table 91. Total remuneration

EUR Thousand

	2018				2017			
Identified Staff	Admin. Executives	Other senior managers [5]	Rest of staff [6]	Total	Admin. Executives	Other senior managers [5]	Rest of staff [6]	Total
Number of persons	**3**	**18**	**1,363**	**1,384**	**4**	**19**	**1,232**	**1,255**
Total fixed remuneration [1]	12,916	34,904	413,262	461,082	14,923	36,222	408,761	459,907
Total variable remuneration [2] y [3]	14,515	32,023	375,180	421,717	16,495	34,084	364,213	414,792
Payable immediately								
In cash	3,254	8,300	117,825	129,380	3,699	8,786	111,404	123,888
In instruments [4]	3,254	8,300	112,196	123,750	3,699	8,786	109,634	122,118
Deferred payment								
in cash	4,003	7,711	72,579	84,294	4,549	8,256	71,588	84,393
In instruments [4]	4,003	7,711	72,579	84,294	4,549	8,256	71,588	84,393
Payments for new contracts								
Total guaranteed remuneration	-	633	7,484	8,117	-	2,800	5,062	7,862
Number of beneficiaries	-	1	16	17	-	1	10	11

(1) Includes fixed salary and supplements, attendance fees and by law-stipulated allotments for executive directors, as well as benefits (including pensions classified as fixed in nature).

(2) The variable remuneration of the executive directors and the rest of senior management does not include EUR 2,516 thousand in variable component pensions; the variable remuneration of other employees does not include EUR 6,605 thousand in buyouts or sign on amounts; the variable remuneration does not include EUR 25,282 thousand corresponding to the 2015 LTI accrued at 31 December 2018.

(3) Variable remuneration is included at its fair value. Fair value has been determined on the date it was awarded, based on an expert assessment report and taking account of different possible scenarios for the performance of the different variables set out in the plan during the measurement periods.

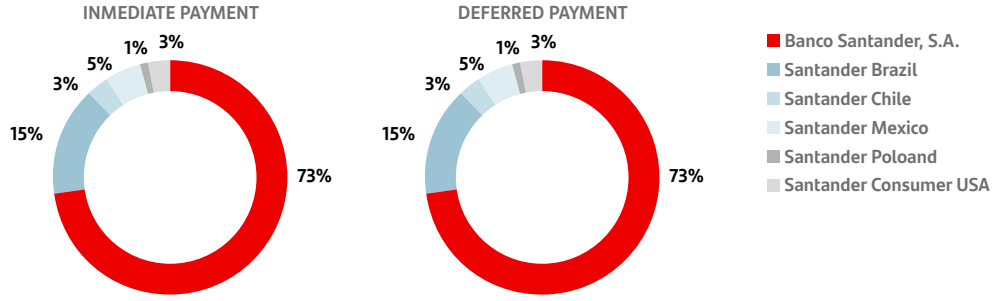
(4) The following charts show the distribution of instruments according to the companies of the Santander Group to which they correspond.

(5) This column includes the remuneration of the members of senior management (excluding executive directors) as of 31 December 2018.

(6) This column includes the remuneration of senior management who resigned their duties during 2018.

The following table shows the distribution of deferred instruments among qualifying Santander Group companies:

Distribution of the deferral instruments according to the company of Gantander Group to which they correspond



The total amount of severance payments and other benefits associated with contract termination, including lump-sum early retirement payments, awarded during the year to members of the Identified Staff amounted to EUR 21 million for a total of 52 people with an average time spent in the company of 13 years. Out of that total, 11 people were awarded severance payments and other benefits associated with contract termination that exceeded 2 times their fixed remuneration. No severance payments have been made to executive directors active in 2018. The maximum amount of a single pay item amounted to EUR 2 million.

The breakdown of total remuneration by area of activity is as follows:

Table 92. Remuneration by activity area

EUR Thousand

	Admin. Executives	Non-executive directors	Investment banking	Commercial Banking	Asset Management	Corporate functions	Independent control functions	Other	Total
Nº. of persons	**3**	**12**	**291**	**668**	**46**	**89**	**275**	**0**	**1,384**
Top-Management	3	0	1	5	0	8	4	0	21
Rest of Identified Staff	0	12	290	663	46	81	271	0	1,363
Total Remuneration	**27,431**	**3,799**	**200,406**	**400,812**	**21,457**	**86,568**	**142,326**	**0**	**882,799**
Top-Management	27,431	0	3,906	19,211	0	29,125	14,684	0	94,358
Rest of Identified Staff	0	3,799	196,500	381,601	21,457	57,442	127,642	0	788,442
Areas' fix/variable average ratio	**131%**	**0%**	**122%**	**99%**	**73%**	**95%**	**70%**	**-**	**96%**

The investment banking area includes those professionals that give support to businesses related to corporate and investment banking (Santander Corporate & Investment Banking).

The commercial banking area covers all customer banking businesses, including all their supported teams in the diverse geographies, whether they are local management of the related local units or other categories.

The independent control function includes all functions related to risk management, internal audit, compliance or accounting and

financial control, as well as others associated to the control of regulatory capital requirements.

Corporate functions include employees involved in both the corporate support areas (such as human resources, technology and operations, communication, general secretariat, strategy, finance planning, etc.) as well as executive directors.

The sum of variable components in 2018 for each member of the Identified Staff did not exceed the limit established in each case for 2018, which was either 100% or 200% when authorised by the General Shareholders' Meeting. Specifically, the ratio of variable components of remuneration to fixed components for the entire Identified Staff collective was 96% and the limits prescribed for each component were duly observed in all cases.

The following table shows the remuneration schemes for Identified Staff members in which the right to receive shares originated in previous years and for which the vesting targets and/or conditions were fulfilled in 2018 or are pending fulfilment. The following table shows remuneration by salary band for members of the Identified Staff across the entire Group.

Table 93. Vested rights

EUR Thousand

	31 Dec. 2018				31 Dec. 2017			
Remuneration entitlement from previous years: consolidated and unpaid (to be consolidated from 2018)	Admin. Executives	Other senior managers	Rest of staff	Total	Admin. Executives	Other senior managers	Rest of staff	Total
Cash	2,230	4,073	50,593	56,896	979	2,417	54,400	57,796
Number of Santander shares [1]	713,893	1,337,934	12,933,190	14,985,017	201,713	500,884	7,698,915	8,401,512
Number of Santander Brazil shares	-	-	1,639,748	1,639,748	-	-	2,120,698	2,120,698
Number of Santander Chile shares	-	-	62,005,861	62,005,861	-	-	27,895,424	27,895,424
Number of Santander Mexico shares	-	-	3,051,500	3,051,500	-	-	1,529,930	1,529,930
Number of Santander Polonia shares*	-	-	2,289	2,289	-	-	2,289	2,289
Number os Santander Consumer USA	-	-	80,850	80,850	-	-	55,916	55,916

(1) Includes shares corresponding to 2015 LTI.

* An instrument of Santander Poland (Zachodni WBK) has a value equal to one share of the company.

Table 94. Unvested rights

EUR Thousand

	31 Dec. 2018				31 Dec. 2017			
Other remuneration entitlement from previous years: Non-consolidated and unpaid (to be consolidated from 2018)	Admin. Executives	Other senior managers	Rest of staff	Total	Admin. Executives	Other senior managers	Rest of staff	Total
Cash	7,047	12,996	82,199	102,242	2,473	5,667	83,031	91,171
Number of Santander shares	1,352,055	2,481,736	10,956,258	14,790,049	1,095,768	2,126,614	21,327,509	24,549,891
Number of Santander Brazil shares	-	-	2,027,550	2,027,550	-	-	2,291,971	2,291,971
Number of Santander Chile shares	-	-	51,756,078	51,756,078	-	-	73,881,690	73,881,690
Number of Santander Mexico shares	-	-	3,420,941	3,420,941	-	-	3,431,283	3,431,283
Number of Santander Polonia shares*	-	-	2,292	2,292	-	-	4,581	4,581
Number os Santander Consumer USA	-	-	137,044	137,044	-	-	96,191	96,191

* An instrument of Santander Poland (Zachodni WBK) has a value equal to one share of the company.

