

50. Fair value

Fair value is based on market prices, whenever these are available. If market prices are not available, as occurs regarding many products sold to clients, fair value is estimated through internal models based on cash-flow discounting techniques. Cash-flows for the different instruments sold are calculated according to its financial characteristics and the discount rates used include both the market interest rate curve and the current conditions of the Group's pricing policy.

Thus, the fair value obtained is influenced by the parameters used in the evaluation model that have some degree of judgment and reflects exclusively the value attributed to different financial instruments. However, it does not consider prospective factors, as the future business evolution. Therefore, the values presented cannot be understood as an estimate of the economic value of the Group.

The main methods and assumptions used in estimating the fair value for the financial assets and financial liabilities are presented as follows:

Cash and deposits at Central Banks and Loans and advances to credit institutions repayable on demand

Considering the short term of these financial instruments, the amount in the balance sheet is a reasonable estimate of its fair value.

Loans and advances to credit institutions, Deposits from credit institutions and Assets with repurchase agreements

The fair value of these financial instruments is calculated discounting the expected principal and interest future cash flows for these instruments, considering that the payments of the instalments occur in the contractually defined dates. This update is made based on the prevailing market rate for the term of each cash flow plus the average spread of the production of the most recent 3 months of the same. For the elements with signs of impairment, the net impairment of these operations is considered as a reasonable estimate of their fair value, considering the economic valuation that is realized in the determination of this impairment.

For resources from Central Banks it was considered that the book value is a reasonable estimate of its fair value, given the nature of operations and the associated short-term. The rate of return of funding with the European Central Bank is -0.4% as at 31 December 2018 (31 December 2017: 0.00%).

For the remaining loans and advances and deposits, the discount rate used reflects the current conditions applied by the Group on identical instruments for each of the different residual maturities (rates from the monetary market or from the interest rate swap market).

Loans and advances to customers without defined maturity date

Considering the short maturity of these financial instruments, the conditions of the portfolio are similar to conditions used at the date of the report. Therefore, the amount in the balance sheet is a reasonable estimate of its fair value.

Loans and advances to customers with defined maturity date

The fair value of these instruments is calculated by discounting the expected principal and interest future cash flows for these instruments, considering that the payments of the instalments occur in the contractually defined dates. For loans with signs of impairment, the net impairment of these operations is considered as a reasonable estimate of their fair value, considering the economic valuation that is realized in the determination of this impairment.

The discount rate used is the one that reflects the current rates of the Group for each of the homogeneous classes of this type of instruments and with similar residual maturity. The discount rate includes the market rates for the residual maturity date (rates from the monetary market or from the interest rate swap market) and the spread used at the date of the report, which was calculated from the average production of the three most recent months compared to the reporting date.

Resources from customers and other loans

The fair value of these financial instruments is calculated by discounting the expected principal and interest future cash flows for the referred instruments, considering that payments occur in the contractually defined dates. The discount rate used reflects the current conditions applied by the Group in similar instruments with a similar maturity. The discount rate includes the market rates of the residual maturity date (rates of monetary market or the interest rate swap market, at the end of the period) and the actual spread of the Group. This was calculated from the average production of the three most recent months compared to the reporting date.

As at 31 December 2018, the average discount rates for Loans and advances to credit institutions, Loans and advances to customers, Resources from credit institutions and Resources from customers are analysed as follows:

	2018			
	Loans and advances to credit institutions	Loans and advances to customers	Resources from credit institutions	Resources from customers
EUR	0.45%	2.75%	0.44%	0.01%
AUD	n.a.	n.a.	n.a.	2.34%
CAD	n.a.	n.a.	n.a.	2.31%
CHF	n.a.	2.63%	-0.11%	-0.42%
CNY	n.a.	n.a.	n.a.	2.79%
DKK	n.a.	n.a.	n.a.	-0.14%
GBP	n.a.	3.64%	n.a.	1.05%
HKD	n.a.	2.29%	n.a.	1.98%
MOP	n.a.	n.a.	n.a.	2.14%
MZN	n.a.	19.82%	n.a.	12.03%
NOK	n.a.	n.a.	n.a.	1.57%
PLN	1.36%	5.47%	1.72%	1.61%
SEK	n.a.	n.a.	n.a.	0.17%
USD	2.90%	5.36%	2.76%	2.56%
ZAR	6.80%	16.18%	n.a.	4.93%

