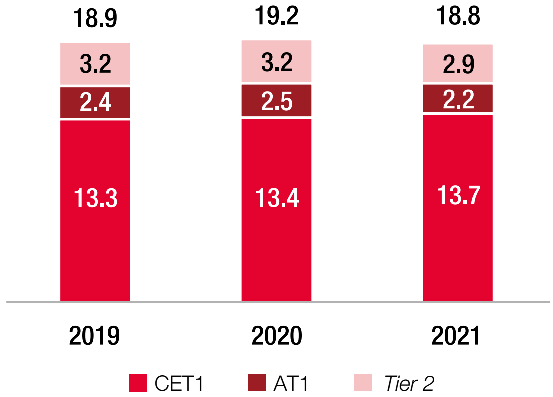
4

RISK AND CAPITAL ADEQUACY

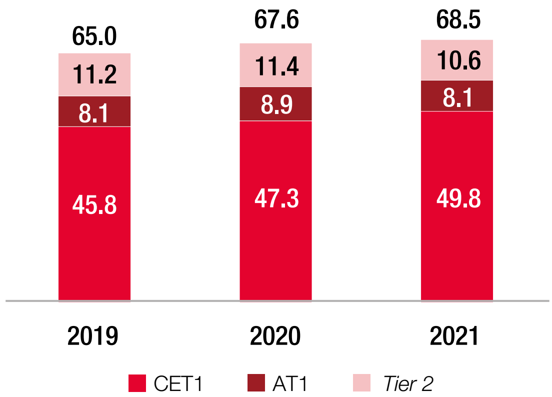
KEY FIGURES

The solvency and leverage prudential ratios, as well as the amounts of regulatory capital and RWA featured here take into account the IFRS 9 phasing (fully-loaded CET1 ratio of 13.55% at end 2021, the phasing effect being +16 bps).

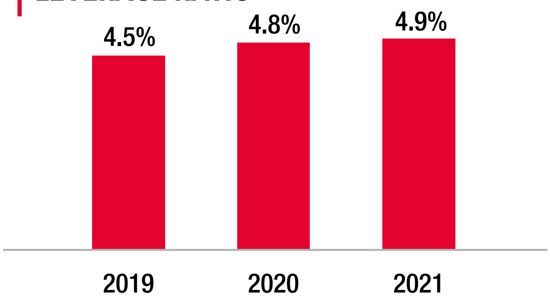
SOLVENCY RATIOS
(IN %)



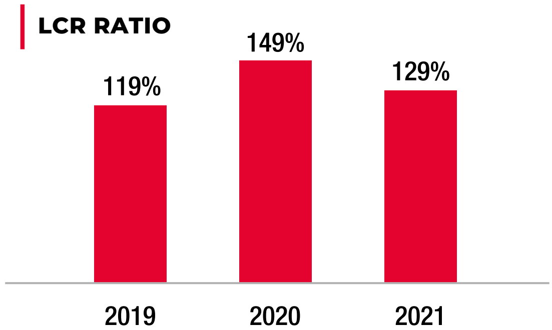
REGULATORY CAPITAL
(IN EURBN)



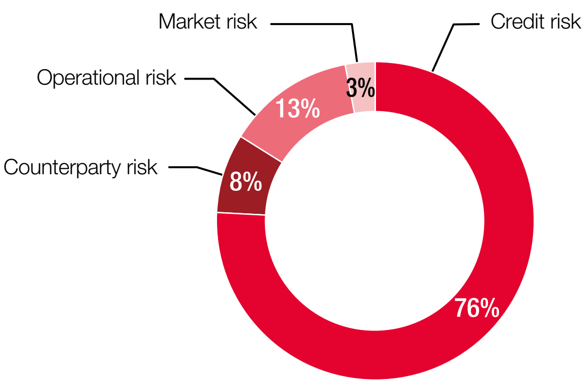
LEVERAGE RATIO



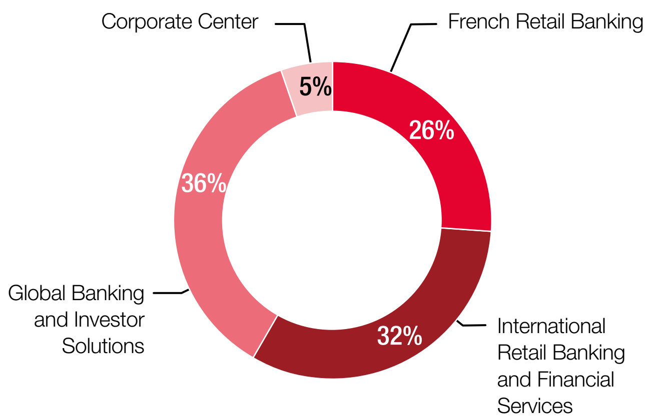
LCR RATIO



DISTRIBUTION OF RWA BY RISK TYPE
(TOTAL RWA AT END 2021: EUR 363BN VS EUR 352BN AT END 2020)



DISTRIBUTION OF RWA BY CORE BUSINESS
(TOTAL RWA AT END 2021: EUR 363BN VS EUR 352BN AT END 2020)



This chapter includes information on risk management related to financial instruments, and information on capital management and compliance with regulatory ratios, required by IFRS as adopted by the European Union.

Some of this information forms an integral part of the notes to the consolidated financial statements and is covered by the opinion of the Statutory Auditors on the consolidated financial statements. This information is indicated with the note "**Audited I** " (the symbol ▲ indicates the end of the audited part).

The Societe Generale Group is subject to oversight by supervisory authorities and to regulations on capital requirements applicable to credit institutions and investment firms (Regulation (EU) No. 575/2013 of 26 June 2013).

As part of the Third Pillar of the Basel Accord, a detailed and standardized statement is included in the "Risk Report for the purposes of improving published financial disclosures" (Pillar 3 Report and cross-reference table).

All information regarding the Pillar 3 Report and the prudential disclosures is available on the *www.societegenerale.com* website, under "Investors", Universal Registration Document and Pillar 3.

TYPES OF RISKS

The Group's risk management framework involves the following main categories:

- **credit risk:** risk of losses arising from the inability of the Group's customers, issuers or other counterparties to meet their financial commitments. This risk includes the risk linked to market transactions and securitisation activities and may be further amplified by individual, country and sector concentration risk;
- **counterparty credit risk:** Credit risk of a counterparty on a market transaction, combined with the risk of changes in exposure;
- **market risk:** risk of a loss of value on financial instruments arising from changes in market parameters, the volatility of these parameters and correlations between them. These parameters include, but are not limited to, exchange rates, interest rates, the price of securities (equity, bonds), commodities, derivatives and other assets;
- **operational risk:** risk of losses resulting from inadequacies or failures in processes, personnel or information systems, or from external events. It includes:
  - **non-compliance risk:** risk of court-ordered, administrative or disciplinary sanctions, financial loss or reputational damage due to failure to comply with legal and regulatory requirements or professional/ethical standards and practices applicable to banking,
  - **reputational risk:** risk arising from a negative perception on the part of customers, counterparties, shareholders, investors or regulators that could negatively impact the Group's ability to maintain or engage in business relationships and to sustain access to sources of financing,
  - **misconduct risk:** risk resulting from actions (or inactions) or behavior of the Bank or its employees inconsistent with the Group's Code of Conduct, which may lead to adverse consequences for our stakeholders, or place the Bank's sustainability or reputation at risk,
  - **IT and Information Systems Security risk** (cybercrime, IT systems failures, etc.);
- **structural risk:** risk of losses in interest margin or banking book value if interest rates, exchange rates, or credit spreads change. This risk is related to the Bank's commercial and proprietary activities, it includes the distortion of the structural difference between assets and liabilities related to pension obligations, as well as the risk related to longer terms of future payments;
- **liquidity and funding risk:** liquidity risk is defined as the inability of the Group to meet its financial obligations: debt repayments, collateral supply, etc. Funding risk is defined as the risk that the Group will not be able to finance its business growth on a scale consistent with its commercial objectives and at a cost that is competitive compared to its competitors;
- **model risk:** Risk of losses due to decisions reached based on results of internal modeling due to errors in development, implementation or use of these models;
- **risk related to insurance activities:** through its insurance subsidiaries, the Group is also exposed to a variety of risks linked to this business. In addition to balance sheet management risks (interest rate, valuation, counterparty and exchange rate risk), these risks include premium pricing risk, mortality risk and the risk of an increase in claims;
- **strategic/business risk:** risks resulting from the Group's inability to execute its strategy and to implement its business plan for reasons that are not attributable to the other risks in this list; for instance, the non-occurrence of the macroeconomic scenarios that were used to construct the business plan or sales performance that was below expectations;
- **private equity risk:** risk of reduction in the value of our equity ownership interests;
- **residual value risk:** through its specialized financing activities, mainly in its long-term vehicle leasing subsidiary, the Group is exposed to residual value risk (where the net resale value of an asset at the end of the leasing contract is less than expected);
- **settlement/delivery risk:** risk arising on market transactions in the case of transactions (commodities spot, OTC securities spot, Forex spot, OTC derivatives, Securities Financing Transactions, etc.) whose payment type is FoP (Free of Payment), inducing an asynchronous settlement/delivery of the flows to be paid and received.

In addition, **risks associated with climate change**, both physical (increase in the frequency of extreme climatic events) and transition-related (New Carbon Regulation), have been identified as factors that could aggravate the Group's existing risks.

4.1 RISK FACTORS

This section identifies the main risk factors that the Group estimates could have a significant effect on its business, profitability, solvency or access to financing.

The risks inherent to the Group's business are presented below under six main categories, in accordance with Article 16 of the Regulation (EU) 2017/1129, also known as "Prospectus 3" regulation of 14 June 2017:

- risks related to the macroeconomic, geopolitical, market and regulatory environments;
- credit and counterparty risks;
- market and structural risks;
- operational risks (including risk of inappropriate conduct) and model risks;
- liquidity and funding risks;
- risks related to insurance activities.

Risk factors are presented based on an evaluation of their materiality, with the most material risks indicated first within each category. The risk exposure or measurement figures included in the risk factors provide information on the Group's exposure level but are not necessarily representative of any future evolution of these risks.

4.1.1 RISKS RELATED TO THE MACROECONOMIC, GEOPOLITICAL, MARKET AND REGULATORY ENVIRONMENTS

4.1.1.1 The global economic and financial context, geopolitical tensions, as well as the market environment in which the Group operates, may adversely affect its activities, financial position and results of operations.

As a global financial institution, the Group's activities are sensitive to changes in financial markets and economic conditions generally in Europe, the United States and elsewhere around the world. The Group generates 49% of its business in France (in terms of net banking income for the financial year ended 31 December 2021), 32% in Europe, 7% in the Americas and 12% in the rest of the world. The Group could face significant deteriorations in market and economic conditions resulting from, in particular, crises affecting capital or credit markets, liquidity constraints, regional or global recessions, sharp fluctuations in commodity prices (notably oil), currency exchange rates or interest rates, inflation or deflation, rating downgrades, restructuring or defaults of sovereign or private debt, or adverse geopolitical events (including acts of terrorism and military conflicts). Such events, which can develop quickly and thus may not have been anticipated and hedged, could affect the Group's operating environment for short or extended periods and have a material adverse effect on its financial position, cost of risk and results of operations.

The economic environment remains very uncertain despite the good performance of industry and world trade. Although initially rapid, the economic recovery was severely disrupted in 2021 by the effect of, firstly, production delays due to occasional factory closures, absenteeism due to illness, and shortages of labor, components (especially electronic components) and electricity in certain regions, and secondly, delays in transport deliveries due to, among other things, congestion in ports. In addition, the Russian-Ukrainian conflict starting in the beginning of 2022 has generated historically high tensions with Western countries, with significant potential impacts on global growth and energy prices and a humanitarian impact. These disruptions could persist in 2022 and have a significant impact on the activity and profitability of certain Group counterparties in 2022.

Disruptions in global supply chains, accompanied by tensions in the labour market, and rising energy prices are also leading to higher inflation, particularly in the United States, where a massive fiscal stimulus package has provided a strong boost to demand. Europe and emerging countries are also facing inflationary pressures. The longer the pandemic lasts, the more persistent these disruptions will be, with a potentially lasting impact on inflation, consumer purchasing power and ultimately on economic activity. The Russian-Ukrainian conflict is likely to accentuate some of these disruptions, particularly in Europe where, for example, natural gas prices have risen sharply and remain highly volatile.

The economic and financial environment remains exposed to intensifying geopolitical risks. Tensions between Russia and Western countries over the situation in Ukraine have increased significantly since mid-February 2022. The exceptional economic and financial sanctions put in place by a large number of countries, particularly in Europe and the United States, against Russia and Belarus could significantly affect operators with links to Russia, with a material impact on the Group's risks (credit and counterparty, market, reputation, compliance, legal, operational, etc.). Based on the sanctions published on 27 February 2022, the Group's local exposure to corporate and financial institution counterparties subject to sanctions is low at EUR 0.2 billion and counterparties under sanctions account for approximately EUR 0.7 billion of the Group's net off-shore exposure. Any new international sanction or Russian countermeasure could have an impact on the global economy and consequently on the Group's risks. The Group will continue to analyse in real time the developments in the global impact of this crisis and, together, will enforce the necessary measures to comply with legislation in force and protect the Group's franchise.

Uncertainty about the consequences of the situation in Ukraine makes it difficult to predict the impact on the global economy and the Group. Several scenarios remain conceivable for the Group. The estimated impact on the property rights on its banking assets in Russia would be of approximately -50 basis points of CET1 capital ratio based on Rosbank's net book assets equivalent to EUR 2.1 billion at 31 December 2021, with EUR 0.5 billion of subordinated debt and taking into account the cancellation of the associated weighted assets.

This crisis could also exacerbate the already visible increase in prices and availability of hydrocarbons, as well as the price of certain foodstuffs and metals. It could also generate strong volatility on the financial markets and a significant drop in the price of certain financial assets. In addition, the Russian government and certain Russian financial institutions could experience payment defaults, with consequences that are difficult to anticipate for the Group.

As of 31 December 2021, EAD exposures on Russia represented 1.7% of the Group's exposure to credit and counterparty risks, i.e. EUR 18.6 billion (of which EUR 15.4 billion on its subsidiary Rosbank) and EUR 3.2 billion of off-shore exposures, mainly consisting of transactions set up as part of the financing activities of the Corporate and Investment Banking division). In 2021, activities located in Russia represented 2.8% of the Group's net banking income and 2.7% of its net income. In addition, Société Générale has a minor exposure in Ukraine (less than EUR 80 million at 31 December 2021), mainly through its subsidiary ALD. See also section 2.10 "*Post-closing events*" of the 2022 Universal Registration Document.

Furthermore, the U.S.-China confrontation brings with it trade tensions and the risk of a technological fragmentation. In Africa, a series of political coups in the Sahel region has heightened awareness of the fragility of the institutional frameworks of countries exposed to terrorism.

Continued high geopolitical risks are an additional source of instability that could also weigh on economic activity and credit demand, while increasing volatility in financial markets. In the context of Brexit, the topic of non-equivalence of clearing houses (central counterparties, or CCPs) remains a point of vigilance, with possible impacts on financial stability, notably in Europe, and therefore on the Group's business.

Over the last decade, the financial markets have thus experienced significant disruptions resulting notably from concerns over the evolution of central bank interest rate policies, the trajectory of the sovereign debt of several Eurozone countries, Brexit, the persistence of commercial and political tensions (namely between the United States and China) or fears of a major slowdown of growth in China, fostered again recently by the financial difficulties of Chinese real estate development companies, the disruption of value and supply chains caused by the Covid-19 crisis or more recently by the tensions linked to the crisis in Ukraine. Given the magnitude of external financing needs, several emerging countries would face increasing difficulties if U.S. interest rates were to rise, and their financial conditions were to tighten.

The long period of low interest rates in the Eurozone and the United States, driven by accommodating monetary policies, has affected the Group's net interest margin for several years. Growth in the volume of loans made to non-financial companies, already high before the pandemic, significantly increased in 2020 with the implementation of government-guaranteed loan programmes (such as the *Prêts Garantis par l'Etat* programme in France). In 2021, this growth slowed with the repayment of a part of the credit lines drawn in 2020. Should an overly fragile economic recovery materialise, it may provoke a rise in the volume of non-performing loans and create a weak investment dynamic in a context where companies' balance sheets are already fragile. The environment of low interest rates tends to lead to an increased risk appetite of some participants in the banking and financial system, lower risk premiums compared to their historical average and high valuation levels of certain assets. These market conditions could change rapidly in the event of a more rapid increase in key interest rates by the major central banks, which could cause a marked correction in asset prices.

Furthermore, the environment of abundant liquidity that has been at the origin of the upturn in credit growth in the Eurozone and particularly in France, amplified by the implementation of the French government-guaranteed loan programme, could lead in the future to additional regulatory measures by supervisory authorities in order to limit the extension of credit or to further protect banks against a financial cycle downturn.

The Group's results are thus significantly exposed to economic, financial, political and geopolitical conditions in the principal markets in which it operates.

Furthermore, the situation related to the Covid-19 crisis is a further aggravating factor in the various risks faced by the Group. See also section 4.1.1.2 "*The coronavirus (Covid-19) pandemic and its economic consequences could adversely affect the Group's business and financial performance*".

At 31 December 2021, the Group's EAD to credit and counterparty risks were concentrated in Europe and the United States (together accounting for 90%), with a predominant exposure to France (46% of EAD). The other exposures concern Western Europe excluding France (accounting for 21%), North America (accounting for 14%), Eastern European members of the European Union (accounting for 7%) and Eastern Europe excluding the European Union (accounting for 2%).

In France, the Group's principal market, the good growth performance during the 2016-2019 period and low interest rates have fostered an upturn in the housing market. A reversal of activity in this area could have a material adverse effect on the Group's asset value and business, by decreasing demand for loans and resulting in higher rates of non-performing loans.

The Group also operates in emerging markets, such as Russia, or Africa and the Middle East (5% of the Group's credit exposure). A significant adverse change in the macroeconomic, health, political or financial environment in these markets could have a material adverse effect on the Group's business, results and financial position. These markets may be adversely affected by uncertainty factors and specific risks, such as a new increase in oil and natural gas prices, which would weigh on the financial position of importing countries as well as their growth and exchange rates. The correction of macroeconomic or budgetary imbalances that would result could be imposed by the markets with an impact on growth and on exchange rates. A major source of uncertainty currently comes from the ongoing conflict in Ukraine and its humanitarian, economic and financial consequences. In the longer term, the energy transition to a "low-carbon economy" could adversely affect fossil energy producers, energy-intensive sectors of activity and the countries that depend on them. In addition, capital markets (including foreign exchange activity) and securities trading activities in emerging markets may be more volatile than those in developed markets and may also be vulnerable to certain specific risks, such as political instability and currency volatility. These elements could negatively impact the Group's activity and results of operations.

4.1.1.2 The coronavirus pandemic (Covid-19) and its economic consequences could adversely affect the Group's business and financial performance.

In December 2019, a new strain of coronavirus (Covid-19) emerged in China. The virus has since spread to numerous countries around the world, with a high concentration of cases in certain countries where the Group operates. The World Health Organization declared the outbreak of a pandemic in March 2020. The Covid-19 pandemic and the health measures taken in response to it (border closures, lockdown measures, restrictions on certain economic activities, etc.) have had and may continue to have a significant impact, both direct and indirect, on the global economic situation and financial markets.

The deployment of vaccination programmes has reduced the risk of severe illness from Covid-19 infections among the vaccinated population and the need for strict lockdowns in the event of high virus circulation in countries where vaccines have been deployed on a large scale. The persistence of the pandemic and the emergence of new variants (such as the highly transmissible Omicron variant) have led, and may again lead, to new targeted restrictive measures or an increase in absenteeism and work stoppages, exacerbating the disruptions already present in global supply chains, and thus adversely affecting the Group's business, financial performance and results.

The impact of the crisis related to the Covid-19 will also have lasting consequences that remain difficult to be assessed, notably through the loss of human capital (loss of skills due to long periods of inactivity, lower quality of training, etc.) and increasing public and corporate debts.

The different restrictive measures had also led, especially in the beginning of the sanitary crisis, to a decline in the Group's commercial activity and results due to the reduced opening of its retail network and lower demand from its customers, despite a rapid adaptation. New phases of lockdown measures or curfews in the countries where the Group operates could again impact the Group's financial results.

In many jurisdictions in which the Group operates, national governments and central banks have taken or announced exceptional measures to support the economy and its actors (government-guaranteed loan facilities programmes, tax deferrals, facilitated recourses to part-time working, compensation, etc.) or to improve liquidity in financial markets (asset purchases, etc.). While these support measures have been effective in addressing the immediate effects of the crisis, the mechanisms put in place may not be sufficient to sustain the recovery over the long term.

The various restrictive measures implemented since the beginning of the pandemic in several of the main countries where the Group operates (with Western Europe representing 67% of the Group's EAD (Exposure at Default) at 31 December 2021, of which 46% was in France) have had a significant impact on economic activity. The risk of new restrictive measures (especially in the event of new pandemic waves) as well as a slower-than-expected recovery of demand (particularly in certain economic sectors) could increase the economic difficulties resulting from the health crisis. This, combined with a high level of public and corporate indebtedness, may constitute a brake on economic growth and lead to significant adverse repercussions on the credit quality of the Group's counterparties (affected in particular by the gradual cessation of government support measures or by difficulties in extending these measures) and the level of non-performing loans for both businesses and individuals.

2020 was characterised by a significant increase in the cost of risk, mainly due to the provisioning for Stages 1 and 2 in anticipation of future defaults. In 2021, the net cost of risk was low in the absence of default, while the Group continued to maintain a provisioning policy for Stages 1 and 2 in the event that defaults begin to materialise. The Group’s cost of risk could be affected in future years by its participation in the French government-guaranteed loan programmes (in respect of the unguaranteed residual exposure) on which the observed defaults remain to be quantified.

Within the Corporate portfolio, at 31 December 2021, the most impacted sectors were the automotive sector (0.9% of the Group's total exposure), hotels, catering and leisure (0.6% of the Group's total exposure), non-food retail distribution (the entirety of the retail distribution sector represents 1.6% of the Group's total exposure) and air transport (less than 0.5% of the Group's total exposure).

The Group's results and financial position were affected by unfavourable developments in global financial markets due to the Covid-19 crisis, especially in March and April 2020 (extreme volatility and dislocation of term structure, alternate sharp declines and rapid rebounds in the equity markets, widening of credit spreads, unprecedented declines in, or cancellation of, dividend distributions, etc.). These exceptional conditions particularly affected the management of structured equity-linked products. Since then, these activities have been thoroughly reconsidered to improve and reduce the risk profile. Although monetary and fiscal stimuli — as well as medical advances — have supported economies and financial markets, the Group remains attentive to the risk of correction that could occur in particular in the event of new epidemic waves.

For information purposes, risk-weighted assets (RWA) related to market risks were thus down 24% at the end of December 2021 compared to the situation at the end of December 2020, to EUR 11.6 billion. The Global Markets and Investor Services sector, which mainly concentrates the Group's market risks, represented a net banking income of EUR 5.6 billion, or 22% of the Group's total revenues in 2021.

Restrictive measures have led the Group to massively implement remote working arrangements, particularly for a significant part of its market activities. This organisation, which was deployed in immediate response to the crisis, increases the risk of operational incidents and the risk of cyber-attacks. Even though the Group has put in place adaptation and support measures, these risks remain higher in periods of widespread recourse to remote working. All employees remain subject to health risks at the individual level. Prolonged remote working also increases psychosocial risk, with potential impacts in terms of organisation and business continuity in the event of prolonged absences.

The unprecedented environment resulting from the Covid-19 crisis could alter the performance of the models used within the Group (particularly in terms of asset valuation and assessment of own funds requirements for credit risk), due in particular to calibration carried out over periods that are not comparable to the current crisis or to assumptions that are no longer valid, taking the models beyond their area of validity. The temporary decline in performance and the recalibration of these models could have an adverse impact on the Group's results.

The ECB recommendation to restrict dividend distribution and share buybacks for all banks placed under its direct supervision expired on 30 September 2021. As from this date, dividend distribution and share buybacks policies will be determined in accordance with the provisions of the applicable prudential regulation.

Uncertainty as to the duration and impact of the Covid-19 pandemic makes it difficult to predict its impact on the global economy. Consequences for the Group will depend on the duration of the pandemic, the measures taken by national governments and central banks and developments in the health, economic, financial and social context.

4.1.1.3 The Group’s failure to achieve its strategic and financial objectives disclosed to the market could have an adverse effect on its business, results of operations and the value of its financial instruments.

At the time of the publication of its annual results on 10 February 2022, the Group communicated new guidance on its operating expenses, cost of risk and solvency. The Group targets an underlying cost/income ratio (excluding the Single Resolution Fund - SRF) between 66% and 68% in 2022 and with further improvement thereafter. Over 2022, the Group’s cost of risk should not exceed 30 basis points. In consideration of the situation in Ukraine, the Group communicated on 3 March 2022 that it was not changing its cost of risk target and that it would update it, if necessary, at the time of its Q1 2022 results publication. The Group manages its CET1 ratio with a margin of flexibility of between 200 and 250 basis points higher than regulatory requirements, defined as the Maximum Distributable Amount (MDA), including under Basel IV.

These expectations are based on a number of assumptions related to the macroeconomic, geopolitical and health context. The non-occurrence of these assumptions (including in the event of the occurrence of one or more of the risks described in this section) or the occurrence of unanticipated events could compromise the achievement of Group’s strategic and financial objectives and negatively affect its activity, results and financial situation.

More precisely, the Group's "Vision 2025" project anticipates the merger between the Retail Banking network of Société Générale in France and Crédit du Nord. Although this project has been designed to enable a controlled deployment, the merger could have a short-term material adverse effect on the Group's business, financial position and costs. System reconciliations could face delays, delaying part of the expected merger benefits. The project could lead to the departure of a number of employees, requiring replacements and efforts related to new employee training, thus potentially generating additional costs. The merger could also lead to the departure of a portion of the Group's customers, resulting in loss of revenue. The legal and regulatory aspects of the transaction could result in delays or additional costs. In October 2021, the Group presented the detailed Vision 2025 project, specifying that the timetable and ambitions remained aligned with the initial presentation of the project. In addition, the effective sale of Lyxor was finalised on 31 December 2021. The Group also announced the signature by Société Générale and ALD of two memoranda of understanding providing for the acquisition by ALD of 100% of LeasePlan, with a view to creating a global leader in sustainable mobility solutions. The Group also announced on 1 February 2022 that Boursorama had signed a memorandum of understanding with ING. Under this agreement, exclusive new customer offers and a simplified subscription process (depending on the product) are expected to be proposed to ING customers who wish to become Boursorama customers.

The Group may however face an execution risk on these strategic projects, which are to be carried out simultaneously. Any difficulty encountered during the process of integrating activities (particularly from a human resource standpoint) is likely to result in higher integration costs and lower-than-anticipated savings, synergies or benefits. Moreover, the process of integrating the acquired operational businesses into the Group could disrupt the operations of one or more of its subsidiaries and divert management's attention, which could have a negative impact on its business and results. These acquisitions may not materialise, in whole or in part, resulting in a reduced level of expected earnings.

Furthermore, the Group is committed to becoming a leading bank in the field of responsible finance through, among others:

- more than EUR 150 billion in financing granted to support the energy transition, above the 2019-2023 target of EUR 120 billion, two years ahead of schedule;
- strong targets for decarbonizing the Group's portfolios, including a planned total exit from thermal coal and a 10% reduction in the Group's overall exposure to the oil and gas extraction sector (upstream) by 2025;
- the signing as co-founder of the Principles for a Responsible Banking Sector, through which the Group undertakes to strategically align its business with the Sustainable Development Objectives set by the United Nations and the Paris Agreement on Climate Change;
- a key role as a founding member of the Net-Zero Banking Alliance initiative, with a commitment to align its portfolios on trajectories aimed at global carbon neutrality by 2050 in order to reach the objective of limiting global warming to 1.5°C.

These measures (and additional measures that may be taken in the future) could in some cases affect decrease the Group's results in the sectors concerned.

4.1.1.4 The Group is subject to an extended regulatory framework in each of the countries in which it operates and changes to this regulatory framework could have a negative effect on the Group's businesses, financial position and costs, as well as on the financial and economic environment in which it operates.

The Group is subject to the regulations of the jurisdictions in which it operates. French, European and U.S. regulations as well as other local regulations are concerned, given the cross-border activities of the Group, among other factors. The application of existing regulations and the implementation of future regulations requires significant resources that could affect the Group's performance. In addition, possible non-compliance with regulations could lead to fines, damage to the Group's reputation, forced suspension of its operations or the withdrawal of operating licences. By way of illustration, exposures to credit and counterparty risks (EAD) in France, the 27-member European Union (including France) and the United States represented 46%, 67% and 14%, respectively as of 31 December 2021.

Among the regulations that could have a significant influence on the Group:

- several regulatory changes are still likely to degrade the environment for market activities: (i) the possible strengthening of transparency constraints and investor protection measures (review of MiFID II / MiFIR, IDD, ELTIF (European Long-Term Investment Fund Regulation)), (ii) the implementation of the fundamental review of the trading book, or FRTB, which may significantly increase requirements applicable to European banks and (iii) despite the European Commission's decision of 8 February 2022 to extend the equivalence granted to UK central counterparties until 30 June 2025, possible relocations could be requested;
- in the United States, the implementation of the Dodd-Frank Act has been almost finalised. The new Securities and Exchange Commission (SEC) regulations related to security-based swap dealers have been applicable since 2021 and requires Société Générale's registration with the SEC as a Securities Based Swap Dealer and compliance with related regulations. Further, once the SEC has issued a final order on substituted compliance for France, a portion of the SEC's rules could be satisfied by demonstrating compliance with home country laws;
- European measures aimed at restoring banks' balance sheets, especially through active management of non-performing loans ("NPLs"), which are leading to a rise of prudential requirements and an adaptation of the Group's strategy for managing NPLs. More generally, additional measures to define a framework of good practices for granting (e.g., loan origination orientations published by the European Banking Authority) and monitoring loans could also impact the Group;
- the strengthening of data quality and protection requirements and a potential strengthening of cyber-resilience requirements in relation to the publication on 24 September 2020 of the proposed European regulation on digital operational resilience for the financial sector;
- the implementation of the European sustainable finance regulatory framework, with an increase in non-financial reporting obligations, enhanced inclusion of environmental, social and governance issues in risk management activities and the potential inclusion of such risks in the supervisory review and assessment process (Supervisory Review and Evaluation Process, or SREP);
- the strengthening of the crisis prevention and resolution regime set out in the Bank Recovery and Resolution Directive of 15 May 2014 ("BRRD"), as revised, gives the Single Resolution Board ("SRB") the power to initiate a resolution procedure towards a credit institution when the point of non-viability is considered reached. In this context, the SRB could, in order to limit the cost to the taxpayer, force some creditors and the shareholders of the Group to incur losses in priority. Should the resolution mechanism be triggered, the Group could, in particular, be forced to sell certain of its activities, modify the terms and conditions of the remuneration of its debt

instruments, issue new debt instruments, or be subjected to a depreciation of its debt instruments or their conversion into equity securities. Furthermore, the Group's contribution to the annual financing of the Single Resolution Fund ("SRF") is significant and will grow steadily until 2023, with 2024 being the year of the full endowment of the fund. The contribution to the banking resolution mechanisms is described in Note 7.3.2 *"Other provisions for risks and expenses"* of the 2022 Universal Registration Document.

New legal and regulatory obligations could also be imposed on the Group in the future, such as:

- the ongoing implementation in France of consumer- and social-oriented measures affecting retail banking: limitation of banks' fees for individuals and extension of such measures to small and medium-sized businesses, and protection measures for vulnerable customers;
- the potential requirement at the European level to open more access to banking data (savings books, investments) to third-party service providers and/or to pool customer data;
- new obligations arising from a package of proposed measures announced by the European Commission on 20 July 2021 aiming to strengthen the European supervisory framework around the fight against money laundering and terrorist financing, as well as the creation of a new European agency to fight money laundering;
- new measures arising from changes to bankruptcy laws relating to the management of the health crisis caused by the Covid-19 pandemic, including those facilitating recourse to accelerated safeguard procedures;
- new requirements resulting from the EU banking regulation reform proposal presented on 27 October 2021 by the European Commission. The reform consists of several legislative instruments to amend the directive on capital requirements (European Parliament and EU Council, directive 2013/36/EU, 26 June 2013) as well as the regulation on capital requirements (CRR) (European Parliament and EU Council, regulation (EU) No. 575/2013, 26 June 2013).

The Group is also subject to complex tax rules in the countries where it operates. Changes in applicable tax rules, uncertainty regarding the interpretation of certain evolutions or their effects may have a negative impact on the Group's business, financial position and costs.

Moreover, as an international bank that handles transactions with US persons, denominated in US dollars, or involving US financial institutions, the Group is subject to US regulations relating in particular to compliance with economic sanctions, the fight against corruption and market abuse. More generally, in the context of agreements with US and French authorities, the Group has undertaken to implement, through a dedicated programme and a specific organisation, corrective actions to address identified deficiencies and strengthen its compliance programme. In the event of a failure to comply with relevant US regulations, or a breach of the Group's commitments under these agreements, the Group could be exposed to the risk of (i) administrative sanctions, including fines, suspension of access to US markets, and even withdrawals of banking licences, (ii) criminal proceedings, and (iii) damage to its reputation.

4.1.1.5 Increased competition from banking and non-banking operators could have an adverse effect on the Group's business and results, both in its French domestic market and internationally.

Due to its international activity, the Group faces intense competition in the international and local markets in which it operates, whether from banking or non-banking actors. As such, the Group is exposed to the risk of not being able to maintain or develop its market share in its various activities. This competition may also lead to pressure on margins, which would be detrimental to the profitability of the Group's activities.

Consolidation in the financial services industry could result in the competitors benefiting from greater capital, resources and an ability to offer a broader range of financial services. In France and in the other main markets where the Group operates, the presence of major domestic banking and financial actors, as well as new market participants (notably neo-banks and online financial services providers), has increased competition for virtually all products and services offered by the Group. New market participants such as "fintechs" and new services that are automated, scalable and based on new technologies (such as blockchain) are developing rapidly and are fundamentally changing the relationship between consumers and financial services providers, as well as the function of traditional retail bank networks. Competition with these new actors could be exacerbated by the emergence of substitutes for central bank currency (crypto-currencies, digital central bank currency, etc.).

Moreover, competition is also enhanced by the emergence of non-banking actors that, in some cases, may benefit from a regulatory framework that is more flexible and in particular less demanding in terms of equity capital requirements.

To address these challenges, the Group has implemented a strategy, in particular with regard to the development of digital technologies and the establishment of commercial or equity partnerships with these new actors (such as Lumo, the platform offering green investments, or Shine, the neobank for professionals). In this context, additional investments may be necessary for the Group to be able to offer new innovative services and to be competitive with these new actors. This intensification of competition could, however, adversely affect the Group's business and results, both on the French market and internationally.

4.1.1.6 Environmental, social and governance (ESG) risks, in particular related to climate change, could have an impact on the Group's activities, results and financial situation in the short-, medium-and long-term.

Environmental, social and governance (ESG) risks are defined as risks stemming from the current or prospective impacts of ESG factors on counterparties or invested assets of financial institutions. ESG risks are seen as aggravating factors to the traditional categories of risks (credit and counterparty risk, market and structural risk, operational risk, reputational risk, compliance risk, liquidity and funding risk, risks related to insurance activities) and are likely to impact the Group's activities, results and financial position in the short-, medium- and long-term.

The Group is thus exposed to environmental risks, and in particular climate change risks through its financing, investment and service activities. Concerning climate risks, a distinction is made between (i) physical risk, with a direct impact on entities, people and property stemming from climate change and the multiplication of extreme weather events; and (ii) transition risk, which results from the process of transitioning to a low-carbon economy, such as regulatory or technological disruptions or changes in consumer preferences.

The Group could be exposed to physical risk resulting from a deterioration in the credit quality of its counterparties whose activity could be negatively impacted by extreme climatic events or long-term gradual changes in climate, and through a decrease in the value of collateral received (particularly in the context of real estate financing). The Group's insurance activities could also be impacted with exposure in regions and countries that are particularly vulnerable to climate change.

The Group may also be exposed to transition risk through its credit portfolio in a limited number of sensitive sectors that are subject to more stringent regulations or due to technological disruptions, and may be exposed to reputation risk in the event it does not comply with its commitments in favor of environmental transition or if these commitments are considered insufficient by its stakeholders.

Beyond the risks related to climate change, risks more generally related to environmental degradation (such as the risk of loss of biodiversity) are also aggravating factors to the Group's risks. The Group could notably be exposed to credit risk on a portion of its portfolio, linked to lower profitability of some of its counterparties due, for example, to a significant decline in revenues following changes in customer behavior or to increasing legal and operating costs (for instance due to the implementation of new environmental standards).

In addition, the Group is exposed to social risks, related for example to non-compliance by some of its counterparties with labor rights or workplace health and safety issues, which may trigger or aggravate non-compliance, reputational and credit risks for the Group.

Similarly, risks relating to governance of the Group's counterparties and stakeholders (suppliers, service providers, etc.), such as an inadequate management of environmental and social issues or non-compliance with corporate governance codes related to, among others, anti-money laundering issues, could generate credit and reputational risks for the Group.

Beyond the risks related to its counterparties or invested assets, the Group could also be exposed to risks related to its own activities. Therefore, the Group is exposed to physical climate risk with respect to its ability to maintain its services in geographical areas impacted by extreme events (floods, etc.).

The Group also remains exposed to specific social and governance risks, relating for example to compliance with labor laws, the management of its human resources and ethical issues, transparency or the composition (such as in terms of diversity) of its Board of Directors or staff.

All these risks could have an impact on the Group's business, results and reputation in the short, medium and long term.

4.1.1.7 The Group is subject to regulations relating to resolution procedures, which could have an adverse effect on its business and the value of its financial instruments.

The BRRD and Regulation (EU) No. 806/2014 of the European Parliament and of the Council of the European Union of 15 July 2014 (the Single Resolution Mechanism, or "SRM") define an European Union-wide framework for the recovery and resolution of credit institutions and investment firms. The BRRD provides the authorities with a set of tools to intervene early and quickly enough in an institution considered to be failing so as to ensure the continuity of the institution's essential financial and economic functions while reducing the impact of the failure of an institution on the economy and the financial system (including the exposure of taxpayers to the consequences of the failure). Under the SRM Regulation, a centralised resolution authority is established and entrusted to the SRB and national resolution authorities.

The powers granted to the resolution authority under the BRRD and the SRM Regulations include write-down/conversion powers to ensure that capital instruments and eligible liabilities absorb the Group's losses and recapitalise it in accordance with an established order of priority (the "bail-in tool"). Subject to certain exceptions, losses are borne first by the shareholders and then by the holders of additional Tier 1 and Tier 2 capital instruments, then by the non-preferred senior debt holders and finally by the senior preferred debt holders, all in the order of their claims in a normal insolvency proceeding. The conditions for resolution provided by the French Monetary and Financial Code implementing the BRRD are deemed to be met if: (i) the resolution authority or the competent supervisory authority determines that the institution is failing or likely to fail; (ii) there is no reasonable perspective that any measure other than a resolution measure could prevent the failure within a reasonable timeframe; and (iii) a resolution measure is necessary to achieve the resolutions' objectives (in particular, ensuring the continuity of critical functions, avoiding a significant negative effect on the financial system, protecting public funds by minimizing the recourse to extraordinary public financial support, and protecting customers' funds and assets) and the winding up of the institution under normal insolvency proceedings would not meet these objectives to the same extent.

The resolution authority could also, independently of a resolution measure or in combination with a resolution measure, proceed with the write-down or conversion of all or part of the Group's capital instruments (including subordinated debt instruments) into equity if it determines that the Group will no longer be viable unless it exercises this write-down or conversion power or if the Group requires extraordinary public financial support (except where the extraordinary public financial support is provided in the form defined in Article L. 613-48 III, 3° of the French Monetary and Financial Code).

The bail-in tool could result in the write-down or conversion of capital instruments in whole or in part into ordinary shares or other ownership instruments.

In addition to the bail-in tool, the BRRD provides the resolution authority with broader powers to implement other resolution measures with respect to institutions that meet the resolution requirements, which may include (without limitation) the sale of the institution's business segments, the establishment of a bridge institution, the split of assets, the replacement or substitution of the institution as debtor of debt securities, changing the terms of the debt securities (including changing the maturity and/or amount of interest payable and/or the imposition of a temporary suspension of payments), the dismissal of management, the appointment of a provisional administrator and the suspension of the listing and admission to trading of financial instruments.

Before taking any resolution action, including the implementation of the bail-in tool, or exercising the power to write down or convert relevant capital instruments, the resolution authority must ensure that a fair, prudent and realistic valuation of the institution's assets and liabilities is made by a third party independent of any public authority.

The application of any measure under the French implementing provisions of the BRRD or any suggestion of such application to the Group could have a material adverse effect on the Group's ability to meet its obligations under its financial instrument and, as a result, holders of these securities could lose their entire investment.

In addition, if the Group's financial condition deteriorates, the existence of the bail-in tool or the exercise of write-down or conversion powers or any other resolution tool by the resolution authority (independently of or in combination with a resolution) if it determines that Société Générale or the Group will no longer be viable could result in a more rapid decline in the value of the Group's financial instruments than in the absence of such powers.

4.1.2 CREDIT AND COUNTERPARTY CREDIT RISKS

Risk weighted assets (RWA) in relation to credit and counterparty risks amounted to EUR 305 billion at 31 December 2021.

4.1.2.1 The Group is exposed to credit, counterparty and concentration risks, which may have a material adverse effect on the Group's business, results of operations and financial position.

Due to its financing and market activities, the Group is exposed to credit and counterparty risk. The Group may therefore incur losses in the event of default by one or more counterparties, particularly if the Group encounters legal or other difficulties in enforcing the collateral allocated to its exposures or if the value of this collateral is not sufficient to fully recover the exposure in the event of default. Despite the Group's efforts to limit the concentration effects of its credit portfolio exposure, it is possible that counterparty defaults could be amplified within the same economic sector or region of the world due to the interdependence of these counterparties.

Consequently, the default of one or more significant counterparties of the Group could have a material adverse effect on the Group's cost of risk, results of operations and financial position.

For information, as of 31 December 2021, the Group's exposure at default (EAD, excluding counterparty risk) was EUR 934 billion, with the following breakdown by type of counterparty: 30% on sovereigns, 30% on corporates, 23% on retail customers and 6% on credit institutions and similar. Risk-weighted assets (RWA) for credit risk totalled EUR 277 billion.

Regarding counterparty risks resulting from market transactions (excluding CVA), at the end of December 2021, the exposure value (EAD) was EUR 145 billion, mainly to corporates (42%) and credit institutions and similar entities (38%) and to a lesser extent to sovereign entities (17%). Risk-weighted assets (RWA) for counterparty risk amounted to EUR 25 billion.

At 31 December 2021, the main sectors to which the Group is exposed in its corporate portfolio included financial activities (accounting for 20.2% of exposure), real estate (9.7%), commercial services (9.6%), wholesale trade (8.0%), the transport, postal services and logistics sector (7.1%), collective services (7.0%) and the oil and gas sector (5.4%).

In terms of geographical concentration, the five main countries to which the Group is exposed as of 31 December 2021 were France (46% of the Group's total EAD, mainly related to retail customers and sovereigns), the United States (13% of EAD, mainly related to corporates and sovereigns), the Czech Republic (5% of the Group's total EAD, mainly related to retail clients, corporates and sovereigns), the United Kingdom (4% of EAD, mainly related to corporates and sovereigns) and Germany (4% of the Group's total EAD, mainly related to corporates and credit institutions). Furthermore, the financial situation of certain counterparties could be affected by the geopolitical tensions mentioned in section 4.1.1.1 "*The global economic and financial context, geopolitical tensions, as well as the market environment in which the Group operates, may adversely affect its activities, financial position and results of operations*".

For more detail on credit and counterparty risk, see sections 4.5.6 *"Quantitative information"* and 4.6.3 *"Counterparty credit risk measures"* of the 2022 Universal Registration Document.

4.1.2.2 The financial soundness and conduct of other financial institutions and market participants could have an adverse effect on the Group's business.

Financial institutions and other market players (commercial or investment banks, mutual funds, alternative funds, institutional clients, clearing houses, investment service providers, etc.) are important counterparties for the Group in capital or inter-bank markets. Financial services institutions and financial players are closely interrelated as a result of trading, clearing and funding relationships. In addition, there is a growing involvement in the financial markets of players with little or no regulation (hedge funds, for example). As a result, defaults by one or several actors in the sector or a crisis of confidence affecting one or more actors could result in market-wide liquidity scarcity or chain defaults, which would have an adverse effect on the Group's activity. The situation in Ukraine and the consequences of international sanctions, among other things, and the evolution of the financial markets could also weaken, or even cause the default, of a certain number of financial players. In addition, certain financial players could experience operational or legal difficulties in the unwinding or settlement of certain financial transactions.

The Group is exposed to clearing institutions and their members because of the increase in transactions traded through these institutions, induced in part by regulatory changes that require mandatory clearing for over-the-counter derivative instruments standardised by these clearing counterparties. The Group's exposure to clearing houses amounted to EUR 39 billion of EAD on 31 December 2021. The default of a clearing institution or one of its members could generate losses for the Group and have an adverse effect on the business and results of the Group.

The Group is also exposed on assets held as collateral for credit or derivatives instruments, with the risk that, in the event of failure of the counterparty, some of these assets may not be sold or that their disposal price may not cover the entire exposure in credit and counterparty risks. These assets are subject to periodic monitoring and a specific management framework.

At 31 December 2021, the Group's exposure (EAD) to credit and counterparty risks on financial institutions amounted to EUR 116 billion, representing 11% of the Group's EAD in respect of credit risk.

4.1.2.3 The Group's results of operations and financial position could be adversely affected by a late or insufficient provisioning of credit exposures.

The Group regularly records provisions for doubtful loans in connection with its lending activities in order to anticipate the occurrence of losses. The amount of provisions is based on the most accurate assessment at the time of the recoverability of the debts in question. This assessment, based notably on multi-scenario approaches, relies on an analysis of the current and prospective situation of the borrower as well as an analysis of the value and recovery prospects of the debt, taking into account any security interests. In some cases (loans to individual customers), the provisioning method may call for the use of statistical models based on the analysis of historical losses and recovery data. Since 1 January 2018, the Group has also been recording provisions on performing loans under the IFRS9 accounting standard. This assessment is based on statistical models for assessing probabilities of default and potential losses in the event of default, which take into account a prospective analysis based on regularly updated macroeconomic scenarios.

IFRS 9 accounting standard principles and provisioning models could be pro-cyclical in the event of a sharp and sudden deterioration in the environment. A deterioration of the geopolitical and macroeconomic environment could lead to a significant and/or not-fully-anticipated variation in the cost of risk and therefore in the Group's results of operations.

At 31 December 2021, the stock of provisions relating to outstanding amounts (on- and off-balance sheet) amounted to EUR 3.6 billion on performing assets and EUR 8.9 billion on assets in default. Outstanding loans in default (stage 3 under IFRS 9) represented EUR 17.8 billion, including 47% in France, 23% in Africa and Middle East and 14% in Western Europe (excluding France). The gross ratio of doubtful loans on the balance sheet was 2.9% and the gross coverage ratio of these loans was approximately 51%. The cost of risk stood at 13 basis points during 2021, against a cost of risk of 64 basis points in 2020.

4.1.3 MARKET AND STRUCTURAL RISKS

Market risk corresponds to the risk of impairment of financial instruments resulting from changes in market parameters, the volatility of these parameters and the correlations between these parameters. The concerned parameters include exchange rates, interest rates, as well as the prices of securities (shares, bonds) and commodities, derivatives and any other assets.

4.1.3.1 Changes and volatility in the financial markets may have a material adverse effect on the Group's business and the results of market activities.

In the course of its activities, the Group takes trading positions in the debt, currency, raw material and stock markets, as well as in unlisted shares, real estate assets and other types of assets including derivatives. The Group is thus exposed to "market risk". Volatility in the financial markets can have a material adverse effect on the Group's market activities. In particular:

- significant volatility over a long period of time could lead to corrections on risky financial assets (and especially on the riskiest assets) and generate losses for the Group;
- a sudden change in the levels of volatility and its structure, or alternative short-term sharp declines and fast rebounds in markets, could make it difficult or more costly to hedge certain structured products and thus increase the risk of loss for the Group.

Severe market disruptions and high market volatility have occurred in recent years and may occur again in the future, which could result in significant losses for the Group's markets activities. Such losses may extend to a broad range of trading and hedging products, notably on derivative instruments, both vanilla and structured.

In the event that a much lower-volatility environment emerges, reflecting a generally optimistic sentiment in the markets and/or the presence of systematic volatility sellers, increased risks of correction may also develop, particularly if the main market participants have similar positions (market positions) on certain products. Such corrections could result in significant losses for the Group's market activities. The volatility of the financial markets makes it difficult to predict trends and implement effective trading strategies; it also increases risk of losses from net long positions when prices decline and, conversely, from net short positions when prices rise. The realisation of any such losses could have a material adverse effect on the Group's results of operations and financial position.

Similarly, the sudden decrease in, or even the cancellation of, dividends, as experienced during the Covid-19 pandemic, and changes in the correlations of different assets of the same class, could affect the Group's performance, with many activities being sensitive to these risks.

A prolonged slowdown in financial markets or reduced liquidity in financial markets could make asset disposals or position manoeuvrability more difficult, leading to significant losses. In many of the Group's activity segments, a prolonged decline in financial markets, particularly asset prices, could reduce the level of activity in these markets or their liquidity. These variations could lead to significant losses if the Group were unable to quickly unwind the positions concerned, adjust the coverage of its positions, or if the assets held in collateral could not be divested, or if their selling prices did not cover the Group's entire exposure on defaulting loans or derivatives.

The assessment and management of the Group's market risks are based on a set of risk indicators that make it possible to evaluate the potential losses incurred at various time horizons and given probability levels, by defining various scenarios for changes in market parameters impacting the Group's positions. These scenarios are based on historical observations or are hypothetically defined. However, these risk management approaches are based on a set of assumptions and reasoning that could turn out to be inadequate in certain configurations or in the case of unexpected events, resulting in a potential underestimation of risks and a significant negative effect on the results of the Group's market activities.

Furthermore, in the event of a deterioration of the market situation, the Group could experience a decline in the volume of transactions carried out on behalf of its customers, leading to a decrease in the revenues generated from this activity and in particular in commissions received.