Table 95. Remuneration by salary band

EUR Thousand

	31 Dec. 2018
Salary band	No. of persons
1,0 - 1,5	88
1,5 - 2,0	30
2,0 - 2,5	21
2,5 - 3,0	12
3,0 - 3,5	5
3,5 - 4,0	6
4,0 - 4,5	3
4,5 - 5,0	3
5,0 - 6,0	4
6,0 - 7,0	1
7,0 - 8,0	-
8,0 - 9,0	1
9,0 - 10,0	1
10,0 - 11,0	-
11,0 - 12,0	1

Note: Does not include the deferred part of the 2018 incentive subject to multi-year objectives, the performance and attainment of which will be reviewed at the end of 2020. Payment will be made from 2022 onward, but may be zero, depending on the extent to which the objectives have been met. Notes 5 and 47 of the Group´s annual report contain further information on how the plan works, and amount of the deferred remuneration.

Includes 2015 LTI accrued at 31 December 2018.

9.7. Remuneration policy for 2019 and following years

The 2019 remuneration policy for directors is described in section 6.4 of the chapter on corporate governance of the annual report. The main principles of the policy, along with the fixed and variable remuneration components and the variable remuneration policy for members of the Identified Staff, will follow the rules and procedures for executive directors as set out in the report just mentioned. In particular, as regards the variable remuneration policy:

- The existence of a single incentive, which will be determined by a set of quantitative and qualitative metrics.
- Short-term metrics, which include customer, capital, risk and profitability elements.
- Long-term metrics for senior managers: earnings per share, total shareholder return and capital ratio (fully-loaded CET1).
- Part payment in cash and in shares or other instruments.
- Continued-employment, malus and clawback provisions.
- Other conditions, such as the ban on hedging and transferring shares in the twelve months following their delivery.

In 2019, a share option plan (Digital Transformation Award) will be launched as a tool for attracting and retaining the best digital and technological talent. It will help accelerate and extend the Group's digital transformation. Receipt will be subject to compliance with certain strategic objectives during 2019, and delivery will be in shares and share options as of 2020. It will be subject to the deferral rules and other regulatory restrictions such as malus and clawback provisions.

For further details, see the Corporate Governance Chapter on the 2018 Annual Report.

Access **2018 Annual Report** available on the Santander Group website.

Deferral periods for members of the Identified Staff will be as follows:

Deferral of the identified collective

	31 Dec. 2018			31 Dec. 2017		
	Percentage paid immediately	Deferred percentage	Deferred periods' (*)	Percentage paid immediately	Deferred percentage	Deferred periods' (*)
Executive directors and members of the material risk takers of the group with total target variable remuneration of ≥ EUR 2.7 million (**)	40%	60%	5 years	40%	60%	5 years
Executive vice-presidents and country heads of countries accounting for at least 1% of the Group's economic capital and other members of the material risk takers with total target variable remuneration of over ≥ EUR 1.7 million (< EUR 2.7 million) (**)	50%	50%	5 years	50%	50%	5 years
Other members belonging to the material risk takers	60%	40%	3 years	60%	40%	3 years

* Up to 7 years in certain jurisdictions.

** Variable remuneration not denominated in Euros is calculated using the average closing exchange rates in the fifteen trading sessions immediately prior to the Friday, exclusive, of the week before the date on which the board of directors agrees the variable remuneration of the Bank's executive directors for 2018.

10

Appendices

Appendices avaible in the Santander Group website:

V. Outline of the differences in the scopes of consolidation (Table LI3)

VI. Reconciliation: balance under accounting consolidation / balance under regulatory consolidation

VII. Capital instruments main features template

VIII. Transitional own funds disclosure template

IX. List of specialised management companies within the scope of regulatory consolidation - SPVs

X. Leverage Ratio (LRSum, LRCom and LRSpl tables)

XI. Countercyclical capital buffer (institution-specific amount and geographical distribution)

XII. IFRS 9-FL Template: Comparison of institutions' own funds and capital and leverage ratios with and without the application of transitional arrangements for IFRS 9 or analogous ECLs

XIII. Breakdown of exposure by approach to calculating capital employed

XIV. IRB parameter models by region

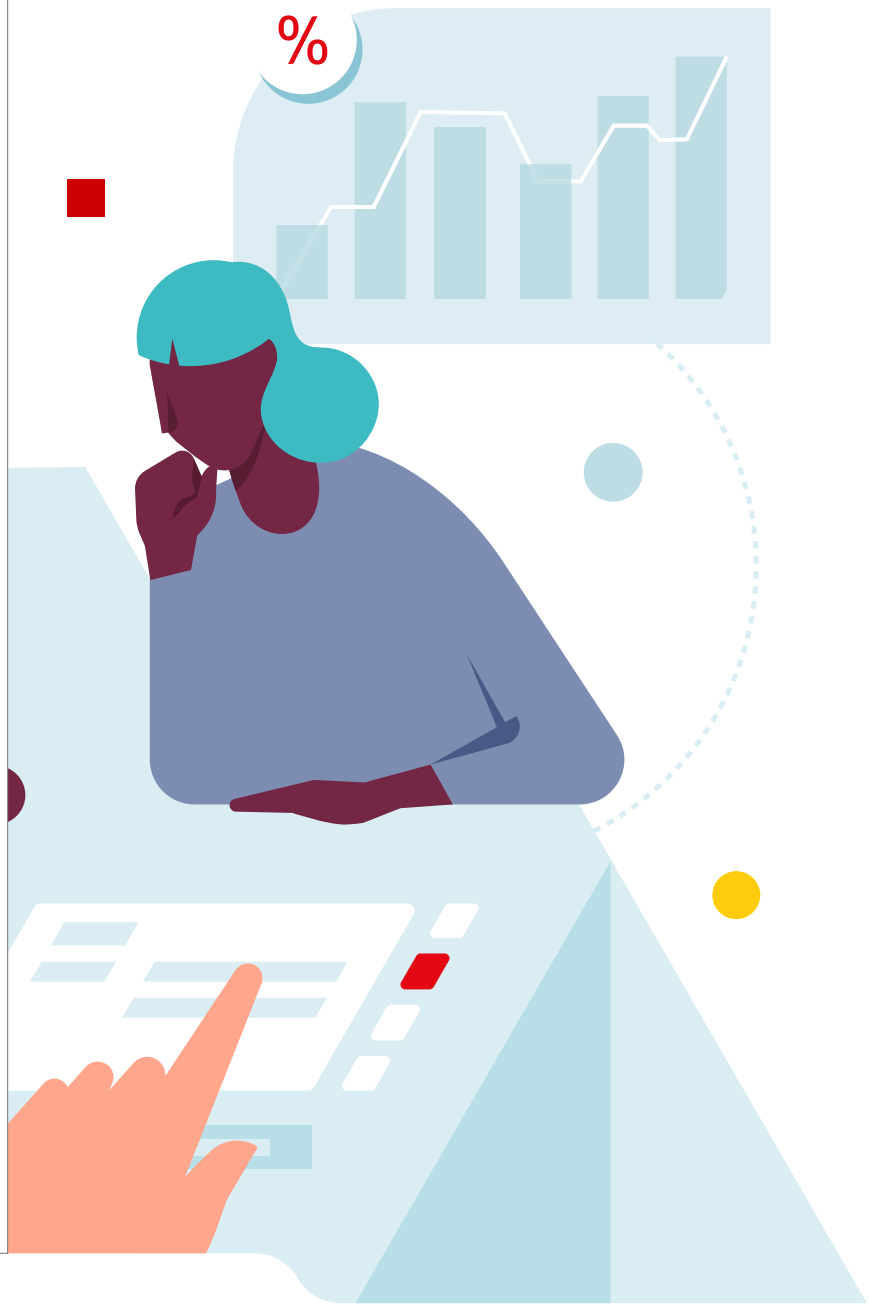
XV. Backtesting PD

XVI. Backtesting PD - CR9

XVII. Backtesting EAD

XVIII. Backtesting Expected Loss

XIX. Prudent Valuation Adjustments (PVA) (PV1)



Access files **2018 Pillar 3 Appendices** available on the Santander Group website.

