1.2. BANKING GROUP - MARKET RISKS

As already highlighted in the introduction, the Intesa Sanpaolo Group policies relating to financial risk acceptance are defined by the Parent Company's Management Bodies, with the support of specific Committees, including the Group Risk Governance Committee and Group Financial Risks Committee.
The Group Risk Governance Committee is in charge, beside other functions, of proposing the Group risk management strategies and policies to the Statutory bodies, of ensuring compliance with the guidelines and indications of the Supervisory Authority concerning risk governance and of assessing the adequacy of the Group's economic and regulatory capital. The Committee coordinates the activities of specific Technical Committees, monitoring financial and operational risks, and is chaired by the Managing Director and CEO.
The Group Financial Risks Committee, chaired by the Chief Risk Officer and the Chief Financial Officer, is responsible for setting out the methodological and measurement guidelines for financial risks, establishing the operational limits and assessing the risk profile of the Group and its main operational units. The Committee also sets out the strategies for the management of the banking book to be submitted to the competent Bodies and establishes the guidelines on liquidity, interest rate and foreign exchange risk. The Committee operates on the basis of the operating and functional powers delegated by the Statutory bodies and coordination of the Group Risk Governance Committee.
The Group's overall financial risk profile and the eventual necessary changes are examined periodically by the Group Financial Risks Committee.
The Parent Company's Financial and Market Risks Department is responsible for the development of corporate risk measurement and monitoring methodologies as well as for the proposals on the Bank's and the Group's system of operating limits. It is also responsible in outsourcing for the risk measurement for certain operating units on the basis of specific service contracts.

The table below shows the items of the consolidated Balance Sheet that are subject to market risks, showing the positions for which VaR is the main risk measurement metrics and those for which the risks are monitored with other metrics. The latter mostly include the sensitivity analysis to the different risk factors (interest rate, credit spread, etc.).

(millions of euro)

	BOOK VALUE (supervisory scope)	**MAIN RISK MEASUREMENT METRICS** VaR	Other	Risk factors measured using metrics included under Other
Assets subject to market risk	**546,474**	**105,061**	**441,413**	
Financial assets held for trading	43,124	42,255	869	Interest rate risk, credit spread, equity
Financial assets designated at fair value through profit and loss	1,372	972	400	Interest rate risk, credit spread
Financial assets available for sale	67,412	61,704	5,708	Interest rate risk, equity risk
Financial assets held to maturity	1,241	-	1,241	Interest rate risk
Due from banks	52,535	-	52,535	Interest rate risk
Loans to customers	368,270	-	368,270	Interest rate risk
Hedging derivatives	6,234	130	6,104	Interest rate risk
Investments in associates and companies subject to joint control	6,286	-	6,286	Equity risk
Liabilities subject to market risk	**520,171**	**45,327**	**474,844**	
Due to banks	72,555	-	72,555	Interest rate risk
Due to customers	296,464	-	296,464	Interest rate risk
Securities issued	97,383	-	97,383	Interest rate risk
Financial liabilities held for trading	44,737	44,492	245	Interest rate risk
Financial liabilities designated at fair value through profit and loss	4	-	4	-
Hedging derivatives	9,028	835	8,193	Interest rate risk

REGULATORY TRADING BOOK

1.2.1. INTEREST RATE RISK AND PRICE RISK

Consistent with the use of internal risk measurement models, the sections relative to interest rate and price risk have been grouped within the relevant portfolio.

QUALITATIVE INFORMATION

The quantification of trading risks is based on daily and periodic VaR of the trading portfolios of Intesa Sanpaolo and Banca IMI, which represent the main portion of the Group's market risks, to adverse market movements of the following risk factors:

- interest rates;
- equities and market indexes;
- investment funds;
- foreign exchange rates;
- implied volatilities;
- spreads in credit default swaps (CDSs);
- spreads in bond issues;
- correlation instruments;
- dividend derivatives;
- asset-backed securities (ABSs);
- commodities.

A number of the other Group subsidiaries hold smaller trading portfolios with a marginal risk (around 1% of the Group's overall risk). In particular, the risk factors of the international subsidiaries' trading portfolios are interest rates and foreign exchange rates, both relating to linear pay-offs.

Internal model validation

For some of the risk factors indicated above, the Supervisory Authority has validated the internal models for the reporting of the capital absorptions of both Intesa Sanpaolo and Banca IMI.
In particular, the validated risk profiles for market risks are: (i) generic/specific on debt securities and on equities for Intesa Sanpaolo and Banca IMI, (ii) position risk on quotas of UCI underlying CPPI (Constant Proportion Portfolio Insurance) products for Banca IMI, (iii) position risk on dividend derivatives and (iv) position risk on commodities for Banca IMI, the only legal entity in the Group authorised to hold open positions in commodities.
Effective from June 2014, market risks are to be reported according to the internal model for capital requirements for the Parent Company's hedge fund portfolios.
Starting from 1 July 2014, the capital requirements deriving from the use of internal models will benefit from the reduction in the prudential multipliers established by the Supervisory Authority following completion of the previously recommended corrective actions.

Stressed VaR

Capital absorption includes the requirement for stressed VaR. The requirement derives from the determination of the VaR associated with a market stress period. This period was identified considering the following guidelines, on the basis of the indications presented in the Basel document "Revision to the Basel 2 market risk framework":

- the period must represent a stress scenario for the portfolio;
- the period must have a significant impact on the main risk factors for the portfolios of Intesa Sanpaolo and Banca IMI;
- the period must allow real historical series to be used for all portfolio risk factors.

In keeping with the historical simulation approach employed to calculate VaR, the latter point is a discriminating condition in the selection of the holding period. In fact, in order to ensure that the scenario adopted is effectively consistent and to avoid the use of driver or comparable factors, the historical period must ensure the effective availability of market data.
As at the date of preparation of the document, the period relevant to the measurement of stressed VaR was set as 1 January to 30 December 2011 for Intesa Sanpaolo and as 1 July 2011 to 30 June 2012 for Banca IMI.

VaR

The analysis of market risk profiles relative to the trading book uses various quantitative indicators and VaR is the most important. Since VaR is a synthetic indicator which does not fully identify all types of potential loss, risk management has been enriched with other measures, in particular simulation measures for the quantification of risks from illiquid parameters (dividends, correlation, ABS, hedge funds).
VaR estimates are calculated daily based on simulations of historical time-series, a 99% confidence level and 1-day holding period.
The section "Quantitative information" presents the estimates and evolution of VaR, defined as the sum of VaR and of the simulation on illiquid parameters, for the trading book of Intesa Sanpaolo and Banca IMI.

Incremental Risk Charge (IRC)

The Incremental Risk Charge (IRC) is the maximum potential loss in the credit trading portfolio resulting from an upgrade/downgrade or bankruptcy of the issuers, over a 1-year period, with a 99.9% confidence level. This measure is additional to VaR and enables the correct representation of the specific risk on debt securities and credit derivatives because, in addition to idiosyncratic risk, it also captures event and default risk.

Stress tests

Stress tests measure the value changes of instruments or portfolios due to changes in risk factors of unexpected intensity and correlation, or extreme events, as well as changes representative of expectations of the future evolution of market variables. Stress tests are applied periodically to market risk exposures, typically adopting scenarios based on historical trends recorded by risk factors, for the purpose of identifying past worst case scenarios, or defining variation grids of risk factors to highlight the direction and non-linearity of trading strategies.