Finally, the prospect of a faster-than-expected monetary tightening led to tensions and volatility in rates at the end of 2021, reflected notably by a flattening of the main curves. More generally, the reduction in accommodating monetary policies could lead to significant corrections in the markets due to higher interest rates and less liquidity. In addition, certain players who have benefited from a prolonged environment of low interest rates and high liquidity may encounter difficulties, with a risk of propagation to all financial markets, which could have a significant negative impact on the Group's market activities and results.

For information purposes, Global Markets & Investor Services activities, which account for most of the Group's market risks, represented EUR 5.6 billion of net banking income in 2021, or 22% of the Group's total revenues. At 31 December 2021, risk-weighted assets (RWA) subject to market risk represented EUR 11.6 billion (representing 3% of the Group's total RWA).

4.1.3.2 Sharp changes in interest rates may adversely affect retail banking activities in France in the short term.

The Group generates a significant part of its income through net interest margin and as such remains exposed to interest rate fluctuations as well as to changes in the yield curve, particularly in its Retail banking activities in France. The Group's results are influenced by changes in interest rates in Europe and in the other markets where it operates. In Europe in particular, a protracted environment of low or even negative interest rates has affected and could continue to adversely affect the Group's retail banking income, notably in France.

In addition, a sequence of very rapid rate hikes also presents a risk to the Group's revenues. Such a scenario may in particular be the consequence of the end of accommodating policies in reaction to an economic recovery or to high inflation rates. The rise in key rates or the reduction or even the end of central bank asset purchase programmes could then induce a rise in the yield curve which would have the effect of reducing the value of fixed rate assets measured at fair value. and a change in customer behavior that could affect the bank's income and lead the bank to readjust its hedges in an unfavorable context.

For information purposes, the Net banking income (NBI) of French retail banking amounted to EUR 7.8 billion in 2021.

For more information on structural interest rate risks, see chapter 4.9 *"Structural interest rate and exchange rate risks"* and Note 8.1 *"Segment reporting"* in Chapter 6 of the 2022 Universal Registration Document.

4.1.3.3 Fluctuations in exchange rates could adversely affect the Group's results.

As a result of its international activities and its geographical presence in many countries, the Group's revenues and expenses as well as its assets and liabilities are recorded in different currencies, which exposes it to the risk of exchange-rate fluctuations.

Because the Group publishes its consolidated financial statements in euros, which is the currency of most of its liabilities, it is also subject to translation risk for items recorded in other currencies, in the preparation of its consolidated financial statements. Exchange rate fluctuations of these currencies against the euro may adversely affect the Group's consolidated results, financial position and cash flows. Exchange rate fluctuations may also negatively affect the value (denominated in euros) of the Group's investments in its subsidiaries outside the Eurozone.

For more information of structural exchange rate risk, see chapter 4.7.5 *"Market Risk Capital Requirements and Risk-Weighted Assets"* and chapter 4.9.3 *"Structural exchange rate risk"* in the 2022 Universal Registration Document.

4.1.4 OPERATIONAL RISKS (INCLUDING RISK OF INAPPROPRIATE CONDUCT) AND MODEL RISKS

At 31 December 2021, risk-weighted assets in relation to operational risk amounted to EUR 47 billion, or 13% of the Group's total RWA. These risk-weighted assets relate mainly to Global Markets & Investor Services (65% of total operational risk).

Between 2017 and 2021, the Group's operational risks were primarily concentrated in five risk categories, representing 93% of the Group's total operating losses observed over the period: fraud (mainly external frauds) and other criminal activities (32%), execution errors (20%), disputes with authorities (17%), errors in pricing or risk assessment, including model risk (13%) and commercial disputes (11%). The Group's other categories of operational risk (unauthorised activities in the markets, failure of information systems and loss of operating resources) remain minor, representing on average 7% of the Group's losses between 2017 and 2021.

See chapter 4.8.3 *"Operational risk measurement"* of the 2022 Universal Registration Document for more information on the allocation of operating losses.

4.1.4.1 A breach of information systems, notably in the event of cyber-attack, could have an adverse effect on the Group's business and results in losses and damage the Group's reputation.

The Group relies heavily on communication and information systems to conduct its business and this is reinforced by the widespread use of remote banking and the digitalisation of processes. Any breach of its systems or the systems of its external partners could materially disrupt the Group's business. Such incidents could result in significant costs related to the recovery and verification of information, loss of revenues, customer attrition, disputes with counterparties or customers, difficulties in managing market operations and short-term refinancing operations, and ultimately damage the Group's reputation. Difficulties experienced by the Group's counterparties could also indirectly generate credit and/or reputational risks for the Group. The situation stemming from the conflict in Ukraine mentioned in section 4.1.1.1 "*The global economic and financial context, geopolitical tensions, as well as the market environment in which the Group operates, may adversely affect its activities, financial position and results of operations*" increases the risk of cyber-attacks for the Group and its external partners.

Each year, the Group is subject to several cyber attacks on its systems or those of its customers, partners and suppliers. The Group could be subject to targeted and sophisticated attacks on its computer network, resulting in embezzlement, loss, theft or disclosure of confidential data or customer data (which could constitute violations of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data ("GDPR"). Such actions could result in operational losses and have an adverse effect on the Group's business, results and reputation with its customers.

4.1.4.2 The Group is exposed to legal risks that could have a material adverse effect on its financial position or results of operations.

In the case of non-compliance with applicable laws and regulations, the Group and certain of its former and current representatives may be involved in various types of litigation, including civil, administrative, tax, criminal and arbitration proceedings. The large majority of such proceedings arise from transactions or events that occur in the Group's ordinary course of business. There has been an increase in client, depositor, creditor and investor litigation and regulatory proceedings against intermediaries such as banks and investment advisors in recent years, in part due to the challenging market environment. This has increased the risk for the Group of losses or reputational harm arising from litigation and other proceedings. Such proceedings or regulatory enforcement actions could also lead to civil, administrative, tax or criminal penalties that could adversely affect the Group's business, financial position and results of operations. The situation generated by the conflict in Ukraine mentioned in section 4.1.1.1 "*The global economic and financial context, geopolitical tensions, as well as the market environment in which the Group operates, may adversely affect its activities, financial position and results of operations*" could increase the legal risk.

In preparing its financial statements, the Group makes estimates regarding the financial outcome of civil, administrative, tax, criminal and arbitration proceedings in which it is involved, and records a provision when losses with respect to such matters are probable and can be reasonably estimated. It is inherently difficult to predict the outcome of litigation and proceedings involving the Group's businesses, particularly those cases in which the matters are brought on behalf of various classes of claimants, cases where claims for damages are of unspecified or indeterminate amounts, or cases involving unprecedented legal claims. Should such estimates prove inaccurate or should the provisions set aside by the Group to cover such risks prove inadequate, the Group's financial position or results of operations could be adversely affected.

The provision recorded in the Group's financial statements for public rights disputes amounted to EUR 338 million on 31 December 2021.

For a description of the most significant ongoing proceedings, see the section 4.11 *"Compliance risk, Litigation"*, Note 8.3.2 *"Other provisions"* and Note 9 *"Information on risks and litigation"* of chapter 6 of the 2022 Universal Registration Document.

4.1.4.3 Operational failure, termination or capacity constraints affecting institutions the Group does business with, or failure of information technology systems could have an adverse effect on the Group's business and result in losses and damage to its reputation.

Any dysfunction, failure or interruption of service of the Group's communication and information systems or the systems of its external partners, even brief and temporary, could result in significant disruptions to the Group's business. Such incidents could result in significant costs related to information retrieval and verification, loss of revenue, loss of customers, litigation with counterparties or customers, difficulties in managing market operations and short-term refinancing, and ultimately damage to the Group's reputation.

The Group is exposed to the risk of operational failure or capacity constraints in its own systems and in the systems of third parties, including those of financial intermediaries that it uses to facilitate cash settlement or securities transactions (such as clearing agents and houses and stock exchanges), as well as those of clients and other market participants. The international tensions linked to the situation in Ukraine and the sanctions that have been put in place and those that may be put in place in the future could also lead to operational difficulties within the Rosbank subsidiary.

The interconnections between various financial institutions, clearing houses, stock exchanges and service providers, including external cloud services, increase the risk that the operational failure of any one of them could lead to an operational failure of the entire sector, which could have an adverse impact on the Group's ability to conduct its business and could therefore result in losses. This risk is likely to be increased by industry concentration, whether among market participants or financial intermediaries, as complex and disparate systems need to be integrated, often on an accelerated basis.

The Group is also subject to various regulatory reforms and major internal strategic projects that may lead to operational disruptions and have an impact on the Group's operations, the accounting of transactions and their tax or prudential treatment, and on the Group's results in the event of poor project management and understanding of operational risks. Examples include the IBOR interbank rate reform, which aims to ensure the continuity of contracts indexed on interbank rates, or the internal project to merge the Société Générale and Crédit du Nord retail networks, with the transfer of Crédit du Nord's information system to the Société Générale information system.

See *"Risks related to information security and information and communication technologies"* of section 4.8.1 *"Organisation of operational risk management"*, and *"quantitative data"* of section 4.8.3 *"Operational risk measurement"* for a breakdown of operational risk losses, and section 4.8.4 *"Risk-weighted assets and capital requirements"* of the 2022 Universal Registration Document for a breakdown of risk-weighted exposure to operational risks by division.

The operational risks specific related to the Covid-19 pandemic are also described in the section 4.1.1.2 *"The coronavirus (Covid-19) pandemic and its economic consequences could negatively affect the Group's business and financial performance"*.

4.1.4.4 The Group is exposed to fraud risk, which could result in losses and damage its reputation.

Fraud risk is defined as the intentional non-compliance with existing laws, regulations or procedures, which in most cases results in harm to the bank or its customers, and provides the fraudster or his or her relatives with a direct or indirect material or moral benefit.

The risk of fraud increases intrinsically in a crisis context (financial pressure among clients, third parties or our employees) and in a remote working environment that may limit the capacity for monitoring and exchanges by or with the manager or other employees contributing to the prevention or detection of fraud risk. This risk mainly involves external fraud related to the bank's credit activities and to the means of payment (electronic banking, transfers and checks) made available to customers. Fraud schemes are changing rapidly in terms of volume and approach, in line with the security measures and countermeasures developed in the market and within the Group. Internal fraud is carried out through the misappropriation of funds and the granting of undue facilities and can be carried out with or without external collusion. Finally, unauthorised rogue trading, with or without circumvention of controls, could impact results and have a very significant negative impact on the Group's reputation.

Between 2017 and 2021, the risk of fraud represented 32% of the Group's total operating losses.

4.1.4.5 Reputational damage could harm the Group's competitive position, its activity and financial condition.

An organisation benefits from a good reputation when its activities and services meet or exceed the expectations of its stakeholders, both external (customers, investors, shareholders, regulators, supervisors, suppliers, opinion leaders such as NGOs, etc.) and internal (employees).

The Group's reputation for financial strength and integrity is critical to its ability to foster loyalty and develop its relationships with customers and other counterparties in a highly competitive environment. Any reputational damage could result in loss of activity with its customers or a loss of confidence on the part of its investors, which could affect the Group's competitive position, its business and its financial condition.

Financing extended by the bank that does not comply with regulations or its commitments, notably in terms of environmental and social responsibility, could affect the Group's reputation. Methods of distribution of products and services that do not provide sufficient information to customers, a lack of transparency in its communication (particularly financial communication) or internal management rules (including human resources management or relations with suppliers and service providers) that do not comply with regulatory obligations or the bank's commitments could affect the Group's reputation. In addition, the situation in Ukraine and the international sanctions put in place create an environment that is likely to sharply increase the Group's reputational risk.

A corporate social responsibility strategy (in particular with regard to environmental issues) deemed insufficiently ambitious in relation to the expectations of external stakeholders or difficulties in implementing this strategy could also impact the Group's reputation.

As a result, negative comments regarding the Group, whether or not legitimate, and concerning events that may or may not be attributable to the Group, could deteriorate the Group's reputation and affect its competitive position.

The Group's reputation could also be adversely affected by a weakness in its internal control measures aimed at monitoring and preventing operational, compliance, credit and market risks, particularly with respect to monitoring inappropriate conduct of its employees (such as corruption, fraud, market abuse and tax evasion). This risk may arise from the conduct itself as well as from administrative or criminal sanctions penalising an insufficiently effective control environment, such as the sanctions issued by the US and French authorities in 2018 relating to the Group's failure to comply with economic embargo measures.

As a result, a perceived lack of commitment to the Group's Code of Conduct, which aims to anchor the Group's values in terms of ethics and responsibility, could be detrimental to the Group's good reputation.

These various issues could also have a non-negligible impact on the Group's ability to attract and recruit younger talent or to retain talent within the Group.

The consequences of these events, which could potentially result in legal proceedings, may vary according to the extent of media coverage and the overall context and remain difficult to estimate.

For more information about reputation risk please see section 4.11 *"Compliance risks, Litigation"* and section 5.3.2 *"Applying the highest standards in client relationship management"* of Chapter 5 *"Corporate Social Responsibility"* of the 2022 Universal Registration Document.

4.1.4.6 The Group's inability to attract and retain qualified employees may adversely affect its performance.

The Group employs 131,000 people in 64 countries. Human resources are key assets of the Group, its business model and value proposition. Inadequate career or skills management (integration, career prospects and training, or in terms of compensation levels in line with market practice, etc.) could affect the performance of the Group's banking and financial activities. The Group's inability to attract and retain employees, a high rate of turnover or the departure of strategic employees could expose the Group to a loss in its know-how as well as a deterioration in the quality of service, at the expense of client satisfaction.

Furthermore, the increased oversight of compensation policies to which the banking sector is subject, including rules on certain types of compensation (fixed, variable, performance conditions, deferred payments, etc.), may limit the Group's ability to attract and retain talent. This is notably the case for the CRD IV directive, which has applied since 2014 to banks in the European Economic Area (EEA) and therefore to the Group, and for the CRD V directive, applicable since January 2021. These directives include a cap on the variable component of compensation compared to its fixed component for the relevant personnel, which could reduce the Group's ability to attract and retain employees, in particular against competitors located outside of the EEA.

In addition, the context of the Covid-19 health crisis has reinforced the aspirations of some of the Group's employees to access new ways of working, with the lasting introduction of a "hybrid" form of work (involving an organisation based on both on-site presence of employees and remote working). However, hindsight on this hybrid working method is still limited to date and has yet to be evaluated in terms of the level of satisfaction and commitment of the Group's employees.

For more information, see section 5.4.1.3.4 *"Guaranteeing health and safety at work and continuous improvement of working conditions"* of the 2022 Universal Registration Document.

4.1.4.7 The models, in particular the Group's internal models, used in strategic decision-making and in risk management systems could fail, face delays in deployment or prove to be inadequate and result in financial losses for the Group.

Internal models used within the Group could prove to be deficient in terms of their conception, calibration, use or monitoring of performance over time in relation to operational risk and therefore could produce erroneous results, notably with financial consequences. The faulty use of so-called artificial intelligence techniques in the conception of these models could also lead to the production of erroneous results.

In particular:

- the valuation of certain financial instruments that are not traded on regulated markets or other trading platforms, such as OTC derivative contracts between banks, uses internal models that incorporate unobservable parameters. The unobservable nature of these parameters results in an additional degree of uncertainty as to the adequacy of the valuation of the positions. In the event that the relevant internal models prove unsuitable for changing market conditions, some of the instruments held by the Group could be misvalued and could generate losses for the Group. For illustrative purposes, financial assets and liabilities measured at fair value on the balance sheet categorised within level 3 (for which the valuation is not based on observed data) represented EUR 13.4 billion and EUR 43.7 billion, respectively, as of 31 December 2021 (see Note 3.4.1 and Note 3.4.2 of chapter 6 of the consolidated financial statements included in the 2022 Universal Registration Document on financial assets and liabilities measured at fair value);
- the assessment of customer solvency and the Bank's exposure to credit and counterparty risk is generally based on historical assumptions and observations that may prove to be inappropriate in light of new economic conditions. It is based on economic scenarios and projections that may not adequately anticipate unfavourable economic conditions or the occurrence of unprecedented events. This miscalculation could, among other things, result in an under-provisioning of risks and an incorrect assessment of capital requirements;
- hedging strategies used in market activities rely on models that include assumptions about the evolution of market parameters and their correlation, partly inferred from historical data. These models could be inappropriate in certain market environments (in the event of a large-scale armed conflict, strong movements in volatility resulting, for example, from a pandemic, or tensions between the United States and China, in the Middle East or in Africa), leading to an ineffective hedging strategy, thus causing unanticipated losses that could have a material adverse effect on the Group's results and financial position;

- management of the interest rate risk of the investment portfolio and of the liquidity risk of all balance sheet and off-balance sheet items uses behavioural models that depend on market conditions. These models, based in particular on historical observations, could have an impact on the hedging of these risks when unprecedented events occur.

In addition, the Group has initiated an evolution of its system of internal credit risk models (project “Haussmann”). This evolution could have a significant impact on the calculation of its RWA credit and counterparty risk in the event of delay in the schedule for submitting its models to the supervisor or in the event of late validation by the supervisor.

Finally, the unprecedented environment resulting from the Covid-19 crisis could alter the results of the models used within the Group (particularly in terms of asset valuation and the assessment of capital requirements for credit risk), due in particular to a calibration carried out over periods that are not comparable to the current crisis, or to assumptions that are no longer valid, leading the models to exceed their validity zone. The temporary decline in performance and the recalibration of these models could have a negative impact on the Group’s results.

4.1.4.8 The Group may incur losses as a result of unforeseen or catastrophic events, including health crises, large-scale armed conflicts, terrorist attacks or natural disasters.

The Group remains dependent on its natural and social environment. The occurrence of a new epidemic or pandemic crisis (such as the Covid-19 pandemic) or a health crisis related to the pollution of the natural environment could have a significant impact on the Group’s activities. Also, large-scale armed conflicts, terrorist attacks, natural disasters (including earthquakes, such as in Romania, and floods, such as the exceptional flooding of the Seine in Paris), extreme weather conditions (such as heatwaves) or major social unrest (such as the *gilets jaunes* movement in France) could affect the Group’s activities.

Such events could create economic and financial disruptions or lead to operational difficulties (including travel limitations or relocation of affected employees) for the Group.

These events could impair the Group’s ability to manage its businesses and also expose its insurance activities to significant losses and increased costs (such as higher re-insurance premiums). Upon the occurrence of such events, the Group could incur losses.

4.1.5 LIQUIDITY AND FUNDING RISKS

4.1.5.1 The Group’s access to financing and the cost of this financing could be negatively affected in the event of a resurgence of financial crises or deteriorating economic conditions.

In past crises (such as the 2008 financial crisis, the Eurozone sovereign debt crisis, the tensions on the financial markets linked to the Covid-19 pandemic before the intervention of the central banks or more recently the tensions linked to the crisis in Ukraine), access to financing from European banks was intermittently restricted or subject to less favourable conditions.

If unfavourable debt market conditions were to reappear following a new systemic or Group-specific crisis, the effect on the liquidity of the European financial sector in general and on the Group in particular could be very significantly unfavourable and could have an adverse impact on the Group’s operating results as well as its financial position.

For several years, central banks have taken measures to facilitate financial institutions’ access to liquidity, in particular by lowering interest rates to historical lows and by setting up TLTRO (Targeted Longer-Term Refinancing Operations) type facilities and by implementing asset purchase policies to keep long-term interest rates at very low levels. In a context of higher inflation, central banks (notably the ECB and the U.S. Federal Reserve) have begun to phase out these accommodating policies. For example, the ECB indicated in December 2021 that it will cease the Emergency Pandemic Purchase programme (EPPP) in March 2022 and its Targeted Long-Term Refinancing Operations (TLTRO 3) in June 2022. In this context, the Group could face an unfavourable evolution of its financing cost and access to liquidity.

In addition, if the Group were unable to maintain a satisfactory level of deposits from its customers, it could be forced to resort to more expensive financing, which would reduce its net interest margin as well as its results.

The Group’s regulatory short-term liquidity coverage ratio (LCR) stood at 129% at 31 December 2021 and liquidity reserves amounted to EUR 229 billion at 31 December 2021.

4.1.5.2 A downgrade in the Group’s external rating or in the sovereign rating of the French state could have an adverse effect on the Group’s cost of financing and its access to liquidity.

For the proper conduct of its activities, the Group depends on access to financing and other sources of liquidity. In the event of difficulties in accessing the secured or unsecured debt markets on terms it considers acceptable, due to market conditions or factors specific to the Group, or if it experiences unforeseen outflows of cash or collateral, including material decreases in customer deposits, its liquidity could be impaired. In addition, if the Group is unable to maintain a satisfactory level of customer deposits collection, it may be forced to turn to more expensive funding sources, which would reduce the Group’s net interest margin and results.

The Group is exposed to the risk of an increase in credit spreads. The Group’s medium- and long-term financing cost is directly linked to the level of credit spreads which can fluctuate depending on general market conditions. These spreads can also be affected by an adverse change in France’s sovereign debt rating or the Group’s external ratings by rating agencies.

The Group is currently monitored by four financial rating agencies: Fitch Ratings, Moody’s, R&I and Standard & Poor’s. The downgrading of the Group’s credit ratings, by these or other agencies, could have a significant impact on the Group’s access to funding, increase its cost of financing or reduce its ability to carry out certain types of transactions or activities with customers. This could also require the Group to provide additional collateral to certain counterparties, which could have an adverse effect on its business, financial position and results of operations.

The deterioration of the economic environment following the health crisis or more recently as a result of the crisis in Ukraine and its impact on the Group, particularly in terms of profitability and cost of risk, could increase the risk of external rating downgrades (due notably to its exposure on Russia). The Group's ratings could be placed under negative watch or be subject to a downgrade. In addition, France's sovereign ratings could also be downgraded due to an increase in its debt and deficits (further increased by the Covid-19 pandemic and the response measures taken by the French government). These elements could have a negative impact on the Group's financing costs and its access to liquidity. The Group's ratings by Fitch Ratings, Moody's, R&I and Standard & Poor's are available on the Group's website (*https://investors.societegenerale.com/en/financial-and-non-financial-information/ratings/credit-ratings).*

Access to financing and liquidity constraints could have a material adverse effect on the Group's business, financial position, results of operations and ability to meet its obligations to its counterparties.

At end 2021, the Group raised a total of EUR 39.1 billion of long-term funding (of which EUR 35.3 billion for the parent company and EUR 3.8 billion for its subsidiaries) which relates, at the parent company level, to senior structured issues (EUR 19.9 billion), subordinated issues (EUR 2.4 billion), senior vanilla non-preferred issues (EUR 6.9 billion), unsecured senior vanilla preferred issues (EUR 2.1 billion) and secured issues (EUR 7.1 billion).

For 2022, the Group has planned a funding programme of approximately EUR 20 billion in vanilla long-term debt, in senior preferred and secured debt as well as in senior non-preferred debt and subordinated debt.

4.1.6 RISKS RELATED TO INSURANCE ACTIVITIES

4.1.6.1 A deterioration in market conditions, and in particular a significant increase or decrease in interest rates, could have a material adverse effect on the life insurance activities of the Group's Insurance business.

In 2021, the Group's insurance activities represented net banking income of EUR 1 billion, or 4% of the Group's consolidated net banking income. The Group's Insurance division is mainly focused on life insurance. At 31 December 2021, life insurance contracts registered outstandings of EUR 135 billion, divided between euro-denominated contracts (63%) and unit-linked contracts (37%).

The Group's Insurance business is highly exposed to interest-rate risk due to the high proportion of bonds in the euro-denominated funds in its life insurance contracts. The level of and changes in interest rates may, in certain configurations, have a material adverse effect on the results and financial position of this business line.

With its impact on the yield of euro-denominated contracts, a prolonged outlook of low interest rates reduces the attractiveness of these products for investors, which can negatively affect fundraising and income from this segment of the life insurance business.

A sharp rise in interest rates could also degrade the competitiveness of the life insurance offerings in euros (compared with bank savings products, for example) and trigger significant repurchases and arbitrage operations by customers, in an unfavourable context of unrealised losses on bond holdings. This configuration could affect the revenues and profitability of the life insurance activity.

More generally, a pronounced widening of spreads and a decline in equity markets could also have a significant negative effect on the results of the Group's life insurance business.

In the event of a deterioration in market parameters, the Group could be required to strengthen the own funds of its insurance subsidiaries to enable them to continue meeting their regulatory requirements in this domain.

4.2 RISK MANAGEMENT ORGANISATION

4.2.1 RISK APPETITE

Risk appetite is defined as the level of risk that the Group is prepared to accept to achieve its strategic and financial goals.

Principles governing risk appetite

The Group's ambition is to push ahead with sustainable development based on a diversified and balanced banking model with a strong European anchor and a targeted global presence in selected areas of strong business expertise. The Group also wishes to maintain long-term relationships with its clients built on the mutual confidence deserved and to meet the expectations of all of its stakeholders by providing them with responsible and innovative financial solutions.

This is reflected in:

- an organisation with 16 Business Units offering various products and services to the Group's clients in different geographic locations;
- balanced selective capital allocation between activities:
  - a preponderance of retail banking activities in France and abroad, which currently represent around 60% of risk weighted assets ("RWA") of the Group,
  - limitation of Business Unit Global Markets' share in the RWA of the Group. In accordance with its client-focused development strategy, the Group ceased its trading activities for its own account[1] in 2019, and finalised its project to simplify the products processed in 2021,
  - non-bank services activities, in particular Insurance and vehicle fleet management and financing, are conducted in line with the business strategy; they demonstrate a disciplined risk profile and thus generate profitability compliant with the Group's expectations;
- a geographically balanced model:
  - in Retail Banking, the Group focuses on international development leveraging historic presence, extensive market knowledge and top-tier positions,
  - as regards Global Banking and Investor Solutions, apart from historical establishments, the Group targets activities for which it can leverage international expertise;
- a targeted growth policy, favoring existing areas of expertise, a sound quality business fund and the search for synergies in the diversified banking model;
- a positive and sustainable contribution to the transformations of our economies, in particular with regard to the technological revolution, and economic, social and environmental transitions; CSR concerns are therefore at the heart of its strategy and the Group's relationships with stakeholders;
- a strong vigilance as regards its reputation, deemed by the Group to be a high-value asset which must be protected.

A robust financial strength profile

The Group seeks to achieve sustainable profitability, relying on a robust financial profile consistent with its diversified banking model, by:

- aiming for profitable and resilient business development;
- maintaining a target rating allowing access to financial resources at a cost consistent with the development of the Group's businesses and its competitive positioning;
- calibrating its capital and hybrid debt targets to ensure:
  - meeting the minimum regulatory requirements on regulatory capital ratios,
  - compliance with the financial conglomerate ratio which considers the combined solvency of the Group's banking and insurance activities,
  - one-year coverage of the "internal capital requirement" using available CET1 capital,
  - a sufficient level of creditor protection consistent with a debt issuance program that is particularly hybrid consistent with the Group's objectives in terms of rating and regulatory ratios such as Tier 1, TLAC ("Total Loss Absorbing Capacity"), MREL ("Minimum Required Eligible Liabilities"), and the leverage ratio;
- ensuring resilience of its liabilities, which are calibrated by taking into account a survival horizon in a liquidity stress ratio, compliance with LCR (Liquidity Coverage Ratio) and NSFR (Net Stable Funding Ratio) regulatory ratios and the level of dependence on short-term fundings and the foreign exchange needs of the Group's businesses, particularly in dollars;
- controlling the leverage ratio through a leverage ratio target.

Credit risk (including concentration effects)

Credit risk appetite is managed through a system of credit policies, risk limits and pricing policies.

When it takes on credit risk, the Group focuses on medium- and long-term client relationships, targeting both clients with which the Bank has an established relationship of trust and prospects representing profitable business development potential over the mid-term.

Acceptance of any credit commitment is based on in-depth client knowledge and a thorough understanding of the purpose of the transaction.

In a credit transaction, risk acceptability is based first on the borrower's ability to meet its commitments, in particular through the cash flows which will allow the repayment of the debt. For medium and long-term operations, the funding duration must remain compatible with the economic life of the financed asset and the visibility horizon of the borrower's cash flow.

(1) In accordance with French Banking Law, the few residual trading activities of the Group unrelated to clients were isolated in a dedicated subsidiary called Descartes Trading.

Security interests are sought to reduce the risk of loss in the event of a counterparty defaulting on its obligations, but may not, except in exceptional cases, constitute the sole justification for taking the risk. Security interests are assessed with prudent value haircuts and paying special attention to their actual enforceability.

Complex transactions or those with a specific risk profile are handled by specialised teams within the Group with the required skills and expertise.

The Group seeks risk diversification by controlling concentration risk and maintaining a risk allocation policy through risk sharing with other financial partners (banks or guarantors).

Counterparty ratings are a key criterion of the credit policy and serve as the basis for the credit approval authority grid used in both the commercial and risk functions. The rating framework relies on internal models. Special attention is paid to timely updating of ratings (which, in any event, are subject to annual review)[1].

The risk measure of the credit portfolio is based primarily on the Basel parameters that are used to calibrate the capital need. As such, the Group favors the so-called advanced Basel models (IRBA), which are more risk-sensitive and more adapted to the specific characteristics of the bank's portfolio. These measures are complemented by an internal stress-sized risk assessment, either at the global portfolio level or at the sub-portfolio level, linking risk measures and rating migration to macro-economic variables. In addition, the calculation of expected losses under the provisions of IFRS 9, used to determine the level of impairment on healthy outstandings, provides additional insight into assessing portfolio risk.

In consultation with the Risk Department, the businesses implement, most of the time, pricing policies that are differentiated according to the level of risk of counterparties and transactions. The purpose of pricing a transaction is to ensure acceptable profitability, in line with the objectives of ROE (Return on Equity) of the business or entity, after taking into account the cost of the risk of the transaction in question. The pricing of an operation can nevertheless be adapted in certain cases to take into account the overall profitability and the potential customer relationship development. The intrinsic profitability of products and customer segments is subject to periodic analysis in order to adapt to changes in the economic and competitive environment.

Proactive management of counterparties whose situation has deteriorated is key to containing the risk of final loss in the event of counterparty failure. As such, the Group has put in place rigorous procedures for monitoring non retail counterparties and/or for closer monitoring of retail counterparties whose risk profiles are deteriorating. In addition, the businesses and entities, in conjunction with the Risk and Finance Departments, and through collaborators specialising in recovery and litigation, work together to effectively protect the Bank's interests in the event of default.

Counterparty credit risk

The future value of exposure to a counterparty as well as its credit quality are uncertain and variable over time, both of which are affected by changes in market parameters. Thus, counterparty credit risk management is based on a combination of several types of indicators:

- indicators of potential future exposures (potential future exposures, or PFE), aimed at measuring exposure to our counterparties:
  - the Group controls idiosyncratic counterparty credit risks *via* a set of CVaR (Counterparty VaR[2] limits. The CVaR measures the potential future exposure linked to the replacement risk in the event of default by one of the Group's counterparties. The CVaR is calculated for a 99% confidence level and different time horizons, from one day until the maturity of the portfolio,
  - in addition to the risk of a counterparty default, the CVA (Credit Valuation Adjustment) measures the adjustment of the value of our portfolio of derivatives and repos account the credit quality of our counterparties;
- the abovementioned indicators are supplemented by stress test frameworks or on nominal ones in order to capture risks that are more difficult to measure:
  - the more extreme correlation risks are measured *via* stress tests at different levels (wrong-way risk, stress monitoring at sector level, risk on collateralised financing activities and agency),
  - the CVA risk is measured *via* a stress test in which representative market scenarios are applied, notably involving the credit spreads of our counterparties;
- exposures to central counterparty clearing houses (CCP) are subject to specific supervision:
  - the amount of collateral posted for each segment of a CCP: the initial posted margins, both for our principal and agency activities, and our contributions to CCP default funds,
  - in addition, a stress test measures the impact linked to the default of an average member on all segments of a CCP and the failure of a major member on a segment of a CCP;
- the Global Stress Test on market activities includes cross market-counterparty risks, it is described in more detail in the "Market risk" section.

Market risk

The Group's market activities are carried out as part of a business development strategy primarily focused on meeting client requirements through a full range of products and solutions.

Market risk is managed through a set of limits for several indicators (such as stress tests, Value at Risk (VaR) and stressed Value at Risk (SVaR), "Sensitivity" and "Nominal" indicators). These indicators are governed by a series of limits proposed by the business lines and approved by the Risk Division during the course of a discussion-based process.

The choice of limits and their calibration reflect qualitatively and quantitatively the fixing of the Group's appetite for market risks. A regular review of these frameworks also enables risks to be tightly controlled according to changing market conditions with, for example, a temporary reduction of limits in case of a deterioration. Warning thresholds are also in place to prevent the possible occurrence of overstays.

Limits are set at different sub-levels of the Group, thereby cascading down the Group's risk appetite from an operational standpoint within its organisation.

Within these limits, the Global Stress Test limits on market activities and the Market Stress Test limits play a pivotal role in determining the Group's market risk appetite; in fact, these indicators cover all operations and the main market risk factors as well as risks associated with a severe market crisis which helps limit the total amount of risk and takes account of any diversification effects.

(1) For none automated processes.
(2) The CVaR economic indicator is built on the same modeling assumptions as the regulatory Effective Expected Positive Exposure (EEPE) indicator used to calculate RWAs.

Operational risk (including reputation and compliance risk)

The Group is exposed to a diversity of operational risks inherent in its business: execution errors, internal and external fraud, IT system failures, malicious acts against IT systems, loss of operational resources, commercial disputes, failure to comply with tax obligations, but also risk of non-compliance, unappropriated behavior or even reputation.

As a general rule, the Group has no appetite for operational risk or for non-compliance risk. Furthermore, the Group maintains a zero-tolerance policy on incidents severe enough to potentially inflict serious harm to its image, jeopardise its results or the trust displayed by customers and employees, disrupt the continuity of critical operations or call into question its strategic focus.

The Group underscores that it has is no or very low tolerance for operational risk involving the following:

- internal fraud: the Group does not tolerate unauthorised trading by its employees. The Group's growth is founded on trust, as much between employees as between the Group and its employees. This implies respecting the Group's principles at every level, such as exercising loyalty and integrity. The Group's internal control system must be capable of preventing acts of major fraud;
- cybersecurity: The Group has zero tolerance for fraudulent intrusions, in particular those resulting in the theft of customer data or a major operational disruption. The Group intends to introduce effective means to prevent and detect this risk. It is adequately organised to deal with potential incidents;
- data leaks: the Group is committed to deploying the necessary resources and implementing controls to prevent, detect and remediate data leaks. It does not tolerate any leaks of its most sensitive information, in particular that of customer data;
- business continuity: the Group relies heavily on its information systems to perform its operations and is therefore committed to deploying and maintaining the resilience of its information systems to ensure the continuity of its most essential services. The Group has very low tolerance for the risk of downtime in its information systems that perform essential functions, in particular systems directly accessible to customers or those enabling to conduct business on financial markets;
- outsourced services: the Group seeks to achieve a high degree of thoroughness in the control of its activities entrusted to external service providers. As such, the Group adheres to a strict policy of reviewing its providers;
- managerial continuity: the Group intends to ensure the managerial continuity of its organisation to avoid the risk of a long-term absence of a manager that would question the achievement of its strategic objectives, which might threaten team cohesion or disrupt the Group's relationships with its stakeholders.

Structural interest rate and exchange rate risks, risk to employee commitments

The Group measures and strictly controls structural risks. The mechanism whereby rate risk, foreign exchange risk and the risk on pension/long-service obligations is controlled is based on sensitivity or stress limits which are broken down within the various businesses (entities and business lines).

There are four main types of risk: rate level risk, curve risk book, optional risk (arising from automatic options and behavioral options) and basis risk, related to the impact of relative changes in interest rates indices. The Group's structural interest rate risk management primarily relies on the sensitivity of Net Present Value ("NPV") of fixed-rate residual positions (excesses or shortfalls) to interest rate changes according to several interest rate scenarios. The limits are established either by the Board of Directors or by the Finance Committee, at the Business Unit/Service Unit and Group levels. Furthermore, the Group measures and controls the sensitivity of its net interest margin ("NIM") on different horizons.

The Group's policy in terms of structural exchange rate risks consists of limiting as much as possible the sensitivity of its CET1 capital ratio to changes in exchange rates, so that the impact on the CET1 ratio of an appreciation or a depreciation of all currencies against the euro does not exceed a certain threshold in terms of bp by summing the absolute values of the impact of each currency.

Regarding risks to pension and long-service obligations, which are the Bank's long-term obligations towards its employees, the amount of the provision is monitored for risk on the basis of a specific stress test and an attributed limit. The risk management policy has two main objectives: reduce risk by moving from defined-benefit plans to defined-contribution plans and optimise asset risk allocation (between hedge assets and performance assets) where allowed by regulatory and tax constraints.

Liquidity and financing risks

Controlling liquidity risk is based primarily on:

- compliance with regulatory liquidity ratios, with precautionary buffers: LCR (liquiditycoverage ratio) ratios that reflect a stress situation and NSFR (net stable funding ratio);
- the definition of a minimum survival horizon under combined market and idiosyncratic stress;
- framing of transformation and anti-transformation positions (price risk).

Controlling financing risk is based on:

- maintaining a liability structure to meet the Group's regulatory constraints (Tier1, Total Capital, Leverage, TLAC, NSFR, MREL) and complying with rating agencies' constraints to secure a minimum rating level;
- recourse to market financing: annual long-term issuance programs and a stock of moderate structured issues and short-term financing raised by supervised treasuries.

Model risk

The Group is committed to defining and deploying internal standards to reduce model risk on the basis of key principles, including the creation of three independent lines of defence, the proportionality of due diligence according to each model's level of risk inherent, the consideration of the models' entire lifecycle and the appropriateness of the approaches within the Group.

Risk related to insurance activities

The Group conducts Insurance activities (Life Insurance and Savings, Retirement savings, Property & Casualty Insurance, etc.) which exposes the Group to two major types of risks:

- subscription risk related to pricing and fluctuations in the claims ratio;
- risks related to financial markets (interest rate, credit and equity) and asset-liability management.

Private equity risk

The Group has limited appetite for financial holdings, such as proprietary private equity transactions. The investments allowed are mainly related to:

- commercial support for the network through the private equity activity of the Societe Generale and Crédit du Nord network and certain subsidiaries abroad;
- taking stakes, either directly or through investment funds, in innovative companies *via* SG Ventures;
- the takeover of stakes in local companies: Euroclear, *Crédit Logement*, etc.

Investments made in private equity are managed directly by the networks concerned (Societe Generale, Crédit du Nord and subsidiaries abroad) and are capped at EUR 25 million. Beyond this limit, the investment envelope must be validated by the Group Strategy Department on the basis of a file produced by the Business Unit with the assistance of its Finance Department. This file aims to justify this amount, the expected benefits, the profitability considering the consumption of associated equity, the characteristics of the investments (criteria, types, duration, etc.), a risk analysis and a governance proposal. If the amount exceeds EUR 50 million, it must be validated by the Group's General Management, with the support of the opinion of the Strategy Department, the Finance Department, the Corporate Secretary and the Compliance Department. The Business Unit concerned must submit a report on operations and the investment envelope to the Strategy Department every six months.

The other minority holdings are subject to a dedicated validation process in both the investment and divestment phases: validation by the Managers of the Business Units and entities concerned and their Finance Department, the Strategy Department, or even the Group's General Management (over EUR 50 million) or the Board of Directors (over EUR 250 million). These files are examined by the Strategy Department based on the opinions of the expert Services and Business Units concerned by the operation (at least the Finance Department, the Legal and Tax Departments within the Corporate Secretary and the Compliance Department). The instruction is based on an analysis of the participation concerned, the motivations and the investment context, the structuring of the operation, its financial and prudential impacts, as well as an assessment of the risks identified and the means implemented to track and manage them.

Settlement/Delivery risk

The settlement-delivery risk on financial instruments arises when transactions (over-the-counter in cash or forward) give rise to a time lag (usually of a few hours) between the payment and the delivery of the underlying (securities, raw materials, foreign exchange, etc.) during their settlement.

The Group defines a risk appetite for delivery risk in relation to the quality of the counterparty (*via* its rating) with larger limits granted to counterparties in the investment grade category (IG).

4.2.2 RISK APPETITE – GENERAL FRAMEWORK

Risk appetite is determined at Group level and attributed to the businesses and subsidiaries. Monitoring of risk appetite is performed according to the principles described in the Risk Appetite Framework governance and implementation mechanism, which are summarised below.

Governance

As part of the supervision of risk appetite, the Group relies on the following organisation:

- the Board of Directors:
  - approves each year the Group Risk Appetite Statement and the Group Risk Appetite Framework, as well as the Group Risk Appetite Framework,
  - approves in particular the main Group risk appetite indicators (Board of Directors indicators) validated beforehand by General Management,
  - ensures that risk appetite is relevant to the Group’s strategic and financial objectives and its vision of the risks of the macro-economic and financial environment,
  - reviews quarterly the risk appetite dashboards presented to it, and is informed of risk appetite overruns and remediation action plans,
  - sets the compensation of corporate officers, sets out the principles of the remuneration policy applicable in the Group, especially for regulated persons whose activities may have a significant impact on the Group’s risk profile, and ensures that they are in line with risk management objectives.

The Board of Directors relies primarily on the Risk Committee.

- General Management:
  - approves the Risk Appetite Statement and its Risk Appetite Framework based on the proposal of the Chief Risk Officer and the Chief Financial Officer,
  - regularly ensures that risk appetite is complied with,
  - ensures the effectiveness and integrity of the risk appetite implementation system,
  - ensures that the risk appetite for the Group’s Business Units and eligible subsidiaries/branches is formalised and translated into frameworks consistent with the Group’s risk appetite,
  - ensures internal communication of risk appetite and its transposition in the Universal Registration Document.

In addition, the main mission of the Risk Department is to develop the Group’s risk appetite, as well as the implementation of a risk management, monitoring and control system.

The Finance Department contributes to setting this risk appetite in the framework of indicators under the responsibility of the Finance Committee (profitability, solvency, liquidity and structural risks).

The Compliance Department is also responsible for instructing the risk appetite setting for indicators falling within its scope.

Risk identification process

The risk identification process is a cornerstone of the Group risk-management framework. It is a Group-wide process to identify all risks that are or might be material. The approach is comprehensive and holistic: it covers all risk types[1] and all Group exposures.

In addition to the annual review of the Group's risk taxonomy, risk identification process is based on two pillars in order to ensure a complete and up-to-date view of all the material risks facing the Group:

- risk management governance and key Committees such as CORISQs or COFI at Group or Business Unit level or New Product Committees making it possible to monitor changes in the risk profile for all types of risk (credit, market, operational, etc.). In addition to monitoring well-identified risks, this governance can also generate a debate between risk experts and senior management on emerging risks. This debate is fueled by the latest market news, early warning signals, internal alerts, and more;
- a series of exercises aimed at identifying additional risks, for example arising from changes in macroeconomic or sectoral conditions, financial markets, regulatory constraints, competitors or market pressure, business model (concentration effects) and changes in banking organisations. These additional identification exercises are also organised by risk types, but include some identification of cross-risk effects (*e.g.* credit and market or credit and operational). For a given type of risk, these exercises analyse and segment the Group's exposure along several axes (Business Unit, activity, customer, product, region, etc.). The underlying risk factors are identified for the perimeters where this risk is assessed as being significant.

When a significant risk is identified, a risk management system, which may include a quantitative risk appetite (risk ceiling or threshold) or a risk policy, is implemented.

In addition, where possible, the risk factors underlying a significant risk are identified and combined in a dedicated scenario, and the associated loss is then quantified by means of a stress test (see also section "Risk quantification and stress test system").

Risk quantification and stress test system

For each identified material risk, indicators to measure this risk are introduced to ensure monitoring. These indicators can be based on measurements of outstandings (risk weighted or not), sensitivities to the variation of one or more risk factors (interest rate, etc.), impacts of stress tests based on scenarios, etc. These indicators can be expressed as ratios and are sometimes the subject of regulatory or publication requirements.

Regarding more specifically stress tests, or crisis simulations, they assess what would be the behavior of a portfolio, activity, entity or Group in a context of degraded activity.

Within the Group, stress tests contribute to the identification, measurement and management of risks, as well as to the assessment of the adequacy of capital and liquidity to the Group's risk profile.

Hence, stress tests:

- are a preferential measure providing information on the resilience of the Group, its activities and its portfolios, and are an integral part of the process of building risk appetite;
- are based on hypothetical economic scenarios defined in conjunction with the Economic and Sectoral Studies Department, or historical scenarios. The stress tests break down these scenarios into impacts on the Group's activities, by taking into account the reaction capacities of the activities, by systematically combining quantitative methods and expert judgment (risks, finance or business lines);
- can also be based on sensitivity analysis (single or multi-factor risk).

The stress test system thus comprises:

- a global stress test, integrated into the budget process (Strategic and financial plan), to ensure that the Group's profile meets its objectives in the event of an adverse scenario, but also to quantify the deterioration in the profitability of the Business Units in this scenario. The stress test system is an integral part of the ICAAP (Internal Capital Adequacy Assessment Process);
- specific stress tests by type of risk or portfolio:
  - stress tests on credit risk complete the overall analysis with a more granular approach, and thus shed light on the fixing of risk appetite at a portfolio, activity, etc. They are also used to refine the identification, measurement and operational management of this risk,
  - stress tests on market activities are based on historical and hypothetical scenarios and apply to the entire Group. They are supplemented by specific sensitivity stress tests on certain risk factors (rates, equities, etc.) or certain activities (emerging markets, etc.). A stress test limit is established for these different risk measures,
  - stress tests assess the sensitivity of structural interest rate risk. The exercise focuses on changes in the economic value of assets and liabilities in bank portfolios and on changes in the net interest margin generated by these assets and liabilities. The Group sets limits on these sensitivities in scenarios of translation and deformation (steepening and flattening) of the yield curves,
  - a stress test on social commitments consists of simulating the impact of variations in market risk factors (inflation, interest rate, etc.) on the Group's net position (dedicated investments minus the corresponding social commitments). A stress test limit is established on this indicator,
  - liquidity stress tests,
  - an assessment of operational risk under stress uses the scenario analysis and loss modeling work to calibrate the Group's capital requirement regarding operational risk, and makes it possible to understand the exposure to operational losses, including exposure to rare and severe losses not present in the history,

(1) Risks are classified on the basis of the Group's risk taxonomy, which names and defines risk categories and their possible sub-categories.

  - stress tests of insurance activities support the process of defining the risk appetite of the Insurance Business Unit, which is based on minimum profitability and solvency targets for a central and a stressed scenario. The Insurance Business Unit also uses also results from stress tests to define its hedging policy, the distribution of its assets and the dividend distribution policy;
- reverse stress tests, both as part of the risk appetite and the recovery plan. The impact of these stress tests is typically defined by a breaking point in the solvency ratio or liquidity indicator, which poses a significant threat to the Bank. Hypothetical scenarios leading to this breaking point are then constructed in order to identify new weaknesses.

In addition to internal stress test exercises, the Group is part of the sample of European banks participating in major international stress test programs piloted by the European Banking Authority (EBA) and the European Central Bank (ECB).

More specifically on climate risk, the Group participated on a voluntary basis in exploratory climate stress exercises organised by the ACPR (*Autorité de contrôle prudentiel et de résolution*) and the European Banking Authority in 2020. A stress test coordinated by the ECB in which the Group is participating is also being performed in the first half of 2022.

DEFINITION OF THE "CENTRAL" AND "STRESSED" ECONOMIC SCENARIOS

Central scenario

The central scenario is based first of all on a set of observed factors such as recent economic situation and economic policy shifts (budgetary, monetary and exchange-rate policies). From these observed factors, economists calculate the most likely trajectory of economic and financial variables for the desired forecast horizon.

Stressed scenario

The severity of the stressed scenario, which is determined by the deviation of the GDP trajectory from the central scenario, is based on the magnitude of the 2008-2009 crisis and has been adjusted to take into account the impacts - health, economic and financial - of the Covid-19 crisis on the basis of current knowledge. The severity is constantly compared to that of various adverse scenarios produced by reputable institutions such as the ECB, the Bank of England or the Federal Reserve.

Setting and formalisation of risk appetite at Group level

The Group's risk appetite is formalised in a document ("Risk Appetite Statement") which sets out:

- the strategic profile of the Group;
- its profile of profitability and financial soundness;
- the frameworks relating to the management of the Group's main risks (qualitative, through risk policies, and quantitative, through indicators).

Regarding the profile of profitability and financial soundness, the Finance Department proposes each year, upstream of the budgetary procedure, to the General Management, financial targets at Group level. These targets, supplemented by alert thresholds and crisis levels according to a "traffic light" approach, allow:

- to respect, with a sufficient safety margin, the regulatory obligations to which the Group is subject (in particular the minimum regulatory solvency, leverage and liquidity ratios), by anticipating as best as possible the implementation of new regulations;
- to ensure, *via* a safety margin, sufficient resistance to stress scenarios (stress standardised by regulators or stress defined according to a process internal to the Group).

The frameworks relating to risk management, also represented *via* a graduated approach (limits, alert thresholds, etc.), result from a process in which the needs expressed by the businesses are confronted with a contradictory opinion independent from the second line defence. The latter is based on:

- independent analysis of risk factors;
- the use of prospective measures based on stress approaches;
- the proposal for a framework.

For the main risks, the frameworks set make it possible to consolidate the achievement of the Group's financial targets and to orient the Group's profitability profile.

Allocation of risk appetite in the organisation

The allocation of risk appetite in the organisation is based on the strategic and financial plan, and on risk management systems:

- based on recommendations by the Finance Department to General Management, the financial targets defined at Group level are broken down into budget allocation targets at business level as part of the budget and the strategic and financial plan;
- the breakdown of frameworks and risk policies is based on an understanding of the needs of the businesses and their business prospects and takes into account the profitability and financial strength targets of the Business Unit and/or the entity.

4.2.3 RISK MANAGEMENT ORGANISATION

Audited I Implementing a high-performance and efficient risk management structure is a critical undertaking for Societe Generale Group in all businesses, markets and regions in which it operates, as is maintaining a balance between strong awareness of risks and promoting innovation. The Group's risk management, supervised at the highest level, is compliant with the regulations in force, in particular the order of 3 November 2014 revised by the order of 25 February 2021 on the internal control of companies in the banking sector, payment services and investment services subject to the control of the French Prudential Supervisory and Resolution Authority (*Autorité de contrôle prudentiel et de résolution* – ACPR) and European Regulations Basel 3 (CRR/CRD). ▲ (See Board's Expertise, p. 82.).

Governance of risk management

Audited I Two main high-level bodies govern Group risk management: the Board of Directors and General Management.

General Management presents the main aspects of, and notable changes to, the Group's risk management strategy to the Board of Directors at least once a year (more often if circumstances so require).

As part of the Board of Directors, the Risk Committee (see Art. 11 of the Internal rules of the Board of Directors, p. 85) advises the Board on overall strategy and appetite regarding all kinds of risks, both current and future, and assists the Board when the latter verifies that the strategy is being rolled out.