Appendix I - Transparency enhancements

GUIDELINES ON DISCLOSURE REQUIREMENTS - EBA/GL/2016/11

Table	Table title	2018 Pillar 3 Location
OV1	Overview of RWAs	Table 7
LI1	Differences between accounting and regulatory scopes of consolidation and mapping of financial statements categories with regulatory risk categories	Table 1
LI2	Main sources of differences between regulatory exposure amounts and carrying amounts in financial statements	Table 2
LI3	Outline of the differences in the scopes of consolidation	Appendix V
INS1	Non-deducted participations in insurance undertakings	N/A
CRB-B	Net amount of exposures	Table 38
CRB-C	Geographical breakdown of exposures	Table 39
CRB-D	Concentration of exposures by industry or counterparty type	Table 40
CRB-E	Maturity of exposures	Table 41
CR1-A	Credit quality of exposures by exposure classes and instruments	Table 31
CR1-B	Credit quality of exposures by industry or counterparty type	Table 32
CR1-C	Credit quality of exposures by geography	Table 33
CR1-D	Ageing of past-due exposures	Table 34
CR1-E	Non-performing and forborne exposures	Table 35
CR2-A	Changes in stock of general and specific credit risk adjustments	Table 36
CR2-B	Changes in stock of defaulted and impaired loans and debt securities	Table 37
CR3	Credit risk mitigation techniques - IRB and SA	Table 43
CR4	Credit risk exposure and CRM effects (IRB & Standardised approach)	Tables 14 and 15
CR5	Standardised approach (including a breakdown of exposures post conversion factor and post mitigation techniques)	Table 30
CR6	Exposure to Credit risk by porfolio and PD interval	Tables 17 to 23
CR7	Effect on RWA of credit derivatives used as CRM techniques	Table 45
CR8	Exposures to central counterparties	Table 46
CR9	Backtesting PD by geography and porfolio	Appendix XVI
CR10	Specialised lending & equities	Tables 25 and 26
CCR1	Analysis of the counterparty credit risk (ccr) exposure by approach	Table 50
CCR2	Credit valuation adjustment (CVA) capital charge	Table 46
CCR3	Standardised approach – ccr exposures by regulatory portfolio and risk	Table 51
CCR4	IRB approach. Ccr exposures by portfolio and PD scale	Table 52
CCR5-A	Impact of netting and collateral held on exposure values	Table 53
CCR5-B	IRB approach. Composition of collateral for exposures to counterparty credit risk	Table 54
CCR6	Credit derivatives exposures	Table 58
CCR7	RWA flow statements of CCR exposures under Internal Model Method (IMM)	N/A

CCR8	Exposures to central counterparties	Table 47
MR1	Market risk under standardised approach	Table 78
MR2-A	Market risk under IMA approach	Table 76
MR2-B	WA flow statements of market risk exposures under IMA	Table 77
MR3	VaR, Stressed VaR and IRC by geography	Table 80
MR4	Comparison of VaR estimates with gains/losses	Section 6.3.5

REVISED PILLAR 3 DISCLOSURES REQUIREMENTS - BCBS

Table	Table title	2018 Pillar 3 Location
SEC1	Securitisation exposures in the banking book	Table 67
SEC2	Securitisation exposures in the trading book	Table 68
SEC3	Securitisation exposures in the banking book and associated regulatory capital requirements (bank acting originator or sponsor)	Table 70
SEC4	Securitisation exposures in the banking book and associated regulatory capital requirements (bank acts as an investor)	Table 71
PV1	Prudent Valuation Adjustments (PVA)	Appendix XIX
IRRBB1	Quantitative information on IRRBB	Table 84

GUIDELINES ON LCR DISCLOSURE - EBA/GL/2017/01

Table	Table title	2018 Pillar 3 Location
LCR	LCR disclosure template	Table 86

GUIDELINES ON DISCLOSURE OF ENCUMBERED AND UNENCUMBERED ASSETS - EBA/GL/2014/03

Table	Table title	2018 Pillar 3 Location
AE1	Encumbered and unencumbered assets	Table 87
AE2	Collateral received	Table 88
AE3	Sources of encumbrance	Table 89

LEVERAGE RATIO - COMMISSION IMPLEMENTING REGULATION (UE) 2016/200

Table	Table title	2018 Pillar 3 Location
LRSum	Summary reconciliation of accounting assets and leverage ratio exposures	Appendix X
LRCom	Leverage ratio common disclosure	Appendix X
LRSpl	Split-up of on balance sheet exposures (excluding derivatives and SFTs)	Appendix X

OWN FUNDS REQUIREMENTS - COMMISSION IMPLEMENTING REGULATION (UE) 1423/2013

Table	Table title	2018 Pillar 3 Location
Template 1	Capital instruments' main features	Appendix VII
Template 2	Transitional own funds disclosure template	Appendix VIII

COUNTERCYCLICAL CAPITAL BUFFER - COMMISSION IMPLEMENTING REGULATION (UE) 2015/1555

Table	Table title	2018 Pillar 3 Location
Frame 1	Geographical distribution of credit exposures relevant for the calculation of the countercyclical capital buffer	Appendix XI
Frame 2	Amount of institution-specific countercyclical capital buffer	Appendix XI

GUIDELINES ON UNIFORM DISCLOSURES UNDER ARTICLE 473A OF REGULATION (EU) NO 575/2013 AS REGARDS THE TRANSITIONAL PERIOD FOR MITIGATING THE IMPACT OF THE INTRODUCTION OF IFRS 9 ON OWN FUNDS - EBA/GL/2018/01

Table	Table title	2018 Pillar 3 Location
IFRS 9-FL Template	Comparison of equity, capital ratios and leverage of entities with or with out the application of the transotory dispositions of NIIF 9 or analog ECL	Appendix XII

Appendix II - CRR Mapping

The following table links the CRR's articles on divulging information (Part 8) to the various sections of the document that provide the information required. The 'Location' column specifies the section of Pillar 3 or other public document in which the information is dealt with, in whole or in part. This information may be distributed throughout the document on a piecemeal basis.

Article	Brief Description	2018 P3DR Location	Tables	2018 Annual Report Location
431. Scope of disclosures requirements				
431.1	Requirement to publish Pillar 3 disclosures.	Pillar 3 Disclosures Report (Santander corporate website)		
431.2	Firms with permission to use specific operational risk methodologies must disclose operational risk information.	Section 7.2		
431.3	Institution must have a policy covering the frequency of disclosures, their verification, comprehensiveness and appropriateness, as well as policies for assuring the overall comprehension of their risk profile by market participants.	Sections 1.2.2 and 1.2.3		
431.4	Explanation of SMEs ratings decision upon request.	N/A: Section 3.4		
432. Non-material, proprietary or confidential information				
432.1	Institutions may omit information that is not material if certain conditions are respected.	N/A: Sections 1.2.1 and 1.2.2		
432.2	Institutions may omit information that is proprietary or confidential if certain conditions are respected.	N/A: Section 1.2.2		
432.3	Where 432.2 applies this must be stated in the disclosures, and more general information must be disclosed.	N/A		
432.4	Use of 432.1, 432.2 or 432.3 is without prejudice to scope of liability for failure to disclose material information.	N/A		
433. Frequency of disclosure				
433	Disclosures must be published on an annual basis at a minimum, and more frequently if necessary.	Section 1.2.2		
434. Means of disclosure				
434.1	To include all disclosures in one appropriate medium, or provide clear cross-references to the synonymus information in the other media.	Section 1.2.1		
434.2	Disclosures made under other requirements (e.g. accounting, listing) can be used to satisfy Pillar 3 requirements, if appropriate.	Section 1.2.1		
435. Risk management objectives and policies				
435.1	Disclose information for each separate category of risk:			
435.1.a	The strategies and processes to manage risks.	Chapters 3 to 8		Risk Management Chapter 1. Risk Management and Control Model
435.1.b	Structure and organization of the risk management function.	Chapters 3 to 8		Risk Management Chapter 1. Risk Management and Control Model