Sensitivity and greeks

Sensitivity measures make risk profiling more accurate, especially in the presence of option components. These measure the risk attributable to a change in the value of a financial position to predefined changes in valuation parameters including a one basis point increase in interest rates.

Level measures

Level measures are risk indicators which are based on the assumption of a direct relationship between the size of a financial position and the risk profile. These are used to monitor issuer/sector/country risk exposures for concentration analysis, through the identification of notional value, market value or conversion of the position in one or more benchmark instruments (so-called equivalent position).

QUANTITATIVE INFORMATION

Daily VaR evolution

During the fourth quarter of 2016, the market risks originated by Intesa Sanpaolo and Banca IMI declined compared to the previous period: the average daily VaR for the fourth quarter of 2016 was 75.6 million euro, down on the third quarter, primarily for Banca IMI.
With regard to the whole of 2016, the Group's average risk profile (94.9 million euro) increased slightly compared to the average values in 2015 (94.4 million euro).

Daily VaR of the trading book for Intesa Sanpaolo and Banca IMI[(a)]

(millions of euro)

	average 4th quarter	minimum 4th quarter	maximum 4th quarter	average 3rd quarter	average 2nd quarter	average 1st quarter
Intesa Sanpaolo	11.7	10.1	15.1	11.5	11.5	14.9
Banca IMI	63.8	51.8	70.5	90.6	85.5	90.0
Total	**75.6**	**63.3**	**84.1**	**102.2**	**97.0**	**104.9**

(a) Each line in the table sets out the past estimates of daily operating VaR calculated on the quarterly historical time-series respectively of Intesa Sanpaolo and Banca IMI; total minimum and maximum values are estimated using aggregate historical time-series and therefore do not correspond to the sum of the individual values in the column.

Daily VaR of the trading book for Intesa Sanpaolo and Banca IMI – Comparison between 2016-2015 [(a)]

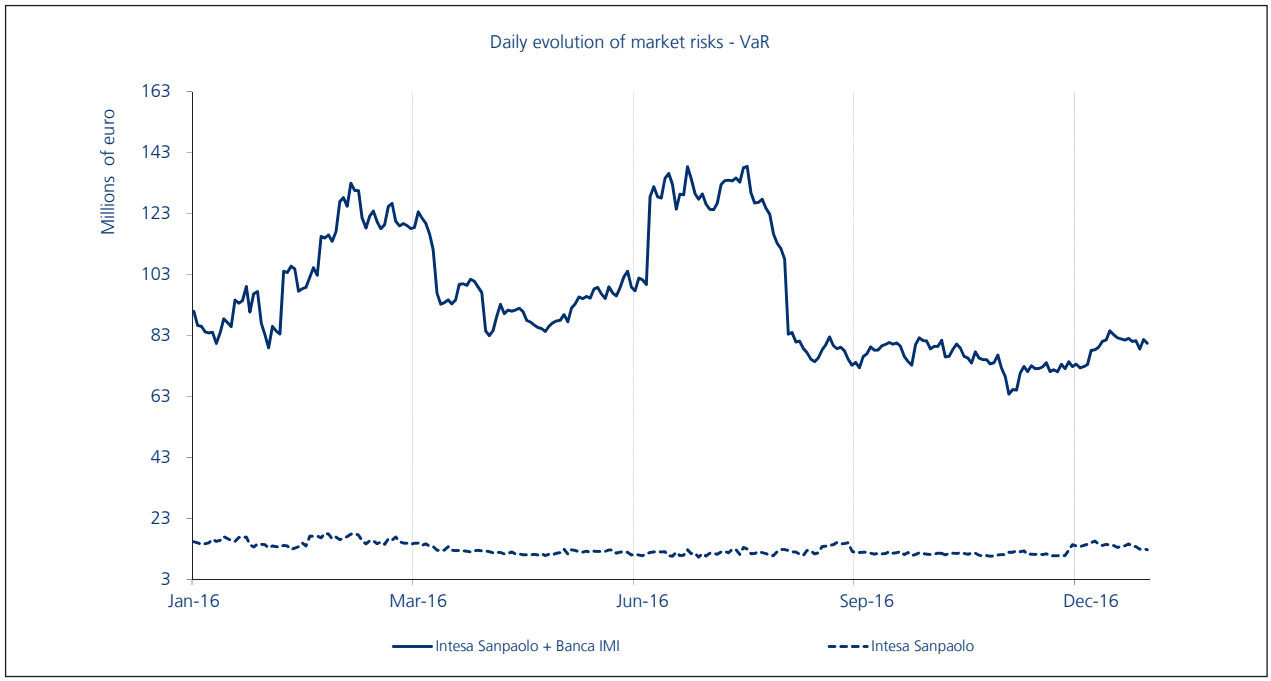
(millions of euro)

	2016				2015		
	average	minimum	maximum	last day	average	minimum	maximum
Intesa Sanpaolo	12.4	9.8	17.6	12.2	12.7	6.0	18.5
Banca IMI	82.5	51.8	125.6	67.7	81.7	54.0	116.3
Total	**94.9**	**63.3**	**137.9**	**79.9**	**94.4**	**64.6**	**125.8**

(a) Each line in the table sets out the past estimates of daily operating VaR calculated on the annual historical time-series respectively of Intesa Sanpaolo and Banca IMI; total minimum and maximum values are estimated using aggregate historical time-series and therefore do not correspond to the sum of the individual values in the column.

The trend in the Group's VaR, shown in the following chart, was mainly determined by Banca IMI.

The performance of VaR is mainly explained by the operations of Banca IMI. In the first part of the year, risks increased due to the purchases made within the RAF limits approved for 2016. Then, in the second quarter, VaR fell following the reduction of risks and exits from scenarios of volatility. On 24 June 2016, in correspondence to the outcome of the referendum in the UK (Leave victory), volatility of credit spreads was then recorded on the markets accompanied by lower interest rates and share prices. This new scenario generated an increase in the Group's VaR, which at the end of June recorded a peak of 134 million euro. Risk measures continued to be contained within the assigned limits. During the third quarter, in addition to further exclusions of volatile scenarios, there was also a decrease in positions in government and financial securities. Thereafter risk measures were stable.



Contribution of risk factors to total VaR[(a)]

4th quarter 2016	Shares	Hedge funds	Interest rates	Credit spreads	Foreign exchange rates	Other parameters	Commodities
Intesa Sanpaolo	5%	8%	26%	16%	42%	3%	0%
Banca IMI	4%	0%	12%	75%	1%	4%	4%
Total	**4%**	**1%**	**14%**	**67%**	**7%**	**4%**	**3%**

(a) Each line in the table sets out the contribution of risk factors considering the overall VaR 100%, calculated as the average of daily estimates in the fourth quarter of 2016, broken down between Intesa Sanpaolo and Banca IMI and indicating the distribution of overall VaR.

For Intesa Sanpaolo the breakdown of the risk profile in the fourth quarter of 2016, with regard to the various factors, shows the prevalence of the risk generated by foreign exchange, which accounted for 42% of total VaR (primarily linked to hedge positions of banking book entries, excluding which, the component relating to interest rate risk is the main one); for Banca IMI, credit spread risk was the most significant, representing 75% of total VaR.

