3. Risk

3.1. General Risk Management and Control Model

The BBVA Group has a general risk management and control model (hereinafter, the "Model") that is appropriate for its business model, its organization, the countries where it operates and its corporate governance system. This model allows the Group to carry out its activity within the risk management and control strategy and policy defined by the corporate bodies of BBVA and to adapt itself to a changing economic and regulatory environment, facing this management at a global level and aligned to the circumstances at all times.

This model, which is fully applied in the Group, comprises the following basic elements:

- Governance and organization
- Risk Appetite Framework
- Evaluation, Monitoring and Reporting
- Infrastructure

The Group promotes the development of a risk culture that ensures a consistent application of the Model in the Group, and that guarantees that the risks function is understood and internalized at all levels of the organization. These elements are described in the "Risk Management" section of the Management Report accompanying the Group's Consolidated Financial Statements.

3.2. Credit and Counterparty Risk

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

Credit risk is based on the likelihood that one party to the financial instrument's contract will fail to meet its contractual obligations on the grounds of insolvency or inability to pay and will cause a financial loss for the other party.

It is the Groups' most important risk and includes counterparty risk, issuer risk, settlement risk and country risk management.

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

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

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

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

Based on the risk strategy determined by the Board of Directors, and following the report of the Risks and Compliance Committee, the Executive Committee assesses and, where appropriate, approves as part of the basic limits structure, the proposed Asset Allocation core limit with the determined level of disaggregation. The limits are established annually, at maximum levels of exposure by type of portfolio.

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

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

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

The existing gaps with respect to the target portfolio must be identified at global level and transmitted to the Business Areas, establishing plans at global and local level to adapt the

risk to the predefined target profile and taking into account the future expected performance of the portfolios.

For managing risk and capital, BBVA quantifies its credit risk using two main metrics: expected loss ("EL") and economic capital ("EC"). The expected loss reflects the average value of the losses and is viewed as a business cost. However, economic capital is the amount of capital considered necessary to cover unexpected losses if actual losses are greater than expected losses.

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

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

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

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

3.2.2. Definitions and accounting methodologies

The "expected loss" impairment accounting model is applied to financial assets valued at amortized cost and to financial assets measured at fair value with changes in other accumulated comprehensive income, except for investments in equity instruments; it is also applied to financial guarantee contracts and loan commitments that are unilaterally revocable by the Bank. Likewise, all financial instruments measured at fair value with regard to profit or loss are excluded from the impairment model.

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

3.2.3. Information on credit risk

3.2.3.1. Exposure to credit risk

According to Article 5 of the CRR, with respect to the bank capital requirements for credit risk, exposure is understood to be any asset item and all items included in the Group's off-balance sheet accounts involving credit risk and not deducted from the Group's bank capital. Accordingly, mainly loan and advances to customers are included, with their corresponding undrawn balances, letters of credit and guarantees, debt securities and capital instruments, cash and balances with central banks and credit institutions, repurchase and reverse repurchase agreements, financial derivatives and intangible assets.

The credit risk exposure specified in the following sections of this document is broken down into credit risk according to the standardized approach (Section 3.2.4), credit risk according to the advanced approach (Section 3.2.5), counterparty credit risk (Section 3.2.6), securitization credit risk (Section 3.2.7) and structural equity risk (Section 3.4).

In addition to the exposure at default and the risk-weighted assets, the table below shows the original exposure, the exposure net of provisions and the exposure after conversion factors under the standardized and advanced approaches as of December 31, 2019 and December 31, 2018 (including counterparty credit risk):

Table 10. Credit Risk and Counterparty Risk Exposure (Million Euros. 12-31-2019)

Exposure Class	Original Exposure[1]	Provisions[2]	Net exposure of provisions[3]	On-balance exposure after credit risk mitigation techniques[4a]	Off-balance exposure after credit risk mitigation techniques[4b]	Exposure in the adjusted value[5]	EAD[6]	RWA's[7]	RWA density (8=(7)/(6))
Central governments or central banks	130,050	(128)	129,922	148,210	5,624	153,834	148,863	29,685	20%
Regional governments or local authorities	10,665	(23)	10,642	6,830	1,049	7,879	7,101	1,644	23%
Public sector entities	1,764	(2)	1,763	1,643	227	1,870	1,779	790	44%
Multilateral development banks	167	(0)	167	210	38	247	210	11	5%
International organizations	0	-	0	0	0	0	0	-	0%
Institutions	36,102	(32)	36,070	12,270	13,202	25,472	13,333	5,366	40%
Corporates	112,830	(1,106)	111,723	72,768	32,558	105,327	89,826	87,486	97%
Retail	89,038	(1,781)	87,257	52,116	30,403	82,519	54,871	38,493	70%
Secured by mortgages on immovable property	39,867	(229)	39,638	39,423	164	39,587	39,561	14,983	38%
Exposures in default	8,276	(4,673)	3,603	3,198	328	3,526	3,423	3,808	111%
Exposures associated with particularly high risk	4,472	(509)	3,962	3,317	419	3,736	3,424	5,136	150%
Covered bonds	-	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	1	(0)	1	1	-	1	1	1	96%
Collective investments undertakings	22	(0)	22	6	4	10	8	8	100%
Other exposures	21,063	(45)	21,018	25,346	825	26,172	25,843	12,767	49%
Securitization exposures	3,953	-	3,953	134	-	134	134	61	45%
Total standardized approach	**458,271**	**(8,529)**	**449,742**	**365,472**	**84,841**	**450,313**	**388,379**	**200,237**	**52%**
Central governments or central banks	11,018	(5)		13,172	656	13,829	13,498	673	5%
Institutions	115,854	(39)		93,188	5,521	98,708	96,262	6,646	7%
Corporates	156,624	(2,356)		86,917	66,987	153,903	119,106	59,615	50%
Corporates (SMEs)	23,121	(1,029)		17,135	4,588	21,723	18,979	12,478	66%
Corporates: Specialized lending	7,310	(62)		6,639	671	7,310	6,986	5,407	77%
Corporates: Others	126,192	(1,266)		63,142	61,728	124,870	93,140	41,730	45%
Retail	118,897	(2,467)		96,129	22,696	118,825	100,020	22,128	22%
Of which: secured by immovable property	78,379	(941)		73,978	4,376	78,353	74,139	8,904	12%
Of which: Qualifying revolving	24,618	(646)		7,190	17,428	24,618	10,430	7,365	71%
Of which: Others	15,901	(880)		14,961	893	15,854	15,452	5,859	38%
Retail: Other SMEs	4,444	(268)		3,524	878	4,401	4,006	1,636	41%
Retail: Other Non-SMEs	11,456	(611)		11,438	15	11,453	11,445	4,223	37%
Securitization exposures	2,794	-		2,714	-	2,714	2,714	856	32%
Total IRB approach	**405,188**	**(4,867)**	**-**	**292,120**	**95,860**	**387,979**	**331,600**	**89,917**	**27%**
Total credit risk dilution and delivery	**863,459**	**(13,396)**	**449,742**	**657,592**	**180,701**	**838,293**	**719,979**	**290,153**	**40%**
Equity	**7,124**	**-**	**-**	**7,124**	**-**	**7,124**	**7,124**	**16,167**	**227%**
Simple risk weight approach	961	-		961	-	961	961	2,309	240%
Exposures in sufficiently diversified portfolios	563	-		563	-	563	563	1,070	190%
Exchange traded exposures	290	-		290	-	290	290	841	290%
Others	108	-		108	-	108	108	399	370%
PD/LGD approach	2,883	-		2,883	-	2,883	2,883	5,554	193%
Internal models approach	138	-		138	-	138	138	449	324%
Exposures subject to a 250% risk weight	3,142			3,142		3,142	3,142	7,854	250%
Total credit risk	**870,583**	**(13,396)**	**449,742**	**664,716**	**180,701**	**845,417**	**727,103**	**306,321**	**42%**

[1] Gross exposure value before credit risk mitigation techniques, excluding contributions to the default fund for a CCP

[2] Includes provisions and impairment of financial assets and contingent risk and commitments

[3] Standardized Approach exposures are adjusted by credit risk adjustments. The original equity exposure is shown net of impairment

[4a] (4b) Eligible credit risk mitigation techniques are included, either on-balance sheet or off-balance sheet, according to Chapter 4 of CRR. In the case of securitization exposure, unfunded credit protection is included

[5] It corresponds to the exposure value adjusted by eligible credit risk mitigation techniques.

[6] Exposure at default, calculated as (4a)+((4b)*CCF)

Credit Risk and Counterparty Risk Exposure (Million Euros. 12-31-2018)

Exposure Class	Original Exposure[1]	Provisions[2]	Net exposure of provisions[3]	On-balance exposure after credit risk mitigation techniques[4a]	Off-balance exposure after credit risk mitigation techniques[4b]	Exposure in the adjusted value[5]	EAD[6]	RWA's[7]	RWA density (8=(7)/(6))
Central governments or central banks	122,473	(33)	122,440	138,637	4,893	143,530	139,186	30,560	22%
Regional governments or local authorities	10,208	(23)	10,184	6,419	485	6,904	6,649	1,416	21%
Public sector entities	991	(9)	982	1,759	132	1,890	1,810	714	39%
Multilateral development banks	265	(0)	265	453	24	477	453	10	2%
International organizations	-	-	-	-	-	-	-	-	-
Institutions	35,874	(14)	35,859	17,441	13,618	31,059	19,315	6,203	32%
Corporates	125,314	(1,181)	124,133	75,549	41,762	117,311	91,400	89,481	98%
Retail	86,939	(1,722)	85,217	50,062	30,743	80,805	52,465	36,768	70%
Secured by mortgages on immovable property	40,917	(302)	40,615	40,389	145	40,534	40,458	15,466	38%
Exposures in default	8,609	(4,649)	3,960	3,367	449	3,816	3,612	4,159	115%
Exposures associated with particularly high risk	1,168	(51)	1,117	1,101	1	1,102	1,101	1,652	150%
Covered bonds	-	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	3	(0)	3	3	-	3	3	2	66%
Collective investments undertakings	76	(1)	75	45	24	69	57	57	100%
Other exposures	18,100	(36)	18,064	27,502	1,727	29,229	28,452	11,229	39%
Securitization exposures	4,623	-	4,623	4,623	-	4,623	4,623	950	21%
Total standardized approach	**455,561**	**(8,022)**	**447,539**	**367,348**	**94,003**	**461,351**	**389,584**	**198,665**	**51%**
Central governments or central banks	10,698	(5)		12,213	495	12,708	12,459	677	5%
Institutions	100,329	(58)		76,740	5,523	82,263	79,992	5,366	7%
Corporates	135,616	(2,176)		75,295	58,254	133,549	103,991	55,513	53%
Corporates (SMEs)	19,894	(1,103)		14,530	3,766	18,297	16,231	11,877	73%
Corporates: Specialized lending	7,706	(73)		7,304	403	7,706	7,536	6,330	84%
Corporates: Others	108,016	(999)		53,461	54,085	107,545	80,224	37,305	47%
Retail	118,211	(2,660)		97,055	21,065	118,120	101,011	19,667	19%
Of which: secured by immovable property	81,472	(1,330)		76,963	4,484	81,446	77,186	7,385	10%
Of which: Qualifying revolving	22,167	(584)		6,525	15,642	22,167	9,682	6,938	72%
Of which: Others	14,571	(745)		13,568	939	14,507	14,142	5,344	38%
Retail: Other SMEs	4,132	(281)		3,240	840	4,079	3,746	1,752	47%
Retail: Other Non-SMEs	10,440	(464)		10,328	100	10,427	10,396	3,592	35%
Securitization exposures	5,593	-		5,382	-	5,382	5,382	1,673	31%
Total IRB approach	**370,447**	**(4,898)**	**-**	**266,685**	**85,336**	**352,021**	**302,834**	**82,895**	**27%**
Total credit risk dilution and delivery	**826,008**	**(12,920)**	**447,539**	**634,033**	**179,340**	**813,373**	**692,418**	**281,560**	**41%**
Equity	**6,822**	**-**	**-**	**6,822**	**-**	**6,822**	**6,822**	**15,246**	**223%**
Simple risk weight approach	712	-		712	-	712	712	1,772	249%
Exposures in sufficiently diversified portfolios	343	-		343	-	343	343	651	190%
Exchange traded exposures	309	-		309	-	309	309	897	290%
Others	61	-		61	-	61	61	224	370%
PD/LGD approach	3,201	-		3,201	-	3,201	3,201	5,989	187%
Internal models approach	383	-		383	-	383	383	1,172	306%
Exposures subject to a 250% risk weight	2,525	-		2,525	-	2,525	2,525	6,314	250%
Total credit risk	**832,829**	**(12,920)**	**447,539**	**640,855**	**179,340**	**820,194**	**699,240**	**296,805**	**42%**

(1) Gross exposure value before credit risk mitigation techniques, excluding contributions to the default fund for a CCP

(2) Includes provisions and impairment of financial assets and contingent risk and commitments

(3) Standardized Approach exposures are adjusted by credit risk adjustments. The original equity exposure is shown net of impairment

(4a) (4b) Eligible credit risk mitigation techniques are included, either on-balance sheet or off-balance sheet, according to Chapter 4 of CRR. In the case of securitization exposure, unfunded credit protection is included

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

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

3.2.3.2. Distribution and maturity of credit risk exposure

The following table provides the average amount of credit risk exposure during 2019 and 2018, both for the standardized approach and the advanced method by exposure categories:

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

Exposure Class	31-12-2019		31-12-2018	
	Net value of exposures at the end of the period (4Q)[1]	Average net exposures over the period	Net value of exposures at the end of the period (4Q)[1]	Average net exposures over the period
Central governments or central banks	11,014	9,178	10,693	7,461
Institutions	115,815	114,552	100,271	96,062
Corporates	154,267	146,359	133,440	131,251
Of which: Specialized lending	7,249	7,343	7,633	8,305
Of which: SMEs	22,092	20,810	18,790	15,952
Retail	116,431	115,975	115,551	115,232
Secured by immovable property	77,437	78,385	80,142	81,180
Qualifying revolving	23,973	23,199	21,583	21,248
Other retail	15,021	14,391	13,826	12,804
SMEs	4,176	3,984	3,851	3,648
Non-SMEs	10,845	10,408	9,975	9,156
Equity	7,124	7,145	6,822	7,068
Total IRB approach	**404,651**	**393,210**	**366,777**	**357,074**
Central governments or central banks	129,922	125,611	122,440	115,638
Regional governments or local authorities	10,642	10,948	10,184	10,289
Public sector entities	1,763	1,285	982	953
Multilateral development banks	167	288	265	131
International organizations	0	0	0	1
Institutions	36,070	38,088	35,859	32,090
Corporates	111,723	119,071	124,133	125,610
Of which: SMEs	13,154	22,949	21,890	20,285
Retail	87,257	86,432	85,217	90,028
Of which: SMEs	25,382	25,919	26,558	29,031
Secured by mortgages on immovable property	39,638	40,128	40,615	44,530
Of which: SMEs	13,689	13,111	3,495	5,983
Exposures in default	3,603	3,874	3,960	3,911
Exposures associated with particularly high risk	3,962	3,602	1,117	2,041
Covered bonds	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	1	3	3	8
Collective investments undertakings	22	165	75	72
Equity exposures	-	-	-	-
Other exposures	21,018	20,177	18,064	19,844
Total standardized approach	**445,789**	**449,673**	**442,917**	**445,143**
Total	**850,440**	**842,883**	**809,694**	**802,217**

[1] The template shows original exposure net of value adjustments and provisions reported in the COREP Statements for equity and credit risk, excluding securitization exposure

The distribution by geographical area of the original exposure, net of provisions based on the country of the counterparty is shown below. The distribution includes credit risk exposure and counterparty credit risk exposure, as well as equity credit exposure.

Table 12. EU CRB-C - Geographical breakdown of exposures (including counterparty credit risk) (Million Euros. 12-31-2019)

	Original Exposure net of provisions[1][2]						
Exposure Class	**Spain**	**Turkey**	**Mexico**	**USA**	**South America**	**Other areas[3]**	**Total**
Central governments or central banks	17	0	130	5,365	202	5,299	11,014
Institutions	40,190	32	426	3,442	1,168	70,556	115,815
Corporates	63,949	504	23,936	18,986	2,689	44,204	154,267
Retail	98,372	1	17,418	39	69	532	116,431
Equity	4,742	198	977	333	458	416	7,124
Total IRB approach	**207,271**	**735**	**42,888**	**28,164**	**4,586**	**121,007**	**404,651**
Central governments or central banks	56,958	13,636	32,447	9,557	9,755	7,570	129,922
Regional governments or local authorities	282	99	3,316	6,726	82	137	10,642
Public sector entities	-	46	226	625	867	0	1,763
Multilateral development banks	-	-	-	-	144	23	167
International organizations	0	-	-	-	-	-	0
Institutions	16,494	3,132	8,486	3,312	291	4,354	36,070
Corporates	5,429	25,420	4,920	49,595	20,588	5,772	111,723
Retail	14,477	20,625	16,502	16,430	17,167	2,056	87,257
Secured by mortgages on immovable property	3,231	3,656	11,316	10,354	8,875	2,206	39,638
Exposures in default	467	1,247	409	480	763	237	3,603
Exposures associated with particularly high risk	200	2,291	527	254	689	1	3,962
Covered bonds	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	0	-	-	-	1	-	1
Collective investments undertakings	11	-	1	2	-	7	22
Equity exposures	-	-	-	-	-	-	-
Other exposures	7,564	2,122	5,293	2,483	3,297	259	21,018
Total standardized approach	**105,114**	**72,275**	**83,443**	**99,817**	**62,519**	**22,622**	**445,789**
Total	**312,385**	**73,010**	**126,331**	**127,981**	**67,104**	**143,630**	**850,440**

[1] Geographical areas determined based on the counterparty.

[2] The template shows original exposure net of value adjustments and provisions reported in the COREP Statements for equity and credit risk, excluding securitization exposure.

[3] Includes all other countries not included in the previous columns. The countries with the greatest exposure in this area are: United Kingdom, France, Italy, Germany and Portugal.

EU CRB-C - Geographical breakdown of exposures (including counterparty credit risk) (Million Euros. 12-31-2018)

	Original Exposure net of provisions[1][2]						
Exposure Class	**Spain**	**Turkey**	**Mexico**	**USA**	**South America**	**Other areas[3]**	**Total**
Central governments or central banks	11	0	130	4,958	447	5,146	10,693
Institutions	41,262	12	458	3,100	719	54,720	100,271
Corporates	59,773	508	20,429	12,889	2,008	37,834	133,440
Retail	99,329	2	15,526	40	72	583	115,551
Equity	4,804	56	800	292	361	508	6,821
Total IRB approach	**205,177**	**577**	**37,344**	**21,280**	**3,607**	**98,792**	**366,777**
Central governments or central banks	64,761	14,408	18,078	6,968	8,519	9,706	122,440
Regional governments or local authorities	53	33	2,342	7,486	168	103	10,184
Public sector entities	0	35	200	0	747	0	982
Multilateral development banks	-	-	-	-	96	169	265
International organizations	0	0	-	-	-	0	0
Institutions	11,694	2,446	7,576	2,157	3,580	8,407	35,859
Corporates	7,259	26,299	14,024	50,243	19,172	7,136	124,133
Retail	12,989	22,005	14,197	17,036	16,895	2,095	85,217
Secured by mortgages on immovable property	3,586	4,738	9,555	10,719	9,525	2,493	40,615
Exposures in default	662	1,449	342	585	699	224	3,960
Exposures associated with particularly high risk	113	110	363	199	332	0	1,117
Covered bonds	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	0	-	0	-	3	-	3
Collective investments undertakings	8	-	0	32	-	36	75
Equity exposures	-	-	-	-	-	-	-
Other exposures	5,990	2,002	4,722	2,089	2,879	383	18,064
Total standardized approach	**107,115**	**73,525**	**71,399**	**97,513**	**62,614**	**30,751**	**442,917**
Total	**312,292**	**74,102**	**108,743**	**118,793**	**66,221**	**129,543**	**809,694**

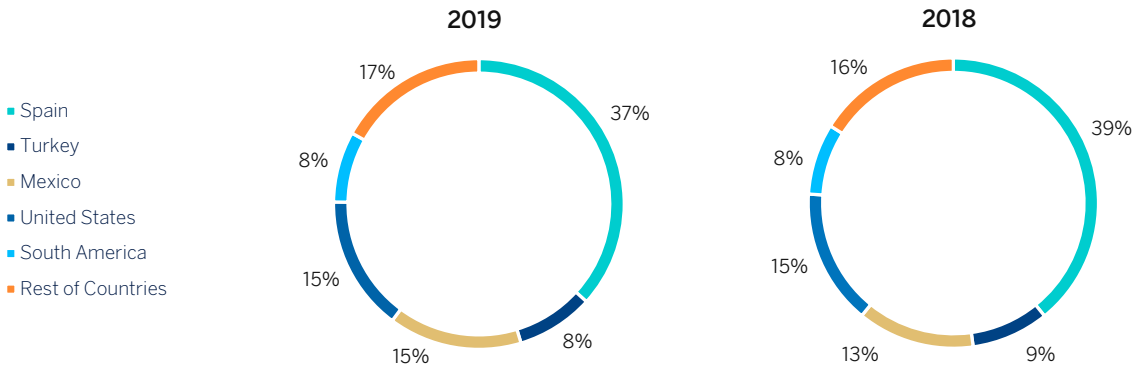
[1] Geographical areas determined based on the counterparty.

[2] The template shows original exposure net of value adjustments and provisions reported in the COREP Statements for equity and credit risk, excluding securitization exposure.

[3] Includes all other countries not included in the previous columns. The countries with the greatest exposure in this area are: United Kingdom, France, Italy, Germany and Portugal.

Below, there is a graphic depiction of the original exposure distribution by geographic area, revealing the Group's high level of geographic diversification, which constitutes one of the key factors for its strategic growth.

Chart 5. Distribution of credit risk exposures by geographical areas



(*) Includes all other countries not included in the rest of buckets. The countries with the greatest exposure in this area are: United Kingdom, France, Italy, Germany and Portugal

In addition, the following table shows the distribution of original exposure net of provisions by economic sector for financial assets and contingenct risk and commitments (standardized and advanced approach), excluding counterparty credit risk but including equity credit risk:

Table 13. EU CRB-D - Concentration of exposures by industry or counterparty types (excluding counterparty credit risk) (Million Euros. 12-31-2019)

Exposure Class	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing Industry	Energy supply	Water supply	Construction	Wholesale and retail trade	Transport and storage	Accommodation and food service activities	Information and communication	Financial activities and insurance	Real estate activities	Professional, scientific and technical activities	Administrative and support service activities	Public administration and defense, compulsory social security	Education	Human health services and social work activities	Arts, entertainment and recreation	Other services	Household activities as employers of domestic staff; Activities of households as products of goods and services for own use	Extraterritorial organizations activities	Individuals without business activity	Total[1]
Central governments or central banks	-	-	0	-	-	-	-	-	-	-	2,474	-	81	-	6,860	0	-	-	-	-	0	-	9,414
Institutions	3	-	170	434	310	594	12	1,342	9	66	11,614	93	67	243	19,189	1	92	19	8	-	30	-	34,295
Corporates	1,923	5,086	44,062	17,235	1,434	11,845	19,697	4,675	4,893	6,304	11,543	9,115	6,223	3,466	38	303	1,378	804	319	4	0	-	150,345
Retail	581	45	1,858	105	64	1,922	3,814	1,408	1,439	490	223	458	1,711	637	-	252	706	304	6,222	7	-	94,179	116,427
Equity	-	-	-	-	-	830	0	-	-	2,830	2,352	0	0	-	34	-	-	-	1,078	-	-	-	7,124
Total IRB approach	**2,506**	**5,131**	**46,090**	**17,775**	**1,808**	**15,190**	**23,523**	**7,425**	**6,341**	**9,690**	**28,206**	**9,666**	**8,082**	**4,346**	**26,121**	**557**	**2,175**	**1,126**	**7,626**	**11**	**30**	**94,179**	**317,606**
Central governments or central banks	-	-	0	-	-	-	0	1	-	-	27,355	-	-	0	92,720	0	1	0	2,250	-	-	-	122,327
Regional governments or local authorities	0	-	52	27	65	48	4	140	-	0	0	-	1	2	8,614	653	860	10	93	-	-	-	10,568
Public sector entities	2	0	304	427	25	0	0	8	-	29	44	-	0	0	711	5	0	0	37	-	-	-	1,595
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	114	-	-	-	53	-	-	-	-	-	-	-	167
International organizations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
Institutions	1	0	14	62	-	29	15	53	24	35	21,755	51	215	293	662	0	177	0	354	-	-	-	23,738
Corporates	1,712	1,996	31,688	5,984	339	3,909	13,210	6,404	5,381	3,756	4,902	12,438	2,256	2,696	234	684	3,951	523	6,649	55	0	0	108,766
Retail	1,109	403	4,619	214	51	2,034	11,192	1,922	1,452	457	680	921	2,420	1,793	-	1,529	1,879	310	6,032	8	-	47,709	86,733
Secured by mortgages on immovable property	408	218	1,821	179	10	653	2,947	516	1,172	187	321	17,433	1,605	1,494	-	1,076	1,164	123	4,111	2	-	4,198	39,638
Exposures in default	109	65	351	31	5	431	521	221	181	39	72	233	170	107	4	45	52	25	603	0	0	336	3,602
Exposures associated with particularly high risk	2	1	4	660	0	843	356	4	4	1	223	1,123	655	35	-	1	1	1	8	0	-	12	3,931
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	10
Collective investments undertakings	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other exposures	0	-	0	-	-	0	0	0	-	0	12,476	565	53	-	0	-	0	-	7,916	-	-	8	21,018
Total standardized approach	**3,342**	**2,683**	**38,853**	**7,585**	**496**	**7,946**	**28,245**	**9,269**	**8,213**	**4,505**	**67,955**	**32,764**	**7,373**	**6,419**	**102,999**	**3,993**	**8,085**	**991**	**28,052**	**65**	**0**	**52,262**	**422,096**
Total	**5,849**	**7,814**	**84,942**	**25,359**	**2,304**	**23,136**	**51,768**	**16,694**	**14,554**	**14,195**	**96,161**	**42,430**	**15,455**	**10,765**	**129,119**	**4,550**	**10,260**	**2,117**	**35,679**	**76**	**31**	**146,442**	**739,702**

[1] The template shows original exposure net of value adjustments and provisions reported in the COREP Statements for equity and credit risk, excluding securitization exposure

EU CRB-D - Concentration of exposures by industry or counterparty types (excluding counterparty credit risk) (Million Euros. 12-31-2018)

Exposure Class	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing Industry	Energy supply	Water supply	Construction	Wholesale and retail trade	Transport and storage	Accommodation and food service activities	Information and communication	Financial activities and insurance	Real estate activities	Professional, scientific and technical activities	Administrative and support service activities	Public administration and defense, compulsory social security	Education	Human health services and social work activities	Arts, entertainment and recreation	Other services	Household activities as employers of domestic staff; Activities of households as products of goods and services for own use	Extraterritorial organizations activities	Individuals without business activity	Total[1]
Central governments or central banks	-	-	0	-	-	-	-	-	-	-	2,315	-	-	-	3,547	0	-	-	-	-	0	-	5,862
Institutions	2	-	259	486	284	731	18	1,716	8	27	10,781	425	189	29	17,488	1	79	28	5	-	26	-	32,581
Corporates	1,045	5,249	39,078	15,269	1,426	10,245	15,779	4,342	3,956	5,450	9,049	6,109	5,713	2,813	1,869	250	1,024	693	595	3	0	-	129,957
Retail	616	44	1,970	121	57	1,946	4,033	1,455	1,451	465	231	468	1,721	641	1	234	684	305	6,395	7	-	92,698	115,544
Equity	-	-	-	-	-	809	0	-	-	2,981	2,329	5	0	-	26	-	-	-	672	-	-	-	6,822
Total IRB approach	**1,663**	**5,294**	**41,307**	**15,876**	**1,767**	**13,731**	**19,830**	**7,512**	**5,415**	**8,922**	**24,704**	**7,006**	**7,623**	**3,483**	**22,932**	**486**	**1,787**	**1,025**	**7,667**	**11**	**26**	**92,698**	**290,765**
Central governments or central banks	0	-	0	0	-	0	5	0	0	0	39,188	0	0	0	74,387	0	1	0	1,011	-	0	-	114,593
Regional governments or local authorities	-	-	7	32	74	48	4	139	-	0	69	36	0	19	7,769	545	1,167	3	267	-	0	-	10,180
Public sector entities	-	-	288	350	25	0	1	2	0	-	78	-	0	0	218	16	0	0	1	-	-	-	981
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	222	-	-	-	44	-	-	-	-	-	-	-	265
International organizations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	-	0	-	0
Institutions	2	0	728	0	-	1,732	92	5,280	2	18	19,073	56	195	46	154	0	176	0	571	-	-	-	28,124
Corporates	3,078	2,624	31,037	7,032	645	4,152	14,993	6,506	3,450	3,416	11,538	13,878	3,038	2,210	204	743	5,085	733	7,229	42	0	-	121,635
Retail	4,166	281	4,729	304	57	2,737	10,539	1,900	1,235	486	738	860	2,434	1,151	299	1,197	1,428	287	4,786	9	-	45,571	85,194
Secured by mortgages on immovable property	801	229	1,970	658	10	941	3,147	541	1,192	200	325	17,649	1,562	944	258	1,072	1,084	120	3,810	2	-	4,101	40,615
Exposures in default	111	58	91	301	7	492	657	183	165	32	41	287	134	70	26	32	63	24	584	0	0	582	3,939
Exposures associated with particularly high risk	1	0	1	0	0	292	14	0	32	0	118	494	3	4	-	0	1	0	25	0	-	131	1,117
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	3
Collective investments undertakings	-	-	-	-	-	-	-	-	-	-	69	-	-	-	-	-	-	-	-	-	-	-	69
Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other exposures	0	-	0	0	-	0	0	0	-	1	10,104	922	56	-	0	0	0	-	6,981	-	-	-	18,064
Total standardized approach	**8,158**	**3,192**	**38,853**	**8,677**	**818**	**10,394**	**29,453**	**14,551**	**6,076**	**4,153**	**81,565**	**34,182**	**7,422**	**4,445**	**83,359**	**3,605**	**9,005**	**1,167**	**25,264**	**53**	**0**	**50,385**	**424,781**
Total	**9,822**	**8,486**	**80,160**	**24,554**	**2,585**	**24,125**	**49,283**	**22,064**	**11,491**	**13,075**	**106,269**	**41,189**	**15,045**	**7,929**	**106,291**	**4,091**	**10,792**	**2,192**	**32,931**	**64**	**26**	**143,083**	**715,546**

[1] The template shows original exposure net of value adjustments and provisions reported in the COREP Statements for equity and credit risk, excluding securitization exposure

The following table shows the distribution of original exposure, net of value adjustments and provisions, by residual maturity of financial assets and contingent risk and commmitments, broken down by categories of exposure under the standard and advanced approaches, excluding counterparty risk and including equity credit risk:

Table 14. EU CRB-E - Maturity of exposures (excluding counterparty credit risk) (Million Euros. 12-31-2019)

	Net exposure value[1]					
Exposure Class	On demand	≤ 1 year	> 1 year ≤ 5 years	> 5 years	No stated maturity	Total
Central governments or central banks	-	591	6,081	262	2,480	9,414
Institutions	577	9,668	7,971	11,583	4,497	34,295
Corporates	481	52,945	64,965	22,967	8,988	150,345
Retail	7	2,049	6,624	83,415	24,332	116,427
Equity	-	-	-	-	7,124	7,124
Total IRB approach	**1,065**	**65,253**	**85,640**	**118,227**	**47,421**	**317,606**
Central governments or central banks	25,424	14,468	30,707	50,840	888	122,327
Regional governments or local authorities	9	640	2,113	7,800	6	10,568
Public sector entities	84	814	182	516	-	1,595
Multilateral development banks	54	83	16	15	-	167
International organizations	-	-	-	0	0	0
Institutions	4,303	9,503	4,727	1,234	3,973	23,738
Corporates	5,538	35,147	48,740	18,648	694	108,766
Retail	2,762	28,464	35,917	14,687	4,904	86,733
Secured by mortgages on immovable property	231	4,595	4,062	30,739	11	39,638
Exposures in default	51	767	64	1,625	1,096	3,602
Exposures associated with particularly high risk	104	1,483	916	1,036	391	3,931
Covered bonds	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	-	6		-	4	10
Collective investments undertakings	1	0	-	-	-	1
Equity exposures	-	-	-	-	-	-
Other exposures	4,053	5,495	24	-	11,447	21,018
Total standardized approach	**42,613**	**101,465**	**127,467**	**127,138**	**23,412**	**422,096**
Total	**43,677**	**166,717**	**213,108**	**245,365**	**70,834**	**739,702**

[1] The template shows original exposure net of value adjustments and provisions reported in the COREP Statements for equity and credit risk, excluding securitization exposure

EU CRB-E - Maturity of exposures (excluding counterparty credit risk) (Million Euros. 12-31-2018)

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

[1] The template shows original exposure net of value adjustments and provisions reported in the COREP Statements for equity and credit risk, excluding securitization exposure

3.2.3.3. Credit quality of exposures

The value of the exposure by exposure class, broken down by defaulted and non-defaulted exposures as of December 31, 2019 is below. This table excludes exposure subject to the counterparty credit risk framework under Part 3, Section II, Chapter IV of the CRR, as well as exposures subject to the securitization framework as defined in Part 3, Section II, chapter V of the CRR.