Article	Brief Description	2018 P3DR Location	Tables	2018 Annual Report Location
435.1.c	Risk reporting and measurement systems.	Chapters 3 to 8		Risk Management Chapter 1. Risk Management and Control Model
435.1.d	Hedging and mitigating risk - policies, strategies and processes.	Chapters 2 to 8		Risk Management Chapter 3.2. Credit risk management 3.5. Other credit risk aspects 4. Trading market risk, structural and liquidity risk 5. Capital risk 6. Operational risk 7. Compliance and conduct risk 8. Model risk 9. Strategic risk
435.1.e	A declaration of adequacy of risk management arrangements approved by the Board.	Section 1.2.2		Risk Management Chapter 1. Risk Management and Control Model 2. Risk map and risk profile
435.1.f	Inclusion of a concise risk statement approved by the Board.	Section 1.2.2		Risk Management Chapter 1. Risk Management and Control Model 2. Risk map and risk profile
435.2	Information on governance arrangements, including information on Board composition and recruitment, and risk committees.			
435.2.a	Number of directorships held by Board members.			Corporate Governance Chapter
435.2.b	Recruitment policy for the selection of Board members, their actual knowledge, skills and expertise.			Corporate Governance Chapter
435.2.c	Policy on diversity of Board membership, objectives, and achievement status.			Corporate Governance Chapter
435.2.d	Existence of a dedicated risk committee, and number of meetings during the year.	Section 2.1.1.2		Corporate Governance Chapter Risk Management Chapter
435.2.e	Description of the information flow on risk to the Board.	Section 2.1.1.2		Corporate Governance Chapter Risk Management Chapter
436. Scope of application of the requirements				
436	Institutions shall disclose the following information regarding the scope of application of the requirements of this Regulation in accordance with Directive 2013/36/EU:			
436.a	Name of institution to which the requirements of this Regulation applies.	Section 1.2.1		
436.b	Difference in the basis of consolidation for accounting and prudential purposes, briefly describing entities that are: (i) fully consolidated (ii) proportionally consolidated (iii) deducted from own funds (iv) neither consolidated nor deducted	Sections 1.2.1, 1.2.4 and 1.3	Table 1 (LI1) Table 2 (LI2) Appendix V (LI3) Appendix VI	
436.c	Impediments to transfer of own funds between parent and subsidiaries.	Section 2.1.3		
436.d	Capital shortfalls in any subsidiaries outside the scope of consolidation.	N/A: Section 1.2.1		
436.e	The circumstance of making use of articles on derogations from: a) Prudential requirements b) Liquidity requirements for individual subsidiaries/entities.	Section 1.2.1		

Article	Brief Description	2018 P3DR Location	Tables	2018 Annual Report Location
437. Own funds				
437.1	Institutions shall disclose the following information regarding their own funds:			
437.1.a	A full reconciliation of Common Equity Tier 1 items, Additinal Tier 1 items, Tier 2 items and filters and deductions applied pursuant to Articles 32 to 35, 36, 56, 66 and 79 to own funds of the institution and the balance sheet in the audited financial statements of the institution.	Section 2.2.1	Tables 4 and 5 Appendix VIII	
437.1.b	Description of the main features of the Common Equity Tier 1 and Additional Tier 1 instruments and Tier 2 instruments issued by the institution.	Section 2.2.1	Appendix VII	
437.1.c	Dull terms and conditions of all Common Equity Tier 1, Additional Tier 1 and Tier 2 instruments.	Section 2.2.1	Appendix VII	
437.1.d	Disclosure of the nature and amounts of te following:			
437.1.d.i	Each prudential filter applied pursuant to Articles 32 to 35;	Section 2.2.1	Appendix VIII	
437.1.d.ii	Each deduction made pursuant to Articles 36, 56 and 66;	Section 2.2.1	Appendix VIII	
437.1.d.iii	Items not deducted in accordance with Articles 47, 51, 56, 66 and 79.	Section 2.2.1	Appendix VIII	
437.1.e	Description of all restrictions applied to the calculation of own funds in accordance with this Regulation and the instruments, prudential filters and deductions to which those restrictions apply.	Section 2.2.1	Appendix VIII	
437.1.f	Explanation of the calculation basis of the disclosed capital ratios estimated using elements of own funds determined, on a basis other than that laid down in this Regulation.	N/A		
438. Capital requirements				
438	Institutions shall disclose the following information regarding the compliance by the institution with the requirements laid down in Article 92 of this Regulation and in Article 73 of Directive 2013/36/EU:			
438.a	Summary of the institution's approach to assessing adequacy of capital levels.	Sections 2.1 and 2.3		
438.b	Result of ICAAP on demand from authorities.	Sections 2.1.5 and 2.3		
438.c	Capital requirements for each Standardised approach credit risk exposure class.	Sections 2.2.2, 3.2.3, 4.7, 5.4 and 5.5	Tables 7 (OV1) and 8 Tables 15 (CR4) and 30 (CR5) Tables 70 (SEC3) and Table 71 (SEC4)	
438.d	Capital requirements for each Internal Ratings Based Approach credit risk exposure class.	Sections 2.2.2, 3.2.1, 4.7, 5.4 and 5.5	Tables 7 (OV1) and 8 Tables 14, 16 (CR8), 17 to 23 (CR6), 24, and 25 to 26 (CR10) Tables 70 (SEC3) and 71 (SEC4) Appendix XIII	
438.e	Capital requirements for market risk or settlement risk.	Sections 2.2.2 and 6.2	Table 7 (OV1) Tables 74 to 75, 76 (MR2-A), 77 (MR2-B), 78 (MR1) and 79	
438.f	Capital requirements for operational risk, separately for the Basic Indicator Approach, the Standardised Approach, and the Advanced Measurement Approaches as applicable.	Sections 2.2.2 and 7.2	Tables 7 (OV1) and 85	
438 last paragraph	Requirement to disclose specialised lending exposures and equity exposures in the banking book falling under the simple risk weight approach.	Section 3.2.2	Tables 25 and 26 (CR10)	
439. Exposure to counterparty credit risk				
439	Institutions shall disclose the following information regarding the institution's exposure to counterparty credit risk as referred to in Part Three, Title II, Chapter 6:			
439.a	Description of process to assign internal capital and credit limits to CCR exposures.	Chapter 4		

Article	Brief Description	2018 P3DR Location	Tables	2018 Annual Report Location
439.b	Discussion of policies for securing collateral and establishing credit reserves.	Chapter 4		
439.c	Discussion of management of wrong-way risk exposures.	Chapter 4		
439.d	Disclosure of collateral to be provided (outflows) in the event of a ratings downgrade.	Chapter 4		
439.e	Derivation of net derivative credit exposure.	Chapter 4	Tables 46 (CCR2), 47 (CCR8), 50 (CCR1), 53 (CCR5-A) and 54 (CCR5-B)	
439.f	Exposure values for mark-to-market, original exposure, standardised and internal model methods.	Chapter 4	Tables 46 (CCR2), 47 (CCR8) and 50 (CCR1)	
439.g	Notional value of credit derivative hedges and distribution of current credit exposure by type of exposure.	Chapter 4	Table 58 (CCR6)	
439.h	Notional amounts of credit derivative transactions.	Chapter 4	Table 58 (CCR6)	
439.i	Estimate of alpha, if applicable.	N/A	Table 50 (CCR1)	
440. Capital buffers				
440	Disclosure of the following information in relation to its compliance with the requirement for a countercyclical capital buffer referred to in Title VII, Chapter 4 of Directive 2013/36/EU:			
440.a	Geographical distribution of credit exposures relevant for the calculation of countercyclical capital buffer.	Section 2.1.5	Appendix XI	
440.b	Amount of the specific countercyclical capital buffer.	Section 2.1.5	Appendix XI	
441. Indicators of global systemic importance				
441	Disclosure of the indicators of global systemic importance.	Section 2.1.5		
442. Credit risk adjustments				
442	Institutions shall disclose the following information regarding the institution's exposure to credit risk and dilution risk:			
442.a	Definitions, for accounting purposes, of past due and impaired exposures.	Section 3.3		Risk Management Chapter 3.3. Credit risk - Key metrics
442.b	Description of the approaches adopted for calculating specific and general credit risk adjustments.	Section 3.3		Risk Management Chapter 3.3. Credit risk - Key metrics
442.c	Disclosure of pre-CRM EAD by exposure class.	Section 3.3	Table 31 (CR1-A) Table 38 (CRB-B)	
442.d	Disclosure of pre-CRM EAD by geography and exposure class.	Section 3.3	Table 39 (CRB-C)	Risk Management Chapter 3.3. Credit risk - Key metrics
442.e	Disclosure of pre-CRM EAD by industry and exposure class.	Section 3.3	Table 40 (CRB-D)	Risk Management Chapter 3.3. Credit risk - Key metrics
442.f	Disclosure of pre-CRM EAD by residual maturity and exposure class.	Section 3.3	Table 41 (CRB-E)	
442.g. (i-iii)	Breakdown of impaired, past due, specific and general credit risk adjustments, and impairment charges for the period, by industry.	Section 3.3	Table 31 (CR1-A) Table 32 (CR1-B) Table 33 (CR1-C) Table 34 (CR1-D) Table 35 (CR1-E)	Risk Management Chapter 3.3. Credit risk - Key metrics
442.h	Impaired and past due exposures, broken down by geographical area, and the amounts of specific and general credit risk adjustments related to each geographical area.	Section 3.3	Table 31 (CR1-A) Table 32 (CR1-B) Table 33 (CR1-C) Table 34 (CR1-D) Table 35 (CR1-E)	Risk Management Chapter 3.3. Credit risk - Key metrics