Contribution of strategies to portfolio breakdown [(a)]

	31.12.2016	31.12.2015
- Catalist Driven	12.4%	14.7%
- Credit	37.8%	42.0%
- Directional trading	33.4%	18.2%
- Equity hedged	0.0%	19.1%
- Equity Long Only	3.3%	5.8%
- Multi-strategy	13.1%	0.2%
Total hedge funds	**100.0%**	**100.0%**

(a) The table sets out on every line the percentage of total cash exposures calculated on amounts at period-end.

In 2016 the hedge fund portfolio maintained an asset allocation with a focus on strategies relating to distressed credit (38% of the total in terms of portfolio value).
Risk control with regard to the trading activity of Intesa Sanpaolo and Banca IMI also uses scenario analyses and stress tests. The impact on the income statement of selected scenarios relating to the evolution of stock prices, interest rates, credit spreads and foreign exchange rates as at the end of December is summarised in the following table: The shocks applied to the portfolio were updated by the Financial and Market Risks Department.

(millions of euro)

	EQUITY		INTEREST RATES		CREDIT SPREADS		FOREIGN EXCHANGE RATES		COMMODITIES	
	Crash	Bullish	+40bp	lower rate	-25bp	+25bp	-10%	+10%	Crash	Bullish
Total	-32	37	-73	41	260	-253	29	-40	8	-5

In particular:
- for positions on equity markets, there would be a theoretical loss of 32 million euro in the event of a market crash (decline in prices of 15% on the European market and of 10% on the U.S. market and increase in volatility of 25%);
- for positions in interest rates, there would be a loss of 73 million euro in the event of an increase in rate curves of 40 bps;
- for positions in credit spreads, a widening of credit spreads of 25 bps would entail a loss of 253 million euro;
- for positions in foreign exchange, there would be losses in the event of a 10% increase in the EUR-USD exchange rate.
- finally, for positions in commodities, an increase in commodity prices of 20% (accompanied by a reduction in the price of gold of 15%) would entail a loss of 5 million euro.

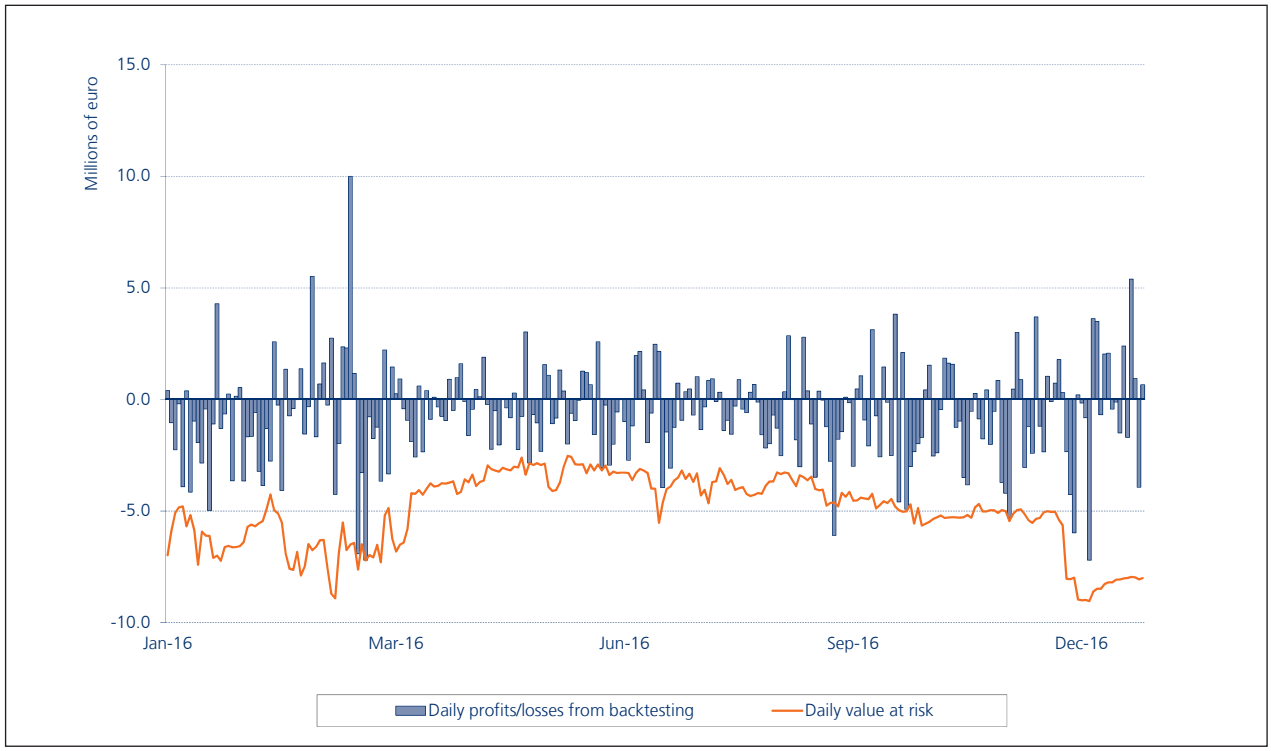
Backtesting

The effectiveness of the VaR calculation methods must be monitored daily via backtesting which, as concerns regulatory backtesting, compares:
- the daily estimates of value at risk;
- the daily profits/losses based on backtesting which are determined using actual daily profits and losses achieved by individual desks, net of components which are not considered in backtesting such as commissions and intraday activities.

Backtesting allows verification of the model's capability of correctly seizing, from a statistical viewpoint, the variability in the daily valuation of trading positions, covering an observation period of one year (approximately 250 estimates). Any critical situations relative to the adequacy of the Internal Model are represented by situations in which daily profits/losses based on backtesting highlight more than three occasions, in the year of observation, in which the daily loss is higher than the value at risk estimate. Current regulations require that backtesting is performed by taking into consideration both the actual P&L series recorded and the theoretical series. The latter is based on revaluation of the portfolio value through the use of pricing models adopted for the VaR measurement calculation. The number of significant backtesting exceptions is determined as the maximum between those for actual P&L and theoretical P&L.