The Board of Directors' Audit and Internal Control Committee (see Art. 10 of the Internal Rules of the Board of Directors, page 84) ensures that the risk control systems operate effectively.

Chaired by General Management, the specialised Committees responsible for central oversight of internal control and risk management are as follows:

- **the Risk Committee** (CORISQ), which met twenty-one times during the 2021 financial year, aims to define the Group's main orientations in terms of risks (credit and counterparty risks, environmental risks, country, market risk, operational risk, model risk, etc.) within the framework of the risk appetite and the financial targets set by the Board, and to monitor compliance in such respect. Subject to the powers attributed to the Board of Directors, the CORISQ chaired by the Chief Executive Officer, based on proposals from the Risk Division, validates the main decisions relating to the management of these various risks. Along with the Risks Committee, the Major Risks Committee (*Comité Grands Risques*) is an *ad hoc* body that validates the commercial strategy and risk-taking with regard to large client groups;
- **the Finance Committee** (COFI), chaired by the Chief Executive Officer, is responsible for setting out the Group's financial strategy and for managing scarce resources (capital, liquidity, balance sheet, tax capacity). The COFI, based upon proposals from the Finance Division and the Risk Division, validates The Corporate Divisions provide the Group's General Management with all the information needed to perform its role of managing Group strategy under the authority of the Chief Executive Officer. The Corporate Divisions report directly to General Management:
- **the Compliance Committee** (COMCO), chaired by the Chief Executive Officer, defines the Group's main guidelines and principles in terms of compliance and monitors, on an annual basis, the quality of the CSR risk management framework (including compliance with the French Duty of Care law ('*Devoir de Vigilance*') and the Modern Slavery Act UK;
- **the Digital Transformation Committee** (DTCO), chaired by the Chief Executive Officer, in line with the Group Strategy Committee's decisions, initiates and monitors changes in the information system and the relevant operational model which require approval by General Management due to their cross-business character or to the scale of the envisaged transformation;
- **the Group Internal Control Coordination Committee** (GICCC), chaired by the Chief Executive Officer or, in his absence, by a Deputy Chief Executive Officer, aims to perform the regular review of the internal control framework and of non financial risks of each second line of defence, to assess it in terms of efficiency, consistency and completeness, to take corrective actions and to monitor their implementation;
- **the Supervisory Internal control coordination committee** (SICCC), chaired by the Chief Executive Officer or, if absent, a Deputy Chief Executive Officer or a Deputy General Manager in charge of the area under review, aims to perform the regular review of the internal control framework and of non financial risks of each Business Units/Service Units of the first line of defence, to assess it in terms of efficiency, consistency and completeness, to take corrective actions and to monitor their implementation;
- **the Non Financial Risks Steering Committee**, chaired by the Deputy Chief Executive Officer in charge of Risk and Internal Control supervision of the Group, aims to implement and instruct the orientations taken in the Group Internal Control Coordination Committee (GICCC) and those resulting from the CACI, to ensure the consistency, efficiency and effectiveness of the transformation of non financial risks (NFR) frameworks, to set targets in relation to the roadmaps, to validate, coordinate and steer the evolution of NFR frameworks throughout the Group, to identify risks and alerts related to NFR frameworks, to provide resources, to prioritise and decide on their allocation and to arbitrate if necessary;
- **the Responsible Commitments Committee** (CORESP), chaired by the Chief Executive Officer, deals with topics related to the Group's commitments and normative framework in CSR (including CSR sectoral policies), culture and conduct, or other topics that have an impact on the Group's liability and are not already covered by an existing committee;
- **the Group Provisions Committee** (COPRO), chaired by the Chief Executive Officer, meets quarterly and aims to review the Group's provisions for the quarter in question.

Divisions involved in risk management and internal control

The Group's Corporate Divisions, which are independent from the core businesses, contribute to the management and internal control of risks.

The Corporate Divisions provide the Group's General Management with all the information needed to perform its role of managing Group strategy under the authority of the Chief Executive Officer. The Corporate Divisions report directly to General Management.

- **the Risk Division** aims to contribute to the development of the Group's activities and sustainable profitabilityby developing, with the Finance Department and the Business Units/Service Units, the Group's risk appetite (declined in the Group's various businesses) as well as the implementation of a control and monitoring system risks as part of its role as a second line of defence. The Risk Division is under the supervision of the Group Chief Executive Officer.

When performing its work, the Risk Division reconciles independence from the businesses with a close working relationship with the Business Units, which are ultimately responsible for the risks associated with the transactions they initiate.

Accordingly, the Risk Division:

- provides hierarchical and functional supervision for the Group's Risk function,
- examines, with the Finance Division, the setting of the Group's risk appetite through the Group's Risk Appetite Statement which is proposed to General Management and ultimately approved by the Board of Directors,
- identifies all Group risks and identifies future needs,
- implements a governance and monitoring system for these risks, including cross-business risks, and regularly reports on their nature and extent to General Management, the Board of Directors and the banking supervisory authorities,
- helps define the risk policies, taking into account the objectives of the businesses and the relevant risk issues,
- defines or validates the methods and procedures used to analyse, measure, approve and monitor risks,
- implements a second-level control to ensure the correct application of these methods and procedures,
- assesses and approves transactions and limits proposed by business managers,
- defines or validates the architecture of the central risk information system, ensures its suitability to business requirements;

- **the Finance Division** is organised according to three levels of supervision, each reporting to a Deputy Chief Financial Officer:
  - French Retail Banking, and International Retail Banking and Financial Services,
  - Global Banking and Investor Solutions,
  - cross-business functions, bringing together all the areas of expertise that are key to the Finance Division.

  It also carries out extensive accounting and finance controls. As such:

  - **the Group Accounting Department** is responsible for coordinating the mechanism used to draw up the Group's consolidated financial statements,
  - **the Experts on Metrics and Reporting Department** is responsible for producing the regulatory reports of the Group,
  - **the Mutualised Transactions Processing Department** manages the shared service centers of the Finance Division with the support of its Paris teams and the oversight of Finance teams in Bucharest and Bangalore,
  - **the Finance Control Department** is responsible for the second-level permanent control system across all the Finance processes,
  - **the Asset and Liability Management Department** is in charge of the ALM function for the Group, of controlling the Group's liquidity and exchange rate risks, as well as the operational management of ALM for the Societe Generale Parent Company (SGPM).

  The other cross-business functions perform various tasks for the Finance Division, in particular with the Finance Division of the Group Service Units, Group Investor Relations and Financial Communication, Human Resources and the Corporate Secretary;

- **the Finance Departments of the Business Units and Service Units**, which report hierarchically to the Group Finance Division, ensure that the financial statements are prepared correctly at local level and control the quality of the information in the Financial Reports (accounting, management control, regulations, etc.);
- **the Group Compliance Division** is responsible for the definition and consistency of the non-compliance risk prevention and control framework, related to banking and financial regulation and for coordinating the framework aimed at preventing, identifying, assessing and controlling non-compliance risk across the entire Group. It ensures that roles and responsibilities are identified with the appropriate level of expertise so that the regulatory watch framework and related normative documentation, including its deployment, are operational. In particular, it takes care to harmonise procedures and optimise (in conjunction with the BU/SUs) international resources in order to ensure the framework's effectiveness and compliance with its rules. Within this framework, it has hierarchical and functional authority over the compliance teams of Group entities.

  The Group Compliance Service Unit is organised around three broad categories of non-compliance risks :

  - financial security: know your customer (KYC); compliance with the rules and regulations on international sanctions and embargoes; countering money laundering and terrorist financing (AML/CTF), including reporting suspicious transactions to the appropriate financial intelligence authority when necessary,
  - regulatory risks: customers protection; integrity of the financial markets; countering bribery and corruption, ethics and good conduct; compliance with regulations related to tax transparency (based on knowledge of clients' tax profile); compliance with regulations on social and environmental responsibility and the Group's commitments,
  - protection of data, including personal data and in particular those of customers;

- **the Corporate Secretary** brings together:
  - the Group Legal Department, which ensures in particular the security and legal regularity of the Group's activities, drawing on the legal services of subsidiaries and branches where applicable,
  - the Group Tax Department, which ensures compliance with tax laws in France and abroad,
  - the Group Security Department, which oversees the Group's security in conjunction with the Service Unit of the Resources and Digital Transformation Department regarding the security of information systems,
  - the Group's Administrative Department, which provides the Group's central administration services and provides support, as necessary, to the Secretary of the Board of Directors;
- **the Human Resources and Communication Department** monitors the implementation of compensation policies, amongst other things;
- **the Corporate Resources and Innovation Department** is specifically responsible for defining the policies to be applied in matters of information systems and information systems security policies;
- **the Group Internal Audit and General Inspection Department** is in charge of internal audits and reports to the Head of Group Internal Audit.

Finally, the **Sustainable Development Department** reporting to General Management assists the Deputy Chief Executive Officer in charge of all ESG (CSR) policies and their effective translation into the trajectories of businesses and functions. It supports the Group's CSR transformation to make it a major competitive advantage both in business development and in E&S risk management. the Sustainable Development Department provides advice to the General Management through three main tasks:

- the definition and strategic management of the Group's CSR ambition,
- support for the CSR transformation of Business and Service Units,
- the contribution towards promoting the Group's CSR influence. ▲

According to the last census carried out on 31 December 2021, the full-time equivalent (FTE) workforce of:

- the Group's Risk Department for the second line of defence represents approximately 4,609 FTEs (1,550 within the Group's Risk Department itself and 3,059 for the rest of the Risk function);
- the Compliance Department or the second line of defence represents approximately 2,870 FTEs;
- the Information System Security Department totals approximately 635 FTEs.

Risk reporting and assessment systems

The Group's risk measurement systems serve as the basis for the production of internal management reports allowing the monitoring of the Group's main risks (credit risk, counterparty, market, operational, liquidity, structural, settlement/delivery) as well as the monitoring of compliance with the regulatory requirements.

The risk reporting system is an integral part of the Group's risk management system and is adapted to its organisational structure. The various indicators are thus calculated at the level of the relevant legal entities and Business Units and serve as the basis for the various reportings. Departments established within the Risk, Finance and Compliance sectors are responsible for measuring, analysing and communicating these elements.

Since 2015, the Group has defined architecture principles common to the Finance and Risk functions, the TOM-FIR principles (Target Operating Model for Finance & Risk), in order to guarantee the consistency of the data and indicators used for internal management and regulatory production. The principles revolve around:

- Risk and Finance uses, whether at the local level and at the various levels of consolidation subject to an organised system of "golden sources", with a collection cycle adapted to the uses;
- common management rules and language to ensure interoperability;
- consistency of Finance and Risk usage data, via strict alignment between accounting data and management data.

The Group produces, *via* all of its internal reports for internal monitoring purposes by the Business Units and Service Units, a large number of **risk metrics** constituting a measure of the risks monitored. Some of these metrics are also produced as part of the transmission of regulatory reports or as part of the publication of information to the market.

The Group selects from these metrics a set of **major metrics**, able to provide a summary of the Group's risk profile and its evolution at regular intervals. These metrics concern both the Group's financial rating, its solvency, its profitability and the main risks (credit, market, operational, liquidity and financing, structural, model) and are included in the reports intended for internal management bodies.

They are also subject to a framework defined and broken down in line with the Group's risk appetite, giving rise to a procedure for reporting information in the event of breaches.

Thus, the risk reports intended for the management bodies are guided in particular by the following principles:

- coverage of all significant risks;
- combination of a global and holistic view of risks and a more in-depth analysis of the different types of risk;
- overview supplemented by focus on certain specific scopes, forward-looking elements (based in particular on the presentation of elements on the evolution of the macro-economic context) and elements on emerging risks;
- balance between quantitative data and qualitative comments.

The main Risk reports for management bodies are:

- monthly reporting to the Risk Committee of the Board of Directors aims to provide an overview of changes in the risk profile.

A dashboard for monitoring the Group's Risk Appetite Statement indicators is also sent quarterly to the Board of Directors. These indicators are framed and presented using a "traffic light" approach (with distinction between thresholds and limits) in order to visually present monitoring of compliance with risk appetite. In addition, a compliance dashboard and a reputation dashboard are sent to the Risk Committee of the Board of Directors and provide an overview of each non-compliance risk:

- monthly reporting to the Group Risk Committee (CORISQ) aims to regularly provide this committee with a risk analysis under its supervision, with a greater level of detail than reporting to the Risk Committee of the Board of Directors. In particular, a summary of the main credit files over the period covered by the reporting is presented;
- reporting to the Finance Committee (COFI) for General Management gives rise in particular to the following two reports: a "Scarce resources trajectory" report allowing budget execution to be monitored and a "Structural risk monitoring (ALM)" report » making it possible to monitor compliance with the thresholds and limits relating to liquidity risks and structural interest and exchange rate risks;
- the quarterly reporting of the Group Compliance Committee (COMCO) to General Management: the COMCO provides via dedicated reporting an overview of the main non-compliance risks, raises points of attention on compliance topics Group, decides on the main orientations and defines the Group principles in terms of compliance;
- the quarterly reporting of the Provisions Committee (COPRO) to General Management is intended to provide an overview of changes in the level of provisions at Group level. In particular, it presents the change in the net charge of the cost of risk by pillar, by Business Unit and by stage;

- reporting by the Group Internal Control Coordination Committee (GICCC) to General Management: this committee reviews, on the basis of a standardised dashboard for all Business Units/Service Units, the efficiency and the consistency of the permanent control system implemented within the Group, as well as, within the framework of the Risk Internal Governance Assessment (RIGA) process, the ability of the Risk function to exercise its role as the 2nd line of defence in the whole group. Finally, the Risk Department contributes, as a permanent member, to all GICCC meetings, through position papers on the subjects under review.

Although the above reports are used at Group level to monitor and review the Group's risk profile in a global manner, other reports are transmitted to the Board of Directors or to the General Management in order to monitor and control certain types specific risks.

Ad hoc reports can also be produced. By way of illustration, the Group had to adapt its risk management system from the start of the Covid-19 crisis in March 2020. Governance was also strengthened during this period thanks to the activation of cells crisis and the implementation of dedicated reports, whether intended for General Management, the Board of Directors or the supervisor, produced at a higher frequency and including indicators adapted to the context (monitoring of sectors of activity sensitive/weakened by the economic crisis, business continuity, etc.). This crisis mechanism was gradually eased in 2021.

Additional information on risk reporting and assessment systems by type of risk is also presented in the following chapters.

INTEREST RATE BENCHMARK REFORM

Presentation of the reform

Audited I The interest rate benchmark reform (IBOR: InterBank Offered Rates), initiated by the Financial Stability Board in 2014, aims at replacing these benchmark rates with alternative rates, in particular the Risk-Free Rates (RFR). This reform accelerated on 5 March 2021, when the Financial Conduct Authority, the supervisor of LIBOR, announced the official dates for the cessation of loss of representativeness:

- EUR and CHF LIBOR (all terms); GBP and JPY LIBOR (terms: overnight, one week, two months and twelve months); LIBOR USD (terms: one week and two months): the publication of these benchmark settings contributed by a panel of banks has permanently ceased as of 1 January 2022;
- LIBOR GBP and JPY (terms: one, three and six months): these settings have not been contributed by a panel of banks since 1 January 2022 and are, from now on, published in a synthetic form; thus, their use is restricted to the wind-down of legacy positions;
- LIBOR USD (terms: overnight, one, three, six and twelve months): the cessation of the publication of these benchmark settings contributed by a panel of banks is scheduled for end June 2023.

Besides, regarding the major euro area interest rate benchmark indexes:

- EURIBOR: EMMI (European Money Markets Institute), administrator of the index, does not plan to cease its publication. The EURIBOR will thus be maintained in the coming years;
- EONIA: Its publication ceased definitively on 3 January 2022. The successor rate recommended by the European Central Bank working group on the euro area is the €STR on which the EONIA was based since end 2019.

In parallel, other interest rate indexes based on LIBOR are also subject to reform (*e.g.*: SOR, MIFOR, THBFIX, ICE swap rate…). Local regulators or administrators continue clarifying the roadmap and issuing recommendations to reduce the risks associated with these transitions.

Impact of the reform for the Societe Generale Group

The Societe Generale Group supports these reforms and takes an active part in the working groups set up by the central banks of the currencies concerned. The Group is actively preparing for these changes, through specific transition program put in place in Summer 2018 and supervised by the Finance division.

For this purpose, the Group has undertaken active awareness and communication campaigns for its customers, supplemented by a monthly newsletter and a question and answer kit on the IBOR transition publicly available on the Societe Generale website.

With the cessation deadlines announced for LIBOR and EONIA in mind, the public authorities and the working groups set up by the central banks issued recommendations to the industry. These recommendations aim at stopping the production of new contracts referencing these indexes as well as at migrating the existing contracts referencing said indexes to alternative benchmark rates.

To ensure a consistent approach throughout the Societe Generale group, an internal Committee has been formed. Its role is to issue periodical orientations reflecting the market trends and recommendations from regulators and their working groups. At the time of writing of this note, ten internal guidelines have been issued and cover three main themes:

- strengthening of the new contracts through the inclusion of fallback clauses and risk warnings;
- cessation of the production of new transactions referencing LIBOR and EONIA (with some exceptions provided for by regulators on USD LIBOR) and use of alternative solutions;
- fair and homogenous treatment of customers through the involvement of the compliance teams in the renegotiations of contracts.

At this stage, all directives are applied and widely circulated among the Group staff.

In order to acquire the capacity to deal on products referencing RFRs and thus ensure the continuity of its business after the disappearance of LIBOR and EONIA, the Societe Generale group updated its tools and processes in line with the major calculation methods recommended by the relevant working groups or professional associations. Nevertheless, the Group continues monitoring the developments in the use of RFRs and other alternative rates in order to implement any new conventions and meet its customers’ needs.

The progressive cessation of the production of new products indexed on LIBOR and EONIA started in Spring 2021 and the Societe Generale group has been offering to guide its customers towards alternative solutions since then. In parallel, the Group has introduced fallback clauses in line with the market standards in the new contracts that remain indexed on the IBOR indexes (EURIBOR included).

In 2021, the Group focused its action on transitioning its agreements referencing GBP LIBOR, CHF LIBOR, JPY LIBOR, and EUR LIBOR, as well as EONIA. This transition concerned in the first instance the customers of the investment banking and financing and advisory activities and, to a lesser extent, some customers of the French and International retail networks. Depending on the products, the transition has, overall, been carried out according to three major modalities:

- loans and credit lines are subject to individual renegotiations, together with the related hedging instruments, in order to maintain their effectiveness;
- most of the derivative products have been transitioned at the instigation of the clearing houses or through the activation of their fallback clauses (protocol set up by the ISDA and to which the Societe Generale group acceded in October 2020). Some derivative products have, however, been renegotiated bilaterally;
- lastly, for some products (typically: cash accounts and similar), the transition has been done through an update of the general conditions.

In parallel, the Societe Generale group ensured that transitional solutions were provided regarding the few issuances having an early call option dependant on LIBOR in the event that these options were not exercised, The only issuance directly indexed to JPY LIBOR rate (ISIN JP525016CF64) has been switched to TONA RFR in December 2021 *via* a consent solicitation.

At the end of December 2021, the Societe Generale group considers that it has achieved more than 99.5% of its legal transition programme regarding the contracts on indexes ending or ceasing to be representative at the end of 2021. The remainder corresponds mainly to contracts being renegotiated at that date and for which the use of synthetic LIBORs will allow for the transition at the beginning of 2022.

Regarding the contracts referencing the major terms of USD LIBOR, and due to their disappearance scheduled for end of June 2023, the Societe Generale group has not yet launched a massive transition of its current stock but aims at completing it in June 2023. However, the Group offers a proactive switch to alternative solutions whenever it interacts with customers and supports customers wishing to opt in early in their transition process.

The table below presents an estimate of the exposures related to the contracts impacted by the benchmark reform and whose term is scheduled beyond the official cessation dates.

This table has been produced based on the project monitoring data and on the legal status of the contracts migration. At the end of January 2022, there were no significant exposures on the indexes ceasing to be representative as at 31 December 2021. ▲

AUDITED I TABLE 1: FINANCIAL ASSETS AND LIABILITIES AND DERIVATIVES IMPACTED BY THE INTEREST RATE BENCHMARKS REFORM

(In EURbn)		2021		
		Outstanding principal		Notional[1]
Current interest rate benchmarks[5]	New risk-free rates liable to replace the current interest rate benchmarks	Financial assets[2] (excl. derivatives) impacted by the reform	Financial liabilities[3] (excl. derivatives) impacted by the reform	Derivatives[4] impacted by the reform
Indices whose listing ends on 31/12/2021 – Exposures as at 31 January 2022		**1**	**0**	**0**
EONIA - Euro OverNight Index Average	Euro Short-Term Rate (€STR)	0	0	0
LIBOR - London Interbank Offered Rate – GBP	Reformed Sterling Overnight I ndex Average (SONIA)	1	0	0
LIBOR - London Interbank Offered Rate - CHF	Swiss Average Rate Overnight (SARON)	0	0	0
LIBOR - London Interbank Offered Rate – JPY	Tokyo OverNight Average (TONA)	0	0	0
LIBOR - London Interbank Offered Rate – EUR	Euro Short-Term Rate (€STR)	0	0	0
Indices whose listing ends on 30/06/2023 – Exposures as at 30 November 2021		**35**	**3**	**2,403**
LIBOR - London Interbank Offered Rate - USD	Secured Overnight Financing Rate (SOFR)	35	3	2,397
SOR - Singapore Dollar Swap Offer Rate	Singapore Overnight Rate Average (SORA)	0	0	6

(1) Notional used in combination with an interest rate benchmark in order to calculate derivative cash flows.
(2) Including accounts receivable, loans, securities received under repurchase agreements, debt securities bearing interest at variable rates.
(3) Including deposits, borrowings, transactions on securities delivered under repurchase agreements, debt issued in the form of securities bearing interest at variable rates.
(4) Including firm instruments (swaps and futures) and conditional instruments.
(5) Only the major interest rate benchmarks impacted by the IBOR reform are presented in this table. The EURIBOR construction methodology was reformed in 2019 and revised in 2020. Its cessation was announced neither by EMMI – its administrator - nor by ESMA – its regulator. Contracts exposed to this rate are therefore no longer presented in this table.

RISKS ASSOCIATED WITH RATE REFORM

Audited I The risks related to the IBOR reform are now mainly limited to USD LIBOR for the period running until June 2023. They remain managed and monitored within the governance framework dedicated to the IBOR transition. They have been identified as follows:

- program governance and execution risk, liable to cause delays and loss of opportunities, is monitored as part of the work of regular Committees and arbitration bodies;
- legal documentation risk, liable to lead to post-transition litigations, is managed through fallback clauses inserted in the contracts depending on the availability of market standards;
- market risk, with the creation of a basis risk between the rate curves associated with the different indexes, is the subject of close monitoring and supervision;
- operational risks in the execution of the transition of transactions, depending in particular on the willingness and preparedness of our counterparties, the volume of transactions to be migrated and their spread over time;
- liquidity risk related to increased drawdowns in a context of increased credit costs; the relevance of the integration of this component into the liquidity models will be assessed during the annual review of the drawdown models;
- regulatory risk managed according to the Group guidelines which are in line with the recommendations of the regulators and working groups on the LIBOR transition; these guidelines concern the products which, by exception, continue referencing USD LIBOR;
- misconduct risk, related to the end of LIBOR, notably managed through:
  - specific guidelines detailed by business line,
  - training of the teams,
  - communications to customers (conferences, events, bilateral discussions in particular with the less informed customers) are organised on the transition-related risks, the alternative solutions that may be implemented, and on how they could be affected. ▲

4.3 INTERNAL CONTROL FRAMEWORK

4.3.1 INTERNAL CONTROL

Internal control is part of a strict regulatory framework applicable to all banking institutions.

In France, the conditions for conducting internal controls in banking institutions are defined in the Order of 3 November 2014 modified by the Order of 25 February 2021. This Order, which applies to all credit institutions and investment companies, defines the concept of internal control, together with a number of specific requirements relating to the assessment and management of the various risks inherent in the activities of the companies in question, and the procedures under which the supervisory body must assess and evaluate how the internal control is carried out.

The Basel Committee has defined four principles – independence, universality, impartiality, and sufficient resources – which underpin the internal control carried out by credit institutions.

The Board of Directors ensures that Societe Generale has a solid governance system and a clear organisation ensuring:

- a well-defined, transparent and coherent sharing of responsibilities;
- effective procedures for the detection, management, monitoring and reporting of risks to which the Company could be exposed.

The Board tasks the Group's General Management with rolling out the Group's strategic guidelines to implement this set-up.

The Audit and Internal Control Committee is a Board of Directors' Committee that is specifically responsible for preparing the decisions of the Board in respect of internal control supervision.

As such, General Management submits reports to the Audit and Internal Control Committee on the internal control of the Group. The Committee monitors the implementation of remediation plans when it considers the risk level to be justified.

Internal control is based on a **body of standards and procedures.**

All Societe Generale Group activities are governed by rules and procedures contained in a set of documents referred to collectively as the "Standard Guidelines", compiled in the Societe Generale Code, which:

- set out the rules for action and behavior applicable to Group staff;
- define the structures of the businesses and the sharing of roles and responsibilities;
- describe the management rules and internal procedures specific to each business and activity.

The Societe Generale Code groups together the standard guidelines which, in particular:

- define the governance of the Societe Generale Group, the structures and duties of its Business Units and Services Units, as well as the operating principles of the cross-business systems and processes (Codes of Conduct, charters, etc.);
- set out the operating framework of an activity and the management principles and rules applicable to products and services rendered, and also define internal procedures.

The Societe Generale Code has force of law within the Group and falls under the responsibility of the Group Corporate Secretary.

In addition to the Societe Generale Code, operating procedures specific to each Group activity are applied. The rules and procedures in force are designed to follow basic rules of internal control, such as:

- segregation of functions;
- immediate, irrevocable recording of all transactions;
- reconciliation of information from various sources.

Multiple and evolving by nature, risks are present in all business processes. Risk management and control systems are therefore key to the Bank's ability to meet its targets.

The internal control system is represented by all methods which ensure that the operations carried out and the organisation and procedures implemented comply with:

- legal and regulatory provisions;
- professional and ethical practices;
- the internal rules and guidelines defined by the Company's management body of the undertaking in its executive function.

Internal control in particular aims to:

- prevent malfunctions;
- assess the risks involved, and exercise sufficient control to ensure they are managed;
- ensure the adequacy and effectiveness of internal processes, particularly those which help safeguard assets;
- detect irregularities;
- guarantee the reliability, integrity and availability of financial and management information;
- check the quality of information and communication systems.

The internal control system is based on **five basic principles:**

- the comprehensive scope of the controls, which cover all risk types and apply to all the Group's entities;
- the individual responsibility of each employee and each manager in managing the risks they take or supervise, and in overseeing the operations they handle or for which they are responsible;
- the responsibility of functions, in line with their expertise and independence, in defining normative controls and, for three of them, exercising second-level permanent control;
- the proportionality of the controls to the materiality of the risks involved;
- the independence of internal auditing.

The internal control framework is based on the **"three lines of defence"** model, in accordance with the Basel Committee and European Banking Authority guidelines:

- the **first line of defence** comprises all Group employees and operational management, both within the Business Units and the Services Units in respect of their own operations.

  Operational management is responsible for risks, their prevention and their management (by putting in place first-level permanent control measures, amongst other things) and for implementing corrective or remedial actions in response to any deficiencies identified by controls and/or process steering;

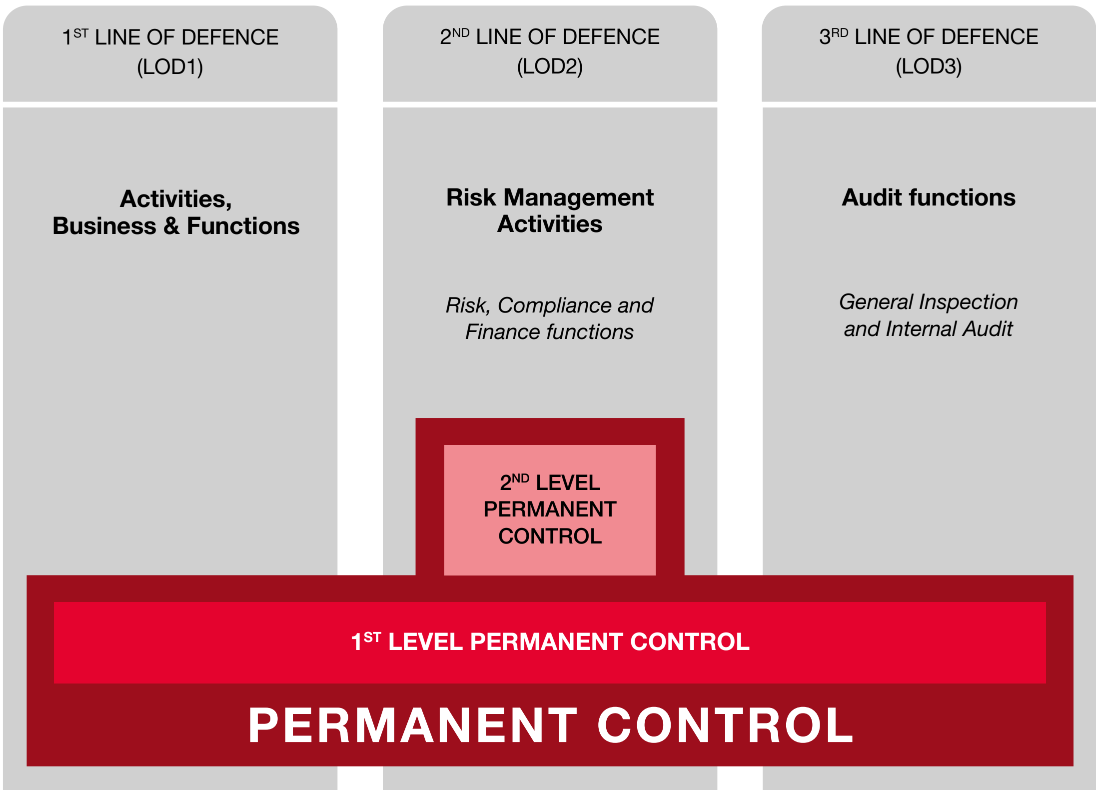
- the **second line of defence** is provided by the risk and compliance functions, as well as by the finance function for the year 2021 (from the financial year 2022, the finance function will fall under the first line of defence).

  Within the internal control framework, operational management is responsible for verifying the proper and continuous running of the risk security and management operation functions through the effective application of established standards, defined procedures, methods and requested controls.

  Accordingly, these functions must provide the necessary expertise to define in their respective fields the controls and other means of risk management to be implemented by the first line of defence, and to ensure that they are effectively implemented; they conduct second-level permanent control over all of the Group's risks, based in particular on the controls they have defined, as well as those defined, if necessary, by other expert functions (*e.g.* sourcing, legal, tax, human resources, information system security, etc.) and by the businesses;

- the **third line of defence** is provided by the Internal Audit Department, which encompasses the General Inspection and Internal Audit functions. This department performs periodic internal audits that are strictly independent of the business lines and the permanent control function;

- **internal control coordination,** which falls under the responsibility of a Deputy Chief Executive Officer for the year 2021 and the Chief Executive Officer from 2022, is also provided at Group level and is rolled out in each of the departments and core businesses.



A Deputy Chief Executive Officer for 2021 and the Chief Executive Officer from 2022 is responsible for ensuring the overall consistency and effectiveness of the internal control system.

The Group Internal Control Coordination Committee is responsible for providing a consolidated overview of the Group's internal control framework, assessing its effectiveness, completeness and consistency, taking corrective measures, and monitoring their implementation.

It is chaired by the Deputy Chief Executive Officer for 2021 and the Chief Executive Officer from 2022 and comprises the Chief Risk Officer, the Chief Financial Officer, the Group Chief Compliance Officer, the Group Chief Information Officer, the Head of Group Internal Audit, and the Head of Internal Control Coordination.

The Group Internal Control Coordination Committee met nine times in 2021. It addressed the following issues:

- review of the effectiveness and consistency of the Group internal control framework;
- review of the effectiveness of the permanent control in the Risk, Compliance and Finance Service Units, as well as the ability of the Risk and Compliance functions to exercise their role as the Second Line of defence for the Group;
- review of the Group quarterly permanent control dashboard prior to its communication to the Group Audit and Internal Control Committee (CACI);
- cross-business review of cybersecurity controls and outsourced activities controls.

The Supervisory Internal Control Coordination Committee (SICCC) performs the regular review of the internal control framework and of risks of every second BU/SU, assessing it in terms of efficiency, consistency and completeness, taking corrective actions and monitoring their implementation.

It is chaired by the representative of General Management (Chief Executive Officer Deputy Chief Executive Officer or Deputy General Manager) in charge of the area under review and brings together the Heads of the second line of defence (CPLE, DFIN, RISQ), the Head of the Group's Information Systems (RESG), the Head of the third line of defence (IGAD), the Head of the Permanent Control Framework and the Coordination of Internal Control (DGLE/PIC), as well as the Heads Business Units and Service Units concerned with the agenda and transversal functions according to the agenda.

The organisation implemented at Group level to coordinate the actions of the various participants in internal control is coordinated in each Business Unit (BU) and Service Unit (SU). All of the Group's BUs and SUs have an Internal Control Coordination Committee. Chaired by the Head of the Business Unit or the Service Unit, these Committees bring together the competent Heads of Internal Audit and Permanent Control for the Business Unit and Service Unit in question, as well as the Head of Group Internal Control Coordination and the Heads of the Group-level control functions.

Permanent control system

The Group's permanent control system comprises:

- the **first-level permanent control,** which is the basis of the Group's permanent control, is performed by the businesses. Its purpose is to ensure the security, quality, regularity and validity of transactions completed at operational level;
- the **second-level permanent control,** which is independent of the businesses and concerns three departments, *i.e.* the Compliance, Risk and Finance Departments.

In 2018, General Management initiated a transformation programme of the Group's permanent control system, which is under its direct supervision. Through a set of actions focusing on areas such as standards, methods, tools, procedures and training, the programme served to consolidate the control culture and optimise risk control, and thus helps to improve the quality and the reliability of services provided to our customers and partners. In 2021, this programme has been finalised and closed, and the transfer of the long-term activities to operating teams has been completed.

FIRST-LEVEL PERMANENT CONTROL

Permanent Level 1 controls, carried out on operations performed by BUs and the SUs, ensure the security and quality of transactions and the operations. These controls are defined as a set of provisions constantly implemented to ensure the regularity, validity, and security of the operations carried out at operational level.

The permanent Level 1 controls consist of:

- **any combination of actions and/or devices that may limit the likelihood of a risk occurring or reduce the consequences for the Company:** these include controls carried out on a regular and permanent basis by the businesses or by automated systems during the processing of transactions, automated or non-automated security rules and controls that are part of transaction processing, or controls included in operational procedures. Also falling into this category are the organisational arrangements (*e.g.*, segregation of duties) or governance, training actions, when they directly contribute to controlling certain risks;
- **controls performed by managers:** line managers control the correct functioning of the devices for which they are responsible. As such, they must apply formal procedures on a regular basis to ensure that employees comply with rules and procedures, and that Level 1 controls are carried out effectively.

Defined by a Group entity within its scope, Level 1 controls include controls (automated or manual) that are integrated into the processing of operations, proximity controls included in operating procedures, safety rules, etc. They are carried out in the course of their daily activities by agents directly in charge of an activity or by their managers. These controls aim to:

- ensure the proper enforcement of existing procedures and control of all risks related to processes, transactions and/or accounts;
- alert management in the event of identified anomalies or malfunctions.

Permanent Level 1 controls are set by management and avoid, as far as possible, situations of self-assessment. They are defined in the procedures and must be traced without necessarily being formalised, *e.g.* preventive automated controls that reject transations that do not comply with system-programmed rules.

In order to coordinate the operational risk management system and the permanent Level 1 control system, the BUs/SUs deploy a specific department called CORO (Controls & Operational Risks Office Department).

SECOND-LEVEL PERMANENT CONTROL

The permanent Level 2 control ensures that the Level 1 control works properly:

- the scope includes all permanent Level 1 checks, including managerial supervision checks and checks carried out by dedicated teams;
- this review and these audits aim to give an opinion on (i) the effectiveness of Level 1 controls, (ii) the quality of their implementation, (iii) their relevance (including, in terms of risk prevention), (iv) the definition of their modus operandi, (v) the relevance of remediation plans implemented following the detection of anomalies, and the quality of their follow-up, and thus contribute to the evaluation of the effectiveness of Level 1 controls.

The permanent level 2 control, control of the controls, is carried out by teams independent of the operational.

These controls are performed centrally by dedicated teams within Risk Service Unit (RISQ/CTL), Compliance Service Unit (CPLE/CTL) and Finance Service Unit (DFIN/CTL) and locally by the second-level control teams within the BU/SUs or entities.

Internal audit

Reporting to the Group Head of Inspection and Audit, the Inspection and Audit Service Unit (IGAD) is the Group's third line of defence.

The IGAD Service Unit comprises General Inspection (IGAD/INS), Internal Audit Departments (IGAD/AUD) and a support function (IGAD/COO). To fulfill its mandate, the Group's IGAD Service Unit has adequate resources from a qualitative and quantitative point of view. The Group's Inspection and Audit Service Unit has about 1,100 employees.

The Group Head of Inspection and Audit reports directly to the Group Chief Executive Officer, with whom it holds regular meetings. The Group Head of Inspection and Audit meets regularly with the Chairman of the Board of Directors. The Audit and Internal Control Committee and the Risk Committee refer to the Group Head of Inspection and Audit on their initiative or at his request on any subject. The Group Head of Inspection and Audit participates in the Internal Control Committee and the Risk Committee meetings. Moreover, bilateral meetings are held as needed between the Group Head of Inspection and Audit and the chairpersons of these Committees.

The Inspection and Audit Service Unit (IGAD) is part of the Group's internal control framework. IGAD carries out an internal audit mandate through its missions. In its role as the third line of defence, it is strictly independent from the Group's business units and permanent control functions.

In line with standards set by the IIA (Institute of Internal Auditors), IGAD's internal audit mandate is defined as an independent and objective activity that provides the Group with assurance as to how effectively it is controlling its operations, advises on improvements and contributes to the creation of added value. By carrying out this mandate, Inspection and Internal Audit help the Group to achieve its targets by evaluating systematically and methodically its processes for risk management, control and corporate governance and making recommendations to increase their efficiency.

The Inspection and Audit Service Unit exercises a key role in the Group's risk management set-up and can assess any of its components.

Under this mandate, the General Inspection and Internal Audit assess (i) the quality of risk management within an audited scope, (ii) the permanent control framework is adequately structured and effective, (iii) management's risk awareness and compliance with conduct rules and expected professional practices.

Whilst Audit Departments perform solely an internal audit role, General Inspection has, in addition to its internal audit role, a mandate to undertake other assignments such as any type of analysis or research, be involved in the assessment of strategic projects or intervene on specific subjects as requested by General Management. Such assignments, limited with regards to resources dedicated to them, are carried out within a framework ensuring that ethical principles defined in Institute of Internal Auditors' Standards are being met.

The General Inspection also supervises the rollout of data-analysis initiatives within the scope of Inspection and Audit activities. This mission is ensured *via* a dedicated data-lab (INS/DAT), under the responsibility of an Inspection Managing Director *(Inspecteur principal)*. The General Inspection also supervises and coordinates the Service Unit's relationship with regulators.

IGAD centrally has six distinct Audit Departments. Each of these Audit Departments is placed under the supervision of a Head of internal Audit responsible for the auditing on a specific scope of activities. A matrix organisation allows coverage of the main cross-business issues at Group level. In France, the Internal Audit teams are hierarchically linked to the Inspection unit. Audit Department heads based in branches or affiliates overseas report to the local entity's head. However, in their internal audit role they report directly to the Internal Audit Head in charge of their region or entity.

Inspection and Audit teams work together on an annual risk assessment to define the Inspection and Audit plans for the upcoming year. IGAD teams regularly work together on joint assignments. They issue recommendations to correct issues identified in risk management and generally improve operations and risk management. IGAD teams are subsequently in charge of monitoring the effective implementation of these recommendations.

4.3.2 CONTROL OF THE PRODUCTION AND PUBLICATION OF FINANCIAL MANAGEMENT INFORMATION

The participants involved

There are many participants in the production of financial data:

- the **Board of Directors**, and more specifically its **Audit and Internal Control Committee**, has the task of examining the draft financial statements which are to be submitted to the Board, as well as verifying the conditions under which they were prepared and ensuring not only the relevance but also the consistency of the accounting principles and methods applied. The Audit and Internal Control Committee's remit also is to monitor the independence of the Statutory Auditors, and the effectiveness of the internal control, measurement, supervision and control systems for risk related to the accounting and financial processes. The Statutory Auditors meet with the Audit and Internal Control Committee during the course of their assignment;
- the **Group Finance Department** gathers the accounting and management data compiled by the subsidiaries and the Business Units/Services Units in a set of standardised reports. It consolidates and verifies this information so that it can be used in the overall management of the Group and disclosed to third parties (supervisory bodies, investors, etc.). It also has a team in charge of the preparation of the Group regulatory reports;

  In the framework of these missions, it is in charge of:

  - monitoring the financial aspects of the Group's capital transactions and its financial structure,
  - managing its assets and liabilities, and consequently defining, managing and controlling the Group's financial position and structural risks,
  - ensuring that the regulatory financial ratios are respected,
  - defining accounting and regulatory standards, frameworks, principles and procedures for the Group, and ensuring that they are observed,
  - verifying the accuracy of all financial and accounting data published by the Group;
- the **Finance Departments of subsidiaries and Business Units/Services Units** carry out certification of the accounting data and entries booked by the back offices and of the management data submitted by the front offices. They are accountable for the financial statements and regulatory information required at the local level and submit reports (accounting data, finance control, regulatory reports, etc.) to the Group Finance Department. They can perform these activities on their own or else delegate their tasks to Shared Service Centres operating in finance and placed under Group Finance Department governance;
- the **Risk Department** consolidates the risk monitoring data from the Group's Business Units/Services Units and subsidiaries in order to control credit, market and operational risks. This information is used in Group communications to the Group's governing bodies and to third parties. Furthermore, it ensures in collaboration with the Group Finance Department, its expert role on the dimensions of credit risk, structural liquidity risks, rates, exchange rates, on the issues of recovery and resolution and the responsibility of certain closing processes, notably the production of solvency ratios;
- the **Back offices** are responsible for all support functions to front offices and ensure contractual settlements and deliveries. Among other responsibilities, they check that financial transactions are economically justified, book transactions and manage means of payment.

Accounting and regulatory standards

Local financial statements are drawn up in accordance with local accounting standards, and the consolidated Group financial statements are prepared in accordance with the standards defined by the Group Finance Department , which are based on IFRS as adopted by the European Union.

The applicable standards on solvency and liquidity, promulgated by the Basel Committee, were translated into European law by a directive (CRD4) and a regulation (CRR). They were rounded out by the Regulation CRR2 and the Directive CRD5 which entered into force on 28 June 2019. These texts are supplemented by several delegated acts and implementation technical standards. As the Societe Generale Group is identified as a "financial conglomerate", it is subjected to additional supervision.

The Group Finance Department has dedicated teams that monitor the applicable standards and draft new internal standards to comply with any changes in the accounting and regulatory framework.

Procedures for producing financial and accounting data

Each entity in the consolidation scope of the Group prepares its own accounting and management statements on a monthly basis. This information is then consolidated each month at Group level and published for the markets on a quarterly basis. Data reported are subject to analytical reviews and consistency checks performed by Finance Department or delegated to financial shared service centres acting under their responsibility and sent to the Group Finance Department. The Group Finance Department forwards the consolidated financial statements, Management Reports and regulatory statements to General Management and any interested third parties.

In practice, procedures have been tailored to the growing complexity of products and regulations. Moreover, specific adaptation action plans can be implemented where necessary.

Internal control procedures governing the production of financial and accounting data

Accounting data are compiled independently of the front offices and the sales teams.

The quality and objectivity of the accounting and management data are ensured by the separation of sales functions and all the functions of operational processing and follow-up of the operations: back offices and middle offices integrated into Resources Department and teams in charge of result production integrated into Finance Department. These teams carry out a series of controls defined by Group procedures on financial and accounting data, in particular:

- verification of the economic justification of all information reported;

- reconciliation of accounting and management data, using specific procedures, respecting the specified deadlines;
- for market activities, reconciliation between the accounting result, produced by the Finance Department and the economic result, produced by a dedicated expert department in the Risk Department.

Given the increasing complexity of the Group's financial activities and organisation, staff training and IT tools are regularly upgraded to ensure that the production and verification of accounting and management data are effective and reliable.

SCOPE OF CONTROL

In practice, the internal control procedures implemented in the Group's businesses are designed to guarantee the quality of financial and accounting information, and notably to:

- ensure that the transactions entered in the Group's accounts are exhaustive and accurate;
- validate the valuation methods used for certain transactions;
- ensure that transactions are correctly assigned to the corresponding fiscal period and recorded in the accounts in accordance with the applicable accounting regulations, and that the accounting aggregates used to prepare the Group financial statements are compliant with the regulations in force;
- ensure the inclusion of all entities that must be consolidated in accordance with Group regulations;
- check that the operational risks associated with the production and transmission of accounting data through the IT system are correctly controlled, that the necessary adjustments are accurately performed, that the reconciliation of accounting and management data is satisfactory, and that the flows of cash payments and other items generated by transactions are exhaustive and adequate.

CONTROL BY THE FINANCE DEPARTMENTS

The Finance Department of each subsidiary checks the accuracy and consistency of the financial statements with respect to the relevant accounting frameworks (local standards and IFRS for subsidiaries, as well as French standards for branches). It performs checks to guarantee the accuracy of the information disclosed.

The data received for consolidation from each subsidiary are drawn from corporate accounting data by the subsidiaries after they have been locally brought into compliance with Group accounting principles.

Each subsidiary must be able to explain the transition from the Company financial statements to the financial statements reported through the consolidation tool.

The Finance Departments of the Business Units/Services Units have a dedicated department for financial management and control.

CONTROL BY THE FINANCIAL SHARED SERVICE CENTRES

Financial shared service centres perform the first-level controls necessary to ensure the reliability of accounting, tax and regulatory information on the financial statements they produce in accordance with local and IFRS standards and notably data quality and consistency checks (equity, securities, foreign exchange, financial aggregates from the balance sheet and income statement, deviations from standards), justification and certification of the financial statements under their responsibility, intercompany reconciliation of the financial statements, regulatory statement checks and verification of evidence of tax charges and balances (current, deferred and duties).

These controls are declared as part of the managerial supervision and Group accounting certification processes.

These controls allow the Shared Services Centres to provide all necessary information to the Finance Departments of Business Units/Services Units and the Group Finance and Accounting Department to ensure the reliability and consistency of the accounts prepared.

SUPERVISION BY THE GROUP FINANCE DEPARTMENT

Once the financial statements prepared by the entities have been restated according to Group standards, they are entered into a central database and processed to produce the consolidated statements.

The service in charge of consolidation in the Group Accounting Officer Department checks that the consolidation scope complies with the applicable accounting standards and performs multiple checks on data received for consolidation purposes. These checks include:

- confirmation that the data collected are properly aggregated;
- verification of recurring and non-recurring consolidation entries;
- exhaustive treatment of critical points in the consolidation process;
- treatment of any residual differences in reciprocal or intercompany statements.

Last, this service ensures that the overall consolidation process has been conducted properly by performing analytical reviews of the summary data and verifying the consistency of the main aggregates of the financial statements. Changes in shareholders' equity, goodwill, provisions and any deferred taxes consolidated in the fiscal year are also analysed.

A team in this department is in charge of managing and coordinating the quarterly Group accounting certification framework to certify first-level controls on a quarterly basis (internal control certification).

The Group Finance Department has also a dedicated team, it which is responsible for ensuring second-level permanent controls on all Finance processes and for implementing the framework within the Group. Its mission is to ensure the effectiveness, quality and relevance of the Level 1 control framework by assessing it through process or activity reviews, testing controls and quarterly certifications. The team, reporting directly to the Group Finance Department, also reports to the Head of Permanent & Internal Control Division of Societe Generale Group.

Accounting audit framework

CONTROLS BY ALL OPERATIONAL STAFF INVOLVED IN THE PRODUCTION OF ACCOUNTING, FINANCIAL AND MANAGEMENT DATA

The operational staff monitor their activity *via* a permanent supervision process under the direct responsibility of their management teams, repeatedly verifying the quality of the controls carried out on accounting data and the associated accounting treatment.

CONTROLS THROUGH AUDITS AND SPECIALISED AUDIT TEAMS OF THE INTERNAL AUDIT DEPARTMENT

Internal Audit and the General Inspection define their audits and inspections using a risk-based approach and define an annual work programme (Inspection and Audit plan schedule - *plan de tournée*). As part of their assignments, teams may verify the quality of the control environment contributing to the quality of the accounting and management data produced by the audited entities. They may check a certain number of accounts and assess the reconciliations between accounting and management data, as well as the quality of the permanent supervision procedures for the production and control of accounting data. They also assess the performance of IT tools and the accuracy of manual processing.

The department in charge of auditing the Group's Central Departments is responsible for auditing the Group Finance Department. Within that department, a distinct team, placed under the responsibility of a dedicated Audit Business Correspondent monitors and animates audit work related to accounting and financial matters on a Group-wide basis. The team provides expertise in identifying the Group's main accounting risks and develops training sessions and methodologies to help share expertise in the auditing of accounting risks.

Audit missions pertaining to accounting matters are carried out by that team, for the subjects considered as the most material for the accuracy of the Group's accounting information, as well as by Audit Departments based in the Group's entities.

Based on their findings, these teams issue recommendations to the parties involved in the production and control of accounting, financial and management data. Departments being assigned these recommendations are responsible for their implementation. A monitoring is performed by IGAD.

4.4 CAPITAL MANAGEMENT AND ADEQUACY

4.4.1 THE REGULATORY FRAMEWORK

Audited I Since January 2014, Societe Generale has applied the Basel III regulations implemented in the European Union through a regulation and a directive (CRR and CRD4 respectively).

The general framework defined by Basel III is structured around three pillars:

- Pillar 1 sets the minimum solvency, leverage and liquidity requirements and defines the rules that banks must use to measure risks and calculate the related capital requirements, according to standard or more advanced methods;
- Pillar 2 concerns the discretionary supervision implemented by the competent authority, which allows them – based on a constant dialogue with supervised credit institutions – to assess the adequacy of capital requirements as calculated under Pillar 1, and to calibrate additional capital requirements taking into account all the risks to which these institutions are exposed;
- Pillar 3 encourages market discipline by developing a set of qualitative or quantitative disclosure requirements which will allow market participants to better assess a given institution's capital, risk exposure, risk assessment processes and, accordingly, capital adequacy.