Table 15. EU CR1-A - Credit quality of exposures by exposure class and instrument (excluding counterparty credit risk) (Million Euros. 12-31-2019)

	Gross Original exposure[4]					
Exposure Class	Defaulted exposures	Non-defaulted exposures	Credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges of the period [5]	Net values[3]
Central governments or central banks	55	9,364	5	9	0	9,414
Institutions	92	34,243	39	22	(18)	34,295
Corporates	3,722	148,980	2,356	5,503	180	150,345
Of which: Specialized lending	147	6,200	62	13	(12)	6,285
Of which: SMEs	1,704	21,278	1,029	3,846	(74)	21,954
Of which: Others	1,870	121,502	1,266	1,644	266	122,107
Retail	4,057	114,836	2,467	2,193	(193)	116,427
Secured by immovable property	2,820	75,558	941	1,253	(389)	77,437
Qualifying revolving	214	24,404	646	53	62	23,973
Other retail	1,023	14,874	880	887	135	15,017
SMEs	407	4,033	268	169	(13)	4,172
Non-SMEs	616	10,841	611	718	147	10,845
Equity	-	7,124	-	-	-	7,124
Total IRB approach	**7,925**	**314,548**	**4,867**	**7,727**	**(31)**	**317,606**
Central governments or central banks	18	122,455	128	4	95	122,327
Regional governments or local authorities	-	10,591	23	21	(0)	10,568
Public sector entities	26	1,597	2	14	(7)	1,595
Multilateral development banks	-	167	0	-	0	167
International organizations	-	0	-	-	-	0
Institutions	487	23,770	32	6	17	23,738
Corporates	3,034	109,872	1,106	10,958	(75)	108,766
Retail	3,340	88,515	1,781	3,001	59	86,733
Secured by mortgages on immovable property	1,248	39,867	229	2,061	(73)	39,638
Exposures in default[1]	8,275	-	4,673	-	24	3,602
Exposures associated with particularly high risk[2]	779	3,661	509	93	458	3,931
Covered bonds	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	-	1	0	-	(0)	1
Collective investments undertakings	-	10	0	5	(0)	10
Equity exposures	-	-	-	-	-	-
Other exposures	123	21,063	45	2,368	8	21,018
Total standardized approach	**9,054**	**421,570**	**8,529**	**18,532**	**507**	**422,096**
Total	**16,979**	**736,118**	**13,396**	**26,259**	**476**	**739,702**
Of which: Loans	15,957	394,358	12,502	26,259	265	397,813
Of which: Debt securities	21	70,847	135	-	91	70,733
Of which: Off-balance sheet exposures	1,001	180,823	759	-	120	181,065
Of which: Others	-	90,090	-	-	-	90,090

[1] Defaulted exposures are additionally broken down by their respective original exposure class.

[2] Defaulted high risk exposures are included in the row "Exposures associated with particularly high risk" separately from the exposure class "Exposure in Default" as reported in the COREP statement.

[3] Net exposure is calculated as follows:
- Net exposure by standardized approach = "Non-defaulted exposure" - "Credit risk adjustment"; except "Exposure in default" and "Items associated with particularly high risk" that are calculated the same way as in the IRB approach
- Net exposure by IRB approach = "Exposure in default" + "Non-defaulted exposure" - "Credit risk adjustment"

[4] The table shows the gross original exposure of the COREP Statements for equity and credit risk, according to the standardized and IRB approaches, excluding positions subject to the framework of counterparty credit risk.

[5] The positive amounts represent provision increases, while negative amounts represent decreases.

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

	Gross Original exposure[4]					
Exposure Class	Defaulted exposures	Non-defaulted exposures	Credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges of the period [5]	Net values[3]
Central governments or central banks	80	5,786	5	10	1	5,862
Institutions	161	32,477	58	19	(5)	32,581
Corporates	4,017	128,116	2,176	5,402	(1,271)	129,957
Of which: Specialized lending	161	6,510	73	1,635	(36)	6,597
Of which: SMEs	2,006	17,774	1,103	-	(717)	18,677
Of which: Others	1,851	103,832	999	3,767	(518)	104,683
Retail	4,778	113,425	2,660	2,056	321	115,544
Secured by immovable property	3,672	77,800	1,330	1,170	138	80,142
Qualifying revolving	199	21,968	584	51	57	21,583
Other retail	907	13,657	745	835	126	13,819
SMEs	418	3,707	281	142	83	3,844
Non-SMEs	489	9,950	464	692	43	9,975
Equity	-	6,822	-	-	-	6,822
Total IRB approach	**9,037**	**286,627**	**4,898**	**7,487**	**(954)**	**290,765**
Central governments or central banks	8	114,627	33	9	(15)	114,593
Regional governments or local authorities	-	10,203	23	21	16	10,180
Public sector entities	0	990	9	20	4	981
Multilateral development banks	-	265	0	-	(1)	265
International organizations	0	0	-	-	-	0
Institutions	25	28,139	14	11	(2)	28,124
Corporates	3,484	122,816	1,181	16,315	(432)	121,635
Retail	3,486	86,916	1,722	3,596	476	85,194
Secured by mortgages on immovable property	1,416	40,917	302	2,733	(37)	40,615
Exposures in default[1]	8,588	-	4,649	-	4	3,939
Exposures associated with particularly high risk[2]	30	1,138	51	147	(17)	1,117
Covered bonds	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	-	3	0	-	0	3
Collective investments undertakings	-	69	1	9	0	69
Equity exposures	-	-	-	-	-	-
Other exposures	170	18,100	36	2,009	3	18,064
Total standardized approach	**8,618**	**424,184**	**8,022**	**24,869**	**(1)**	**424,781**
Total	**17,655**	**710,810**	**12,920**	**32,355**	**(955)**	**715,546**
Of which: Loans	16,647	376,575	12,237	32,355	(1,318)	380,985
Of which: Debt securities	21	62,542	44	-	(3)	62,519
Of which: Off-balance sheet exposures	987	179,061	639	-	366	179,409
Of which: Others	-	92,632	-	-	-	92,632

(1) Defaulted exposures are additionally broken down by their respective original exposure class.

(2) Defaulted high risk exposures are included in the row "Exposures associated with particularly high risk" separately from the exposure class "Exposure in Default" as reported in the COREP statement.

(3) Net exposure is calculated as follows:
- Net exposure by standardized approach = "Non-defaulted exposure" - "Credit risk adjustment"; except "Exposure in default" and "Items associated with particularly high risk" that are calculated the same way as in the IRB approach
- Net exposure by IRB approach = "Exposure in default" + "Non-defaulted exposure" - "Credit risk adjustment"

(4) The table shows the gross original exposure of the COREP Statements for equity and credit risk, according to the standardized and IRB approaches, excluding positions subject to the framework of counterparty credit risk.

(5) The positive amounts represent provision increases, while negative amounts represent decreases.

The information on non-performing exposures by portfolio type and exposure class is broken down in the following table, which includes the amounts as of December 31, 2019 and the main figures as of December 31, 2018 for comparative purposes only:

Table 16. NPL4 - Performing and non-performing exposures and related provisions (Million euros)

	Gross carrying amount/nominal amount						Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions								
	Performing exposures			Non-performing exposures			Performing exposures – accumulated impairment and provisions			Non-performing exposures – accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions				Collateral and financial guarantees received	
		Of which stage 1	Of which stage 2		Of which stage 1	Of which stage 2		Of which stage 1	Of which stage 2		Of which stage 1	Of which stage 2	Accumulated partial write-off	On performing exposures	On non-performing exposures
Loans and advances	396,946	363,449	33,498	15,957	-	15,957	4,326	2,143	2,183	8,092	-	8,092	26,206	181,867	5,132
Central banks	4,285	4,285	-	-	-	-	9	9	-	-	-	-	0	5	-
General governments	28,787	28,105	682	88	-	88	38	15	22	21	-	21	32	11,897	21
Credit institutions	13,519	13,361	158	6	-	6	11	9	3	2	-	2	5	193	-
Other financial corporations	10,951	10,815	136	17	-	17	22	19	2	10	-	10	3	3,385	1
Non-financial corporations	165,239	149,223	16,017	8,465	-	8,465	1,713	808	904	4,748	-	4,748	17,064	55,548	2,003
Of which: SME	47,042	40,279	6,764	4,078	-	4,078	723	331	392	2,259	-	2,259	4,820	20,602	1,301
Households	174,165	157,660	16,505	7,381	-	7,381	2,534	1,282	1,252	3,312	-	3,312	9,102	110,839	3,107
Debt securities	77,534	77,178	356	34	-	34	135	60	75	18	-	18	-	-	-
Central banks	1,015	1,015	-	-	-	-	5	5	-	-	-	-	-	-	-
General governments	64,505	64,195	310	-	-	-	116	44	72	-	-	-	-	-	-
Credit institutions	1,057	1,057	-	0	-	0	0	0	-	0	-	0	-	-	-
Other financial corporations	7,851	7,823	28	33	-	33	12	10	2	17	-	17	-	-	-
Non-financial corporations	3,106	3,088	18	1	-	1	2	1	1	1	-	1	-	-	-
Off-balance-sheet exposures	179,717	169,265	10,452	1,001	-	1,001	443	248	196	268	-	268	-	7,324	109
Central banks	2	2	-	0	-	0	0	0	-	0	-	0	-	-	-
General governments	3,756	3,672	84	7	-	7	2	2	0	1	-	1	-	91	-
Credit institutions	18,689	18,422	267	1	-	1	5	5	1	0	-	0	-	2	-
Other financial corporations	7,655	7,495	160	0	-	0	3	3	1	0	-	0	-	66	0
Non-financial corporations	103,232	95,604	7,628	920	-	920	252	111	141	254	-	254	-	6,774	106
Households	46,383	44,071	2,313	73	-	73	181	128	53	12	-	12	-	391	4
Total exposures December 2019	**654,197**	**609,892**	**44,306**	**16,992**	**-**	**16,992**	**4,905**	**2,451**	**2,454**	**8,378**	**-**	**8,378**	**26,206**	**189,191**	**5,242**
Loans and advances	383,503			16,357			4,451			7,760			32,355		5,570
Debt securities	67,722			36			48			16			-		-
Off-balance sheet exposures	169,082			987			419			217			-		113
Total exposures December 2018	**620,307**			**17,381**			**4,918**			**7,993**			**32,355**		**5,683**

(*) Includes the book value of repurchase agreements, positions subject to the securitization framework and excludes BBVA Paraguay assets that are registered in accounting as non-current assets held for sale (see Note 1.1.3.).

(**) The Group's overall policy is to align the concepts of default and stage 3 so that they are uniform in the field of management. However, for portfolios where the IRB models are used, there may be some differences in the use of materiality thresholds in wholesale exposures due to other prudential specifications. In any case, the Group estimates that the difference between the two concepts is immaterial at December 31, 2019 since it would not exceed 1% to the exposures in default.

The distribution by geographical area of defaulted and non-defaulted exposures of financial assets and contingent risk and commitments, as well as credit risk adjustments, is below:

Table 17. EU CR1-C - Credit quality of exposures by geography (excluding counterparty credit risk) (Million Euros. 12-31-2019)

	Gross Original exposure[1]					
	Defaulted exposures[a]	Non-defaulted exposures[b]	Credit risk adjustment[c]	Accumulated write-offs	Credit risk adjustment charges of the period[2]	Net values (d)=(a)+(b)-(c)
Spain	8,732	283,920	5,253	16,882	(369)	287,398
Turkey	3,402	70,784	2,649	428	498	71,537
Mexico	1,393	113,827	1,979	2,728	131	113,241
USA	784	125,121	793	4,431	(50)	125,112
South America	2,010	64,271	2,212	1,420	381	64,069
Other areas[3]	658	78,195	509	371	(116)	78,344
Total	**16,979**	**736,118**	**13,396**	**26,259**	**476**	**739,702**

[1] The template shows the net Original Exposure from the COREP Statements for equity and credit risk, excluding securitization exposures

[2] The positive amounts represent provision increases, while negative amounts represents decreases

[3] Includes all other countries not included on the previous columns. The countries with the greatest exposure in this area are: United Kingdom, France, Italy, Germany and Portugal

EU CR1-C - Credit quality of exposures by geography (excluding counterparty credit risk) (Million Euros. 12-31-2018)

	Gross Original exposure[1]					
	Defaulted exposures[a]	Non-defaulted exposures[b]	Credit risk adjustment[c]	Accumulated write-offs	Credit risk adjustment charges of the period[2]	Net values (d)=(a)+(b)-(c)
Spain	10,270	287,464	5,622	24,328	(2,500)	292,112
Turkey	2,601	73,404	2,151	377	888	73,853
Mexico	1,162	98,403	1,848	2,272	61	97,717
USA	883	115,647	843	3,857	243	115,687
South America	1,892	62,954	1,831	1,140	416	63,015
Other areas[3]	847	72,939	625	382	(62)	73,161
Total	**17,655**	**710,810**	**12,920**	**32,355**	**(955)**	**715,546**

[1] The template shows the net Original Exposure from the COREP Statements for equity and credit risk, excluding securitization exposures

[2] The positive amounts represent provision increases, while negative amounts represents decreases

[3] Includes all other countries not included on the previous columns. The countries with the greatest exposure in this area are: United Kingdom, France, Italy, Germany and Portugal

The distribution by counterparty sector of defaulted and non-defaulted exposures of financial assets and contingent risk and commitments, as well as their credit risk adjustments, are shown below:

Table 18. EU CR1-B - Credit quality of exposures by industry or counterparty types (excluding counterparty credit risk) (Million Euros. 12-31-2019)

	Gross Original Exposure[1]			Credit risk adjustment charges of the period	Net values
	Defaulted exposures	Non-defaulted exposures	Credit risk adjustment		
Agriculture, forestry and fishing	247	5,801	200	(103)	5,849
Mining and quarrying	186	7,787	158	77	7,814
Manufacturing	1,012	85,008	1,078	(359)	84,942
Electricity, gas, steam and air conditioning supply	382	25,323	346	(98)	25,359
Water supply	38	2,309	43	5	2,304
Construction	2,921	22,159	1,945	690	23,136
Wholesale and retail trade	2,462	51,139	1,832	235	51,768
Transport and storage	714	16,472	492	12	16,694
Accommodation and food service activities	516	14,362	324	11	14,554
Information and communication	157	14,146	108	(127)	14,195
Financial activities and insurance	370	96,038	247	(2)	96,161
Real estate activities	690	42,199	459	(211)	42,430
Professional, scientific and technical activities	496	15,338	380	32	15,455
Administrative and support service activities	313	10,763	311	96	10,765
Public administration and defence, compulsory social security	160	129,131	172	54	129,119
Education	200	4,541	191	30	4,550
Human health services and social work activities	119	10,259	117	(59)	10,260
Arts, entertainment and recreation	77	2,089	48	(10)	2,117
Other services	773	35,779	873	167	35,679
Household activities as employers of domestic staff; Activities of households as products of goods and services for own use	2	75	1	(0)	76
Extraterritorial organizations activities	0	31	0	0	31
Individuals without business activity	5,144	145,369	4,071	34	146,442
Total	**16,979**	**736,118**	**13,396**	**476**	**739,702**

[1] The template shows the gross original exposure reported in the COREP Statements for equity and credit risk, excluding securitization exposure

EU CR1-B - Credit quality of exposures by industry or counterparty types (excluding counterparty credit risk) (Million Euros. 12-31-2018)

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

[1] The template shows the gross original exposure reported in the COREP Statements for equity and credit risk, excluding securitization exposure

The distribution of the gross carrying amount of performing and non-performing exposures of loans and debt securities by residual maturity is shown in the following table, which includes the amounts as of December 31, 2019 and the main figures as of December 31, 2018 for comparative purposes only:

Table 19. NPL3 - Credit quality of performing and non-performing exposures by past due days (Million Euros. 31-12-2019)

	Gross carrying amount/nominal amount[1]											
	Performing exposures			Non-performing exposures								
		Not past due or past due ≤ 30 days	Past due > 30 days ≤ 90 days		Unlikely to pay that are not past due or are past due ≤ 90 days	Past due > 90 days ≤ 180 days	Past due > 180 days ≤ 1 year	Past due > 1 year ≤ 2 years	Past due > 2 years ≤ 5 years	Past due > 5 years ≤ 7 years	Past due > 7 years	Of which defaulted
Loans and advances	396,946	393,722	3,224	15,957	8,107	1,323	1,930	2,329	1,970	148	149	15,957
Central banks	4,285	4,285	-	-	-	-	-	-	-	-	-	-
General governments	28,787	28,783	4	88	61	1	2	3	2	4	16	88
Credit institutions	13,519	13,518	1	6	4	2	0	0	-	-	-	6
Other financial corporations	10,951	10,950	1	17	9	5	1	0	2	-	-	17
Non-financial corporations	165,239	164,549	691	8,465	4,433	396	914	1,400	1,152	83	86	8,465
Of which: SME	47,042	46,624	418	4,078	1,719	203	504	878	719	23	31	4,078
Households	174,165	171,638	2,527	7,381	3,600	918	1,012	926	815	62	48	7,381
Debt securities	77,534	77,534	-	34	31	3	-	-	-	-	-	34
Central banks	1,015	1,015	-	-	-	-	-	-	-	-	-	-
General governments	64,505	64,505	-	-	-	-	-	-	-	-	-	-
Credit institutions	1,057	1,057	-	0	0	-	-	-	-	-	-	0
Other financial corporations	7,851	7,851	-	33	30	3	-	-	-	-	-	33
Non-financial corporations	3,106	3,106	-	1	1	-	-	-	-	-	-	1
Off-balance-sheet exposures	179,717	-	-	1,001	-	-	-	-	-	-	-	1,001
Central banks	2	-	-	0	-	-	-	-	-	-	-	0
General governments	3,756	-	-	7	-	-	-	-	-	-	-	7
Credit institutions	18,689	-	-	1	-	-	-	-	-	-	-	1
Other financial corporations	7,655	-	-	0	-	-	-	-	-	-	-	0
Non-financial corporations	103,232	-	-	920	-	-	-	-	-	-	-	920
Households	46,383	-	-	73	-	-	-	-	-	-	-	73
Total exposures December 2019	**654,197**	**471,256**	**3,224**	**16,992**	**8,138**	**1,325**	**1,930**	**2,329**	**1,970**	**148**	**149**	**16,992**

(*) Includes the carrying value of reverse repurchase agreements, positions subject to the securitization framework and excludes BBVA Paraguay assets that are recorded as non-current assets held for sale (see Note 1.1.3.).

(1) Gross carrying amount

Credit quality of performing and non-performing exposures by past due days (Million Euros. 31-12-2018)

	Gross carrying amount/nominal amount[1]									
	Performing exposures			Non-performing exposures						
		Not past due or past due ≤ 30 days	Past due > 30 days ≤ 90 days		Unlikely to pay that are not past due or are past due ≤ 90 days	Past due > 90 days ≤ 180 days	Past due > 180 days ≤ 1 year	Past due > 1 year ≤ 5 years	Past due > 5 years	Of which defaulted
Loans and advances	383,503	379,276	4,227	16,357	8,927	1,347	1,876	3,704	503	16,357
Debt securities	67,722	67,722	-	36	27	8	-	-	-	36
Off-balance sheet exposures	169,082	-	-	987	-	-	-	-	-	987
Total exposures December 2018	**620,307**	**446,998**	**4,227**	**17,381**	**8,954**	**1,355**	**1,876**	**3,704**	**503**	**17,381**

(*) The December 2018 table is published for comparative purposes, including the breakdown available in FINREP's regulatory requirement

(**) Includes the carrying value of reverse repurchase agreements, positions subject to the securitization framework and excludes BBVA Paraguay assets that are recorded as non-current assets held for sale (see Note 1.1.3.).

(1) Gross carrying amount

3.2.3.4. Impairment losses in the period

The details of impairment losses on financial assets and contingent risk and commitments, as well as derecognition of losses previously recognized in asset write-offs recorded directly in the income statement in 2019 and 2018 are below:

Table 20. EU CR2-A - Changes in the stock of general and specific credit risk adjustments (Million Euros. 12-31-2019)

	Accumulated credit risk adjustment[1]
Opening balance	**12,920**
Increases due to origination and acquisition	1,866
Decrease due to derecognition repayments and disposals	(1,500)
Changes due to change in credit risk (net)	3,835
Changes due to modifications without derecognition (net)	236
Changes due to update in the institution's methodology for estimation (net)	-
Decrease in allowance account due to write-offs	(2,542)
Other adjustments	(1,419)
Closing balance	**13,396**
Recoveries on credit risk adjustments recorded directly to the statement of profit or loss	(919)
Specific credit risk adjustments recorded directly to the statement of profit or loss	537

[1] Reverse repurchase agreements are included and positions subject to the securitization framework are excluded.

In addition, the flow statements of non-performing loans and fixed income in the balance sheet between December 31, 2019 and December 31, 2018 are shown below:

Table 21. EU CR2-B - Changes in the stock of defaulted and impaired loans and debt securities (Million Euros. 12-31-2019)

	Gross carrying value defaulted exposures[2]
Opening balance[1]	**16,668**
Loans and debt securities that have defaulted or impaired since the last reporting period	5,707
Returned to non-defaulted status	(3,215)
Amounts written off	(3,803)
Other changes	620
Closing balance	**15,978**

[1] Reverse repurchase agreements are included and positions subject to the securitization framework and off-balance positions are excluded

[2] Gross carrying amount

A table with a general overview of forborne exposures is shown below, which includes the amounts as of December 31, 2019 and the main figures as of December 31, 2018 for comparative purposes only:

Table 22. NPL1 - Credit quality of forborne exposures (Million Euros)

	Gross carrying amount/nominal amount of exposures with forbearance measures[1]				Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions		Collateral received and financial guarantees received on forborne exposures	
	Performing forborne	Non-performing forborne						
			Of which defaulted	Of which impaired	On performing forborne exposures	On non-performing forborne exposures		Of which collateral and financial guarantees received on non-performing exposures with forbearance measures
Loans and advances	6,888	9,350	9,350	9,350	623	4,164	7,304	3,423
Central banks	-	-	-	-	-	-	-	-
General governments	96	62	62	62	3	7	49	16
Credit institutions	-	-	-	-	-	-	-	-
Other financial corporations	1	5	5	5	0	4	1	1
Non-financial corporations	2,853	5,235	5,235	5,235	294	2,722	2,417	1,185
Households	3,938	4,048	4,048	4,048	326	1,431	4,838	2,221
Debt Securities	-	-	-	-	-	-	-	-
Loan commitments given	134	45	45	45	5	7	-	-
Total exposures December 2019	**7,022**	**9,395**	**9,395**	**9,395**	**628**	**4,172**	**7,304**	**3,423**
Loans and advances	7,165	10,003	10,003	10,003	683	4,202	8,427	4,130
Debt securities	-	-	-	-	-	-	-	-
Off-balance sheet exposures	138	87	87	87	5	21	-	-
Total exposures December 2018	**7,304**	**10,091**	**10,091**	**10,091**	**688**	**4,223**	**8,427**	**4,130**

(*) Includes the carrying value of reverse repurchase agreements, positions subject to the securitization framework and excludes BBVA Paraguay assets that are recorded as non-current assets held for sale (see Note 1.1.3.).

(1) Gross carrying amount

The foreclosed assets obtained from non-performing exposure as of December 31, 2019 are shown below, distinguishing between collateral classified as tangible fixed assets and other types of collateral:

Table 23. NPL9 - Collateral obtained by taking possession and execution processes (Million Euros. 12-31-2019)

	Collateral obtained by taking possession	
	Value at initial recognition[1]	Accumulated negative changes[2]
Property, plant and equipment (PP&E)	641	-
Other than PP&E	2,996	738
Residential immovable property	1,438	377
Commercial Immovable property	348	152
Movable property (auto, shipping, etc.)	1	0
Equity and debt instruments	1,177	209
Other	31	-
Total	**3,637**	**738**

(1) Value at initial recognition: the gross carrying amount of the collateral obtained by taking possession at initial recognition in the balance sheet

(2) Accumulated negative changes: accumulated impairment or accumulated negative changes to the initial recognition value of the collateral obtained by taking possession

3.2.4. Information on the standardized approach

3.2.4.1. Identification of external rating agencies

The external credit assessment institutions (ECAIs) appointed by the Group to determine the risk weightings applicable to its exposure are as follows: Standard&Poors, Moodys, Fitch and DBRS.

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

In cases where a counterparty has ratings from different ECAIs, the Group follows the procedure laid down in Article 138 of the Solvency Regulations, which specifies the order of priority to be used in the assignment of ratings.

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

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

3.2.4.2. Assignment of the credit ratings to public share issues

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

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

The original exposure net of value adjustments and provisions, exposure after risk mitigation techniques, and RWA density for each exposure category, according to the standardized approach, are shown below, excluding securitization and counterparty credit risk exposure, which is presented in Section 3.2.6 of this Report.

Table 24. EU CR4 - Standardized approach - credit risk exposure and credit risk mitigation effects (Million Euros. 12-31-2019)

	Exposures before CCF and CRM[1]		Exposures post-CCF and CRM[2]		RWA[3] and RWA Density	
Exposure Class	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA Density
Central governments or central banks	117,878	4,449	146,001	654	29,629	20%
Regional governments or local authorities	9,512	1,056	6,827	271	1,643	23%
Public sector entities	1,383	212	1,504	137	714	43%
Multilateral development banks	130	38	210	-	11	5%
International Organizations	-	-	-	-	-	-
Institutions	10,202	13,536	10,239	1,063	4,725	42%
Corporates	75,447	33,319	71,354	17,058	86,058	97%
Retail	56,081	30,653	52,060	2,755	38,451	70%
Secured by mortgages on immovable property	39,471	167	39,423	138	14,983	38%
Exposures in default	3,273	330	3,197	225	3,806	111%
Exposures associated with particularly high risk	3,502	428	3,285	107	5,088	150%
Covered bonds	-	-	-	-	-	-
Institutions and corporates with a short term credit assessment	1	-	1	-	1	96%
Collective Investment Undertakings	6	4	4	3	7	100%
Equity	-	-	-	-	-	0%
Other Items	21,018	-	21,211	496	12,767	59%
Total	**337,904**	**84,191**	**355,316**	**22,907**	**197,882**	**52%**

[1] Net OE: original exposure net of value adjustments and provisions

[2] EAD: original exposure net of value adjustments and provisions after CRM and CCF

[3] RWAs: EAD after risk-weighting

EU CR4 - Standardized approach - credit risk exposure and credit risk mitigation effects (Million Euros. 12-31-2018)

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

[1] Net OE: original exposure net of value adjustments and provisions

[2] EAD: original exposure net of value adjustments and provisions after CRM and CCF

[3] RWAs: EAD after risk-weighting

In addition, the following tables show the exposure net of provisions, before and after the application of credit risk mitigation techniques by risk weights and exposure categories under the standardized approach, excluding securitization positions and counterparty credit risk exposure.

Exposure net of provisions and after applying CCF and CRM related to counterparty credit risk are shown in table EU CCR3 of Section 3.2.6 of this report.