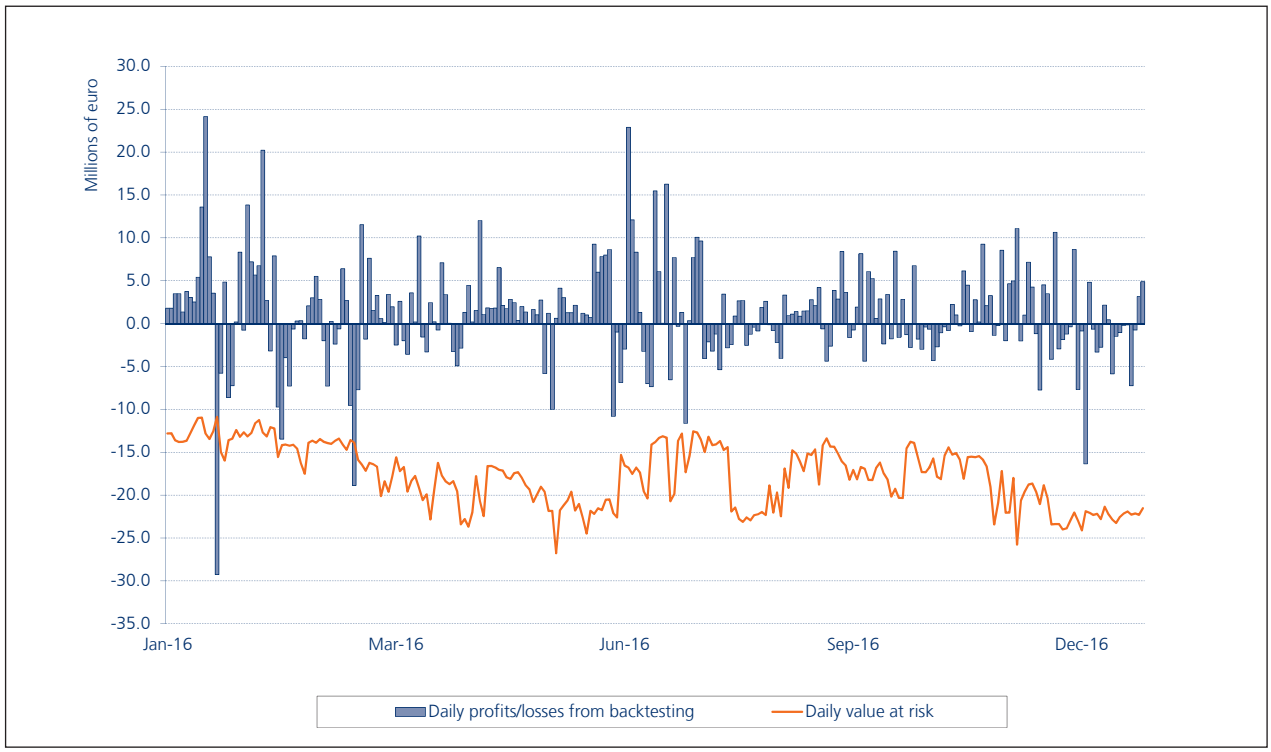
Backtesting in Intesa Sanpaolo

The effective backtesting exception of Intesa Sanpaolo relates to interest rate dynamics, with particular regard to the performance of cross currency swaps.



Backtesting in Banca IMI

The two backtesting exceptions of Banca IMI refer to the actual P&L data. The losses derive from the increased volatility of credit spreads.



Issuer risk

Issuer risk in the trading portfolio is analysed in terms of mark to market, with exposures aggregated by rating class, and it is monitored through a system of operating limits based on both sector/rating classes and concentration indexes.

Breakdown of exposures by type of issuer for Intesa Sanpaolo and Banca IMI [(a)]

	TOTAL	OF WHICH					
		Corporate	Financial	Emerging	Covered	Government	Securitis.
Intesa Sanpaolo	39%	5%	1%	0%	4%	81%	9%
Banca IMI	61%	8%	53%	0%	1%	9%	29%
Total	**100%**	**7%**	**33%**	**0%**	**2%**	**37%**	**21%**

[(a)] In the Total column, the table reports the contribution to total exposure of Intesa Sanpaolo and Banca IMI to issuer risk, breaking down the contribution to exposure by type of issuer. The scope is the trading book subject to issuer credit limit (excluding Italian Government and AAA, own securities) , including cds.

The breakdown of the portfolio subject to issuer risk shows the prevalence of securities in the government segment for Intesa Sanpaolo and the financial segment for Banca IMI.

Operating limits

The structure of limits reflects the risk level deemed to be acceptable with reference to single business areas, consistent with operating and strategic guidelines defined by top management. The attribution and control of limits at the various hierarchical levels implies the assignment of delegated powers to the heads of business areas, aimed at achieving the best trade-off between a controlled risk environment and the need for operating flexibility. The functioning of the system of limits and delegated powers is underpinned by the following basic concepts of hierarchy and interaction.
The application of such principles led to the definition of a structure of limits in which the distinction between first level and second level limits is particularly important:

– first level limits (VaR): at the level of individual legal entities, these are approved by the Board of Directors, concurrently with approval of the RAF. Limit absorption trends and the relative congruity analysis are periodically assessed by the Group Financial Risks Committee. Following approval, these limits are then allocated to the desks of the individual legal entities, considering the proposals by the business units;
– second level limits (sensitivity and greeks): they have the objective of controlling operations of the various desks on the basis of differentiated measures based on the specific characteristics of traded instruments and operating strategies, such as sensitivity, greeks and equivalent exposures.

In the 2016 RAF, a total limit of 155 million euro was set for the trading component, representing an increase compared to the previous year in relation to the guidelines for the RAF concerning the growth of the securities portfolio.

With respect to the component sub-allocated to the organisational units, it may be noted that the use of the VaR limit (held for trading component) for Intesa Sanpaolo averaged 57% in 2016, with a maximum use of 81%. For Banca IMI, the average VaR limit came to 66%, with a maximum use of 96%. It should be specified that for Banca IMI the VaR limit also includes the AFS component, inasmuch as these assets are managed in close synergy with HFT assets.

The use of the IRC limits at year end amounted to 15.8% for Intesa Sanpaolo (limit of 290 million euro) and 82% for Banca IMI (limit of 400 million euro).

The use of VaR operating limits on the AFS component (excluding Banca IMI) at year end was 38%. For 2016, the limit for this component was revised from 200 million euro to 260 million euro. The new limit is in line with the RAF guidelines concerning the increase in the securities portfolio.

BANKING BOOK
1.2.2 INTEREST RATE RISK AND PRICE RISK

QUALITATIVE INFORMATION

A. General aspects, interest rate risk and price risk management processes and measurement methods

Market risk originated by the banking book arises primarily in the Parent Company and the main Group companies involved in retail and corporate banking. The banking book also includes exposure to market risks deriving from the equity investments in listed companies not fully consolidated, mostly held by the Parent Company and IMI Investimenti.
The following methods are used to measure financial risks of the Group's banking book:

– Shift sensitivity of value (EVE);
– Value at Risk (VaR);
– Shift sensitivity of net interest income (NII);

The sensitivity of economic value (EVE) measures the change in the economic value of the Group's commercial portfolio following shocks in the market rates curves. The sensitivity of EVE is calculated by adopting various interest rate shock scenarios that consider not only parallel shifts in market curves, but also a range of potential scenarios that include conditions of severe stress with regard to the shape of the curve, the level of the current maturity structure of interest rates and historic and implicit rate volatility. The standard stock is defined as a parallel, uniform shift in the curve of +100 basis points. The measurements include an estimate of the prepayment effect and of the risk originated by on demand customer deposits, whose features of stability and of partial and delayed reaction to interest rate fluctuations have been studied by analysing a large collection of historical data, obtaining a maturity representation model through equivalent deposits. Equity risk sensitivity is measured as the impact of a price shock of ±10%.