Article	Brief Description	2018 P3DR Location	Tables	2018 Annual Report Location
442.i.(i-v)	Reconciliation of changes in specific and general credit risk adjustments for impaired exposures.	Section 3.3	Table 35 (CR1-E) Table 36 (CR2-A) Table 37 (CR2-B)	
442 last paragraph	Specific credit risk adjustments recorded to income statement are disclosed separately.	Section 3.3	Table 35 (CR1-E) Table 36 (CR2-A) Table 37 (CR2-B)	
443. Unencumbered assets				
443	Disclosures of unencumbered assets.	Section 8.1.2	Tables 87 (AE1), 88 (AE2) and 89 (AE3)	Economic and Financial Report Chapter 3. Group financial performance (Liquidity and funding management)
444. Use of ECAIs				
444	For institutions calculating the risk-weighted exposure amounts in accordance with Part Three, Title II, Chapter 2, the following information shall be disclosed for each of the exposure classes specified in Article 112:			
444.a	Names of the ECAIs used in the calculation of Standardised approach risk-weighted assets and reasons for any changes.	Section 3.2.3		
444.b	Exposure classes associated with each ECAI.	Section 3.2.3		
444.c	Description of the process used to transfer credit assessments to non-trading book items.	N/A: Section 3.2.3		
444.d	Mapping of external rating to credit quality steps (CQS).	Sections 3.2.1 and 3.2.3	Tables 17 to 23 (CR6)	
444.e	Exposure value pre and post-credit risk mitigation, by CQS.	Sections 3.2.3, 3.3 and 4.7	Tables 14 and 15 (CR4) Tables 30 (CR5) and 51 (CCR3)	
445. Exposure to market risk				
445	Disclosure of position risk, large exposures exceeding limits, FX, settlement and commodities risk.	Section 6.2	Table 77 (MR2-B) and 78 (MR1)	
446. Operational risk				
446	Scope of approaches used to calculate operational risk.	Section 7.2		
447. Exposures in equities not included in the trading book				
447	Institutions shall disclose the following information regarding the exposures in equities not included in the trading book:			
447.a	Differentiation of exposures based on their objectives and an overview of accounting techniques and valuation methodologies used.	Section 3.2.2	Tables 26 (CR10) and 27 to 29	
447.b	The balance sheet value, the fair value and, for those exchange-traded, a comparison to the market price where it is materially different from the fair value.	Section 3.2.2	Tables 26 (CR10) and 27 to 29	
447.c	The types, nature and amounts of exchange-traded exposures, private equity exposures in sufficiently diversified portfolios, and other exposures.	Section 3.2.2	Tables 26 (CR10) and 27 to 29	
447.d	Cumulative realised gains or losses arising from sales and liquidations in the period.	Section 3.2.2	Tables 26 (CR10) and 27 to 29	
447.e	Total unrealised gains or losses, the total latent revaluation gains or losses, and any of these amounts included in the original or additional own funds.	Section 3.2.2	Tables 26 (CR10) and 27 to 29	
448. Exposure to interest rate risk on positions not included in the trading book				
448	Institutions shall disclose the following information on their exposure to interest rate risk on positions not included in the trading book:			
448.a	Nature of the interest rate risk and the key assumptions, and frequency of measurement of the interest rate risk.	Section 6.4	Table 84	Risk Management Chapter 4.4. Structural balance sheet risks management
448.b	Variation in earnings, economic value or other relevant measure used by the bank for upward and downward rate shocks according to the banks method for measuring the interest rate risk, broken down by currency.	Section 6.4	Table 84	Risk Management Chapter 4.4. Structural balance sheet risks management

Article	Brief Description	2018 P3DR Location	Tables	2018 Annual Report Location
449. Exposure to securitisation positions				
449	Institutions calculating risk weighted exposure amounts in accordance with Part Three, Title II, Chapter 5 or own funds requirements in accordance with Article 337 or 338 shall disclose the following information, where relevant, separately for their trading and non-trading book:			
449.a	Objectives in relation to securitisation activity.	Section 5.3.1		
449.b	Nature of other risks in securitised assets, including liquidity.	Section 5.3.3		
449.c	Risks in re-securitisation activity stemming from seniority of underlying securitisations and ultimate underlying assets.	Sections 5.4 and 5.5	Tables 60, 61, 63 to 66, 67 (SEC1), 68 (SEC2), 70 (SEC3) and 71 (SEC4)	
449.d	Roles played by the institution in the securitisation process.	Section 5.3.2		
449.e	Extent of the institution's involvement in each of the securitisation roles	Section 5.5	Tables 59 to 63, 66, 67 (SEC1) and 68 (SEC2)	
449.f	Processes in place to monitor changes in credit and market risks of securitisation exposures, and how the processes differ for re-securitisation exposures.	Section 5.5		
449.g	Description of the institution's policies with respect to hedging and unfunded protection, and identification of material hedge counterparties, by relevant type of risk exposure.	N/A: Section 5.5	N/A: Table 2 (LI2)	
449.h	Approaches to the calculation of risk-weighted assets for securitisations mapped to types of exposures.	Section 5.4	Tables 59 to 63	
449.i	Types of SSPEs used to securitise third-party exposures as a sponsor.	Sections 5.4, 5.3.2 and 5.5	Tables 59 to 63, 66, 67 (SEC1), 68 (SEC2), 69, 70 (SEC3) Appendix IX	
449.j	A summary of the institution's accounting policies for securitisation activities, including:			
449.j.i	whether the transactions are treated as sales or financings;	Section 5.2		
449.j.ii	the recognition of gains on sales;	Section 5.2		
449.j.iii	the methods, key assumptions, inputs and changes from the previous period for valuing securitisation positions;	Section 5.2		
449.j.iv	the treatment of synthetic securitisations if not covered by other accounting policies;	Section 5.2		
449.j.v	how assets awaiting securitisation are valued and whether they are recorded in the institution's non-trading book or the trading book;	Section 5.2		
449.j.vi	policies for recognising liabilities on the balance sheet for arrangements that could require the institution to provide financial support for securitised assets.	Section 5.2		
449.k	Names of ECAIs used for securitisations and type.	Section 5.5		
449.l	Full description of Internal Assessment Approach.	N/A: Section 5.4	Table 7 (OV1)	
449.m	Explanation of significant changes in quantitative disclosures, since the last reporting period.	Sections 5.4 and 5.5		
449.n	As appropriate, separately for the Banking and trading book securitisation exposures:			
449.n.i	amount of outstanding exposures securitised;	Sections 5.4 and 5.5	Tables 59 to 66, 67 (SEC1), 68 (SEC2), 70 (SEC3) and 71 (SEC4)	
449.n.ii	on balance sheet securitisation retained or purchased, and off balance sheet exposures;	Section 5.4	Tables 59 to 61	
449.n.iii	amount of assets awaiting securitisation;	N/A: Section 5.5		
449.n.iv	early amortisation treatment, aggregate drawn exposures and capital requirements for securitised facilities;	N/A: Section 5.3.3		
449.n.v	Deducted or 1,250%-weighted securitisation positions;	Sections 5.4 and 5.5	Tables 60, 61, 70 (SEC3) and 71 (SEC4)	
449.n.vi	summary of the securitisation activity of the current period.	Sections 5.4 and 5.5	Tables 59 to 66, 67 (SEC1), 68 (SEC2), 70 (SEC3) and 71 (SEC4)	