As at 31 December 2017, the average discount rates for Loans and advances to credit institutions, Loans and advances to customers, Resources from credit institutions and Resources from customers are analysed as follows:

	2017			
	Loans and advances to credit institutions	Loans and advances to customers	Resources from credit institutions	Resources from customers
EUR	0.67%	3.70%	0.28%	0.08%
AOA	20.91%	n.a.	n.a.	n.a.
AUD	n.a.	n.a.	n.a.	2.08%
CAD	n.a.	1.66%	n.a.	1.90%
CHF	n.a.	2.67%	-0.11%	-0.42%
CNY	n.a.	n.a.	n.a.	3.95%
DKK	n.a.	n.a.	n.a.	-0.02%
GBP	0.80%	3.39%	n.a.	0.77%
HKD	n.a.	1.51%	n.a.	1.16%
MOP	n.a.	1.25%	n.a.	1.51%
MZN	22.26%	42.48%	n.a.	32.48%
NOK	0.80%	4.36%	n.a.	1.25%
PLN	1.91%	6.24%	1.90%	1.69%
SEK	n.a.	n.a.	n.a.	0.02%
USD	1.99%	16.76%	2.08%	3.21%
ZAR	7.28%	29.12%	n.a.	17.11%

Financial assets and liabilities measured at fair value through profit or loss (except derivatives), financial assets at fair value through other comprehensive income (IFRS 9) and financial assets available for sale (IAS 39)

These financial instruments are accounted for at fair value. Fair value is based on market prices ("Bid-price"), whenever these are available. If market prices are not available, fair value is estimated through numerical models based on cash-flow discounting techniques, using the market interest rate curve adjusted for factors associated, predominantly credit risk and liquidity risk, determined in accordance with the market conditions and time frame.

Market interest rates are determined based on information released by the suppliers of financial content - Reuters and Bloomberg - more specifically because of the prices of interest rate swaps. The values for the very short-term rates are obtained from similar sources but regarding interbank money market. The interest rate curve obtained is calibrated with the values of interest rate short-term futures. Interest rates for specific periods of the cash flows are determined by appropriate interpolation methods. The same interest rate curves are used in the projection of the non-deterministic cash flows such as indexes.

When optionality is involved, the standard templates (Black-Scholes, Black, Ho and others) are used considering the volatility areas applicable. Whenever there are no references in the market of sufficient quality or that the available models do not fully apply to meet the characteristics of the financial instrument, specific quotations supplied by an external entity are applied, typically a counterparty of the business.

Financial assets measured at amortised cost - Debt instruments (IFRS 9)

These financial instruments are accounted at amortised cost net of impairment. Fair value is based on market prices, whenever these are available. If market prices are not available, fair value is estimated through numerical models based on cash-flow discounting techniques, using the market interest rate curve adjusted for factors associated, predominantly credit risk and liquidity risk, determined in accordance with the market conditions and time frame.

Hedging and trading derivatives

All derivatives are recorded at fair value. In case of derivative contracts that are quoted in organised markets their market prices are used. As for derivatives traded "Over-the-counter", it is applied methods based on numerical cash-flow discounting techniques and models for assessment of options considering variables of the market, particularly the interest rates on the instruments in question, and where necessary, their volatilities.

Interest rates are determined based on information disseminated by the suppliers of financial content - Reuters and Bloomberg - more specifically those resulting from prices of interest rate swaps. The values for the very short-term rates are obtained from a similar source but regarding interbank money market. The interest rate curve obtained is calibrated with the values of interest rate short-term futures. Interest rates for specific periods of the cash flows are determined by appropriate interpolation methods. The interest rate curves are used in the projection of the non-deterministic cash flows such as indexes.

Debt securities non subordinated issued and subordinated debt

For these financial instruments the fair value was calculated for components for which fair value is not yet reflected in the balance sheet. Fixed rate remunerated instruments for which the Group adopts "hedge-accounting", the fair value related to the interest rate risk is already recognised.

For the fair value calculation, other components of risk were considered, in addition to the interest rate risk already recorded, when applicable. The fair value is based on market prices, whenever these are available. If market prices are not available, fair value is estimated through numerical models based on cash-flow discounting techniques, using the market interest rate curve adjusted by associated factors, predominantly credit risk and trading margin, the latter only in the case of issues placed on non-institutional customers of the Group.