Value at Risk is calculated as the maximum potential loss in the portfolio's market value that could be recorded over a 10-day holding period with a 99% confidence level (parametric VaR). Besides measuring the equity portfolio, VaR is also used to consolidate exposure to financial risks of the various Group companies which perform banking book activities, thereby taking into account diversification benefits. Value at Risk calculation models have certain limitations, as they are based on the statistical assumption of the normal distribution of the returns and on the observation of historical data that may not be repeated in the future. Consequently, VaR results cannot guarantee that the possible future losses will not exceed the statistically calculated estimates.
The Shift sensitivity analysis quantifies the change in value of a financial portfolio resulting from adverse movements in the main risk factors (interest rate, foreign exchange, equity). For interest rate risk, an adverse movement is defined as a parallel and uniform shift of +100 basis points of the interest rate curve.
The sensitivity of net interest income focuses the analysis on the impact that changes in interest rates can have on the Group's ability to generate stable profit levels. The component of profits measured is represented by the difference between the net interest income generated by interest-bearing assets and liabilities, including the results of hedging activities through the use of derivatives. The time horizon of reference is commonly limited to the short and medium term (from one to three years) and assesses the impact that the institution is able to continue with its activity (the going concern approach).

To determine changes in net interest income (□NII), standard scenarios of parallel rate shocks of +-50 basis points are applied, in reference to a time horizon of twelve months.

B. Fair value hedging
C. Cash flow hedging

Hedging of interest rate risk is aimed at (i) protecting the banking book from variations in the fair value of loans and deposits due to movements in the interest rate curve or (ii) reducing the volatility of future cash flows related to a particular asset/liability. The main types of derivative contracts used are interest rate swaps (IRS), overnight index swaps (OIS), cross-currency swaps (CCS) and options on interest rates stipulated with third parties or with other Group companies. The latter, in turn, cover risk in the market so that the hedging transactions meet the criteria to qualify as IAS-compliant for consolidated financial statements.
Hedging activities performed by the Intesa Sanpaolo Group are recorded using various hedge accounting methods.
A first method refers to the fair value hedge of specifically identified assets and liabilities (micro-hedging), mainly consisting of bonds issued or acquired by Group companies and loans to customers. On the basis of the carved-out version of IAS 39, fair-value hedging is also applied for the macro hedging of the stable portion of demand deposits (core deposits) and on the already fixed portion of floating-rate loans.
In 2016 the Group consolidated the use of macrohedging to a portion of fixed-rate loans, adopting an open-portfolio macrohedging model for a portion of fixed-rate loans according to a bottom-layer approach that, in accordance with the interest rate risk measurement method involving modelling of the prepayment phenomenon, is more closely correlated with risk management activity and asset dynamics.
Another hedging method used is the cash flow hedge, which has the purpose of stabilising interest flow on both variable rate funding, to the extent that the latter finances fixed-rate investments, and on variable rate investments to cover fixed-rate funding (macro cash flow hedges).
The Financial and Market Risks Department is in charge of measuring the effectiveness of interest rate risk hedges for the purpose of hedge accounting, in compliance with international accounting standards.
During the year no hedging activities were performed to cover the price risk of the banking book.

D. Hedging of foreign investments

For equity investments in Group companies held in foreign currencies, risk hedging policies are assessed by the Group Risk Governance Committee and the Group Financial Risks Committee, taking into consideration the advantages and the costs embedded in hedging transactions.
During the year, foreign exchange hedges were implemented against the exchange risk on gains in foreign currency generated by the Parent Company's branches abroad.

QUANTITATIVE INFORMATION

Banking book: internal models and other sensitivity analysis methodologies

Interest margin sensitivity – assuming a +50 and +100 basis point change in interest rates – amounted to 571 million euro and 1,081 million euro, respectively, at the end of 2016. This latter figure was up compared to the end of 2015, when it was 535 million euro. In the document "Guidelines on the management of interest rate risk in the Group's banking book" the Group has also defined a sensitivity limit for the interest margin as the maximum acceptable value of the loss in the income statement, as represented by the greater decrease in the interest margin generated in two scenarios of parallel increases and decreases in rates (+50 bps and -50 bps). Consequently, the measurement of the sensitivity of the margin in the scenario of a change in rates of -50 basis points has also been introduced starting in the fourth quarter of 2016. At the end of 2016, that value was -665 million euro.
In the case of invariance of the other income components, the aforesaid potential impact would be reflected also in the Group's year-end net income and taking into account the abovementioned assumptions concerning the measurement procedures.
In 2016, interest rate risk generated by the Intesa Sanpaolo Group's banking book, measured through shift sensitivity of value, averaged 891 million euro with a year-end figure of 945 million euro (547 million euro at the end of 2015), almost entirely concentrated on the euro currency. Interest rate risk, measured in terms of VaR, averaged 76 million euro in 2016, with a minimum value of 40 million euro and a maximum value of 122 million euro. The value at the end of 2016 was 117 million euro (139 million euro at the end of 2015).
Price risk generated by minority stakes in quoted companies, mostly held in the AFS (Available for Sale) category and measured in terms of VaR, recorded an average level during 2016 of 95 million euro (27 million euro at the end of 2015), with peak and minimum values of 161 million euro and 16 million euro respectively (161 million euro at the end of 2016).
Lastly, the table below shows a sensitivity analysis of the banking book to price risk, measuring the impact on Shareholders' Equity of a price shock of ±10% for the abovementioned quoted assets recorded in the AFS category.

Price risk: impact on Shareholders' Equity

(millions of euro)

		Impact on shareholders' equity
Price shock	+10%	19
Price shock	-10%	-19

1.2.3. FOREIGN EXCHANGE RISK

QUALITATIVE INFORMATION

A. General aspects, foreign exchange risk management processes and measurement methods

"Foreign exchange risk" is defined as the possibility that foreign exchange rate fluctuations produce significant changes, both positive and negative, in the Group's balance sheet aggregates. The key sources of exchange rate risk lie in:

- foreign currency loans and deposits held by corporate and/or retail customers;
- purchases of securities, equity investments and other financial instruments in foreign currencies;
- conversion into domestic currency of assets, liabilities and income of branches and subsidiaries abroad;
- trading of foreign currencies and banknotes;
- collection and/or payment of interest, commissions, dividends and administrative costs in foreign currencies.

More specifically, "structural" foreign exchange risk refers to the exposures deriving from the commercial operations and the strategic investment decisions of the Intesa Sanpaolo Group.
Foreign exchange transactions, spot and forward, are carried out mostly by Banca IMI, which also operates in the name and on behalf of the Parent Company with the task of guaranteeing pricing throughout the Bank and the Group while optimizing the proprietary risk profile deriving from brokerage of foreign currencies traded by customers.
The main types of financial instruments traded include: spot and forward exchange transactions in foreign currencies, forex swaps, domestic currency swaps, and foreign exchange options.

B. Foreign exchange risk hedging activities

Foreign exchange risk deriving from operating positions in foreign currency in the banking book is systematically transferred from the business units to the Parent Company's Treasury Department, for the purpose of guaranteeing the elimination of such risk. Similar risk containment is performed by the various Group companies for their banking book. Essentially, foreign exchange risk is mitigated by the practice of raising funds in the same currency as assets.
Held for trading exposures are included in the trading book where foreign exchange risk is measured and subjected to daily VaR limits.