Article	Brief Description	2018 P3DR Location	Tables	2018 Annual Report Location
449.o	Banking and trading book securitisations:			
449.o.i	Retained and purchased positions and associated capital requirements, broken down by risk-weight bands;	Sections 5.4 and 5.5	Tables 60, 61, 70 (SEC3) and 71 (SEC4)	
449.o.ii	Retained and purchased re-securitisation positions before and after hedging and insurance; exposure to financial guarantors broken down by guarantor credit worthiness.	N/A: Sections 5.4 and 5.5	Tables 60, 61, 63 to 66, 67 (SEC1), 68 (SEC2), 70 (SEC3) and 71 (SEC4)	
449.p	Impaired assets and recognised losses related to banking book securitisations, by exposure type.	Section 5.4	Table 64	
449.q	Exposure and capital requirements for trading book securitisations, separated into traditional and synthetic, and exposure type.	Sections 5.4 and 5.5	Tables 62 and 68 (SEC2)	
449.r	Whether the institution has provided non-contractual financial support to securitisation vehicles.	N/A		
450. Remuneration policy				
450	Remuneration disclosures (Material Risk Takers):	Chapter 9		Corporate Governance Chapter
451. Leverage				
451.1. (a,b)	Leverage ratio, and breakdown of the total exposure measures, including the reconciliation to financial statements.	Section 2.2.3	Tables 9 and 10 Appendix X	
451.c	If applicable, the total amount of the derecognized fiduciary items.	N/A		
451.(d,e)	Description of the processes used to manage the risk of excessive leverage, and factors that impacted the leverage ratio during the year.	Section 2.2.3		
452. Use of the IRB Approach to credit risk				
452	Institutions calculating the risk-weighted exposure amounts under the IRB Approach shall disclose the following information:			
452.a	Permission for use of the IRB approach from the competent authority.	Section 2.2.2.1		
452.b	Explanation and review of:			
452.b.i	Structure of internal rating systems and relation between internal and external ratings;	Sections 3.2.1, 3.4 and 3.10	Tables 17 to 23 (CR6), 24, and 25 to 26 (CR10)	
452.b.ii	Use of internal ratings for purposes other than capital requirement calculations;	Section 3.6		
452.b.iii	Management and recognition of credit risk mitigation process;	Section 3.7.1		
452.b.iv	Controls mechanisms for rating systems;	Section 3.8		
452.c.(i-v)	Description of ratings processes for each IRB asset class, provided separately.	Sections 3.2.1 and 3.5	Tables 17 to 20 (CR6), 22 to 23 (CR6), and 25 to 26 (CR10)	
452.d	Exposure values by IRB exposure class, separately for Advanced and Foundation IRB.	Section 3.2.1	Tables 17 to 23 (CR6), 24, and 25 to 26 (CR10)	
452.e.(i-iii)	For each exposure class, disclosed separately by obligor grade, institutions shall disclose: total exposure, separating loans and undrawn exposures where applicable, and exposure-weighted average risk weight.	Section 3.2.1	Tables 17 to 23 (CR6), 24, and 25 to 26 (CR10)	
452.f	For the retail exposure class, the disclosures outlined in article 452.e, to allow for a meaningful differentiation of credit risk on a pooled basis.	Section 3.2.1	Table 20 (CR6)	
452.g	Actual specific risk adjustments for the period and explanation of changes.	Sections 3.1 and 3.2.1	Tables 17 to 23 (CR6) and 31 (CR1-A)	
452.h	Description of the factors that impacted on the loss experience in the preceding period.	Sections 3.2.1, 3.7.1, 3.9 and 4.7	Tables 17 to 23 (CR6), 24, 25 to 26 (CR10) and 51 (CCR3)	
452.i	Analysis of the historical estimates of losses against actual losses in each exposure, to help assess the performance of the rating system over a sufficient period.	Section 3.10	Appendices XV to XVIII	
452.j	For all IRB exposure classes:			
452.j.(i-ii)	Where applicable, PD and LGD by each country where the bank operates.	Section 3.2.1	Table 24	

Article	Brief Description	2018 P3DR Location	Tables	2018 Annual Report Location
453. Use of credit risk mitigation techniques				
453	Institutions applying credit risk mitigation techniques shall disclose the following information:			
453.a	Use of on and off-balance sheet netting.	Sections 3.7 and 4.7		Risk Management Chapter 3.2. Credit risk management
453.b	How collateral valuation is managed.	Sections 3.7 and 4.7		Risk Management Chapter 3.2. Credit risk management
453.c	Description of types of collateral used by the institution.	Sections 3.7 and 4.7		Risk Management Chapter 3.2. Credit risk management
453.d	Main types of guarantor and credit derivative counterparty, creditworthiness.	Sections 3.7 and 4.7		Risk Management Chapter 3.2. Credit risk management
453.e	Market or credit risk concentrations within risk mitigation exposures.	Sections 3.7 and 4.7	Table 42	
453.f	Standardised or Foundation IRB Approach, exposure value covered by eligible collateral.	Sections 3.3, 3.7.1 and 4.7	Tables 14 to 15 (CR4) Table 43 (CR3) Tables 53 (CCR5-A), 54 (CCR5-B), 55 to 57, and 58 (CCR6)	
453.g	Exposures covered by guarantees or credit derivatives.	Sections 3.3, 3.7 and 4.7	Tables 14 to 15 (CR4) Table 43 (CR3) Table 45 (CR7) Tables 53 (CCR5-A), 54 (CCR5-B), 55 to 57, and 58 (CCR6)	
454. Use of the Advanced Measurement Approaches to operational risk				
454	Description of the use of insurance or other risk transfer mechanisms to mitigate operational risk.	N/A: Sections 2.2.2 and 7.2	Table 7 (OV1)	
455. Use of Internal Market Risk Models				
455	Institutions calculating their capital requirements in accordance with Article 363 shall disclose the following information:			
455.a	For each sub-portfolio covered:			
455.a.i	Disclosure of the characteristics of the market risk models used;	Sections 2.2.2.1, 6.2 and 6.3		
455.a.ii	Disclosure of the methodologies used to measure incremental default and migration risk;	Sections 2.2.2.1, 6.2 and 6.3		
455.a.iii	Descriptions of stress tests applied to the portfolios;	Sections 6.2 and 6.3.4		
455.a.iv	Methodology for back-testing and validating the models.	Sections 6.2, 6.3.5 and 6.3.6		
455.b	Scope of permission for use of the models.	Sections 2.2.2.1, 6.2 and 6.3.5		
455.c	Policies and processes to determine trading book classification, and to comply with prudential valuation requirements.	Section 6.3		
455.d.(i-iii)	High/Low/Mean values over the year of VaR, SVaR and incremental risk charge.	Section 6.3.1	Table 80 (MR3)	
455.e	The elements of the own fund calculation.	Sections 2.2.2 and 6.2	Tables 7 (OV1), 75, 76 (MR2-A) and 77 (MR2-B)	
455.f	Weighted average liquidity horizons for each sub-portfolio covered by internal models.	Section 6.3		
455.g	Comparison of end-of-day value-at-risk (VaR) measures compared with one-day changes in the portfolio's value.	Section 6.3.5	Graph MR4	

Appendix III - List of tables

Click on the page number corresponding to each table to access it.

Appendix IV - Glossary

Advanced IRB approach: all the credit risk parameters are estimated internally by the entity, including the CCFs for calculating the EAD.

AMA (Advanced Measurement Approach): an operational risk measurement technique set forth in Basel capital adequacy norms, based on an internal modelling methodology.

AQR (Asset Quality Review): asset quality review exercise performed by the European Central Bank.