Several amendments to European regulatory standards were adopted in May 2019 (CRR2/CRD5). The majority of these provisions entered into force in June 2021.

The amendments include:

- NSFR: The text introduces the regulatory requirements for the NSFR ratio. A ratio of 100% must now be respected from June 2021;
- Leverage ratio: the minimum requirement of 3% to which will be added, from 2023, 50% of the buffer required as a systemic institution;
- Derivatives counterparty risk (SA-CCR): the "SA-CCR" method is the Basel method replacing the "CEM" method for determining prudential exposure to derivatives in a standard approach;
- Large Risks: the main change is the calculation of the regulatory limit (25%) on Tier 1 (instead of total own funds), as well as the introduction of a specific cross-limit on systemic institutions (15%);
- TLAC: The ratio requirement for G-SIBs is introduced in CRR. In accordance with the Basel text, G-SIBs must respect an amount of own funds and eligible debt equal at the most between 16%+weighted risk capital buffers and 6% of leverage exposure in 2019, with the ratio increasing to 18%+risk-weighted buffers and 6.75% leverage in 2022.

With regard to the implementation of the market risk reform (FRTB), after the publication of the first revised standard in January 2016 and of the consultation in March 2018 on this subject, the Basel Committee published in January 2019 its final text: BCBS457. In March 2020, the Basel Committee announced a one-year delay in the implementation of FRTB (1 January 2023 instead of 1 January 2022 as originally planned in the January 2019 text).

The European FRTB calendar would be as follows:

- regarding reporting requirements:
  - the Standardised Approach (SA) has been effective since Q3 2021,
  - for the Internal Model Approach (IMA), reporting should start three years after the publication in the Official Journal of the European Union (OJEU) of three technical standards (RTS) of the EBA, which are expected for Q1 2022;
- the capital requirements for FRTB: a two-year postponement (i.e. to 1 January 2027) could be applied in the event of unlevel playing field with the United States.

In December 2017, the Group of Central Bank Governors and Heads of Supervision (GHOS), the Basel Committee's oversight body, endorsed the regulatory reforms aiming to complete Basel 3.

A first version of the transposition text was published by the European Commission on 27 October 2021 ("CRR3 - CRD6") and will serve as support for the European Trialogue. The text will then have to be voted on by Parliament to become applicable.

These new rules, which were to take effect from 2022, have been postponed to January 2025 with an overall output floor: the risk-weighted assets (RWA) will be floored to a percentage of the standard method (credit, market and operational). The output floor level will increase gradually, from 50% in 2025 to 72.5% in 2030.▲

In the face of the health crisis and of its economic and financial consequences, a number of measures have been taken by the supervisory and regulatory authorities in 2020. Some of them are still in force. For example, the ECB announced the possibility of operating below the conservation cushion (CCB), as well as the countercyclical (CCyB) and the Systemic Risk Buffer (0% in France) cushions.

Moreover, the European Parliament and the Council reached an agreement through the CRR "quick fix" regulation, implemented as of 30 June 2020 part of whose provisions consisted in anticipating the implementation of CRR2/CRD5 measures that improve banks' CET1 capital. The "quick fix" has postponed the implementation of the leverage buffer (0.5% for the Group) from 1 January 2022 to 1 January 2023 to be in line with the recommendation of the Basel Committee.

In 2021, the level of additional capital requirements in respect of Pillar 2 (P2R or "Pillar 2 Requirement"), effective since 1 March 2019, remained at 1.75%. In 2022, the European Central Bank notified the level of requirement in respect of P2R (Pillar 2 Requirement) for Societe Generale, which will apply from 1 March 2022. This level stands at 2.12%, including the additional requirement regarding Pillar 2 prudential expectations on the provisioning of non-performing loans granted before 26 April 2019.

Detailed information on the G-SIB requirements and other prudential information are available on the Group website, www.societe generale.com.

Throughout 2021, Societe Generale complied with the minimum ratio requirements applicable to its activities.

4.4.2 CAPITAL MANAGEMENT

Audited I As part of its capital management, the Group (under the managment of the Finance Department and the supervision of Risk Department) ensures that its solvency level is always compatible with the following objectives:

- maintaining its financial strength and respecting the risk appetite;
- preserving its financial flexibility to finance organic growth and growth through acquisitions;
- allocating adequate capital to the various businesses, according to the Group's strategic objectives;
- maintaining the Group's resilience in the event of stress scenarios;
- meeting the expectations of its various stakeholders: supervisors, debt and equity investors, rating agencies, and shareholders.

The Group determines its internal solvency targets in accordance with these objectives and regulatory thresholds.

The Group has an internal process for assessing the adequacy of its capital that measures and explains the evolution of the Group's capital ratios over time, taking into account any future regulatory constraints and changes in the scope. ▲

This process is based on a selection of key metrics that are relevant to the Group in terms of risk and capital measurement, such as CET1, Tier 1 and Total Capital ratios. These regulatory indicators are supplemented by an assessment of the coverage of internal capital needs by available CET1 capital, thus confirming the relevance of the targets set in the risk appetite. In addition, this assessment takes into account the constraints arising from the other metrics of the risk appetite, such as rating, MREL, TLAC and leverage ratio.

All these indicators are measured on a forward-looking basis in relation to their target on a quarterly or even monthly basis for the current year. During the preparation of the financial plan, they are also assessed on an annual basis over a minimum of three-year horizon according to a baseline and adverse scenarios, in order to demonstrate the resilience of the bank's business model against adverse macroeconomic and financial environments. Capital adequacy is continuously monitored by the General Management and by the Board of Directors as part of the Group's corporate governance process and is reviewed in depth during the preparation of the financial plan. It ensures that the bank always complies with its financial target with a buffer above the "Maximum Distributable Amount" (MDA) threshold.

In addition, the Group maintains a balanced capital allocation among its three strategic core businesses:

- French Retail Banking;
- International Retail Banking and Financial Services;
- Global Banking and Investor Solutions.

Each of the Group's core businesses accounts for around a third of total Risk-Weighted Assets (RWA), with a predominance of credit risk (84% of total Group RWA, including counterparty credit risk).

At 31 December 2021, Group RWA were up 3% to EUR 363 billion, compared with EUR 352 billion at end-December 2020.

The evolution of the business lines' RWA lies at the core of the operational management of the Group's capital trajectory based on a detailed understanding of the vectors of variations. Where appropriate, the General Management may decide, upon a proposal from the Finance Department, to implement managerial actions to increase or reduce the share of the business lines, for instance by validating the execution of synthetic securitisation or of disposals of performing or non-performing portfolios.

4.4.3 SCOPE OF APPLICATION – PRUDENTIAL SCOPE

The Group's prudential reporting scope includes all fully consolidated entities, with the exception of insurance entities, which are subject to separate capital supervision.

All regulated entities of the Group comply with their prudential commitments on an individual basis.

Non-regulated entities outside of the scope of prudential consolidation are subject to periodic reviews, at least annually.

The following table provides the main differences between the accounting scope (consolidated Group) and the prudential scope (Banking Regulation requirements).

TABLE 2: DIFFERENCE BETWEEN ACCOUNTING SCOPE AND PRUDENTIAL REPORTING SCOPE

Type of entity	Accounting treatment	Prudential treatment
Entities with a finance activity	Full consolidation	Full consolidation
Entities with an Insurance activity	Full consolidation	Equity method
Holdings with a finance activity by nature	Equity method	Equity method
Joint ventures with a finance activity by nature	Equity method	Proportional consolidation

The following table provides a reconciliation between the consolidated balance sheet and the accounting balance sheet within the prudential scope. The amounts presented are accounting data, not a measure of RWA, EAD or prudential capital. Prudential filters related to entities and holdings not associated with an insurance activity are grouped together on account of their non-material weight (< 0.1%).

TABLE 3: RECONCILIATION OF REGULATORY OWN FUNDS TO BALANCE SHEET IN THE AUDITED FINANCIAL STATEMENTS

ASSETS at 31.12.2021 *(In EURm)*	**Balance sheet as in published financial statements**	**Prudential restatements linked to insurance[(1)]**	**Prudential restatements linked to consolidation methods**	**Balance sheet under regulatory scope of consolidation**
Cash, due from banks	179,969	(0)	0	179,969
Financial assets at fair value through profit or loss	342,714	11,128	(0)	353,842
Hedging derivatives	13,239	30	-	13,269
Financial assets at fair value through other comprehensive income	43,450	(0)	-	43,450
Securities at amortised cost	19,371	(0)	-	19,371
Due from banks at amortised cost	55,972	(0)	90	56,062
o.w. subordinated loans to credit institutions	*99*	*(0)*	*-*	*99*
Customer loans at amortised cost	497,164	1,575	(6)	498,733
Revaluation differences on portfilios hedged against interest rate risk	131	-	-	131
Investment of insurance activities	178,898	(178,898)	-	-
Tax assets	4,812	(195)	0	4,617
o.w. deferred tax assets that rely on future profitability excluding those arising from temporary differences	*1,719*	*-*	*(622)*	*1,096*
o.w. deferred tax assets arising from temporary differences	*2,111*	*-*	*378*	*2,489*
Other assets	92,898	(2,654)	114	90,357
o.w. defined-benefit pension fund assets	*85*	*-*	*-*	*85*
Non-current assets held for sale	27	-	-	27
Investments accounted for using the equity method	95	4,629	(76)	4,649
Tangible and intangible assets	31,968	(163)	0	31,805
o.w. intangible assets exclusive of leasing rights	*2,733*	*-*	*(134)*	*2,599*
Goodwill	3,741	(325)	-	3,416
TOTAL ASSETS	**1,464,449**	**(164,873)**	**121**	**1,299,698**

(1) Restatement of entities excluded from the prudential scope and reconsolidation of intra-group transactions relating to these entities.

LIABILITIES at 31.12.2021 *(In EURm)*	**Balance sheet as in published financial statements**	**Prudential restatements linked to insurance[(1)]**	**Prudential restatements linked to consolidation methods**	**Balance sheet under regulatory scope of consolidation**
Due to central banks	5,152	-	-	5,152
Financial liabilities at fair value through profit or loss	307,563	1,854	-	309,418
Hedging derivatives	10,425	4	-	10,429
Debt securities issued	135,324	432	-	135,757
Due to banks	139,177	(2,574)	49	136,652
Customer deposits	509,133	1,002	(121)	510,013
Revaluation differences on portfolios hedged against interest rate risk	2,832	-	-	2,832
Tax liabilities	1,577	(299)	0	1,279
Other Liabilities	106,305	(8,962)	193	97,536
Non-current liabilities held for sale	1	-	-	1
Liabilities related to insurance activities contracts	155,288	(155,288)	-	-
Provisions	4,850	(23)	-	4,827
Subordinated debts	15,959	40	-	15,999
o.w. redeemable subordinated notes including revaluation differences on hedging items	*15,519*	*42*	*-*	*15,561*
TOTAL DEBTS	**1,393,586**	**(163,813)**	**122**	**1,229,894**
Subtotal Equity, Group share	65,067	(202)	(0)	64,865
Issued common stocks, equity instruments and capital reserves	*29,447*	*1*	*-*	*29,448*
Retained earnings	*30,631*	*(203)*	*(0)*	*30,428*
Net income	*5,641*	*0*	*-*	*5,641*
Unrealised or deferred capital gains and losses	*(652)*	*0*	*(0)*	*(653)*
Minority interests	5,796	(858)	-	4,939
TOTAL EQUITY	**70,863**	**(1,060)**	**(0)**	**69,804**
TOTAL LIABILITIES	**1,464,449**	**(164,873)**	**121**	**1,299,698**

(1) Restatement of entities excluded from the prudential scope and reconsolidation of intra-group transactions relating to these entities.

Some accounting work detailed in Chapter 6 of the present Universal Registration Document (as well as in the Group's financial statements published on 10 February 2022) have led to the restatement of comparative data on the balance sheet as at 31 December 2020. The main impact (amounting to EUR 17.5 billion) is linked with the review of the offsets between financial assets and liabilities done by the Group in 2021, enabling the identification of revaluations of transaction derivatives wrongly recognised on the liabilities side of the balance sheet instead of being booked in reduction of the assets and conversely, as well as inconsistencies in the accounting schemes of the macro hedging activities with the same impacts on the presentation of the balance sheet.

ASSETS at 31.12.2020 *(In EURm)*	**Balance sheet as in published financial statements**	**Prudential restatements linked to insurance(1)**	**Prudential restatements linked to consolidation methods**	**Balance sheet under regulatory scope of consolidation**
Cash, due from banks	168,179	(0)	0	168,179
Financial assets at fair value through profit or loss	411,916	10,966	(0)	422,882
Hedging derivatives	20,667	22	-	20,689
Financial assets at fair value through other comprehensive income	52,060	(0)	-	52,060
Securities at amortised cost	15,635	(0)	-	15,635
Due from banks at amortised cost	53,380	0	214	53,594
o.w. subordinated loans to credit institutions	*97*	*(0)*	-	*97*
Customer loans at amortised cost	448,761	1,543	(5)	450,299
Revaluation differences on portfilios hedged against interest rate risk	378	-	-	378
Investment of insurance activities	166,854	(166,854)	-	-
Tax assets	4,995	(88)	0	4,907
o.w. deferred tax assets that rely on future profitability excluding those arising from temporary differences	*1,840*	-	*(613)*	*1,227*
o.w. deferred tax assets arising from temporary differences	*2,261*	-	*436*	*2,697*
Other assets	67,341	(2,529)	50	64,862
o.w. defined-benefit pension fund assets	*52*	-	-	*52*
Non-current assets held for sale	6	-	-	6
Investments accounted for using the equity method	100	4,668	(76)	4,692
Tangible and intangible assets	30,088	(166)	0	29,922
o.w. intangible assets exclusive of leasing rights	*2,485*	-	*(140)*	*2,345*
Goodwill	4,044	(325)	-	3,719
TOTAL ASSETS	**1,444,404**	**(152,763)**	**183**	**1,291,824**

(1) Restatement of entities excluded from the prudential scope and reconsolidation of intra-group transactions relating to these entities.

LIABILITIES at 31.12.2020 *(In EURm)*	**Balance sheet as in published financial statements**	**Prudential restatements linked to insurance(1)**	**Prudential restatements linked to consolidation methods**	**Accounting balance sheet within the prudential scope**
Due to central banks	1,489	-	-	1,489
Financial liabilities at fair value through profit or loss	372,705	2,031	-	374,736
Hedging derivatives	12,461	10	-	12,471
Debt securities issued	138,957	823	-	139,780
Due to banks	135,571	(2,710)	43	132,904
Customer deposits	456,059	1,438	(58)	457,439
Revaluation differences on portfolios hedged against interest rate risk	7,696	-	-	7,696
Tax liabilities	1,227	(294)	0	933
Other Liabilities	84,937	(6,881)	198	78,254
Non-current liabilities held for sale	-	-	-	-
Liabilities related to insurance activities contracts	146,126	(146,126)	-	-
Provisions	4,732	(20)	-	4,712
Subordinated debts	15,432	40	-	15,472
o.w. redeemable subordinated notes including revaluation differences on hedging items	*15,001*	*40*	-	*15,041*
TOTAL DEBTS	**1,377,392**	**(151,690)**	**183**	**1,225,885**
Subtotal Equity, Group share	61,710	(202)	(0)	61,508
Issued common stocks, equity instruments and capital reserves	*31,628*	*0*	-	*31,628*
Retained earnings	*32,102*	*(202)*	*(0)*	*31,900*
Net income	*(258)*	*(0)*	-	*(258)*
Unrealised or deferred capital gains and losses	*(1,761)*	*(0)*	*(0)*	*(1,762)*
Minority interests	5,302	(871)	-	4,431
TOTAL EQUITY	**67,012**	**(1,074)**	**(0)**	**65,938**
TOTAL LIABILITIES	**1,444,404**	**(152,763)**	**183**	**1,291,824**

(1) Restatement of entities excluded from the prudential scope and reconsolidation of intra-group transactions relating to these entities.

The main Group companies outside the prudential reporting scope are as follows:

TABLE 4: ENTITIES OUTSIDE THE PRUDENTIAL SCOPE

Company	Activity	Country
Antarius	Insurance	France
ALD RE Designated Activity Company	Insurance	Ireland
Catalyst RE International LTD	Insurance	Bermuda
Société Générale Strakhovanie Zhizni LLC	Insurance	Russia
Sogelife	Insurance	Luxembourg
SG Strakhovanie LLC	Insurance	Russia
Sogecap	Insurance	France
Komercni Pojstovna A.S.	Insurance	Czech Republic
La Marocaine Vie	Insurance	Morocco
Oradea Vie	Insurance	France
SGL RE	Insurance	Luxembourg
Société Générale RE SA	Insurance	Luxembourg
Sogessur	Insurance	France
Banque Pouyanne	Bank	France

Generally, all regulated Group undertakings are subject to solvency requirements set by their respective supervisory authorities. Regulated financial entities and affiliates outside of Societe Generale’s prudential consolidation scope are all in compliance with their respective solvency requirements. As a general principle, all banks should be subject to double supervision, on a standalone basis and on a consolidated basis but the CRR allows, under specific conditions, waivers from the requirements on an individual basis granted by the competent authorities.

The supervisory authority accepted that some Group entities may be exempted from the application of prudential requirements on an individual basis or, where applicable, on a sub-consolidated basis. Terms and conditions of waiver of requirements granted by supervisors include a commitment to provide these subsidiaries with the Group's support to ensure their overall solvency and liquidity, as well as a commitment to ensure that they are managed prudently according to the applicable banking regulations.

The conditions for applying waivers regarding monitoring on an individual basis for a Parent Institution, as far as solvency and large exposure ratios are concerned, are defined by the CRR, which stipulates that two conditions have to be met:

- there is no significant obstacle, in law or in fact, current or anticipated, to the prompt transfer of equity capital or the rapid repayment of liabilities to the Parent Institution in a Member State;
- the risk assessment, measurement and control procedures that are useful for the purposes of supervision on a consolidated basis cover the Parent Institution in a Member State.

Accordingly, for instance, Societe Generale SA is not subject to prudential requirements on an individual basis.

Any transfer of equity or repayment of liabilities between the parent company and its entities is carried out in compliance with capital and liquidity requirements that are locally applicable.

4.4.4 REGULATORY CAPITAL

Reported in accordance with International Financial Reporting Standards (IFRS), Societe Generale's regulatory capital consists of the following components.

Common Equity Tier 1 capital

According to the applicable regulations, Common Equity Tier 1 capital is made up primarily of the following:

- ordinary shares (net of repurchased shares and treasury shares) and related share premium accounts;
- retained earnings;
- components of other comprehensive income;
- other reserves;
- minority interests limited by CRR/CRD4.

Deductions from Common Equity Tier 1 capital essentially involve the following:

- estimated dividend payments;
- goodwill and intangible assets, net of associated deferred tax liabilities;
- unrealised capital gains and losses on cash flow hedging;
- income on own credit risk;
- deferred tax assets on tax loss carryforwards;
- deferred tax assets resulting from temporary differences beyond a threshold;
- assets from defined benefit pension funds, net of deferred taxes;
- any positive difference between expected losses on customer loans and receivables managed under the internal ratings-based (IRB) approach, and the sum of related value adjustments and collective impairment losses;
- expected losses on equity portfolio exposures;
- value adjustments resulting from the requirements of prudent valuation;
- securitisation exposures weighted at 1,250%, when these positions are excluded from the calculation of RWA.

Additional Tier 1 capital

According to CRR/CRD4 regulations, Additional Tier 1 capital is made up of deeply subordinated notes that are issued directly by the Bank, and have the following features:

- these instruments are perpetual and constitute unsecured, deeply subordinated obligations. They rank junior to all other obligations of the Bank, including undated and dated subordinated debt, and senior only to common stock shareholders;
- Societe Generale may elect, on a discretionary basis, not to pay the interest and coupons linked to these instruments. This compensation is paid out of distributable items;
- they include neither a step-up in compensation nor any other incentive to redeem;
- they must have a loss-absorbing capacity;
- they might be haircut or converted when in resolution or independently of a resolution measurement;
- subject to the prior approval of the European Central Bank, Societe Generale has the option to redeem these instruments at certain dates, but no earlier than five years after their issuance date.

Deductions of Additional Tier 1 capital essentially apply to the following:

- AT1 hybrid treasury shares;
- holding of AT1 hybrid shares issued by financial sector entities;
- minority interests beyond the minimum T1 requirement in the entities concerned.

Tier 2 capital

Tier 2 capital includes:

- undated deeply subordinated notes[1];
- dated subordinated notes;
- any positive difference between the sum of value adjustments and impairment losses on customer loans and receivables exposures managed under the IRB approach and expected losses, up to 0.6% of total credit RWA under the IRB approach;
- value adjustments for credit risk related to collective impairment losses on customer loans and receivables exposures managed under the standardised approach, up to 1.25% of total credit RWA.

Deductions of Tier 2 capital essentially apply to the following:

- Tier 2 hybrid treasury shares;
- holding of Tier 2 hybrid shares issued by financial sector entities;
- minority interests beyond the minimum capital requirement in the entities concerned.

All capital instruments and their features are detailed online (*www.societegenerale.com/en/measuring-our-performance/information-and-publications/registration-documents*).

(1) The undated deeply subordinated notes' remuneration will be paid from the distributable profits for the purposes of the consolidated prudential regulation.

TABLE 5: CHANGES IN DEBT INSTRUMENTS ELIGIBLE FOR SOLVENCY CAPITAL REQUIREMENTS

(In EURm)	31.12.2020	Issues	Redemptions	Prudential supervision valuation haircut	Others	31.12.2021
Debt instruments eligible for Tier 1	8,830	883	(2,222)	-	512	8,003
Debt instruments eligible for Tier 2	12,587	2,011	(1,630)	(1,512)	364	11,820
TOTAL ELIGIBLE DEBT INSTRUMENTS	**21,417**	**2,894**	**(3,852)**	**(1,512)**	**876**	**19,823**

Solvency ratios

The solvency ratios are set by comparing the Group’s equity (Common Equity Tier 1 (CET1), Tier 1 (T1) or Total Capital (TC)) with the sum of risk-weighted credit exposures and the capital requirement multiplied by 12.5 for market and operational risks. They are expressed as a percentage of RWA and according to the split of own funds i.e.: Common Equity Tier 1 (CET1), Tier 1 (T1) or Total Capital (TC).

Each quarter, the ratios are calculated following the accounting closing and then compared to the supervisory requirements.

The Pillar 1 regulatory minimum capital requirement is set at 4.5% for CET1, 6% for T1 and 8% for TC. This minimum remains stable over time.

The minimum Pillar 2 requirement (P2R) is set by the supervisor following the Supervisory Review and Evaluation Process (SREP). It has stood at 1.75% since 1 March 2019 and until 28 February 2022. From 1 March 2022, this level will stand at 2.12%, including the additional requirement regarding Pillar 2 prudential expectations on the provisioning of non-performing loans granted before 26 April 2019.

In addition to these requirements comes the overall buffer requirement which is the sum of:

- the mean of the countercyclical buffer rates of each country, weighted by the relevant credit risk exposures in these countries. As of 1 January 2022, Societe Generale's countercyclical buffer is equal to 0.04%;
- the conservation buffer in force since 1 January 2016 with a maximum level standing at 2.50% since 1 January 2019;
- the Group's G-SIB buffer imposed by the Financial Stability Board (FSB), which is equal to 1%.

As at 1 January 2022, taking into account the combined regulatory buffers, the phased-in CET1 ratio level that would trigger the Maximum Distributable Amount (MDA) mechanism stands at 9.02%. It will stand at 9.23% from 1 March 2022.

TABLE 6: BREAKDOWN OF PRUDENTIAL CAPITAL REQUIREMENT FOR SOCIETE GENERALE

	01.03.2022	01.01.2022	01.01.2021
Minimum requirement for Pillar 1	4.50%	4.50%	4.50%
Minimum requirement for Pillar 2 (P2R)[(1)]	1.19%	0.98%	0.98%
Minimum requirement for countercyclical buffer	0.04%	0.04%	0.04%
Minimum requirement for conservation buffer	2.50%	2.50%	2.50%
Minimum requirement for systemic buffer	1.00%	1.00%	1.00%
Minimum requirement for CET1 ratio	**9.23%**	**9.02%**	**9.02%**

(1) As per article 104a of the CRD5 directive, a minimum of 56% of P2R add-on has to be covered by CET1 capital (instead of 100% previously) and 75% by Tier 1 capital.

TABLE 7: REGULATORY CAPITAL AND SOLVENCY RATIOS[1]

(In EURm)	31.12.2021	31.12.2020
Shareholders' equity (IFRS), Group share	**65,067**	**61,684**
Deeply subordinated notes	(8,003)	(8,830)
Perpetual subordinated notes	(0)	(264)
Group consolidated shareholders' equity net of deeply subordinated and perpetual subordinated notes	**57,064**	**52,590**
Non-controlling interests	4,762	4,378
Intangible assets	(1,828)	(1,647)
Goodwill	(3,408)	(3,710)
Dividends proposed (to the General Meeting) and interest expenses on deeply subordinated and perpetual subordinated notes	(2,345)	(557)
Deductions and regulatory adjustments	(4,410)	(3,764)
COMMON EQUITY TIER 1 CAPITAL	**49,835**	**47,290**
Deeply subordinated notes and preferred shares	8,003	8,830
Other additional Tier 1 capital	206	195
Additional Tier 1 deductions	(137)	(136)
TOTAL TIER 1 CAPITAL	**57,907**	**56,179**
Tier 2 instruments	11,820	12,587
Other Tier 2 capital	287	240
Tier 2 deductions	(1,527)	(1,422)
Total regulatory capital	**68,487**	**67,584**
TOTAL RISK-WEIGHTED ASSETS	**363,371**	**351,852**
Credit and counterparty credit risk-weighted assets	304,922	287,324
Market risk-weighted assets	11,643	15,340
Operational risk-weighted assets	46,806	49,188
Solvency ratios		
Common Equity Tier 1 ratio	13.71%	13.44%
Tier 1 ratio	15.94%	15.97%
Total capital ratio	18.85%	19.21%

(1) Ratios set in accordance with CRR2/CRD5 rules as published in June 2019, including Danish compromise for insurance, and taking into account the IFRS 9 phasing (fully-loaded CET1 ratio of 13.55% as at 31 December 2021, the phasing effect being +16 bps).

The solvency ratio as at 31 December 2021 stood at 13.7% in Common Equity Tier 1 (13.4% at 31 December 2020) and 15.9% in Tier 1 (16.0% at 31 December 2020) for a total ratio of 18.8% (19.2% at 31 December 2020).

Group shareholders' equity at 31 December 2021 totalled EUR 65.1 billion (compared with EUR 61.7 billion at 31 December 2020).

After taking into account non-controlling interests and regulatory adjustments, CET1 regulatory capital was EUR 49.8 billion at 31 December 2021, *vs.* EUR 47.3 billion at 31 December 2020. The Additional Tier One deductions mainly regard authorisations to buy back own Additional Tier 1 capital instruments as well as subordinated bank and insurance loans.

TABLE 8: CET1 REGULATORY DEDUCTIONS AND ADJUSTMENTS

(In EURm)	31.12.2021	31.12.2020
Unrecognised minority interests	(2,860)	(2,507)
Deferred tax assets	(1,096)	(1,226)
Prudent Valuation Adjustment	(911)	(884)
Adjustments related to changes in the value of own liabilities	254	289
Other	203	564
TOTAL CET1 REGULATORY DEDUCTIONS AND ADJUSTMENTS	**(4,410)**	**(3,764)**

The prudential deductions and restatements included in the “Other” category essentially involve the following:

- any positive difference between expected losses on customer loans and receivables managed under the internal ratings-based (IRB) approach, and the sum of related value adjustments and impairment losses;
- expected losses on equity portfolio exposures;
- unrealised gains and losses on cash flow hedges;
- assets from defined benefit pension funds, net of deferred taxes;
- securitisation exposures weighted at 1,250%, when these positions are excluded from the calculation of RWA.

4.4.5 RISK-WEIGHTED ASSETS AND CAPITAL REQUIREMENTS

The Basel III Accord has established the rules for calculating minimum capital requirements in order to more accurately assess the risks to which banks are exposed, taking into account the risk profile of transactions *via* two approaches intended for determining RWA: a standardised approach and an advanced one based on internal methods modelling the counterparties' risk profiles.

Change in risk-weighted assets and capital requirements

TABLE 9: OVERVIEW OF RISK-WEIGHTED ASSETS

	Risk-weighted assets			Total own funds requirements
(In EURm)	**31.12.2021**	**30.09.2021**	**31.12.2020**	**31.12.2021**
Credit risk (excluding counterparty credit risk)	**271,012**	**262,308**	**255,431**	**21,681**
o.w. standardised approach	*103,323*	*98,931*	*92,771*	*8,266*
o.w. Foundation IRB (FIRB) approach	*4,121*	*4,162*	*4,417*	*330*
o.w. slotting approach	*752*	*701*	*795*	*60*
o.w. equities under the simple risk-weighted approach	*3,515*	*3,159*	*3,355*	*281*
o.w. other equities under IRB approach	*18,189*	*18,583*	*18,586*	*1,455*
o.w. Advanced IRB (AIRB) approach	*141,111*	*136,772*	*135,507*	*11,289*
Counterparty credit risk – CCR	**27,478**	**31,725**	**26,330**	**2,198**
o.w. standardised approach(1)	*9,304*	*10,457*	*5,588*	*744*
o.w. internal model method (IMM)	*13,088*	*14,906*	*15,767*	*1,047*
o.w. exposures to a CCP	*1,273*	*1,516*	*1,263*	*102*
o.w. credit valuation adjustment – CVA	*2,807*	*3,867*	*3,131*	*225*
o.w. other CCR	*1,007*	*979*	*581*	*81*
Settlement risk	**63**	**6**	**77**	**5**
Securitisation exposures in the non-trading book (after the cap)	**6,368**	**5,960**	**5,486**	**509**
o.w. SEC-IRBA approach	*2,082*	*2,033*	*2,233*	*167*
o.w. SEC-ERBA incL IAA	*3,978*	*3,571*	*2,951*	*318*
o.w. SEC-SA approach	*308*	*356*	*301*	*25*
o.w. 1,250%/deductions	-	-	-	-
Position, foreign exchange and commodities risks (Market risk)	**11,643**	**14,276**	**15,340**	**931**
o.w. standardised approach	*1,419*	*1,761*	*1,728*	*114*
o.w. IMA	*10,225*	*12,515*	*13,612*	*818*
Large exposures	-	-	-	-
Operational risk	**46,806**	**49,232**	**49,188**	**3,744**
o.w. basic indicator approach	-	-	-	-
o.w. standardised approach	*2,412*	*2,294*	*2,250*	*193*
o.w. advanced measurement approach	*44,394*	*46,938*	*46,938*	*3,552*
Amounts (included in the “credit risk” section above) below the thresholds for deduction (subject to 250% risk weight)	7,344	7,570	8,008	588
TOTAL	**363,371**	**363,508**	**351,852**	**29,070**

(1) The amounts of RWA as at 31 December 2021 and as at 30 September 2021 correspond to the new SA-CCR approach, following the application of Regulation (EU) No 2019/876 (CRR2). The equivalent amount as at 31 December 2020 is featured here according to the former Current exposure method (CEM).

TABLE 10: RISK-WEIGHTED ASSETS (RWA) BY CORE BUSINESS AND RISK TYPE

(In EURbn)	Credit and counterparty credit	Market	Operational	Total 31.12.2021	Total 31.12.2020
French Retail Banking	91.8	0.1	3.7	95.5	98.9
International Retail Banking and Financial Services	112.1	0.1	5.5	117.7	108.0
Global Banking and Investor Solutions	89.3	11.5	30.3	131.2	125.9
Corporate Centre	11.7	0.0	7.3	19.0	19.1
Group	**304.9**	**11.6**	**46.8**	**363.4**	**351.9**

As at 31 December 2021, RWA (EUR 363.4 billion) were distributed as follows:

- credit and counterparty credit risks accounted for 84% of RWA (of which 37% for International Retail Banking and Financial Services);
- market risk accounted for 3% of RWA (of which 99% for Global Banking and Investor Solutions);
- operational risk accounted for 13% of RWA (of which 65% for Global Banking and Investor Solutions).

4.4.6 TLAC AND MREL RATIOS

The Total Loss Absorbing Capacity (TLAC) requirement which applies to Societe Generale is 16% of RWA until 1 January 2022 and 18% of RWA thereafter, to which the conservation buffer of 2.5%, the G-SIB buffer of 1% and the countercyclical buffer must be added. As at 31 December 2021, the global TLAC requirement thus stood at 19.54% of Group RWA.

The TLAC rule also provides for a minimum ratio of 6% of the leverage exposure from 2019 before reaching 6.75% of the leverage exposure starting from January 2022.

As at 31 December 2021, Societe Generale reached a phased-in TLAC ratio of 29.2% excluding senior preferred debts. The phased-in ratio stands at 31.1% of RWA when considering the possibility to account for senior preferred debts up to 2.5% of RWA and 9.5% of leverage exposure.

The Minimum Requirement for own funds and Eligible Liabilities (MREL) has applied to credit institutions and investment firms within the European Union since 2016.

Contrary to the TLAC ratio, the MREL is tailored to each institution and regularly revised by the resolution authority.

Throughout 2021, Societe Generale complied with its MREL requirement.

4.4.7 LEVERAGE RATIO

The Group calculates its leverage ratio according to the CRR2 rules applicable since June 2021 (except those regarding G-SIBs expected to be applicable from January 2023).

Managing the leverage ratio means both calibrating the amount of Tier 1 capital (the numerator of the ratio) and controlling the Group's leverage exposure (the denominator of the ratio) to achieve the target ratio levels that the Group sets for itself. To this end, the leverage exposure of the different businesses is monitored by the Finance Department.

The Group aims to maintain a consolidated leverage ratio that is significantly higher than the 3.5% minimum set in the Basel Committee's recommendations, transposed in Europe *via* CRR2, including a fraction of the systemic buffer which is applicable to the Group.

As at 31 December 2021, the leverage ratio of Societe Generale stood at 4.9%, considering a Tier 1 capital amount of EUR 57.9 billion compared with a leverage exposure of EUR 1,189 billion (versus 4.8% at 31 December 2020, with EUR 56.2 billion and EUR 1,179 billion respectively).

TABLE 11: LEVERAGE RATIO SUMMARY AND TRANSITION FROM PRUDENTIAL BALANCE SHEET TO LEVERAGE EXPOSURE(1)

(In EURm)	31.12.2021	31.12.2020
Tier 1 capital(2)	**57,907**	**56,179**
Total assets in prudential balance sheet(3)	**1,299,698**	**1,291,824**
Adjustments for derivative financial instruments	8,619	(60,054)
Adjustments for securities financing transactions(4)	14,896	5,988
Off-balance sheet exposure (loan and guarantee commitments)	118,263	104,034
Technical and prudential adjustments(5)	(252,223)	(163,248)
o.w. central banks exemption	*(117,664)*	*(98,192)*
Leverage ratio exposure	**1,189,253**	**1,178,543**
Leverage ratio	**4.87%**	**4.77%**

(1) Ratio set in accordance with CRR2 rules and taking into account the IFRS 9 phasing (leverage ratio of 4.82% without phasing at 31 December 2021, the phasing effect being +5 bps).

(2) The capital overview is available in table 3.

(3) The prudential balance sheet corresponds to the IFRS balance sheet less entities accounted for through the equity method (mainly insurance subsidiaries). Data at 31 December 2020 modified in accordance with the accounting restatements of comparative data described as an accompaniement to table 3.

(4) Securities financing transactions: repurchase transactions, securities lending or borrowing transactions and other similar transactions.

(5) The breakdown of adjustments at 31 December 2020 takes into account a methodological change leading to the reclassification of some miscellaneous adjustments (previously classified on the line relating to derivatives) onto the line "Technical and prudential adjustments".

4.4.8 RATIO OF LARGE EXPOSURES

The CRR incorporates the provisions regulating large exposures. As such, Societe Generale must not have any exposure towards a single beneficiary which exceeds 25% of the Group's capital.

The final rules of the Basel Committee on large exposures, transposed in Europe *via* CRR2, have been applicable since June 2021. The main changes compared with CRR reside in the calculation of the regulatory limit (25%), henceforth expressed as a proportion of Tier 1 (instead of cumulated Tier 1 and Tier 2), and in the introduction of a cross-specific limit on systemic institutions (15%).

4.4.9 FINANCIAL CONGLOMERATE RATIO

The Societe Generale group, also identified as a "Financial conglomerate", is subject to additional supervision from the ECB.

At 31 December 2021, Societe Generale's financial conglomerate equity covered the solvency requirements for both banking and insurance activities.

At 30 June 2021, the financial conglomerate ratio was 151%, consisting of a numerator "Own funds of the Financial Conglomerate" of EUR 76.1 billion, and a denominator "Regulatory requirement of the Financial Conglomerate" of EUR 50.5 billion.

As at 31 December 2020, the financial conglomerate ratio was 153%, consisting of a numerator "Own funds of the Financial Conglomerate" of EUR 75.1 billion, and a denominator "Regulatory requirement of the Financial Conglomerate" of EUR 49.2 billion.

4.5 CREDIT RISK

Audited I Credit risk corresponds to the risk of losses arising from the inability of the Group's customers, issuers or other counterparties to meet their financial commitments. This risk includes the risk related to securitisation activities, and may be further amplified by individual, country and sector concentration risk. ▲

4.5.1 CREDIT RISK MONITORING AND SURVEILLANCE SYSTEM

General principles

Audited I The risk approval process is based on the following main principles:

- the analysis and the validation of the files fall respectively and independently to the sector of commercial follow-up of the client and to the dedicated risk units within the risk management function. In order to guarantee a consistent approach to Group risk-taking, this commercial monitoring sector and this risk unit examine all authorisation requests relating to a given client or category of clients. This commercial monitoring sector and this risk unit must be independent of each other;
- the internal rating of counterparties is a key criterion in the granting policy. These ratings are proposed by the commercial monitoring sector and validated by the dedicated risk unit;
- a system of delegation of competence, largely based on the internal rating of the counterparties, confers decision-making capacities to the risk units on the one hand and the commercial monitoring sectors on the other.

The business line assumes the burden of provisions and losses related to its credit decisions as the first line of defence. The Risk Department submits recommendations to CORISQ on the evolution of the granting policy, with limits on credit portfolios, for the countries, geographic areas, sectors, products or types of customers presenting high concentration risks. ▲

Governance

The Risk Department, working with the Finance Department, determines the risk appetite of the Group. This seeks to define the acceptable level of risk given the Group's strategic aims.

The Risk Department is responsible for implementing the system to manage and monitor risks, including cross-Group risks. The Risk Department exercises hierarchical and functional oversight of the Risk management function in charge of Group credit risk giving it a comprehensive view of all the Group's credit risks.

The Risk Department helps define risk policies in light of each core business targets and the associated risk issues. It defines or approves the methods and procedures used to analyse, measure, approve and monitor risks and the risk IT system and makes sure these are appropriate to the core businesses' needs. As second line of defence, various Risk Departments (for Retail Banking, Corporate and Investment Banking and Market activities) are also in charge of credit risk and as such responsible for the independent control as second line of defence. These consist in independently reviewing and comparing any credit application that exceeds the authority delegated to core businesses or local Risk Department teams. The Risk Department also assesses the quality of first-level credit reviews and takes any corrective action necessary.

The Risk Department also approves transactions and limits proposed by core business lines in respect of credit risk.

Finally, as part of its responsibilities for second line of defence, the Risk Department carries out permanent controls of credit risks. As such, the Risk Department provides independent control as a second line of defence on the detection and monitoring of the resolution of limit auioverruns.

The monthly Risk Monitoring Report presented to CORISQ by the Risk Department comments among others on the evolution of the Group's credit portfolio and ensures compliance with the guidelines. Changes in the credit portfolio, changes in credit policy validated by CORISQ and respect for the Group's risk appetite are presented at least quarterly to the Risk Committee of the Board of Directors.

As part of the quarterly reporting to the Board of Directors and to the Risk Committee of the Board of Directors, an overview of the main credit risk metrics supplemented by details of the thresholds and limits where applicable is presented. The following metrics are in particular the subject of a presentation with a quarterly history: net cost of risk, NPL rate (non-performing loans), coverage rate, average credit quality of portfolios, outstanding corporates placed under surveillance (watchlist), supervision of corporate exposures by sector of activity, *Grands Risques Réglementaires* (major regulatory risk exposures), etc.

A monthly version of the reporting intended for the Risk Committee of the Board of Directors also provides additional information at a Business Unit level or on certain financing activities. A summary of the thematic CORISQs is also presented.

As part of the monthly CORISQ reporting to General Management, a summary of the main credit files is presented. Thematic presentations also provide recurring clarifications on certain perimeters and activities: personal real estate loans, consumer credit, non-retail credit risk, sector limits, country risks, major regulatory risks (*Grands Risques Réglementaires*), etc.

Specificities of retail portfolios

Audited I Individual and professional portfolio (retail portfolio) have specific features in terms of risk management. This management is based on a statistical approach and on the use of tools and methods in the industrialisation of processes.

STATISTICAL APPROACH

The retail portfolio is made up of a sum of exposures of low unit amounts, validated in a partially automated manner, which together constitute significant outstandings at Group level and therefore a high level of risk.

Given the high number and standardisation of retail clients commitments, aggregate monitoring is necessary at all levels of the Risk function in charge of credit risk. This mass monitoring of retail customer exposure is based on the use of a statistical risk approach and monitoring by homogeneous risk class.

In these circumstances, the risk monitoring system for the Retail portfolio cannot rely on the same procedures or the same tools as for corporates.

For instance, any change in marketing policy (cut to probationary period for loyalty, delegation of lending decisions to brokers, increase in margins, etc.) can have a rapid and massive impact and must therefore be tracked by a system that allows all actors (i) to identify as quickly as possible where any deterioration in exposures is coming from and (ii) to take remedial action.

Even if the IFRS 9 standard authorises a collective approach and if the Group has a statistical approach on retail customers for the evaluation of the expected loss, the increase in risk for the purposes of the classification into stages is identified on an individual basis for this clientele. The available parameters (operating accounts and late payments) allow the assessment of the significant increase in credit risk at the level of individual exposures. The collective approach is currently only used in a very small number of instances within the Group.

IMPORTANCE OF TOOLS AND METHODS IN THE INDUSTRIALISATION OF PROCESSES

The Risk management function must support Business Units and subsidiary managers in managing their risks with an eye to:

- the effectiveness of lending policies;
- the quality of the portfolio and its development over the lifetime of exposures (from grant to recovery).

Risk Department structures its supervision around the following four processes:

- granting: this decision-making process can be more or less automated depending on the nature and complexity of the transactions, and hence the associated risk;
- monitoring: different entities use different systems for granting and managing retail risks systems (scoring, expert systems, rules, etc.) and an appropriate monitoring system must be in place for each to assess the appropriateness of the grant rules applied (notably *via* monitoring);
- recovery: recovery is an essential stage in the life cycle of Retail portfolio credits and makes a decisive contribution to our control of cost of risk. Whatever the organisation adopted (outsourcing, in-house collection, etc.), the establishment of an effective collection process is an essential element of good risk management. It makes a decisive contribution to controlling the cost of risk and limiting the level of our non-performing loans. If recovery is outsourced, it must conform to the Group's regulations governing outsourcing;
- provisioning: provisions against the Retail portfolio are decided at local level. They are calculated using the methodologies and governance methods defined and approved by the Risk Department. ▲

Monitoring individual concentration

Societe Generale complies with regulations governing large exposures (major regulatory risks exposure cap of 25% of equity). A more restrictive internal limit of 10% delegated by General Management (which can occasionally or permanently amend it) has been put in place. Since 1 July 2018, the High Council for Financial Stability has imposed to financial institutions an exposure limit on most indebted companies established in France at a maximum level of 5% of eligible equity.

Internal systems are implemented to identify and manage the risks of individual concentrations, particularly at granting of credit. For example, concentration thresholds, based on the internal rating of counterparties, are set by CORISQ and define the governance for validating the limits on individual concentrations. Exposures to groups of clients deemed significant by the Group are reviewed by the Large Exposure Committee chaired by the General Management. As part of the identification of its risks, the Group also carries out loss simulations by type of customer (on significant individual exposures that the Group could have).

The Group uses credit derivatives to reduce some exposures considered to be overly significant. Furthermore, the Group systematically seeks to mutualise risks with other banking partners by avoiding keeping an excessive share in the banking pool of large-scale companies.

Monitoring country risk

Country risk arises when an exposure (loan, security, guarantee or derivative) becomes susceptible to negative impact from changing regulatory, political, economic, social and financial conditions.

Country risk breaks down into two major categories:

- political and non-transfer risk covers the risk of non-payment resulting from either actions or measures taken by local government authorities (decision to prohibit the debtor from meeting its commitments, nationalisation, expropriation, non-convertibility, etc.), domestic events (riots, civil war, etc.) or external events (war, terrorism, etc.);
- commercial risk occurs when the credit quality of all counterparties in a given country deteriorates due to a national economic or financial crisis, independently of each counterparty's individual financial situation. This could be a macroeconomic shock (sharp slowdown in activity, systemic banking crisis, etc.), currency depreciation, or sovereign default on external debt potentially entailing other defaults.

Overall limits and/or monitoring of exposures have been established for countries based on their internal ratings and governance indicators. The supervision is strengthened depending on the level of the country's risk.

Country limits are approved annually by Risk Department (or General Management in specific situations). They can be revised downward at any time if the country's situation deteriorates or is expected to deteriorate.

All Group exposures (securities, derivatives, loans and guarantees) are taken into account by this monitoring. The Country Risk methodology determines an initial risk country and a final risk country (after any guarantee-related effects), which is supervised using country limits.

The procedure for putting a country on watch list is triggered in the event of deterioration in the country risk or anticipation of such a deterioration by the Risk Department.

Sector monitoring

The Group regularly reviews its entire credit portfolio through analyses by business sector. To do this, it relies on industry sector studies (including a one-year anticipation of sectoral risk) and on sectoral concentration analyses.

In addition, the Group periodically reviews its exposures to the portfolio segments presenting a specific risk profile, within the framework of CORISQs at Group level or at Business Unit level. These identified sectors or sub-portfolios are, where appropriate, subject to specific supervision through portfolio exposure limits and specific granting criteria. The limits are monitored either at General Management level or at Business Unit management level depending on the materiality and the level of risk of the portfolios.

As a complement, more targeted sector-based research and business portfolio analysis, may be conducted by General Management, the Risk Department or Bank Departments, depending on current issues. In that respect, Covid-19 vulnerable sectors have been subject to specific monitorings.

Portfolios specifically monitored by the Group CORISQ include:

- individual and professional credit portfolio (retail) in metropolitan France and in International Retail Banking in Europe. The Group defines in particular a risk appetite target concerning the minimum share covered by *Credit Logement* guarantee for real estate loans granted to individuals;
- oil and gas sectors, on which the Group has defined a credit policy adapted to the different types of activity of sector players. This policy distinguishes financing guaranteed by oil reserves, project financing, short-term trade finance transactions, and takes into account regional characteristics;
- commercial real estate scope, on which the Group has defined a framework for origination and monitoring of exposures and limits according to the different types of financing, geographical areas and/or activities;
- leveraged finance, for which the Group applies the definition of the scope and the management guidelines recommended by the ECB in 2017 (Guidance on leveraged transactions). The Group continues to pay a particular attention to the Leverage Buy-Out (LBO) sub-portfolio;
- exposures on hedge funds is subject to a specific attention. The Group incurs risk on hedge funds through derivative transactions and its financing activity guaranteed by shares in funds. Risks related to hedge funds are governed by individual limits and global limits on market risks and wrong way risks;
- exposures on shadow banking are managed and monitored in accordance with the EBA guidelines published in 2015 which specifies expectations regarding the internal framework for identifying, controlling and managing identified risks. CORISQ has set a global exposure threshold for shadow banking.

Credit stress tests

With the aim of identifying, monitoring and managing credit risk, the Risk Department works with the businesses to conduct a set of specific stress tests relating to a country, subsidiary or activity. These specific stress tests combine both recurring stress tests, conducted on those portfolios identified as structurally carrying risk, and *ad hoc* stress tests, designed to recognise emerging risks. Some of these stress tests are presented to CORISQ and used to determine how to frame the corresponding the activities concerned.

Credit risk stress tests complement the global analysis with a more granular approach and allow fine-tuning of the identification, assessment and operational management of risk, including concentration. They allow to calculate the expected credit losses on exposures which have undergone an event of default and on exposures which have not undergone an event of default, in accordance with the method prescribed in the standard IFRS 9. The perimeter covered may include counterparty credit risk on market activities when relevant.

4.5.2 CREDIT RISK HEDGING

Audited I Guarantees and collateral

The Group uses credit risk mitigation techniques for both market and commercial banking activities. These techniques provide partial or full protection against the risk of debtor insolvency.

There are two main categories:

- personal guarantees are commitments made by a third party to replace the primary debtor in the event of the latter's default. These guarantees encompass the protection commitments and mechanisms provided by banks and similar credit institutions, specialised institutions such as mortgage guarantors, monoline or multiline insurers, export credit agencies, States in the context of the health crisis linked to Covid-19, etc. By extension, credit insurance and credit derivatives (purchase of protection) also belong to this category;
- collateral can consist of physical assets in the form of property, commodities or precious metals, as well as financial instruments such as cash, high-quality investments and securities, and also insurance policies.

Appropriate haircuts are applied to the value of collateral, reflecting its quality and liquidity.

In order to reduce its risk-taking, the Group is pursuing active management of its securities, in particular by diversifying them: physical collateral, personal guarantees and others (including Credit Default Swaps).

For information, the mortgage loans of retail customers in France benefit overwhelmingly from a guarantee provided by the financing company *Crédit Logement*, ensuring the payment of the mortgage to the Bank in the event of default by the borrower (under conditions of compliance with the terms of collateral call defined by *Crédit Logement*).

During the credit approval process, an assessment is performed on the value of guarantees and collateral, their legal enforceability and the guarantor's ability to meet its obligations. This process also ensures that the collateral or guarantee successfully meets the criteria set forth in the Capital Requirements Directive (CRD).

The guarantors are subject to an internal rating updated at least annually. Regarding collateral, regular revaluations are made on the basis of an estimated disposal value composed of the market value of the asset and a discount. The market value corresponds to the value at which the good should be exchanged on the date of the valuation under conditions of normal competition. It is preferably obtained on the basis of comparable assets, failing this by any other method deemed relevant (example: value in use). This value is subject to haircuts depending on the quality of the collateral and the liquidity conditions.