QUANTITATIVE INFORMATION

1. Breakdown by currency of assets and liabilities and of derivatives

(millions of euro)

	CURRENCIES							
	US dollar	GB pound	Swiss franc	Hungarian forint	Egyptian pound	Croatian kuna	Yen	Other currencies
A. FINANCIAL ASSETS	**33,177**	**2,509**	**724**	**3,261**	**2,407**	**3,832**	**1,732**	**7,542**
A.1 Debt securities	7,421	872	2	773	677	738	899	1,922
A.2 Equities	419	27	30	4	21	21	-	52
A.3 Loans to banks	7,334	83	221	683	577	530	60	1,756
A.4 Loans to customers	18,003	1,527	471	1,801	1,132	2,543	773	3,812
A.5 Other financial assets	-	-	-	-	-	-	-	-
B. OTHER ASSETS	**5,300**	**377**	**20**	**138**	**83**	**39**	**85**	**280**
C. FINANCIAL LIABILITIES	**31,300**	**1,819**	**519**	**3,105**	**2,030**	**2,797**	**293**	**5,640**
C.1 Due to banks	8,605	886	212	310	5	196	35	814
C.2 Due to customers	10,304	528	300	2,787	1,330	2,601	57	2,907
C.3 Debt securities	12,391	405	7	8	695	-	201	1,919
C.4 Other financial liabilities	-	-	-	-	-	-	-	-
D. OTHER LIABILITIES	**859**	**360**	**1**	**81**	**-**	**171**	**8**	**260**
E. FINANCIAL DERIVATIVES								
- Options								
long positions	*4,077*	*322*	*20*	*6*	*-*	*-*	*87*	*287*
short positions	*3,989*	*316*	*-*	*13*	*-*	*-*	*64*	*524*
- Other derivatives								
long positions	*53,725*	*7,126*	*2,963*	*979*	*-*	*2*	*3,234*	*10,571*
short positions	*60,662*	*7,701*	*3,296*	*548*	*-*	*1*	*4,819*	*11,288*
TOTAL ASSETS	**96,279**	**10,334**	**3,727**	**4,384**	**2,490**	**3,873**	**5,138**	**18,680**
TOTAL LIABILITIES	**96,810**	**10,196**	**3,816**	**3,747**	**2,030**	**2,969**	**5,184**	**17,712**
DIFFERENCE (+/-)	**-531**	**138**	**-89**	**637**	**460**	**904**	**-46**	**968**

2. Internal models and other sensitivity analysis methodologies

Management of foreign exchange risk relative to trading activities is included in the operating procedures and in the estimation methodologies of the internal model based on VaR calculations, as already illustrated.
Foreign exchange risk expressed by equity investments in foreign currency (banking book), including Group companies, originated a VaR (99% confidence level, 10-day holding period) amounting to 230 million euro as at 31 December 2016. This potential impact would only be reflected in the Shareholders' Equity.

1.2.4. DERIVATIVES

Starting in 2014, the Parent Company and Banca IMI were authorised to use EPE (Expected Positive Exposure) internal models to determine the requirement for counterparty risk. This authorisation was extended also to the banks belonging to the Banca dei Territori (BdT) division starting from 31.12.2016.
This approach is applicable to almost the entire trading portfolio (as shown in the table below, as at 31 December 2016 approximately 95% of the total EAD of financial and credit derivatives is measured using EPE models). Derivatives whose counterparty risk is measured using approaches other than internal models represent a residual portion of the portfolio (as at 31 December 2016 accounting for approximately 5% of overall EAD) and refer to:

– residual contracts of Banca IMI, Intesa Sanpaolo and BdT to which EPE is not applied (in compliance with the insignificance of the EBA thresholds);
– EAD generated by all other banks and companies in the group which report using the mark-to-market approach.

As envisaged by Basel 3, also CCPs generate a capital requirement and are thus included in the EPE scope and in the evidence stated below.

The table below shows the overall EAD of exposures in financial and credit derivatives, broken down by measurement approach (EPE internal models or mark-to-market approach).

(millions of euro)

Transaction categories	31.12.2016		31.12.2015	
	Current Exposure Method	EPE Internal Method	Current Exposure Method	EPE Internal Method
Derivative contracts	867	17,651	1,325	16,412

The EPE internal model considers the collateral collected to mitigate credit exposure and any excess collateral paid. The value of the guarantees received and included in the calculation of the EAD amounts to more than 3.6 billion euro for the Parent Company, Banca IMI and the banks of the Banca dei Territori division, while the collateral paid equals 14.5 billion euro (this amount including the collateral connected to transactions with central counterparties).

A. FINANCIAL DERIVATIVES

A.1. Regulatory trading book: period-end notional amounts

(millions of euro)

Underlying assets / Type of derivatives	31.12.2016		31.12.2015	
	Over the counter	Central counterparties	Over the counter	Central counterparties
1. Debt securities and interest rates	**2,009,912**	**229,069**	**1,935,435**	**164,091**
a) Options	112,610	26,038	133,144	15,415
b) Swaps	1,897,237	-	1,802,252	-
c) Forwards	65	-	39	-
d) Futures	-	203,031	-	148,676
e) Others	-	-	-	-
2. Equities and stock indices	**16,431**	**19,059**	**15,253**	**50,315**
a) Options	16,215	17,557	14,925	48,830
b) Swaps	31	-	302	-
c) Forwards	185	-	26	-
d) Futures	-	1,502	-	1,485
e) Others	-	-	-	-
3. Foreign exchange rates and gold	**149,197**	**275**	**136,703**	**347**
a) Options	22,631	60	19,853	11
b) Swaps	49,169	-	45,319	-
c) Forwards	76,525	-	70,415	-
d) Futures	-	215	-	336
e) Others	872	-	1,116	-
4. Commodities	**7,118**	**3,208**	**10,363**	**3,403**
5. Other underlying assets	**-**	**-**	**-**	**-**
TOTAL	**2,182,658**	**251,611**	**2,097,754**	**218,156**

By convention, the column "Over the counter" includes transactions in OTC derivatives transferred to the Swapclear circuit (LCH group) of 1,780,948 million euro as at 31 December 2016 (1,611,682 million euro as at 31 December 2015).

A.2. Banking book: period-end notional amounts

A.2.1. Hedging derivatives

(millions of euro)

Underlying assets / Type of derivatives	31.12.2016		31.12.2015	
	Over the counter	Central counterparties	Over the counter	Central counterparties
1. Debt securities and interest rates	**264,632**	**-**	**225,394**	**-**
a) Options	3,908	-	4,852	-
b) Swaps	260,724	-	220,542	-
c) Forwards	-	-	-	-
d) Futures	-	-	-	-
e) Others	-	-	-	-
2. Equities and stock indices	**-**	**-**	**-**	**-**
a) Options	-	-	-	-
b) Swaps	-	-	-	-
c) Forwards	-	-	-	-
d) Futures	-	-	-	-
e) Others	-	-	-	-
3. Foreign exchange rates and gold	**3,794**	**-**	**3,819**	**-**
a) Options	-	-	-	-
b) Swaps	3,794	-	3,818	-
c) Forwards	-	-	1	-
d) Futures	-	-	-	-
e) Others	-	-	-	-
4. Commodities	-	-	-	-
5. Other underlying assets	-	-	-	-
TOTAL	**268,426**	**-**	**229,213**	**-**

By convention, the column "Over the counter" includes transactions in OTC derivatives transferred to the Swapclear circuit (LCH group) of 10,461 million euro as at 31 December 2016.