Asset liability management (ALM): a series of techniques and procedures to ensure correct decision-making on investments and funding at the entity, taking into consideration the interrelation between the various on- balance-sheet and off-balance-sheet items.

Asset securitisation: a financial mechanism that consists of converting certain assets into fixed-income securities that can be traded on a secondary securities market.

AT1 (Additional Tier 1): capital which consists primarily of hybrid instruments.

Backtesting: the use of historical data to monitor the performance of the risk models.

Basel III: a set of amendments to the Basel II regulations published in December 2010, scheduled to take effect in January 2013 and to be gradually implemented until January 2019.

Basic IRB approach: all the risk parameters are determined by the regulator except for the probability of default, which is estimated internally by the bank. The CCFs required to calculate EAD are determined by the regulator.

BCBS: Basel Committee on Banking Supervision.

BIS: Bank for International Settlements.

BRRD (Bank Recovery and Resolution Directive): approved in 2014, the BRRD establishes the framework for the recovery and resolution of banks with the objective of minimising the costs for taxpayers.

CBE 2/2016: Bank of Spain Circular of 2 February 2016 on the supervision and solvency of credit institutions, which completes the adaptation to Spanish law of Directive 2013/36/EU and Regulation (EU) No 575/2013. The new Circular repeals Bank of Spain Circular 3/2008 to credit institutions on the determination and control of minimum own funds (except the parts referred to in Circular 5/2008 regarding the regime established therein) and section 11 of Bank of Spain Circular 2/2014.

CBE 3/2008: Bank of Spain Circular of 22 May 2008 on the calculation and control of minimum capital requirements.

CBE 4/2004: Bank of Spain Circular of 22 December 2004 on public and confidential financial reporting standards and model financial statement forms.

CBE 9/2010: Bank of Spain Circular of 22 December 2010 amending Circular 3/2008.

CCAR (Comprehensive Capital Analysis Review): a framework introduced by the Federal Reserve to review the capital planning and adaptation processes of the main US financial institutions.

CCF (Credit conversion factor): a conversion factor used for converting off-balance-sheet credit risk balances into credit exposure equivalents. Under the AIRB approach Santander Group applies the CCFs in order to calculate the EAD value of the items representing contingent liabilities and commitments.

CCoB (Conservation Buffer): a capital buffer equal to 2.5% of risk-weighted assets (and comprised fully of high-quality liquid assets) to absorb losses generated from the business.

CCP (Central Counterparty Clearing House): entity defined in article 2.1 of Regulation (EU) no. 648/2012.

CCyB (Counter Cyclical Buffer): a buffer whose objective is to mitigate or prevent cyclical risks arising from excessive credit growth at aggregate level. Accordingly, the CCB is designed to build up capital buffers during expansionary phases with a dual objective: to enhance the solvency of the banking system and to stabilise the credit cycle.

CET1 (Common Equity Tier 1): the highest quality capital of a bank.

CoCos (Contingent Convertible Bonds): debt securities that are convertible into capital if a specified event occurs.

Common equity: a capital measure that considers, among other components, ordinary shares, the share premium and retained profits. It does not include preference shares.

Concentration risk: the risk of loss due to large exposures to a small number of debtors to which the entity has lent money.

Confidence level: in the context of value at risk (VaR) and economic capital, this is the level of probability that the actual loss will not exceed the potential loss estimated by value at risk or economic capital.

Counterparty credit risk: the risk that a counterparty will default on a derivatives contract before its maturity. The risk could arise from derivatives transactions in the trading portfolio or the banking portfolio and, as with other credit exposures, it is subject to a credit limit.

Credit default swap: a derivatives contract that transfers the credit risk of a financial instrument from the buyer (who receives the credit protection) to the seller (who guarantees the solvency of the instrument).

Credit risk: the risk that customers are unable to meet their contractual payment obligations. Credit risk includes default, country and settlement risk.

Credit risk mitigation: a technique for reducing the credit risk of a transaction by applying coverage such as personal guarantees or collateral.

CRM (Comprehensive Risk Measure): the estimate of risk in the correlation trading portfolio.

CRR (Capital Requirements Regulation) and CRD IV (Capital Requirements Directive): directive and regulation transposing the Basel II framework into European Union law.

CSP: Commercial strategic plan.

CVA (Credit Valuation Adjustment): the difference between the value of the risk-free portfolio and the true portfolio value, taking into account counterparty credit risk.

DEBA: European Banking Authority. Created in 2010, it entered into operation in 2011. The EBA acts as a coordinator between the national entities responsible for safeguarding values such as the stability of the financial system, transparency of markets and financial products, and the protection of bank customers and investors.

Default risk: the risk that counterparties will not meet their contractual payment obligations.

Derivatives: financial instruments that derive their value from one or more underlying assets, e.g. bonds or currencies.

DLGD (Downturn LGD): the LGD estimated in adverse economic conditions.

DTA: deferred tax assets.

D-SIIs: Domestic Systemically Important Institutions.

EAD (Exposure at Default): the amount that the entity could lose in the event of counterparty default.

ECAI: External Credit Assessment Institution, such as Moody's Investors Service, Standard & Poor's Ratings Group and Fitch Group.

ECB Governing Council: the main decision-making body of the ECB, consisting of all members of the Executive Board and the governors of the national central banks of the Euro area countries.

ECB Supervisory Board: the body which undertakes the planning and execution of the ECB's supervisory tasks, carrying out preparatory work and making proposals for decisions for approval by the ECB Governing Board.

Economic capital: the figure that demonstrates to a high degree of certainty the quantity of capital resources that Santander Group needs at a given point in time to absorb unexpected losses arising from its current exposure.

EDTF (Enhanced Disclosure Task Force): task force that issues recommendations to enhance the transparency of financial institution disclosures to the market.

EL (Expected loss): a regulatory calculation of the average amount expected to be lost on an exposure, using a 12-month time horizon. EL is calculated by multiplying probability of default (a percentage) by exposure at default (an amount) and LGD (a percentage).

EPS (earnings per share): an indicator used to measure a company's profitability over a specified period of time. EPS is calculated by dividing the company's profit for the period by the number of shares comprising its share capital.

ESRB (European Systemic Risk Board): the body that has been charged with macroprudential supervision of the financial system in the European Union in order to contribute to preventing or mitigating to systemic risks to financial stability.

Exposure: the gross amount that the entity could lose if the counterparty is unable to meet its contractual payment obligations, without taking into consideration any guarantees, credit enhancements or credit risk mitigation transactions.

FSB (Financial Stability Board): international institution that monitors and makes recommendations on the global el financial system.

Fully-Loaded: denotes full compliance with Basel III solvency requirements (which become mandatory in 2019).

GHOS (Group of Governors and Heads of Supervision): supervisory body of the Basel Committee.

Global rating tools: these assign a rating to each customer using a quantitative or automatic module.

G-SIB (Global Systemically Important Bank) or SIFI (Systemically Important Financial Institution): financial institutions which, because of their size, complexity and systemic interconnectedness, if allowed to fail could cause major disruptions to the financial system and economic activity.

HQLA: High Quality Liquid Assets.

HVCRE: High Volatility Commercial Real Estate.

ICAAP: internal capital adequacy assessment process.

IFRS: International Financial Reporting Standards.

ILAAP (Internal Liquidity Adequacy Assessment Process): process for the identification, measurement, management and control of liquidity implemented by the entity in compliance with article 86 of Directive 2013/36/EU.

Implicit LGD: this is used to back-test the regulatory LGD estimates. It is based on taking NPLMV as proxy for the Observed Loss, and then dividing the Observed Loss by the PD gives an implicit or observed LGD that can be compared to the regulatory LGD.

Interest rate risk: exposure of the bank's financial position to adverse movements in interest rates. Acceptance of this risk is a normal part of the banking business and can be a source of significant returns and creation of shareholder value.

Internal ratings-based approach (IRB): an approach based on internal ratings for the calculation of risk-weighted exposures.

Internal validation: a pre-requisite for the supervisory validation process. A sufficiently independent specialised unit of the entity obtains an expert opinion on the adequacy of the internal models for the relevant internal and regulatory purposes, and issues a conclusion on their usefulness and effectiveness.

IRC (Incremental Risk Charge): an estimate of the credit risk associated with unsecuritised positions in the trading book.