As original reference, the Group applies the curves resulting from the market interest rate swaps for each specific currency. The credit risk (credit spread) is represented by an excess from the curve of interest rate swaps established specifically for each term and class of instruments based on the market prices on equivalent instruments.

For own issued debts placed among non-institutional customers of the Group, one more differential was added (commercial spread), which represents the margin between the financing cost in the institutional market and the cost obtained by distributing the respective instrument in the owned commercial network.

The average of the reference rates of the yield curve obtained from the market prices of the different currencies used in the determination of the fair value of the issues is analysed as follows:

	2018			2017	
	EUR	PLN	USD	EUR	PLN
Placed in the institutional market					
Subordinated	6.92%	0.00%	-	6.42%	-
Senior (including mortgage)	0.05%	2.22%	0.00%	0.13%	2.45%
Placed in retail					
Subordinated	2.64%	0.00%	-	2.01%	-
Senior and collateralised	0.36%	2.35%	3.30%	1.06%	2.92%

For debt securities, the fair value calculation focused on all the components of these instruments, as a result the difference determined is a negative amount of Euros 9,663,000 (31 December 2017: a negative amount of Euros 14,199,000) and includes a payable amount of Euros 7,424,000 (31 December 2017: a payable amount of Euros 10,272,000) which reflects the fair value of embedded derivatives and are recorded in financial assets and liabilities held for trading (note 23 and 37).

As at 31 December 2018 and 2017, the following table presents the interest rates used in the definition of the interest rate curves of main currencies, namely EUR, USD, GBP and PLN used to determine the fair value of the financial assets and liabilities of the Group:

	2018			
	Currencies			
	EUR	USD	GBP	PLN
1 day	-0.43%	2.75%	0.75%	1.44%
7 days	-0.40%	2.55%	0.78%	1.44%
1 month	-0.41%	2.57%	0.80%	1.54%
2 months	-0.38%	2.61%	0.85%	1.58%
3 months	-0.36%	2.72%	0.96%	1.62%
6 months	-0.29%	2.81%	1.08%	1.69%
9 months	-0.23%	2.88%	1.18%	1.72%
1 year	-0.23%	2.74%	1.29%	1.74%
2 years	-0.18%	2.65%	1.16%	1.82%
3 years	-0.07%	2.58%	1.22%	1.91%
5 years	0.20%	2.57%	1.30%	2.12%
7 years	0.47%	2.62%	1.36%	2.29%
10 years	0.82%	2.70%	1.43%	2.48%
15 years	1.17%	2.79%	1.51%	2.75%
20 years	1.35%	2.82%	1.55%	2.88%
30 years	1.41%	2.81%	1.54%	2.88%

	2017			
	Currencies			
	EUR	USD	GBP	PLN
1 day	-0.43%	1.42%	0.47%	1.47%
7 days	-0.43%	1.50%	0.51%	1.47%
1 month	-0.42%	1.63%	0.50%	1.55%
2 months	-0.39%	1.65%	0.56%	1.58%
3 months	-0.38%	1.70%	0.61%	1.62%
6 months	-0.32%	1.83%	0.72%	1.71%
9 months	-0.27%	1.90%	0.81%	1.72%
1 year	-0.26%	1.88%	0.88%	1.80%
2 years	-0.15%	2.06%	0.78%	2.03%
3 years	0.01%	2.15%	0.89%	2.22%
5 years	0.31%	2.23%	1.03%	2.50%
7 years	0.57%	2.30%	1.14%	2.70%
10 years	0.89%	2.38%	1.27%	2.94%
15 years	1.25%	2.47%	1.41%	3.25%
20 years	1.42%	2.51%	1.46%	3.37%
30 years	1.50%	2.52%	1.43%	3.37%

The following table shows the fair value of financial assets and liabilities of the Group, as at 31 December 2018:

(Thousands of euros)