A.2.2. Other derivatives

(millions of euro)

Underlying assets / Type of derivatives	31.12.2016		31.12.2015	
	Over the counter	Central counterparties	Over the counter	Central counterparties
1. Debt securities and interest rates	**2,936**	**-**	**3,333**	**-**
a) Options	1,671	-	1,775	-
b) Swaps	1,265	-	1,558	-
c) Forwards	-	-	-	-
d) Futures	-	-	-	-
e) Others	-	-	-	-
2. Equities and stock indices	**2,040**	**-**	**2,118**	**-**
a) Options	2,040	-	2,118	-
b) Swaps	-	-	-	-
c) Forwards	-	-	-	-
d) Futures	-	-	-	-
e) Others	-	-	-	-
3. Foreign exchange rates and gold	**885**	**-**	**1,787**	**-**
a) Options	201	-	61	-
b) Swaps	182	-	1,038	-
c) Forwards	463	-	688	-
d) Futures	-	-	-	-
e) Others	39	-	-	-
4. Commodities	**-**	**-**	**-**	**-**
5. Other underlying assets	**-**	**-**	**-**	**-**
TOTAL	**5,861**	**-**	**7,238**	**-**

The table above shows the financial derivatives recognised in the financial statements in the trading book, but not forming part of the regulatory trading book. In particular, the table shows the derivatives recorded separately from the combined financial instruments, the derivatives used to hedge debt securities measured at fair value through profit and loss and the put and call options relating to commitments on equity investments.

A.3. Financial derivatives gross positive fair value – breakdown by product

A.4. Financial derivatives gross negative fair value – breakdown by product

A.5. Over the counter financial derivatives: regulatory trading book – notional amounts, gross positive and negative fair values by counterparty – contracts not included under netting arrangements

A.6. Over the counter financial derivatives: regulatory trading book – notional amounts, gross positive and negative fair values by counterparty – contracts included under netting arrangements

A.7. Over the counter financial derivatives: banking book – notional amounts, gross positive and negative fair values by counterparty – contracts not included under netting arrangements

A.8. Over the counter financial derivatives: banking book – notional amounts, gross positive and negative fair values by counterparty – contracts included under netting arrangements

A.9. Residual maturity of over the counter financial derivatives: notional amounts

Tables A.3 to A.9 were not filled in as the financial derivatives whose counterparty risk is measured using methods other than internal models represent a residual portion of the portfolio.
Information on derivatives is shown below, in the section relating to internal models[14].

[14] Based on the financial statement instructions issued by the Bank of Italy, tables A.3 to A.9 do not have to be filled in by banks which use EPE internal models to calculate counterparty risk if this approach covers a significant portion of the portfolio.

A.10 Over the counter financial derivatives: counterparty risk/financial risk – internal models

As stated in the initial part of the section on derivatives, Banca IMI, the Parent Company and the banks of the Banca dei Territori Division were authorised to use EPE internal models to determine the requirement for counterparty risk. The other banks of the Group report the requirement using the mark-to-market approach.
At consolidated level, financial derivatives whose counterparty risk is measured using mark-to-market methods represent a residual portion of the portfolio. For this reason, the data relating to these derivatives was included in the tables below, for the purpose of summarising all the information on Group derivatives.

Financial derivatives gross positive fair value – breakdown by product

(millions of euro)

Portfolios /Types of derivatives	POSITIVE FAIR VALUE			
	31.12.2016		31.12.2015	
	Over the counter	Central counterparties	Over the counter	Central counterparties
A. Regulatory trading book	**27,645**	**647**	**28,634**	**689**
a) Options	3,755	647	4,422	689
b) Interest rate swaps	20,060	-	19,885	-
c) Cross currency swaps	2,382	-	2,369	-
d) Equity swaps	-	-	14	-
e) Forwards	1,120	-	902	-
f) Futures	-	-	-	-
g) Others	328	-	1,042	-
B. Banking book - hedging	**6,234**	**-**	**7,059**	**-**
a) Options	83	-	116	-
b) Interest rate swaps	5,600	-	6,381	-
c) Cross currency swaps	551	-	562	-
d) Equity swaps	-	-	-	-
e) Forwards	-	-	-	-
f) Futures	-	-	-	-
g) Others	-	-	-	-
C. Banking book - other derivatives	**675**	**-**	**691**	**-**
a) Options	231	-	250	-
b) Interest rate swaps	441	-	429	-
c) Cross currency swaps	1	-	10	-
d) Equity swaps	-	-	-	-
e) Forwards	2	-	2	-
f) Futures	-	-	-	-
g) Others	-	-	-	-
TOTAL	**34,554**	**647**	**36,384**	**689**

Financial derivatives gross negative fair value – breakdown by product

(millions of euro)

Portfolios /Types of derivatives	NEGATIVE FAIR VALUE			
	31.12.2016		31.12.2015	
	Over the counter	Central counterparties	Over the counter	Central counterparties
A. Regulatory trading book	**33,101**	**718**	**32,599**	**715**
a) Options	7,069	718	7,198	715
b) Interest rate swaps	21,553	-	21,452	-
c) Cross currency swaps	2,867	-	2,806	-
d) Equity swaps	-	-	9	-
e) Forwards	1,257	-	879	-
f) Futures	-	-	-	-
g) Others	355	-	255	-
B. Banking book - hedging	**9,027**	**-**	**8,230**	**-**
a) Options	-	-	-	-
b) Interest rate swaps	8,588	-	7,790	-
c) Cross currency swaps	439	-	440	-
d) Equity swaps	-	-	-	-
e) Forwards	-	-	-	-
f) Futures	-	-	-	-
g) Others	-	-	-	-
C. Banking book - other derivatives	**360**	**-**	**449**	**-**
a) Options	329	-	390	-
b) Interest rate swaps	28	-	53	-
c) Cross currency swaps	1	-	4	-
d) Equity swaps	-	-	-	-
e) Forwards	2	-	2	-
f) Futures	-	-	-	-
g) Others	-	-	-	-
TOTAL	**42,488**	**718**	**41,278**	**715**

By convention, the column "Over the counter" includes transactions in OTC derivatives transferred to the Swapclear circuit (LCH group) of 5,188 million euro (4,076 million euro as at 31 December 2015).

The data contained in the two tables below - unlike the previous tables - refers exclusively to operations in Over the Counter derivatives.