Table 25. Standardized approach: exposure values before application of credit risk mitigation techinques (Million Euros. 12-31-2019)

Exposure Class	Risk Weight																Total credit exposures amount (pre CCF and pre-CRM)	Of which: unrated[1]
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deducted		
Central Government or central banks	90,680	-	-	-	4,536	-	5,923	-	-	17,045	872	3,271	-	-	-	-	122,327	51,205
Regional government or local authorities	244	-	-	-	6,827	-	3,360	-	-	136	-	-	-	-	-	-	10,568	9,110
Public sector entities	-	-	-	-	672	-	634	-	-	289	1	-	-	-	-	-	1,595	1,092
Multilateral development banks	77	-	-	-	90	-	-	-	-	-	-	-	-	-	-	-	167	114
International Organizations	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
Institutions	-	250	-	-	6,292	-	15,024	-	-	2,152	21	-	-	-	-	-	23,738	20,511
Corporates	-	399	-	-	142	-	2,935	-	-	104,209	1,081	-	-	-	-	-	108,766	107,315
Retail	-	-	-	-	-	-	-	-	84,589	2,145	-	-	-	-	-	-	86,733	86,601
Secured by mortgages on immovable property	-	-	-	-	-	33,296	4,898	-	810	634	-	-	-	-	-	-	39,638	39,634
Exposures in default	-	-	-	-	-	-	-	-	-	2,797	805	-	-	-	-	-	3,602	3,596
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	3,931	-	-	-	-	-	3,931	3,931
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	0	-	-	-	-	1	-	-	-	-	-	-	1	0
Collective investment undertakings	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	10	10
Other Items	7,484	-	-	-	6	-	-	-	-	13,527	0	-	-	-	-	-	21,018	20,941
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**98,485**	**649**	**-**	**-**	**18,566**	**33,296**	**32,774**	**-**	**85,398**	**142,946**	**6,711**	**3,271**	**-**	**-**	**-**	**-**	**422,096**	**344,060**

[1] Of which: Unrated refers to exposure for which no credit rating from designated ECAIs is available

Standardized approach: exposure values before application of credit risk mitigation techinques (Million Euros. 12-31-2018)

Exposure Class	Risk Weight																Total credit exposures amount (pre CCF and pre-CRM)	Of which: unrated[1]
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deducted		
Central Government or central banks	82,586	-	-	-	4,318	-	4,652	-	-	19,977	56	3,004	-	-	-	-	114,593	48,775
Regional government or local authorities	204	-	-	-	9,836	-	49	-	-	91	-	-	-	-	-	-	10,180	10,180
Public sector entities	1	-	-	-	200	-	454	-	-	325	0	-	-	-	-	-	981	588
Multilateral development banks	222	-	-	-	-	-	20	-	-	24	-	-	-	-	-	-	265	265
International Organizations	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-
Institutions	-	3,192	-	-	19,808	-	2,551	-	-	2,574	0	-	-	-	-	-	28,124	26,702
Corporates	-	-	-	-	102	-	1,237	-	-	119,909	386	-	-	-	-	-	121,635	120,975
Retail	-	-	-	-	-	-	-	-	85,194	-	-	-	-	-	-	-	85,194	77,678
Secured by mortgages on immovable property	-	-	-	-	-	33,035	6,178	-	493	909	-	-	-	-	-	-	40,615	38,246
Exposures in default	-	-	-	-	-	-	-	-	-	2,725	1,215	-	-	-	-	-	3,939	3,400
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	1,117	-	-	-	-	-	1,117	632
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short- term credit assessment	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	3	1
Collective investment undertakings	-	-	-	-	-	-	-	-	-	69	-	-	-	-	-	-	69	69
Other Items	5,595	-	-	-	-	-	-	-	-	12,469	0	-	-	-	-	-	18,064	17,926
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**88,608**	**3,192**	**-**	**-**	**34,265**	**33,035**	**15,142**	**-**	**85,687**	**159,074**	**2,774**	**3,004**	**-**	**-**	**-**	**-**	**424,781**	**345,437**

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

Table 26. EU CR5 - Standardized approach: exposure values after application of credit risk mitigation techniques (Million Euros. 12-31-2019)

Exposure Class	Risk Weight																Total credit exposures amount (post-CCF and post-CRM)	Of which: unrated[1]
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deducted		
Central Government or central banks	118,530	-	-	-	1,230	-	5,708	-	-	17,044	872	3,271	-	-	-	-	146,655	50,520
Regional government or local authorities	1	-	-	-	6,579	-	381	-	-	136	-	-	-	-	-	-	7,098	7,075
Public sector entities	-	-	-	-	798	-	578	-	-	264	1	-	-	-	-	-	1,641	497
Multilateral development banks	157	-	-	-	53	-	-	-	-	-	-	-	-	-	-	-	210	114
International Organizations	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
Institutions	-	250	-	-	5,757	-	3,474	-	-	1,802	19	-	-	-	-	-	11,302	8,756
Corporates	-	-	-	-	34	-	1,895	-	-	85,656	828	-	-	-	-	-	88,412	86,955
Retail	-	-	-	-	-	-	-	-	54,814	-	-	-	-	-	-	-	54,814	54,682
Secured by mortgages on immovable property	-	-	-	-	-	33,285	4,843	-	804	629	-	-	-	-	-	-	39,561	39,558
Exposures in default	-	-	-	-	-	-	-	-	-	2,655	767	-	-	-	-	-	3,423	3,582
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	3,392	-	-	-	-	-	3,392	3,392
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	0	-	-	-	-	1	-	-	-	-	-	-	1	0
Collective investment undertakings	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	7	7
Other Items	8,935	-	-	-	6	-	-	-	-	12,765	0	-	-	-	-	-	21,707	21,707
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**127,622**	**250**	**-**	**-**	**14,458**	**33,285**	**16,879**	**-**	**55,618**	**120,959**	**5,880**	**3,271**	**-**	**-**	**-**	**-**	**378,222**	**276,846**

[1] Of which: Unrated refers to exposure for which no credit rating from designated ECAIs is available

EU CR5 - Standardized approach: exposure values after application of credit risk mitigation techniques (Million Euros. 12-31-2018)

Exposure Class	Risk Weight																Total credit exposures amount (post-CCF and post-CRM)	Of which: unrated[1]
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deducted		
Central Government or central banks	108,890	-	-	-	1,462	-	4,783	-	-	19,969	56	3,004	-	-	-	-	138,164	52,283
Regional government or local authorities	7	-	-	-	6,497	-	49	-	-	91	-	-	-	-	-	-	6,644	6,644
Public sector entities	47	-	-	-	1,084	-	362	-	-	316	0	-	-	-	-	-	1,809	570
Multilateral development banks	433	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	453	242
International Organizations	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-
Institutions	-	3,123	-	-	8,782	-	2,066	-	-	2,139	0	-	-	-	-	-	16,110	15,183
Corporates	-	-	-	-	66	-	1,149	-	-	88,359	381	-	-	-	-	-	89,956	89,294
Retail	-	-	-	-	-	-	-	-	52,442	-	-	-	-	-	-	-	52,442	45,361
Secured by mortgages on immovable property	-	-	-	-	-	33,013	6,077	-	469	899	-	-	-	-	-	-	40,458	38,107
Exposures in default	-	-	-	-	-	-	-	-	-	2,519	1,072	-	-	-	-	-	3,591	3,111
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	1,101	-	-	-	-	-	1,101	631
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	3	1
Collective investment undertakings	-	-	-	-	-	-	-	-	-	57	-	-	-	-	-	-	57	57
Other Items	7,680	-	-	-	-	-	-	-	-	11,228	0	-	-	-	-	-	18,909	18,772
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**117,057**	**3,123**	**-**	**-**	**17,892**	**33,013**	**14,506**	**-**	**52,911**	**125,578**	**2,612**	**3,004**	**-**	**-**	**-**	**-**	**369,696**	**270,256**

[1] Of which: Unrated refers to exposure for which no credit rating from designated ECAIs is available

The following table presents the flow statements of credit and counterparty credit risk RWA under standardized approach during 2019:

Table 27. RWA flow statements of credit risk exposures under the standardized approach (Million Euros)

	Credit Risk		Counterparty Credit Risk		Total	
	RWA amounts	Capital Requirements	RWA amounts	Capital Requirements	RWA amounts	Capital requirements
RWAs as of December 31, 2018	**194,707**	**15,577**	**3,008**	**241**	**197,715**	**15,817**
Asset size	3,854	308	(296)	(24)	3,558	285
Asset quality	(37)	(3)	(23)	(2)	(60)	(5)
Model updates	-	-	-	-	-	-
Methodology and policy	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-
Foreign exchange movements	(642)	(51)	(394)	(32)	(1,036)	(83)
Other	-	-	-	-	-	-
RWAs as of December 31, 2019	**197,882**	**15,831**	**2,294**	**184**	**200,176**	**16,014**

The above table shows the most relevant changes recorded during 2019 in credit risk models according to the standardized approach:

- The size of assets reflects the variations in RWAs due to exposure increases, which have mainly occurred in retail exposures, partially offset by a reduction in corporates; and by the increase of approximately 3.4 billion due to IFRS 16 impact. In addition, in 2019, the European Commission recognized Argentina as an equivalent country for the purposes of supervisory and regulatory requirements with a reduction in RWAs of approximately 1.5 billion.
- Asset quality includes changes in RWAs from the regulatory category of Exposures in default.
- Finally, the exchange rate includes the impact of foreign exchange variations on RWAs during 2019, which mainly reflects the net effect of the depreciation of the Turkish lira and the Argentine peso against the euro, which has partially offset the growth of exposures by the appreciation of the US dollar and Mexican peso.

3.2.5. Information on the IRB approach

3.2.5.1. General information

3.2.5.1.1. Authorization by the supervisor to use the IRB approach

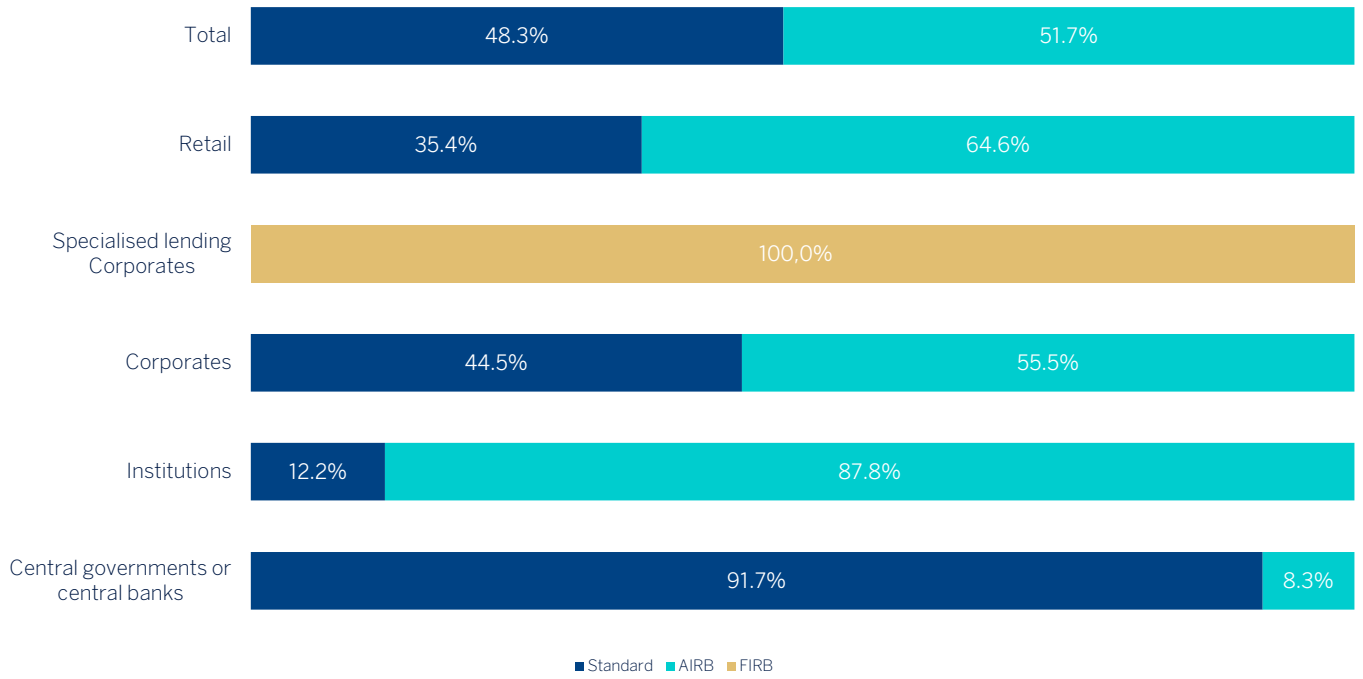
The following are the models authorized by the supervisor for use in the calculation of bank capital requirements.

Table 28. Models authorized by the supervisor for the purpose of their use in the calculation of capital requirements (12-31-2019)

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

The following chart shows the distribution of exposures at default related to credit risk and counterparty credit risk by model for each exposure category, as of December 31, 2019:

Chart 6. Distribution of EAD by Exposure Category and Method for Credit and Counterparty Risk



(*) All other exposure categories are calculated under the standardized approach

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

The rating models give contracts/customers a score that orders customers according to their credit quality. This score is determined by the characteristics of the transactions, economic and financial conditions of the customer, information on payment behavior, credit bureau, etc.

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

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

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

The Group has rating tools for each exposure category listed in the Basel Agreement.

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

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

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

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

Table 29. Master Scale of BBVA's rating (12-31-2019)

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

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

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

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

Specifically, internal estimates are used in everyday business in support of credit risk management through their inclusion in admission and monitoring processes, as well as in the pricing of transactions.

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

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

Mitigation is an iterative process whose purpose is to recognize the benefits of the existence of collateral and guarantees, ordering them from the highest to the lowest credit quality.

The Group uses risk mitigation techniques for exposure pertaining to the wholesale portfolio by replacing the debtor's PD with that of the guarantor, in cases in which the latter is eligible and its PD is lower than the debtor's. In retail admission processes the guarantor is included in the scoring itself.

Collateral in IRB models is recognized through the LGD and must meet eligibility criteria based on maturity and minimum exposure coverage, and making the necessary adjustments depending on the type of existing collateral, financial or real.

3.2.5.1.5. Control mechanisms for internal rating systems

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

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

The aim of performance monitoring is to detect deficiencies in the performance of the rating systems for risk anticipating its deterioration over time. It allows us to determine if these systems work correctly, helping to verify that the model components work as expected. The monitoring performance framework can identify weaknesses and establish the plans of action needed to ensure correct operation. This analytical framework, a fundamental component of risk model planning, sets out the minimum criteria to be taken into account, as well as the metrics and thresholds that make it possible to flag unwanted behaviors.

The purpose of the use monitoring is to verify that the model is used generally, in the way it was intended, and appropriately. This control mechanism allows continued detection of deviations from the planned use of models, as well as the establishment of action plans for their correction.

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

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

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

3.2.5.1.6. Description of the internal rating process

There follows a description of the internal rating process by type of customer:

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

  In the case of emerging countries where BBVA subsidiaries or branches are present, the rating in local currency is adjusted to the rating obtained by the emerging countries tool under the authorization of the Risk Committee assigned for this purpose.

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

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

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

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

  The responsibility for the assessment lies with the units proposing the risk, while those responsible of approvals, validate it when the decision is taken.

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

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

- **Small Businesses**: As in the case of medium-sized companies, this segment also takes into account quantitative factors derived from economic and financial information, and qualitative factors that are related to the age of the company, the sector, management quality, etc. and alert factors derived from risk monitoring. Similarly, the rating tends to run parallel with the admission process, so the responsibility for rating is with the unit proposing the risk, while the decision-making level is in charge of validating it.

- **Specialized Lending**: To classify this segment, the Group has chosen to use the approach of slotting criteria, as included in the Basel Accord of June 2004 and in the solvency regulations (CRR Article 153.5).

- **Developers**: The rating of real estate developers covers the rating of both customers who are developers and the Property Projects unit. Its use makes it easier to monitor and rate projects during their execution phase, as well as enriching the admission processes.

- **BBVA Mexico Corporates**: This segment also takes into account quantitative factors derived from economic and financial information and bureau information, as well as qualitative factors related to the age of the company, the sector, the quality of its management, etc. The rating tends to run parallel to the admission process, so that responsibility for the rating is with the unit originating the risk, while the decision-making body validates it.

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

- **Retailers**: Retail exposure is rated by models developed internally by the Entity that allow the credit risk of portfolios to be assessed. The model score can be assigned at the customer or product level and transformed into a probability of default, allowing for management based on risk groups. Depending on the information available, ratings can be reactive or proactive. The reactive ratings are generated from the customer's request to take out a product, while the proactive ratings are periodically calculated on the basis of the information available, internal and external, on the customer's payment behavior. Proactive models allow offers of pre-approved and/or pre-offered products, which are instrumentalized in mass marketing campaigns. Ratings are integrated into admission and monitoring processes for retail portfolios, ensuring adequate credit risk management.

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

  a. *Mortgages, Consumer Finance and Retail Cards - Spain:* The manager collects data on the customer (personal, financial, banking relationship information) and on the transaction (LTV, amount, maturity, destination etc.) and calculates the rating of the transaction with the scoring. The decision on whether it is approved is made based on the results of applying the model.

  b. *Consumer Finance Autos Spain*: The financing request may come through the call center or be directly recorded in the web application by our authorized dealers. The necessary information on the customer (personal, financial information, authorization to consult the external bureau of credit) and on the transaction (maturity, amount, etc.) is recorded to rate the transaction with the scoring. Once the validity of the information provided is verified, the decision of whether to approve it is made based on the results of applying the model.

  c. *Retail Revolving- Cards BBVA Mexico*: The manager or specialist party gathers the necessary information on the customer (personal, financial information and authorization to consult the external bureau of credit) and on the transaction (limit requested) to rate the transaction with the scoring. There are additional processes for validating and checking this information through the back office or operational support areas. The decision on whether it is approved is made based on the results of applying the model.

     - Behavioral: Every month all the active cards are rated according to their transactional behavior and payment status.
     - Proactive: Each month all the customers who have asset positions on credit cards, consumer finance or mortgages and liabilities positions are rated, based on information on internal behavior and flows.

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

  e. *SMEs Spain (legal persons)*: Management is based on the allocation of limits/ceilings at the customer level, based on the results of a proactive monthly update rating.

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

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

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

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

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

Furthermore, to avoid including non material defaults in the estimates, non-performing volumes have to pass through a materiality filter that depends on the type of customer and transaction.

Estimating parameters

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

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

Other sources of information for the Bank may be used in addition, depending on any new needs detected in the estimation process. Internal estimates of the PD, LGD and CCF parameters are made for all the Group's portfolios.

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

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

- **Probability of default (PD)**

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

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

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

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

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

- **Loss given default (LGD)**

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

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

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

In line with the guidelines set out by the regulations, the estimates are made by distinguishing between wholesale and retail type exposure.

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

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

LRLGD is calculated by making an adjustment to capture the difference between the loss given default obtained empirically with the available sample and the average loss given default observed throughout the economic cycle if the observation of the cycle is complete. In addition, the loss given default observed in a period of stress in the economic cycle, the downturn loss given default (DLGD) is determined.

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

Finally, LGD BE is determined according to the loss given default (LGD) observed in the BE period, which aims to cover the defaults closest in time to the present, in other words those that have been produced at a time of the economic cycle that is similar to the present and that also correspond to a very similar portfolio to the present one.

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

- **Credit conversion factor (CCF)**

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

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

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

CCF is estimated by using the cohort[5] approach, analyzing how the exposure varies from a pre-established reference date through to the moment of default, obtaining the average performance according to the relevant metrics.

Different approaches are used for retail and wholesale exposure. The facility level approach analyzes the evolution of the exposure up to the time of the breach of contract, while the obligor level approach analyzes the evolution of the exposure up to the moment of the non-compliance of the client.

Again, in low-default portfolios there is not enough historical experience to be able to make a reliable estimate with the defined LGD methodology. In this case, external sources are also used, which are combined with internal data to obtain a CCF representative of the portfolio.

3.2.5.2. Exposure values by category and PD range

The following table presents the information on credit risk as of December 31, 2019 (excluding counterparty credit risk, which is set out in detail in Table CCR4 in section 3.2.6.2.2) using the internal ratings-based (IRB) approach, by debtor grade for the different categories of exposure:

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

Table 30. EU CR6 - IRB approach - Credit risk exposures by exposure class and PD range (Million Euros. 12-31-2019)

PD Scale as of 12-31-2019[1][7]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF[2]	EAD post CRM and post-CCF	Average PD[3]	Number of obligors	Average LGD[4]	Average Maturity (days)[5]	RWAs	RWA Density	EL	Value adjustments and provisions
Prudential portfolios for FIRB approach(6)	**5,676**	**671**	**51.7%**	**6,022**	**-**	**352**	**-**		**4,606**	**76%**	**113**	**(62)**
Corporate - Specialized lending	**5,676**	**671**	**51.7%**	**6,022**	**-**	**352**	**-**	**-**	**4,606**	**76%**	**113**	**(62)**
Prudential portfolios for AIRB approach	**215,544**	**96,342**	**41.1%**	**239,149**	**3.97%**	**11,054,690**	**37.74%**		**85,586**	**36%**	**3,457**	**(4,805)**
Central governments or central banks	**9,109**	**310**	**49.6%**	**11,899**	**0.1%**	**60**	**26.7%**	**567**	**664**	**6%**	**3**	**(5)**
0,00<0,15	8,684	113	49.8%	11,489	0.0%	24	26.1%	550	596	5%	1	(2)
0,15<0,25	64	63	49.8%	324	0.2%	3	41.6%	1,176	20	6%	0	(0)
0,25<0,50	5	8	45.0%	46	0.3%	4	44.4%	613	5	10%	0	(2)
0,50<0,75	0	0	35.3%	0	0.6%	1	21.7%	402	0	30%	-	-
0,75<2,50	95	2	49.8%	7	0.9%	7	42.0%	580	3	51%	0	(0)
2,50<10,00	202	107	50.4%	28	4.2%	13	43.1%	292	31	112%	1	(1)
10,00<100,00	12	8	50.2%	5	18.1%	5	39.4%	128	9	194%	0	(0)
100,00 (Default)	47	8	-	1	100.0%	3	39.2%	971	0	1%	0	(1)
Institutions	**27,634**	**6,701**	**55.7%**	**15,189**	**0.5%**	**2,845**	**42.2%**	**504**	**4,243**	**28%**	**27**	**(39)**
0,00<0,15	20,587	4,764	56.5%	11,976	0.1%	1,555	43.6%	470	2,428	20%	4	(9)
0,15<0,25	2,282	579	51.0%	952	0.2%	465	42.7%	524	370	39%	1	(2)
0,25<0,50	3,188	1,058	56.5%	995	0.3%	281	24.9%	777	320	32%	1	(4)
0,50<0,75	326	108	50.6%	235	0.5%	167	37.4%	1,115	148	63%	0	(1)
0,75<2,50	955	124	52.2%	877	1.4%	129	43.0%	422	764	87%	5	(2)
2,50<10,00	124	38	50.3%	68	4.2%	139	36.3%	973	87	127%	1	(1)
10,00<100,00	84	27	48.5%	55	14.4%	17	42.4%	857	121	222%	3	(4)
100,00 (Default)	89	3	49.7%	30	100.0%	92	37.8%	118	4	14%	11	(16)
Corporate SMEs	**18,431**	**4,551**	**40.2%**	**18,841**	**10.3%**	**32,755**	**44.2%**	**788**	**12,355**	**66%**	**816**	**(1,029)**
0,00<0,15	2,748	1,092	41.8%	3,980	0.1%	7,001	51.3%	715	1,058	27%	2	(12)
0,15<0,25	672	214	43.8%	901	0.2%	1,584	51.5%	705	346	38%	1	(3)
0,25<0,50	1,502	352	42.5%	1,686	0.3%	2,883	48.2%	738	832	49%	3	(6)
0,50<0,75	3,524	594	44.7%	3,380	0.5%	3,776	41.4%	908	2,351	70%	7	(14)
0,75<2,50	4,079	1,055	38.6%	3,642	1.2%	5,840	42.5%	986	3,190	88%	18	(25)
2,50<10,00	3,639	1,065	36.3%	3,136	4.2%	7,416	37.9%	855	3,337	106%	50	(179)
10,00<100,00	612	130	33.8%	458	18.4%	1,511	35.5%	1,250	772	169%	30	(27)
100,00 (Default)	1,656	48	37.9%	1,657	100.0%	2,744	42.6%	120	468	28%	705	(762)
Corporate Non-SMEs	**61,299**	**62,074**	**48.6%**	**90,321**	**2.4%**	**11,898**	**41.7%**	**706**	**40,643**	**45%**	**761**	**(1,266)**
0,00<0,15	26,073	34,260	48.6%	43,874	0.1%	2,755	43.5%	704	12,349	28%	21	(23)
0,15<0,25	6,583	8,835	49.2%	11,432	0.2%	1,046	40.7%	755	4,874	43%	9	(16)
0,25<0,50	13,183	11,376	49.9%	18,964	0.3%	1,797	39.9%	753	10,080	53%	24	(23)
0,50<0,75	6,077	3,529	46.3%	7,176	0.5%	1,711	38.8%	697	4,781	67%	14	(16)
0,75<2,50	4,184	2,382	46.8%	4,192	1.1%	1,701	42.0%	681	3,800	91%	20	(23)
2,50<10,00	2,942	1,298	41.1%	2,420	4.4%	2,082	41.6%	548	3,456	143%	45	(171)
10,00<100,00	500	280	45.7%	458	13.9%	169	42.5%	815	974	213%	27	(12)
100,00 (Default)	1,757	114	46.2%	1,805	100.0%	637	33.3%	233	330	18%	602	(982)
Retail - Mortgage exposures	**74,000**	**4,378**	**3.7%**	**74,139**	**4.4%**	**1,054,848**	**24.1%**	**-**	**8,904**	**12%**	**610**	**(941)**
0,00<0,15	56,265	3,104	3.7%	56,366	0.0%	838,237	23.3%	-	1,774	3%	6	(9)
0,15<0,25	2,005	28	3.7%	2,005	0.2%	25,223	29.2%	-	248	12%	1	(2)
0,25<0,50	3,281	423	3.7%	3,296	0.3%	42,025	30.8%	-	617	19%	3	(2)
0,50<0,75	1,953	255	3.7%	1,961	0.5%	26,409	30.0%	-	518	26%	3	(3)
0,75<2,50	4,268	328	3.7%	4,279	1.1%	55,196	27.0%	-	1,617	38%	13	(50)
2,50<10,00	2,297	199	3.7%	2,302	4.7%	28,834	26.9%	-	1,993	87%	29	(200)
10,00<100,00	1,112	40	3.7%	1,112	18.9%	11,614	26.9%	-	1,778	160%	58	(82)
100,00 (Default)	2,820	0	3.7%	2,818	100.0%	27,310	17.6%	-	359	13%	496	(593)

PD Scale as of 12-31-2019[1][7]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF[2]	EAD post CRM and post-CCF	Average PD[3]	Number of obligors	Average LGD[4]	Average Maturity (days)[5]	RWAs	RWA Density	EL	Value adjustments and provisions
Retail - Other exposures SMEs	**3,556**	**884**	**55.0%**	**4,002**	**12.6%**	**155,069**	**51.9%**	**-**	**1,635**	**41%**	**291**	**(268)**
0,00<0,15	327	238	53.3%	454	0.1%	23,712	51.7%	-	52	11%	0	(1)
0,15<0,25	146	66	53.9%	182	0.2%	7,173	52.5%	-	32	18%	0	(0)
0,25<0,50	256	95	55.6%	308	0.3%	11,021	51.9%	-	71	23%	0	(0)
0,50<0,75	343	119	54.2%	404	0.5%	15,094	52.0%	-	127	32%	1	(1)
0,75<2,50	871	188	57.1%	969	1.2%	33,664	51.4%	-	441	45%	6	(4)
2,50<10,00	1,019	140	57.7%	1,083	4.3%	42,177	50.5%	-	653	60%	23	(24)
10,00<100,00	197	29	50.2%	203	21.5%	8,279	46.1%	-	176	87%	20	(13)
100,00 (Default)	398	10	40.3%	400	100.0%	13,949	59.9%	-	82	21%	240	(225)
Retail - Other exposures Non-SMEs	**11,441**	**16**	**50.5%**	**11,445**	**6.7%**	**1,023,637**	**56.5%**	**-**	**4,223**	**37%**	**392**	**(611)**
0,00<0,15	4,856	5	37.7%	4,858	0.1%	385,973	54.7%	-	446	9%	2	(3)
0,15<0,25	642	1	50.8%	643	0.2%	65,735	61.1%	-	171	27%	1	(2)
0,25<0,50	794	1	57.9%	794	0.3%	81,542	59.8%	-	263	33%	1	(3)
0,50<0,75	1,017	4	56.8%	1,018	0.5%	107,899	60.2%	-	467	46%	3	(5)
0,75<2,50	1,321	1	59.1%	1,322	1.2%	135,038	60.3%	-	898	68%	9	(13)
2,50<10,00	1,984	3	60.6%	1,983	3.9%	171,172	55.9%	-	1,674	84%	43	(104)
10,00<100,00	212	1	40.5%	212	21.3%	20,638	57.2%	-	276	130%	26	(24)
100,00 (Default)	615	0	41.7%	615	100.0%	55,640	49.8%	-	29	5%	306	(457)
Retail - qualifying revolving (QRRE)	**7,190**	**17,428**	**18.6%**	**10,430**	**6.5%**	**8,773,578**	**68.6%**	**-**	**7,365**	**71%**	**527**	**(646)**
0,00<0,15	1,104	4,540	24.9%	2,234	0.0%	2,782,216	45.5%	-	30	1%	0	(1)
0,15<0,25	23	41	26.7%	34	0.2%	37,976	49.6%	-	2	6%	0	(0)
0,25<0,50	78	131	26.0%	112	0.3%	140,727	49.0%	-	8	8%	0	(0)
0,50<0,75	472	1,757	12.4%	690	0.5%	484,949	71.1%	-	130	19%	3	(3)
0,75<2,50	1,595	5,377	13.6%	2,324	1.1%	1,494,958	74.2%	-	836	36%	20	(33)
2,50<10,00	2,697	5,040	18.8%	3,643	5.1%	2,728,548	76.1%	-	3,797	104%	141	(204)
10,00<100,00	1,009	542	31.4%	1,179	20.9%	961,891	76.2%	-	2,549	216%	188	(247)
100,00 (Default)	213	1	29.7%	213	100.0%	142,313	82.1%	-	13	6%	175	(159)
Equity	**2,883**	**-**	**-**	**2,883**	**1.3%**	**-**	**68.4%**	**-**	**5,554**	**193%**	**30**	**-**
0,00<0,15	1,687	-	-	1,687	0.1%	-	64.0%	-	2,013	119%	2	-
0,15<0,25	110	-	-	110	0.2%	-	68.8%	-	112	103%	0	-
0,25<0,50	0	-	-	-	0.3%	-	65.0%	-	0	0%	-	-
0,50<0,75	14	-	-	14	0.6%	-	65.0%	-	23	160%	0	-
0,75<2,50	443	-	-	443	1.1%	-	79.7%	-	1,081	244%	3	-
2,50<10,00	630	-	-	630	5.1%	-	83.2%	-	2,325	369%	25	-
10,00<100,00	-	-	-	-	0.0%	-	0.0%	-	-	0%	-	-
100,00 (Default)	-	-	-	-	0.0%	-	0.0%	-	-	0%	-	-
Total Standardized Approach	**221,219**	**97,013**	**41.1%**	**245,171**	**4.0%**	**11,055,042**	**37.7%**		**90,193**	**37%**	**3,569**	**(4,867)**

[1] PD Intervals recommended by the EBA Guidelines on Disclosure Requirements under Part Eight of the CRR

[2] Calculated as EAD after CCF for off-balance sheet exposure over total off-balance exposure before CCF

[3] Corresponds to obligor grade PD weighted by EAD post CRM

[4] Corresponds to obligor grade LGD weighted by EAD post CRM

[5] Corresponds to the obligor maturity in days weighted by EAD post CRM. According to Regulation (EU) No 680/2014, it is reported only for categories in which the average maturities are relevant for the calculation of RWAs.

[6] Exposure classified in the FIRB approach corresponds to specialized lending. The Group has chosen to use the slotting criteria, in line with Article 153.5 of the CRR.

[7] As of December 31, 2019, it includes the effects derived from TRIM (Targeted Review of Internal Models) that will become effective in 2020.