Regarding collateral used for credit risk mitigation and eligible for the RWA calculation, it should be noted that 95% of guarantors are investment grade. These guarantees are mainly provided by *Crédit Logement*, export credit agencies, the French State (within the *Prêts Garantis par l'État* framework of the loans guaranteed by the French State) and insurance companies.

In accordance with the requirements of European Regulation No. 575/2013 (CRR), the Group applies minimum collateralisation frequencies for all collateral held in the context of commitments granted (financial collateral, commercial real estate, residential real estate, other security interests, leasing guarantees).

Closer valuations must be carried out in the event of a significant change in the market concerned, the default or litigation of the counterparty or at the request of the risk management function.

In addition, the effectiveness of credit risk hedging policies is monitored as part of the LGD.

It is the responsibility of the risk management function to validate the operational procedures put in place by the business lines for the periodic valuation of collateral (guarantees and collateral), whether automatic valuations or on an expert opinion and whether during the credit decision for a new competition or during the annual renewal of the credit file.

The amount of guarantees and collateral is capped at the amount of outstanding loans less provisions, *i.e.* EUR 373 billion at 31 December 2021 (compared with EUR 319 billion at 31 December 2020), of which EUR 175 billion for retail customers and EUR 198 billion for other types of counterparties (compared with EUR 156 billion and EUR 163 billion at 31 December 2020, respectively).

The outstanding loans covered by these guarantees and collateral correspond mainly to loans and receivables at mortised cost, which amounted to EUR 294 billion at 31 December 2021, and to off-balance sheet commitments, which amounted to EUR 68 billion (compared with EUR 258 billion and EUR 51 billion at 31 December 2020 respectively).

The amounts of guarantees and collateral received for performing outstanding loans (Stage 1) and under-performing loans (Stage 2) with payments past due amounted to EUR 2.4 billion at 31 December 2021 (EUR 4.3 billion at 31 December 2020), including EUR 1.5 billion on retail customers and EUR 0.9 billion on other types of counterparties (versus EUR 1.7 billion and EUR 2.6 billion at 31 December 2020 respectively).

The amount of guarantees and collateral received for non-performing outstanding loans as at 31 December 2021 amounted to EUR 5.2 billion (compared with EUR 4.5 billion as at 31 December 2020), of which EUR 1.8 billion on retail customers and EUR 3.4 billion on other types of counterparties (compared with EUR 1.8 billion and EUR 2.7 billion respectively as at 31 December 2020). These amounts are capped at the amount of outstanding.

Use of credit derivatives to manage Corporate concentration risk

The Group may use credit derivatives for in the management of its Corporate credit portfolio, primarily to reduce individual, sector and geographic concentrations and to implement a proactive risk and capital management approach.

Housed in Corporate and Investment Banking, the Performance & Scarce Resources management (PSR) team works in close conjunction with the Risk Department and the businesses to reduce excessive portfolio concentrations, react quickly to any deterioration in the creditworthiness of a particular counterparty and recommend actions to improve the capital allocation. PSR is part of the department responsible for defining and effectively deploying the strategy, for monitoring performance and managing the scarce resources in the credit and loan portfolio.

Total outstanding purchases of protection through Corporate credit derivatives were stable at EUR 2.5 billion in nominal terms and a corresponding fair value of EUR -10.3 million at the end of December 2021 (compared to EUR 2.5 billion nominal value and a corresponding fair value of -7.3 million euros at the end of December 2020). New operations have mainly been performed to approve capital allocation (EUR 1.7 billion) and to a lower extend reduce concentration risk (EUR 0.8 billion).

Over 2021, the credit default swaps (CDS) spreads of European investment grade issues (Itraxx index) were stable, fluctuating around an annual average of 50 basis points. The overall sensitivity of the portfolio (Price Value of a Basis Point) is falling due to the reduction in the average maturity of the protections.

The majority of protection purchases (99% of outstandings at 31 December 2021) are made against European clearing houses, and all against counterparties with "Investment Grade" ratings (rating at least equal to BBB-).

Moreover, the amounts recognised as assets (EUR 0.9 billion at 31 December 2021 *versus* EUR 1.3 billion at 31 December 2020) and liabilities (EUR 1.2 billion at 31 December 2021 *versus* EUR 1.4 billion at 31 December 2020) correspond to the fair value of credit derivatives mainly held under a transaction activity.

Credit insurance

The Group has developed relationships with private insurers over the last several years in order to hedge some of its loans against commercial and political non-payment risks.

This activity is performed within a risk framework and monitoring system approved by the Group's General Management. The system is based on an overall limit for the activity, along with sub-limits by maturity, and individual limits for each insurance counterparty, the latter being furthermore required to meet strict eligibility criteria. There is also a limit for insured transactions in Non Investment Grade countries. ▲

TABLE 12: CREDIT RISK MITIGATION TECHNIQUES – OVERVIEW

	31.12.2021				
(In EURm)	**Exposures unsecured – Carrying amount**	**Exposures secured – Carrying amount**	**of which secured by collateral**	**of which secured by financial guarantees**	**of which secured by credit derivatives**
Total loans	467,156	297,738	124,447	173,291	-
Total debt securities	56,063	6,654	6,561	93	
TOTAL EXPOSURES	**523,219**	**304,391**	**131,008**	**173,384**	**-**
of which non-performing exposures	*11,654*	*4,944*	*2,217*	*2,727*	-
of which defaulted	*11,654*	*4,944*	*2,217*	*2,727*	-

	31.12.2020				
(In EURm)	**Exposures unsecured – Carrying amount**	**Exposures secured – Carrying amount**	**of which secured by collateral**	**of which secured by financial guarantees**	**of which secured by credit derivatives**
Total loans	442,980	262,058	104,775	157,282	-
Total debt securities	62,035	5,590	5,486	104	
TOTAL EXPOSURES	**505,014**	**267,648**	**110,262**	**157,386**	**-**
of which non-performing exposures	*12,921*	*4,240*	*1,975*	*2,265*	-
of which defaulted	*12,921*	*4,240*	*1,975*	*2,265*	-

4.5.3 IMPAIRMENT

The information relating to impairment can be found in Note 3.8 to the consolidated financial statements, which is part of Chapter 6 of the present Universal Registration Document.

4.5.4 RISK MEASUREMENT AND INTERNAL RATINGS

General framework of the internal approach

Since 2007, Societe Generale has been authorised by its supervisory authorities to apply, for the majority of its exposures, the internal method (IRB method, Internal Rating Based) to calculate the capital required for credit risk.

The remaining exposures subject to the Standard approach mainly concern the portfolios of retail customers and SMEs (Small and Medium Enterprises) of the International Retail Banking activities. For exposures processed under the standard method excluding retail banking, the Group mainly uses external ratings from the Standard & Poor's, Moody's and Fitch rating agencies and the Banque de France. In the event that several Ratings are available for a third party, the second best Rating is retained.

The rating model monitoring framework is operational, in accordance with regulatory requirements, and detailed below in this section 4.5.4 *"Risk measurement and internal ratings"*.

In accordance with the texts published by the EBA as part of the "IRB Repair" programme and following the review missions carried out by the ECB (TRIM – Targeted Review of Internal Models), the Group plans to develop its internal model system credit risk, so as to comply with these new requirements. A program ("Haussmann") has been launched in this direction within the Group, and deals with aspects such as:

- the simplification of the architecture of the models, and the improvement of its auditability: either by *ex nihilo* development of new models based on the New Definition of Default (NDoD), and natively integrating the expectations of the EBA and ECB, or by bringing certain existing models up to standard;
- improving the quality of data and its traceability throughout the chain;
- the review of the roles and responsibilities of the teams, particularly with regard to the construction and monitoring ("back test") of the system;
- the review of certain IT application bricks, and their rationalisation;
- the establishment of a more complete normative base, and a more consistent relationship with the supervisor.

The programme is also based on building the target model strategy on the rollout plan towards the IRB approach.

Following the TRIMs and as part of compliance with IRB Repair, evolutions to the rating systems and models have been and will be submitted for validation to the ECB.

Audited I To calculate its capital requirements under the IRB method, Societe Generale estimates the Risk-Weighted Assets (RWA) and the Expected Loss (EL) that may be incurred in light of the nature of the transaction, the quality of the counterparty (*via* internal rating) and all measures taken to mitigate risk.

The calculation of RWA is based on the parameters Basel parameters, which are estimated using the internal risk measurement system:

- the Exposure at Default (EAD) value is defined as the Group's exposure in the event that the counterparty should default. The EAD includes exposures recorded on the balance sheet (loans, receivables, accrued income, market transactions, etc.), and a proportion of off-balance sheet exposures calculated using internal or regulatory Credit Conversion Factors (CCF);
- the Probability of Default (PD): the probability that a counterparty of the Bank will default within one year;
- the Loss Given Default (LGD): the ratio between the loss incurred on an exposure in the event a counterparty defaults and the amount of the exposure at the time of the default.

The estimation of these parameters is based on a quantitative evaluation system which is sometimes supplemented by expert or business judgment.

In addition, a set of procedures sets out the rules relating to ratings (scope, frequency of review, grade approval procedure, etc.) as well as those for supervision, backtesting and the validation of models. These procedures allow, among other things, to facilitate critical human judgment, an essential complement to the models for non-retail portfolios.

The Group also takes into account:

- the impact of guarantees and credit derivatives, by substituting the PD, the LGD and the risk-weighting calculation of the guarantor for that of the obligor (the exposure is considered to be a direct exposure to the guarantor) in the event that the guarantor's risk weighting is more favorable than that of the obligor;
- collateral used as guarantees (physical or financial). This impact is taken into account *via* the LGD level. ▲

To a very limited extent, Societe Generale also applies an IRB Foundation approach (where only the probability of default is estimated by the Bank, while the LGD and CCF parameters are determined directly by the supervisory authority) to a portfolio of specialised lending exposures, including those granted to the subsidiaries Franfinance Entreprises, Sogelease and Star Lease.

Moreover, the Group has authorisation from the regulator to use the IAA (internal assessment approach) method to calculate the regulatory capital requirement for ABCP (Asset-Backed Commercial Paper) securitisation.

In addition to the capital requirement calculation objectives under the IRBA method, the Group's credit risk measurement models contribute to the management of the Group's operational activities. They also constitute tools to structure, price and approve transactions and contribute to the setting of approval limits granted to business lines and the Risk function.

TABLE 13: SCOPE OF THE USE OF IRB AND SA APPROACHES

	31.12.2021					
(In EURm)	**Exposure value as defined in Article 166 CRR for exposures subject to IRB approach**	**Total exposure value for exposures subject to the Standardised approach and to the IRB approach**	**Percentage of total exposure value subject to the permanent partial use of the SA** *(%)*	**Percentage of total exposure value subject to a roll-out plan** *(%)*	**Percentage of total exposure value subject to IRB approach** *(%)*	***O.w percentage subject to AIRB approach*** *(%)*
Central governments or central banks	243,502	253,240	3.43%	-	96.57%	*96.56%*
of which regional governments or local authorities		*1,833*	*7.33%*	-	*92.67%*	*92.67%*
of which public sector entities		*111*	*92.65%*	-	*7.35%*	*7.35%*
Institutions	40,410	46,806	9.63%	0.01%	90.36%	*90.36%*
Corporates	266,895	312,786	9.37%	1.94%	88.69%	*86.86%*
of which Corporates - Specialised lending, excluding slotting approach		*62,706*	*1.63%*	-	*98.37%*	*98.37%*
of which Corporates - Specialised lending under slotting approach		*1,436*	-	-	*100.00%*	*100.00%*
Retail	177,266	244,359	19.22%	8.77%	72.01%	*72.01%*
of which Retail – Secured by real estate SMEs		*6,504*	*12.33%*	*0.59%*	*87.08%*	*87.08%*
of which Retail – Secured by real estate non-SMEs		*141,329*	*11.17%*	*11.55%*	*77.28%*	*77.28%*
of which Retail – Qualifying revolving		*6,001*	*32.18%*	*9.38%*	*58.44%*	*58.44%*
of which Retail – Other SMEs		*36,052*	*33.29%*	*1.45%*	*65.26%*	*65.26%*
of which Retail – Other non-SMEs		*54,473*	*30.21%*	*7.30%*	*62.49%*	*62.49%*
Equity	6,203	7,410	16.29%	-	83.71%	*83.71%*
Other non-credit obligation assets	868	37,883	97.71%	-	2.29%	*2.29%*
TOTAL	**735,144**	**902,485**	**14.15%**	**3.05%**	**82.80%**	***82.17%***

TABLE 14: SCOPE OF APPLICATION OF THE IRB AND STANDARD APPROACHES FOR THE GROUP

	IRB approach	Standard approach
French Retail Banking	Majority of French Retail Banking and Crédit du Nord and Private Banking portfolios	Some specific client or product types for which the modeling is currently not adapted Boursorama
International Retail Banking and Financial Services	Subsidiaries KB (Czech Republic), CGI, Fiditalia, GEFA, SG Leasing SPA and Fraer Leasing SPA, SGEF Italy	Other international subsidiaries (in particular BRD, SG Maroc, Rosbank)
Global Banking and Investor Solutions	Majority of Corporate and Investment Banking portfolios	SG Kleinwort Hambros and SGIL subsidiaries, as well as specific client or product types for which the modeling is currently not adapted

Credit risk measurement for wholesale clients

For Corporate (including specialised financing), Banking and Sovereign portfolios, the Group has implemented the following system.

RATING SYSTEM AND ASSOCIATED PROBABILITY OF DEFAULT

The rating system consists in assigning a rating to each counterparty according to an internal scale, for which each grade corresponds to a probability of default determined using historical series observed by Standard & Poor's for over more than twenty years.

The following table presents the indicative corresponding scales of the main external credit assessment institutions and the corresponding average probabilities of default, as well as the Group's internal rating scale.

The rating assigned to a counterparty is generally proposed by a model, and possibly adjusted by a credit analyst, who then submits it for validation by the Risk Management.

The counterparty rating models are structured in particular according to the type of counterparty (companies, financial institutions, public entities, etc.), geographic region and size of the Company (usually assessed through its annual revenue).

The Company rating models are underpinned by statistical models (regression methods) of client default. They combine quantitative parameters derived from financial data that evaluate the sustainability and solvency of companies and qualitative parameters that evaluate economic and strategic dimensions.

TABLE 15: SOCIETE GENERALE'S INTERNAL RATING SCALE AND INDICATIVE CORRESPONDING SCALES OF RATING AGENCIES

Investment grade/ Non-investment grade	Probability of default range	Counterparty internal rating	Indicative equivalent Standard & Poor's	Indicative equivalent Fitch	Indicative equivalent Moody's	1-year internal probality of default (average)
Investment grade	0.00 to <0.10	1	AAA	AAA	Aaa	0.009%
		2+	AA+	AA+	Aa1	0.014%
		2	AA	AA	Aa2	0.020%
		2-	AA-	AA-	Aa3	0.026%
		3+	A+	A+	A1	0.032%
		3	A	A	A2	0.036%
		3-	A-	A-	A3	0.061%
	0.10 to <0.15	4+	BBB+	BBB+	Baa1	0.130%
	0.15 to <0.25					
	0.25 to <0.50	4	BBB	BBB	Baa2	0.257%
	0.50 to <0.75	4-	BBB-	BBB-	Baa3	0.501%
Non-investment grade	0.75 to <1.75	5+	BB+	BB+	Ba1	1.100%
	1.75 to <2.5	5	BB	BB	Ba2	2.125%
	2.5 to <5	5-	BB-	BB-	Ba3	3.260%
		6+	B+	B+	B1	4.612%
	5 to <10	6	B	B	B2	7.761%
	10 to <20	6-	B-	B-	B3	11.420%
		7+	CCC+	CCC+	Caa1	14.328%
	20 to <30	7	CCC	CCC	Caa2	20.441%
		7-	C/CC/CCC-	CCC-	Caa3	27.247%
	30 to <100					

LGD MODELS

The Loss Given Default (LGD) is an economic loss that is measured by taking into account all parameters pertaining to the transaction, as well as the fees incurred for recovering the receivable in the event of a counterparty default.

The models used to estimate the Loss Given Default (LGD) excluding retail clients are applied by regulatory sub-portfolios, type of asset, size and location of the transaction or of the counterparty, depending on whether or not collateral has been posted, and the nature thereof if applicable. This makes it possible to define homogeneous risk pools, particularly in terms of recovery, procedures and the legal environment.

These estimates are founded on statistics when the number of loans in default is sufficient. In such circumstances, they are based on recovery data observed over a long period. When the number of defaults is insufficient, the estimate is revised or determined by an expert.

CREDIT CONVERSION FACTOR (CCF) MODELS

For its off-balance sheet exposures, the Group is authorised to use the internal approach for "Term loan with drawing period" products and revolving credit lines.

TABLE 16: MAIN CHARACTERISTICS OF MODELS AND METHODS – WHOLESALE CLIENTS

Parameter modeled	Portfolio/ Category of Basel assets	Number of methods, models	Methodology Number of years default/loss
WHOLESALE CLIENTS			
Probability of Default (PD)	Sovereigns	1 method.	Econometric method. Low default portfolio.
	Public sector entities	4 models according to geographic region.	Statistical (regression)/expert methods for the rating process, based on the combination of financial ratios and a qualitative questionnaire. Low default portfolio.
	Financial institutions	11 models according to type of counterparty: banks, insurance, funds, financial intermediaries, funds of funds.	Expert models based on a qualitative questionnaire. Low default portfolio.
	Specialised financing	3 models according to type of transaction.	Expert models based on a qualitative questionnaire. Low default portfolio.
	Large corporates	9 models according to geographic region.	Mainly statistical models (regression) for the rating process, based on the combination of financial ratios and a qualitative questionnaire. Defaults observed over a period of 8 to 10 years.
	Small- and medium-sized companies	20 models according to the size of the Company and the geographic region.	Mainly statistical models (regression) for the rating process, based on the combination of financial ratios and a qualitative questionnaire, behavioral score. Defaults observed over a period of 8 to 10 years.
Loss Given Default (LGD)	Public sector entities – Sovereigns	6 models according to type of counterparty.	Calibration based on historical data and expert judgments. Losses observed over a period of more than 10 years.
	Large corporates – Flat-rate Approach	25 models Flat-rate approach according to type of collateral.	Calibration based on historical data adjusted by expert judgments. Losses observed over a period of more than 10 years.
	Large corporates – Discount Approach	16 models Discount approach according to type of recoverable collateral.	Statistical calibration based on historical market data adjusted by expert judgments. Losses observed over a period of more than 10 years.
	Small- and medium-sized companies	16 models Flat-rate approach according to type of collateral or unsecured.	Statistical calibration based on historical data adjusted by expert judgments. Losses observed over a period of more than 10 years.
	Project financing	9 models Flat-rate approach according to project type.	Statistical calibration based on historical data adjusted by expert judgments. Losses observed over a period of more than 10 years.
	Financial institutions	5 models Flat-rate approach according to type of counterparty: banks, insurance, funds, etc. and the nature of the collateral.	Statistical calibration based on historical data adjusted by expert judgments. Losses observed over a period of more than 10 years.
	Other specific portfolios	6 models: factoring, leasing with option to purchase and other specific cases.	Statistical calibration based on historical data adjusted by expert judgments. Losses observed over a period of more than 10 years.
Credit Conversion Factor (CCF)	Large corporates	5 models: term loans with drawing period, revolving credits, Czech Corporates.	Models calibrated by segment. Defaults observed over a period of more than 10 years.
Expected Loss (EL)	Real estate transactions	2 models by slotting.	Statistical model based on expert judgments and a qualitative questionnaire. Low default portfolio.

MONITORING THE PERFORMANCE OF INTERNAL MODELS

The performance level of the entire wholesale client credit system is measured by backtests that compare, by portfolio, the PD, LGD and CCF estimates with actual results, thus making it possible to measure the prudence of the risk parameters used by the IRB approach.

The backtest results and remediation plans are presented to the Expert Committee for discussion and approval (see section “Governance of the modelling of credit risk”). These results may justify the implementation of remediation plans if the system is deemed to be insufficiently prudent. The discriminating power of the models and the change of the composition of the portfolio are also measured.

The results presented above cover the entire Group portfolios. Backtests compare the estimated probability of default (arithmetic mean weighted by debtors) with the observed results (the historical annual default rate). The historical default rate was calculated on the basis of performing exposures over the period from 2008 to 2020.

The historic default rate remains stable across all the exposure classes. The estimated probability of default is higher than the historical default rates for all Basel portfolios and for most of the ratings. It should be noted that new internal models are being developed to comply with new regulatory requirements.

TABLE 17: COMPARISON OF RISK PARAMETERS: ESTIMATED AND ACTUAL PD VALUES – WHOLESALE CLIENTS - IRBA

	31.12.2021					
Exposure class	**Weighted average PD** *(%)*	**Arithmetic mean of debtor PD** *(%)*	**Historical Average Annual Default Rate** *(%)*	**Average annual default rate** *(%)*	**Number of debtors Year-end(1)**	**of which: number of debtors in default during the year**
Central banks and central administrations	0.6%	1.3%	0.2%	0.2%	451	1
Institutions	0.5%	0.8%	0.3%	0.1%	3,480	3
Corporates - SME	2.9%	4.3%	3.4%	1.6%	61,326	988
Corporates - Specialised lending	1.8%	2.8%	1.9%	1.0%	2,255	22
Corporates - Others	1.3%	3.9%	1.8%	1.2%	24,625	301

(1) Performing exposures.

	31.12.2020					
Exposure class	**Weighted average PD(2)** *(%)*	**Arithmetic mean of debtor PD** *(%)*	**Historical Average Annual Default Rate** *(%)*	**Average annual default rate** *(%)*	**Number of debtors Year-end(1)**	**of which: number of debtors in default during the year**
Central banks and central administrations	0.1%	0.9%	0.2%	0.0%	462	0
Institutions	0.3%	0.8%	0.3%	0.3%	3,519	9
Corporates - SME	3.2%	3.8%	3.6%	1.9%	54,874	1,053
Corporates - Specialised lending	1.4%	2.4%	2.0%	1.6%	2,210	36
Corporates - Others	1.3%	3.4%	1.8%	1.6%	23,769	389

(1) Performing exposures.
(2) PD taking into account substitution and reduction effects at 31 December, 2020.

TABLE 18: COMPARISON OF RISK PARAMETERS: ESTIMATED AND ACTUAL PD VALUES – WHOLESALE CLIENTS - IRBF

	31.12.2021					
	Weighted average PD (%)	Arithmetic mean of debtor PD (%)	Historical Average Annual Default Rate (%)	Average annual default rate (%)	Number of debtors Year-end[(1)]	of which: number of debtors in default during the year
Central banks and central administrations	0.6%	0.0%	0.0%	0.0%	102	0
Institutions	0.4%	1.2%	0.2%	0.0%	27	0
Corporates - SME	3.5%	5.0%	3.5%	2.5%	11,220	275
Corporates - Others	2.3%	4.5%	2.0%	2.0%	6,511	131

(1) Performing exposures.

	31.12.2020					
Exposure class	Weighted average PD[(2)] (%)	Arithmetic mean of debtor PD (%)	Historical Average Annual Default Rate (%)	Average annual default rate (%)	Number of debtors Year-end[(1)]	of which: number of debtors in default during the year
Central banks and central administrations	0.0%	0.0%	0.0%	0.0%	153	0
Institutions	0.1%	0.8%	0.2%	0.0%	193	0
Corporates - SME	4.2%	4.1%	3.5%	2.0%	13,770	279
Corporates - Others	2.4%	3.8%	2.0%	1.5%	6,739	102

(1) Performing exposures.
(2) PD taking into account substitution and reduction effects at 31 December, 2020.

Credit risk measurements of retail clients

The Group has implemented the following system for the retail portfolio made up of individual customers, SCIs (real estate investment companies – *Sociétés civiles immobilières*) and professional customers.

RATING SYSTEM AND ASSOCIATED PROBABILITY OF DEFAULT

The modeling of the probability of default of retail client counterparties is carried out specifically by each of the Group's business lines recording its exposures using the IRBA method. The models incorporate data on the account behavior of counterparties. They are segmented by type of customer and distinguish between retail customers, professional customers, very small businesses and real estate investment companies (*Sociétés civiles immobilières*).

The counterparties of each segment are classified automatically, using statistical models, into homogeneous risk pools, each of which is assigned a probability of default. These estimates are adjusted by a safety margin to estimate as best as possible a complete default cycle, using a through-the-cycle (TTC) approach.

LGD MODELS

The models for estimating the Loss Given Default (LGD) of retail customers are specifically applied by business line portfolio and by product, according to the existence or not of collateral.

Consistent with operational recovery processes, estimate methods are generally based on a two-step modeling process that initially estimates the proportion of defaulted loans in loan termination, followed by the loss incurred in case of loan termination.

The expected losses are estimated using internal long-term historical recovery data for exposures that have defaulted. These estimates are adjusted by safety margins in order to reflect the possible impact of a downturn.

CCF MODELS

For its off-balance sheet exposures, Societe Generale applies its estimates for revolving loans and overdrafts on current accounts held by retail and professional customers.

TABLE 19: MAIN CHARACTERISTICS OF MODELS AND METHODS USED – RETAIL CLIENTS

Parameter modeled	Portfolio/ Category of Basel assets	Number of models	Methodology Number of years of default/loss
RETAIL CLIENTS			
Probability of Default (PD)	Residential real estate	8 models according to entity, type of guarantee (security, mortgage), type of counterparty: individuals or professionals/VSB, real estate investment company (SCI).	Statistical model (regression), behavioral score. Defaults observed over a period of more than 5 years.
	Other loans to individual customers	15 models according to entity and to the nature and object of the loan: personal loan, consumer loan, car loan, etc.	Statistical model (regression), behavioral score. Defaults observed over a period of more than 5 years.
	Renewable exposures	5 models according to entity and nature of the loan: overdraft on current account, revolving credit or consumer loan.	Statistical model (regression), behavioral score. Defaults observed over a period of more than 5 years.
	Professionals and very small businesses (VSB)	10 models according to entity, nature of the loan (medium- and long-term investment credits, short-term credit, car loans), and type of counterparty (individual or real estate investment company (SCI)).	Statistical model (regression or segmentation), behavioral score. Defaults observed over a period of more than 5 years.
Loss Given Default (LGD)	Residential real estate	9 models according to entity, type of guarantee (security, mortgage), and type of counterparty: individuals or professionals/VSB, real estate investment company (SCI).	Statistical model of expected recoverable flows based on the current flows. Model adjusted by expert opinions if necessary. Losses and recoverable flows observed over a period of more than 10 years.
	Other loans to individual customers	18 models according to entity and to the nature and object of the loan: personal loan, consumer loan, car loan, etc.	Statistical model of expected recoverable flows based on the current flows. Model adjusted by expert opinions if necessary. Losses and recoverable flows observed over a period of more than 10 years.
	Renewable exposures	7 models according to entity and nature of the loan: overdraft on current account, revolving credit or consumer loan.	Statistical model of expected recoverable flows based on the current flows. Model adjusted by expert opinions if necessary. Losses and recoverable flows observed over a period of more than 10 years.
	Professionals and very small businesses	12 models according to entity, nature of the loan (medium- and long-term investment credits, short-term credit, car loans), and type of counterparty (individual or real estate investment company (SCI)).	Statistical model of expected recoverable flows based on the current flows. Model adjusted by expert opinions if necessary. Losses and recoverable flows observed over a period of more than 10 years.
Credit Conversion Factor (CCF)	Renewable exposures	12 calibrations by entity for revolving products and personal overdrafts.	Models calibrated by segment over a period of observation of defaults of more than 5 years.

MONITORING THE PERFORMANCE OF INTERNAL MODELS

The performance level of the entire retail client credit system is measured by backtests, which check the performance of PD, LGD and CCF models and compare estimates with actual results.

Each year, the average long-term default rates observed by homogeneous risk class are compared to the PDs.

The results presented below cover all of the Group's portfolios. Backtests compare the estimated probability of default (arithmetic average weighted by the debtors) to the observed results (the historical annual default rate). The historical default rate was calculated on the basis of healthy outstandings over the period from 2010 to 2020. Creditors are included in accordance with the revised instructions of the EBA publication of 14 December 2016 (EBA/GL/2016/11).

The historical default rate is relatively stable across all exposure classes, the probability of default is falling. Indeed, the quality of counterparties has improved (migration of populations to the best risk classes) due in particular to government measures taken in the Covid context. Since the risk scores are mainly based on the number of days of arrears and the cash balance, they are impacted by: (i) the implementation of a moratorium on the repayment of loans, (ii) the increase in cash balances by the payment of government-guaranteed loans (*Prêts de Garantie par l'Etat*) and by the payment by the French state of various aid initiatives to support professionals in the economy amid the Covid pandemic, (iii) the observation of an increase of the personal savings rate during the Covid crisis.

It should be noted that new internal models, the development of which is finalised or planned, will make it possible to comply with the latest regulatory requirements.

TABLE 20: COMPARISON OF ESTIMATED RISK PARAMETERS: ESTIMATED AND ACTUAL PD VALUES – RETAIL CLIENTS (IRBA)

	31.12.2021					
Exposure class	**Weighted average PD** *(%)*	**Arithmetic mean of debtor PD** *(%)*	**Historical Average Annual Default Rate** *(%)*	**Average annual default rate** *(%)*	**Number of debtors Year-end**(1)	**of which: number of debtors in default during the year**
Retail – Secured by real estate SME	1.5%	1.6%	2.2%	1.1%	33,475	369
Retail – Secured by real estate non-SME	0.8%	0.8%	0.9%	0.3%	1,171,550	3,520
Retail – Qualifying revolving	3.1%	2.6%	1.9%	1.4%	5,701,905	80,316
Retail – Other SME	2.9%	2.9%	3.4%	2.2%	770,826	17,118
Retail – Other non – SME	2.1%	3.3%	3.3%	1.7%	1,824,511	30,380

(1) Performing exposures.

	31.12.2020					
Exposure class	**Weighted average PD** *(%)*	**Arithmetic mean of debtor PD** *(%)*	**Historical Average Annual Default Rate** *(%)*	**Average annual default rate** *(%)*	**Number of debtors Year-end**(1)	**of which: number of debtors in default during the year**
Retail – Secured by real estate SME	1.6%	1.9%	2.3%	1.9%	35,449	668
Retail – Secured by real estate non-SME	0.9%	0.9%	0.9%	0.4%	1,157,444	5,124
Retail – Qualifying revolving	4.4%	2.8%	2.0%	1.9%	6,422,708	122,528
Retail – Other SME	2.8%	4.0%	3.5%	2.9%	795,903	22,807
Retail – Other non – SME	2.3%	3.6%	3.5%	2.1%	1,895,739	39,687

(1) Performing exposures.

TABLE 21: COMPARISON OF RISK PARAMETERS: ESTIMATED AND ACTUAL LGD AND EAD VALUES – RETAIL CLIENTS

	31.12.2021		
Basel portfolio	**A-IRB LGD**	**Estimated losses excluding margin of prudence**	**Observed EAD/ A-IRB EAD**
Real estate loans (excl. guaranteed exposures)	18%	9%	-
Revolving credits	48%	43%	66%
Other loans to individual customers	28%	23%	-
VSB and professionals	29%	22%	72%
TOTAL GROUP RETAIL CLIENTS	**26%**	**19%**	**68%**

The changes in the portfolio "Other loans to individual customers" are explained by a change in scope.

	31.12.2020		
Basel portfolio	**A-IRB LGD**	**Estimated losses excluding margin of prudence**	**Observed EAD/ A-IRB EAD**
Real estate loans (excl. guaranteed exposures)	18%	11%	-
Revolving credits	46%	41%	74%
Other loans to individual customers	28%	24%	-
VSB and professionals	28%	22%	79%
TOTAL GROUP RETAIL CLIENTS	**25%**	**20%**	**75%**

Governance of the modeling of credit risk

Credit own funds estimation models are subject to the global model risk management framework (see Chapter 4.12 "*Model risk*").

The first line of defence is responsible for designing, putting into production, using and monitoring models, in compliance with model risk management governance rules throughout the model lifecycle, which include for credit risk internal models traceability of development and implementation stages and annual backtesting. Depending on the specificities of each model family, in particular depending on the regulatory environment, the second line of defence may decide to perform the backtesting of the model family. In such case the LOD2 is responsible for defining a dedicated standard for the model family and informing the first line of defence (starting with the model owner) of the outcome of the backtesting.

The Model Risk Department, reporting directly to the Risk Department, acts as a second line of defence for all credit risk models. Independent model review teams rely, for the conduct of their missions, on principles of control of the theoretical robustness (assessment of the quality of the design and development) of the models, the conformity of the implementation and the use, the continuous follow-up of model relevance over time. The independent review process concludes with (i) a report summarizing the scope of the review, the tests performed, the results of the review, the conclusions or recommendations and with (ii) Reviewing and Approval Committees (respectively *Comité Modèles* and *Comité Experts* in the case of credit risk models). The model control system gives rise to recurring reports to the Risk Department within the framework of various bodies and processes (Group Model Risk Management Committee, Risk Appetite Statement / Risk Appetite Framework, monitoring of recommendations, etc.) and annually to the General Management (CORISQ). The Model Risk Department reviews, amongst others, new models, backtesting results and any change to the credit own funds estimation models. In accordance with the Delegated Regulation (EU) No. 529/2014 of 20 May 2014 relating to the follow-up of internal models used for own funds computation, any model change to the Group's credit risk measurement system is then subjected to two main types of notification to the competent supervisor, depending on the significant nature of the change laid down by this regulation itself:

- significant changes which are subject to a request for approval prior to their implementation;
- other changes which should be notified to the competent authorities: (i) prior to their implementation: changes, according to the criteria defined by the regulation, are notified to the Supervisor (*ex-ante* notification); barring a negative response, these may be implemented within a two months period; (ii) after their implementation: these changes are notified to the competent authorities after their implementation at least once a year, through a specific report (*ex-post* notification).

The Internal Audit Department, as a third line of defence, is responsible for periodically assessing the overall effectiveness of the model risk management framework (relevance of the model risk governance and efficiency of second line of defence activities) and performing the independent model audit.

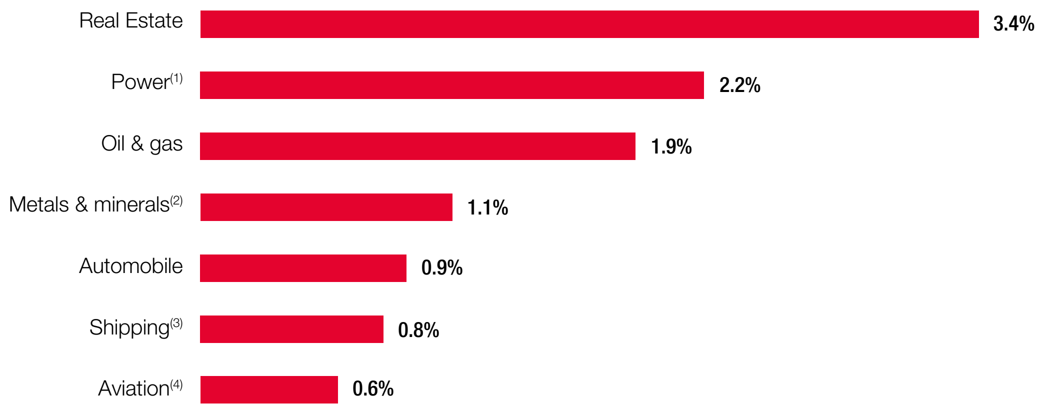
Climate risk – Measuring sensitivity to transition risk

Audited I Transition risk's impact on Societe Generale Corporate clients' credit risk has been identified as one of the main climate change-related risk for the Group.

In order to measure this impact, the Group is gradually implementing a Corporate Climate Vulnerability Indicator (CCVI) which aims to reinforce the credit analysis on the most exposed counterparties. ▲

The climate risk management system is further detailed in section 5.3.1.2 "*Positive climate action*" of this Universal Registration Document.

SECTOR BREAKDOWN OF THE GROUP'S CORPORATE PORTFOLIO (EAD) - FOCUS ON THE SECTORS THE MOST SENSITIVE TO TRANSITION RISK



(1) Including Electricity (1.9%).
(2) Including Construction materials.
(3) Including Water transport (0.7%) and Building of ships.
(4) Including Air transport (0.4%) and Aircraft manufacturers.

4.5.5 QUANTITATIVE INFORMATION

Audited I In this section, the measurement used for credit exposures is the EAD – Exposure At Default (on- and off-balance sheet). Under the Standardised Approach, the EAD is calculated net of collateral and provisions. ▲

The EAD is broken down according to the guarantor's characteristics, after taking into account the substitution effect (unless otherwise indicated).

The presentation of the data features the exposure classes as defined in the portfolios of the COREP regulatory financial statements, in relation to EBA requirements on Pillar 3.

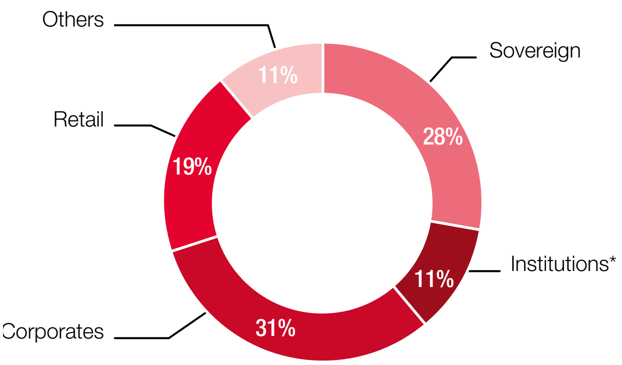
More information available in sections 6.6 *"Quantitative information"* and 6.7 *"Additional quantitative information on credit risk"* in the Risk Report Pillar 3 document.

Audited I Credit risk exposure (including counterparty credit risk)

At 31 December 2021, the Group's Exposure at Default (EAD) amounted to EUR 1,079 billion.

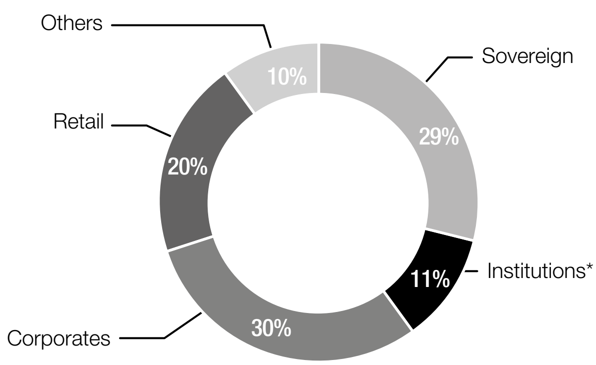
GROUP RISK EXPOSURE BY EXPOSURE CLASS (EAD) AT 31 DECEMBER 2021

On- and off-balance sheet exposures (EUR 1,079 billion in EAD)



GROUP RISK EXPOSURE BY EXPOSURE CLASS (EAD) AT 31 DECEMBER 2020

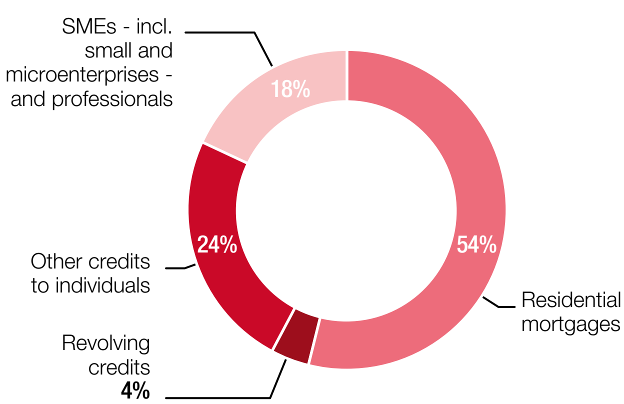
On- and off-balance sheet exposures (EUR 1,004 billion in EAD)



** Institutions: Basel classification bank and public sector portfolios.*

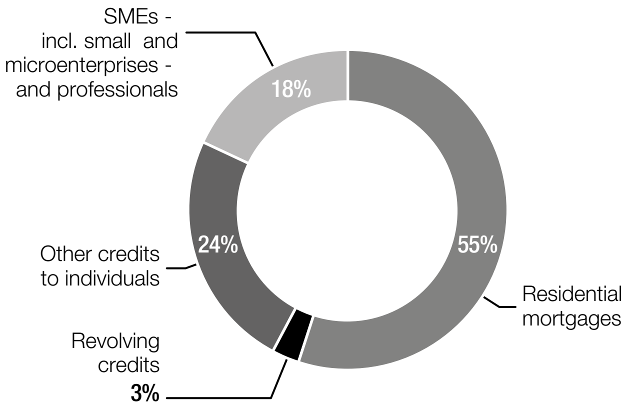
GROUP RETAIL RISK EXPOSURE BY EXPOSURE SUBCLASS (EAD) AT 31 DECEMBER 2021

On- and off-balance sheet exposures (EUR 210 billion in EAD)

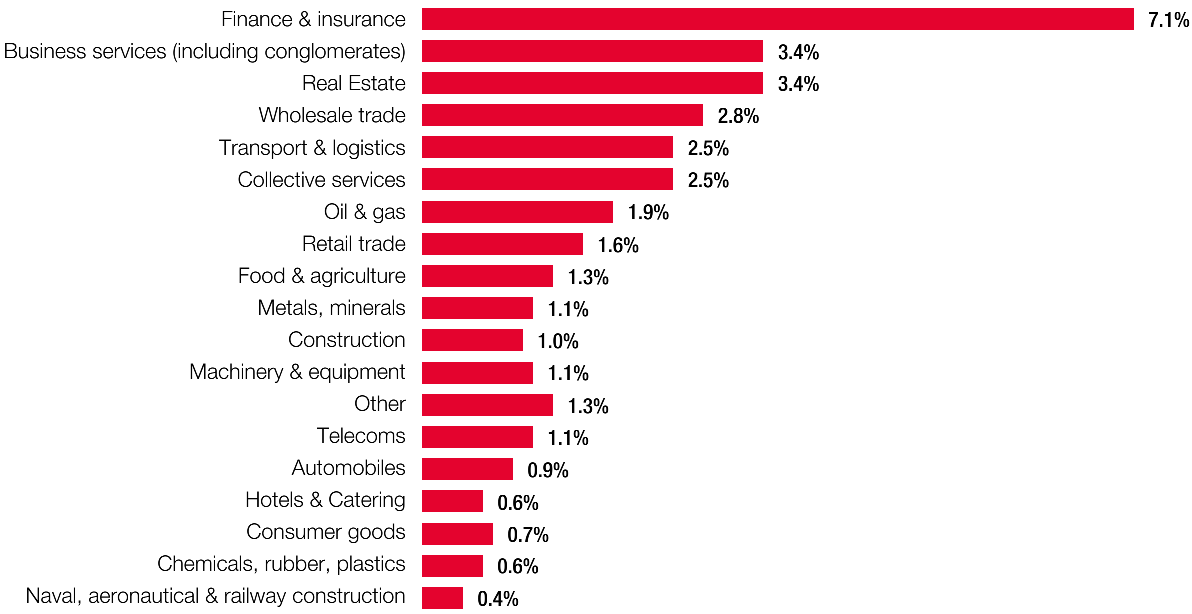


GROUP RETAIL RISK EXPOSURE BY EXPOSURE SUBCLASS (EAD) AT 31 DECEMBER 2020

On- and off-balance sheet exposures (EUR 202 billion in EAD)



SECTOR BREAKDOWN OF GROUP CORPORATE EXPOSURE ON TOTAL GROUP EXPOSURE (BASEL PORTFOLIO)

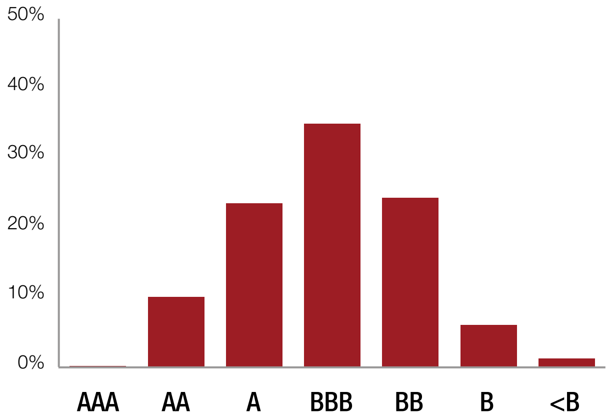


EAD of the Corporate portfolio is presented in accordance with the Basel rules (large corporates, including insurance companies, funds and hedge funds, SMEs, specialised financing, factoring businesses), based on the obligor's characteristics, before taking into account the substitution effect (credit risk scope: debtor, issuer and replacement risk).

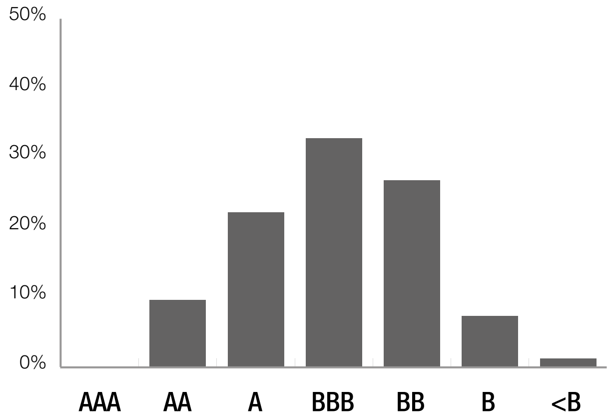
At 31 December 2021, the Corporate portfolio amounted to EUR 380 billion out of a total of EUR 1,079 billion for the group (on- and off-balance sheet exposures measured in EAD). The Group's exposure to its ten largest Corporate counterparties accounted for 5% of this portfolio.

Corporate and bank clients exposure

BREAKDOWN OF RISK BY INTERNAL RATING FOR CORPORATE CLIENTS AT 31 DECEMBER 2021 (AS % OF EAD)



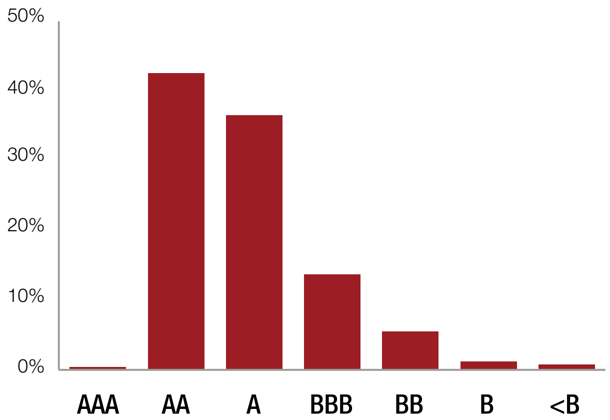
BREAKDOWN OF RISK BY INTERNAL RATING FOR CORPORATE CLIENTS AT 31 DECEMBER 2020 (AS % OF EAD)



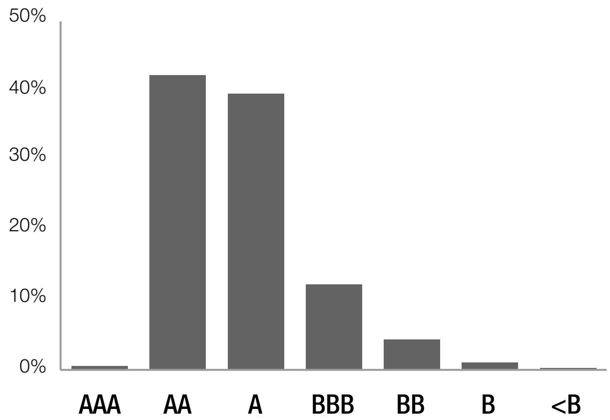
Regarding Corporate clients, the scope consists of performing loans recorded under the IRB approach (excluding prudential classification criteria, by weight, of specialised financing) over the entire Corporate clients portfolio, all divisions combined, and represents a EUR 295 billion EAD (out of a EUR 332 billion total EAD for the Corporate Basel portfolio, standardised approach included). The rating breakdown of Societe Generale Group's Corporate counterparty exposure reveals the sound quality of the portfolio. It is based on an internal counterparty rating system, displayed above as its Standard & Poor's equivalent.

At 31 December 2021, the majority of the portfolio had an Investment Grade rating, *i.e.* counterparties with an S&P-equivalent internal rating higher than BBB- (69% of Corporate clients). Transactions with non-Investment Grade counterparties were very often backed by guarantees and collaterals in order to mitigate the risk incurred.

BREAKDOWN OF RISK BY INTERNAL RATING FOR BANKING CLIENTS AT 31 DECEMBER 2021 (AS % OF EAD)



BREAKDOWN OF RISK BY INTERNAL RATING FOR BANKING CLIENTS AT 31 DECEMBER 2020 (AS % OF EAD)

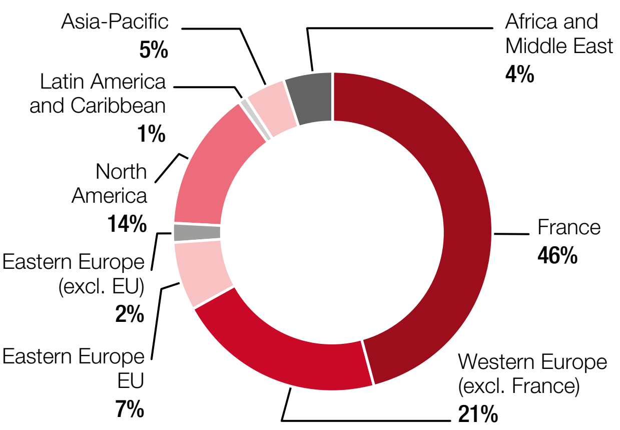


Regarding banking clients, the scope consists of performing loans recorded under the IRB approach over the entire banking clients portfolio, all divisions combined, and represents a EUR 56 billion EAD (out of a EUR 116 billion total EAD for the Institutions Basel portfolio, standardised approach included). The rating breakdown of Societe Generale Group's banking counterparty exposure reveals the sound quality of the portfolio. It is based on an internal counterparty rating system, displayed above as its Standard & Poor's equivalent.

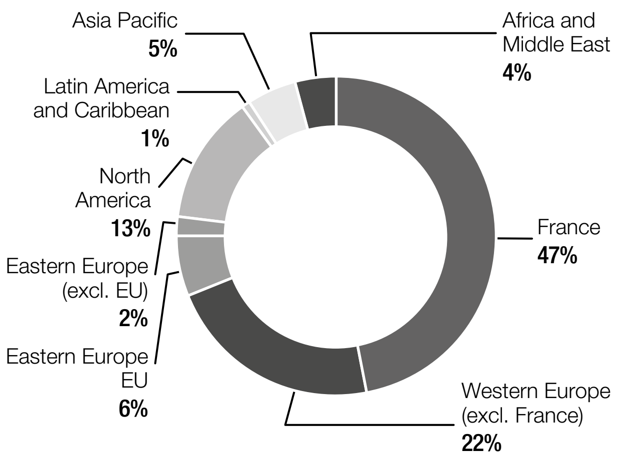
At 31 December 2021, exposures on banking clients were concentrated on Investment Grade counterparties (93% of the exposure) and in developed countries (91%).