IRP: This report, titled Pillar III Disclosures in the English version. (the acronym is for the Spanish Informe de Relevancia Prudencial).

IRRBB: Interest Rate Risk in the Banking Book.

ISDA (International Swaps and Derivatives Association): OTC derivative transactions between financial institutions are usually carried out under a master agreement established by this organisation which details the definitions and general terms and conditions of the contract.

ITS: Implementing Technical Standards.

JST (Joint Supervisory Team): one of the main forms of cooperation between the ECB and the national supervisors.

LCR (Liquidity Coverage Ratio): a ratio that ensures that a bank has an adequate stock of unencumbered high quality liquid assets that can be converted, easily and immediately, into cash in private markets, to meet its liquidity needs for a 30 calendar day liquidity stress scenario.

LDP: low-default portfolio.

Leverage Ratio: a complementary (non-risk based) regulatory capital measure that attempts to guarantee banks' financial resilience. The ratio is calculated by dividing eligible Tier 1 capital by exposure.

LGD (Loss Given Default): the portion of EAD not recovered at the end of the loan recovery process. It is equal to 1 minus the recovery rate (i.e.: LGD = 1 - recovery rate). The definition of loss used to estimate LGD must be a definition of economic loss, not an accounting loss.

Liquidity risk: the risk that Santander Group might be unable to meet all its payment obligations when they fall due or might only be able to meet them at an excessive cost.

LTV (Loan to value): amount of credit extended / value of guarantees and collateral.

Mark-to-market approach: in regulatory terms, an approach for calculating the value of the credit risk exposure of counterparty derivatives (present market value plus a margin, i.e. the amount that takes into consideration the potential future increase in market value).

Market risk: the risk arising from uncertainty regarding changes in market prices and rates (including interest rates, share prices, exchange rates and commodity prices), the correlations between them and their levels of volatility.

MDA: Maximum Distributable Amount.

Model validation: the process of assessing the effectiveness of a credit risk model using a pre-defined set of criteria, such as the model's discriminatory power, the appropriateness of the inputs and expert opinions.

MPE (Multiple Point of Entry): a resolution approach based on multiple points of entry.

MREL (Minimum Requirement of Eligible Liabilities): the final loss absorption requirement established in European legislation for institutions based on an assessment of their resolution plans.

Netting: a bank's ability to reduce its credit risk exposure by setting off the value of its rights against its obligations with the same counterparty.

Non-standardised customers: customers who have been assigned a risk analyst due to the risk assumed. This category includes wholesale banking customers, financial institutions and certain enterprises in retail banking.

NSFR (Net Stable Funding Ratio): a ratio designed to ensure a bank has a balanced balance sheet structure, in which stable funding requirements are funded by stable liabilities.

Operational risk: the risk of incurring losses with regard to employees, contractual specifications and documentation, technology, infrastructure failures and disasters, projects, external influences and customer relations. This definition includes legal and regulatory risk but does not include business and reputational risk.

Over-the-counter (OTC): off-exchange, that is, trading done between two parties (in derivatives, for example) without the supervision of an organised exchange.

Phased-in: refers to compliance with current solvency requirements bearing in mind the transitional period for Basel III implementation.

Pillar 1 – Minimum Capital Requirements: the part of the New Basel Capital Accord that establishes the minimum regulatory capital requirements for credit, market and operational risk.

Pillar 2 - Supervisory Review Process: an internal capital adequacy assessment process reviewed by the supervisor with possible

additional capital requirements for risk that are not included in Pillar I and the use of more sophisticated methodologies than Pillar I.

Pillar 3 - Market Discipline: this pillar is designed to complete the minimum capital requirements and the supervisory review process and, accordingly, enhance market discipline through the regulation of public disclosure by the entities.

Point-in-time (PIT) PD: the probability of default at a particular point in time or in particular state of the economic cycle.

Probability of default (PD): this represents the likelihood that a customer or a transaction will fall into default. It is the probability that an event (the default) will occur within a given time horizon.

QIS (Quantitative Impact Study): ad-hoc requests by the EBA for studies analysing and calibrating the impact of new changes in regulation.

Qualifying central counterparty (QCCP): a central counterparty that has either been authorised under article 14 of Regulation (EU) no. 648/2012, or been recognised under article 25 of said Regulation.

Rating: the result of the objective assessment of the counterparties' future economic situation based on current characteristics and assumptions. The methodology for assigning the ratings depends largely on the type of customer and the available data. A wide range of methodologies for assessing credit risk is applied, such as expert systems and econometric methods.

RDL: Royal Decree Law.

Risk appetite: the amount and type of risks considered reasonable to assume in the execution of its business strategy, so that Santander Group can maintain its ordinary activity in the event of unexpected circumstances. Severe scenarios are taken into account that could have a negative impact on the levels of capital, liquidity, profitability and/or the share price.

Risk limits: approval tools for certain risk types and levels.

Risk-weighted assets (RWA): calculated by assigning a level of risk, expressed as a percentage (risk weighting), to an exposure in accordance with the relevant rules under the standardised approach or the IRB approach.

RoRAC: Return on Risk Adjusted Capital.

RoRWA: Return on Risk-Weighted Assets.

RTS: Regulatory Technical Standards.

RWA density: ratio that compares institutions' total weighted assets and their total balance sheet, and can be interpreted as an average relative risk measure -according to regulatory criteria- of a bank's overall operations.

SFT (Securities Financing Transactions): any transaction where securities are used to borrow cash, or vice versa. They mostly include repurchase agreements (repos), securities lending activities and sell/buy-back transactions.

Slotting Criteria: an approach used for calculating risk weights for specialised lending exposures, which consists of mapping the internal ratings to five supervisory categories, each with its own specific risk weight.

Special-purpose vehicle (SPV): a company created for the sole purpose of acquiring certain assets or derivative exposures and of issuing liabilities that are associated solely with these assets or exposures.

SRB (Single Resolution Board): the single resolution authority, which is the second pillar of the Banking Union after the Single Supervisory Mechanism.

SRB: Systemic Risk Buffer.

SREP (Supervisory Review and Evaluation Process): a review of the systems, strategies, processes and mechanisms applied by credit institutions and of their risks.

SRF: Single Resolution Fund.

SRM: Single Resolution Mechanism.

SSM (Single Supervisory System): the system of banking supervision in Europe. It comprises the ECB and the competent supervisory authorities of the participating EU countries.

Standardised approach: an approach for calculating credit risk capital requirements under Pillar I of Basel II. Under this approach, the risk weightings used in the capital calculation are determined by the regulator.

Standardised customers: customers which have not been expressly assigned a risk analyst. This category generally includes individuals, individual entrepreneurs and retail banking enterprises not classified as non-standardised customers.

Stress testing: used to describe various techniques for measuring the potential vulnerability to exceptional but plausible events.

Stressed VaR: measures the level of risk in stressed historical or simulated market situations.

Synthetic securitisation: transactions that involve a basket of credit swap agreements and bonds serving as collateral. They are called synthetic as rather than containing physical bonds, they carry credit derivatives, also known as synthetic contracts.

Through-the-cycle (TTC) PD: probability of default adjusted to a full economic cycle. It may be taken as a long-term average of the point-in-time PD.

Tier 1: core capital less hybrid instruments.

Tier 2: supplementary capital instruments, mainly subordinated debt and general loan loss allowances, which contribute to the robustness of financial institutions.

TLAC (Total Loss Absorbency Capacity): an additional requirement to the minimum capital requirements set out in the Basel III framework for the absorption of total losses and effecting a recapitalisation that minimises any impact on financial stability, ensures the continuity of critical functions and avoids exposing taxpayers to losses. This requirement is applicable to all G-SIBs.

TLTRO: Targeted Longer-Term Refinancing Operations.

TRIM: Targeted Review of Internal Models.

TSR (Total Shareholder Return): relative performance of total shareholder returns. An indicator of the returns obtained by owners of a company over a period of one year on capital provided to the company.

Unexpected loss: unexpected losses (not covered by allowances) must be covered by capital.

VaR (Value at Risk): estimate of the potential losses that could arise in risk positions as a result of movements in market risk factors within a given time horizon and for a specific confidence level.