EU CR6 - IRB approach – Credit risk exposures by exposure class and PD range (Million Euros. 12-31-2018)

PD Scale as of 12-31-2018[1]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF[2]	EAD post CRM and post-CCF	Average PD[3]	Number of obligors	Average LGD[4]	Average Maturity (days)[5]	RWAs	RWA Density	EL	Value adjustments and provisions
Prudential portfolios for FIRB approach(6)	**6,268**	**403**	**57.7%**	**6,500**	**-**	**300**	**-**		**5,421**	**83%**	**140**	**(73)**
Corporate - Specialized lending	**6,268**	**403**	**57.7%**	**6,500**	**-**	**300**	**-**	**-**	**5,421**	**83%**	**140**	**(73)**
Prudential portfolios for AIRB approach	**198,988**	**86,385**	**42.3%**	**218,321**	**4.70%**	**11,527,717**	**35.98%**		**77,733**	**36%**	**3,101**	**(4,825)**
Central governments or central banks	**5,729**	**137**	**49.6%**	**7,627**	**0.3%**	**54**	**27.3%**	**695**	**451**	**6%**	**5**	**(5)**
0,00<0,15	5,294	19	49.4%	7,350	0.0%	19	26.7%	694	354	5%	1	(0)
0,15<0,25	12	13	50.0%	136	0.2%	2	43.6%	920	3	2%	0	(0)
0,25<0,50	8	0	50.1%	33	0.3%	4	44.0%	600	2	7%	0	(1)
0,50<0,75	-	0	43.1%	0	0.5%	1	12.4%	582	0	18%	-	-
0,75<2,50	128	2	49.1%	5	1.1%	8	34.1%	479	3	62%	0	(0)
2,50<10,00	213	88	50.1%	83	4.9%	12	49.9%	548	83	100%	2	(2)
10,00<100,00	1	7	50.6%	4	21.2%	3	18.9%	107	4	97%	0	(0)
100,00 (Default)	73	8	50.0%	16	100.0%	5	10.2%	585	2	13%	2	(1)
Institutions	**25,687**	**6,952**	**58.9%**	**12,482**	**0.5%**	**3,361**	**40.6%**	**558**	**3,576**	**29%**	**26**	**(58)**
0,00<0,15	18,715	5,100	60.6%	9,886	0.1%	1,847	41.2%	524	1,967	20%	3	(17)
0,15<0,25	2,292	785	50.6%	853	0.2%	605	40.7%	699	327	38%	1	(8)
0,25<0,50	3,180	707	56.5%	643	0.3%	304	30.5%	862	251	39%	1	(3)
0,50<0,75	431	125	51.1%	278	0.5%	197	36.3%	309	171	62%	1	(1)
0,75<2,50	719	176	53.6%	653	1.4%	157	42.6%	708	623	95%	4	(2)
2,50<10,00	149	52	75.9%	95	3.2%	138	42.6%	503	129	136%	1	(4)
10,00<100,00	42	6	56.8%	41	20.1%	22	43.9%	812	102	246%	4	(3)
100,00 (Default)	160	2	89.8%	32	100.0%	91	38.1%	130	7	20%	12	(19)
Corporate SMEs	**15,964**	**3,816**	**45.2%**	**16,117**	**13.5%**	**32,087**	**47.1%**	**696**	**11,781**	**73%**	**869**	**(1,103)**
0,00<0,15	1,240	711	44.1%	1,897	0.1%	4,463	51.7%	729	526	28%	1	(5)
0,15<0,25	628	251	43.8%	893	0.2%	1,839	53.6%	740	352	39%	1	(3)
0,25<0,50	1,268	354	45.8%	1,528	0.3%	3,226	51.8%	644	753	49%	2	(5)
0,50<0,75	2,832	591	42.1%	2,845	0.5%	4,626	48.7%	692	2,019	71%	7	(16)
0,75<2,50	3,815	955	47.5%	3,552	1.2%	6,790	46.8%	827	3,067	86%	19	(41)
2,50<10,00	3,769	850	45.4%	3,124	4.3%	7,526	44.5%	869	3,858	123%	59	(179)
10,00<100,00	473	36	46.5%	354	15.3%	1,083	42.8%	890	692	195%	23	(25)
100,00 (Default)	1,938	68	50.1%	1,924	100.0%	2,534	39.3%	133	514	27%	756	(830)
Corporate Non-SMEs	**51,288**	**54,395**	**49.5%**	**77,891**	**2.6%**	**10,436**	**44.4%**	**649**	**36,273**	**47%**	**455**	**(999)**
0,00<0,15	21,005	30,232	49.1%	36,913	0.1%	2,345	44.9%	654	10,353	28%	18	(20)
0,15<0,25	5,722	8,093	48.3%	9,854	0.2%	1,168	45.5%	809	4,342	44%	9	(10)
0,25<0,50	10,836	8,875	52.1%	15,947	0.3%	1,779	45.3%	536	9,016	57%	23	(22)
0,50<0,75	4,438	3,331	48.6%	5,866	0.5%	1,126	46.1%	767	4,152	71%	14	(33)
0,75<2,50	4,897	2,157	48.1%	4,985	1.1%	1,531	42.6%	727	4,500	90%	24	(30)
2,50<10,00	2,612	1,474	51.8%	2,556	3.8%	1,988	45.1%	541	3,545	139%	44	(122)
10,00<100,00	109	51	53.3%	44	15.7%	86	46.3%	591	90	206%	3	(3)
100,00 (Default)	1,669	181	46.8%	1,726	100.0%	413	18.6%	218	275	16%	320	(760)
Retail - Mortgage exposures	**76,986**	**4,487**	**5.0%**	**77,186**	**5.2%**	**1,081,452**	**17.1%**	**-**	**7,385**	**10%**	**579**	**(1,330)**
0,00<0,15	57,198	3,197	5.0%	57,345	0.0%	847,224	15.7%	-	1,290	2%	5	(9)
0,15<0,25	3,448	41	5.0%	3,448	0.2%	40,742	22.0%	-	323	9%	2	(2)
0,25<0,50	2,865	416	5.0%	2,885	0.3%	39,778	26.2%	-	460	16%	2	(3)
0,50<0,75	2,086	251	5.0%	2,098	0.5%	27,410	25.8%	-	450	21%	3	(3)
0,75<2,50	3,762	330	5.0%	3,777	1.1%	45,956	23.0%	-	1,195	32%	9	(53)
2,50<10,00	3,402	209	5.0%	3,409	4.7%	39,563	20.3%	-	2,222	65%	32	(317)
10,00<100,00	553	42	5.0%	555	18.2%	6,852	22.6%	-	703	127%	23	(47)
100,00 (Default)	3,672	0	5.2%	3,670	100.0%	33,927	13.7%	-	742	20%	504	(896)

PD Scale as of 12-31-2018[1]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF[2]	EAD post CRM and post-CCF	Average PD[3]	Number of obligors	Average LGD[4]	Average Maturity (days)[5]	RWAs	RWA Density	EL	Value adjustments and provisions
Retail - Other exposures SMEs	**3,278**	**847**	**60.3%**	**3,739**	**13.9%**	**139,251**	**55.8%**	**-**	**1,749**	**47%**	**297**	**(281)**
0,00<0,15	216	197	58.8%	332	0.1%	19,022	56.1%	-	42	13%	0	(0)
0,15<0,25	109	53	60.0%	141	0.2%	5,655	56.3%	-	27	19%	0	(0)
0,25<0,50	199	89	59.3%	251	0.3%	9,555	56.9%	-	63	25%	0	(0)
0,50<0,75	314	117	59.7%	381	0.5%	14,004	55.6%	-	127	33%	1	(1)
0,75<2,50	786	208	61.4%	902	1.2%	29,690	55.5%	-	448	50%	6	(5)
2,50<10,00	1,031	146	63.7%	1,101	4.6%	40,603	55.9%	-	740	67%	28	(32)
10,00<100,00	216	27	56.9%	221	19.5%	8,709	51.2%	-	207	93%	22	(20)
100,00 (Default)	408	10	47.3%	410	100.0%	12,013	58.1%	-	96	23%	238	(221)
Retail - Other exposures Non-SMEs	**10,331**	**109**	**68.6%**	**10,396**	**6.0%**	**903,167**	**54.2%**	**-**	**3,592**	**35%**	**303**	**(464)**
0,00<0,15	4,563	5	38.2%	4,565	0.1%	349,518	53.6%	-	415	9%	1	(2)
0,15<0,25	513	7	22.0%	514	0.2%	55,419	58.4%	-	126	24%	1	(1)
0,25<0,50	895	20	23.2%	899	0.3%	89,485	58.5%	-	313	35%	2	(2)
0,50<0,75	841	25	26.0%	845	0.5%	69,823	56.2%	-	380	45%	3	(3)
0,75<2,50	1,204	8	33.9%	1,206	1.2%	120,717	55.4%	-	751	62%	8	(9)
2,50<10,00	1,678	41	129.1%	1,729	4.5%	156,298	52.6%	-	1,394	81%	41	(89)
10,00<100,00	149	2	23.6%	149	21.8%	15,943	52.8%	-	182	123%	17	(15)
100,00 (Default)	489	0	-	489	100.0%	45,964	47.1%	-	32	6%	230	(344)
Retail - qualifying revolving (QRRE)	**6,525**	**15,642**	**20.2%**	**9,682**	**6.7%**	**9,357,909**	**73.3%**	**-**	**6,938**	**72%**	**537**	**(584)**
0,00<0,15	1,037	4,630	27.1%	2,292	0.0%	3,013,548	47.7%	-	32	1%	0	(1)
0,15<0,25	15	36	31.2%	26	0.2%	48,987	51.2%	-	2	6%	0	(0)
0,25<0,50	109	143	28.2%	149	0.3%	191,447	50.6%	-	12	8%	0	(0)
0,50<0,75	399	1,449	13.3%	591	0.5%	458,301	77.3%	-	108	18%	2	(5)
0,75<2,50	1,323	4,355	14.7%	1,965	1.2%	1,406,515	81.2%	-	719	37%	19	(32)
2,50<10,00	2,450	4,507	18.9%	3,303	5.3%	3,074,464	82.9%	-	3,561	108%	146	(173)
10,00<100,00	994	522	31.4%	1,157	21.3%	1,013,206	83.0%	-	2,495	216%	205	(215)
100,00 (Default)	199	0	19.9%	199	100.0%	151,441	82.6%	-	10	5%	164	(159)
Equity(7)	**3,201**	**-**	**0.0%**	**3,201**	**1.1%**	**-**	**88.8%**	**-**	**5,989**	**187%**	**30**	**-**
0,00<0,15	1,966	-	-	1,966	0.1%	-	89.8%	-	2,354	120%	2	-
0,15<0,25	118	-	-	118	0.2%	-	65.0%	-	124	105%	0	-
0,25<0,50	0	-	-	0	0.3%	-	65.0%	-	0	124%	0	-
0,50<0,75	-	-	-	-	0.0%	-	0.0%	-	-	-	-	-
0,75<2,50	508	-	-	508	0.9%	-	90.0%	-	1,287	253%	4	-
2,50<10,00	608	-	-	608	4.4%	-	89.3%	-	2,222	366%	24	-
10,00<100,00	-	-	-	-	0.0%	-	0.0%	-	-	0%	0	-
100,00 (Default)	-	-	-	-	0.0%	-	0.0%	-	-	0%	-	-
Total Standardized Approach	**205,256**	**86,788**	**42.4%**	**224,822**	**4.7%**	**11,528,017**	**36.0%**		**83,154**	**37%**	**3,241**	**(4,898)**

(1) PD Intervals recommended by the EBA Guidelines on Disclosure Requirements under Part Eight of the CRR

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

(3) Corresponds to obligor grade PD weighted by EAD post CRM

(4) Corresponds to obligor grade LGD weighted by EAD post CRM

(5) Corresponds to the obligor maturity in days weighted by EAD post CRM. According to Regulation (EU) No 680/2014, it is reported only for categories in which the average maturities are relevant for the calculation of RWAs.

(6) Exposure classified in the FIRB approach corresponds to specialized lending. The Group has chosen to use the slotting criteria, in line with Article 153.5 of the CRR.

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

Chart 7. Advanced Measurement Approach: EAD by obligor category

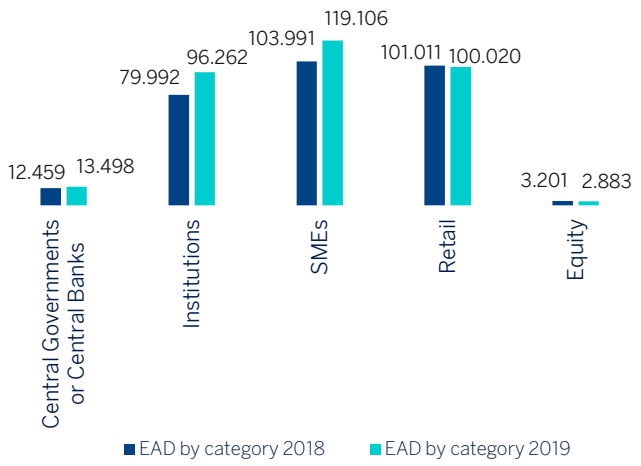


Chart 8. Advanced Measurement Approach: Weighted average PD by EAD

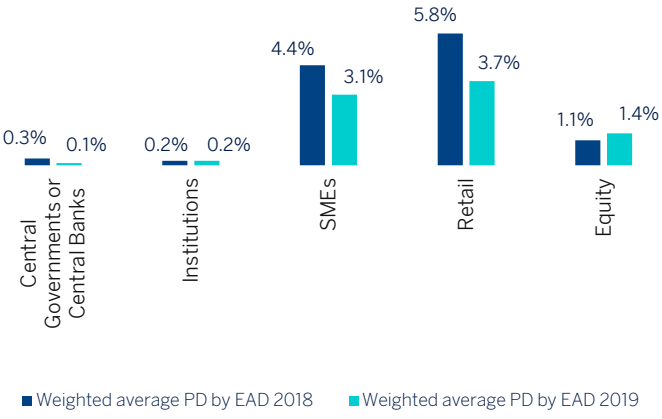


Chart 9. Advanced Measurement Approach: Weighted average LGD by EAD

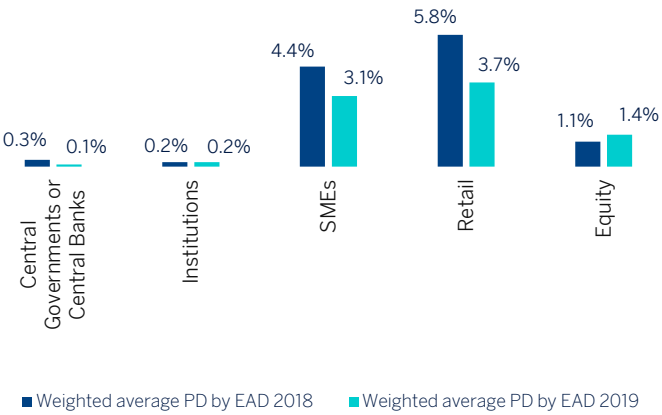
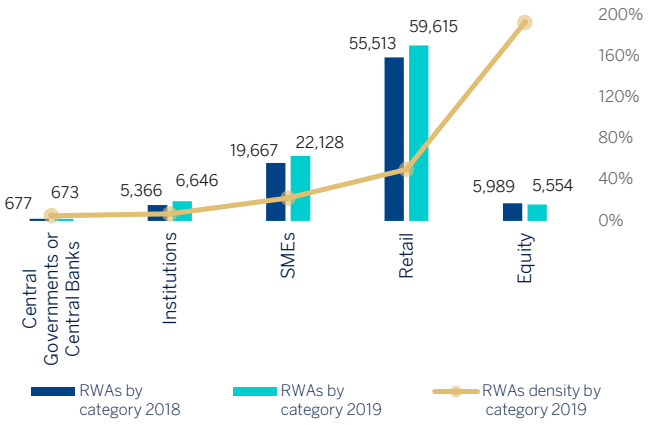


Chart 10. Advanced Measurement Approach: RWAs by obligor category



To provide backtesting data to validate the reliability of PD calculations, the table compares the PD used in IRB capital calculations with the effective default rates for the Group's obligors (credit and counterparty credit risk) is included below.

The information is broken down by geographies using internal models. The criteria adopted to comply with the EBA uniform template are as follows:

- Portfolio: The portfolio breakdown corresponds to that recommended by the supervisor, excluding equity positions.
- PD Range: These are those included in the Group's internal master scale of ratings found in 3.2.5.1.2 (Table 28).
- External rating equivalence: Equivalence between PDs and external ratings described in 3.2.5.1.2 has been used.
- Weighted average PD and arithmetic average PD by obligor: The PD after mitigation was used, i.e., the one associated with guarantors.
- Number of obligors: Obligors are presented at end of the financial year and at end of previous financial year.
- Defaulted obligors: In order to ensure the traceability of the table, columns "g" and "h" in the standard table have been unified to show information on operations/clients who defaulted at some point during the last 12 months, so that defaulted obligors over the year is broken down by PD range.
- Average historical annual default rate: It corresponds to the average annual default rate for the last five years.

Table 31. EU CR9 - IRB approach - Backtesting of PD per exposure class (BBVA S.A. 12-31-2019)

PD Range	External rating equivalent	Weighted average PD [1]	Arithmetic average PD by obligors	Number of Obligors 31-12-2019	Number of Obligors 31-12-2018	Defaulted obligors in the year	Average historical annual default rate
Central governments or central banks							
0.00<0.02	AAA	0.01%	0.01%	5	3	-	-
0.02<0.03	AA+	0.03%	0.03%	1	2	-	-
0.03<0.04	AA	0.03%	0.03%	3	-	-	-
0.04<0.05	AA-	0.04%	0.04%	3	1	-	-
0.05<0.06	A+	0.05%	0.05%	8	6	-	-
0.06<0.09	A	0.08%	0.08%	1	1	-	-
0.09<0.11	A-	0.10%	0.10%	2	2	-	-
0.11<0.17	BBB+	0.14%	0.14%	5	5	-	-
0.17<0.24	BBB	0.21%	0.21%	4	3	-	-
0.29<0.39	BBB-	0.29%	0.31%	4	4	-	-
0.39<0.67	BB+	0.58%	0.58%	1	1	-	-
0.67<1.16	BB	0.89%	0.88%	4	3	-	-
1.16<1.94	BB-	1.48%	1.41%	3	5	-	67%
1.94<3.35	B+	2.06%	2.38%	3	3	-	14%
3.35<5.81	B	4.46%	4.56%	2	7	-	-
5.81<11.61	B-	9.28%	8.06%	8	4	1	20%
11.61<100.00	C	18.09%	15.40%	5	3	-	-
100.00 (default)	D	100.00%	100.00%	3	5	-	-
Institutions							
0.00<0.02	AAA	0.03%	0.03%	10	14	-	-
0.02<0.03	AA+	0.03%	0.03%	9	16	-	-
0.03<0.04	AA	0.03%	0.03%	31	38	-	-
0.04<0.05	AA-	0.04%	0.04%	146	129	-	-
0.05<0.06	A+	0.05%	0.05%	324	352	-	-
0.06<0.09	A	0.08%	0.08%	162	293	1	-
0.09<0.11	A-	0.10%	0.10%	486	594	8	0%
0.11<0.17	BBB+	0.14%	0.14%	1,158	1,224	10	0%
0.17<0.24	BBB	0.20%	0.20%	536	683	7	0%
0.29<0.39	BBB-	0.31%	0.31%	325	358	-	0%
0.39<0.67	BB+	0.51%	0.51%	188	220	3	1%
0.67<1.16	BB	0.88%	0.89%	89	98	-	2%
1.16<1.94	BB-	1.50%	1.50%	176	196	-	-
1.94<3.35	B+	2.55%	2.56%	73	84	-	1%
3.35<5.81	B	4.40%	4.41%	59	37	-	2%
5.81<11.61	B-	7.82%	7.84%	22	35	2	-
11.61<100.00	C	14.76%	19.90%	21	26	1	-
100.00 (default)	D	100.00%	100.00%	92	93	-	-
Corporate - SMEs							
0.00<0.02	AAA	0.03%	0.03%	74	85	-	-
0.02<0.03	AA+	0.03%	0.03%	20	24	-	-
0.03<0.04	AA	0.03%	0.03%	45	17	-	-
0.04<0.05	AA-	0.05%	0.04%	15	33	1	-
0.05<0.06	A+	0.05%	0.05%	21	11	-	-
0.06<0.09	A	0.06%	0.07%	52	25	-	-
0.09<0.11	A-	0.10%	0.10%	5,124	2,465	4	0%
0.11<0.17	BBB+	0.14%	0.14%	1,878	2,023	4	0%
0.17<0.24	BBB	0.20%	0.20%	1,615	1,920	4	0%
0.29<0.39	BBB-	0.31%	0.31%	2,590	2,930	9	0%
0.39<0.67	BB+	0.55%	0.55%	2,953	3,645	35	0%
0.67<1.16	BB	0.84%	0.84%	2,855	3,437	44	1%
1.16<1.94	BB-	1.53%	1.50%	2,778	3,008	79	2%
1.94<3.35	B+	2.58%	2.58%	2,690	2,992	99	3%
3.35<5.81	B	4.67%	4.56%	2,243	1,888	96	2%
5.81<11.61	B-	8.93%	9.05%	2,396	2,393	113	4%
11.61<100.00	C	18.54%	21.18%	1,512	1,050	76	11%
100.00 (default)	D	100.00%	100.00%	2,635	2,574	-	-
Corporate - Non-SMEs							
0.00<0.02	AAA	-	-	-	-	-	-
0.02<0.03	AA+	0.03%	0.03%	31	31	-	-
0.03<0.04	AA	0.03%	0.03%	37	25	-	-
0.04<0.05	AA-	0.04%	0.04%	19	23	-	-
0.05<0.06	A+	0.05%	0.05%	50	43	-	-
0.06<0.09	A	0.08%	0.08%	244	286	-	0%

PD Range	External rating equivalent	Weighted average PD (1)	Arithmetic average PD by obligors	Number of Obligors 31-12-2019	Number of Obligors 31-12-2018	Defaulted obligors in the year	Average historical annual default rate
0.09<0.11	A-	0.10%	0.10%	1,563	857	3	0%
0.11<0.17	BBB+	0.14%	0.14%	1,034	1,218	5	0%
0.17<0.24	BBB	0.21%	0.22%	1,063	1,214	2	0%
0.29<0.39	BBB-	0.31%	0.32%	1,444	1,636	6	0%
0.39<0.67	BB+	0.51%	0.52%	900	954	6	1%
0.67<1.16	BB	0.91%	0.95%	570	712	8	1%
1.16<1.94	BB-	1.50%	1.56%	389	473	12	2%
1.94<3.35	B+	2.67%	2.73%	412	501	15	4%
3.35<5.81	B	4.41%	4.34%	432	208	12	4%
5.81<11.61	B-	8.82%	8.86%	201	138	6	3%
11.61<100.00	C	13.69%	18.30%	154	56	7	16%
100.00 (default)	D	100.00%	100.00%	391	374	-	-
Retail - Mortgage exposures							
0.00<0.02	AAA	0.03%	0.03%	447,207	424,862	119	0%
0.02<0.03	AA+	0.03%	0.03%	77,011	85,594	72	0%
0.03<0.04	AA	0.03%	0.03%	82,575	15,557	15	0%
0.04<0.05	AA-	0.05%	0.05%	33,040	134,256	126	0%
0.05<0.06	A+	0.05%	0.05%	31,973	11,754	4	0%
0.06<0.09	A	0.07%	0.07%	70,598	83,183	124	0%
0.09<0.11	A-	0.10%	0.10%	53,643	32,424	60	0%
0.11<0.17	BBB+	0.15%	0.15%	42,190	59,594	155	0%
0.17<0.24	BBB	0.20%	0.20%	25,223	40,742	133	0%
0.29<0.39	BBB-	0.32%	0.32%	42,025	39,778	152	0%
0.39<0.67	BB+	0.54%	0.54%	26,409	27,410	159	1%
0.67<1.16	BB	0.78%	0.77%	39,287	25,358	239	1%
1.16<1.94	BB-	1.76%	1.76%	15,909	20,598	362	1%
1.94<3.35	B+	2.68%	2.67%	10,203	15,015	577	5%
3.35<5.81	B	3.92%	3.92%	9,971	9,750	784	9%
5.81<11.61	B-	7.55%	7.55%	8,660	14,798	1,745	14%
11.61<100.00	C	18.89%	18.74%	11,614	6,852	1,268	24%
100.00 (default)	D	100.00%	100.00%	27,310	33,927	-	-
Retail - Other exposures SMEs							
0.00<0.02	AAA	-	-	-	-	-	-
0.02<0.03	AA+	-	-	-	-	-	-
0.03<0.04	AA	-	-	-	-	-	-
0.04<0.05	AA-	-	-	-	-	-	-
0.05<0.06	A+	-	-	-	-	-	-
0.06<0.09	A	-	-	-	-	-	-
0.09<0.11	A-	0.10%	0.10%	16,439	12,121	6	0%
0.11<0.17	BBB+	0.13%	0.13%	7,383	7,017	-	0%
0.17<0.24	BBB	0.20%	0.20%	7,203	5,708	6	0%
0.29<0.39	BBB-	0.31%	0.31%	11,120	9,379	34	0%
0.39<0.67	BB+	0.52%	0.52%	15,151	13,901	54	0%
0.67<1.16	BB	0.89%	0.89%	17,239	14,516	116	1%
1.16<1.94	BB-	1.58%	1.58%	16,554	15,168	181	1%
1.94<3.35	B+	2.54%	2.54%	17,426	15,041	274	2%
3.35<5.81	B	4.42%	4.40%	15,527	13,639	419	3%
5.81<11.61	B-	7.62%	7.59%	9,388	11,875	613	5%
11.61<100.00	C	21.53%	22.04%	8,315	8,742	1,068	9%
100.00 (default)	D	100.00%	100.00%	13,980	11,259	-	-
Retail - Other exposures Non-SMEs							
0.00<0.02	AAA	0.00%	0.00%	3	127,422	3	0%
0.02<0.03	AA+	0.03%	0.03%	102,001	13,725	12	0%
0.03<0.04	AA	0.03%	0.03%	39,448	30,967	24	0%
0.04<0.05	AA-	0.04%	0.04%	72,835	938	5	0%
0.05<0.06	A+	0.06%	0.06%	43,631	16,432	17	0%
0.06<0.09	A	0.06%	0.07%	30,849	58,448	106	0%
0.09<0.11	A-	0.10%	0.10%	7,355	23,608	61	0%

PD Range	External rating equivalent	Weighted average PD [1]	Arithmetic average PD by obligors	Number of Obligors 31-12-2019	Number of Obligors 31-12-2018	Defaulted obligors in the year	Average historical annual default rate
0.11<0.17	BBB+	0.13%	0.12%	89,860	77,990	255	0%
0.17<0.24	BBB	0.20%	0.20%	65,735	55,305	402	0%
0.29<0.39	BBB-	0.30%	0.29%	81,542	86,456	697	1%
0.39<0.67	BB+	0.50%	0.51%	107,899	65,409	792	1%
0.67<1.16	BB	0.90%	0.89%	68,209	62,770	1,133	1%
1.16<1.94	BB-	1.45%	1.46%	66,829	54,836	1,416	2%
1.94<3.35	B+	2.54%	2.57%	74,921	57,172	1,741	2%
3.35<5.81	B	4.24%	4.25%	78,771	65,823	2,796	4%
5.81<11.61	B-	7.94%	7.83%	17,481	25,615	1,789	7%
11.61<100.00	C	21.31%	22.39%	20,639	15,842	4,654	26%
100.00 (default)	D	100.00%	100.00%	55,640	45,874	-	-
Retail - qualifying revolving (QRRE)							
0.00<0.02	AAA	0.03%	0.03%	753,482	2,247,434	644	0%
0.02<0.03	AA+	0.03%	0.03%	1,401,597	192,205	210	0%
0.03<0.04	AA	0.04%	0.04%	210,330	76,175	115	0%
0.04<0.05	AA-	0.04%	0.04%	110,402	94,398	135	0%
0.05<0.06	A+	0.06%	0.06%	3,972	58,936	135	0%
0.06<0.09	A	0.08%	0.08%	65,007	122,460	360	0%
0.09<0.11	A-	0.10%	0.10%	123,283	69,750	149	0%
0.11<0.17	BBB+	0.14%	0.14%	114,142	152,190	708	0%
0.17<0.24	BBB	0.20%	0.20%	37,963	48,987	163	0%
0.29<0.39	BBB-	0.29%	0.30%	140,687	191,447	1,240	1%
0.39<0.67	BB+	0.49%	0.51%	130,456	130,075	1,315	1%
0.67<1.16	BB	0.87%	0.89%	129,461	155,087	2,349	1%
1.16<1.94	BB-	1.52%	1.52%	100,825	69,194	1,396	2%
1.94<3.35	B+	2.62%	2.67%	78,872	120,340	4,597	3%
3.35<5.81	B	4.51%	4.52%	66,995	63,878	2,575	4%
5.81<11.61	B-	8.17%	7.57%	32,127	46,252	2,930	6%
11.61<100.00	C	15.59%	15.89%	27,493	30,412	4,344	12%
100.00 (default)	D	100.00%	100.00%	66,970	52,908	-	-
Corporate - Specialized lending				**627**	**607**		

[1] A floor of 0.03% PD is applied to exposures in the categories of Institutions, Corporates and Retail, according to Articles 160 and 163 of the CRR.

EU CR9 - Método IRB: approach - Backtesting of PD per exposure class (BBVA S.A. 12-31-2019)

PD Range	External rating equivalent	Weighted average PD [1]	Arithmetic average PD by obligors	Number of Obligors 31-12-2019	Number of Obligors 31-12-2018	Defaulted obligors in the year	Average historical annual default rate
Corporate - SMEs							
0.00 a <0.02	AAA	0.00%	0.00%	-	-	-	-
0.02 a <0.03	AA+	0.00%	0.00%	-	-	-	-
0.03 a <0.04	AA	0.00%	0.00%	-	-	-	-
0.04 a <0.05	AA-	0.00%	0.00%	-	-	-	-
0.05 a <0.06	A+	0.00%	0.00%	-	-	-	-
0.06 a <0.09	A	0.00%	0.00%	-	-	-	-
0.09 a <0.11	A-	0.09%	0.09%	-	-	-	-
0.11 a <0.17	BBB+	0.11%	0.11%	-	1	-	-
0.17 a <0.24	BBB	0.21%	0.21%	19	35	-	-
0.29 a <0.39	BBB-	0.33%	0.31%	374	675	-	-
0.39 a <0.67	BB+	0.51%	0.49%	902	1,448	-	-
0.67 a <1.16	BB	0.89%	0.93%	211	591	-	-
1.16 a <1.94	BB-	1.41%	1.20%	155	391	-	-
1.94 a <3.35	B+	2.57%	2.16%	110	302	-	-
3.35 a <5.81	B	4.02%	3.65%	55	192	-	-
5.81 a <10.61	B-	8.91%	5.82%	50	481	-	-
10.61 a <100.00	C	17.92%	11.79%	21	136	-	-
100.00 (default)	D	100.00%	100.00%	149	880	-	-
Corporate - Non-SMEs							
0.00 a <0.02	AAA	0.00%	0.00%	-	-	-	-
0.02 a <0.03	AA+	0.00%	0.00%	-	-	-	-
0.03 a <0.04	AA	0.00%	0.00%	-	-	-	-
0.04 a <0.05	AA-	0.00%	0.00%	-	-	-	-
0.05 a <0.06	A+	0.00%	0.00%	-	6	-	-
0.06 a <0.09	A	0.08%	0.08%	5	29	-	-
0.09 a <0.11	A-	0.10%	0.10%	27	16	-	-

PD Range	External rating equivalent	Weighted average PD [1]	Arithmetic average PD by obligors	Number of Obligors 31-12-2019	Number of Obligors 31-12-2018	Defaulted obligors in the year	Average historical annual default rate
0.11 a <0.17	BBB+	0.13%	0.13%	28	84	-	-
0.17 a <0.24	BBB	0.20%	0.20%	100	209	-	-
0.29 a <0.39	BBB-	0.33%	0.31%	562	3,374	8	1%
0.39 a <0.67	BB+	0.49%	0.50%	899	4,683	14	1%
0.67 a <1.16	BB	1.08%	0.95%	305	1,784	28	3%
1.16 a <1.94	BB-	1.43%	1.21%	511	1,808	36	3%
1.94 a <3.35	B+	2.48%	2.28%	154	1,100	33	3%
3.35 a <5.81	B	4.22%	4.01%	177	431	41	6%
5.81 a <10.61	B-	7.74%	5.81%	763	7,356	47	3%
10.61 a <100.00	C	15.45%	12.96%	26	135	5	8%
100.00 (default)	D	100.00%	100.00%	254	143	39	46%
Retail - qualifying revolving (QRRE)							
0.00 a <0.02	AAA	0.00%	0.00%	-	-	-	-
0.02 a <0.03	AA+	0.00%	0.00%	-	-	-	-
0.03 a <0.04	AA	0.00%	0.00%	-	-	-	-
0.04 a <0.05	AA-	0.00%	0.00%	-	-	-	-
0.05 a <0.06	A+	0.00%	0.00%	-	-	-	-
0.06 a <0.09	A	0.00%	0.00%	-	-	-	-
0.09 a <0.11	A-	0.00%	0.00%	-	-	-	-
0.11 a <0.17	BBB+	0.00%	0.00%	1	-	-	-
0.17 a <0.24	BBB	0.21%	0.18%	13	-	-	-
0.29 a <0.39	BBB-	0.36%	0.30%	40	-	-	0%
0.39 a <0.67	BB+	0.53%	0.49%	354,493	328,226	787	0%
0.67 a <1.16	BB	0.92%	0.88%	720,615	684,538	2,273	0%
1.16 a <1.94	BB-	1.54%	1.35%	544,057	497,696	4,048	1%
1.94 a <3.35	B+	2.49%	2.37%	671,605	635,913	7,982	1%
3.35 a <5.81	B	4.26%	3.36%	755,064	800,168	13,969	2%
5.81 a <10.61	B-	7.64%	5.82%	1,123,885	1,407,913	25,535	75%
10.61 a <100.00	C	21.00%	24.59%	934,398	982,794	43,225	4%
100.00 (default)	D	100.00%	100.00%	75,343	98,533	11,122	57%

[1] A floor of 0.03% PD is applied to exposures in the categories of Institutions, Corporates and Retail, according to Articles 160 and 163 of the CRR.

The following table presents the flow statements of credit and counterparty credit risk RWA under internal model (IRB) during 2019:

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

	Credit Risk		Counterparty Credit Risk		Total	
	RWA amounts	Capital Requirements	RWA amounts	Capital Requirements	RWA amount	Capital requirements
RWAs as of December 31, 2018	**77,166**	**6,173**	**4,056**	**325**	**81,222**	**6,498**
Asset size	5,279	421	(721)	(58)	4,558	364
Asset quality	1,459	116	540	44	1,999	161
Model updates	-	-	-	-	-	-
Methodology and policy	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-
Foreign exchange movements	735	59	547	43	1,282	102
Other	-	-	-	-	-	-
RWAs as of December 31, 2019	**84,638**	**6,769**	**4,422**	**355**	**89,061**	**7,124**

The previous table shows the most relevant changes recorded during 2019 in credit risk models according to the IRB method:

- The size of the asset reflects the variations in RWAs due to increases in exposure that have mainly occurred in the regulatory categories of Corporates and Institutions and to a lesser extent in the exposures secured by real estate.
- Asset quality reflects changes in RWAs due to changes in those elements that affect the determination of IRB model parameters, which have increased RWAs by €1,999 million.
- Finally, the exchange rate isolates the effect that currency variations have on RWAs. In 2019, they have been affected mainly by the appreciation of the US dollar and the Mexican peso.

3.2.5.3. Comparative analysis of the estimates made

The following charts compare the expected loss calculated according to the Group's internal estimates of parameters for the main portfolios approved by the European Central Bank,

with the effective loss incurred between 2001 and the most recent date available. The average effective loss between the years, is also outlined below:

- **Observed loss**: Effective loss calculated as the default rate ratio[6] observed, multiplied by the estimated point in time loss given default (LGD)[7].
- **Average**: Average effective loss, which is the average observed losses for each year.
- **Expected loss**: calculated as the average annual default rate for a high number of years multiplied by the average annual loss given default, also recalculated over a wide range of years.

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

The comparison has been made for the portfolios of Mortgages, Consumer Finance, Credit Cards, Autos (retailers), and SMEs and Developers, all of them in Spain and Portugal. In Mexico, Credit Card and SMEs have been compared for the period from 2007 to the most recent date available. Regarding the categories of Institutions (Public and Financial Institutions) and Corporates, historical experience shows that there is such a small number of defaulted exposure (Low Default Portfolios) that it is not statistically significant, and hence the reason the comparison is not shown.