	2018				
	Fair value through profit or loss	Fair value through other comprehensive income	Amortised cost	Book value	Fair value
Assets					
Cash and deposits at Central Banks	-	-	2,753,839	2,753,839	2,753,839
Loans and advances to credit institutions repayable on demand	-	-	326,707	326,707	326,707
Financial assets at amortised cost					
Loans and advances to credit institutions	-	-	890,033	890,033	889,441
Loans and advances to customers (i)	-	-	45,560,926	45,560,926	45,128,921
Debt instruments	-	-	3,375,014	3,375,014	3,381,178
Financial assets at fair value through profit or loss					
Financial assets held for trading	870,454	-	-	870,454	870,454
Financial assets not held for trading mandatorily at fair value through profit or loss	1,404,684	-	-	1,404,684	1,404,684
Financial assets designated at fair value through profit or loss	33,034	-	-	33,034	33,034
Financial assets at fair value through other comprehensive income	-	13,845,625	-	13,845,625	13,845,625
Assets with repurchase agreement	-	-	58,252	58,252	58,259
Hedging derivatives (ii)	123,054	-	-	123,054	123,054
	2,431,226	13,845,625	52,964,771	69,241,622	68,815,196
Liabilities					
Financial liabilities at amortised cost					
Resources from credit institutions	-	-	7,752,796	7,752,796	7,716,281
Resources from customers (i)	-	-	52,664,687	52,664,687	52,675,638
Non subordinated debt securities issued (i)	-	-	1,686,087	1,686,087	1,676,424
Subordinated debt (i)	-	-	1,072,105	1,072,105	1,126,038
Financial liabilities at fair value through profit or loss					
Financial liabilities held for trading	327,008	-	-	327,008	327,008
Financial liabilities designated at fair value through profit or loss	3,603,647	-	-	3,603,647	3,603,647
Hedging derivatives (ii)	177,900	-	-	177,900	177,900
	4,108,555	-	63,175,675	67,284,230	67,302,936

(i) - The book value includes the effect of the adjustments resulting from the application of hedge accounting;

(ii) - Includes a portion that is recognised in reserves in the application of accounting cash flow hedge.

The following table shows the fair value of financial assets and liabilities of the Group, as at 31 December 2017:

(Thousands of euros)

	2017				
	Fair value through profit or loss	Fair value through reserves	Amortised cost	Book value	Fair value
Assets					
Cash and deposits at Central Banks	-	-	2,167,934	2,167,934	2,167,934
Loans and advances to credit institutions repayable on demand	-	-	295,532	295,532	295,532
Financial assets at amortised cost					
Loans and advances to credit institutions	-	-	1,065,568	1,065,568	1,064,736
Loans and advances to customers (i)	-	-	45,625,972	45,625,972	43,270,523
Debt instruments	-	-	2,007,520	2,007,520	2,017,084
Financial assets at fair value through profit or loss					
Financial assets held for trading	897,734	-	-	897,734	897,734
Financial assets designated at fair value through profit or loss					
Financial assets available for sale	-	11,471,847	-	11,471,847	11,471,847
Financial assets held to maturity	-	-	411,799	411,799	406,335
Hedging derivatives (ii)	234,345	-	-	234,345	234,345
	1,274,415	11,471,847	51,574,325	64,320,587	61,968,406
Liabilities					
Financial liabilities at amortised cost					
Resources from credit institutions	-	-	7,487,357	7,487,357	7,441,083
Resources from customers (i)	-	-	48,285,425	48,285,425	48,275,865
Non subordinated debt securities issued (i)	-	-	2,066,538	2,066,538	2,052,339
Subordinated debt (i)	-	-	1,169,062	1,169,062	1,331,397
Financial liabilities at fair value through profit or loss					
Financial liabilities held for trading	399,101	-	-	399,101	399,101
Financial liabilities designated at fair value through profit or loss					
Hedging derivatives (ii)	177,337	-	-	177,337	177,337
	4,420,083	-	59,008,382	63,428,465	63,520,767

(i) - The book value includes the effect of the adjustments resulting from the application of hedge accounting;

(ii) - Includes a portion that is recognised in reserves in the application of accounting cash flow hedge.

The Group classified the financial instruments recorded in the balance sheet at fair value in accordance with the hierarchy established in IFRS 13. The fair value of financial instruments is determined using quotations recorded in active and liquid markets, considering that a market is active and liquid whenever its stakeholders conduct transactions on a regular basis giving liquidity to the instruments traded. When it is verified that there are no transactions that regularly provide liquidity to the traded instruments, valuation methods and techniques are used to determine the fair value of the financial instruments.