Geographic breakdown of Group exposure

GEOGRAPHIC BREAKDOWN OF GROUP RISK EXPOSURE AT 31 DECEMBER 2021 (ALL CLIENT TYPES INCLUDED): EUR 1,079BN

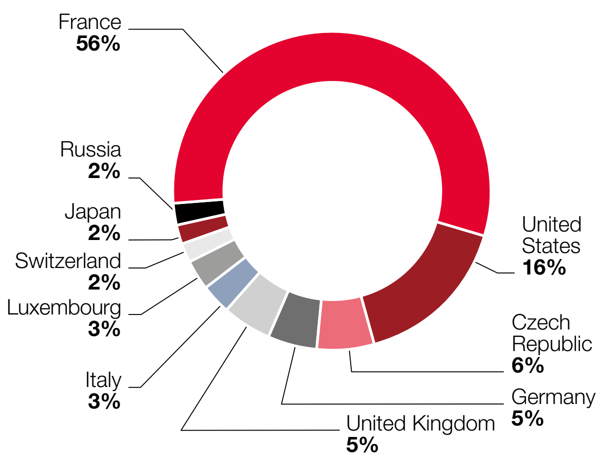


GEOGRAPHIC BREAKDOWN OF GROUP RISK EXPOSURE AT 31 DECEMBER 2020 (ALL CLIENT TYPES INCLUDED): EUR 1,004BN

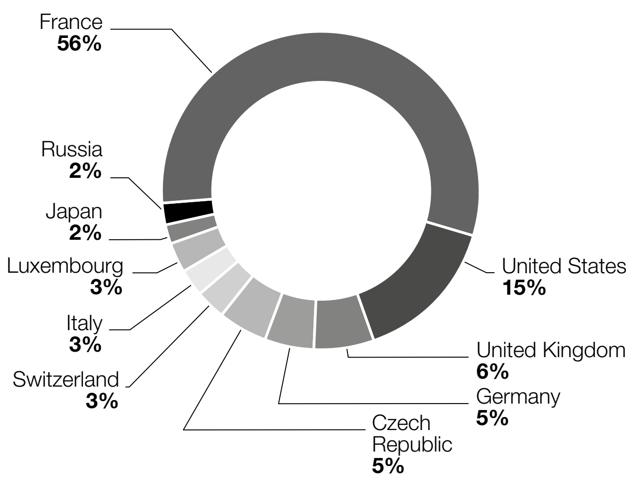


At 31 December 2021, 90% of the Group's on- and off-balance sheet exposures were concentrated in the advanced economies. Almost half of the overall amount of outstanding loans concerned French clients (32% exposure to the non-retail portfolio and 14% to the retail one).

GEOGRAPHIC BREAKDOWN OF GROUP RISK EXPOSURE ON TOP TEN COUNTRIES AT 31 DECEMBER 2021: EUR 898BN



GEOGRAPHIC BREAKDOWN OF GROUP RISK EXPOSURE ON TOP TEN COUNTRIES AT 31 DECEMBER 2020: EUR 844BN



The Group's exposure to its top ten countries represented 83% of total exposure (*i.e.* EUR 898 billion of EAD) at 31 December 2021 (versus 84% and EUR 844 billion of EAD at 31 December 2020).

TABLE 22: BREAKDOWN OF EXPOSURES (CREDIT AND COUNTERPARTY CREDIT RISKS) ON TOP FIVE COUNTRIES BY EXPOSURE CLASS (IN %)

	France		United States		United Kingdom		Germany		Czech Republic	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Sovereign	30%	29%	30%	31%	16%	32%	16%	19%	29%	31%
Institutions	9%	9%	12%	16%	23%	18%	21%	16%	4%	4%
Corporates	22%	22%	44%	40%	39%	33%	26%	25%	29%	29%
Retail	31%	32%	0%	0%	6%	4%	18%	21%	36%	34%
Other	8%	8%	14%	13%	16%	13%	19%	19%	2%	2%

Change in risk-weighted assets (RWA) and capital requirements for credit and counterparty credit risks

TABLE 23: CHANGE IN RISK-WEIGHTED ASSETS (RWA) BY APPROACH (CREDIT AND COUNTERPARTY CREDIT RISKS)

(In EURm)	RWA - IRB	RWA - Standard	RWA - Total	Capital requirements - IRB	Capital requirements - Standard	Capital requirements - total
RWA as at end of previous reporting period (31.12.2020)	**187,407**	**96,708**	**284,115**	**14,993**	**7,737**	**22,729**
Asset size	(2,599)	7,138	4,539	(208)	571	363
Asset quality	(1,204)	(23)	(1,227)	(96)	(2)	(98)
Model updates	3,185	(1,754)	1,431	255	(140)	114
Methodology and policy	1,633	3,345	4,978	131	268	398
Acquisitions and disposals	(38)	118	79	(3)	9	6
Foreign exchange movements	3,190	1,692	4,882	255	135	391
Other	795	2,459	3,254	64	197	260
RWA as at end of reporting period (31.12.2021)	**192,368**	**109,682**	**302,051**	**15,389**	**8,775**	**24,164**

The table above presents the data without CVA (Credit Valuation Adjustment).

The main effects explaining the EUR 18 billion rise in RWA (excluding CVA) in 2021 are as follows:

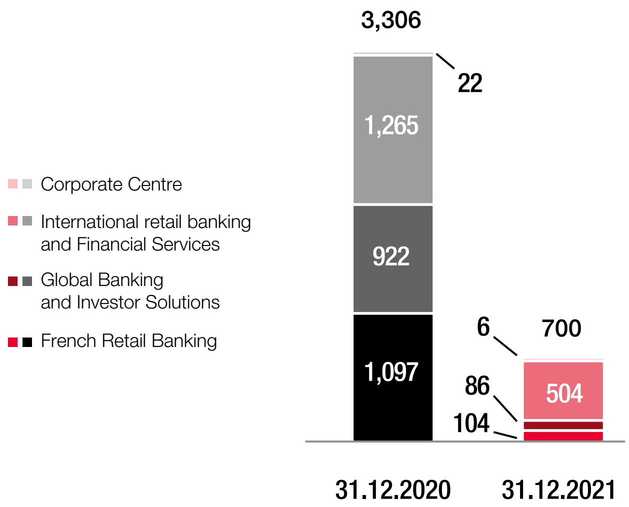
- an increase linked to business growth representing EUR +4.5 billion. This upward evolution mainly regards retail activities and global banking advisory;
- a foreign exchange effect of EUR +4.9 billion, mainly related to the appreciation of the US dollar against the euro (EUR +2.3 billion), as well as that of the Czech crown (EUR +0.4 billion);
- a methodological effect of EUR +5.0 billion located on the counterparty credit risk generated by derivatives, following the replacement of the former CEM method by the SA-CCR approach;
- An other effect of EUR +3.3 billion mainly related to the reclassification of automotive leasing activities.

The effects are defined as follows:

- asset size: organic changes in book size and composition (including the creation of new business lines and maturing loans) but excluding changes due to acquisitions and disposals of entities;
- asset quality: changes in the quality of the Bank's assets due to changes in borrower risk, such as rating grade migration or similar effects;
- model updates: changes due to model implementation, changes in model scope or any changes intended to address model weaknesses;
- methodology and policy: changes due to methodological changes in calculations driven by regulatory changes, including both revisions to existing regulations and new regulations;
- acquisitions and disposals: changes in book size due to acquisitions and disposals of entities;
- foreign exchange movements: changes arising from market fluctuations, such as foreign currency translation movements;
- other: this category is used to capture changes that cannot be attributed to any other categories.

Net cost of risk

CHANGE IN GROUP NET COST OF RISK (IN EURM)



The **Group's net cost of risk** in 2021 was EUR -700 million, down by -79% compared to 2020. This cost of risk is thus down sharply compared to 2020, due to a very high level low cost of risk on defaulted outstandings (stage 3) and moderate reversals of provisions on sound outstandings (stage 1/stage 2) while maintaining a prudent provisioning policy in an environment that remains marked by strong uncertainties.

The cost of risk (expressed in basis points on the average of outstandings at the beginning of the period for the four quarters preceding the closing, including operating leases) thus stands at 13 basis points for the year 2021 compared to 64 basis points in 2020.

- In **French Retail Banking**, the cost of risk is down to 5 basis points in 2021 compared to 52 basis points in 2020. This NCR includes a recovery of 8 bp on sound outstandings (compared to the internship 1/internship 2 allocation of 30 bp in 2020).
- At 38 basis points in 2021 (compared to 96 basis points in 2020), the cost of risk for the **International Retail Banking and Financial Services** division decreased due to the slowdown in defaults and a recovery in 3 basis points on stage 1/stage 2.
- The cost of risk for **Global Banking and Investor Solutions** posted a level of 5 basis points (compared to 57 basis points in 2020), reflecting a sharp drop in the cost of risk on defaulted outstandings (8 bp against 38 bp in 2020) and a slight recovery of 3 bp on healthy outstandings.

Asset quality

TABLE 24: ASSET QUALITY

(In EURbn)	31.12.2021	31.12.2020
Performing loans	543.9	496.5
inc. Stage 1 book outstandings(1)	*479.9*	*424.0*
inc. Stage 2 book outstandings	*43.5*	*49.9*
Non-performing loans	16.5	17.0
inc. Stage 3 book outstandings	*16.5*	*17.0*
Total Gross book outstandings*	560.4	513.6
GROUP GROSS NON PERFORMING LOANS RATIO*	**2.9%**	**3.3%**
Provisions on performing loans	2.8	3.0
inc. Stage 1 provisions	*1.1*	*1.1*
inc. Stage 2 provisions	*1.7*	*1.9*
Provisions on non-performing loans	8.4	8.8
inc. Stage 3 provisions	*8.4*	*8.8*
Total provisions	11.2	11.8
GROUP GROSS NON-PERFORMING LOANS RATIO (PROVISIONS ON NON-PERFORMING LOANS/ NON-PERFORMING LOANS)	**51%**	**52%**

(1) Data restated excluding loans at fair value through profit or loss which are not eligible to IFRS 9 provisioning.

** Figures calculated on on-balance sheet customer loans and advances, deposits at banks and loans due from banks, finance leases, excluding loans and advances classified as held for sale, cash balances at central banks and other demand deposits, in accordance with the EBA/ITS/2019/02 Implementing Technical Standards amending Commission Implementing Regulation (EU) No 680/2014 with regard to the reporting of financial information (FINREP). The NPL rate calculation was modified in order to exclude from the gross exposure in the denominator the net accounting value of the tangible assets for operating lease. Performing and non-performing loans include loans at fair value through profit or loss which are not eligible to IFRS 9 provisioning and so not split by stage. Historical data restated.*

Restructured debt

Audited I For Societe Generale Group, “restructured” debt refers to loans with amounts, terms or financial conditions contractually modified due to the borrower’s insolvency (whether insolvency has already occurred or will definitely occur unless the debt is restructured). Societe Generale aligns its definition of restructured loans with the EBA one.

Restructured debt does not include commercial renegotiations involving customers for whom the Bank has agreed to renegotiate the debt in order to maintain or develop a business relationship, in accordance with credit approval rules in force and without relinquishing any of the principal amounts or accrued interests.

Any situation leading to a credit restructuring and involving a loss of value greater than 1% of the original debt or in which the customer's ability to repay the debt according to the new schedule appears compromised must result in the classification of the considered customer in Basel default and the classification of outstanding as impaired, in accordance with the EBA directives on the application of the definition of default according to Article 178 of European Regulation No. 575/2013. In this case, customers are kept in default for as long as the Bank is uncertain about their ability to honour their future commitments and at least for one year from the date of the restructuring. In other cases, an analysis of the customer's situation makes it possible to estimate his ability to repay according to the new schedule. Otherwise, the customer is also transferred to Basel default.

The total balance sheet amount of restructured debt at 31 December 2021 mainly corresponds to loans and receivables at amortised cost for an amount of EUR 8.1 billion. ▲

TABLE 25: RESTRUCTURED DEBT

(In EURm)	31.12.2021	31.12.2020
Non-performing restructured debt	3,342	2,470
Performing restructured debt	5,424	1,223
GROSS AMOUNT OF RESTRUCTURED DEBT(1)	**8,765**	**3,692**

(1) Composed of EUR 8.2 billion carried on the balance sheet and EUR 0.6 billion as off-balance sheet at 31 December 2021.

4.6 COUNTERPARTY CREDIT RISK

Audited I Counterparty credit risk is the risk of losses on market operations, resulting from the inability of the counterparties facing the Group to meet their financial commitments.

Counterparty credit risk covers replacement risk in the event of default of one of our counterparties, the risk of CVA (Credit Valuation Adjustment) related to the adjustment of the value of our portfolio and the risk on central counterparties (Central Counterparty or CCP) following the clearing of market transactions.

The value of the exposure to a counterparty and its credit quality are uncertain and variable over time, and they are affected by changes in market parameters. Counterparty credit risk may increase in the event of an adverse correlation (Wrong Way Risk), *i.e.* when the Group's exposure to a counterparty increases at the same time as the credit quality of this counterparty deteriorates (*i.e.* when its probability of default increases).

Transactions involving counterparty credit risk include delivered pensions, securities lending and borrowing, and derivatives contracts, whether they are dealt with as principal activity or on behalf of third parties (agency activities or client clearing) in the context of market activities. ▲

4.6.1 DETERMINING LIMITS AND MONITORING FRAMEWORK

Main principles

Audited I Counterparty credit risk is framed through a set of limits that reflect the Group's appetite for risk.

The risk approval process follows the following fundamental principles:

- a system of delegation of competence, largely based on the internal rating of the counterparties, confers decision-making capacities to the risk units on the one hand and the customer monitoring sector on the other hand;
- the commercial monitoring sector and this risk unit must be independent of each other;
- the limits and internal rating set for each counterparty are proposed by the client monitoring sector and validated by the dedicated risk unit in charge of the counterparty type. Limits can be individual at the level of the counterparty, or global over a set of counterparties in the case of monitoring exposures in stress tests, for example.

These limits are subject to annual or *ad hoc* reviews depending on he needs and changing market conditions.

A dedicated team within the Risk Department is in charge of production, reporting and controls on risk metrics, namely:

- ensuring the completeness and reliability of the risk calculation by taking into account all the transactions booked by the transaction processing department;
- producing daily certification and risk indicator analysis reports;
- controlling compliance with defined limits, at the frequency of metrics calculation, most often on a daily basis: breaches of limits are reported to Front Office and Credit Officer for remediation actions.

In addition, a specific monitoring and approval process is implemented for the most sensitive counterparties or the most complex categories of financial instruments.

Governance

While not a substitute for CORISQ or for the Risk Committee of the Board of Directors (see the section on Risk management governance), the Counterparty Credit Risk Committee (CCRC) closely monitors counterparty credit risk through:

- a global overview on exposure and counterparty risk metrics such as the global stress tests, the Potential Future Exposure PFE, etc., as well as focuses on specific activities such as collateralised financing, or agency business;
- dedicated analysis in case of identification of emerging risk areas.

This Committee, chaired by the Risk Department on a monthly basis, brings together representatives from the Market Activities and the Global Banking and Advisory Business Units, but also departments that, within the risk management function, are in charge of monitoring counterparty credit risks on market transactions and credit risk. The CCRC also provides an opinion on the changes to the risk frameworks within its authority.

Replacement risk

The Group frames the replacement risks by limits:

- defined at the counterparty level;
- consolidated across all products types authorised with the counterparty;
- established by maturity buckets to control future exposure using the Potential Future Exposure (PFE) measure also known as CVaR within Societe Generale;
- calibrated according to the credit quality and the nature of the counterparty, the nature/maturity of the financial instruments contemplated (FX transactions, repos transactions, security lending transactions, derivatives, etc.), and the economic understanding, the contractual legal framework agreed and any other risk mitigants.

The Group also considers other measures to monitor replacement risk:

- a multifactor stress test on all counterparties, which allows to holistically quantify the potential loss on market activities following market movements which could trigger a wave of defaults on these counterparties;
- a set of single-factor stress tests to monitor the general wrong-way risk (see section 4.6.3.3 on Wrong Way Risk).

CVA (Credit Valuation Adjustment)

In addition to the replacement risk, the CVA (Credit Valuation Adjustment) measures the adjustment of the value of the Group's derivatives and repos portfolio in order to take into account the credit quality of the counterparties facing the Group (see section 4.6.3.2 *"Credit Valuation Adjustment"*).

Positions taken to hedge the volatility of the CVA (credit, interest rate or equity instruments) are monitored through:

- sensitivity limits;
- stress test limits: scenarios representative of the market risks impacting the CVA (credit spreads, interest rates, exchange rates and equity) are applied to carry out the stress test on CVA.

The different indicators and the stress tests are monitored on the net amount (the sum of the CVA exposure and of their hedges).

Risk on central counterparties

Clearing of transactions is a common market practice for SG, notably in compliance with the EMIR (European Market Infrastructure Regulation) regulations in Europe and the DFA (Dodd-Frank Act) in the United States, which require that the most standardised over-the-counter transactions be compensated *via* clearing houses approved by the authorities and subject to prudential regulation.

As a member of the clearing houses with which it operates, the Group contributes to their risk management framework through deposits into the defaults funds, in addition to margin calls.

The counterparty credit risk stemming from the clearing of derivatives and repos with central counterparties (CCP) is subject to a specific framework on:

- initial margins, both for house and client activities (client clearing);
- the Group's contributions to the CCP default funds (guarantee deposits);
- a stress test defined to capture the impact of a scenario where a major CCP member should default. ▲

See table "EAD and RWA on central counterparties" of section 4.6.3.4 "*Quantitative Information*" for more information.

4.6.2 MITIGATION OF COUNTERPARTY CREDIT RISK ON MARKET TRANSACTIONS

Audited I The Group uses various techniques to reduce this risk:

- the signing, in the most extensive way possible, of close-out netting agreements for over-the-counter (OTC) transactions and Securities Financing Transactions (SFT);
- the collateralisation of market operations, either through clearing houses for eligible products (listed products and certain of the more standardised OTC products), or through a bilateral margin call exchange mechanism which covers both current exposure (variation margins) but also future exposure (initial margins).

Close-out netting agreements

Societe Generale's standard policy is to conclude master agreements including provisions for close-out netting.

These provisions allow on the one hand the immediate termination (close out) of all transactions governed by these agreements when one of the parties defaults, and on the other hand the settlement of a net amount corresponding to the total value of the portfolio, after netting of mutual debts and claims. This balance may be the subject of a guarantee or collateralisation. It results in a single net claim owed by or to the counterparty.

In order to reduce the legal risk associated with documentation and to comply with key international standards, the Group documents these agreements under the main international standards as published by national or international professional associations such as International Swaps and Derivatives Association (ISDA), International Capital Market Association (ICMA), International Securities Lending Association (ISLA), French Banking Federation (FBF), etc.

These contracts establish a set of contractual terms generally recognised as standard and give way to the modification or addition of more specific provisions between the parties in the final contract, for example regarding the triggering events. This standardisation reduces implementation times and secures operations. The clauses negotiated by clients outside the bank's standards are approved by the decision-making bodies in charge of the master agreements standards – Normative Committee and/or Arbitration Committee – made up of representatives of the Risk Division, the Business Units, the Legal Division and other decision-making departments of the bank. In accordance with regulatory requirements, the clauses authorising global close-out netting and collateralisation are analysed by the bank's legal departments to ensure that they are enforceable under the legal provisions applicable to clients.

Collateralisation

Most of over-the-counter transactions are collateralised. There are two types of collateral exchanges:

- initial margin (IM) or Independent Amount (IA[1]): an initial amount of collateral aiming at covering potential future exposure, *i.e.* the unfavourable change in the Mark-to-Market of positions in the time period between the last collection of margins and the liquidation of positions following the counterparty default;
- variation margin (VM): collateral collected to cover current exposure arising from Mark-to-Market changes, used as an approximation of the actual loss resulting from the default of one of the counterparties.

All aspects of the margining regime are defined in collateral arrangements, such as credit support annexes (CSA[2]). The main features defined are:

- the scope covered (*i.e.* the nature of transactions allowed);
- the eligible collateral and the applicable haircut: main types of collateral exchanged are cash or high-quality and liquid assets according to the Group's policy, and are subject to a haircut, which is the valuation percentage applicable to each type of collateral, based on liquidity and price volatility of the underlying during both normal and stressed market conditions;
- the timing and frequency of the calculation of the margin call and exchanges, usually daily;
- the margin call thresholds if not under regulatory obligation;
- the Minimum Transfer Amount (MTA).

In addition, specific parameters or optional features can be defined depending on the type of counterparty/transaction, such as an additional guarantee amount (flat-rate increase of the exposure allowing the party making a margin call to be "over-collateralised"), or rating-dependent clauses, typically mutual in nature, where additional collateral is requested in case of a party's rating downgrade.

The Group monitors given and received collateral exchanges. In case of discrepancies between the parties with respect to margin call amounts, dedicated teams from the operations and the risk departments are in charge of analysing the impacted transactions to ensure they are correctly valued and of addressing the issue.

BILATERAL COLLATERAL EXCHANGE

The initial margin, historically very rare except with hedge funds, was generalised by EMIR and DFA regulations which introduced the mandatory use of master agreements and related CSA, prior to or when entering into an uncleared OTC derivatives transactions. It is now mandatory for the Group to exchange IM and VM for non-cleared OTC derivatives transactions with a large number of its counterparties (its financial counterparties and some non-financial counterparties above certain thresholds defined by the regulation, with compliance dates depending on the volume of transactions).

The Regulatory Technical Standards (RTS) on Initial Margin Model Validation (IMMV) under EMIR allows counterparties subject to mandatory bilateral collateral exchange requirements to waive these rules in certain circumstances. The Group has incorporated a waiver application process for intra-group entities into its risk management policies. The eligibility criteria for this waiver are framed and monitored as required by the Delegated Regulation.

CLEARING HOUSES

EMIR and DFA regulations have also required that the most standard over-the-counter derivatives transactions be compensated through clearing houses. The Group thus compensates its own operations (principal activity), but also client clearing activities (agency-type activity), which are subject to systematic margin calls to mitigate counterparty credit risk (customers posting daily variation margins and initial margins to Societe Generale, in order to cover current exposure and future exposure). The Regulatory Technical Standards (RTS) on Initial Margin Model Validation (IMMV) under EMIR allows counterparties to waive the mandatory clearing *via* a clearing house for intra-group transactions for standardised derivatives transactions. The Group includes and applies this exemption according to the rules and criteria defined. ▲

The use of CCPs enables credit risk to be mitigated through the CCP's settlement systems by:

- applying the bilateral set-off of daily amounts payable in the same currency (payment netting), either to all derivatives, or by class of derivatives cleared by the CCP;
- providing in most cases for the termination of cleared transactions by the CCP in the event of its default.

OTHER MEASURES

In addition to margin requirements for some counterparties or mandatory clearing for the most standardised derivatives transactions, DFA and EMIR provide for an extensive framework for the regulation and transparency of OTC derivatives markets, such as reporting of OTC derivatives, timely confirmation or trade acknowledgement.

(1) IA (Independent Amount) is the same concept as initial margin, but applies to different perimeters (OTC swaps not cleared for IA).
(2) The Credit Support Annex (CSA) is a legal document under ISDA contract that regulates the management of collateral between two counterparties.

4.6.3 COUNTERPARTY CREDIT RISK MEASURES

4.6.3.1 Replacement risk

Audited I The measure of replacement risk is based on an internal model that determines the Group's exposure profiles. As the value of the exposure to a counterparty is uncertain and variable over time, we estimate the potential future replacement costs over the lifetime of the transactions. ▲

PRINCIPLES OF THE MODEL

The future fair value of market transactions with each counterparty is estimated from Monte Carlo models based on a historical analysis of market risk factors.

The principle of the model is to represent the possible future financial markets conditions by simulating the evolutions of the main risk factors to which the institution's portfolio is sensitive. For these simulations, the model uses different diffusion models to account for the characteristics inherent in the risk factors considered and uses a 10-year history for calibration.

The transactions with the various counterparties are then revalued according to these different scenarios at the different future dates until the maturity of the transactions, taking into account the terms and conditions defined in the contractual legal framework agreed and the credit mitigants, notably in terms of netting and collateralisation only to the extent we believe that the credit mitigants provisions are legally valid and enforceable.

The distribution of the counterparty exposures thus obtained allows the calculation of regulatory capital for counterparty credit risk and the economic monitoring of positions.

The Risk Department responsible for Model Risk Management at Group level, assesses the theoretical robustness (review of the design and development quality), the compliance of the implementation, the suitability of the use of the model and continuous monitoring of the relevance of the model over time. This independent review process ends with (i) a report that describes the scope of the review, the tests carried out, the results of the review, the conclusions or recommendations and (ii) review and approval Committees. This model review process gives rise to (i) recurring reports to the Risk Management Department within the framework of various committees and processes (Group Model Risk Management Committee, Risk Appetite Statement/Risk Appetite Framework, monitoring of recommendations, etc.) and (ii) a yearly report to the Board of Directors (CORISQ).

REGULATORY INDICATOR

Audited I With respect to the calculation of capital requirements for counterparty credit risk, the ECB, following the Targeted Review of Internal Models, has renewed the approval for using the internal model described above to determine the Effective Expected Positive Exposure (EEPE) indicator.

For products not covered by the internal model as well as for entities in the Societe Generale Group that have not been authorised by the supervisor to use the internal model, the Group uses the market-price valuation method for derivatives[1] and the general financial security-based method for securities financing transactions (SFT[2]).

The effects of compensation agreements and collateralisation are taken into account either by their simulation in the internal model when such credit risk mitigant or guarantees meet regulatory criteria, or by applying the rules as defined in the market-price valuation method or the financial security-based method, by subtracting the value of the collateral.

These exposures are then weighted by rates resulting from the credit quality of the counterparty to compute the Risk Weighted Assets (RWA). These rates can be determined by the standard approach or the advanced approach (IRBA).

As a general rule, when EAD is modelled in EEPE and weighted according to IRB approach, there is no adjustment of the LGD according to the collateral received as it is already taken into account in the EEPE calculation. ▲

The RWA breakdown for each approach is available in the "Analysis of Counterparty Credit Risk Exposure by Approach" table in Section 4.6.3.4 "*Quantitative Information*".

ECONOMIC INDICATOR

For the economic monitoring of positions, Societe Generale relies mainly on a maximum exposure indicator determined from the Monte Carlo simulation, called internally Credit Value-at-Risk (CVaR) or PFE (Potential Future Exposure). This is the maximum amount of loss that could occur after eliminating 1% of the most adverse occurrences. This indicator is calculated at different future dates, which are then aggregated into segments, each of them being framed by limits.

The Group has also developed a set of stress test scenarios to determine the exposure that would result from changes in the fair value of transactions with all its counterparties in the event of an extreme shock affecting the market parameters.

4.6.3.2 Credit Valuation Adjustment

MAIN PRINCIPLES

The CVA (Credit Valuation Adjustment) refers to adjustment to marked-to-market of the derivatives and repos portfolio to take into account the credit quality of each counterparty facing the Group in the valuation. This adjustment is equivalent to the counterparty credit risk hedging cost in the Credit Default Swap (CDS) market.

For a specific counterparty, the CVA is determined on the basis of:

- the positive expected exposure to the counterparty, which is the average of the positive hypothetical future exposure values for a transaction or a group of transactions. It is mainly determined using risk neutral Monte Carlo simulations of risk factors that may affect the valuation of the derivatives transactions. The transactions are revalued through time according to the different scenarios, taking into account the terms and conditions defined in the contractual legal framework agreed, notably in terms of netting and collateralisation (*i.e.* that transactions with appropriate credit mitigants will generate lower expected exposure compared to transactions without credit mitigants);

(1) *In this method, the EAD (Exposure At Default) relating to the Bank's counterparty credit risk is determined by aggregating the positive market values of all transactions (replacement cost) supplemented by an add-on factor.*
(2) *Securities Financing Transactions.*

- the probability of default of the counterparty, which is linked to the level of CDS spreads;
- the amount of losses in the event of default (LGD – Loss Given Default taking into account the recovery rate).

The Group calculates this adjustment for all counterparties which are not subject to a daily margin call or for which collateral only partially covers the exposure.

CAPITAL REQUIREMENT FOR CVA RISK

The financial institutions are subject to the calculation of a capital requirement under the CVA, to cover its variation over ten days. The scope of counterparties is reduced to financial counterparties as defined in EMIR (European Market Infrastructure Regulation) or to certain Corporates that may use derivatives beyond certain thresholds and for purposes other than hedging.

The CVA charge is determined by the Group mainly using the advanced method:

- the positive expected exposure to the counterparty is mainly determined using the internal model described in section 4.6.3.1, which estimates the future exposure profiles to a counterparty, taking into account counterparty credit risk mitigants;
- the VaR and the Stressed VaR on CVA are determined using a similar methodology to the one developed for the calculation of the market VaR (see market risk chapter). This method consists of an "historical" simulation of the change in the CVA due to fluctuations in the credit spreads observed on the counterparties in portfolio, with a confidence interval of 99%. The calculation is made on the credit spreads variation observed, on the one hand, over a one-year rolling period (VaR on CVA), and, on the other hand, over a fixed one-year historical window corresponding to the period of greatest tension in terms of credit spreads (stressed VaR on CVA);
- the capital charge is the sum of two elements: VaR on CVA and Stressed VaR on CVA multiplied by a coefficient set by the regulator, specific to each bank.

The positions not taken into account in the advanced method are subject to a capital charge determined through the standard method by applying a normative weighting factor to the product of the EAD (Exposure At Default) by a maturity calculated according to the rules defined by the CRR (Capital Requirement Regulation); see the "Transactions subject to own funds requirements for CVA risk" table in Section 4.6.3.4 *"Quantitative Information"*) for the breakdown of CVA-related RWA between advanced and standard methods.

CVA RISK MANAGEMENT

The management of this exposure and of this regulatory capital charge led the Bank to purchase hedging instruments such as Credit Default Swap (CDS) from large credit institutions on certain identified counterparties or on indices composed of identifiable counterparties. In addition to reducing credit risk, it decreases the variability of the CVA and the associated capital amounts resulting from fluctuations in counterparty credit spreads.

4.6.3.3 Unfavorable correlation risk (wrong-way risk)

Wrong-way risk is the risk of the Group's exposure to a counterparty increasing significantly, combined with a simultaneous increase in the probability of the counterparty defaulting.

There are two different cases:

- general wrong-way risk arises when the likelihood of default by counterparties is positively correlated with general market risk factors;
- specific wrong-way risk arises when future exposure to a specific counterparty is positively correlated with the counterparty's probability of default due to the nature of the transaction with the counterparty.

Specific wrong-way risk, in the case of a legal link between the counterparty and the underlying of a transaction concluded with the counterparty, is subject to dedicated regulatory capital requirements, calculated on the perimeter of transactions carrying such risk. Furthermore, for counterparties subject to such a specific risk, the Potential Future Exposure (PFE) is also increased, so that the transactions allowed by the limits in place will be more constrained than in the absence of specific risk.

The general wrong-way risk is controlled *via* a set of stress tests applied to transactions made with a given counterparty, based on scenarios common with the market stress tests. This set-up is based on:

- a quarterly analysis of stress tests on all counterparties (financial institutions, corporates, sovereigns, hedge funds and proprietary trading groups) for principal and agency (client clearing) businesses, allowing to understand the most adverse scenarios related to a joint deterioration in the quality of counterparties and the associated positions;
- a weekly monitoring of dedicated single-factor stress tests for hedge fund counterparties and Proprietary Trading Groups, subject to limits at the counterparty level.

4.6.3.4 Quantitative Information

TABLE 25: COUNTERPARTY CREDIT RISK EXPOSURE, EAD AND RWA BY EXPOSURE CLASS AND APPROACH

Counterparty credit risk is broken down as follows:

	31.12.2021								
(In EURm)	IRB			Standard			Total		
Exposure classes	**Exposure**	**EAD**	**RWA**	**Exposure**	**EAD**	**RWA**	**Exposure**	**EAD**	**RWA**
Sovereign	24,471	24,511	395	177	177	4	24,648	24,688	399
Institutions	16,653	16,727	3,664	38,068	38,363	960	54,721	55,090	4,624
Corporates	56,698	56,583	14,554	4,441	4,147	4,051	61,139	60,730	18,605
Retail	83	83	8	23	23	14	106	106	21
Other	7	7	2	4,295	4,295	1,022	4,302	4,302	1,023
TOTAL	**97,912**	**97,912**	**18,622**	**47,004**	**47,004**	**6,051**	**144,916**	**144,916**	**24,673**

	31.12.2020								
(In EURm)	IRB			Standard			Total		
Exposure classes	**Exposure**	**EAD**	**RWA**	**Exposure**	**EAD**	**RWA**	**Exposure**	**EAD**	**RWA**
Sovereign	23,472	23,560	382	170	170	-	23,642	23,730	382
Institutions	19,536	19,673	3,387	23,628	23,928	1,403	43,164	43,601	4,789
Corporates	54,370	54,145	15,786	1,697	1,398	1,246	56,067	55,543	17,032
Retail	121	121	8	2	2	2	122	122	10
Other	1	1	-	3,499	3,499	986	3,500	3,500	987
TOTAL	**97,500**	**97,500**	**19,563**	**28,996**	**28,996**	**3,636**	**126,496**	**126,496**	**23,199**

The tables above feature amounts excluding the CVA (Credit Valuation Adjustment) which represents EUR 2.8 billion of risk-weighted assets (RWA) at 31 December 2021 (*vs*. EUR 3.1 billion at 31 December 2020).

TABLE 26: ANALYSIS OF COUNTERPARTY CREDIT RISK EXPOSURE BY APPROACH

	31.12.2021							
(In EURm)	Replacement cost (RC)	Potential future exposure (PFE)	EEPE	Alpha used for computing regulatory exposure value	Exposure value pre-CRM	Exposure value post-CRM	Exposure value	RWA
Original Exposure Method (for derivatives)	-	-		1.4	-	-	-	-
Simplified SA-CCR (for derivatives)	-	-		1.4	-	-	-	-
SA-CCR (for derivatives)	2,027	20,727		1.4	67,282	31,808	31,794	9,304
IMM (for derivatives and SFTs)			35,417	1.85	472,121	62,416	62,322	13,088
of which securities financing transactions netting sets			*16,892*		*395,150*	*28,067*	*28,067*	*2,142*
of which derivatives and long settlement transactions netting sets			*18,453*		*76,847*	*34,217*	*34,123*	*10,946*
of which from contractual cross-product netting sets			*71*		*124*	*132*	*132*	*-*
Financial collateral simple method (for SFTs)					-	-	-	-
Financial collateral comprehensive method (for SFTs)					27,145	11,245	11,245	994
VaR for SFTs					-	-	-	-
TOTAL					**566,548**	**105,470**	**105,361**	**23,385**

	31.12.2020						
(In EURm)	Notional	Replacement cost/current market value	Potential future credit exposure	EEPE	Multiplier	EAD post CRM	RWA
Mark to market		21,626	29,694			26,586	5,677
Original exposure							
Standardised approach							
IMM (for derivatives and SFTs)				36,449	1.85	67,431	15,767
of which securities financing transactions				*15,500*	*1.85*	*28,676*	*2,270*
of which derivatives and long settlement transactions				*20,949*	*1.85*	*38,756*	*13,497*
of which from contractual cross-product netting							
Financial collateral simple method (for SFTs)							
Financial collateral comprehensive method (for SFTs)						9,937	383
VaR for SFTs							
TOTAL							**21,827**

TABLE 27: EXPOSURES TO CENTRAL COUNTERPARTIES

	31.12.2021		31.12.2020	
(In EURm)	Exposure value	RWA	Exposure value	RWA
Exposures to QCCPs (total)		**1,273**		**1,228**
Exposures for trades at QCCPs (excluding initial margin and default fund contributions), of which:	7,083	142	10,038	201
(i) OTC derivatives	759	15	1,003	20
(ii) Exchange-traded derivatives	5,866	117	7,243	145
(iii) SFTs	457	9	1,791	36
(iv) Netting sets where cross-product netting has been approved	-	-	-	-
Segregated initial margin	22,466		12,701	
Non-segregated initial margin	5,555	111	2,036	41
Pre-funded default fund contributions	3,992	1,020	3,474	986
Unfunded default fund contributions	-	-	-	-
Exposures to non-QCCPs		**-**	**61**	**35**
Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions), of which:	-	-	-	-
(i) OTC derivatives	-	-	-	-
(ii) Exchange-traded derivatives	-	-	-	-
(iii) SFTs	-	-	-	-
(iv) Netting sets where cross-product netting has been approved	-	-	-	-
Segregated initial margin	-		35	35
Non-segregated initial margin	-	-	-	-
Pre-funded default fund contributions	-	-	25	-
Unfunded default fund contributions	-	-	-	-

TABLE 28: TRANSACTIONS SUBJECT TO OWN FUNDS REQUIREMENTS FOR CVA RISK

	31.12.2021		31.12.2020	
(In EURm)	Exposure value	RWA	Exposure value	RWA
Total transactions subject to the Advanced Method	33,066	2,218	37,471	2,783
(i) VaR component (including the 3×multiplier)		193		740
(ii) Stressed VaR component (including the 3×multiplier)		2,025		2,043
Transactions subject to the Standardised Method	6,812	589	5,349	347
Transactions subject to the Alternative approach (based on Original Exposure Method)	-	-	-	-
Total transactions subject to own funds requirements for CVA risk	**39,878**	**2,807**	**42,821**	**3,131**

4.7 MARKET RISK

Audited I Market risk is the risk of loss of value on financial instruments arising from changes in market parameters, the volatility of these parameters, and the correlations between them. These parameters include, but are not limited to, exchange rates, interest rates, the price of securities (equities or bonds), commodities, derivatives and other assets. ▲

4.7.1 ORGANISATION OF MARKET RISK MANAGEMENT

Main functions

Audited I Although primary responsibility for managing risk exposure relies on the front office managers, the supervision system comes under the Market Risk Department of the Risk Department, which is independent from the businesses.

The main missions of this department are:

- the definition and proposal of the Group's market risk appetite;
- the proposal of appropriate market risk limits by Group activity to the Group Risk Committee (CORISQ);
- the assessment of the limit requests submitted by the different businesses within the framework of the overall limits authorised by the Board of Directors and General Management, and based on the use of these limits;
- the permanent verification of the existence of an effective market risk monitoring framework based on suitable limits;
- the definition of the indicators used to monitor market risk;
- the daily calculation and certification of the market risk indicators, of the P&L resulting from market activities, based on formal and secure procedures, and then of the reporting and the analysis of these indicators;
- the daily monitoring of the limits set for each activity.

In order to perform its tasks, the department also defines the architecture and the functionalities of the information system used to produce the risk and P&L indicators for market transactions, and ensures it meets the needs of the different businesses and of the Market Risk Department. ▲

This department contributes to the detection of possible rogue trading operations through a monitoring mechanism based on alert levels (on gross nominal value of positions for example) applied to all instruments and desks.

Governance

Market risks oversight is provided by various Committees at different levels of the Group:

- the Risk Committee of the Board of Directors[1] is informed of the Group's major market risks; in addition, it issues a recommendation on the most substantial proposed changes in terms of market risk measurement and framework (after prior approval by the CORISQ); this recommendation is then referred to the Board of Directors for a decision;
- the Group Risk Committee[2] (CORISQ), chaired by the Chief Executive Officer of the Group, is regularly informed of Group-level market risks. Moreover, upon a proposal from the Risk Department, it validates the main choices with regard to market risk measurement, as well as the key developments on the architecture and implementation of the market risk framework at Group level;
- the market risks related to the Global Markets Division are reviewed during the Market Risk Committee[3] (MRC) led by the Market Risk Department and co-chaired by the Risk Department and by the Global Markets Division. This Committee provides information on risk levels for the main risk indicators as well as for some specific activities pointed out depending on market or business driven events. It also provides an opinion on the market risk framework changes falling under the remit of the Risk Department and Global Markets Division.

During these Committees, the market activities P&L and several metrics for monitoring market risks are systematically reported:

- stress test measurements: Global Stress Test on market activities and Market Stress Test;
- regulatory metrics: Value-at-Risk (VAR) and Stressed Value-at-Risk (SVAR).

In addition to these Committees, detailed and summary market risk reports, produced on a daily, weekly, monthly or quarterly basis, either related to various Group levels or geographic areas, are sent to the relevant business line and risk function managers.

In terms of governance, within the Market Risk Department, the main functional and transversal subjects are dealt with during Committees organised by value chains (market risk, P&L, etc.). These Committees are decision-making bodies, composed of senior representatives from each relevant Department teams and regions. ▲

(1) Gathered eight times in 2021.
(2) Gathered nine times in 2021.
(3) Gathered ten times in 2021.

4.7.2 MARKET RISK MONITORING PROCESS

Market risk appetite

Audited I The business development strategy of the Group for market activities is primarily focused on meeting clients' needs, with a comprehensive range of products and solutions. The risk resulting from these market activities is strictly managed through a set of limits for several indicators:

- the Value-at-Risks (VaR) and stressed Value-at-Risks (sVaR): these global indicators are used for market risk calculations for RWA and for the day-to-day monitoring of the market risks incurred by the Group within the scope of its trading activities;
- stress test measurements, based on decennial shock-type indicators, which make it possible to restrict the Group's exposure to systemic risk and exceptional market shocks. These measurements can be global, multi-risk factor (based on historic or hypothetical scenarios), by activity or risk factor in order to take into account extreme risks on a specific market, or event-driven, to temporarily monitor a particular situation;
- sensitivity and nominal indicators used to manage the size of positions:
  - sensitivities are used to monitor the risk incurred locally on a given type of position (*e.g.* sensitivity of an option to changes in the underlying asset),
  - while nominal indicators are used for significant positions in terms of risk;
- additional indicators such as concentration risk or holding period, maximum maturity, etc. ▲

The Market Risk Department is responsible for the assessment and validation of the limit requests submitted by the different business lines. These limits ensure that the Group complies with the market risk appetite approved by the Board of Directors, further to a proposal from General Management[(1)].

Determining and monitoring limits

The choice and calibration of these limits ensure the operational transposition of the Group's market risk appetite through its organisation:

- these limits are allocated at various levels of the Group's structure and/or by risk factor;
- their calibration is determined using a detailed analysis of the risks related to the portfolio managed. This analysis may include various elements such as market conditions, specifically liquidity, position maneuverability, risk/rewards analysis, etc.;
- regular reviews make it possible to manage risks according to the prevailing market conditions;
- specific limits, or even bans, may be put in place to manage risks for which the Group has little or no risk appetite.

The desk mandates and Group policies stipulate that traders must have a sound and prudent management of positions and must respect the defined frameworks. The allowed transactions, as well as risk hedging strategies, are also described in the desks mandates. The limits set for each activity are monitored daily by the Market Risk Department. This continuous monitoring of the market risk profile is the object of regular discussions between the risk and business teams, further to which various risk hedging or mitigation initiatives may be taken by the front office in order to remain within the defined limits. In the event of a breach of the risk framework, and in compliance with the limits follow-up procedure, the front office must detail the reasons, and take the necessary measures to return within the defined framework, or otherwise request a temporary or permanent increase of limit if the clients requests and if market conditions justify such a course of action.

In addition to the governance structure in place between the various departments of the Risk function and business lines, the monitoring of limits usage, due to the products/solutions provided to clients and the market-making activities, also contributes to ensuring that market risk to which the Group is exposed are properly managed and understood.

4.7.3 MAIN MARKET RISK MEASURES

Stress test assessment

Audited I Societe Generale monitors its exposure using stress test simulations to take into account exceptional market disruptions.

A stress test estimates the loss resulting from an extreme change in market parameters over a period corresponding to the time required to unwind or hedge the positions affected.

Two major metrics are defined and used:

- the Global Stress Test on market activities, which estimates the losses linked to market risks, market/counterparty cross-risk, and dislocation and carry risk on exotic activities, that could arise simultaneously in the event of a severe but plausible systemic crisis. This stress test is modeled on five scenarios;
- the Market Stress Test, which focuses solely on market risks, applying the same scenarios as the Global Stress Test and additional scenarios corresponding to different market conditions.

The various scenarios for those stress tests are reviewed by the Risk Division on a regular basis. These reviews are presented during dedicated biannual Committees, chaired by the Market Risk Department and attended by economists and representatives of Societe Generale's trading activities. These Committees cover the following topics: changes in scenarios (introduction, removal, shock review), appropriate coverage of the risk factors by the scenarios, review of the approximations made in terms of calculation, correct documentation of the whole process. The delegation level needed to validate the changes in stress test methodology depends on the impact of the change in question.

(1) See "Risk Appetite" section for the detailed description of the governance and implementation of the risk appetite, as well as the role the Risk Division plays in defining it.

The Global Stress Test on market activities limits and the Market Stress Test limits play a central role in the definition and the calibration of the Group's appetite for market risk: these indicators cover all activities and the main market risk factors and associated risks associated with a severe market crisis, this allows both to limit the overall amount of risk and to take into account any diversification effects.

This framework is complemented by stress-testing frameworks on four risk factors on which the Group has significant exposures, in order to reduce the overall risk appetite: equities, interest rates, credit spread and emerging markets.

GLOBAL STRESS TEST ON MARKET ACTIVITIES

The Global Stress Test on market activities is the main risk indicator used on this scope. It covers all the risks on market activities that would occur simultaneously in case of a severe, but plausible, market crisis. The impact is measured over a short period of time with an expected occurrence of once per decade. The Global Stress Test uses five market scenarios and has three components, each of which are considered in each of the five scenarios in order to ensure consistency within the same scenario:

- market risk;
- dislocation and carry risks on exotic activities related to concentration effects and crowded trades;
- market/counterparty cross-risks arising in transactions with weak counterparties (hedge funds and proprietary trading groups).

The Global Stress Test corresponds to the least favorable results arising from the five scenarios and their respective components.

Market risk component

It corresponds to:

- the results of the Market Stress Test[1] restricted to scenarios that could cause dislocation effects on market positions and default by weak counterparties. These scenarios all simulate a sharp fall in the equity markets and a widening in credit spreads which could trigger dislocation effects. Following the last review of the scenarios at the end of 2020, it was decided to use for the calculation of the stress test three theoretical scenarios (generalised (*i.e.* financial crisis scenario), eurozone crisis, general decline in risk assets) and two historical scenarios focusing respectively on the period of early October 2008 and early March 2020;
- the impact of the stress test scenario on CVA (Credit Value Adjustment) and FVA (Funding Value Adjustment) reserves, as their variations affect trading results.

Dislocation and carry risk component

Additional market risks to those assessed in the Market Stress Test can occur in market situation in which one or more participants – generally structured products sellers – have concentrated or crowded trades. Dynamic risk hedging strategies can cause larger market dislocations than those calibrated in the Market Stress Test, and these dislocations can extend beyond the shock timeline used due to an imbalance between supply and demand.

Equity, credit, fixed income, currency and commodity trading activities are regularly reviewed to identify these areas of risk and to define a scenario that takes into account the specific features of each activity and position. Each scenario associated with an identified area of risk is added to the market risk component if – and only if – it is compatible with the market scenario in question.

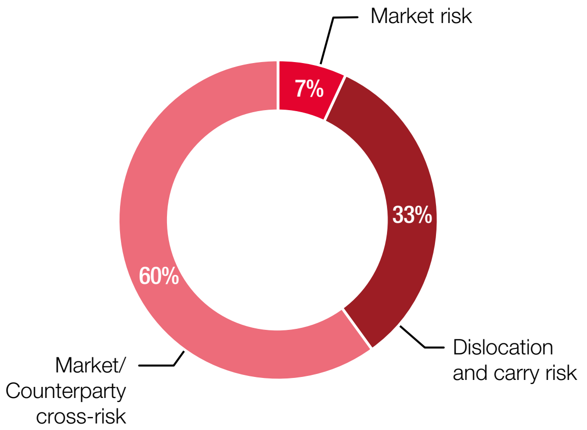
Market/counterparty cross-risk component on weak counterparties

Some counterparties may be significantly affected by a major crisis on the financial markets and their probability of default may increase. The third component of the Global Stress Test therefore aims to take into account this increased risk on certain types of weak counterparties (hedge funds and proprietary trading groups).

Two measurements are used:

- **the collateralised financing stress test:** this stress test focuses on collateralised financing activities and more specifically on weak counterparties. It applies a dislocation shock to several asset classes with the assumption of extremely tight liquidity conditions. Collateral and counterparty default rates are stressed concomitantly, taking into account any consanguinity with the collateral posted;
- **the adverse stress test on hedge funds and proprietary trading groups (PTG):** this stress test applies three pairs of stress scenarios to all market transactions generating replacement regarding this type of counterparty. Each set of scenarios consists of a short-term scenario (scenario derived from the Market Stress Test) applied to positions with margin calls, and a long-term scenario (whose shocks are generally more severe) for positions without margin calls. Stressed current exposures are weighted by the probability of default of each counterparty and by the loss given default (LGD), then aggregated. ▲

AVERAGE CONTRIBUTION OF THE COMPONENTS IN 2021 GLOBAL STRESS TEST ON MARKET ACTIVITIES



(1) *Measurement of the impact in the Net Banking Product in case of shocks on all risk factors (refer to description below).*

MARKET STRESS TEST

Audited I This metric focuses on market risk and estimates the loss resulting from shocks on the set of risk factors. This stress test is based on 11 scenarios[1] (four historical and seven hypothetical). The main principles are as follows:

- the scenario considered in the market stress test is the worst of the different scenarios defined;
- the shocks applied are calibrated on time horizons specific to each risk factor (the time horizon can range from five days for the most liquid risk factors to three months for the least liquid);
- risks are calculated every day for each of the Bank's market activities (all products together), using each of the historical and hypothetical scenarios.

Historical scenarios

This method consists of an analysis of the major economic crises that have affected the financial markets: changes in the prices of financial assets (equities, interest rates, exchange rates, credit spreads, etc.) during each of these crises have been analysed in order to define scenarios for potential variations in these main risk factors which, when applied to the Bank's trading positions, could generate significant losses. Accordingly, this approach makes it possible to determine the historical scenarios used for the calculation of the stress test. This set of scenarios is also the subject of regular reviews. In 2020, two new historical scenarios related to the Covid-19 crisis were integrated: a crisis scenario (marked by a decline in equity indices and an increase in credit spreads) as well as a rebound scenario (marked by an increase in equity indices and a decrease in credit spreads). Societe Generale is currently using four historical scenarios in the calculation of the stress test, which cover the periods from October to December 2008 and March 2020.