Over the counter financial derivatives: regulatory trading book – notional amounts, gross positive and negative fair values by counterparty

(millions of euro)

	Governments and Central Banks	Public entities	Banks	Financial institutions	Insurance companies	Non-financial companies	Other counterparties
1. Debt securities and interest rates							
- notional amount	7,392	2,244	121,460	1,840,431	779	37,511	95
- positive fair value	3,801	565	13,837	2,809	56	2,143	12
- negative fair value	-4	-17	-15,221	-8,534	-5	-789	-42
2. Equities and stock indices							
- notional amount	-	-	10,518	683	4,864	51	315
- positive fair value	-	-	137	52	1	2	-
- negative fair value	-	-	-3,327	-51	-104	-1	-12
3. Foreign exchange rates and gold							
- notional amount	740	-	89,681	40,456	1,113	17,087	120
- positive fair value	3	-	1,537	1,436	183	593	-
- negative fair value	-52	-	-2,605	-989	-3	-751	-2
4. Other values							
- notional amount	-	-	1,454	1,533	-	4,131	-
- positive fair value	-	-	67	104	-	307	-
- negative fair value	-	-	-102	-179	-	-311	-

Over the counter financial derivatives: banking book – notional amounts, gross positive and negative fair values by counterparty

(millions of euro)

	Governments and Central Banks	Public entities	Banks	Financial institutions	Insurance companies	Non-financial companies	Other counterparties
1. Debt securities and interest rates							
- notional amount	131	417	247,213	18,984	15	31	777
- positive fair value	-	3	6,047	193	-	5	-
- negative fair value	-1	-	-7,925	-751	-11	-	-111
2. Equities and stock indices							
- notional amount	-	-	1,549	69	-	19	403
- positive fair value	-	-	99	8	-	-	-
- negative fair value	-	-	-97	-	-	-	-48
3. Foreign exchange rates and gold							
- notional amount	46	-	4,064	494	-	-	75
- positive fair value	1	-	546	7	-	-	-
- negative fair value	-	-	-285	-158	-	-	-1
4. Other values							
- notional amount	-	-	-	-	-	-	-
- positive fair value	-	-	-	-	-	-	-
- negative fair value	-	-	-	-	-	-	-

B. CREDIT DERIVATIVES

B.1. Credit derivatives: period-end notional amounts

(millions of euro)

Categories of transactions	REGULATORY TRADING BOOK		BANKING BOOK	
	single counterparty	more counterparties (*basket*)	single counterparty	more counterparties (*basket*)
1. Protection purchases				
- Credit default products	10,736	42,989	-	-
- Credit spread products	-	-	-	-
- Total rate of return swap	-	-	-	-
- Others	-	-	-	-
Total 31.12.2016	**10,736**	**42,989**	**-**	**-**
Total 31.12.2015	**13,805**	**36,000**	**-**	**-**
2. Protection sales				
- Credit default products	13,239	41,532	-	-
- Credit spread products	-	-	-	-
- Total rate of return swap	-	-	-	-
- Others	-	-	-	-
Total 31.12.2016	**13,239**	**41,532**	**-**	**-**
Total 31.12.2015	**13,449**	**35,655**	**-**	**-**

Part of the contracts in force as at 31 December 2016, shown in the table above, has been included within the structured credit products, namely: 64 million euro of protection purchases and 41 million euro of protection sales, in any case almost entirely attributable to exposures not included in US subprime exposures.
For further information on the relative economic and risk effects, see the chapter on market risks in this Part of the Notes to the consolidated financial statements.

Also tables B.2 to B.6 were not filled in as the credit derivatives whose counterparty risk is measured using methods other than internal models represent a residual portion of the portfolio.
Information on derivatives is shown below, in the section relating to internal models. Based on the financial statement instructions issued by the Bank of Italy, tables B.2 to B.6 do not have to be filled in by banks which use EPE internal models to calculate counterparty risk if this approach covers a significant portion of the portfolio.

B.2. Over the counter credit derivatives: gross positive fair value – breakdown by product

B.3. Over the counter credit derivatives: gross negative fair value – breakdown by product

B.4. Over the counter credit derivatives: gross (positive and negative) fair values by counterparty – contracts not included under netting arrangements

B.5. Over the counter credit derivatives: gross (positive and negative) fair values by counterparty - contracts included under netting arrangements

B.6. Residual maturity of credit derivatives: notional amounts

B.7. Credit derivatives: counterparty risk/financial risk – Internal models

As stated in the initial part of the section on derivatives, Banca IMI, the Parent Company and the banks of the Banca dei Territori Division were authorised to use EPE internal models to determine the requirement for counterparty risk, which is used for most of the portfolio.
Credit derivatives whose counterparty risk is measured using mark-to-market methods represent a residual portion of the portfolio. For this reason, the data relating to these derivatives was included in the tables below, for the purpose of summarising all the information on derivatives.

Over the counter credit derivatives: gross positive fair value – breakdown by product

(millions of euro)

Portfolios /Types of derivatives	POSITIVE FAIR VALUE	
	31.12.2016	31.12.2015
A. Regulatory trading book	**1,226**	**879**
a) Credit default products	1,226	879
b) Credit spread products	-	-
c) Total rate of return swap	-	-
d) Others	-	-
B. Banking book	**-**	**-**
a) Credit default products	-	-
b) Credit spread products	-	-
c) Total rate of return swap	-	-
d) Others	-	-
TOTAL	**1,226**	**879**

Part of the positive fair values, recognised as at 31 December 2016, and shown in the table above, has been included within the structured credit products, namely: 7 million attributable to short positions taken on creditworthiness indexes and protection purchases as part of structured packages.
For further information on the relative economic and risk effects, see the chapter on market risks in this Part of the Notes to the consolidated financial statements.

Over the counter credit derivatives: gross negative fair value – breakdown by product

(millions of euro)

Portfolios /Types of derivatives	NEGATIVE FAIR VALUE	
	31.12.2016	31.12.2015
A. Regulatory trading book	**1,275**	**940**
a) Credit default products	1,275	940
b) Credit spread products	-	-
c) Total rate of return swap	-	-
d) Others	-	-
B. Banking book	**-**	**-**
a) Credit default products	-	-
b) Credit spread products	-	-
c) Total rate of return swap	-	-
d) Others	-	-
TOTAL	**1,275**	**940**

Part of the negative fair values, recognised as at 31 December 2016, and shown in the table above, has been included within the structured credit products, namely: 19 million attributable to long positions on creditworthiness indexes and protection sales not included under the US subprime category.

Over the counter credit derivatives: gross (positive and negative) fair values by counterparty

(millions of euro)

	Governments and Central Banks	Public entities	Banks	Financial institutions	Insurance companies	Non-financial companies	Other counterparties
REGULATORY TRADING BOOK							
1. Protection purchases							
- notional amount	-	125	29,255	24,345	-	-	-
- positive fair value	-	68	110	68	-	-	-
- negative fair value	-	-	-487	-467	-	-	-
2. Protection sales							
- notional amount	-	-	31,837	22,934	-	-	-
- positive fair value	-	-	486	494	-	-	-
- negative fair value	-	-	-81	-240	-	-	-
BANKING BOOK							
1. Protection purchases							
- notional amount	-	-	-	-	-	-	-
- positive fair value	-	-	-	-	-	-	-
- negative fair value	-	-	-	-	-	-	-
2. Protection sales							
- notional amount	-	-	-	-	-	-	-
- positive fair value	-	-	-	-	-	-	-
- negative fair value	-	-	-	-	-	-	-

C. CREDIT AND FINANCIAL DERIVATIVES

C.1. Over the counter credit and financial derivatives: net fair values and future exposure by counterparty

This table was not filled in because, as previously illustrated, the Intesa Sanpaolo Group primarily calculates counterparty risk using the EPE approach. According to the internal models approach, the EPE is calculated as a statistical-time-based average of the future mark-to-market evolution of the derivatives, strengthened by conservative restrictions on the mark-to-market profiles that do not decrease over time.