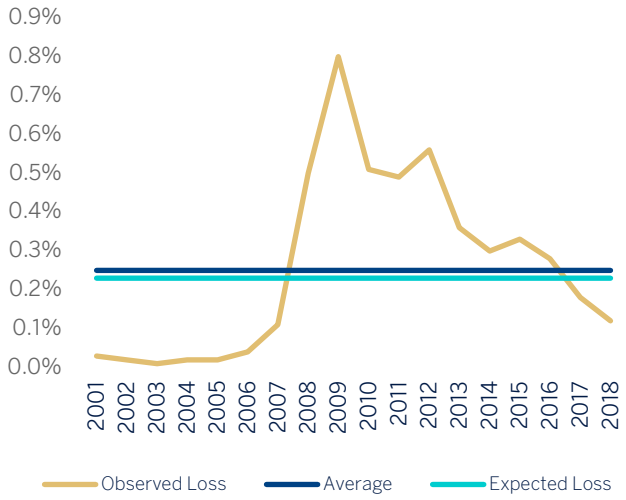
The charts show that during the years of biggest economic growth, in general the effective loss was significantly lower than the expected loss adjusted to the cycle calculated using internal models.

From the beginning of the crisis, the opposite is happening. This is in line with the major economic slowdown and the financial difficulties experienced by households and companies, above all in the case of small businesses in development and construction.

Retail Mortgages:

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

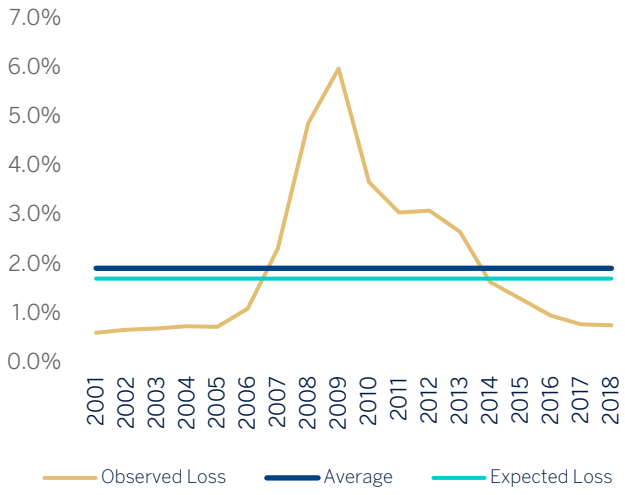
Chart 11. Comparative analysis of expected loss: retail mortgages



Consumer Finance:

The chart shows that during the years of biggest economic growth the effective loss was lower than the expected loss. The contrary was the case starting in 2007. This is in line with the major economic slowdown and the financial difficulties experienced by households.

Chart 12. Comparative analysis of expected loss: consumer finance

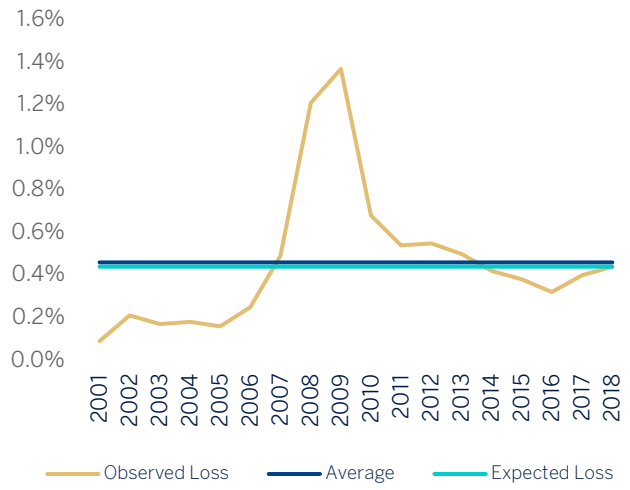


6 PD PiT Basel
7 The methodology (LGD pit) makes it possible to better approximate the observed losses. For the most recent years, since recovery processes have not yet been completed, the best estimate of final loss given default (LGD) is included.

Credit Cards:

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

Chart 13. Comparative analysis of expected loss: Credit Cards



Automobiles:

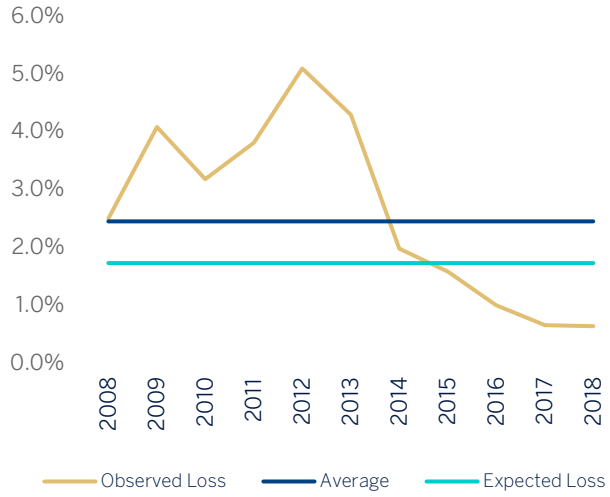
In the case of the Autos portfolio, the Expected Loss calculated using the average parameters remains similar to the average of the actual losses since 2001.

Chart 14. Comparative analysis of expected loss: Automobiles

SMEs and Developers:

Due to a methodological change in LGD estimation, only the average loss from 2008 to the most recent date available is shown for the SME and Developer portfolios. It can be seen that since the beginning, the observed losses are much higher than the expected losses in the cycle, using average parameters. This is because the major difficulties suffered by companies in the years of crisis, particularly those in the Construction and Development businesses. The chart also shows that the Expected Loss using average parameters is below the average observed losses. The reason is the use of an observation window which is unrepresentative of a complete economic cycle (the estimate would include comparatively more years of crisis than of economic growth).

Chart 15. Comparative analysis of expected loss: SMEs and Real Estate



Mexico Credit Cards:

In the case of BBVA Mexico's card portfolio, we can see how the Expected Loss is in line with the average losses observed even though the information since 2007 may not include a complete economic cycle.

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

Mexico Corporates:

Similarly to the Credit Card portfolio, Mexico's SME portfolio shows expected loss levels similar to the average observed loss despite the fact that information since 2007 may not include a full economic cycle.

Chart 17: Comparative analysis of expected loss: Mexico corporates

3.2.5.4. Risk weights of specialized lending exposure

The solvency regulation stipulates that the classification of specialized lending companies should apply to legal entities with the following characteristics:

- The exposure is to an entity created specifically to finance and/or operate physical assets.
- The contractual arrangements give the lender a substantial degree of control over the assets and income they generate.
- The primary source of repayment of the obligation is the income generated by the assets being financed, rather than the independent capacity of the borrower.

The following table shows the exposure assigned to each of the risk weightings of the specialized lending exposure (including counterparty credit risk) as of December 31, 2019 and December 31, 2018:

Table 33. EU CR10 (1) - IRB: specialized lending (Million Euros. 12-31-2019)

		Specialized lending					
Regulatory categories	Remaining Maturity	On-balance sheet amount[1]	Off-balance sheet amount[2]	RW	Exposure Amount[3]	RWAs	Expected Losses
Category 1	Less than 2.5 years	289	63	50%	333	166	-
Category 1	Equal to or more than 2.5 years	3,054	960	70%	3,833	2,683	15
Category 2	Less than 2.5 years	217	55	70%	253	177	1
Category 2	Equal to or more than 2.5 years	1,576	444	90%	1,923	1,731	15
Category 3	Less than 2.5 years	161	4	115%	163	187	5
Category 3	Equal to or more than 2.5 years	212	70	115%	276	318	8
Category 4	Less than 2.5 years	4	-	250%	4	10	0
Category 4	Equal to or more than 2.5 years	19	34	250%	53	133	4
Category 5	Less than 2.5 years	103	4		105	-	53
Category 5	Equal to or more than 2.5 years	40	1		41	-	21
Total	**Less than 2.5 years**	**774**	**126**		**859**	**542**	**58**
Total	**Equal to or more than 2.5 years**	**4,901**	**1,508**		**6,127**	**4,865**	**63**

(1) Corresponds to the exposure net of value adjustments and provisions

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

(3) Corresponde con el valor de la exposición tras CRM y CCF.

EU CR10 (1)- IRB: specialized lending (Million Euros. 12-31-2018)

		Specialized lending					
Regulatory categories	Remaining Maturity	On-balance sheet amount[1]	Off-balance sheet amount[2]	RW	Exposure Amount[3]	RWAs	Expected Losses
Category 1	Less than 2.5 years	-	-	50%	-	-	-
Category 1	Equal to or more than 2.5 years	2,994	709	70%	3,664	2,565	15
Category 2	Less than 2.5 years	315	52	70%	351	246	1
Category 2	Equal to or more than 2.5 years	1,791	434	90%	2,128	1,915	17
Category 3	Less than 2.5 years	243	15	115%	251	288	7
Category 3	Equal to or more than 2.5 years	681	175	115%	851	979	24
Category 4	Less than 2.5 years	12	1	250%	14	34	1
Category 4	Equal to or more than 2.5 years	83	39	250%	122	304	10
Category 5	Less than 2.5 years	110	6		113	-	57
Category 5	Equal to or more than 2.5 years	39	8		44	-	22
Total	**Less than 2.5 years**	**680**	**74**		**728**	**568**	**66**
Total	**Equal to or more than 2.5 years**	**5,588**	**1,364**		**6,808**	**5,763**	**87**

(1) Corresponds to the exposure net of value adjustments and provisions

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

(3) Corresponds to exposure value after CRM and CCF

3.2.5.5. Equity exposure by method

The following table shows equity exposure by the following approaches: internal, PD/LGD and simple (in this case, broken down by risk weights), as of December 31, 2019 and December 31, 2018.

Table 34. EU CR10 (2) - IRB: equity (Million Euros. 12-31-2019)

	Equity under the IRB approach					
Categories	On-balance sheet amount[1]	Off-balance sheet amount[2]	RW	Exposure Amount[3]	RWAs	Capital Requirements
Simple method - Private Equity Exposures	563	-	190%	563	1,070	86
Simple method - Exchange-traded equity exposures	290	-	290%	290	841	67
Simple method - Other Equity Exposures	108	-	370%	108	399	32
Exposures subject to 250% risk weight	3,142	-	250%	3,142	7,854	628
Internal model	138	-		138	449	36
PD/LGD method	2,883	-		2,883	5,554	444
Total	**7,124**	**-**		**7,124**	**16,167**	**1,293**

[1] Corresponds to the exposure net of value adjustments and provisions

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

[3] Corresponds to exposure value after CRM and CCF

EU CR10 (2) - IRB: equity (Million Euros. 12-31-2018)

	Equity under the IRB approach					
Categories	On-balance sheet amount[1]	Off-balance sheet amount[2]	RW	Exposure Amount[3]	RWAs	Capital Requirements
Simple method - Private Equity Exposures	343	-	190%	343	651	52
Simple method - Exchange-traded equity exposures	309	-	290%	309	897	72
Simple method - Other Equity Exposures	61	-	370%	61	224	18
Exposures subject to 250% risk weight	2,525	-	250%	2,525	6,314	505
Internal model	383	-		383	1,172	94
PD/LGD method	3,201	-		3,201	5,989	479
Total	**6,822**	**-**		**6,822**	**15,246**	**1,220**

[1] Corresponds to the exposure net of value adjustments and provisions

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

[3] Corresponds to exposure value after CRM and CCF

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

3.2.6. Information on counterparty credit risk

Counterparty credit risk exposure involves that part of the original exposure corresponding to derivative instruments, repurchase and reverse repurchase transactions, securities or commodities lending transactions and deferred settlement transactions.

3.2.6.1. Policies for managing counterparty risk

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

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

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

Exposure is obtained based on the 500 different scenarios generated using the Monte Carlo method for risk factors (subject to counterparty risk) and applying the corresponding mitigating factors to each counterparty (i.e. applying collateral and/or compensation arrangements, or netting, as applicable).

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

The capital for each counterparty is then calculated using the exposure profile and taking into account the analytical formula adopted by Basel. This figure is modified by an

adjustment factor for possible subsequent maturity after one year of the operations, in a similar vein to the general approach adopted by Basel for the treatment of credit risk.

Counterparty limits are specified within the financial programs authorized for each subsidiary within the line item of treasury limits. It stipulates both the limit and the maximum maturity for the transaction.

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

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

The consumption of transactions within the limits is measured in terms of market capitalization (mark to market) plus the potential risk with Monte Carlo Simulation methodology (95% confidence level or above if there are mitigating agreements or a risk of adverse links) and considering possible mitigating factors (such as netting, break clauses and collateral contracts).

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

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

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

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

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

The MENTOR tool has been specifically designed to store and process the collateral contracts concluded with counterparties. This application enables the existence of collateral to be taken into account at the transaction level (useful for controlling and monitoring the status of specific operations) as well as at the counterparty level. Furthermore, this tool feeds the applications responsible for estimating counterparty risk by providing all the necessary parameters for considering the impact of mitigation in the portfolio due to the agreements signed.

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

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

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

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

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

In the current market context, derivatives are arranged under a variety of framework contracts, with the most general being those developed by the International Swaps and Derivatives Association (ISDA), and for the Spanish market the Framework Agreement for Financial Transactions (FAFT). Practically all portfolio derivative operations have been concluded under these master contracts, including in them the netting clauses referred

to in the above point as Master Netting Agreements, considerably reducing the credit exposure in these instruments. Furthermore, in the contracts concluded with professional counterparties, annexes are included with collateral agreements called Credit Support Annexes (CSA), thus minimizing exposure to a possible counterparty insolvency.

At the same time, the Group has a high volume of assets sold under repurchase agreements traded through clearing houses that use mechanisms to reduce counterparty risk, as well as through various master contracts in bilateral operations, the most common being the Global Master Repurchase Agreement (GMRA), which is published by the International Capital Market Association (ICMA). This tends to have clauses added relating to the exchange of collateral within the main body of the master contract itself.

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

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

The Group has specific policies for handling these type of exposures, which establish:

- How to identify transactions subject to adverse correlation risk.
- A specific transaction-by-transaction admission procedure.
- Measurements appropriate to the risk profile with adverse correlation and sanctioned in the corresponding decision-making areas.
- Control and monitoring of the transaction.

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

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

The general criteria applied to date with banking counterparties is to establish a zero threshold within collateral contracts, irrespective of the mutual rating; provision will be made as collateral of any difference that arises through market capitalization (mark to market).

Since 2018, with the entry into force of the regulatory obligations for exchange of margins for derivatives that are not offset in the clearing houses, all the collateral annexes have been adapted to the characteristics required by the regulation, among which is that of establishing a zero threshold. Furthermore, the obligation to exchange initial margins with the main financial counterparties to overcollateralize exposure was added in 2019.

3.2.6.2. Amounts of counterparty risk

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

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

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

Table 35. Positions subject to counterparty credit risk in terms of OE, EAD and RWAs (Million Euros. 12-31-2019)

	Securities financing transactions			Derivatives and transactions with deferred settlement			Total		
Exposure Class and risk types	**OE**	**EAD**	**RWAs**	**OE**	**EAD**	**RWAs**	**OE**	**EAD**	**RWAs**
Central governments or central banks	7,521	1,904	42	74	305	13	7,595	2,209	55
Regional governments or local authorities	-	-	-	74	3	1	74	3	1
Public sector entities	-	-	-	167	138	76	167	138	76
Multilateral Development Banks	-	-	-	-	-	-	-	-	-
Institutions	10,192	488	235	2,140	1,543	406	12,332	2,031	641
Corporates	1,773	257	255	1,184	1,157	1,173	2,957	1,414	1,428
Retail	465	-	-	58	57	41	523	57	41
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-
Exposures in default	-	-	-	1	1	1	1	1	1
Exposures associated with particularly high risk	-	-	-	32	32	48	32	32	48
Covered bonds	-	-	-	-	-	-	-	-	-
Short-term claims on institutions and corporate	-	-	-	-	-	-	-	-	-
Collective investments undertakings	10	0	0	1	1	1	12	2	2
Other exposures	-	4,136	-	-	-	-	-	4,136	-
Total counterparty risk by standardized approach	**19,961**	**6,785**	**533**	**3,733**	**3,237**	**1,761**	**23,693**	**10,022**	**2,294**
Central governments or central banks	1,558	1,558	3	41	41	6	1,599	1,599	9
Institutions	62,497	62,497	879	19,022	18,576	1,524	81,520	81,073	2,402
Corporates	116	116	0	3,806	3,806	2,010	3,922	3,922	2,010
Of which: SMEs	-	-	-	139	139	123	139	139	123
Of which: specialized lending	-	-	-	964	964	800	964	964	800
Of which: other	116	116	0	2,704	2,704	1,086	2,820	2,820	1,087
Retail	-	-	-	4	4	1	4	4	1
Of which: Secured by immovable property	-	-	-	-	-	-	-	-	-
Of which: Qualifying revolving	-	-	-	-	-	-	-	-	-
Of which: Other retail	-	-	-	4	4	1	4	4	1
Other retail: SMEs	-	-	-	-	-	-	-	-	-
Other retail: Non SMEs	-	-	-	4	4	1	4	4	1
Total counterparty risk by IRB approach	**64,171**	**64,171**	**882**	**22,874**	**22,428**	**3,540**	**87,045**	**86,599**	**4,423**
Total credit risk	**84,132**	**70,956**	**1,415**	**26,606**	**25,665**	**5,301**	**110,738**	**96,621**	**6,716**

Positions subject to counterparty credit risk in terms of EO, EAD and RWAs (Million Euros. 12-31-2018)

	Securities financing transactions			Derivatives and transactions with deferred settlement			Total		
Exposure Class and risk types	OE	EAD	RWAs	OE	EAD	RWAs	OE	EAD	RWAs
Central governments or central banks	7,616	746	299	231	276	14	7,846	1,022	313
Regional governments or local authorities	-	-	-	5	5	1	5	5	1
Public sector entities	-	-	-	1	1	0	1	1	0
Multilateral Development Banks	-	-	-	-	-	-	-	-	-
Institutions	4,364	834	178	3,371	2,370	1,034	7,735	3,205	1,212
Corporates	1,237	208	208	1,262	1,236	1,228	2,498	1,444	1,435
Retail	0	0	0	23	23	15	23	23	15
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-
Exposures in default	-	-	-	21	21	31	21	21	31
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-
Covered bonds	-	-	-	-	-	-	-	-	-
Short-term claims on institutions and corporate	-	-	-	-	-	-	-	-	-
Collective investments undertakings	7	0	0	0	0	0	7	0	0
Other exposures	-	8,517	-	-	1,026	-	-	9,543	-
Total counterparty risk by standardized approach	**13,224**	**10,306**	**685**	**4,912**	**4,959**	**2,323**	**18,136**	**15,265**	**3,008**
Central governments or central banks	4,814	4,814	217	18	18	9	4,831	4,831	226
Institutions	50,179	50,179	425	17,511	17,331	1,365	67,690	67,510	1,790
Corporates	17	17	0	3,466	3,466	2,037	3,483	3,483	2,037
Of which: SMEs	-	-	-	114	114	96	114	114	96
Of which: specialized lending	-	-	-	1,036	1,036	909	1,036	1,036	909
Of which: other	17	17	0	2,316	2,316	1,032	2,333	2,333	1,032
Retail	-	-	-	7	7	3	7	7	3
Of which: Secured by immovable property	-	-	-	-	-	-	-	-	-
Of which: Qualifying revolving	-	-	-	-	-	-	-	-	-
Of which: Other retail	-	-	-	7	7	3	7	7	3
Other retail: SMEs	-	-	-	7	7	3	7	7	3
Other retail: Non SMEs	-	-	-	0	0	0	0	0	0
Total counterparty risk by IRB approach	**55,010**	**55,010**	**643**	**21,002**	**20,822**	**3,414**	**76,012**	**75,832**	**4,056**
Total credit risk	**68,234**	**65,316**	**1,327**	**25,914**	**25,780**	**5,737**	**94,148**	**91,096**	**7,065**

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

Table 36. Amounts of counterparty risk in the trading book (Million Euros)

	Capital requirements			
	2019		2018	
Counterparty Risk Trading Book Activities	Mtm Method	Internal Models (IMM)	Mtm Method	Internal Models (IMM)
Standardized Approach	169		193	
Advanced Approach	357		323	
Total	**526**		**516**	

The Group currently has a totally residual amount of bank capital requirements for the settlement risk of trading book exposures.

The following table shows the amounts (in millions of euros) relating to the counterparty risk of derivatives and securities financing transactions as of December 31, 2019 and December 31, 2018:

Table 37. CCR5-A - Impact of netting and collateral held on exposure values[1] (Million Euros. 12-31-2019)

	Gross positive fair value or net carrying amount	Netting benefits	Netted current credit exposure	Collateral held[4]	Net credit exposure
Derivatives[2]	36,583	(23,265)	13,319	(6,440)	6,879
SFTs[3]	35,629	-	35,629	(32,394)	3,236
Cross-product netting					
Total	**72,213**	**(23,265)**	**48,948**	**(38,833)**	**10,115**

[1] With regard SFTs, it includes both financial guarantees included in the carrying amount and collaterals not included in the carrying amount as per accounting standards, but do reduce credit risk. Collaterals of derivatives correspond only to those eligible as credit risk mitigation techniques for capital purposes.

[2] Positive mark-to-market of derivatives is included

[3] Only the amount of reverse repurchase agreements is included.

[4] The collateral held amount includes volatility adjustments outlined in Title II, Chapter 4, Section 4 of the CRR

CCR5-A - Impact of netting and collateral held on exposure values[1] (Million Euros. 12-31-2018)

	Gross positive fair value or net carrying amount	Netting benefits	Netted current credit exposure	Collateral held [4]	Net credit exposure
Derivatives(2)	35,349	(23,940)	11,409	(6,085)	5,324
SFTs(3)	27,758	-	27,758	(25,359)	2,399
Cross-product netting					
Total	**63,107**	**(23,940)**	**39,167**	**(31,444)**	**7,723**

[1] With regard SFTs, it includes both financial guarantees included in the carrying amount and collaterals not included in the carrying amount as per accounting standards, but do reduce credit risk. Collaterals of derivatives correspond only to those eligible as credit risk mitigation techniques for capital purposes.

[2] Positive mark-to-market of derivatives is included

[3] Only the amount of reverse repurchase agreements is included.

[4] The collateral held amount includes volatility adjustments outlined in Title II, Chapter 4, Section 4 of the CRR

Below is an overview of the methods used to calculate the regulatory requirements for counterparty credit risk and the main parameters of each method (excluding requirements for CVA and exposure cleared through a CCP, which are shown in tables CCR2 and CCR8, respectively).

Table 38. EU CCR1 - Analysis of CCR exposure by approach (Million Euros)

	12-31-2019				12-31-2019			
	Replacement Cost / Current market value	Potential future credit exposure	EAD post- CRM	RWAs	Replacement Cost / Current market value	Potential future credit exposure	EAD post- CRM	RWAs
Mark to market	13,174	10,153	20,157	5,119	11,082	11,020	20,278	5,569
Internal Model Method (for derivatives and SFTs)	-	-	-	-	-	-	-	-
Simple Approach for credit risk mitigation (for SFTs)	-	-	-	-	-	-	-	-
Comprehensive Approach for credit risk mitigation (for SFTs)	-	-	70,367	1,186	-	-	61,331	1,180
VaR for SFTs	-	-	-	-	-	-	-	-
Total	**13,174**	**10,153**	**90,524**	**6,305**	**11,082**	**11,020**	**81,609**	**6,749**

3.2.6.2.1. Counterparty credit risk by standardized approach

The following table shows a breakdown of exposure to counterparty credit risk (following credit risk mitigation and CCF techniques) calculated using the standardized approach, by exposure category and risk weights:

Table 39. EU CCR3 - Standardized approach - CCR exposures by regulatory portfolio and risk (Million Euros. 12-31-2019)

	Risk weight												
Exposure Class	**0%**	**2%**	**4%**	**10%**	**20%**	**50%**	**70%**	**75%**	**100%**	**150%**	**Others**	**Total**	**Of which: unrated[1]**
Central governments or central banks	2,066	-	-	-	62	76	-	-	5	-	-	2,209	1,660
Regional government or local authorities	-	-	-	-	3	1	-	-	-	-	-	3	3
Public sector entities	-	-	-	-	3	120	-	-	16	-	-	138	105
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-
International organizations	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	471	15	-	789	566	-	-	190	-	-	2,031	1,639
Corporates	-	-	-	-	2	5	-	-	1,369	37	-	1,414	1,353
Retail	-	-	-	-	-	-	-	57	-	-	-	57	57
Institutions and corporates with a short term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-
Other items	4,136	-	-	-	-	-	-	-	2	33	-	4,170	3,853
Total	**6,202**	**471**	**15**	**-**	**858**	**768**	**-**	**57**	**1,582**	**70**	**-**	**10,022**	**8,668**

[1] Of which: Unrated refers to exposure for which no credit rating from designated ECAIs is available.

EU CCR3 - Standardized approach - CCR exposures by regulatory portfolio and risk (Million Euros. 12-31-2018)

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

[1] Of which: Unrated refers to exposure for which no credit rating from designated ECAIs is available.

3.2.6.2.2. Counterparty risk by advanced approach

The following table presents the relevant parameters used to calculate the capital requirements for counterparty credit risk in the IRB models as of December 31, 2019 and December 31, 2018:

Table 40. EU CCR4 - IRB approach - CCR exposures by portfolio and PD scale (Million Euros. 12-31-2019)

PD scale as of 12-31-2019[1]	EAD post-CRM	Average PD[2]	Number of Obligors	Average LGD[3]	Average Maturity (days)[4]	RWAs	RWA Density
Prudential Portfolio- FIRB method(5)	964	-	275	-		800	83%
Corporate - Specialized lending	964	-	275	-	-	800	83%
Prudential Portfolio- AIRB method	85,635	0.2%	3,368	11.7%		3,622	4%
Central governments or central banks	1,599	0.1%	5	2.1%	8	9	1%
0,00 to <0,15	1,586	0.0%	4	1.8%	2	4	0%
0,15 to <0,25	13	0.2%	1	40.0%	782	5	38%
0,25 to <0,50	-	0.0%	-	0.0%	-	-	0%
0,50 to <0,75	-	0.0%	-	0.0%	-	-	0%
0,75 to <2,50	-	0.0%	-	0.0%	-	-	0%
2,50 to <10,00	-	0.0%	-	0.0%	-	-	0%
10,00 to <100,00	-	0.0%	-	0.0%	-	-	0%
100,00 (Default)	-	0.0%	-	0.0%	-	-	0%
Institutions	81,073	0.1%	1,062	10.8%	115	2,402	3%
0,00 to <0,15	62,300	0.1%	771	13.4%	144	1,984	3%
0,15 to <0,25	7,927	0.2%	71	2.5%	8	132	2%
0,25 to <0,50	7,164	0.3%	44	1.8%	31	124	2%
0,50 to <0,75	1,590	0.5%	21	4.1%	49	75	5%
0,75 to <2,50	1,854	1.3%	136	2.0%	9	66	4%
2,50 to <10,00	238	3.6%	15	3.2%	50	20	9%
10,00 to <100,00	0	36.3%	4	44.7%	1,726	1	296%
100,00 (Default)	-	0.0%	-	0.0%	-	-	0%
Corporate - SMEs	139	32.8%	787	49.9%	462	123	89%
0,00 to <0,15	4	0.1%	228	40.4%	470	1	14%
0,15 to <0,25	1	0.2%	50	41.0%	876	0	38%
0,25 to <0,50	5	0.3%	81	41.1%	777	2	44%
0,50 to <0,75	24	0.5%	79	40.5%	508	16	65%
0,75 to <2,50	32	1.2%	159	40.1%	722	27	84%
2,50 to <10,00	26	4.0%	128	39.5%	595	29	113%
10,00 to <100,00	4	20.5%	22	38.2%	314	9	235%
100,00 (Default)	43	100.0%	40	71.8%	134	40	92%
Corporate - Non-SMEs	2,820	0.5%	847	39.7%	686	1,087	39%
0,00 to <0,15	1,684	0.1%	283	37.8%	661	429	26%
0,15 to <0,25	284	0.2%	117	41.9%	661	107	38%
0,25 to <0,50	588	0.3%	209	43.8%	710	308	52%
0,50 to <0,75	93	0.5%	88	43.2%	631	64	69%
0,75 to <2,50	119	1.1%	74	36.7%	836	93	78%
2,50 to <10,00	48	5.1%	57	42.8%	1,144	77	159%
10,00 to <100,00	4	15.0%	11	43.6%	894	8	215%
100,00 (Default)	0	100.0%	8	41.4%	1,301	0	14%
Retail - Other SMEs	4	23.0%	656	40.0%	-	1	27%
0,00 to <0,15	0	0.1%	110	40.1%	-	0	10%
0,15 to <0,25	0	0.2%	30	40.0%	-	0	13%
0,25 to <0,50	1	0.3%	99	40.0%	-	0	16%
0,50 to <0,75	0	0.5%	57	40.0%	-	0	21%
0,75 to <2,50	1	1.1%	129	40.0%	-	0	33%
2,50 to <10,00	1	5.2%	164	40.0%	-	0	45%
10,00 to <100,00	0	17.0%	36	40.1%	-	0	61%
100,00 (Default)	1	100.0%	31	40.0%	-	0	14%
Retail - Other Non-SMEs	0	0.1%	11	40.0%	-	0	7%
0,00 to <0,15	0	0.1%	11	40.0%	-	0	7%
0,15 to <0,25	-	-	-	-	-	-	-
0,25 to <0,50	-	-	-	-	-	-	-
0,50 to <0,75	-	-	-	-	-	-	-
0,75 to <2,50	-	-	-	-	-	-	-
2,50 to <10,00	-	-	-	-	-	-	-
10,00 to <100,00	-	-	-	-	-	-	-
100,00 (Default)	-	-	-	-	-	-	-
Total Advanced Approach	86,599	0.2%	3,643	11.7%		4,423	5%

[1] PD Intervals recommended by the EBA Guidelines on Disclosure Requirements under Part Eight of the CRR.

[2] Corresponds to obligor grade PD weighted by EAD post CRM.

[3] Corresponds to obligor grade LGD weighted by EAD post CRM.

[4] Corresponds to the obligor maturity in days weighted by EAD post CRM. According to Regulation (EU) No 680/2014, it is reported only for categories in which the average maturities are relevant for the calculation of RWAs.

[5] Exposure classified in the FIRB approach corresponds to specialized lending exposure. The Group has chosen to use the slotting criteria, in line with Article 153.5 of the CRR.