Hypothetical scenarios

The hypothetical scenarios are defined with the Group's economists and are designed to identify possible sequences of events that could lead to a major crisis in the financial markets (*e.g.* a major terrorist attack, political instability in the main oil-producing countries, etc.). The Group's aim is to select extreme but plausible events which would have major repercussions on all international markets. Accordingly, Societe Generale has defined seven hypothetical scenarios. ▲

Regulatory indicators

99% VALUE-AT-RISK (VAR)

Methodology

Audited I The Internal VaR Model was introduced at the end of 1996 and has been approved by the French regulator within the scope of the regulatory capital requirements. This approval was renewed in 2020 at the Target Review of Internal Models (TRIM).

The Value-at-Risk (VaR) assesses the potential losses on positions over a defined time horizon and for a given confidence interval (99% for Societe Generale). The method used is the "historical simulation" method, which implicitly takes into account the correlation between the various markets, as well as general and specific risk. It is based on the following principles:

- storage in a database of the risk factors that are representative of Societe Generale's positions (*i.e.* interest rates, share prices, exchange rates, commodity prices, volatility, credit spreads, etc.). Controls are regularly performed in order to check that all major risk factors for the trading portfolio of the Group are taken into account by the internal VaR model;
- definition of 260 scenarios corresponding to one-day variations in these market parameters over a rolling one-year period; these scenarios are updated daily with the inclusion of a new scenario and the removal of the oldest scenario. There are three coexisting methods for modeling scenarios (relative shocks, absolute shocks and hybrid shocks), the choice between these methods for a given risk factor is determined by its nature and its historical trend;
- the application of these 260 scenarios to the market parameters of the day;
- revaluation of daily positions, on the basis of the 260 sets of adjusted market parameters: in most cases this calculation involves a full repricing. Nonetheless, for certain risk factors, a sensitivity-based approach may be used.

Main risk factors	Description
Interest rates	Risk resulting from changes in interest rates and their volatility on the value of a financial instrument sensitive to interest rates, such as bonds, interest rate swaps, etc.
Share prices	Risk resulting from variations in prices and volatility of shares and equity indices, in the level of dividends, etc.
Exchange rates	Risk resulting from the variation of exchange rates between currencies and of their volatility.
Commodity prices	Risk resulting from changes in prices and volatility of commodities and commodity indices.
Credit Spreads	Risk resulting from an improvement or a deterioration in the credit quality of an issuer on the value of a financial instrument sensitive to this risk factor such as bonds, credit derivatives (credit default swaps for example).

Within the framework described above, the one-day 99% VaR, calculated according to the 260 scenarios, corresponds to the weighted average[2] of the second and third largest losses computed, without applying any weighting to the scenarios.

(1) Including the scenarios used in the global stress tests on market activities.
(2) 39% of the second highest risk and 61% of the third highest risk.

The day-to-day follow-up of market risk is performed *via* the one-day VaR, which is calculated on a daily basis at various granularity levels. Regulatory capital requirements, however, oblige us to take into account a ten-day horizon, thus we also calculate a ten-day VaR, which is obtained by multiplying the one-day VaR aggregated at Group level by the square root of ten. This methodology complies with regulatory requirements and has been reviewed and validated by the regulator.

The VaR assessment is based on a model and a certain number of conventional assumptions, the main limitations of which are as follows:

- by definition, the use of a 99% confidence interval does not take into account losses arising beyond this point; VaR is therefore an indicator of the risk of loss under normal market conditions and does not take into account exceptionally significant fluctuations;
- VaR is computed using closing prices, meaning that intraday fluctuations are not taken into account;
- the use of a historical model is based on the assumption that past events are representative of future events and may not capture all potential events.

The Market Risk Department mitigates the limitations of the VaR model by performing stress tests and other additional measurements.

The same model is used for the VaR computation for almost all of Global Banking & Investor Solution's activities (including those related to the most complex products) and the main market activities of Retail Banking and Private Banking. The few activities not covered by the VaR method, either for technical reasons or because the stakes are too low, are monitored using stress tests, and capital charges are calculated using the standard method or through alternative in-house methods. For example, the currency risk of positions in the banking book is not calculated with an internal model because this risk is not subject to a daily revaluation and therefore cannot be taken into account in a VaR calculation.

Backtesting

The relevance of the model is checked through continuous backtesting in order to verify whether the number of days for which the negative result exceeds the VaR complies with the 99% confidence interval. The results of the backtesting are audited by the Risk Department in charge of the validation of internal models, which, as second line of defence, also assesses the theoretical robustness (from a design and development standpoint), the correctness of the implementation and the adequacy of the model use. The independent review process ends with (i) review and approval Committees and (ii) an Audit Report detailing the scope of the review, the tests performed and their outcomes, the recommendations and the conclusion of the review. The model control mechanism gives rise to reporting to the appropriate authorities.

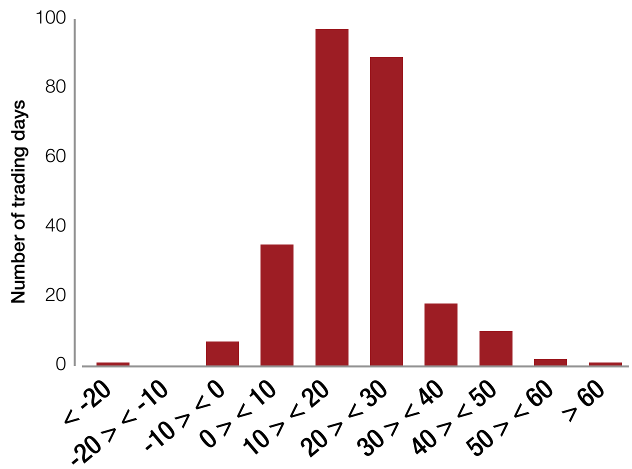
In compliance with regulations, backtesting compares the VaR to the (i) actual and (ii) hypothetical change in the portfolio's value:

- in the first case (backtesting against "actual P&L"), the daily P&L[1] includes the change in book value, the impact of new transactions and of transactions modified during the day (including their sales margins) as well as provisions and parameter adjustments made for market risk;
- in the second case (backtesting against "hypothetical P&L"), the daily P&L[2] includes only the change in book value related to changes in market parameters and excludes all other factors. ▲

In 2021, we observed:

- one VaR backtesting breach in Q1 21, against actual P&L;
- three VaR backtesting breaches in Q4 21, against hypothetical P&L.

BREAKDOWN OF THE DAILY[3] P&L OF MARKET ACTIVITIES (2021, IN EURM)



(1) *"Actual P&L" by agreement hereinafter.*
(2) *"Hypothetical P&L" by agreement hereinafter.*
(3) *Actual P&L.*

TRADING VAR (ONE-DAY, 99%), DAILY ACTUAL[1] P&L AND DAILY HYPOTHETICAL[2] P&L OF THE TRADING PORTFOLIO (2021, IN EURM)

VaR Changes

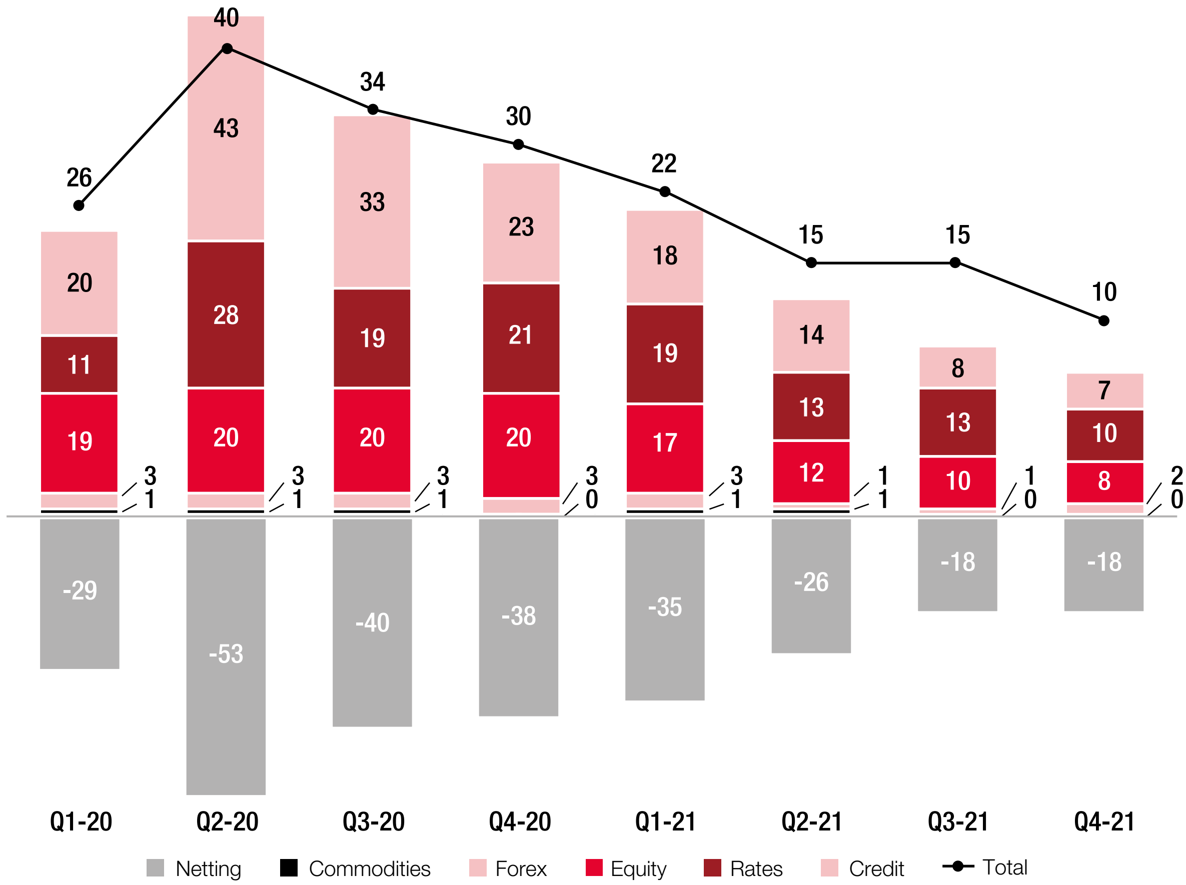
TABLE 29: REGULATORY TEN-DAY 99% VAR AND ONE-DAY 99% VAR

	31.12.2021		31.12.2020	
(In EURm)	VaR (10 days, 99%)[1]	VaR (1 day, 99%)[1]	VaR (10 days, 99%)[1]	VaR (1 day, 99%)[1]
Period start	75	24	93	29
Maximum value	98	31	188	60
Average value	49	15	103	33
Minimum value	18	6	35	11
Period end	25	8	67	21

(1) Over the scope for which capital requirements are assessed by internal model.

(1) Daily profit or loss used for the VaR backtesting against actual P&L, as defined in the "99% Value-at-Risk (VaR)".
(2) Daily profit or loss used for the VaR backtesting against hypothetical P&L, as defined in the "99% Value-at-Risk (VaR)".

AUDITED I BREAKDOWN BY RISK FACTOR OF TRADING VAR (ONE-DAY, 99%) – CHANGES IN QUARTERLY AVERAGE OVER THE 2020-2021 PERIOD (IN EURM)



Audited I VaR was less risky in 2021 (EUR 15 million versus EUR 33 million in 2020 on average). In line with the end of 2020, the VaR in 2021 continued its gradual decline over the year, reaching historically low levels in the 4th quarter. The decline was visible across all asset classes, which are also at low levels. ▲

STRESSED VAR (SVAR)

Audited I The Internal Stressed VaR model (SVaR) was introduced at the end of 2011 and has been approved by the Regulator within the scope of the regulatory capital requirements on the same scope as the VaR. As with the VaR model, this approval was renewed in 2020 at the Target Review of Internal Models (TRIM).

The calculation method used for the 99% one-day SVaR is the same as as the one for the VaR. It consists in carrying out a historical simulation with one-day shocks and a 99% confidence interval. Contrary to VaR, which uses 260 scenarios for one-day fluctuations over a rolling one-year period, SVaR uses a fixed one-year historical window corresponding to a period of significant financial tension.

The method for determining the fixed historical stress window in effect in 2021, which has been approved by the regulator(1), is based on a review of the historic shocks on the risk factors representative of the Societe Generale portfolio (related to equity, fixed income, foreign exchange, credit and commodity risks): historical shocks are aggregated to determine the period of highest stress for the entire portfolio. Each risk factor is assigned a weighting to account for the weight of each risk factor within its asset class and the weight of the asset class in the Group's VaR. The historical window used is reviewed annually. In 2021, this window was "September 2008-September 2009".

The ten-day SVaR used for the computation of the regulatory capital is obtained, as for VaR, by multiplying the one-day SVaR by the square root of ten.

The continuous backtesting performed on VaR model cannot be replicated to the SVaR model as, by definition, it is not sensitive to the current market conditions. However, as the VaR and the SVaR models rely on the same approach, they have the same advantages and limitations.

The relevance of the SVaR is regularly monitored and reviewed by the Risk Department in charge of the validation of internal models, as second line of defence. The independent review process ends with (i) review and approval Committees and (ii) an Audit Report detailing the scope of the review, the tests performed and their outcomes, the recommendations and the conclusion of the review. The model control mechanism gives rise to recurrent reporting to the appropriate authorities.

(1) A complementary method was submitted to the regulator for approval in Q2 2018: the purpose was to ensure the relevance of the period obtained following the method based on the weighting of historical shocks by computing an approached VaR on the same selection of risk factors representative of the portfolio. The ECB validated this new method at the end of 2021: thus, in 2022 it will be used to determine the new historical window.

SVaR decreased on average in 2021 (EUR 37 million versus EUR 50 million in 2020). Its evolution over the year was marked by three main stages:

- in the first two quarters of the year, the SVaR remained at a low level, following the end of 2020. The low variability comes mainly from exotic perimeters and equity volatility as well as interest rate activities;
- SVaR increased in Q3 to EUR 60 million. This increase comes mainly from interest rate perimeters, in particular CIM[1] Basis and exotic;
- SVaR then gradually declined to its average level. The decrease coming from interest rate perimeters, due to the exposure of interest rate smile, cross currency and sensitivity to OIS/BOR. ▲

TABLE 30: REGULATORY TEN-DAY 99% SVAR AND ONE-DAY 99% SVAR

	31.12.2021		31.12.2020	
(In EURm)	Stressed VaR (10 days, 99%)[1]	Stressed VaR (1 day, 99%)[1]	Stressed VaR (10 days, 99%)[1]	Stressed VaR (1 day, 99%)[1]
Period start	135	43	105	33
Maximum value	191	60	343	109
Average value	117	37	158	50
Minimum value	72	23	73	23
Period end	108	34	131	41

(1) Over the scope for which capital requirements are assessed by internal model.

IRC AND CRM

At end-2011, Societe Generale received approval from the Regulator to expand its internal market risk modeling system by including IRC (Incremental Risk Charge) and CRM (Comprehensive Risk Measure), for the same scope as for VaR. As with the VaR model, the approval of the IRC[2] model was renewed in 2020 at the Target Review of Internal Models (TRIM).

They estimate the capital charge on debt instruments that is related to rating migration and issuer default risks. These capital charges are incremental, meaning they are added to the charges calculated based on VaR and SVaR.

In terms of scope, in compliance with regulatory requirements:

- IRC is applied to debt instruments, other than securitisations and the credit correlation portfolio. In particular, this includes bonds, CDS and related derivatives;
- CRM exclusively covers the correlation portfolio, *i.e.* CDO tranches and First-to-Default products (FtD), as well as their hedging using CDS and indices.

Societe Generale estimates these capital charges using internal models[3]. These models determine the loss that would be incurred following especially adverse scenarios in terms of rating changes or issuer defaults for the year that follows the calculation date, without ageing the positions. IRC and CRM are calculated with a confidence interval of 99.9%: they represent the highest risk of loss obtained after eliminating 0.1% of the most unfavorable scenarios simulated.

The internal IRC model simulates rating transitions (including default) for each issuer in the portfolio, over a one-year horizon[4]. Issuers are classified into five categories: US-based companies, European companies, companies from other regions, financial institutions and sovereigns. The behaviours of the issuers in each category are correlated with one other through a systemic factor specific to each category. In addition, a correlation between these five systemic factors is integrated to the model. These correlations, along with the rating transition probabilities, are calibrated from historical data observed over the course of a full economic cycle. In case of change in an issuer's rating, the decline or improvement in its financial health is modeled by a shock in its credit spread: negative if the rating improves and positive in the opposite case. The price variation associated with each IRC scenario is determined after revaluation of positions *via* a sensitivity approach, using the delta, the gamma as well as the level of loss in the event of default (Jump to Default), calculated with the market recovery rate for each position.

The CRM model simulates issuer's rating transitions in the same way as the internal IRC model. In addition, the dissemination of the following risk factors is taken into account by the model:

- credit spreads;
- basis correlations;
- recovery rate excluding default (uncertainty about the value of this rate if the issuer has not defaulted);
- recovery rate in the event of default (uncertainty about the value of this rate in case of issuer default);
- First-to-Default valuation correlation (correlation of the times of default used for the valuation of the First-to-Default basket).

These dissemination models are calibrated from historical data, over a maximum period of ten years. The price variation associated with each CRM scenario is determined thanks to a full repricing of the positions. In addition, the capital charge computed with the CRM model cannot be less than a minimum of 8% of the capital charge determined with the standard method for securitisation positions.

(1) Cross Inter Maturity.
(2) The CRM model was not within the scope of the Target Review of Internal Models.
(3) The same internal model is used for all portfolios for which an IRC calculation is required. The same is true for the portfolios on which a CRM calculation is performed. Note that the scope covered with internal models (IRC and CRM) is included in the VaR scope: only entities authorised for a VaR calculation via an internal model can use an internal model for IRC and CRM calculation.
(4) The use of a constant one-year liquidity horizon means that shocks that are applied to the positions to calculate IRC and CRM, are instantaneous one-year shocks. This hypothesis appears to be the most prudent choice in terms of models and capital, rather than shorter liquidity horizons.

The internal IRC and CRM models are subject to similar governance to that of other internal models meeting the Pillar 1 regulatory requirements. More specifically:

- an ongoing monitoring allows to follow the adequacy of IRC and CRM models and of their calibration. This monitoring is based at least on a yearly review of the modeling hypotheses. As these metrics are estimated *via* a 99.9% quantile over a one-year horizon, the low frequency of breaches means that a backtesting as the one performed on VaR model is not possible. In particular, this review includes:
  - a check of the adequacy of the structure of the rating transition matrices used for IRC and CRM models,
  - a backtesting of the probabilities of default used for these two models,
  - a check of the adequacy of the models for the dissemination of recovery rates, spread dissemination and dissemination of basic correlations used in the CRM calculation;

  Regarding the checks on the accuracy of these metrics:
  - the IRC calculation being based on the sensitivities of each instrument – delta, gamma – as well as on the level of loss in the event of default (Jump to Default) calculated with the market recovery rate, the accuracy of this approach is checked against a full repricing every six months,
  - such a check on CRM is not necessary as its computation is performed following a full repricing;
- these metrics are compared to normative stress tests defined by the regulator. In particular, the EBA stress test and the risk appetite exercise are performed regularly on the IRC metric. These stress tests consist of applying unfavorable rating migrations to issuers, shocking credit spreads and shocking rating transition matrices. Other stress tests are also carried out on an *ad hoc* basis to justify the correlation hypotheses between issuers and those made on the rating transition matrix;
- a weekly analysis of these metrics is carried out by the production and certification team for market risk metrics;
- the methodology and its implementation have been initially validated by the French Prudential and Resolution Supervisory Authority (*Autorité de contrôle prudentiel et de résolution* – ACPR). Thereafter, a review of the IRC and the CRM is regularly carried out by the Risk Department in charge of the validation of internal models as second line of defence. This independent review process ends with (i) review and approval Committees and (ii) an Audit Report detailing the scope of the review, the tests performed and their outcomes, the recommendations and the conclusion of the review. The model control mechanism gives rise to recurrent reporting to the appropriate authorities.

Moreover, regular operational checks are performed on the completeness of the scope's coverage as well as the quality of the data describing the positions.

TABLE 31: IRC (99.9%) AND CRM (99.9%)

(In EURm)	31.12.2021	31.12.2020
Incremental Risk Charge (99.9%)		
Period start	101	93
Maximum value	205	172
Average value	116	103
Minimum value	51	53
Period end	67	112
Comprehensive Risk Measure (99.9%)		
Period start	66	95
Maximum value	102	462
Average value	64	116
Minimum value	40	51
Period end	57	70

4.7.4 RISK-WEIGHTED ASSETS AND CAPITAL REQUIREMENTS

Allocation of exposures in the trading book

The on- and off-balance sheet items must be allocated to one of the two portfolios defined by prudential regulations: the banking book or the trading book.

The banking book is defined by elimination: all on- and off-balance sheet items not included in the trading book are included by default in the banking book.

The trading book consists of all positions in financial instruments and commodities held by an institution either for trading purposes or in order to hedge other positions in the trading book. The trading interest is documented as part of the traders' mandates.

The prudential classification of instruments and positions is governed as follows:

- the Finance Department's prudential regulation experts are responsible for translating the regulations into procedures, together with the Risk Department for procedures related to holding period and liquidity. They also analyse specific cases and exceptions. They share these procedures to the business lines;
- the business lines comply with these procedures. In particular, they document the trading interest of the positions taken by traders;
- the Finance and Risk Departments are in charge of the control framework.

The following controls are implemented in order to ensure that activities are managed in accordance with their prudential classification:

- new product process: any new product or activity is subject to an approval process that covers its prudential classification and regulatory capital treatment for transactions subject to validation;
- holding period: the Market Risk Department has designed a control framework for the holding period of certain instruments;
- liquidity: on a case-by-case basis or on demand, the Market Risk Department performs liquidity controls based on certain criteria (negotiability/transferability, bid/ask size, market volumes, etc.);
- strict process for any change in prudential classification, involving the business line and the Finance and Risk Divisions;
- internal audit: through its various periodic assignments, Internal Audit verifies or questions the consistency of the prudential classification with policies/procedures as well as the suitability of the prudential treatment in light of existing regulations.

Quantitative information

Almost 90% of Societe Generale capital requirements related to market risk are determined using an internal model approach. The standard approach is mainly used for the Collective Investment Units (CIU), for securitisation positions, but also for the positions presenting a foreign exchange risk, which are not part of the trading book, as well as for the Group's subsidiaries that do not have access to the core IT tools developed internally. The main entities concerned are some International Retail Banking and Financial Services entities such as SG Maroc, Rosbank, BRD, SG Tunisie, SG Algérie, etc.

Capital requirements for market risk decreased in 2021. This decline is reflected in most components:

- VaR continued its year-over-year decline, which began at the end of 2020, reaching historically low levels in Q4. This decline is reflected in all activities, including interest rates, credit and equity;
- IRC and CRM, whose decrease is mainly due to the reduction in debt instruments positions by the front office;
- RWAs calculated under the standard approach, which have mainly benefited from a reduction in interest rate risk especially to the reduced exposure of several subsidiaries.

The increase in capital requirements for risk assessed for ownership positions can be explained by both the front office activity (positions in options) and methodological changes.

TABLE 32: MARKET RISK CAPITAL REQUIREMENTS AND RWA BY RISK FACTOR

	Risk-weighted assets			Capital requirement		
(In EURm)	**31.12.2021**	**31.12.2020**	***Change***	**31.12.2021**	**31.12.2020**	***Change***
VaR	1,343	4,117	*(2,773)*	107	329	*(222)*
Stressed VaR	7,227	6,671	*555*	578	534	*44*
Incremental Risk Charge (IRC)	840	1,758	*(918)*	67	141	*(73)*
Correlation portfolio (CRM)	815	1,066	*(251)*	65	85	*(20)*
Total market risk assessed by internal model	**10,225**	**13,612**	***(3,387)***	**818**	**1,089**	***(271)***
Specific risk related to securitisation positions in the trading portfolio	562	534	*28*	45	43	*2*
Risk assessed for currency positions	-	219	*(219)*	-	17	*(17)*
Risks assessed for interest rates (excl. securitisation)	285	975	*(691)*	23	78	*(55)*
Risk assessed for ownership positions	572	-	*572*	46	-	*46*
Risk assessed for commodities	0	0	*(0)*	0	0	*(0)*
Total market risk assessed by standard approach	**1,419**	**1,728**	***(309)***	**114**	**138**	***(25)***
TOTAL	**11,643**	**15,340**	***(3,697)***	**931**	**1,227**	***(296)***

TABLE 33: MARKET RISK CAPITAL REQUIREMENTS AND RWA BY TYPE OF RISK

	Risk-weighted assets		Capital requirement	
(In EURm)	**31.12.2021**	**31.12.2020**	**31.12.2021**	**31.12.2020**
Risk assessed for currency positions	349	462	28	37
Risk assessed for credit (excl. deductions)	3,984	5,943	319	475
Risk assessed for commodities	39	43	3	3
Risk assessed for ownership positions	4,474	4,133	358	331
Risk assessed for interest rates	2,797	4,760	224	381
TOTAL	**11,643**	**15,340**	**931**	**1,227**

4.7.5 FINANCIAL INSTRUMENT VALUATION

Management risk related to financial instrument valuation relies on the Global Markets Division as first line of defence, by the team of valuation experts (Group Valuation) within the Finance Department, and finally by the team of independent review of valuation models within the Market Risk Department.

Governance

Governance on valuation topics is enforced through two valuation Committees, both attended by representatives of the Global Markets Division, the Market Risk Department and the Finance Division:

- the Global Valuation Committee is convened whenever necessary, and at least every quarter, to discuss and approve financial instrument valuation methodologies (model refinements, reserve methodologies, etc.). This Committee, chaired by the Finance Department and organised by its valuation expert team (Valuation Group) has global accountability with respect to the approval of the valuation policies;
- on a quarterly basis, the Global Valuation Review Committee, chaired by the Finance Department, reviews changes in reserves, valuation adjustment figures, and related accounting impacts. This analytical review is performed by the Valuation Group.

The topics related to Prudent Valuation are dealt with during methodological committees and validation committees, organised quarterly, and both chaired by the Finance Department and both attended by representatives of the Global Markets Division and the Market Risk Department.

Lastly, a Valuation Policy describes the valuation framework and its governance, specifying the breakdown of responsibilities between the stakeholders.

Valuation principles and associated controls

In terms of valuation, market products are marked to market, when such market prices exist; otherwise, they are valued using parameter-based models, in compliance with the IFRS 13 principles defining fair value.

On the one hand, each model designed by the front office is subject to independent validation by the Market Risks Department as second line of defence that especially checks the theoretical aspects of the model (relevance of the hypotheses, analytical calculations, numerical methods), its performance (for instance in case of stressed conditions) and its implementation in systems. Following this review, the validation status of the model, its scope of use and the recommendations to be dealt with are formalised in a report.

On the other hand, the parameters used in the valuation models – whether or not they come from observable data – are subject to controls by the Market Risks Department and the Finance Department (Independent Price Verification).

If necessary, the valuations are supplemented by reserves or adjustments (this mainly concerns liquidity, parameter or model uncertainties) using calculation methods developed in consultation with the front office, which are subject to approval by the Market Risk Department and the Finance Department during the Global Valuation Committees.

Regulatory requirements

Furthermore, regarding the prudential component, Additional Valuation Adjustments (AVAs) are computed on fair value assets, in compliance with the Regulatory Technical Standards (RTS) published by the European Banking Authority (EBA), which lay out the requirements related to Prudent Valuation, in addition to the principles already specified in the CRD (Capital Requirements Directive). These Regulatory Technical Standards define the various uncertainties which have to be taken into account in the Prudent Valuation and set a target level of confidence to reach.

Within this framework, in order to take into account the various factors which could generate additional exit costs compared to the expected valuation (model risk, concentration risk, liquidation cost, uncertainty on market prices, etc.), Prudent Valuation Adjustments (PVAs) are computed for each exposure. The Additional Valuation Adjustments (AVAs) are defined as the difference between the Prudent Valuation obtained and the accounting fair value of the positions, in order to comply with the target level of confidence to reach (the confidence interval is equal to 90%). These amounts of AVA are deducted from the Common Equity Tier 1 capital.

4.8 OPERATIONAL RISK

Operational risk is the risk of losses resulting from inadequacies or failures in processes, personnel or information systems, or from external events.

Societe Generale's operational risk classification is divided into eight event categories:

- commercial litigation;
- disputes with authorities;
- errors in pricing or risk evaluation including model risk;
- execution errors;
- fraud and other criminal activities;
- rogue trading;
- loss of operating resources;
- IT system interruptions.

This classification is declined into 58 risk categories, cornerstone of the Group risk modeling, ensuring consistency throughout the system and enabling cross-business analyses throughout the Group (see section 4.8.2), particularly on the following risks :

- risks related to information and communication technologies and security (cybercrime, IT systems failures, etc.);
- risks related to outsourcing of services and business continuity;
- risks related to the launch of new products/services/activities for customers;
- non-compliance risk (including legal and tax risks): risk of court-ordered, administrative or disciplinary sanctions, or of material financial loss, due to failure to comply with the provisions governing the Group's activities;
- reputational risk: risk arising from a negative perception on the part of customers, counterparties, shareholders, investors or regulators that could negatively impact the Group's ability to maintain or engage in business relationships and to sustain access to sources of financing;
- misconduct risk: risk resulting from actions (or inactions) or behavior of the Bank or its employees inconsistent with the Group's Code of Conduct, which may lead to adverse consequences for our stakeholders, or place the Bank's sustainability or reputation at risk.

The framework relating to the risks of non-compliance, reputation and inappropriate conduct is detailed in Chapter 4.11 *"Compliance risk, litigation"*.

4.8.1 ORGANISATION OF OPERATIONAL RISK MANAGEMENT

Governance

The Group operational risk management framework, other than non-compliance risks detailed in Chapter 4.11 *"Compliance risk, litigation"* is structured around a two-level system with the following participants:

- a first line of defence in each core Business Units/Service Units, responsible for applying the framework and putting in place controls that ensure risks are identified, analysed, measured, monitored, managed, reported and contained with the limits set by the Group-defined risk appetite;
- a second line of defence: the Operational Risk Department within the Group's Risk Division.

In particular, the Operational Risk Department:

- conducts a critical examination of the BU/SUs management of operational risks (including fraud risk, risks related to information systems and information security, and risks related to business continuity and crisis management);
- sets regulations and procedures for operational risk systems and production of cross Group analyses;
- produces risk and oversight indicators for operational risk frameworks.

To cover the whole Group, the Operational Risk Department has a central team supported by regional hubs. The regional hubs report back to the department, providing all information necessary for a consolidated overview of the Bank's risk profile that is holistic, prospective and valid for both internal oversight purposes and regulatory reporting.

The regional hubs are responsible for implementing the Operational Risk Division's briefs in accordance with the demands of their local regulators.

The Operational Risk Department communicates with the first line of defence through a network of operational risk correspondents in each Business /Service Units.

Concerning risks specifically linked to business continuity, crisis management and information, of persons and property, the Operational Risk Department carries out the critical review of the management of these risks in connection with the Group Security Division. Specifically, regarding IT risks, the Operational Risk Department carries out the critical review of the management of these risks in connection with the Resources and Digital Transformation Department.

Second-level control

Level 2 control consists of verifying the definition and actual performance of level 1 controls, and in particular the examination of the results of level 1 controls in quantitative and qualitative aspects, in particular with regard to completion rate, anomaly levels, etc. This review also ensures the effectiveness and relevance of the deployment of controls by control needs and risk type and of corrective action plans.

According to the internal control system, the level 2 permanent control Risk teams carry out this mission on the risks operational covering the risks specific to the various businesses (including operational risks related to credit risks and market risks), as well as the risks associated with purchases, communication, real estate, human resources and information system.

Risk related to security of persons and property

Protecting persons and property, and compliance with the laws and regulations governing security are major objectives for Societe Generale group. It is the mission of the Group Security Division to manage human, organisational and technical frameworks that guarantee the smooth operational functioning of the Group in France and internationally, by reducing exposure to threats (in terms of security and safety) and reducing their impact in the event of crisis.

The security of persons and property encompasses two very specific areas:

- Security is all the human, organisational and technical resources brought together to deal with technical, physical, chemical and environmental accidents that can harm people and property,
- Safety is all the human, organisational and technical resources brought together to deal with spontaneous or thoughtful acts aimed at harming or impairing with the aim of psychic or / and financial profit.

Thus, in this context, the Security of persons and property ensures in particular:

- the application of the security benchmark in the design and operation of our buildings;
- drafting and updating of procedures and security instructions on each of our sites;
- drafting of security programs and acceptance of the work of this security equipment;
- the management of operations in operational security;
- management of events affecting the physical security of employees, buildings or datacenters;
- securing travel and special events;
- good respect for the protection of national defense secrets as far as the Group is concerned;
- development of travel policy and its control;
- development of country risk mapping;
- conducting safety and security audits, especially for sensitive sites;
- management of significant events and major crises;
- expatriates training.

The management of all these risks is based on operational risk systems and the second line of defence is provided by the Risk Department.

Risks related to information security and information and communication technologies

Given the importance for the Group of its information system and the data it conveys and the continuous increase in the cybercriminal threat, the risks related to information and communication technologies and to security (ICT) are major for Société Generale. Their supervision, integrated into the general operational risk management system, is steered as the first line of defence by a dedicated area of expertise (Information and Information Systems Security – ISS) and the second line of defence is provided by the Risk Department. They are subject to specific monitoring by the management bodies through sessions dedicated to Group governance (Risk Committee, CORISQ, CCCIG, DTCO) and a quarterly dashboard which presents the risk situation and action plans on the eight main themes of information and communication technologies risks.

The Department Security of the Group, housed within the General Secretariat, is responsible for protecting information. The information provided by customers, employees and also the collective knowledge and know-how of the bank constitute Societe Generale's most valuable information resources. To this end, it is necessary to put in place the human, organisational and technical mechanisms which make it possible to protect the information and ensure that it is handled, disseminated, shared by only the people who need to know. To this end, the Group safety/security department ensures in particular:

- the publication and maintenance of the Group information security policy which encompasses both human and technical aspects;
- the publication and maintenance, with the teams of legal experts and the Group's human resources functions, of the “Charter for the Protection of Information and IT Resources”;
- the co-construction with the Service Unit Resources & Digital Transformation of the Data-Protection program, which aims to provide employees with a tool for classifying and protecting office documents, to promote good practices in the classification of information and in the use of property tools adapted to the sensitivity of documents;
- the mapping of the most sensitive information of the Group (information classified C3-Secret);
- the awareness raising of information security through a set of permanent actions promoting employee ownership of information security issues: distribution of an e-learning on information security to all of the Group’s employees in France and abroad, conferences, specific workshops on the risks associated with social engineering, on the use of social networks, etc..

The person in charge of risks related to information and communication technologies (ICT) and security of information systems is housed at the Corporate Resources and Digital Transformation Division. Under the functional authority of the Director of Group Security, he recommends the strategy to protect digital information and heads up the IT security department. The IT security framework is aligned with the market standards (NIST, ISO 27002), and implemented in each Business /Service Unit.

Risk management associated with cybercrime is carried out through the tri-annual Information Systems Security (ISS) master plan.

In order to take into account the evolution of the threat, in particular that related to ransomware, and in line with the Group strategy, the ISS 2021-2023 master plan is structured, with a budget of EUR 650 million over the period 2021-2023, around two pillars that guide actions by 2023:

- protect the data of our customers and our ability to operate the banking services, by integrating the threats, the requirements of the regulators, and the need to support the Business Units and Service Units in their digital transformation and the evolution of uses that accompanies it. A risk-based approach allows us to concentrate our efforts on the most critical elements and data, in connection with the work of the Security Department cited above. We are preparing to manage a major cyber crisis by improving in particular our detection capacity, our ability to control our IT links with our partners and subsidiaries, and our ability to rebuild the information system;

- increase our operational efficiency by gaining overall consistency, and by increasing our protections and our ability to react. In particular by developing the management of the cyber security department, by optimising our processes and our tools to be able to deploy new protections at constant cost. Finally, by working on the management of human resources in the filiere, in particular on the development of skills and networks of expertise.

At the operational level, the Group relies on a CERT (Computer Emergency Response Team) unit in charge of incident management, security watch and the fight against cybercrime. This team uses multiple sources of information and monitoring, both internal and external. Since 2018, this unit has also been strengthened by the establishment of an internal Red Team whose main tasks are to assess the effectiveness of the security systems deployed and to test the detection and reaction capabilities of the defence teams (Blue Teams) during an exercise simulating a real attack. The services of the Red Team enable the Group to gain a better understanding of the weaknesses in the security of the Societe Generale information system, to help in the implementation of global improvement strategies, and also to train cybersecurity defence teams. CERT works closely with the Security Operation Center (SOC), which is in charge of detecting security events and processing them.

A team at the Resources and Digital Transformation Department is in charge of the consistency of the implementation of operational risk management systems and their consolidation for IT processes. The main tasks of the team are as follows:

- identify and evaluate the major IT risks for the Group, including extreme risk scenarios (eg. cyberattack, failure of a provider), to enable the Bank to improve its knowledge of its risks, be better prepared for extreme risk scenarios and better align their investments with their IT risks;
- produce the indicators that feed the IT risks monitoring dashboard, intended for management bodies and Information Systems directors. They are reviewed regularly with the second line of defence in order to remain aligned with the IS and SSI strategy and their objectives;
- more generally, ensure the quality and reliability of all devices addressing IT operational risks. Particular attention is paid to the permanent control system for its IT risks, which is based on the definition of normative IT and security controls and the support of the Group in the deployment of managerial supervision on this topic. As part of the "PCT" program to transform permanent control, the normative controls were reviewed, i.e. around thirty controls on IS/SSI subjects. The IT Department monitors the deployment of these controls across the Group, the progress of which is aligned with the objectives set by the Group.

In terms of awareness, a multilingual online training module on information security is mandatory for all internal Group staff and for all service providers who use or access our information system. It was updated in early 2020 in order to incorporate changes to the new Group Information Security Policy. At the end of August 2021, 98% of Societe Generale group employees who were notified of the training module had performed it.

Risks related to fraud and non-authorized market activies (rogue trading)

The supervision of fraud risk, whether internal or external, is integrated into the general operational risk management framework which allows the identification, assessment, mitigation and monitoring of the risk, whether it is potential or actual.

It is steered in the first line of defense by dedicated expert teams dedicated to fraud risks management in addition to the teams in charge of operational risk management specific to each of the banking businesses. These teams are in charge of the definition and operational implementation of the means of raising awareness, preventing, detecting and dealing with frauds. The second line of defense is provided by the Operational Risks Department with a fraud risk manager. The second line defines and verifies compliance with the principles of fraud risk management in conjunction with the first line teams, and ensures that the appropriate governance is in place.

Finally, the teams, whether they are in the first or second line of defense, work jointly with teams of experts in charge of information security, the fight against cyber crime, customer knowledge, the fight against corruption and money laundering. Likewise, the teams work closely with the teams in charge of credit risk and market risk. The sharing of information contributes to the identification and increased responsiveness in the presence of a situation of proven fraud or weak signals. This active collaboration makes it possible to initiate investigative measures, blocking attempted fraud or initiating the recovery of funds or the activation of guarantees, associated insurance in the event of successful fraud.

4.8.2 OPERATIONAL RISK MONITORING PROCESS

The Group's main frameworks for controlling operational risks are as follows:

- collection of internal losses and significant incidents and analysis of external losses;
- self-assessment of risks and controls;
- oversight of risk indicators;
- development of scenario analyses;
- framing new products;
- management of outsourced services;
- crisis management and business continuity;
- management of risks related to information and communication technologies.

Collection of internal loss and significant incident data

Internal losses have been compiled throughout the Group since 2003, in addition to significant incident data since 2019. The process:

- defines and implements the appropriate corrective actions;
- achieves a deeper understanding of risk areas;
- enhances awareness and vigilance with respect to operational risks in the Group.

Losses (or gains or near-misses) are reported from a minimum threshold of EUR 10,000 throughout the Group, except for global market activities, where the threshold is EUR 20,000.

Incidents without financial impact are also reported when they are deemed significant according to their impact, in particular on contractual commitments, reputation, day-to-day operations, risk appetite or the level of regulatory compliance of the Group.

Analysis of external losses

External losses are data that are public and / or shared within the banking sector, in particular within consortia frameworks. These external data include information on the amount of actual losses, the importance of the activity at the origin of these losses, the causes and circumstances and any additional information that could be used by other establishments to assess the relevance of the event as far as they are concerned and enrich the identification and assessment of the Group's operational risk.

Risk and control self-assessment

Under the Risk and Control Self-Assessment (RCSA), each manager assesses the exposure to operational risks to which each entity within the relevant scope is exposed through the activities in order to improve their management.

The method defined by the Group consists of taking a homogeneous approach to identifying and evaluating operational risks and frameworks to control these risks, in order to guarantee consistency of results at Group level. It is based notably on repositories of activities and risks in order to facilitate a comprehensive assessment.

The objectives are as follows:

- identifying and assessing the major operational risks (in average amount and frequency of potential loss) to which each activity is exposed (the intrinsic risks, i.e. those inherent in the nature of an activity, while disregarding prevention and control systems). Where necessary, risk mapping established by the functions (e.g. Compliance, Information Systems Security, etc.) contributes to this assessment of intrinsic risks;
- assessing the quality of major risk prevention and mitigation measures;
- assessing the risk exposure of each activity that remains once the risk prevention and mitigation measures are taken into account (the “residual risk”), while disregarding insurance coverage;
- remedying any shortcomings in the prevention and control systems, by implementing corrective action plans and defining key risk indicators; if necessary, in the absence of an action plan, risk acceptance will be formally validated by the appropriate hierarchical level;
- adapting the risk insurance strategy, if necessary.

On an ongoing basis, the risk assessment also feeds on the results of other operational risk management frameworks in order to ensure a relevant and consistent assessment. The assessment methods for certain risks are increasingly based on in-depth approaches adapted to the type of underlying risk while incorporating the results on assessment scales and shared benchmarks allowing the comparison and prioritization of areas of risks or scope of activities.

Key risk indicators

Key risk indicators (KRIs) supplement the overall operational risk management system by providing a dynamic view (warning system) of changes in business risk profiles.

Their follow-up provides managers of entities with a regular measure of improvements or deteriorations in the risk and the environment of prevention and control.

A cross analysis of Group-level KRIs and losses is presented to the Group’s Executive Committee on a quarterly basis *via* a specific dashboard.

Analyses of scenarios

The analyses of scenarios serve two purposes: informing the Group of potential significant areas of risk and contributing to the calculation of the capital required to cover operational risks.

These analyses make it possible to build an expert opinion on a distribution of losses for each risk category and thus to measure the exposure to potential losses in scenarios of very severe severity, which can be included in the calculation of the prudential capital requirements.

In practice, various scenarios are reviewed by experts who gauge the severity and frequency of the potential impacts for the Group by factoring in internal and external loss data as well as the internal framework (controls and prevention systems) and the external environment (regulatory, business, etc.). Analyzes are carried out either at Group level (transversal scenarios) or at business level.

Governance is established in particular, to:

- allow the approval of the annual scenarios update program by the Risk Committee (CORISQ);
- allow the approval of the scenarios by the businesses (for example during the internal control coordination committees of the departments concerned or during *ad hoc* meetings) and a challenge of scenario analyses by LOD2;
- conduct an overall review of the Group’s risk hierarchy and of the suitability of the scenarios through CORISQ.

New product Committees

Each division submits its plans for a new product for customers to the New Product Committee.

The Committee, jointly coordinated by the Risk Division and the relevant businesses, is a decision-making body which decides the production and marketing conditions of new products to customers.

The Committee aims to ensure that, before any product launch, all types of induced risks (credit, market, liquidity and refinancing, country, operational, legal, accounting, tax, financial, information systems risks as well as the risks of non-compliance, reputation, protection of personal data and corporate social and environmental responsibility risks, etc.) have been identified, assessed and, if necessary, subjected to mitigation measures allowing the acceptance of residual risks.

The definition of “new product” extends from the creation of a new product or service to the development of an existing product or service as soon as this development is likely to generate different or higher risks. The development may be linked to matters such as a new regulatory environment, to marketing on a new scope or to a new type of clientele.

Outsourcing of services

Some banking services are outsourced outside the Group or within the Group (e.g. in our shared service centers). These two subcontracting channels are supervised in a manner adapted to the risks.

A framework with standards and a tool helps ensure that the operational risk linked to outsourcing is controlled, and that the conditions set by the Group's approval are respected.

It helps to map the Group's outsourcing with an identification of the activities and BU/SU concerned, and to put outsourcing under control with knowledge of risks and with suitable supervision.

During the study phase, the business/service units decide on the outsourcing of services within the framework of standards set by the Group. Outsourcing projects are led by a project manager and validated by the sponsor who accepts the residual risk level after a risk analysis based on expert opinions. This ensures the consistency of the assessments and the consistency of decisions across the Group.

The analysis includes operational risks (including fraud, execution risk, etc.), tax, non-compliance, supplier, business continuity risks, risks related to data quality, and risks related to information security and data protection.

Legal experts use the same definition of essential outsourcing of services as that defined in the Decree of 3 November 2014.

All outsourced services are then monitored at a frequency defined by their level of risk.

Services at Group level are subject to reinforced monitoring through very regular contractual monitoring. These services are identified using criteria such as the concept of "core business activity", financial impact and reputation risk. These services are validated by a dedicated Committee, chaired by the Operational Risk Department.

A closing phase is used to manage the ends of services.

The reinforcement of the system will continue in 2022, in particular with the addition of clarifications on the methodological framework, a greater involvement of senior management in the supervision of this risk and the intensification of the role of the 2nd line of defense in the management, review and control of outsourced services.

Crisis management and business continuity

Business continuity is managed by developing in each Societe Generale group entity, organisations, procedures and resources that can deal with natural or accidental damage, or acts of deliberate harm, with a view to protect their personnel, assets and activities and to allow the provision of essential services to continue, if necessary temporarily in reduced form, then restoring service to normal.

The aim is not only to meet regulatory obligations but also to minimise as far as possible any harm to personnel, clients or infrastructure and so preserve intact the Group's image, goodwill, brands, products, procedures and know-how and limit the impact of events on the Group's financial position and solvency.

Based on the identification of threats to the Group and their possible effects and, making due allowance for preventative, protective and dissuasive measures, management of business continuity consists of:

- defining various crisis scenarios, including extreme shocks;
- being able to respond efficiently to these scenarios of crisis, loss or unavailability of human or operational resources;
- maintaining these frameworks to ensure they remain efficient (reviewing the appropriateness of scenarios, allowing for changes to the organisation, adjustments to resources, functional tests).

The approach used to implement and track the business continuity systems of each Group entity is based on a methodology that meets international standards.

4.8.3 OPERATIONAL RISK MEASUREMENT

Since 2004, Societe Generale has used the Advanced Measurement Approach (AMA) allowed by the Capital Requirements Directive to measure operational risk. This approach, implemented across the main Group entities, notably makes it possible to:

- identify the businesses that have the greatest risk exposures;
- identify the types of risk that have the greatest impact on the Group's risk profile and overall capital requirements;
- enhance the Group's management of operational risks.

Operational risk modeling

The statistical method used by the Group for operational risk modeling is based on the Loss Distribution Approach (LDA) for AMA internal model.

Under this approach, operational risks are modeled using segments, each segment representing a type of risk and a Group core business. The frequency and severity of operational risks, based on past internal losses, external losses, the internal and external environment, and scenario analyses, are estimated and the distribution of annual losses is calculated for each segment. This approach is supplemented by cross-business scenario analyses that measure cross-business risks for core businesses, such as cybercriminality and the flooding of the river Seine.

Aside from the individual risks associated with each segment or cross-business scenario analysis, the model takes into account the diversification between the various types of risk and the core businesses, dependency effects between extreme risks as well as the effect of insurance policies taken out by the Group.

The Group's regulatory capital requirements for operational risks within the scope covered by the (AMA) internal model are then defined as the 99.9% quantile of the Group's annual loss distribution.

For some Group entities, notably in retail banking activities abroad, the standard method is applied: the calculation of capital requirements is defined as the average over the last three years of a financial aggregate based on the Product Net Banking multiplied by factors defined by the regulator and corresponding to each category of activity. To make the calculation, all of the Group's business lines are broken down into the eight regulatory activities.

Societe Generale's total capital requirements for operational risks were EUR 3.7 billion at the end of 2021, representing EUR 47 billion in risk-weighted assets. This assessment includes the capital requirement of AMA and Standard perimeters.

Insurance cover in risk modeling

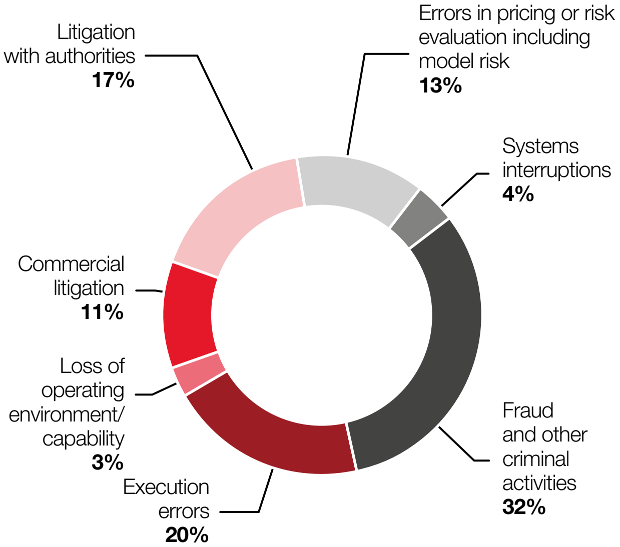
In accordance with regulations, Societe Generale incorporates risk cover provided by insurance policies when calculating regulatory capital requirements for operational risks, within the limit of 20% of said requirements. These insurance policies cover part of the Group's major risks, i.e. civil liability, fraud, fire and theft, as well as systems interruptions.

Risk reduction through insurance policies resulted in a 6.5% decrease in total capital requirements for operational risks.

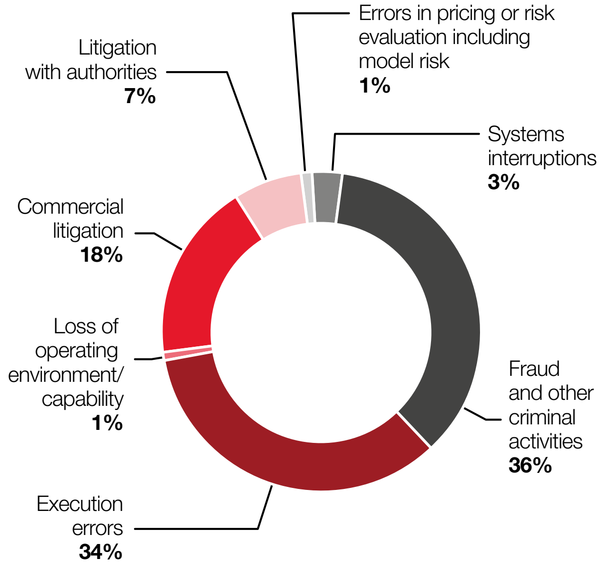
Quantitative data

The following charts break down operating losses by risk category for the 2017-2021 period.