Level 1 - With quotation in active market

In this category are included, in addition to financial instruments traded on a regulated market, bonds and units of investment funds valued based on the prices disclosed through trading systems.

The classification of the fair value of level 1 is used when:

- i) - There is a firm daily enforceable quotation for the financial instruments concerned, or;
- ii) - There is a quotation available in market information systems that aggregate multiple prices of various stakeholders, or;
- iii) - Financial instruments have been classified in level 1, at least 90% of trading days in the year (at the valuation date).

Level 2 - Valuation methods and techniques based on market data

Financial instruments, when there are no regular transactions in the active and liquid markets (level 1), are classified in level 2, according to the following rules:

- i) - Failure to comply with the rules defined for level 1, or;
- ii) - They are valued based on valuation methods and techniques that use mostly observable market data (interest rate or exchange rate curves, credit curves, etc.).

Level 2 includes over-the-counter derivative financial instruments contracted with counterparties with which the Bank maintains collateral agreements (ISDAs with Credit Support Annex (CSA)), in particular with MTA (Minimum Transfer Amount) which contributes to the mitigation of the counterparty credit risk, so that the CVA (Credit Value Adjustment) component is not significant. In addition, derivative financial instruments traded in the over-the-counter market, which, despite not having CSA agreements, the non-observable market data component (i.e. internal ratings, default probabilities determined by internal models, etc.) incorporated in valuation of CVA is not significant in the value of the derivative as a whole. In order to assess the significance of this component, the Bank defined a quantitative relevance criterion and performed a qualitative sensitivity analysis on the valuation component that includes unobservable market data.

Level 3 - Valuation methods and techniques based on data not observable in the market

If the level 1 or level 2 criteria are not met, financial instruments should be classified in level 3, as well as in situations where the fair value of financial instruments results from the use of information not observable in the market, such as:

- financial instruments which are not classified as level 1 and which are valued using evaluation methods and techniques without being known or where there is consensus on the criteria to be used, namely:

- i) - They are valued using comparative price analysis of financial instruments with risk and return profile, typology, seniority or other similar factors, observable in the active and liquid markets;
- ii) - They are valued based on performance of impairment tests, using performance indicators of the underlying transactions (e.g. default probability rates of the underlying assets, delinquency rates, evolution of the ratings, etc.);
- iii) - They are valued based on NAV (Net Asset Value) disclosed by the management entities of securities/real estate/other investment funds not listed on a regulated market.

Level 3 includes over-the-counter derivative financial instruments that have been contracted with counterparties with which the Bank does not maintain collateral exchange agreements (CSAs), and whose unobservable market data component incorporated in the valuation of CVA is significant in the value of the derivative as a whole. In order to assess the significance of this component, the Bank defined a quantitative relevance criterion and performed a qualitative sensitivity analysis on the valuation component that includes unobservable market data.

The following table shows, by valuation levels, the fair value of financial assets and liabilities of the Group, as at 31 December 2018:

	(Thousands of euros)			
	2018			
	Level 1	Level 2	Level 3	Total
Assets				
Cash and deposits at Central Banks	2,753,839	-	-	2,753,839
Loans and advances to credit institutions repayable on demand	326,707	-	-	326,707
Financial assets at amortised cost				
Loans and advances to credit institutions	-	-	889,441	889,441
Loans and advances to customers	-	-	45,128,921	45,128,921
Debt instruments	122,601	677,298	2,581,279	3,381,178
Financial assets at fair value through profit or loss				
Financial assets held for trading	214,531	347,770	308,153	870,454
Financial assets not held for trading mandatorily at fair value through profit or loss				
Financial assets designated at fair value through profit or loss	-	-	1,404,684	1,404,684
Financial assets designated at fair value through profit or loss	33,034	-	-	33,034
Financial assets at fair value through other comprehensive income	12,986,573	831,266	27,786	13,845,625
Assets with repurchase agreement	-	-	58,259	58,259
Hedging derivatives	-	123,054	-	123,054
	16,437,285	1,979,388	50,398,523	68,815,196
Liabilities				
Financial liabilities at amortised cost				
Resources from credit institutions	-	-	7,716,281	7,716,281
Resources from customers	-	-	52,675,638	52,675,638
Non subordinated debt securities issued	-	-	1,676,424	1,676,424
Subordinated debt	-	-	1,126,038	1,126,038
Financial liabilities at fair value through profit or loss				
Financial liabilities held for trading	266	289,039	37,703	327,008
Financial liabilities designated at fair value through profit or loss	678,192	-	2,925,455	3,603,647
Hedging derivatives	-	177,900	-	177,900
	678,458	466,939	66,157,539	67,302,936