EU CCR4 - IRB approach - CCR exposures by portfolio and PD scale (Million Euros. 12-31-2018)

PD scale as of 12-31-2019[1]	EAD post-CRM	Average PD[2]	Number of Obligors	Average LGD[3]	Average Maturity (days)[4]	RWAs	RWA Density
PrudentialB71:I128	1,036	-	307	-		909	88%
Corporate - Specialized lending	1,036	-	307	-	-	909	88%
Prudential Portfolio- AIRB method	74,796	0.2%	4,749	10.4%		3,147	4%
Central governments or central banks	4,831	0.2%	4	3.8%	23	226	5%
0,00 to <0,15	4,643	0.1%	1	2.3%	6	14	0%
0,15 to <0,25	17	0.2%	1	40.0%	1,147	8	46%
0,25 to <0,50	-	-	-	-	-	-	-
0,50 to <0,75	-	-	-	-	-	-	-
0,75 to <2,50	-	-	-	-	-	-	-
2,50 a <10,00	172	4.4%	2	40.0%	365	204	119%
10,00 to <100,00	-	-	-	-	-	-	-
100,00 (Default)	-	-	-	-	-	-	-
Institutions	67,510	0.2%	1,129	9.8%	212	1,790	3%
0,00 to <0,15	54,373	0.1%	815	11.5%	238	1,422	3%
0,15 to <0,25	4,514	0.2%	78	2.8%	167	86	2%
0,25 to <0,50	4,786	0.3%	54	2.0%	47	85	2%
0,50 to <0,75	1,175	0.5%	23	5.3%	97	74	6%
0,75 to <2,50	2,199	1.3%	137	2.4%	131	90	4%
2,50 a <10,00	460	2.7%	18	3.1%	36	33	7%
10,00 to <100,00	2	21.2%	4	20.0%	539	1	42%
100,00 (Default)	-	-	-	-	-	-	-
Corporate - SMEs	114	15.7%	1,545	41.2%	1,157	96	84%
0,00 to <0,15	9	0.1%	221	40.1%	552	2	19%
0,15 to <0,25	5	0.2%	114	42.4%	436	1	27%
0,25 to <0,50	4	0.3%	146	40.6%	553	1	35%
0,50 to <0,75	5	0.5%	225	40.5%	880	3	54%
0,75 to <2,50	39	1.3%	399	41.4%	1,518	41	104%
2,50 a <10,00	36	4.5%	329	41.2%	1,252	43	120%
10,00 to <100,00	0	18.6%	32	40.3%	1,551	0	168%
100,00 (Default)	16	100.0%	79	41.3%	855	5	31%
Corporate - Non-SMEs	2,333	0.3%	898	40.2%	899	1,032	44%
0,00 to <0,15	1,290	0.1%	269	38.8%	764	343	27%
0,15 to <0,25	228	0.2%	141	41.0%	744	87	38%
0,25 to <0,50	331	0.3%	202	43.9%	1,417	237	72%
0,50 to <0,75	407	0.5%	97	40.8%	1,004	284	70%
0,75 to <2,50	47	1.1%	124	43.0%	1,023	45	97%
2,50 a <10,00	30	2.9%	49	43.9%	550	35	116%
10,00 to <100,00	0	11.9%	2	42.7%	1,290	0	208%
100,00 (Default)	1	100.0%	14	44.0%	1,282	0	14%
Retail - Other SMEs	7	33.3%	1,135	40.4%	-	3	39%
0,00 to <0,15	0	0.1%	116	40.0%	-	-	9%
0,15 to <0,25	0	0.2%	55	40.0%	-	-	13%
0,25 to <0,50	0	0.3%	57	40.0%	-	-	18%
0,50 to <0,75	0	0.5%	139	40.0%	-	-	24%
0,75 to <2,50	0	1.2%	232	40.0%	-	-	35%
2,50 a <10,00	2	5.9%	345	40.0%	-	1	47%
10,00 to <100,00	2	20.6%	104	40.0%	-	1	66%
100,00 (Default)	2	100.0%	87	41.6%	-	-	14%
Retail - Other Non-SMEs	0	4.5%	38	40.0%	-	-	56%
0,00 to <0,15	0	0.1%	18	40.0%	-	-	7%
0,15 to <0,25	-	-	-	-	-	-	-
0,25 to <0,50	-	-	-	-	-	-	-
0,50 to <0,75	-	-	-	-	-	-	-
0,75 to <2,50	0	0.9%	11	40.0%	-	-	50%
2,50 a <10,00	0	5.2%	9	40.0%	-	-	63%
10,00 to <100,00	-	-	-	-	-	-	-
100,00 (Default)	-	-	-	-	-	-	-
Total Advanced Approach	75,832	0.2%	5,056	10.4%		4,056	5%

[1] PD Intervals recommended by the EBA Guidelines on Disclosure Requirements under Part Eight of the CRR.

[2] Corresponds to obligor grade PD weighted by EAD post CRM.

[3] Corresponds to obligor grade LGD weighted by EAD post CRM.

[4] Corresponds to the obligor maturity in days weighted by EAD post CRM. According to Regulation (EU) No 680/2014, it is reported only for categories in which the average maturities are relevant for the calculation of RWAs

[5] Exposure classified in the FIRB approach corresponds to specialized lending exposure. The Group has chosen to use the slotting criteria, in line with Article 153.5 of the CRR.

3.2.6.2.3. Composition of collateral for counterparty risk exposure

A table with a breakdown of collaterals contributed or received by the Group to strengthen or reduce exposure to counterparty credit risk related to derivatives transactions and securities financing transactions as of December 31, 2019 and December 31, 2018 is presented below:

Table 41. EU CCR5-B - Composition of collateral for exposure to Counterparty Credit Risk[1] (Million Euros. 12-31-2019)

	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair Value of Collateral received		Fair Value of posted Collateral		Fair Value of Collateral received	Fair Value of posted Collateral
	Segregated[2]	Unsegregated[3]	Segregated[2]	Unsegregated[3]		
Cash- domestic currency	-	2,549	6	-	29,306	29,259
Cash- other currencies	-	1,113	6	1	16,601	6,371
Domestic sovereign debt	-	-	-	-	5,163	19,708
Other sovereign debt	-	5	-	-	7,947	14,411
Government agency debt	-	2	-	-	162	215
Corporate bonds	-	960	-	-	5,029	7,833
Equity securities	-	-	-	-	-	3,526
Other collateral	-	1,811	-	-	14,093	29
Total	**-**	**6,440**	**12**	**1**		

[1] Credit risk mitigation techniques are considered eligible according to Title II, Chapter 4, Section 2 of the CRR

[2] Refers to collateral that is held in a bankruptcy-remote manner

[3] Refers to collateral that is not held in a bankruptcy-remote manner

EU CCR5-B - Composition of collateral for exposure to Counterparty Credit Risk[1] (Million Euros. 12-31-2018)

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

[1] Credit risk mitigation techniques are considered eligible according to Title II, Chapter 4, Section 2 of the CRR

[2] Refers to collateral that is held in a bankruptcy-remote manner

[3] Refers to collateral that is not held in a bankruptcy-remote manner

3.2.6.2.4. Credit Derivative transactions

The table below shows the amounts of credit derivative transactions, broken down into purchased and sold derivatives:

Table 42. EU CCR6 - Credit derivatives exposures (Million Euros. 12-31-2019)

	Credit derivative hedges		Other credit derivatives
	Protection Bought	Protection Sold	
Notionals	**12,431**	**16,646**	**-**
Single-name credit default swaps	5,718	6,934	-
Index credit default swaps	6,713	7,338	-
Total return swaps	-	2,225	-
Credit options	-	150	-
Other credit derivatives	-	-	-
Fair Values	**(218)**	**174**	**-**
Positive fair value (asset)	36	316	-
Negative fair value (liability)	(255)	(143)	-

EU CCR6 - Credit derivatives exposures (Million Euros. 12-31-2018)

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

As of year-end 2019 and 2018, the Group did not use credit derivative as collateral in brokerage activities.

3.2.6.3. CVA charge requirements

The CVA surcharge in Capital refers to the additional capital requirements to cover unexpected losses due to credit valuation adjustments, for which there are two approaches:

- Standardized Approach (Art. 384 CRR): application of a standard regulatory formula. The formula applied is an analytical approximation to the calculation of the CVA VaR by supposing that the counterparty spreads depend on a single systematic risk factor and on its own idiosyncratic factor, both variables distributed by independent normal distributions, assuming a 99% confidence level.
- Advanced Approach (Art 383 CRR): based on the market risk VaR methodology, which requires a calculation of the "CVA VaR", assuming the same confidence level (99%) and time horizon (10 days), as well as a stressed scenario. As of December 31, 2019 and December 31, 2018, the Group has no surcharge for CVA calculated under the advanced approach.

Procedures for calculating the valuation adjustments and reserves

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

The credit valuation adjustments in millions of euros as of December 31, 2019 and December 31, 2018 are shown below:

Table 43. EU CCR2 - CVA Capital Charge (Million Euros. 12-31-2019)

	Exposure value	RWA
Total portfolios subject to the advanced method	-	-
(i) VaR component (included 3x multiplier)	-	-
(ii) SVaR component (included 3x multiplier)	-	-
All portfolios subject to the standardized method	7,283	1,529
Total subject to the CVA capital charge	**7,283**	**1,529**

EU CCR2 - CVA Capital Charge (Million Euros. 12-31-2018)

	Exposure value	RWA
Total portfolios subject to the advanced method	-	-
(i) VaR component (included 3x multiplier)	-	-
(ii) SVaR component (included 3x multiplier)	-	-
All portfolios subject to the standardized method	7,445	1,377
Total subject to the CVA capital charge	**7,445**	**1,377**

The flow statements of CVA RWAs during 2019 are below:

Table 44. Flow statements CVA RWAs (Million Euros)

CVA		
RWAs as of December 31, 2018		**1,377**
Effects	Asset size	152
RWAs as of December 31, 2019		**1,529**

As of December 31, 2019, the CVA risk-weighted assets remain at a similar level to those of December 2018.

3.2.6.4. Exposure to central counterparty clearing houses

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

Table 45. EU CCR8 - Exposures to CCPs (Million Euros)

	12-31-2019		12-31-2018	
	EAD post CRM	RWA	EAD post CRM	RWA
Exposures to QCCPs (total)		**198**		**191**
Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	5,823	139	6,219	146
(i) OTC Derivatives	4,939	121	5,022	123
(ii) Exchange-traded derivatives	520	10	443	9
(iii) Securities financing transactions (SFTs)	364	7	754	15
(iv) Netting sets where cross-product netting has been approved	-	-	-	-
Segregated initial margin	1,239		959	
Non-segregated initial margin	340	16	169	3
Pre-funded default fund contributions	111	44	71	41
Alternative calculation of own funds requirements for exposures		-		-
Exposures to non-QCCPs (total)		**690**		**174**
Exposures for trades at non-QCCPs (excluding initial margin and default to contributions); of which	273	273	484	169
(i) OTC Derivatives	42	42	30	30
(ii) Exchange-traded derivatives	6	9	7	7
(iii) Securities financing transactions (SFTs)	225	222	448	132
(iv) Netting sets where cross-product netting has been approved	-	-	-	-
Segregated initial margin	-		108	
Non-segregated initial margin	496	417	100	4
Pre-funded default fund contributions	1	0	0	0
Unfunded default fund contributions	-	-	-	-

3.2.7. Information on securitization

3.2.7.1. General characteristics of securitization

3.2.7.1.1. Purposes of securitization

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

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

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

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

Main risk exposed in securitization operations.

1. Default risk

Default risk is the risk that the debtor does not pay the assumed contractual obligations by the due date and in the correct manner (for example, potential non-payment of installments).

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

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

In order to monitor these indicators, monthly, and in some cases, daily information is available. It includes flows of additions, recoveries, irregular investments and non-performing loans. The information is obtained through different applications and reports prepared in the Risk area.

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

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

2. Early repayment risk

This derives from the potential total or partial prepayment by the debtor of the amounts corresponding to the (fully or partially) securitized loans, which could imply that the maturity of the securitization bonds calculated at the time of the issue is shorter than the maturity of the loans transferred to the Fund.

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

In the specific case of the Group's securitizations, this risk is very limited, as the maturity date of the securitization Bonds is set according to the maturity of the last loan of the securitized portfolio.

3. Liquidity risk

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

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

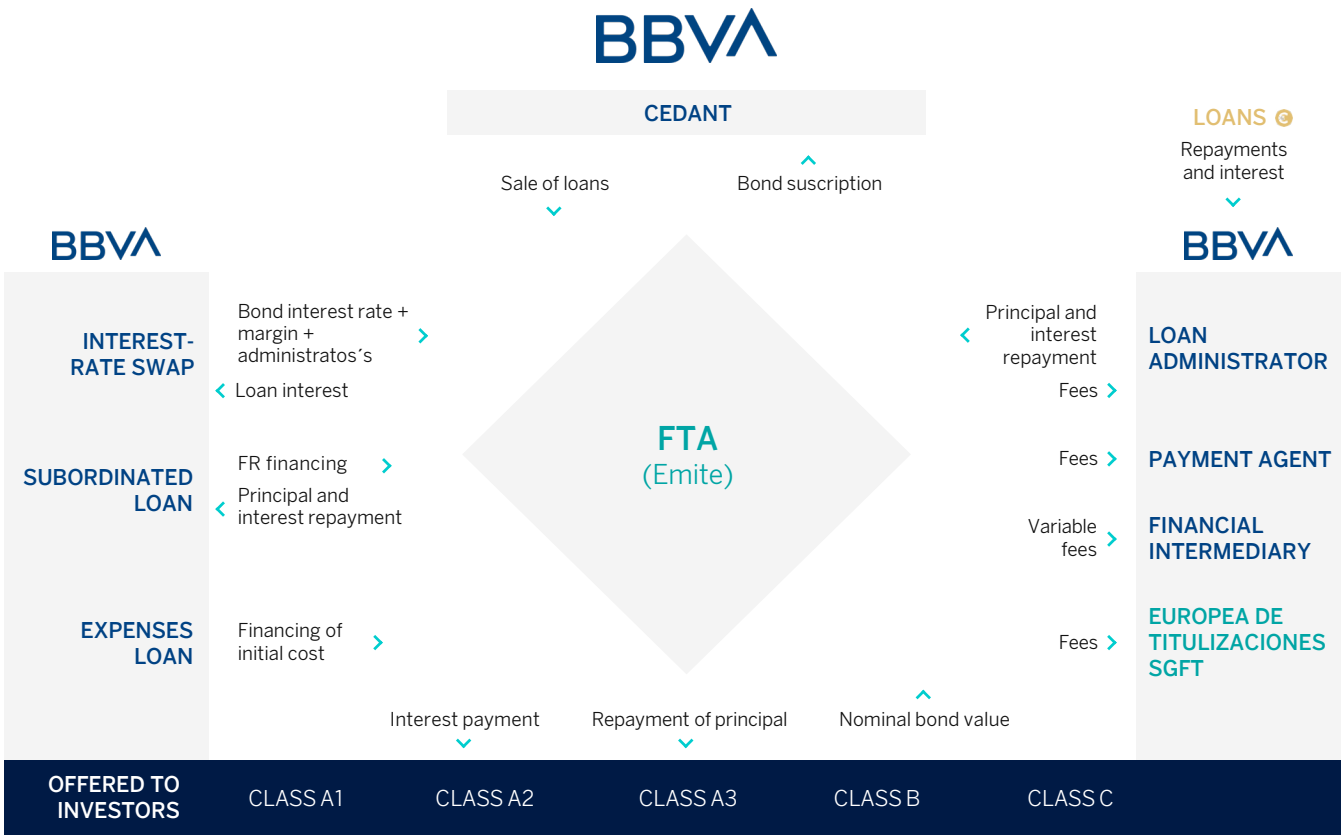
In addition, understanding liquidity risk as the possible time mismatch between the maturities of the collections generated by the loans and the payments the Bonds originate, BBVA has not so far made any securitization

issues in which there is a divergence between collections and payments. The entities that have programs for debt security issues, in which this risk is typically present, mitigate it with the use of liquidity lines that are included in the structure of the Fund.

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

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

Chart 18. Functions performed in the securitization process and Group's level of involvement



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

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

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

The Group's balance sheet maintains the first-loss tranches of all securitization that has been carried out.

It is worth noting that the Group has maintained a consistent line on generating securitization operations since the credit crunch, which began in July 2007.

In addition, the Group has performed various Synthetic Securitization operations to date, introducing this new operation as an additional source of regulatory capital release.

3.2.7.1.3. Methods used for the calculation of risk-weighted exposure in securitization transactions.

When securitization positions meet the criteria for significant and effective risk transfer as defined by Articles 244 and 245 of Regulation 2017/2401, the Group calculates the capital requirements of these securitizations by applying the following methods, which apply to both originated securitizations and investment positions in securitization funds originated by third parties:

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

As indicated in the Regulatory Framework section, for originated securitizations since January 1, 2019, the new securitization framework methods should be used, as defined in EU Regulation 2017/2401, which will replace the methods described above. The methods for the new framework are as follows:

- IRBA method (Article 259): When according to the securitization features, all information on the underlying loans of the securitized portfolio is accesible, and at least for 95% of the loans the risk weights are calculated under IRB approach.
- SA method (Article 261): When information is available on the underlying loans of the securitized portfolio, but the threshold of 95% of the loans under the IRB approach is not reached.
- ERBA method (Article 263): When information on the underlying securitization loans is not accesible, and it is necessary to use external rating data.

During the year, the Group has invested in securitization positions originated in 2019, whose capital requirements are calculated by the ERBA method.

3.2.7.1.4. Transfer of risk in securitization activities and criteria for recognition of gains on sales

The Group considers that the risks and benefits of the securitizations are substantially retained if the subordinated bonds are held and/or if subordination funding has been granted to those securitization funds, which means that the credit loss risk of the securitized assets will be assumed. Consequently, the Group is not derecognizing those transferred loan portfolios.

In addition, the Group recognizes the gains on sales of securitized assets when they are derecognized from the balance sheet, which implies to comply with the substantial transfer of risks and benefits requirements described above.

The result will be recognized in the income statement and calculated as the difference between the carrying amount and the sum of the amount received, including any new asset received minus liabilities assumed.

When the amount of the transferred financial asset matches the total amount of the original financial asset, the new financial assets, financial liabilities and service-delivery liabilities, which, if any, arise as a result of the transfer, shall be recorded at fair value.

For more information on securities accounting see Note 2.2.2 of the Group's Consolidated Financial Statements.

3.2.7.2. Securitization exposure in the banking and trading book

The Group has carried out two traditional securitizations without risk transfer during 2019. The first in July, of a portfolio of consumer loans (Consumer 10 FT) amounting to 2.0 billion euros and the second in November, also amounting to 2.0 billion euros (RMBS 19 FT), based on a residential mortgage portfolio. Since there is no risk transfer, these two operations are not included in the securitization framework defined by the CRR, with the calculation of their risk-weighted assets based on the underlying loans.

In addition, in October, the VELA SME 2017-1 Synthetic Securitization, consisting of loans to SMEs, was early canceled by executing the –Time Call[8]– clause provided for in the contract.

8 Time call: Early termination clause of an issue through which a date is fixed, normally linked to the average life of the transaction, from which the option of amortizing such issue may be exercized in advance.

The table below shows the amounts in terms of EAD of securitization positions for the banking:

Table 46. SEC1: Securitization exposures in the banking book (Million Euros. 12-31-2019)

	Bank acts as originator			Bank acts as sponsor			Bank acts as investor		
	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal
Retail (total)- of which	**788**	**-**	**788**	**-**	**-**	**-**	**474**	**-**	**474**
Residential mortgage	-	-	-	-	-	-	474	-	474
Credit card	-	-	-	-	-	-	-	-	-
Other retail exposures	788	-	788	-	-	-	-	-	-
Re-Securitization	-	-	-	-	-	-	-	-	-
Wholesale (total)- of which	**65**	**1,447**	**1,511**	**-**	**-**	**-**	**75**	**-**	**75**
Loans to corporates	23	1,447	1,470	-	-	-	44	-	44
Commercial mortgage	-	-	-	-	-	-	1	-	1
Lease and receivables	42	-	42	-	-	-	-	-	-
Other wholesale	-	-	-	-	-	-	30	-	30
Re-Securitization	-	-	-	-	-	-	-	-	-

SEC1- Securitization exposures in the banking book (Million Euros. 12-31-2018)

	Bank acts as originator			Bank acts as sponsor			Bank acts as investor		
	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal
Retail (total)- of which	**789**	**-**	**789**	**-**	**-**	**-**	**4,912**	**-**	**4,912**
Residential mortgage	-	-	-	-	-	-	4,748	-	4,748
Credit card	-	-	-	-	-	-	165	-	165
Other retail exposures	789	-	789	-	-	-	-	-	-
Re-Securitization	-	-	-	-	-	-	-	-	-
Wholesale (total)- of which	**95**	**3,917**	**4,012**	**-**	**-**	**-**	**291**	**-**	**291**
Loans to corporates	53	3,917	3,970	-	-	-	49	-	49
Commercial mortgage	-	-	-	-	-	-	1	-	1
Lease and receivables	42	-	42	-	-	-	-	-	-
Other wholesale	-	-	-	-	-	-	241	-	241
Re-Securitization	-	-	-	-	-	-	-	-	-

As of December 31, 2019 and December 31, 2018, the Group has no securitization exposures in the trading book.

3.2.7.3. Invested securitization- Group acting as investor

The table below shows the EAD and RWAs of securitization positions where the Group acts as investor by type of exposure, tranches and weighting ranges and their corresponding capital requirements as of December 31, 2019 and December 31, 2018.

Table 47. SEC4: Securitization exposures in the banking book and associated capital requirements – bank acting as investor (Million Euros. 12-31-2019)

	Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital requirement after cap			
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%
Total Exposures	395	120	5	5	25	411	-	113	25	38	-	60	1	3	-	5	-
Traditional Securitization	395	120	5	5	25	411	-	113	25	38	-	60	1	3	-	5	-
Of which Securitization	395	120	5	5	25	411	-	113	25	38	-	60	1	3	-	5	-
Of which retail underlying	388	52	5	5	25	380	-	69	25	30	-	39	1	2	-	3	-
Of which wholesale	6	68	-	-	-	31	-	44	-	8	-	21	-	1	-	2	-
Of which re-Securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic Securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which Securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which wholesale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which re-Securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SEC4- Securitization exposures in the banking book and associated capital requirements – bank acting as investor (Million Euros. 12-31-2018)

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

During 2019, exposure to securitizations credit risk has been significantly reduced as a result of the recognition of sovereign guarantees, mainly in the United States, according to the credit risk reduction framework (Chapter 4 CRR) in securitization positions (Article 247 CRR).

3.2.7.4. Originated securitization – Group acting as originator

3.2.7.4.1. Rating agencies used

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

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

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

For each issue, in addition to the initial rating, the agencies carry out regular quarterly monitoring.

3.2.7.4.2. Positions in securitization originated by the Group

The table below shows the EAD and RWAs of securitization positions originated by the Group broken down by type of exposure, tranches and weighting ranges and their corresponding capital requirements as of December 31, 2019 and December 31, 2018.

Table 48. SEC3: Securitization exposures in the banking book and associated regulatory capital requirements – bank acting as originator or as sponsor (Million Euros. 12-31-2019)

	Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital requirement after cap			
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	IRB RBA (including IAA)	IRB SFA	SA/ SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%[1]	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%
Total Exposures	2,150	33	-	1	116	785	1,398	-	116	86	98	-	634	7	-	-	51
Traditional Securitization	752	33	-	1	67	785	-	-	67	86	-	-	24	7	-	-	2
Of which Securitization	752	33	-	1	67	785	-	-	67	86	-	-	24	7	-	-	2
Of which retail underlying	752	33	-	1	3	785	-	-	3	86	-	-	-	7	-	-	-
Of which wholesale	-	-	-	-	65	-	-	-	65	-	-	-	24	-	-	-	2
Of which re-Securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic Securitization	1,398	-	-	-	49	-	1,398	-	49	-	98	-	610	-	-	-	49
Of which Securitization	1,398	-	-	-	49	-	1,398	-	49	-	-	-	610	-	-	-	49
Of which retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which wholesale	1,398	-	-	-	49	-	1,398	-	49		98		610	-	-	-	49
Of which re-Securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] As of December 31, 2019, securitization exposure with a RW of 1250% are calculated under the IRB RBA approach

SEC3- Securitization exposures in the banking book and associated regulatory capital requirements – bank acting as originator or as sponsor (Million Euros. 12-31-2018)

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

[1] As of December 31, 2019, securitization exposure with a RW of 1250% are calculated under the IRB RBA approach

3.2.7.4.3. Breakdown of securitized positions by type of asset

The table below shows the outstanding amount, non-performing exposures and impairment losses recognized in the period by underlying assets of originated securitization operations which meet the risk transfer criteria, broken down by asset type as of December 31, 2019 and December 31, 2018.

Table 49. Breakdown of securitized balances by type of asset (Million Euros. 12-31-2019)

Type of asset	Outstanding amount	Of which: Non-performing Exposures	Total impairment losses for the period
Commercial and residential mortgages	-	-	-
Credit cards	-	-	-
Financial leasing	25	2	2
Lending to corporates and SMEs	1,350	13	0
Consumer finance	736	12	12
Receivables	-	-	-
Securitization balances	-	-	-
Others	-	-	-
Total	**2,110**	**27**	**14**

Breakdown of securitized balances by type of asset (Million Euros. 12-31-2018)

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

The table below shows the outstanding balance corresponding to the underlying assets of securitization originated by the Group, which do not meet the risk transfer criteria, and which, therefore, are not included in the securitization framework, but rather for which the capital calculation of the exposure is carried out as if it had not been securitized:

Table 50. Outstanding balance corresponding to the underlying assets of the Group's originated securitizations, in which risk transfer criteria are not fulfilled (Million Euros)

	Outstanding amount	
Type of asset	2019	2018
Commercial and residential mortgages	26,058	26,277
Credit cards	-	-
Financial leasing	-	-
Lending to corporates and SMEs	25	261
Consumer finance	3,483	2,356
Receivables	-	-
Securitization balances	-	-
Mortgage-covered bonds	-	-
Others	-	-
Total	**29,567**	**28,894**

3.2.8. Hedging and risk reduction policies. Supervision strategies and processes

Maximum exposure to credit risk may be reduced by the existence of real guarantees, credit improvements and other actions that mitigate the Group's exposure. The Group applies a credit risk hedging and mitigation policy derived from its understanfing of the banking business focused on relationship banking.

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

For further details on the hedging in the Group's credit risk policy and its typology, see Note 7.1.3 of the Group's Consolidated Financial Statements.

3.2.9. Information on credit risk mitigation techniques

3.2.9.1. Hedging based on on-balance sheet and off-balance sheet netting

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

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

The mitigation of counterparty risk exposure stemming from the use of mitigation techniques (netting plus the use of collateral agreements) leads to a reduction in overall exposure (mark to market plus add-on).

As pointed out above, financial assets and liabilities may be netted in certain cases. In particular, they are presented for a net amount on the consolidated balance sheet only when the Group's entities satisfy the provisions of IAS 32-Paragraph 42, so they have both the legal right to net recognized amounts, and the intention of settling the net amount or of realizing the asset and simultaneously paying the liability.

3.2.9.2. Hedging based on collateral

3.2.9.2.1. Management and valuation policies and procedures

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

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

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

The valuation of the collateral is governed by prudential principles and thoroughness, carried out with the necessary information to determine it and maximum prudence in the use of appraisal valuation, assessments of independent experts, market price for shares, quoted share price for stakes in a mutual fund, etc.

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

With respect to the entities that carry out the valuation of the collateral, principles are in place in accordance with local regulations that govern the level of customer loyalty and dependence on the Group, along with related processes. These valuations will be updated by statistical methods, indices or appraisals of goods, consultation of internal and external sources, etc. which shall be carried out under the generally accepted standards in each market and in accordance with local regulations.

All collateral is to be properly recorded in the corresponding policies, duly kept and prepared in the formats and by the bodies established for this purpose.

3.2.9.2.2. Types of collateral

As collateral for the purpose of calculating bank capital, the Group uses the hedging established in the solvency regulations. The following are the main types of collateral available in the Group:

- *Mortgage Guarantees:* The collateral is the property upon which the loan is arranged.
- *Financial guarantees:* Their object is any one of the following financial assets, as per articles 197 and 198 of the solvency regulation.
  - Cash deposits, deposit certificates or similar instruments.
  - Debt securities issued for the different categories.
  - Shares or convertible bonds.
- *Other goods and rights used as a real collateral:* The following property and rights are considered acceptable as collateral as per Article 200 of the solvency regulation.
  - Cash deposits, deposit certificates or similar instruments held in third-party institutions other than the lending credit institution, when these are pledged in favor of the latter.
  - Life insurance policies pledged in favor of the lending credit institution.
  - Debt securities issued by other institutions, provided that these securities are to be repurchased at a pre-set price by the issuing institutions at the request of the holder of the securities.

3.2.9.3. Hedging based on personal guarantees

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

In the category of Retail exposure under the advanced measurement approach, unfunded credit protection impacts the PD and does not reduce the amount of the credit risk in EAD.

An overview of the credit risk mitigation techniques used by the Group as of December 31, 2019 is presented below:

Table 51. CR3 - CRM techniques - overview[1] (Million Euros. 12-31-2019)

	Exposures unsecured - carrying amount	Exposures secured - Carrying amount	Exposures secured by collateral [2]	Exposures secured by financial guarantees	Exposures secured by credit derivatives
Total Loans	261,510	171,932	119,608	23,885	-
Total debt securities	51,863	19,005	-	5,650	-
Total exposures	**313,374**	**190,936**	**119,608**	**29,535**	**-**
Of which: defaulted	**4,157**	**3,698**	**2,910**	**179**	**-**

[1] Excludes securitization exposures and includes reverse repurchase agreements.

[2] Loans secured by real estate and other secured loans are included, as well as those in the IRB model of credit risk that do not reduce exposure, but rather impact the APRs through the parameters of the internal models.

EU CR3 - CRM techniques - overview[1] (Million Euros. 12-31-2018)

	Exposures unsecured - carrying amount	Exposures secured - Carrying amount	Exposures secured by collateral[2]	Exposures secured by financial guarantees	Exposures secured by credit derivatives
Total Loans	230,723	190,257	114,596	24,552	-
Total debt securities	48,508	14,055	8,517	6,584	-
Total exposures	**279,231**	**204,312**	**123,113**	**31,137**	**-**
Of which: defaulted	**3,292**	**5,285**	**3,823**	**349**	**-**

[1] Excludes securitization exposures and includes reverse repurchase agreements.

[2] Loans secured by real estate and other loans with collateral are included. The December 2018 table has also been restated, including mortgage guarantees by the IRB model of credit risk that do not reduce exposure, but have an impact on the APRs through the parameters of the internal models.

3.2.9.4. Risk concentration

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

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

A quarterly measurement and monitoring process has been established for reviewing concentration risk.

The main measures to prevent risk concentration in BBVA are:

- At both the Group level and the subsidiaries belonging to the banking group, the information of customers (groups) that hold the largest exposures (greater than 10% of fully loaded CET1; in the subsidiaries their level of own funds are used) is available. If a customer presents a concentration that exceeds the thresholds, the reasonableness of maintaining this exposure must be justified, or the measures to reduce the exposure be explained (for example, cancellation of risk) in writing every year.
- As an additional support to management, the portfolio concentration is calculated using the Herfindahl index. To date, the concentration at Group level is "very low".
- The credit risk mitigation do not have a significant impact on the Group's large exposures, being used solely as a mechanism for mitigating intra-group risk ("standby letters of credit" issued by BBVA in favor of the banking Group's subsidiaries).
- The concentration to different industries is calculated based on the risk aggregation by economic activity. BBVA uses a classification that groups activities into 15 sectors. All of them are under the acceptable thresholds at the Group level.
- In retail portfolios, the analysis is carried out at subportfolio level (mortgages and non-mortgage retail). Both are below the acceptable thresholds at the Group level.

3.2.10. RWA density by geographic areas

A summary of the average weights by exposure category in the main geographic areas where the Group operates is shown below for credit risk and counterparty credit risk. The purpose is getting an overview of the entity's risk profile in terms of RWAs.

Table 52. Breakdown of RWA density by geographical area and approach (Million Euros. 12-31-2019)

	RWA density[1][2]						
Category of exposure	Total	Spain[3]	Turkey	Mexico	USA	South America	Other areas[4]
Central governments or central banks	20%	19%	48%	11%	2%	53%	4%
Regional governments or local authorities	23%	20%	100%	50%	20%	73%	20%
Public sector entities	44%	-	79%	64%	20%	61%	-
Multilateral Development Banks	5%	-	-	-	-	10%	-
International organizations	-	-	-	-	-	-	-
Institutions	40%	39%	69%	52%	21%	75%	29%
Corporates	97%	78%	98%	91%	100%	100%	97%
Retail	70%	62%	68%	72%	74%	73%	71%
Secured by mortgages on immovable property	38%	32%	43%	36%	36%	42%	36%
Exposures in default	111%	118%	112%	100%	121%	103%	117%
Exposures associated with particularly high risk	150%	150%	150%	150%	150%	150%	150%
Covered bonds	-	-	-	-	-	-	-
Short-term claims on institutions and corporate	96%	-	-	-	-	96%	-
Collective investments undertakings	100%	100%	-	100%	100%	-	100%
Other exposures	49%	79%	45%	52%	71%	33%	2%
Securitization exposures	45%	-	-	50%	44%	-	-
Total credit risk by standardized approach	**52%**	**31%**	**74%**	**38%**	**62%**	**71%**	**36%**
Central governments or central banks	5%	5%	1%	10%	2%	9%	7%
Institutions	7%	10%	115%	27%	11%	30%	5%
Corporates	50%	52%	77%	66%	33%	61%	41%
Retail	22%	16%	11%	95%	18%	25%	25%
Securitization exposures	27%	27%	-	-	-	-	-
Total credit risk by IRB approach	**27%**	**27%**	**60%**	**72%**	**22%**	**38%**	**16%**
Total credit risk dilution and delivery	**40%**	**28%**	**74%**	**48%**	**54%**	**69%**	**20%**

[1] Does not include equity exposures

[2] Calculated as RWAs/EAD

[3] In Spain, the category of Central Governments or Central Banks includes deferred tax assets net of deferred tax liabilities

[4] Includes all other countries not included on the previous columns. The countries with the greatest exposure in this area are: United Kingdom, France, Italy, Germany and Portugal

Breakdown of RWA density by geographical area and approach (Million Euros. 12-31-2018)

	RWA density[1][2]						
Category of exposure	Total	Spain[3]	Turkey	Mexico	USA	South America	Other areas[4]
Central governments or central banks	22%	16%	53%	14%	4%	66%	4%
Regional governments or local authorities	21%	-	70%	26%	20%	56%	20%
Public sector entities	39%	-	39%	48%	20%	66%	-
Multilateral Development Banks	2%	-	-	-	-	14%	-
International organizations	-	-	-	-	-	-	-
Institutions	32%	20%	55%	43%	17%	35%	25%
Corporates	98%	92%	100%	92%	99%	97%	95%
Retail	70%	66%	67%	70%	73%	72%	72%
Secured by mortgages on immovable property	38%	31%	43%	38%	37%	40%	37%
Exposures in default	115%	124%	110%	100%	133%	104%	116%
Exposures associated with particularly high risk	150%	150%	150%	150%	150%	150%	150%
Covered bonds	-	-	-	-	-	-	-
Short-term claims on institutions and corporate	66%	-	-	20%	-	68%	-
Collective investments undertakings	100%	100%	-	100%	100%	-	100%
Other exposures	39%	70%	43%	18%	58%	33%	135%
Securitization exposures	21%	-	-	50%	20%	-	-
Total credit risk by standardized approach	**51%**	**28%**	**73%**	**37%**	**64%**	**69%**	**44%**
Central governments or central banks	5%	5%	1%	10%	3%	35%	4%
Institutions	7%	10%	109%	23%	11%	19%	5%
Corporates	53%	54%	75%	74%	35%	52%	43%
Retail	19%	13%	29%	96%	21%	26%	28%
Securitization exposures	31%	31%	-	-	-	-	-
Total credit risk by IRB approach	**27%**	**25%**	**55%**	**79%**	**21%**	**38%**	**17%**
Total credit risk dilution and delivery	**41%**	**26%**	**73%**	**50%**	**57%**	**67%**	**23%**

(1) Does not include equity exposures

(2) Calculated as RWAs/EAD

(3) In Spain, the category of Central Governments or Central Banks includes deferred tax assets net of deferred tax liabilities

(4) Includes all other countries not included on the previous columns. The countries with the greatest exposure in this area are: United Kingdom, France, Italy, Germany and Portugal

3.3. Market Risk

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

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

The main market risks can be classified into the following groups: interest rate risk, equity risk, exchange rate risk, credit spread risk, and volatility risk.

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

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

For more information on market risk governance, see Note 7.2.1 of the Group's Consolidated Financial Statements.

In addition, in Chapter 3.3.4 more information about the risk measurement models used in the Group, focused on internal models approved by the supervisor for BBVA S.A. and BBVA Mexico to calculate bank capital requirements on trading portfolios is detailed. For the other geographic areas (South America, BBVA Garanti and BBVA USA), the calculation of own funds requirements for trading portfolios is carried out using the standardized approach.

Analysis of the Group's RWA structure showns that 4% corresponds to Market Risk (including structural exchange risk).

3.3.2. Differences in the trading book under accounting and prudential regulation

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

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

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

The definition of the financial assets held for trading is included in Note 2.2.1. of the Group's Consolidated Financial Statements.

3.3.3. Standardized approach

Market risk-weighted assets under the standardized approach (excluding structural exchange rate risk) account for 21% of total market risk-weighted assets.

The amounts in terms of RWAs and market risk capital requirements calculated by standardized approach as of December 31, 2019 and December 31, 2018 are below.

Table 53. EU-MR1 - Market risk under the standardized approach (Million Euros. 12-31-2019)

	RWAs	Capital Requirements
Outright Products		
Interest Rate Risk	2,461	197
Equity Risk	248	20
Foreign Exchange Risk	3,596	288
Commodity Risk	24	2
Options		
Simplified approach	-	-
Delta-plus method	-	-
Scenario approach	-	-
Securitization	21	2
Correlation trading portfolio	641	51
Total	6,991	559

EU-MR1 - Market risk under the standardized approach (Million Euros. 12-31-2018)

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

Market risk RWAs under the standardized approach have increased by 1,943 million euros, of which 1,325 million corresponds to the structural exchange rate risk. The latter is generated, among others, mainly by the structural position in Mexican peso and Turkish lira which have had a strong earning generation.

3.3.4. Internal models

3.3.4.1. Scope of application

For the purposes of calculating own funds requirements as approved by the supervisor, the scope of application of the internal market risk model extends to BBVA S.A. and BBVA Mexico Treasury Rooms.

As explained in Note 7.2.1 of the Group's Consolidated Financial Statements, most of the items on the Group's consolidated balance sheet that are subject to market risk are positions whose principal metric used to measure their market risk is VaR.

This Note specifies the accounting headings of the consolidated balance sheets as of December 31, 2019 and 2018 in the geographic areas with an approved Internal Model where there is market risk in the trading activity subject to this measurement.

3.3.4.2. Characteristics of the models used

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

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

This statistic value is widely used in the market and has the advantage of summing up in a single metric the risks inherent to trading activity, taking into account how they are related and providing a prediction of the loss that the trading book could sustain as a result of fluctuations in equity prices, interest rates, foreign exchange rates and credit spreads. The market risk analysis considers various risks, such as credit spread risk, basis risk, as well as volatility and correlation risk.

With respect to the risk measurement models used in the Group, the supervisor has authorized the use of the internal model to determine the bank capital requirements deriving from risk positions on the BBVA, S.A. and BBVA Mexico trading book, which together, account for around 72% of the market risk of the Group's trading book market risk.

BBVA uses a single model to calculate the regulatory requirements by risk, taking into account the correlation between the assets and thus recognizing the diversification effect of the portfolios. The model used estimates the VaR in accordance with the "historical simulation" methodology, which involves estimating the profit and loss that would have been incurred in the current portfolio if the changing market conditions that occurred over a given period of time were repeated. Based on this information, it infers the maximum foreseeable loss in the current portfolio with a given level of confidence.

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

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

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

VaR figures are estimated following two methodologies:

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

VaR with smoothing adapts more swiftly to the changes in financial market conditions, whereas VaR without smoothing

is, in general, a more stable metric that will tend to exceed VaR with smoothing when the markets show less volatile trends, but be lower when they present upturns in uncertainty.

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

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

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

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

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

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

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

Transition matrices

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

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

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

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

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

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

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

Liquidity horizons

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

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

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

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

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

Correlation

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

by the correlation curves established by Basel for corporates, financial institutions and sovereigns based on the probability of default.

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

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

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

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

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

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

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

3.3.4.2.1. Valuation methodology and description of the independent price verification process

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

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

The process of determining fair value established in the Group ensures that assets and liabilities are valued correctly. At the level of geographic areas, BBVA has established a structure of New Product Committees responsible for validating and approving new products or classes of assets and liabilities before they are contracted. The committee members are the local areas, independent of the business, who are responsible for their valuation (see Note 8 of the Group's Consolidated Financial Statements).

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

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

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

- *Level 1:* Valuation using the observable share price for the financial instrument in question, referring to market assets (as defined by the Group's internal policies), secured from independent sources.
- *Level 2:* Valuation that applies techniques whose significant variables are observable market data.
- *Level 3:* Valuation that applies techniques that use significant variables not obtained from market observable data. The choice and validation of the valuation models used was carried out by independent control units in the market areas.

In addition, the Group calculates Prudent Valuation Adjustments (PVA) for all instruments valued at fair value. PVA is an additional or conservative adjustment to the fair value that allows a more prudent assessment to be obtained by considering sources of risks that exist in the calculation of the fair value (uncertainty inputs, risk model, etc). Below is a detailed breakdown of the method for calculating PVAs for the Group:

Table 54. Prudent Valuation Adjustments[1] (Million Euros. 12-31-2019)

	Equity	Interest Rates	FX	Credit	Commodities	Diversification Adjustment	Total	Of which: in the trading book	Of which: in the banking book
Close-out uncertainty, of which:	106	301	30	12	-	(193)	257	121	135
Mid-market value	27	146	9	7	-	(98)	91	50	41
Close-out cost	37	115	21	5	-	(94)	84	63	21
Concentration	42	39	-	-	-	-	82	8	73
Early termination	-	1	-	-	-	-	1	1	-
Model risk	15	4	-	1	-	(17)	3	10	(7)
Operational risk	-	7	-	-	-	-	7	0	6
Investing and funding costs	-						28	-	-
Unearned credit spreads	-						4	-	-
Future administrative costs	-	3	-	-	-	-	3	3	1
Other	-	-	-	-	-	-	-	-	-
Total Adjustment	**121**	**315**	**30**	**13**	**-**	**(210)**	**302**	**135**	**136**

[1] Template disclosed on the basis of Technical Regulation EBA/RTS/2014/06, breaking down the composition of Prudent Valuation Adjustments in line with the PV1 template disclosed by the BCBS

Prudent Valuation Adjustments[1] (Million Euros. 12-31-2018)

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

[1] Template disclosed on the basis of Technical Regulation EBA/RTS/2014/06, breaking down the composition of Prudent Valuation Adjustments in line with the PV1 template disclosed by the BCBS

3.3.4.2.2. Market risk developments in 2019

During 2019, the average VaR stood at 19 million euros, levels lower than in the 2018 financial year, with a maximum level in the year reached on September 13, when rose to 25 million euros.

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

Chart 19. Trading book. Trends in VaR without smoothing

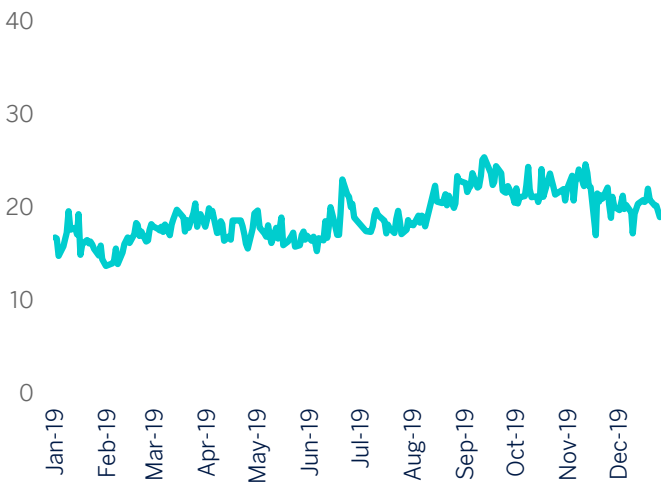


Table 55. Trading Book. VaR without smoothing by risk factors (Million Euros)

VaR by risk factors	Interest-rate and spread risk	Exchange - rate risk	Equity risk	Vega / correlation risk	Diversification effect(1)	Total
December 2019						
Average VaR for the period	21	6	4	9	(20)	19
Maximum VaR for the period	28	6	3	9	(21)	25
Minimum VaR for the period	13	5	5	9	(18)	14
VaR at the end of the period	**24**	**5**	**5**	**8**	**(22)**	**20**
December 2018						
Average VaR for the period	20	6	4	9	(20)	21
Maximum VaR for the period	23	7	6	11	(21)	26
Minimum VaR for the period	17	6	4	7	(18)	16
VaR at the end of the period	**19**	**5**	**3**	**7**	**(17)**	**17**

(1) The diversification effect is the difference between the sum of the average individual risk factors and the total VaR figure that includes the implied correlation between all the variables and scenarios used in the measurement

By type of market risk assumed by the Group's trading portfolio, the main risk factor in the Group continues to be that linked to interest rates, with a weight of 58% of the total at the end of 2019 (this figure includes the spread risk), increasing the relative weight compared to 2018 end (55%).

On the other hand, the foreign exchange risk represents 13%, slightly dropping the same proportion with respect to 2018 (14%), while that of equity and that of volatility and correlation decrease, presenting a weight of 29% at the end of 2019 (vs. 31% at year-end 2018).

In accordance with Article 455 d) and e) of the CRR, corresponding to the breakdown of information on internal market risk models, the elements comprising the own funds requirements referred to in Articles 364 and 365 of the CRR are presented below.

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

IMA values for trading portfolios (2019)[1][2]		
VaR (10 day 99%)		
1	Maximum value	90
2	Average value	53
3	Minimum value	34
4	Period value	52
SVaR (10 day 99%)		
5	Maximum value	203
6	Average value	131
7	Minimum value	82
8	Period value	170
Incremental Risk Charge (99.9%)		
9	Maximum value	170
10	Average value	143
11	Minimum value	108
12	Period value	115

[1] Data concerning the last semester of 2019

[2] The amounts reported do not include additional capital charges especifically required by the supervisor, i.e. multiplier factor

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

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

[1] Data concerning the last semester of 2019

[2] The amounts reported do not include additional capital charges especifically required by the supervisor, i.e. multiplier factor

Table 57. EU MR2-A - Market risk under the IMA (Million Euros. 12-31-2019)

	RWAs	Capital Requirements
VaR	**2,095**	**168**
Previous day's VaR	653	52
Average of the daily VaR on each of the preceding sixty business days (VaRavg) x multiplication factor	2,095	168
SVaR	**4,680**	**374**
Latest SVaR	2,126	170
Average of the SVaR during the preceding sixty business days (sVaRavg) x multiplication factor (mc)	4,680	374
Incremental risk charge - IRC	**2,301**	**184**
Most recent IRC value	2,301	184
Average of the IRC number over the preceding 12 weeks	1,934	155
Comprehensive Risk Measure- CRM	**-**	**-**
Most recent risk number for the correlation trading portfolio over the preceding 12 weeks	-	-
Average of the risk number for the correlation trading portfolio over the preceding 12 weeks	-	-
8% of the own funds requirement in SA on most recent risk number for the correlation trading portfolio	-	-
Others	**-**	**-**
Total	**9,075**	**726**

EU MR2-A - Market risk under the IMA (Million Euros. 12-31-2018)

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

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

Table 58. EU MR2-B - RWA flow statements of market risk exposures under the IMA (Million Euros)

RWA flow statements of market risk exposure under IMA	VaR	SVaR	IRC	CRM	Other	Total RWAs	Total Capital Requirements
RWAs as of December 31, 2018	2,015	5,112	1,141	-	-	8,268	661
Movement in risk levels	66	(517)	1,293	-	-	843	67
Model updates/changes	-	-	-	-	-	-	-
Methodology and policy	-	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-	-
Foreign Exchange movements	13	84	46	-	-	144	12
Other	-	-	(180)	-	-	(180)	(14)
RWAs as of December 31, 2019	2,095	4,680	2,301	-	-	9,075	726

During 2019, the evolution of market risk capital requirements under IMA are affected mainly by the prudential surcharge of 863 million in December 2019 imposed after the internal model review process previously discussed ("TRIM").

- Increase in market regulatory capital at BBVA SA of 0.3% compared to December 2018 (+10% including the impact of TRIM).
- Increase in market regulatory capital in BBVA Mexico of 1.1% compared to December 2018 (15% including the impact of TRIM), mainly due to an increase on risk levels under IRC.

3.3.4.2.3. Stress testing

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

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

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

Historical scenarios

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

1. Credit shock: reflected mainly in the increase in credit spreads and downgrades of credit ratings.
2. Increased volatility in most financial markets.
3. Liquidity shock in the financial systems, reflected in major fluctuations in interbank curves, particularly in the shortest terms of the euro and dollar curves.

Table 59. Trading Book. Impact on earnings in Lehman scenario (Million Euros)

Impact on earnings in Lehman scenario	12-31-2019	12-31-2018
GM Europe, NY & Asia	(38)	(28)
GM Mexico	(19)	(2)
GM Argentina	(1)	(1)
GM Chile	-	-
GM Colombia	(3)	(2)
GM Peru	(7)	(4)
GM Venezuela	-	-

Simulated scenarios

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

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

The main characteristics of this methodology are as follows:

a. The simulations generated respect the data correlation structure.

b. It provides flexibility in terms of including new risk factors.

c. It enables a great deal of variability to be introduced in simulations (which is desirable for considering extreme events).

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

Table 60. Trading Book. Stress resampling (Million Euros. 12-31-2019)

	Europe	Mexico	Peru	Venezuela	Argentina	Colombia	Turkey	The United States
Expected impact	(112)	(68)	(23)	-	(4)	(5)	(9)	(3)

	Stress VaR	Expected Shortfall	Stress Period	Stress VaR 1D
	2019	95 20 D	95 20 D	99% Resampling
Total				
GM Europe, NY and Asia	(71)	(112)	01/02/2008 - 12/02/2009	(42)
GM Mexico	(53)	(53)	05/09/2008 - 05/06/2010	(13)

3.3.4.2.4. Backtesting

Introduction

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

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

Validation test

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

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

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

GREEN Zone: model acceptance zone	It is characterized as being an area in which there is a high probability of accepting a suitable model and a low probability of accepting an unsuitable model. This is defined by the set for which the accumulated probability of less than 95%, with the null hypothesis proving correct. It covers a number between zero and four exceptions.
YELLOW zone: ambiguous zone	Possible results for both a suitable and inadequate model. It begins when the accumulated probability is greater than equal to 95% (it must be less than 99.99%), with the null hypothesis proving correct. It covers a number of between five and nine exceptions.
RED zone: model rejection zone	High probability that the model is unsuitable and unlikely to reject if suitable. It is defined by the fact that the level of significance is less than 0.1% or, which is the same, the accumulated probability is greater than or equal to 99.99%, with the null hypothesis proving correct. It corresponds to a number of exceptions equal to or greater than ten.

To carry out this test it is advisable to have, at least, a one-year historical series of both results and risk estimates on a daily basis.

The criterion used is perfectly adapted to the priority of supervisory, which is to avoid situations where excess risk for which the entity is not prepared jeopardizes its survival. However, the use of risk measurements as a tool for managing positions entails a concern that the risk measurements are adjusted to the real risk on both sides: not only is there concern that the risk is being underestimated, but also that It may be overestimating.

At the close of December 31, 2019, the model is in the green zone of acceptance of the model.

Backtesting results

Regulatory backtesting is made up of two types: Hypothetical Backtesting and Actual Backtesting:

- Hypothetical Backtesting is defined as the contrast of the Hypothetical P&L on the estimated VaR, the day before the performance of said result. Actual Backtesting is defined as the contrast with the Actual P&L on the same estimated VaR, the day before the performance of said result.
- Actual Backtesting was implemented and entered into force on January 1, 2013, as a result of the transposition in the national legal order through the Bank of Spain Circular 4/2011 of November 30, of the CRD III that introduces Basel 2.5 in the European Union. The results that are used for the construction of both types of Backtesting are based on the actual results of the management tools.

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

Actual P&L

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

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

At the close of December 31, 2019, the actual negative P&L of May/30/2019 exceeded the VaR within the last 250 top-of-house level observations in BBVA S.A., thus presenting one exception in the BBVA S.A, Actual Backtesting.

At the close of December 31, 2019, the actual negative P&L did not exceed the VaR within the last 250 top-of-house level observations in BBVA Mexico thus presenting zero Exceptions in the BBVA Mexico Actual Backtesting.

Hypothetical P&L

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

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

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

At the close of December 31, 2019, the hypothetical negative P&L did not exceed the VaR within the last 250 top-of-house level observations in BBVA SA thus presenting zero exceptions in the BBVA SA Hypothetical Backtesting.

At the close of December 31, 2019, the hypothetical negative P&L did not exceed the VaR within the last 250 top-of-house level observations in BBVA Mexico thus presenting zero exceptions in the BBVA Mexico Hypothetical Backtesting.

Perimeter of the backtesting and internal model exceptions

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

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

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

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

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

At the close of December 31, 2019, there is one exception in Real Backtesting in the last 250 BBVA SA observations.

At the close of December 31, 2019, there are no exceptions in Real Backtesting or Hypothetical Backtesting in the last 250 BBVA Mexico observations.

Chart 20. Trading book. Market Risk Model Validation for BBVA S.A. Hypothetical Backtesting (EU – MR4)

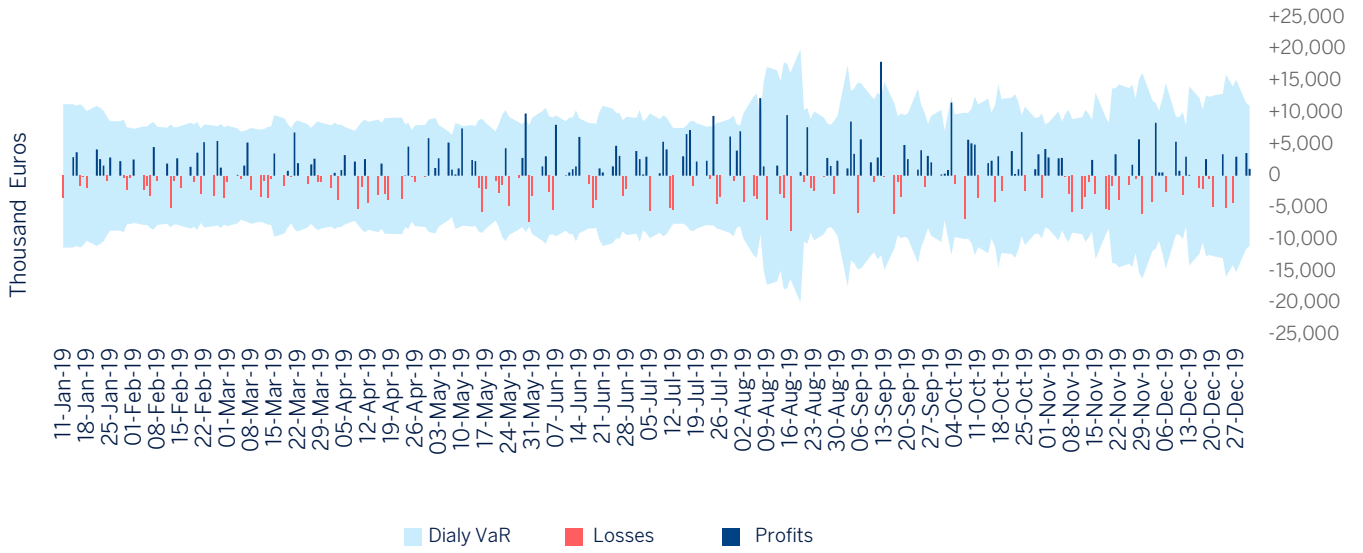


Chart 21. Trading book. Market Risk Model Validation for BBVA S.A. Real Backtesting (EU – MR4)

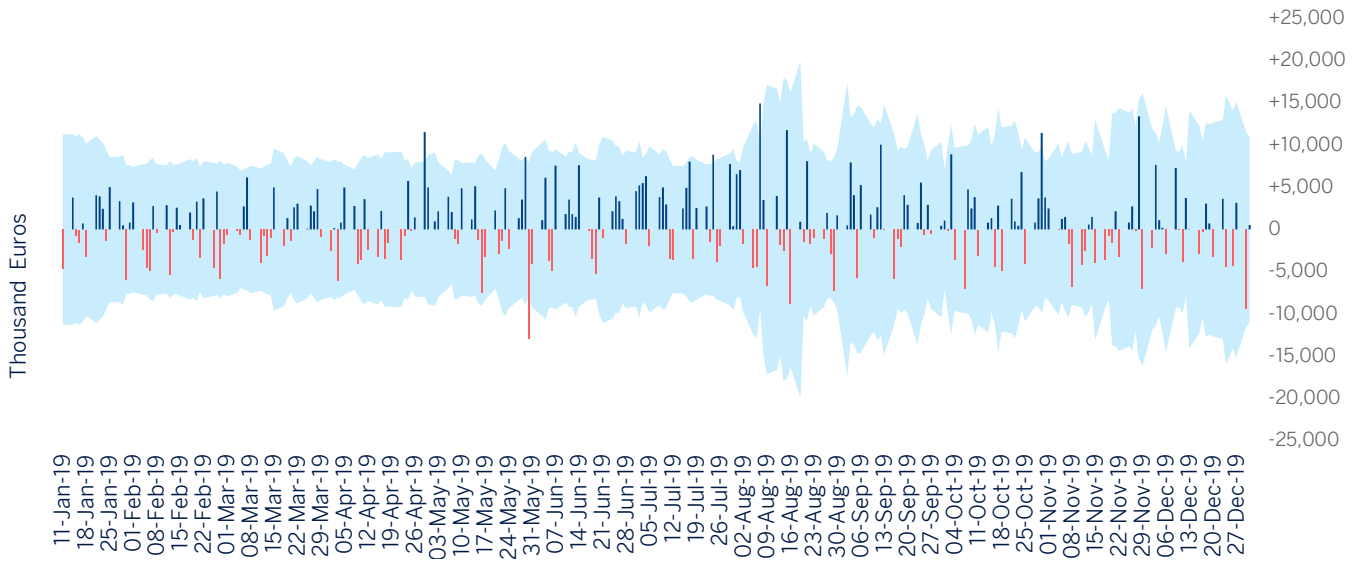


Chart 22. Trading book. Market Risk Model Validation for BBVA Mexico. Hypothetical Backtesting (EU – MR4)

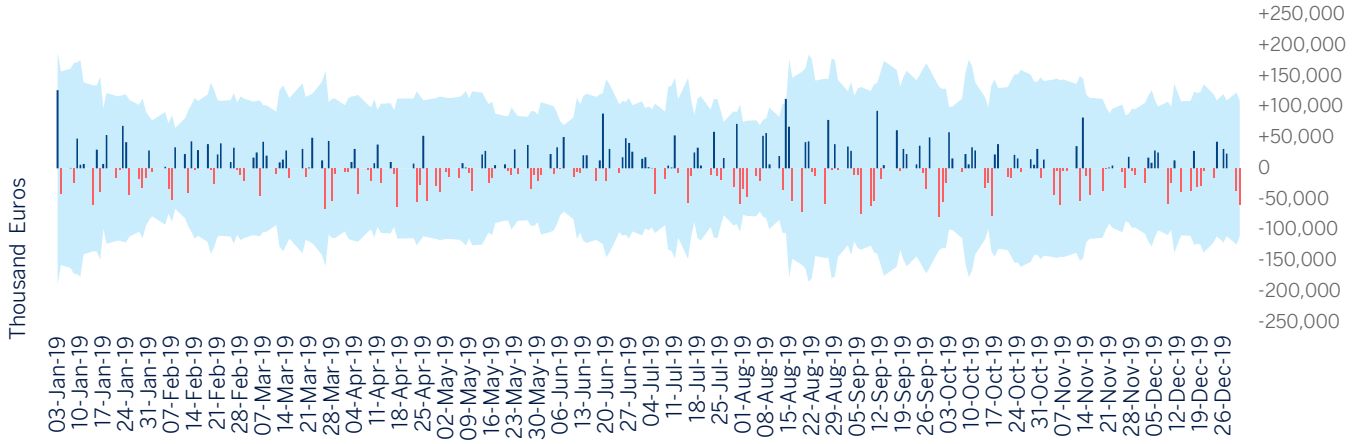
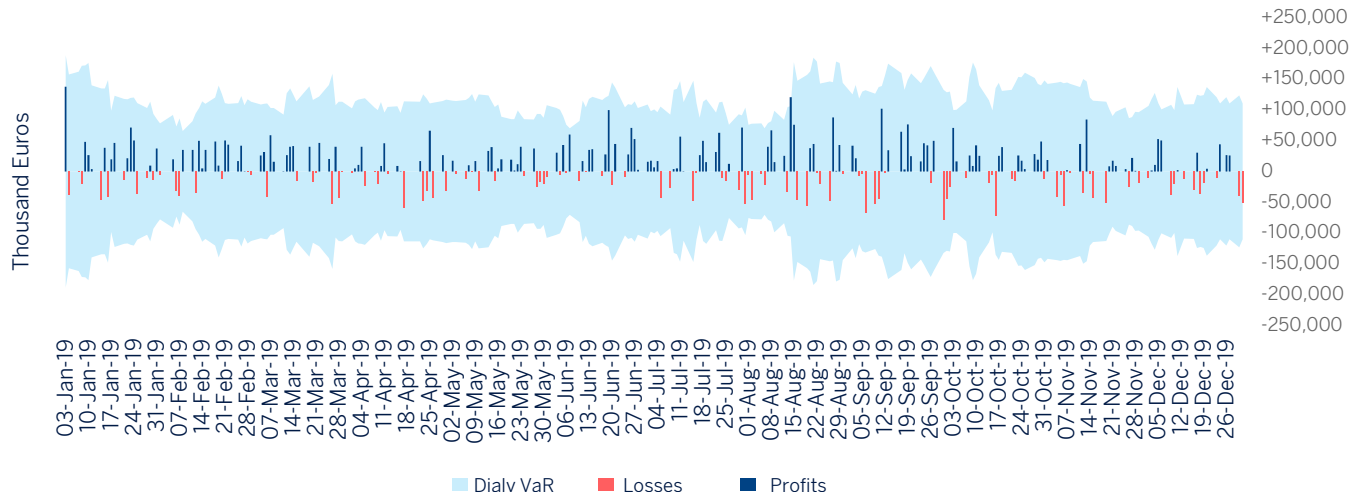


Chart 23. Trading book. Market Risk Model Validation for BBVA Mexico. Real Backtesting (EU – MR4)



3.3.4.3. Characteristics of the risk management system

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

The risk units must have:

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

3.4. Structural risk

The structural risks are defined, in general terms, as the possibility of sustaining losses due to adverse movements in market risk factors as a result of mismatches in the financial structure of an entity´s balance sheet.

In the Group, the following types of structural risk are defined according to nature and market factors: Interest rate, exchange rate and equity.

The scope of structural risk in the Group is limited to the banking book, excluding market risk of the trading book, which is clearly defined and separated and makes up the Market Risks.

The Assets and Liabilities Committee (ALCO) is the main responsible body for the management of structural risks regarding liquidity/ funding interestrate, currency, equity and solvency. Every month, with the participation of the CEO and representatives from the areas of Finance, Risks and Business Areas, this committee monitors the structural risks and is presented with proposals for managing them for its approval. These management proposals are made proactively by the Finance area, taking into accountthe risk appetite framework and with the aim of guaranteeing recurrent earnings and financial stability and preserving the entity's solvency. All balance management units have a local ALCO, which is permanently attended by members of the corporate center, and there is a corporate ALCO where management strategies are monitored and presented in the Group's subsidiaries.

Global Risk Management (GRM) area acts as an independent unit, ensuring adequate separation between the management and risk control functions, and is responsible for ensuring that the structural risks in the Group are managed according to the strategy approved by the Board of Directors.

For more information on governance regarding structural risk, see Note 7.3 of the Group's Consolidated Financial Statements.

3.4.1. Structural interest rate risk

The structural interest rate risk is related to the potential impact that variations in market interest rates have on an entity's net interest income and equity.

A financial institution's exposure to adverse changes in market rates is a risk inherent in the banking business, while at the same time representing an opportunity to generate value. That is why the structural interest rate risk should be managed effectively and have a reasonable relation both to the entity's bank capital and the expected economic result.

As described above, the structural interest rate risk in the banking book (IRRBB) is within the entity's risk management framework and is included within the internal capital assessment process as part of Pillar 2 of the Basel framework.

During 2019, the Group has worked on improving the control and management model in accordance with the guidelines established by the European Banking Authority (EBA) on the management of interest rate risk in the banking book. It is worth mentioning, among other aspects, the reinforcement of stress analyses by incorporating the impact assessment into the Group's main balance sheets that could be derived from the range of interest rate scenarios defined in accordance with the above-mentioned EBA guidelines.

For more information on the nature of interest-rate risk, see Note 7.3.2 of the Group's Consolidated Financial Statements. For information on interest rate variations in 2019, see Note 7.3.1 to the Group's Consolidated Financial Statements

3.4.2. Structural exchange rate risk

Structural exchange rate risk, inherent to the business of international banking groups that develop their activities in different geographies and currencies, is defined as the possibility of impacts on solvency, equity value and results driven by fluctuations in the exchange rates due to exposures in foreign currencies.

In the BBVA Group, structural exchange-rate risk arises from the consolidation of holdings in subsidiaries with functional currencies other than the euro. Its management is centralized in order to optimize the joint management of permanent foreign currency exposures, taking diversification into account.

For more information on exchange rate management and governance, see Note 7.3.2 of the Group's Consolidated Financial Statements.