The following table shows, by valuation levels, the fair value of financial assets and liabilities of the Group, as at 31 December 2017:

	(Thousands of euros)			
	2017			
	Level 1	Level 2	Level 3	Total
Assets				
Cash and deposits at Central Banks	2,167,934	-	-	2,167,934
Loans and advances to credit institutions repayable on demand	295,532	-	-	295,532
Financial assets at amortised cost				
Loans and advances to credit institutions	-	-	1,064,736	1,064,736
Loans and advances to customers	-	-	43,270,523	43,270,523
Debt instruments	-	-	2,017,084	2,017,084
Financial assets at fair value through profit or loss				
Financial assets held for trading	149,910	442,373	305,451	897,734
Financial assets designated at fair value through profit or loss	142,336	-	-	142,336
Financial assets available for sale	8,224,992	1,946,229	1,300,626	11,471,847
Financial assets held to maturity	192,710	133,009	80,616	406,335
Hedging derivatives	-	234,345	-	234,345
	11,173,414	2,755,956	48,039,036	61,968,406
Liabilities				
Financial liabilities at amortised cost				
Resources from credit institutions	-	-	7,441,083	7,441,083
Resources from customers	-	-	48,275,865	48,275,865
Non subordinated debt securities issued	763,919	-	1,288,420	2,052,339
Subordinated debt	-	-	1,331,397	1,331,397
Financial liabilities at fair value through profit or loss				
Financial liabilities held for trading	1,019	387,157	10,925	399,101
Financial liabilities designated at fair value through profit or loss	763,919	-	3,079,726	3,843,645
Hedging derivatives	-	177,337	-	177,337
	1,528,857	564,494	61,427,416	63,520,767

For financial assets classified at level 3 recorded in the balance sheet at fair value, the movement occurred during 2018 is presented as follows:

(Thousands of euros)

	2018				
	Financial assets				Financial liabilities held for trading (*)
	Held for trading	Not held for trading mandatorily at fair value through profit or loss	At fair value through other comprehensive income	Available for sale	
Balance as at 31 December 2017	305,451	-	-	1,300,626	10,925
Impact of transition to IFRS 9	-	1,381,734	29,509	(1,300,626)	-
Balance as at 1 January	305,451	1,381,734	29,509	-	10,925
Gains / (losses) recognised in profit or loss					
Results on financial operations	2,121	(12,175)	-	-	(1,924)
Net interest income	-	23,128	-	-	-
Transfers between portfolios	(3)	-	3	-	-
Transfers between levels	(3,113)	-	-	-	(265)
Purchases	12,044	28,824	3,848	-	397
Sales, repayments or amortisations	(8,347)	(9,451)	(9,149)	-	(233)
Gains / (losses) recognised in reserves	-	-	3,641	-	-
Exchange differences	-	(7,376)	(66)	-	-
Balance as at 31 December	308,153	1,404,684	27,786	-	8,900

(*) Do not include short sales, which at 31 December 2018 amounts to Euros 28,803,000 (note 37).

For financial assets classified at level 3 recorded in the balance sheet at fair value, the movement occurred during 2017 is presented as follows:

(Thousands of euros)

	2017		
	Financial assets		Financial liabilities held for trading
	Held for trading	Available for sale	
Balance as at 1 January	614,220	1,296,171	63,816
Gains / (losses) recognised in profit or loss			
Results on financial operations	43,980	2,823	30
Net interest income	-	1,859	-
Impairment and other provisions	-	(63,150)	-
Transfers from investments in associated companies	-	1,536	-
Transfers between levels	(346,406)	-	(55,695)
Purchases	5,308	276,822	10,825
Sales, repayments or amortisations	(11,651)	(227,509)	(8,051)
Gains / (losses) recognised in reserves	-	6,289	-
Exchange differences	-	4,902	-
Accruals of interest	-	883	-
Balance as at 31 December	305,451	1,300,626	10,925