The Group's structural exchange-rate risk exposure level has slightly increased since the end of 2018 driven by the effect of currencies appreciation. The hedging policy intends to keep low levels of sensitivity to movements in the exchange rates of emerging markets currencies against the euro and focuses mainly on the Mexican peso and the Turkish lira. The risk mitigation level in the capital ratio due to the book value of the BBVA Group's holdings in foreign emerging markets currencies stood at around 65% and, as of the end of 2019, CET1 ratio sensitivity to the depreciation of 10% in the euro exchange rate for each currency was: USD +11 bp; Mexican peso -4 bps; Turkish Lira -2 bps; other currencies -1 bp (excluding hyperinflation economies). On the other hand, hedging of emerging markets currency denominated earnings in 2019 was 52%, concentrated in Mexican peso, Turkish lira and the main Latin American currencies.

The evolution of the capital requirements on structural exchange rate risk during 2019 is shown in paragraph 3.3.3. of this Report.

3.4.3. Structural equity risk

Structural equity risk refers to the possibility of suffering losses in the value of positions in shares and other equity instruments held in the banking book with long or medium term investment horizons due to fluctuations in the value of equity indexes or shares.

BBVA Group's exposure to structural equity risk arises largely from minority shareholdings held on industrial and financial companies. This exposure is modulated in some portfolios with positions held on derivative instruments on the same underlying assets, in order to adjust the portfolio sensitivity to potential changes in equity prices.

For more information on equity management, see Note 7.3.3 of the Group's Consolidated Financial Statements.

3.4.3.1. Classification of equity exposure not included in the trading book

The Group distinguishes between equity exposures in investments in associates, capital instruments classified as financial assets at fair value through other comprehensive income and non-trading financial assets mandatory at fair value through profit or loss.

The investments in associates are the investments in entities over which the Group has a significant influence. It is presumed that there is significant influence when 20% or more of the voting rights of the subsidiary are held, directly or indirectly, unless it can be clearly demonstrated that such influence does not exist. There are certain exceptions to this criterion that do not constitute significant amounts for the Group. These investments in associates are valued using the equity method.

For further details, see Note 2.1 of the Group's Consolidated Financial Statements.

The remaining capital instruments not held for trading are classified as financial assets at fair value trhough other comprehensive income and non-trading financial assets mandatory at fair value through profit or loss, depending on the business model and the contractual cash flow assessment, commonly known as "Solely Payments of Principal and Interest (SPPI)".

The detailed description of the classification and valuation of capital instruments is found in Section 2.2.1 of the Group's Consolidated Financial Statements.

3.4.3.2. Carrying amount and exposure of investments in associates and capital instruments contained in aforementioned portfolios

The accompanying table shows the carrying amount, exposure and RWAs of equity exposures by portfolio class:

Table 61. Breakdown of book value, EAD and RWAs of equity investments and capital instruments (Million Euros)

	Equity investments and capital instruments[1]							
	2019				2018			
	Book value	OE	EAD	RWAs	Book value	OE	EAD	RWAs
Investments in associates	4,577	4,577	4,577	11,819	3,972	3,972	3,972	10,336
Financial assets at fair value through other comprehensive income	2,108	2,108	2,108	3,355	2,443	2,443	2,443	3,784
Non - trading financial assets mandatorily at fair value through profit or loss	439	439	439	994	407	407	407	1,125
Total	**7,124**	**7,124**	**7,124**	**16,167**	**6,822**	**6,822**	**6,822**	**15,246**

[1] Financial assets at fair value through profit or loss portfolio has no balance.

The accompanying table shows the types, nature and amounts of the original exposure in investments in associates and capital instruments listed or unlisted on a stock market, with an item differentiating sufficiently diversified portfolios and other unlisted instruments:

Table 62. Exposure in equity investments and capital instruments (Million Euros)

	Nature of Exposure[1]			
	2019		2018	
	Non-derivatives	Derivatives	Non-derivatives	Derivatives
Exchange-traded instruments	2,481	88	2,850	231
Non-exchange traded instruments	4,555	-	3,741	-
Included in sufficiently diversified portfolios	4,555	-	3,741	-
Other instruments	-	-	-	-
Total	**7,036**	**88**	**6,590**	**231**

[1] Depending on their nature, equity instruments not included in trading book activity will be separated into derivatives and non-derivatives. The amount shown refers to Original Exposure, i.e. gross exposure of value corrections through asset impairment and provisions, before applying risk mitigation techniques

3.4.3.3. Risk-weighted assets of investments in associates and capital instruments

A breakdown of the RWAs by the method applicable to investments in associates and capital instruments by accounting portfolio as of December 31, 2019 and December 31, 2018 is shown below:

Table 63. Breakdown of RWAs, equity investments and capital instruments by applicable approach (Million Euros)

Concept		RWA´s (Million Euros)			
		Internal Models	Simple method	PD/LGD method	Total
12-31-2019	Investments in associates	-	8,253	3,566	11,819
	Financial assets at fair value through other comprehensive income	289	1,077	1,988	3,355
	Non - trading financial assets mandatorily at fair value through profit or loss	160	834	-	994
12-31-2018	Investments in associates	-	6,691	3,646	10,336
	Financial assets at fair value through other comprehensive income	700	741	2,343	3,784
	Non - trading financial assets mandatorily at fair value through profit or loss	472	653	-	1,125

The table below shows themain variations in RWA of equity credit risk as of December 31, 2019:

Table 64. Variation in RWAs for Equity Risk (Million Euros)

Equity Risk		
RWAs as of December 31, 2018		15,246
Effects	Asset size	906
	Acquisitions and disposals	-
	Foreign exchange movements	15
	Other	-
RWAs as of December 31, 2019		16,167

As of December 31, 2019, equity credit risk-weighted assets amount to 16,167 million euros, which represent a slight growth from December 2018, mainly explained by the increase in the value of insurance companies. In this respect, it should be noted that the Group's investments in insurance companies consolidate in the prudential perimeter through the equity method.

3.4.3.4. Profit and loss and valuation adjustments of investments in associates and capital instruments

Below is a breakdown of the profit and loss made by the sale and liquidation of investments in associates and capital instruments and by applicable portfolio type as of December 31, 2019 and December 31, 2018, as well as the valuation adjustments for latent revaluation of investments in associates and capital instruments:

Table 65. Realized profit and loss from sales and settlements of equity investments and capital instruments (Million Euros)

	2019			2018		
	Losses	Gains	Net	Losses	Gains	Net
Investments in associates	2	18	16	23	35	13
Financial assets at fair value through other comprehensive income	0	18	17	2	4	2
Non - trading financial assets mandatorily at fair value through profit or loss	28	198	170	43	79	36

Table 66. Valuation adjustments foor latent revaluation of equity investments and capital instruments (Million Euros)

Valuation adjustments for latent revaluation	
	FVOCI
December 2018	(155)
Transactions	(247)
December 2019	(402)

3.5. Liquidity Risk

Liquidity and funding risk is defined as the incapacity of a bank in meeting its payment commitments for missing resources orthat, to face those commitments, should have to make use of funding under burdensome terms.

Liquidity and Funding risk management is aimed to ensure a solid balance sheet structure that allows for a sustainable business model with the short term aim of preventing the entity from having difficulties in meeting its payment commitments in due time and form, or having to resort to obtaining funds under burdensome terms that damage the image or reputation of the entity in order to meet them. In the medium term the aim is to ensure that the Group's financing structure is ideal and that it is moving in the right direction with respect to the economic situation, the markets and regulatory changes.

This management of structural finance and liquidity is based on the principle of financial self-sufficiency of the entities that make it up. This approach helps prevent and limit liquidity risk by reducing the Group's vulnerability during periods of high risk.

The core objectives of the Group in terms of liquidity risk and funding are determined through Liquidity Coverage Ratio (LCR) and the Loan to Stable Customer Deposits ratio (LtSCD).

A statement of the level of appropriateness of the liquidity risk management mechanisms is included as part of the Internal Liquidity Adequacy Assessment Process (ILAAP) approved by the Board of Directors in April 2019:

"From the internal assessment exercise conducted, the Board of Directors concludes that the liquidity and funding management model is robust, with a medium-low liquidity and funding risk profile supported by the prevailing Risk Appetite Framework and the liquidity and funding planning, that contemplates the necessary liquid funds and measures to maintain such risk profile over the planning horizon."

For more information on Liquidity Risk and Funding see Note 7.4 of the Group's Consolidated Financial Statements.

3.5.1. Liquidity and funding prospects

The Group faces 2020 with a comfortable liquidity situation in all the territories it operates in. The financing structure based on stable customer deposits and biased toward the long term, as well as the proven capacity to access capital markets, allows to comfortably face the moderate volume of maturities expected for the coming quarters.

The following is a breakdown of wholesale financing maturities of the most significant units of the Group according to their nature:

Table 67. Maturity of wholesale issues of Balance Euro by nature (Million Euros)

Type of issuance	2020	2021	2022	After 2022	Total
Senior debt	2,349	1,875	2,977	3,185	10,386
Non preferred senior debt	-	-	1,500	5,790	7,290
Mortgage-covered bonds	2,264	3,173	1,615	7,780	14,832
Public-covered bonds	-	-	300	200	500
Preferred shares[1]	1,695	1,000	500	3,780	6,975
Subordinated debt[1]	135	-	68	3,035	3,238
Total	**6,443**	**6,048**	**6,960**	**23,770**	**43,221**

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

Table 68. Maturity of wholesale issues of BBVA Mexico by nature (Million Euros)

Type of issuance	2020	2021	2022	After 2022	Total
Senior debt	622	212	370	1,744	2,948
Subordinated debt[1]	668	668	1,335	1,736	4,407
Other long term financial instruments	-	-	-	17	17
Total	**1,290**	**880**	**1,705**	**3,497**	**7,372**

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

Table 69. Maturity of wholesale issues of BBVA USA by nature (Million Euros)

Type of issuance	2020	2021	2022	After 2022	Total
Senior debt	-	1,024	668	534	2,226
Subordinated debt[1]	203	19	-	686	908
Total	**203**	**1,043**	**668**	**1,220**	**3,134**

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

Table 70. Maturity of wholesale issues of BBVA Garanti by nature (Million Euros)

Type of issuance	2020	2021	2022	After 2022	Total
Senior debt	-	450	504	601	1,555
Mortgage-covered bonds	-	-	126	22	148
Subordinated debt[1]	-	-	-	705	705
Securitizations	400	407	352	1,900	3,059
Syndicated loans	1,551	-	-	-	1,551
Other long term financial instruments	364	128	291	233	1,016
Total	**2,315**	**985**	**1,273**	**3,461**	**8,034**

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

Table 71. Maturity of wholesale issues of South America by nature (Million Euros)

Type of issuance	2020	2021	2022	After 2022	Total
Senior debt	408	307	872	450	2,037
Subordinated debt[1]	-	47	22	969	1,038
Total	**408**	**354**	**894**	**1,419**	**3,075**

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

Going into 2020, one of the main objectives of the Group's funding strategy is maintaining the strength of the financing structure based on the growth of stable customer resources; diversifying the different sources of financing and ensuring the availability of sufficient levels of liquid assets; and optimizing the generation of collateral, for compliance with regulatory ratios, and other internal metrics to monitor liquidity risk, including stress scenarios.

3.5.2. LCR disclosure

A breakdown of the LCR disclosure as of December 31, 2019 is shown below, according to Article 435 of Regulation (EU) No 575/2013. These figures are calculated as simple averages of end-of-month observations from the twelve months preceding each quarter, beginning September 2017. No transfer of liquidity is assumed between subsidiaries, and therefore no excess liquidity is transferred from the entities abroad to the consolidated figures displayed in the following table:

Table 72. EU LIQ1: Liquidity Coverage Ratio disclosure (Rounded Million Euros)

	Total unweighted value (average)				Total weighted value (average)			
	March	June	September	December	March	June	September	December
End of the quarter	03-31-2019	06-30-2019	09-30-2019	12-31-2019	03-31-2019	06-30-2019	09-30-2019	12-31-2019
Number of data points used in the calculation of averages	12	12	12	12	12	12	12	12
High-quality liquid assets								
Total high-quality liquid assets (HQLA)					87,424	86,820	88,585	88,618
Cash-outflows								
Retail deposits and deposits from small business customers, of which:	205,309	208,075	212,808	217,211	14,860	15,045	15,442	15,791
Stable deposits	138,531	140,907	143,501	146,132	6,927	7,045	7,175	7,307
Less stable deposits	66,778	67,168	69,307	71,079	7,933	7,999	8,267	8,484
Unsecured wholesale funding	126,935	127,310	128,285	128,179	54,239	54,174	54,829	54,670
Operational deposits (all counterparties) and deposits in networks of cooperative banks	52,871	52,539	51,358	51,478	11,986	11,969	11,679	11,700
Non-operational deposits (all counterparties)	72,037	72,986	75,053	74,928	40,226	40,420	41,276	41,197
Unsecured debt	2,027	1,785	1,874	1,773	2,027	1,785	1,874	1,773
Secured wholesale funding					3,648	3,399	3,577	3,864
Additional requirements	108,774	107,385	103,235	99,050	15,949	15,802	15,564	15,134
Outflows related to derivative exposures and other collateral requirements[1]	7,463	7,223	6,705	6,016	7,378	7,131	6,613	5,946
Outflows related to loss of funding on debt products	67	67	60	51	67	67	60	51
Credit and liquidity facilities	101,244	100,095	96,470	92,983	8,504	8,604	8,891	9,137
Other contractual funding obligations	12,104	11,861	12,853	13,095	1,499	1,142	1,368	1,365
Other contingent funding obligations	1,914	8,019	26,519	45,264	1,914	2,045	2,368	2,708
Total cash outflows					**92,109**	**91,607**	**93,148**	**93,532**
Cash - inflows								
Secured lending (e.g. reverse repos)	14,359	15,967	18,460	19,381	702	763	867	870
Inflows from fully performing exposures	30,806	30,975	30,888	30,762	19,783	20,149	20,091	19,830
Other cash inflows	3,554	3,717	3,848	3,823	3,554	3,717	3,848	3,823
(Difference between total weighted inflows and total weighted outflows arising from transactions in third countries where there are transfer restrictions or which are denominated in non-convertible currencies)								
(Excess inflows from a related specialized credit institutions)								
Total cash inflows	**48,719**	**50,659**	**53,196**	**53,966**	**24,039**	**24,629**	**24,806**	**24,523**
Fully exempt inflows								
Inflows subject to 90% cap								
Inflows subject to 75% cap	48,719	50,660	53,195	53,967	24,039	24,629	24,805	24,524
Total adjusted value								
Liquidity buffer					**87,424**	**86,820**	**88,585**	**88,618**
Total net cash outflows					**68,069**	**66,978**	**68,343**	**69,009**
Liquidity coverage ratio (%)					**128.5%**	**129.6%**	**129.7%**	**128.4%**

[1] Includes the amount of the collateral that the entity would have to provide in case of a credit downgrade, according to CRR Article 449(d)

The establishment of an independent control framework for the Euro, USA, Mexico and Turkey LMUs, allows compliance with the Liquidity and Finance corporate requirements on the four main currencies in which the BBVA Group operates: Euro, Dollar, Mexican Peso and Turkish Lira.

With the exception of the dollar, significant currencies at the Group level are fully managed by entities resident in the jurisdictions of each of them, with their financing needs covered in the local markets in which they operate.

For those LMUs operating in dollarized economies (Argentina, Peru, Mexico and Turkey) there are specific regulatory requirements that limit the level of risk of each subsidiary. In addition, the LCR in US dollars in all of them exceeds 100%.

Regarding the sustainability of wholesale financing as a source of funding, this depends on the degree of diversification. In particular, in order to ensure adequate diversification by counterparties, specific concentration thresholds are set and

must be met at all times by each LMU. As of December 31, 2019, except for the positions against central clearing houses and the financing operation of the ECB TLTROII and III (Targeted Longer-Term Refinancing Operations) in the Euro balance sheet, the Group has no counterparties that maintain balances greater than 1% of the Group's total liabilities and the weight of the first 10 counterparties per balance represents 5%.

3.5.3. Net Stable Funding Ratio

The Net Stable Funding Ratio (NSFR), defined as the ratio between the amount of stable funding available and the amount of stable funding required, is one of the Basel Committee's essential reforms, and requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance-sheet activities. This ratio should be at least 100% at all times.

This requirement was defined by the Basel Committee in October 2014, and following the final approval of the Capital Requirements Regulation II (CRR II) or Regulation (EU) 2019/876 amending the CRR, the transposition of the Basel requirement will be effective in June 2021.

Within its risk appetite framework, BBVA has included the NSFR indicator within the limits scheme for both the Group as a whole and for each individual LMU, aimed at keeping this metric at a comfortable level above 100%. In this respect, the NSFR of the Group as of December 31, 2019 was 120%.

For information on the NSFR of the main LMUs, see Note 7.4 of the Group's Consolidated Financial Statements.

3.5.4. Encumbered assets in funding operations

In relation to the management of encumbered liquid assets[9], all LMUs maintain adequate positions not only to cover the minimum survival periods established in a stress situation, but also uncollateralized wholesale liabilities, which are ultimately the most affected by the ratio of encumbered assets.

All of the group's LMUs have implemented procedures and controls to ensure that the risk associated with the management of guarantees and asset assessment are properly identified, controlled and managed in compliance with the Corporate Liquidity and Funding Risk Policy, highlighting: i) monitoring and control scheme for encumbered assets risk indicators, ii) periodic evaluation of stress scenarios as a result of the risk levels achieved, and iii) a contingency plan with action measures based on the degree of criticality and immediacy of the situation

The impact on the business model of the level of the asset pledging, as well as the importance in the Group's financing model is low because the financing is based on stable customer deposits, the dependence on short term financing is reduced, and a robust financing structure is maintained, with a moderate level of encumbered assets.

The ratio of encumbered assets to total assets for the main LMUs as of December 31, 2019 is:

Table 73. Encumbered assets over total assets

	12-31-2019
BBVA Group	**19%**
LMU Euro	24%
LMU Mexico	15%
LMU Compass	12%
LMU Garanti	6%

The Group mainly has the following pledging sources:

- **Guaranteed bonds**

The issue of guaranteed bonds is one of the main sources of guaranteed financing which give the holdersa high degree of protection. Issues are backed by on-balance sheet assets that are susceptible to being curbed (pooled) and have a joint guarantee from the Entity that will support the issue in the event that the underlying assets cannot cope with the payments. The products through which this type of financing is implemented are mortgage-covered bonds, public covered bonds and internationalization bonds.

- **Assets sold under repurchase agreement**

Co-financing operations collateralized by assets sold under repurchase agreement are among the short term sources of financing. These operations play an important role in the type of encumbered assets in the Group.

- **Assets pledged with Central Banks**

The role of central banks as suppliers of liquidity ultimately constitutes one of the key contingent financing resources in the event of there being tensions in the financial markets. In this regard, in accordance with the principles established for management of collateral, the Group's strategy consists of maintaining broad credit policies with the central banks concerned by pledging assets as collateral in geographical areas where these instruments are used as part of monetary policy. The impact of this funding source is low within the Group.

- **Management of collateral agreements**

The use of collateral is one of the most effective techniques to mitigate exposure to Credit Risk arising from operations with Derivatives or in operations with repurchase agreements or Value Loans. The assets currently used as collateral are: cash, fixed-income and credit letters.

9 An asset is considered encumbered if it is subject to any form of agreement with the objective of ensuring, collateralizing or improving the credit quality of a transaction, and it cannot be freely removed.
In any case, the consideration of a encumbered asset is not based on an explicit legal definition, such as the transfer of a title, but on an economic criterion, so any asset that is subject to any restriction to be used or to replace another asset, is considered pledged.

Securitization

The issuance of securitization represents one of the main potential sources of risk for pledged assets on the balance sheet. According to the type of assets supporting the securitization, the following classes are issued: residential mortgage-backed securities (RMBS), consumer loans and loans to SMEs. The impact of this pledging source is very low for the Group.

The projects subject to overcollateralization are:

- Mortgage-covered bonds.

These are mortgage bonds issued with first-rank mortgage loan collateral constituted in favor of the bank. In the case of BBVA S.A., which accounts for more than 95% of the issuance of mortgage-covered bonds in the Group, the bonds have to be overcollateralized at 125% of their nominal value, and the amount of loans that back them cannot be more than 80% of the value of the collateral. The other geographic area that issues these types of product (to a residual extent) is Garanti BBVA.

- Public covered bonds.

Public covered bonds are similar to mortgage-covered bonds. They are backed by loans and credit granted by the issuer to the State, to central and regional governments, local authorities and autonomous bodies that answer to them, as well as other public-sector entities in the European Economic Area. In this case, the issues have to be overcollateralized at 143% of their nominal value. BBVA SA accounts for 100% of this type of issue.

- Internationalization bonds.

These are securities guaranteed by loans and credit linked to the financing of contracts for the export of goods and services or to the internationalization of companies. The level of overcollateralization is the same as for public covered bonds. BBVA SA accounts for 100% of this type of issue. The weight of this type of issue is very residual.

Within the Group there are units responsible for the execution, monitoring and control of issues of this type, as well as the calculation of the capacity for additional issuance, with the aim of ensuring that the Entity is not over-issued and complies with the established limits of the Encumbered Asset Ratio.

The following table shows assets contributed as collateral (loans) underlying the issue of mortgage-covered bonds, public covered bonds and internationalization bonds, as well as the total issued and excess issuance capacity as of December 31, 2019:

Table 74. Mortgage-covered bonds (Million Euros. 12-31-2019)

Withheld	
Withheld applied	12,504
Withheld not applied	5,086
Issued to Market	**14,832**
Total mortgage-covered bonds issued	**32,422**
Eligible collateral to consider	**43,568**
Maximum to issue	34,854
Capacity to issue	**2,433**

Table 75. Public-covered bonds (Million Euros. 12-31-2019)

Withheld	
Withheld applied	6,040
Withheld not applied	1,500
Issued to Market	**500**
Total mortgage-covered bonds issued	**8,040**
Eligible collateral to consider	**13,316**
Maximum to issue	9,321
Capacity to issue	**1,281**

Table 76. Internationalization-covered bonds. (Million Euros. 12-31-2019)

Withheld	
Withheld applied	1,500
Withheld not applied	-
Issued to Market	**-**
Total internationalization-covered bonds issued	**1,500**
Eligible collateral to consider	**3,620**
Maximum to issue	2,534
Capacity to issue	**1,034**

The assets on the balance sheet and the collaterals received that, as of December 31, 2019, is encumbered (provided as collateral or security with respect to certain liabilities) and the collateral that is unencumbered are shown below. It should be noted that the value used for the purpose of this disclosure is the carrying amount and fair value, for both the assets on the balance sheet and the pledged and unpledged guarantees received. The balances are calculated as annual medians using as a sample the four quarters of the last year.

Table 77. Encumbered and unencumbered Assets (Million Euros. 12-31-2019)

	Carrying value of encumbered assets		Fair value of encumbered assets		Carrying value of unencumbered assets		Fair value of unencumbered assets	
		of which notionally elligible EHQLA and HQLA		of which notionally elligible EHQLA and HQLA		of which EHQLA and HQLA		of which EHQLA and HQLA
Institution's assets	**109,189**	**32,142**			**570,814**	**105,564**		
Equity instruments	2,664	1,635			7,269	3,862		
Debt securities	32,119	30,491	33,255	30,673	73,893	64,130	73,766	64,850
Of which: covered bonds	46	44	45	44	693	691	683	681
Of which: ABSs	22	-	22	-	193	-	231	-
Of which: issued by general governments	27,802	28,109	28,879	28,290	61,515	58,527	61,457	59,219
Of which: issued by financial corporations	2,751	1,369	2,823	1,375	7,545	4,840	7,473	4,855
Of which: issued by non- financial corporations	1,289	971	1,280	971	2,564	732	2,578	745
Loans and Other assets	74,232	-			486,199	37,056		
Of which: Loans and advances	74,232	-			396,488	31,073		
Of which: Other assets	-	-			89,710	5,253		

Table 78. Collateral received (Million Euros. 12-31-2019)

	Fair value of encumbered collateral received or own debt securities issued		Fair value of collateral received or own debt securities issued available for encumbrance	
		of which notionally elligible EHQLA and HQLA		of which EHQLA and HQLA
Collateral received	**33,705**	**28,795**	**10,301**	**6,724**
Loans on demand	-	-	0	-
Equity instruments	125	77	67	27
Debt securities	33,582	28,750	10,217	6,689
Of which: covered bonds	640	146	91	10
Of which: ABSs	136	-	175	-
Of which: issued by general governments	28,575	26,591	6,008	5,558
Of which: issued by financial corporations	3,105	599	2,989	1,068
Of which: issued by non- financial corporations	692	153	360	74
Loans and advances other than loans on demand	-	-	4	-
Other collateral received	-	-	-	-
Own debt securities issued other than own mortgage-covered bonds or ABSs	13	-	82	-
Own mortgage-covered bonds and ABSs issued and not yet pledged			19,311	-
Total assets, collateral received and own debt securities issued	**139,930**	-		

Below are the pledging sources with associated collateral as of December 31, 2019:

Table 79. Sources of encumbrance (Million Euros. 12-31-2019)

	Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own securities issued other than mortgage-covered bonds, public-covered bonds and ABSs encumbered
Carrying amount of selected financial liabilities	**120,985**	**135,005**
Derivatives	13,345	12,914
Repos and other collateralized deposits	89,895	99,999
Debt securities	17,882	21,865
Other sources of encumbrance	465	4,925

The assets without associated liabilities shown in the table above correspond to securities issued as guarantee and in order to be able to operate in certain markets, as well as assets mainly encumbered in security lending operations.

The collateral received off the balance sheet is mostly reverse repurchase agreements, of which more than 90% are sovereign securities.

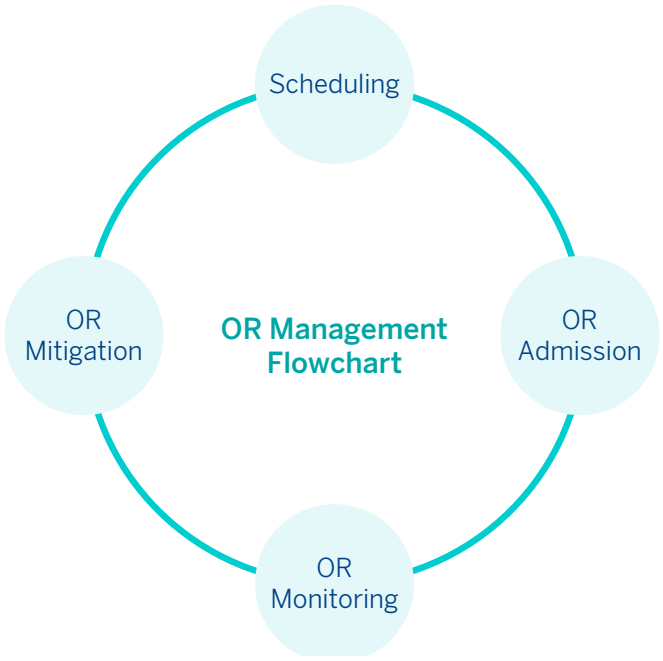
3.6. Operational Risk

BBVA defines operational risk ("OR") as any risk that could result in losses caused by human error; inadequate or flawed internal processes; undue conduct with respect to customers, markets or the institution; failures, interruptions or flaws in systems or communications; inadequate data management; legal risk; and finally, as a result of external events, including cyberattacks, third-party fraud, disasters and defective service provided by suppliers.

Operational risk management is oriented towards the identification of the root causes to avoid their occurrence and mitigate possible consequences, so that the risk level falls within defined tolerance limits.

Operational risk management is based on a number of components similar to those adopted for other types of risk.

Chart 24. Operational Risk Management Processes



All these elements, as well as the operational risk oversight, are described in the "Risk Management – Operational Risk" section of the Management Report accompanying the Group's Consolidated Financial Statements.

3.6.1. Capital calculation methods used

As set out in Regulation (EU) 575/2013 of the European Parliament and of the Council, for calculating the regulatory capital for operational risk under Basel 1, Advanced Measurement Approaches (AMA) are used for a very significant part of the banking perimeter[10]. Specifically, this method is used in Spain and Mexico, which accumulate most of the Group's assets.

Except for the case of Bolivia, for which the basic approach is applied, the standardized approach is used to calculate capital in the rest of the geographic areas. In addition, it is remarkable that during 2019, the operational risk management model has been significantly strengthened in Garanti BBVA, which would allow switching from the use of the basic model to the use of the standardized approach from December 2019.

3.6.1.1. Description of advanced measurement approaches

The advanced internal model quantifies capital at a confidence level of 99.9% following the LDA (Loss Distribution Approach) methodology. This methodology estimates the distribution of losses by operational event by convoluting the frequency distribution and the loss given default (LGD) distribution of these events.

Calculations are made using internal historical loss data from the Group as the main source of information. To enrich the data from this internal database and to take into account the impact of possible events not yet considered therein, external databases (ORX consortium) are used and operational risk scenarios are also included.

The distribution of losses is constructed for each of the different types of operational risk, which are defined as per Basel Accord cells; i.e. a cross between business line and risk type. In cases where there is not sufficient data for a sound analysis, it becomes necessary to undertake cell aggregations, and to do so the business line is chosen as the axis.

In certain cases, a greater disaggregation of the Basel cell has been selected. The objective consists of identifying statistically homogeneous groups and a sufficient amount of data for proper modeling. The definition of these groupings is regularly reviewed and updated.

Solvency regulations establish that regulatory capital for operational risk is determined as the sum of individual estimates by type of risk, but allowing the option of

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

incorporating the effect of the correlation among them. This impact has been taken into consideration in BBVA estimates with a conservative approach.

The model of calculating capital in both Spain and Mexico incorporates factors that reflect the business environment and situation of internal control systems. Thus the calculation obtained is higher or lower according to how these factors change in anticipating the result.

The Group has insurance policies that basically cover the risk of cyberattacks, natural and/or provoked disasters and external and internal fraud. For the purpose of calculating capital by the AMA the mitigating effect of the insurance contracted is not included.

The following table shows the operational risk capital requirements broken down according to the calculation models used and by geographic area, to provide a global vision of capital consumption for this type of risk:

Table 80. Regulatory capital for Operational Risk (Million Euros)

	Capital requirements		RWAs	
Regulatory capital for operational risk	**2019**	**2018**	**2019**	**2018**
Advanced	1,746	1,718	21,822	21,476
Spain	1,382	1,364	17,270	17,050
Mexico	364	354	4,552	4,425
Standardized	1,220	747	15,250	9,341
Basic	64	473	805	5908
BBVA Group total	**3,030**	**2,938**	**37,877**	**36,725**

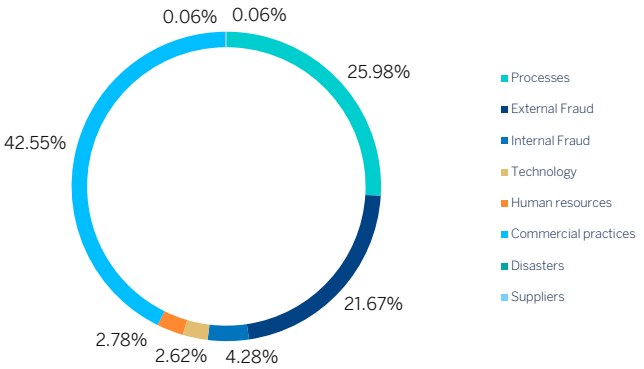
The main variations in the bank capital requirements for operational risk are due to:

- *Advanced methods:* in Spain, basically, due to the greater impact of the losses recorded in the event of "Retroactivity of floor clauses" the RWAs increased by 225 million euros. In Mexico, the increase in recognized RWA was 125 million euros, mainly due to the appreciation of the Mexican peso against the euro; excluding this effect, the RWA would have been reduced by approximately 135 million euros.
- *Basic and standard approaches:* In 2019 the group has begun to apply the standard operating risk model at Garanti BBVA for the purposes of calculating consolidated requirements, which has explained the reduction in capital requirements in the basic model. In turn, the growth of the relevant revenues in the geographic areas where the Group was applying standardized approach together with the change of model in Garanti BBVA determine the evolution of the magnitudes of that model during 2019. The net effect of the change of model at Garanti BBVA has been a reduction in RWAs of approximately 600 million.

3.6.2. Operational Risk Profile

BBVA's operational risk profile is shown below by risk type after assessing the risk, resulting in the following distribution:

Chart 25. Operational Risk Profile of BBVA Group



The following charts reflect the distribution of operational losses by risk class and country for 2019.

Chart 26. Operational Risk by risk and country

(1) An amount greater than the loss that occurred this year has been recovered by insurance of events of previous years