OPERATIONAL RISK LOSSES: BREAKDOWN BY SOCIETE GENERALE RISK EVENT TYPE – AMOUNTS



OPERATIONAL RISK LOSSES: BREAKDOWN BY SOCIETE GENERALE RISK EVENT TYPE – NUMBER OF EVENTS



Over the past five years, Societe Generale's operational risks were concentrated on average on five types, accounting for 93% of the Group's total operating losses:

- fraud and other criminal activities represented 32% of the amount of operating losses over the period. They are mainly composed of external frauds on financing files (falsified financial statements by the client, theft or misappropriation of collateral/guarantees, etc.), fraud on manual means of payment (cash, transfer and cheque) and supplier fraud on financed equipment; the trend is downward in 2021 due in particular to a lower loss experience in external fraud on financing files;
- execution errors represented 20% of total operational losses, thereby constituting the second leading cause of loss for the Group. After two consecutive years of increase (including the Covid effect in 2020), the amount of losses in this category is falling back to values close to the average; the proper execution of the remediation plans explains the decline observed in 2021;
- litigation with authorities, the third largest category, represented 17% of the Group's operational losses over the period; the 2021 provisions relate to files born before 2016;
- pricing or risk assessment errors, including model risk, represent 13% of the total amount of losses. The main cases concern the pricing and ALM models;
- commercial disputes represented 11% of total Group operating losses. The trend is down for this category over the period considered; the 2021 provisions mainly relate to files born before 2015.

The other categories of Group operational risk (activities not authorised on the markets, system interruptions, loss of operating environment/capability) were still relatively insignificant, representing 6% of the Group's losses on average over the 2017 to 2021 period.

4.8.4 RISK-WEIGHTED ASSETS AND CAPITAL REQUIREMENTS

Societe Generale's capital requirements for operational risk are mainly calculated using the Advanced Measurement Approach (AMA) *via* its internal model (95% in 2021).

The amount of RWA on the AMA scope decreased in 2021 (EUR -2.5 billion, *i.e.* -5.4%). This decrease is linked to the update of scenarios analyses, which may evolve downward for some categories of operational risk events.

The following table breaks down the Group's risk-weighted assets and the corresponding capital requirements at 31 December 2021.

TABLE 34: WEIGHTED EXPOSURES AND CAPITAL REQUIREMENTS FOR OPERATIONAL RISK BY APPROACH

	31.12.2021				
(In EURm)	Relevant indicator			Own funds requirements	Risk-weighted assets
Banking activities	**31.12.2019**	**31.12.2020**	**31.12.2021**		
Banking activities subject to basic indicator approach (BIA)	-	-	-	-	-
Banking activities subject to standardised (TSA)/ alternative standardised (ASA) approaches	1,365	1,437	1,481	193	2,412
Subject to TSA	*1,365*	*1,437*	*1,481*		
Subject to ASA	-	-	-		
Banking activities subject to advanced measurement approaches AMA	23,643	21,964	23,980	3,552	44,394

	31.12.2020				
(In EURm)	Relevant indicator[1]			Own funds requirements	Risk-weighted assets
Banking activities	**31.12.2018**	**31.12.2019**	**31.12.2020**		
Banking activities subject to basic indicator approach (BIA)	-	-	-	-	-
Banking activities subject to standardised (TSA)/ alternative standardised (ASA) approaches	1,170	1,365	1,437	180	2,250
Subject to TSA	*1,170*	*1,365*	*1,437*		
Subject to ASA	-	-	-		
Banking activities subject to advanced measurement approaches AMA	24,657	23,643	21,964	3,755	46,938

(1) Historical data including the updates, reflecting some evolutions in the scope of entities, which occurred across the year.

4.8.5 OPERATIONAL RISK INSURANCE

General policy

Since 1993, Societe Generale has implemented a global policy of hedging Group operational risks through insurance.

This consists in searching the market for the most extensive cover available for the risks incurred and enabling all entities to benefit from such cover wherever possible. Policies are taken out with leading insurers. Where required by local legislation, local policies are taken out, which are then reinsured by insurers that are part of the global program.

In addition, special insurance policies may be taken out by entities that perform specific activities.

A Group internal reinsurance company intervenes in several policies in order to pool high-frequency, low-level risks between entities. This approach contributes to the improvement of the Group's knowledge and management of its risks.

Description of main general risk coverage

Buildings and their contents, including IT equipment, are insured at their replacement value. The guarantee covering acts of terrorism abroad has been renewed.

Liability other than professional liability (i.e. relating to operations, Chief Executive Officers and Directors, etc.) are covered. The amounts insured vary from country to country, according to operating requirements.

Description of main risks arising from operations

Insurance is only one of the measures used to offset the consequences of the risks inherent in the Group's activity. It complements the Group's risk management policy.

THEFT/FRAUD

These risks are included in the "Banker's Blanket Bond" policy that insures all the Group's financial activities around the world.

Internal fraud (committed by an employee or by a third party acting with the aid of an employee) and external fraud (committed by a third party acting alone), with the intent to obtain illicit personal gain or to harm the Group, are covered.

PROFESSIONAL LIABILITY

The consequences of any legal on staff or managers in the Group's professional activities are insured under a global policy.

CYBER ATTACKS

A cyber risk insurance policy has been taken out amid an environment not specific to the banking sector which is seeing a rapid development of new forms of crime mainly involving data theft or the compromise or destruction of computer systems.

4.9 STRUCTURAL INTEREST RATE AND EXCHANGE RATE RISKS

Audited I Structural exposure to interest rate and exchange rate risks results from commercial transactions, their associated hedging transactions and corporate centre transactions.

The interest rate and exchange rate risks linked to Trading Book activities are excluded from the structural risk measurement scope as they belong to the category of market risks. Structural and market exposures constitute the Group's total interest rate and exchange rate exposure.

The general principle is to reduce structural interest rate and exchange rate risks to the greatest possible extent within the consolidated entities. Within the entities, commercial and corporate centre operations must therefore be matched in terms of interest rates and exchange rates as much as possible. At the consolidated level, a structural foreign exchange position is maintained in order to minimise the sensitivity of the Group's Common Equity Tier 1 (CET1) ratio to exchange rates fluctuations.

4.9.1 ORGANISATION OF THE MANAGEMENT OF STRUCTURAL INTEREST RATE AND EXCHANGE RATE RISKS

The principles and standards for managing these risks are defined at the Group level. The entities are first and foremost responsible for managing these risks. The ALM (Asset and Liability Management) Department within the Group's Finance Division leads the control framework of the first line of defense. The ALM department of the Risk Department assumes the role of second line of defense supervision.

The Group Finance Committee, a General Management Body

The purpose of the Group Finance Committee is to:

- validate and ensure the adequacy of the system for monitoring, managing and supervising structural risks;
- review changes in the Group's structural risks through consolidated reporting;
- review and validate the measures proposed.

The ALM Department, within the Group's Finance Department

The ALM (Asset and Liability Management) Department is responsible for:

- defining the structural risk policies for the Group and formalising risk appetite;
- analysing the Group's structural risk exposure and defining hedging strategies;
- monitoring the regulatory environment concerning structural risk;
- defining the ALM principles for the Group;
- defining the modelling principles applied by the Group's entities regarding structural risks;
- identifying, consolidating and reporting on Group structural risks;
- monitoring compliance with structural risk limits.

The ALM Risk Control Department within the Risk division

The second-level supervision of the ALM models used within the Group and of associated frameworks is provided by a dedicated service within the Risk department, the Asset Liability Management Risk - Structural and Liquidity Risk department. Accordingly, this department is in charge of:

- defining the steering indicators and overall stress test scenarios of the different types of structural risks and setting the main limits for the business divisions and the entities and Business Units (BU)/Service Units (SU);
- defining the normative environment of the structural risk metrics, modelling and framing methods;
- reviewing the ALM models by delegation of the Model Risk Management department.

Finally, the Risk Department chairs the Group model validation Committee and the Group ALM norms validation Committee.

The entities and BU/SU are responsible for ALM risk management

Each entity, each BU/SU, manages its structural risks and is responsible for regularly assessing risks incurred, producing the risk report and developing and implementing hedging options. Each entity, each BU/SU is required to comply with Group standards and to adhere to the limits assigned to it.

As such, the entities and the BUs/SUs apply the standards defined at Group level and develop the models, with the support of the central modelling teams of the Finance Department.

An dedicated ALM manager reporting to the Finance Department in each entity, BU/SU, is responsible for monitoring these risks (first-level control). This manager is responsible for reporting ALM risks to the Group Finance Department. All entities, BU/SU, have an ALM Committee responsible for implementing validated models, managing exposure to interest rate and exchange rate risks and implementing hedging programmes in accordance with the principles set out by the Group and the limits validated by the Finance Committee and the BU/SU ALM Committees.

4.9.2 STRUCTURAL INTEREST RATE RISK

Structural interest rate risk is generated by commercial transactions and their hedging, as well as the management operations specific to each of the consolidated entities.

The Group's objective

The objective of managing structural interest rate risk is to reduce of exposure of each Group entity as much as possible.

To this end, the Board of Directors, the Finance Committee and the ALM Committee set sensitivity limits (in terms of value and income) for the Group, the BUs/SUs and the entities respectively.

Measuring and monitoring structural interest rate risk

Societe Generale uses several indicators to measure the Group's overall interest rate risk.

The three most important indicators are:

- the sensitivity of the net present value (NPV) to the risk of interest rate mismatch. It is measured as the sensitivity of the net present value of the static balance sheet to a change in interest rates. This measure is calculated for all currencies to which the Group is exposed;
- the sensitivity of the interest margin to changes in interest rates in various interest rate scenarios. It takes into account the sensitivity generated by future commercial production;
- the sensitivity of NPV to basis risk (risk associated with decorrelation between different variable rate indices).

Limits on these indicators are applicable to the Group, the BUs/SUs and the various entities. Limits are set for shocks at +/-0.1% and for stressed shocks (+/-1% for value sensitivity and +/-2% for income sensitivity) without floor application. Only the sensitivity of income over the first two years is framed. The measurements are computed monthly 10 months a year (with the exception of the months of January and July for which no Group-level closing is acheved). An additional synthetic measurement of value sensitivity – all currencies – is framed for the Group. To comply with these frameworks, the entities combine several possible approaches:

- orientation of the commercial policy so as to offset interest rate positions taken on the asset and liability side;
- implementation of a swap operation or – failing this in the absence of such a market – use of a loan/borrowing operation;
- purchase/sale of options on the market to cover optional positions taken vis-à-vis our clients.

Assets and liabilities are analysed without a prior allocation of resources to uses. Maturities of outstanding amounts are determined by taking into account the contractual characteristics of the transactions, adjusted for the results of customer behaviour modelling (in particular for demand deposits, savings and early loan repayments), possibly differentiated according to the rate scenario considered, as well as a certain number of disposal agreements, in particular on equity items.

As of 31 December, the modeling of deposits with no maturity date, sometimes integrating a dependence on the rate level, leads to an average duration of 4.5 years, with a maximum duration of 20 years.

Changes in OCI or P&L of instruments recognised at fair value are not included in the controlled income sensitivity measures.

Hedging transactions are mainly documented from an accounting viewpoint: this can be carried out either as micro-hedging (individual hedging of commercial transactions and hedging instruments) or as macro-hedging under the IAS 39 "carve-out" arrangement (global backing of portfolios of similar commercial transactions within a Treasury Department; macro-hedging concerns essentially French retail network entities).

Macro-hedging derivatives are essentially interest rate swaps in order to maintain networks' net asset value and result sensitivity within limit frameworks, considering hypotheses applied. For macro-hedging documentation, the hedged item is an identified portion of a portfolio of commercial client or interbank operations. Conditions to respect in order to document hedging relationships are reminded in Note 3.2 to the consolidated financial statements.

Macro-hedging derivatives are allocated to separate portfolios according to whether they are used to hedge fixed-rate assets or liabilities in the accounting books. The hedging instrument portfolios allocated to liability elements are net fixed-rate receiver/variable-rate payer whereas the hedging instrument portfolios allocated to asset elements are net fixed-rate payer/variable-rate receiver.

The non-over-hedging tests and hedged items non-disappearing tests make the link between the balance sheet available assets or liabilities outstanding and the amount of assets and liabilities outstanding designated as hedged. The prospective non-over-hedging test is satisfied when the net outstanding amount of the swaps is lower for each maturity band and on each measurement date than the determined outstanding amount of items eligible to fair value hedge. The estimated outstanding may be defined as the outstanding amount resulting from ALM projections. The non-over-hedging a posteriori test is performed in two stages: the first stage is the same as the a priori test but on the outstanding amount eligible to fair value hedge on closing date, new production excluded, then the second stage is called the non-disappearance of the hedged item test and consists in verifying that the hedgeable position is always at least as significant as the maximum position that had initially been hedged.

The effectiveness of the hedge is then determined using the dollar offset method. The sources of ineffectiveness result from the last fixing of the variable leg of the hedging swaps, the bi-curve valorisation of the collateralised hedging instruments, possible mismatches in the cash flows payment dates and counterparty risk on hedging instruments valorisation.

The Group's sensitivity to VAN at 31 December 2021 was EUR -20 million (for an instantaneous and parallel increase in interest rates of 0.1%). ▲

AUDITED I TABLE 35: SENSITIVITY OF THE GROUP'S VALUE TO A +10 BP INTEREST RATE VARIATION

(In EURm)	Total
Amount of sensitivity (31.12. 2021)	**(20)**
Amount of sensitivity (31.12.2020)	345

The regulatory metrics are calculated in a similar way to the value sensitivity management metrics, exceptions made:

- rate shocks;
- conventions used to dispose of equity and equity securities (10-year linear flow for management metrics while their sensitivity is zero for regulatory EVE sensitivity metrics);
- specific provisions imposed by the regulator (EBA GL 2018/02, §113, §114, §115 and §116) and in particular the discounting carried out at a risk-free rate for the entire balance sheet.

The Group analyses the sensitivity of the net interest margin to changes in market interest rates through stress tests on the Group's net interest margin under constant balance sheet and under forward balance sheet assumptions.

The measurement of the sensitivity of the net interest margin to a three-year horizon in different configurations of the yield curve is used by the Group to monitor the interest rate risk on a perimeter of significant entities.

The balance sheet in a dynamic approach evolves according to the amortisation of the stock and the renewals of operations on the basis of the outstanding amounts booked at the closing date.

The sensitivity of the Group's net interest margin over the next three full years is low. In the event of a parallel rise in the yield curve of +10 bps, it is positive and represents approximately 1% of net banking income.

The sensitivity of the net interest margin is mainly due to the impact on:

- customer deposits: generally low or non-interest-bearing, with customer rates only partially impacted by interest rate changes, their margin is mainly the result of the replacement rate;
- new credit loan production.

The sensitivity of the margin on the stock of customer transactions results from the renewal of matured tranches of deposit replacements and the residual sensitivity of the balance sheet to interest rate changes.

French Retail Banking’s activities in France and abroad are favourably exposed by a rise in interest rates over the first three years enabling them to replace their deposits at higher rates, with the margin on loans in stock remaining stable. However, this increase in margin is partially offset by higher refinancing costs.

Retail Banking activities are unfavourably exposed to the decrease in rates as their deposits are then replaced at lower rates and the margin on loans in stock decreases due to early repayments. This decline in margin was partially offset by lower refinancing costs.

Calculations are based on the aggregate estimates at 31 December of consolidated entities of the Group.

TABLE 36: SENSITIVITY OF THE GROUP’S INTEREST MARGIN

(In EURm)	31.12.2021	31.12.2020
Parallel increase in interest rates of 10 bp		
Year 1	27	62
Year 2	84	107
Year 3	153	184
Parallel decrease in interest rates of 10 bp		
Year 1	(7)	(74)
Year 2	(85)	(124)
Year 3	(148)	(201)

4.9.3 STRUCTURAL EXCHANGE RATE RISK

Audited I Structural exchange rate risk, understood as resulting from all transactions that do not belong to the Trading Book, results from:

- exposures related to net investments abroad in foreign currencies, i.e. in subsidiaries and branches. FX positions generated by an imperfect hedge are valued through other comprehensive income;
- exposures related to activities made by entities in currencies that are not their reporting currency.

The Group's policy is to make the CET1 ratio insensitive to fluctuations in exchange rates against the euro.

At 31 December 2021, the CET1 ratio amounted to 13.53%. Of the EUR 363 billion in RWA, EUR 111 billion relates to exposures in currencies other than the euro.

As such:

- Group entities are asked to individually hedge the results related to activities in currencies other than their reporting currency;
- the exposures related to net investments in foreign currencies and the associated net results are partially hedged at central level. A position in each foreign currency generating RWA is intentionally maintained open by the Finance Department at the Group CET1 ratio targeted level. Hedges are realised using cash lending and borrowing, forward and swap instruments in the subsidiaries' currencies and accounted for as net investment hedges (see Note 3.2.2 of consolidated financial statements in chapter 6);
- the Group's net consolidated structural foreign exchange position as at 31 December 2021 is equivalent to EUR 12,832 million, of which 45% comes from the USD, and around 79% is concentrated in six currencies: USD, GBP, RUB, CZK, MAD and XOF.

For each currency, the difference between actual and target exposure is governed by limits validated by the General Management in Finance Committee and the Board of Directors.

Similarly, the sensitivities of the CET1 ratio to shocks of +/-10bps per currency are framed. ▲

TABLE 37: SENSITIVITY OF THE GROUP'S COMMON EQUITY TIER 1 RATIO TO A 10% CHANGE IN THE CURRENCY (IN BASIS POINTS)

	Impact of a 10% currency depreciation on the Common Equity Tier 1 ratio		Impact of a 10% currency appreciation on the Common Equity Tier 1 ratio	
Currency	**31.12.2021**	**31.12.2020**	**31.12.2021**	**31.12.2020**
GNF	(0.1)	(0.1)	0.1	0.1
HKD	0.2	(0.1)	(0.2)	0.1
XPF	0.3	0.3	(0.3)	(0.3)
CZK	0.4	(0.1)	(0.4)	0.1
RON	0.4	(0.1)	(0.4)	0.1
RUB	0.5	0.3	(0.5)	(0.3)
GBP	0.5	0.7	(0.5)	(0.7)
XAF	0.6	0.7	(0.6)	(0.7)
USD	0.8	0.8	(0.8)	(0.8)
Others	0.1	1.1	0.1	(0.9)

4.10 LIQUIDITY RISK

Audited I Liquidity risk is defined as the risk that the bank cannot meet its financial obligations. It is measured across different time horizons, under various assumptions (normal conditions and stressed scenarios). Funding risk is defined as the risk that the Group cannot maintain over time the appropriate amount of funding to support its assets and at a reasonable cost.

4.10.1 OBJECTIVES AND GUIDING PRINCIPLES

The liquidity and funding management set up at Societe Generale aims at ensuring that the Group can (i) fulfil its payment obligations at any moment in time, during normal course of business or under lasting financial stress conditions (management of liquidity risks) ; (ii) raise funding resources in a sustainable manner, at a reasonable cost (management of funding risks). Doing so, the liquidity and funding management set up ensures that both regulatory requirements and the risk appetite set by the Group are met.

To achieve these objectives, Societe Generale has adopted the following guiding principles:

- mutualising resources, optimising costs and ensuring consistent risk management by centralising liquidity and funding management at the Corporate centre level, mainly in the name of the mother company (Societe Generale SA). For that purpose, Business Units have tight constraints in terms of the transformation position they can run, hence need to match their assets and liabilities by transacting with the Corporate centre, along a Funds Transfer Pricing mechanism. Assets or liabilities which do not have a set contractual maturity (e.g. sight deposits) have their maturity assessed along quantitative models or conventions proposed by the Finance Division and by the Business Units and validated by the Risk Division (see below);
- planning for funding resources in consideration of both the business development objectives and the risk appetite set by the Board of Directors. See below the "Funding Plan" chapter in section 2;
- ensuring that funding risks are mitigated through a proper diversification of funding resources in terms of currencies, investor pools, maturity buckets, liability format (e.g. benchmark bond issuance, with a split along various seniority levels, issuance in the form of structured notes, issuance in the form of unsecured and secured notes). In order to optimise funding costs, the majority of bond issuance is made in the name of the mother company. However, a degree of diversification is sought by leveraging the capacity of some subsidiaries to raise funds in a way which complements the mother company's funding, i.e. raising funds from local investors in local currencies;
- ensuring that Societe Generale keeps liquid reserves in sufficient amount to comply with the survival horizon under stress set by the Board of Directors. Liquid reserves are in the form of cash held at central banks and highly liquid securities, split between the Banking Book (under the direct or indirect ownership of the Group Treasury Department) or the Trading Book (mainly within the Global Markets division, under a permanent control of the Group Treasury Department);
- ensuring Societe Generale has readily available remediation options to face potential stress situations, through a Group-wide contingency plan (which leaves aside insurance activities, which have their separate contingency arrangements) aimed at detecting any stress signals at an early stage and defining in advance the crisis management setup and mitigation options.

4.10.2 THE GROUP'S PRINCIPLES AND APPROACH TO LIQUIDITY RISK MANAGEMENT

The key operational steps of liquidity and funding management are as follows:

- risk identification is a process which is set out and documented by the Risk Department, in charge of establishing a mapping of liquidity risks. This process is conducted yearly with each Business Unit and within the Group Treasury Department, aimed at screening all material risks and checking their proper measurement and capturing the control framework. In addition, a Reverse Stress Testing process exists, which aims at identifying and quantifying the risk drivers which may weigh most on the liquidity profile under assumptions even more severe than used in the regular stress test metrics;
- definition, implementation and periodic review of liquidity models and conventions used to assess the duration of assets and liabilities without a set contractual maturity and to assess the liquidity profile under stress. Liquidity models are managed along the overall Model Risk Management governance, also applicable to other risk factors (market, credit, operational), controlled by the Group Risk division;
- definition of risk appetite: The Board of Directors validates, on the proposal of General Management, the limits and associated alert thresholds, which are then applied to the businesses. Liquidity risk risk appetite covers the following metrics:
  - key regulatory indicators (LCR, with a specific focus on the LCR in US dollar, and NSFR),
  - the footprint of the Group in Short-Term Wholesale funding markets,
  - the survival horizon under an adverse stress scenario, combining a severe market and systemic shock and an idiosyncratic shock. In addition to the main adverse scenario, Societe Generale also checks its survival horizon under an extreme stress scenario. For both scenarios, the idiosyncratic shock is characterised by one of its main consequences, which would be an immediate 3-notch downgrade of Societe Generale's long-term rating. In such adverse or extreme scenarios, the liquidity position of the Group is assessed over time, taking into account the negative impacts of the scenarios, such as deposit outflows, drawing by clients of the committed facilities provided by Societe Generale, increase in margin calls related to derivatives portfolios, etc. The survival horizon is the moment in time when the net liquidity position under such assumptions becomes negative,

- the overall transformation position of the Group (proper matching of assets and liabilities, in tenors up to 5 years),
- the amount of free collaterals providing an immediate access to central bank funding, in case of an emergency (only collaterals which do not contribute to the numerator of the LCR are considered, i.e. non-HQLA collaterals);

- the financial trajectories under baseline and stressed scenarios are determined within the framework of the funding plan to respect the risk appetite. The budget's baseline scenario reflects the central assumptions for the macro-economic environment and the business strategy of the Group, while the stressed scenario is factoring both an adverse macro-economic environment and idiosyncratic issues;
- the funding plan comprises both the long-term funding programme, which frames the issuance of plain vanilla bonds and structured notes, and the plan to raise short-term funding resources in money markets;
- maintenance by the Group Treasury Department and validation by the Finance Committee of a Funds Transfer Pricing framework, aimed at making funding grids available at any time for Business Units to transact with the Corporate center to upstream their liquidity surplus or borrow cash so that they fund their activities within their transformation position limits;
- production and broadcasting of periodic liquidity reports, at various frequencies (daily indicators, weekly indicators, monthly indicators), leveraging in most part on the central data repository, operated by a dedicated central production team. The net liquidity position under the combined (idiosyncratic and market/systemic) stress scenario is reassessed on a weekly basis and can be analysed along multiple axes (per product, Business Unit, currency, legal entity). Each key metric (LCR, NSFR, transformation positions, net liquidity position under combined stress) is reviewed formally on a monthly basis by the Group Finance and Risk divisions. Forecasts are made and revised weekly by the Strategic and Financial Steering Department and reviewed during a Weekly Liquidity Committee chaired by the Head of Group Treasury. This Weekly Liquidity Committee gives tactical instructions to Business Units, with the objective to adjust in permanence the liquidity and funding risk profile, within the limits and taking into account business requirements and market conditions;
- preparation of a Contingency Funding Plan, which is applicable Group-wide, and provides for: (i) a set of early warning indicators (e.g. market parameters or internal indicators); (ii) the operating model and governance to be adopted in case of an activation of a crisis management mode (and the interplay with other regimes, in particular Recovery management); (iii) the main remediation actions to be considered as part of the crisis management.

These various operational steps are part of the ILAAP (Internal Liquidity Adequacy Assessment Process) framework of Societe Generale.

Every year, Société Générale produces for its supervisor, the European Central Bank (ECB), a self-assessment of the liquidity risk framework in which key liquidity and funding risks are identified, quantified and analysed with both a backward and a multi-year forward-looking perspective. The adequacy self-assessment also describes qualitatively the risk management set up (methods, processes, resources, etc.), supplemented by an assessment of the adequacy of the Group's liquidity.

4.10.3 GOVERNANCE

The main liquidity risk governance bodies are as follows:

- the Board of Directors, which:
  - sets yearly the level of liquidity risk tolerance as part of the Group's risk appetite, based on a set of key metrics, which includes both internal and regulatory metrics, in particular the period of time during which the Group can operate under stressed conditions ("survival horizon"),
  - approves budget targets, including targets related to scarce resources such as liquidity usage and funding (definition of the funding plan),
  - reviews at least quarterly the Group's liquidity and funding situation: key liquidity metrics, specifically stressed liquidity gap metrics as evaluated through Société Générale Group models, the regulatory metrics LCR and NSFR, the pace of execution of the funding plan and the related cost of funds;
- General Management, which:
  - allocates liquidity and funding targets to the various Business Units and the Group Treasury entity, upon proposal from the Group Finance division,
  - defines and implements the liquidity and funding risk strategy, based on inputs from the Finance and Risk Departments and the Business Units. In particular, the General Management chairs the Finance Committee, held every 6 weeks and attended by representatives from the Finance and Risk Departments and Business Units, which is responsible for monitoring structural risks and managing scarce resources:
    - validation and monitoring of the set of limits for structural risks, including liquidity risk,
    - monitoring of budget targets and decisions in case of a deviation from the budget,
    - definition of principles and methods related to liquidity risk management (e.g. definition of stress scenarios),
    - assessment of any regulatory changes and their impacts;
- the Group Finance Department, which is responsible for the liquidity and funding risks as First Line of Defence, interacting closely with Business Units. Within the Group Finance Department, there are three main departments involved respectively in the preparation and implementation of decisions taken by the abovementioned bodies:
  - the Strategic and Financial Steering Department is responsible for framing and overseeing management of the Group's scarce resources, including liquidity, within the Group's risk appetite and budget targets,
  - the Group Treasury Department is in charge of all aspects of the operational management of liquidity and funding across the Group, including managing the liquidity position, executing the funding plan, supervising and coordinating treasury functions, providing operational expertise in target setting, managing the liquidity reserves and the collateral used in funding transactions, managing the corporate centre,
  - the Asset and Liability Management Department is in charge of modelling and monitoring structural risks, including liquidity risk alongside interest rate and foreign exchange risks in the Banking Book;
- also sitting with the Group Finance Department, the Metrics Production Department runs the management information system regarding liquidity and funding risks across the Group. For liquidity metrics, the Group relies on a centralised system architecture, with all Business Units feeding a central data repository from which all metrics are produced, either regulatory metrics (e.g. the LCR or the NSFR) or metrics used for internal steering (e.g. stress test indicators);
- the ALM Risk Department, which performs all second line of defense functions, in particular leads the risk identification process, designs the structure and the calibration of the liquidity and funding risks control framework and monitors compliance with related thresholds and limits. It also validates liquidity models and conventions.

4.10.4 LIQUIDITY RESERVE

The Group's liquidity reserve encompasses cash at central banks and assets that can be used to cover liquidity outflows under a stress scenario. The reserve assets are available, i.e. not used in guarantee or as collateral on any transaction. They are included in the reserve after applying a haircut to reflect their expected valuation under stress. The Group's liquidity reserve contains assets that can be freely transferred within the Group or used to cover subsidiaries' liquidity outflows in the event of a crisis: non-transferable excess cash (according to the regulatory ratio definition) in subsidiaries is therefore not included in the Group's liquidity reserve.

The liquidity reserve includes:

- central bank deposits, excluding mandatory reserves;
- High-Quality Liquid Assets (HQLAs), which are securities that can be quickly monetised on the market via sale or repurchase transactions; these include government bonds, corporate bonds and equities listed on major indices (after haircuts). These HQLAs meet the eligibility criteria for the LCR, according to the most recent standards known and published by regulators. The haircuts applied to HQLA securities are in line with those indicated in the most recent known texts on determining the numerator of the LCR;
- non-HQLA Group assets that are central bank-eligible, including receivables as well as covered bonds and securitisations of Group receivables held by the Group.

The composition of the liquidity reserve is reviewed regularly by a special committee comprising the Finance Department, the Risk Department and the Management of the MARK Business Unit, and is adjusted by authorisation of the Finance Committee.

TABLE 38: LIQUIDITY RESERVE

(In EURbn)	31.12.2021	31.12.2020
Central bank deposits (excluding mandatory reserves)	168	154
HQLA securities available and transferable on the market (after haircut)	58	82
Other available central bank-eligible assets (after haircut)	3	7
TOTAL	**229**	**243**

4.10.5 REGULATORY RATIOS

The Basel Committee recommends the international implementation of two standard ratios with harmonised parameters to regulate bank liquidity risk profiles:

- the Liquidity Coverage Ratio (LCR) aims to ensure that banks hold sufficient liquid assets or cash to survive a significant stress scenario combining a market crisis and a specific crisis and lasting for one month;
- the Net Stable Funding Ratio (NSFR) is a transformation ratio which compares funding needs with stable resources over a one-year period.

The European transposition of Basel 3, CRD4 and CRR1 published on 27 June 2013 has been amended by Directive 2019/878 of the European Parliament and of the Council of 20 May 2019 (CRD5) and the Capital Requirements Regulation: Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 (CRR2). Its French version was published in the Official Journal on 7 June 2019.

The LCR regulation issued on 10 October 2014 has since been updated by a Delegated Act which entered into force on 30 April 2020. The corresponding minimum requirement was set at 100% from 1 January 2018.

The NSFR requirement included in the CRR2 (EU) 2019/876 of 20 May 2019 entered into force in June 2021. The required level stands at 100%.

Since the implementation of the European regulatory LCR requirement in October 2015, Societe Generale's LCR has consistently stood at over 100%. The LCR was 129% at end-2021 (*vs.* 149% at end-2020). Since the NSFR intered into force, it has consistently stood at over 100% and stands at 110% at end-2021.

4.10.6 BALANCE SHEET SCHEDULE

The main lines of the Group's financial liabilities and assets are presented in Note 3.13 to the consolidated financial statements.

TABLE 39: BALANCE SHEET SCHEDULE

FINANCIAL LIABILITIES

	31.12.2021					
(In EURm)	**Note to the consolidated financial statements**	**0-3 m**	**3 m-1 yr**	**1-5 yrs**	**>5 yrs**	**Total**
Due to central banks		5,152	-	-	-	**5,152**
Financial liabilities at fair value through profit or loss, excluding derivatives		136,581	17,693	23,438	23,244	**200,956**
Due to banks	Note 3.6	57,174	4,185	76,106	1,712	**139,177**
Customer deposits	Note 3.6	470,890	15,244	16,568	6,431	**509,133**
Securitised debt payables	Note 3.6	89,671	12,164	19,040	14,449	**135,324**
Subordinated debt	Note 3.9	7,735	61	3,649	4,514	**15,959**

NB: The scheduling assumptions for these liabilities are presented in Note 3.13 to the consolidated financial statements. In particular, the data are shown without provisional interest and excluding derivatives.

	31.12.2020					
(In EURm)	**Note to the consolidated financial statements**	**0-3 m**	**3 m-1 yr**	**1-5 yrs**	**>5 yrs**	**Total**
Due to central banks		1,489	-	-	-	**1,489**
Financial liabilities at fair value through profit or loss, excluding derivatives		164,209	17,529	20,520	28,813	**231,071**
Due to banks	Note 3.6	57,383	9,140	67,830	1,218	**135,571**
Customer deposits	Note 3.6	422,319	14,489	13,328	5,923	**456,059**
Securitised debt payables	Note 3.6	36,665	34,317	44,998	22,977	**138,957**
Subordinated debt	Note 3.9	7	2	6,029	9,394	**15,432**

NB: The scheduling assumptions for these liabilities are presented in Note 3.13 to the consolidated financial statements. In particular, the data are shown without provisional interest and excluding derivatives.

FINANCIAL ASSETS

	31.12.2021					
(In EURm)	**Note to the consolidated financial statements**	**0-3 m**	**3 m-1 yr**	**1-5 yrs**	**>5 yrs**	**Total**
Cash, due from central banks		176,064	822	1,988	1,095	**179,969**
Financial assets at fair value through profit or loss, excluding derivatives	Note 3.4	233,186	9,173	-	-	**242,359**
Financial assets at fair value through other comprehensive income	Note 3.4	42,798	380	-	272	**43,450**
Securities at amortised cost	Note 3.5	16,686	289	1,480	916	**19,371**
Due from banks at amortised cost	Note 3.5	47,182	3,619	4,715	456	**55,972**
Customer loans at amortised cost	Note 3.5	94,978	65,686	189,325	117,555	**467,544**
Lease financing agreements[(1)]	Note 3.5	2,778	6,378	16,024	4,440	**29,620**

(1) Amounts are featured net of impairments.

	31.12.2020					
(In EURm)	**Note to the consolidated financial statements**	**0-3 m**	**3 m-1 yr**	**1-5 yrs**	**>5 yrs**	**Total**
Cash, due from central banks		164,724	900	1,611	944	**168,179**
Financial assets at fair value through profit or loss, excluding derivatives	Note 3.4	240,288	9,371	-	-	**249,659**
Financial assets at fair value through other comprehensive income	Note 3.4	51,090	708	-	262	**52,060**
Securities at amortised cost	Note 3.5	13,941	146	1,337	211	**15,635**
Due from banks at amortised cost	Note 3.5	46,790	1,664	4,071	855	**53,380**
Customer loans at amortised cost	Note 3.5	70,518	75,862	163,365	109,820	**419,565**
Lease financing agreements[(1)]	Note 3.5	2,582	6,036	16,167	4,411	**29,196**

(1) Amounts are featured net of impairments.

Due to the nature of its activities, Société Générale holds derivative products and securities whose residual contractual maturities are not representative of its activities or risks.

By convention, the following residual maturities were used for the classification of financial assets:

1. assets measured at fair value through profit or loss, excluding derivatives (customer-related trading assets):
   - positions measured using prices quoted on active markets (L1 accounting classification): maturity of less than 3 months,
   - positions measured using observable data other than quoted prices (L2 accountBing classification): maturity of less than 3 months,
   - positions measured mainly using unobservable market data (L3): maturity of 3 months to 1 year;
2. financial assets at fair value through other comprehensive income:
   - available-for-sale assets measured using prices quoted on active markets: maturity of less than 3 months,
   - bonds measured using observable data other than quoted prices (L2): maturity of 3 months to 1 year,
   - finally, other securities (shares held long-term in particular): maturity of more than 5 years.

As regards the other lines of the balance sheet, other assets and liabilities and their associated conventions can be broken down as follows:

OTHER LIABILITIES

	31.12.2021						
(In EURm)	**Note to the consolidated financial statements**	**Not scheduled**	**0-3 m**	**3 m-1 yr**	**1-5 yrs**	**> 5 yrs**	**Total**
Tax liabilities	Note 6.3	-	-	836	741	-	**1,577**
Revaluation difference on portfolios hedged against interest rate risk		2,832	-	-	-	-	**2,832**
Other liabilities	Note 4.4	-	98,035	2,241	3,023	3,006	**106,305**
Non-current liabilities held for sale		1	-	-	-	-	**1**
Insurance contracts related liabilities	Note 4.3	-	15,566	10,232	40,848	88,642	**155,288**
Provisions	Note 8.3	4,850	-	-	-	-	**4,850**
Shareholders' equity		70,863	-	-	-	-	**70,863**

	31.12.2020						
(In EURm)	**Note to the consolidated financial statements**	**Not scheduled**	**0-3 m**	**3 m-1 yr**	**1-5 yrs**	**> 5 yrs**	**Total**
Tax liabilities	Note 6.3	-	-	815	-	408	**1,223**
Revaluation difference on portfolios hedged against interest rate risk		7,696	-	-	-	-	**7,696**
Other liabilities	Note 4.4	-	76,148	2,218	4,549	2,022	**84,937**
Non-current liabilities held for sale		-	-	-	-	-	-
Insurance contracts related liabilities	Note 4.3	-	16,593	9,475	38,011	82,047	**146,126**
Provisions	Note 8.3	4,775	-	-	-	-	**4,775**
Shareholders' equity[(1)]		67,012	-	-	-	-	**67,012**

(1) Amount at 31 December 2020 modified in accordance with the restatement of comparative accounting data which can be found in the Group's financial statements published on 10 February 2022, as well as in Chapter 6 of the present Universal Registration Document.

OTHER ASSETS

	31.12.2021						
(In EURm)	**Note to the consolidated financial statements**	**Not scheduled**	**0-3 m**	**3 m-1 yr**	**1-5 yrs**	**> 5 yrs**	**Total**
Revaluation differences on portfolios hedged against interest rate risk		131	-	-	-	-	**131**
Other assets	Note 4.4	-	92,898	-	-	-	**92,898**
Tax assets	Note 6	4,812	-	-	-	-	**4,812**
Investments accounted for using the equity method		-	-	-	-	95	**95**
Tangible and intangible fixed assets	Note 8.4	-	-	-	-	31,968	**31,968**
Goodwill	Note 2.2	-	-	-	-	3,741	**3,741**
Non-current assets held for sale		-	1	2	12	12	**27**
Investments of insurance companies		-	49,908	5,632	36,781	86,577	**178,898**

	31.12.2020						
(In EURm)	**Note to the consolidated financial statements**	**Not scheduled**	**0-3 m**	**3 m-1 yr**	**1-5 yrs**	**> 5 yrs**	**Total**
Revaluation differences on portfolios hedged against interest rate risk		378	-	-	-	-	**378**
Other assets	Note 4.4	-	67,341	-	-	-	**67,341**
Tax assets	Note 6	5,001	-	-	-	-	**5,001**
Investments accounted for using the equity method		-	-	-	-	100	**100**
Tangible and intangible fixed assets	Note 8.4	-	-	-	-	30,088	**30,088**
Goodwill	Note 2.2	-	-	-	-	4,044	**4,044**
Non-current assets held for sale		-	1	1	2	2	**6**
Investments of insurance companies		-	44,087	7,569	34,097	81,101	**166,854**

1. Revaluation differences on portfolios hedged against interest rate risk are not scheduled, as they comprise transactions backed by the portfolios in question. Similarly, the schedule of tax assets whose schedule would result in the early disclosure of income flows is not made public.
2. Other assets and other liabilities (guarantee deposits and settlement accounts, miscellaneous receivables) are considered as current assets and liabilities.
3. The notional maturities of commitments in derivative instruments are presented in Note 3.13 to the consolidated financial statements.
4. Investments in subsidiaries and affiliates accounted for by the equity method and Tangible and intangible fixed assets have a maturity of more than 5 years.
5. Provisions and shareholders' equity are not scheduled.

4.11 COMPLIANCE RISK, LITIGATION

Acting in compliance means understanding and observing the external and internal rules that govern our banking and financial activities. These rules aim to ensure a transparent and balanced relationship between the Bank and all of its stakeholders. Compliance is the cornerstone of trust between the Bank, its customers, its supervisors and its staff.

Compliance with rules is the responsibility of all Group employees, who must demonstrate compliance and integrity on a daily basis. The rules must be clearly expressed, and staff have been informed and/or trained to understand them properly.

The compliance risk prevention system is based on shared responsibility between the operational entities and the Group Compliance Department:

- the operational entities (BU/SUs) must incorporate into their daily activities compliance with laws and regulations, the rules of professional best practice and the Group's internal rules;
- the Compliance Department manages the Group's compliance risk prevention system. It ensures the system's consistency and efficiency, while also developing appropriate relationships – alongside the General Secretary – with bank supervisors and regulators. This independent department reports directly to General Management.

To support the businesses and supervise the system, the Compliance Department is organised into:

- **Standards and Consolidation teams** responsible for defining the normative system and oversight guidelines, consolidating them at Group level, as well as defining the target operational model for each compliance risk;
- **Departmental/business compliance teams** which are aligned across the Group's major business lines (Corporate and Investment Bank, French Retail Banking, International Retail Banking, Private Banking and Corporate Divisions), responsible for the relationship with BU/SUs, including dealflow, advisory, and risk oversight of BU/SUs;
- teams responsible for cross-business functions, including second-level controls.

The Compliance Department is organised into three main compliance risk categories:

- financial security: Know Your Customer (KYC) processes; the observance of international sanctions and embargo rules, and anti-money laundering and counter-terrorism financing rules, including issuing declarations of suspicion to the relevant authorities where applicable;
- regulatory risks: these cover mainly customer protection, market integrity, anti-bribery and corruption, ethics and conduct, compliance with tax transparency regulations (based on knowledge of the customers' tax profile), compliance with corporate social responsibility regulations and Group commitments;
- data protection, including personal data, in particular those of customers.

Financial Security			Regulatory risks					Data and Digital
KYC(1)	AML(2)	Sanctions & Embargoes	Customer protection	Market integrity	Tax transprency	Anti-corruption, Conduct and Ethics	CSR(3)	GDPR, Archiving…

(1) Know Your Customer.
(2) Anti-Money Laundering.
(3) Corporate Social Responsibility.

Compliance has set up an extensive compulsory training programme for each of these risk categories, designed to raise awareness of compliance risks among all or some employees. The training has been completed by high-level employees within the Group.

In addition to its LoD2 function with regard to the aforementioned risks, Compliance oversees the regulatory system for all regulations applicable to credit institutions, including those implemented by other departments, such as prudential regulations.

4.11.1 COMPLIANCE

Financial security

KNOW YOUR CUSTOMER (KYC)

In 2018, the Group launched a programme to rework its KYC functions in order to boost their operational efficiency (*via* the simplification of standards, greater pooling of resources, optimisation of tools and processes) and to improve the customer experience. Placed under the responsibility of the Compliance Department, this programme is closely and regularly monitored at the highest bank level. Work carried out in this regard has made it possible to redefine a standardised normative framework country by country in terms of KYC due diligence, to develop new customer rating models, and to launch an industrialised system for the screening and processing of negative customer news. This allowed the anti-corruption system to be upgraded in line with the requirements of the French anti-bribery agency. The transformation programme will be fully implemented by the end of 2022.

ANTI-MONEY LAUNDERING AND COUNTER-TERRORISM FINANCING (AML/CTF)

The Group has transposed all the measures linked to Directive (EU) 2015/849 on anti-money laundering and counter-terrorism financing (referred to as "the 5th anti-money laundering directive"), as well as European Regulation 2015/847 on the quality of payment information and the Order of 6 January 2021 on the system and internal controls to fight money laundering and terrorism financing.

The system for the detection of suspicious or unusual transactions continued to be strengthened in 2021 with the roll-out of more sophisticated monitoring tools, the optimisation of scenarios used and the launch of initiatives to switch to new-generation monitoring tools, with priority given to International Retail Banking and Boursorama.

FINANCIAL EMBARGOES AND SANCTIONS

In 2021, the international environment was impacted by the reinforcement of US sanctions on China, with greater complexity in terms of implementation that may generate substantial operational risks for financial institutions. More broadly, Societe Generale Group has confirmed its position to abstain from any trading activity with Iran and to maintain transactions with Russia within a strict framework.

The Group continued to strengthen its Embargoes/Sanctions system under the established remedial programme following agreements entered into with the US authorities (see page 258), notably in terms of screening third parties and transactions, training employees and industrialising all processes involved in controlling this risk.

Regulatory compliance risk

CUSTOMER PROTECTION

Customer protection is a major challenge for the Societe Generale Group, which is committed to respecting and protecting the interests of its customers.

The prevention of financial vulnerability (early detection), banking inclusion (the right to hold an account) and the replacement or removal of insurance taken out on a real estate loan were priorities in 2021.

Information provided to customers was strengthened with new rules on ESG (Environmental and Social Governance) labelling and designations.

The system keeping track of obligations laid down in European consumer protection regulations (MIF2 and the Insurance Directive or DDA) is in place for product governance and advisory, as well as to ensure compliance with information requirements.

In an environment still dominated by the health and social crisis, significant measures are being implemented in the Group's system in terms of:

- strengthening internal rules regarding key aspects of customer protection (marketing rules, cross-border sales, customer claims, conflicts of interest, product governance, protection of customers' assets, along with compensation and qualification of employees);
- specific training and increased staff awareness; the importance the Group places on this issue is largely addressed in the Group's Code of Conduct;
- adapting as a matter of necessity existing tools to new regulatory requirements, in particular the Shareholder Rights Directive II (SRD2), applicable as of 2021.

Customer claims

Processing a claim is a commercial act that impacts customer satisfaction. Accordingly, it has received much coverage in the Code of Conduct.

The "Customer claim processing" Group instruction incorporates the recommendations of the national supervisor (French Prudential Supervisory and Resolution Authority – ACPR) and the regulatory requirements (MIF2, DDA and DSP – the Payment Services Directive) relative to the strengthening of customer protection measures at European level. The bank's businesses have an *ad hoc* governance, an organisation, human resources and applications, formalised procedures, and quantitative and qualitative monitoring indicators.

Independent mediation supplements this internal system. Mediation, a measure aimed at amicable settlement, is brought to customers' awareness on multiple information media, in particular through a permanent notice on the back of bank account statements. Every entity involved is obliged to comply with the independent mediator's decision.

Conflicts of interest

The Group has a clear normative framework in place to prevent and manage conflicts of interest. This framework specifies the principles and mechanisms that have been implemented. This robust system covers three categories of potential conflicts of interest: those that may arise between the Group and its customers or between the Group's customers; those occurring between the Group and its employees (particularly in relation to activities involving an employee's personal interest and/or their professional obligations); and, lastly, those arising between the Group and its suppliers. The system has been supplemented by the reporting of conflicts of interest (*Déclaration des Conflits d'intérêts* – DACI) required of Group employees most exposed to the risks of corruption.

Product governance

Systematic reviews ahead of and during the marketing process ensure compliance with product governance obligations. As product originator, Societe Generale sets up Product Review Committees to ensure the target market has been defined correctly and, if not, to adjust it accordingly. As distributor, Societe Generale checks that the criteria match the customers' situation and communicates with product originators to track products during their life cycle. Updated in 2021, Societe Generale's investment services policy now includes new offers in terms of sustainable finance, the supervision of crypto-assets, and detailed notes on the target markets of the main instruments produced or distributed by each business.

Vulnerable customers

Societe Generale has established practices and usages to comply with legislation vis-à-vis vulnerable customers, in particular customers benefiting from the offer tailored to financially vulnerable customers. To contribute to the national effort to boost the purchasing power of French citizens in challenging financial circumstances, the Group has added to its practices by introducing additional measures in 2019, notably: i) freezing bank fees; ii) capping bank intervention fees for vulnerable clients; and iii) organising follow-up and support suited to the situation of customers experiencing difficulties in the wake of recent events. These measures are closely monitored and covered in action plans aimed at identifying financially vulnerable customers.

MARKET INTEGRITY

The main regulatory risks concerning market integrity involve the following:

- interest rate benchmarks;
- market manipulation and the protection of privileged information (market abuse regulations);
- regulations for transparency and to reduce the systemic risk inherent in over-the-counter ("OTC") derivatives;
- separation of proprietary trading by banks (US Volcker Rule and French Banking Law on the Separation and Regulation of Banking Activities).

The overall system for hedging Market Integrity risk was strengthened in 2021, in particular with respect to processes and controls on OTC derivatives activities in accordance with the relevant regulations, and on preventive measures concerning personal staff transactions.

Market abuse

The system continued to be strengthened in 2021 with the extension and improvement of tools identifying market manipulation risks and an extensive employee training programme on the subject.

Regarding staff transactions, Societe Generale implemented a new pre-authorisation tool based on classifying employees in terms of their exposure to confidential information on investment services customers or on the Bank as issuer.

Regarding **market indices:** the Group has implemented an action plan to monitor contributions to benchmarks and ensure their Group-wide administration. In addition to contributions to **benchmark indices** and the administration of indices, the use of indices has been subject to regulatory restrictions since January 2020. This system is monitored Group-wide.

The year was also characterised by the Group's preparation for the IBOR transition in order to replace IBOR interest rate benchmarks with alternative, risk-free rates.

Separation of banking activities

The US Volcker Rule – which established a prohibition in principle for certain institutions in the financial services sector, such as the Societe Generale Group, to conduct speculative trading and hold covered funds[1] on its own account – was subject to two major amendments in 2019 and 2020. These amendments ease the Societe Generale Group's regulatory obligations.

The system overseeing compliance with the Volcker Rule and the Separation and Regulation of Banking Activities Act has been made permanent and stabilised following the aforementioned developments in 2020. Moreover, the system providing a regulatory framework for market activities (regarding activity indicators, in particular) was reformed in March 2019 (Order of 18 March 2019). These changes were incorporated into the internal normative and control system.

OTC derivatives

Regulatory risks related to derivatives market activities are covered by European regulations (MIFIR, EMIR regulation) and US regulations (Dodd-Frank Act).

These regulations remain subject to changes. Combined with business and technological developments, they require constant updates and adjustments to the compliance management system. The year 2021 was characterised by the continued implementation of new requirements.

Transaction reporting

In light of the many regulatory requirements attached to transaction reporting, and regulators' heightened interest in the quality of such reports, Societe Generale is continuing to deploy a new Group policy dedicated to mandatory compliance reporting (including transaction reporting). This policy defines the governance and control standards applicable to these reports.

COMPLIANCE/TAX TRANSPARENCY

Societe Generale Group's principles on combating tax evasion are governed by the Tax Code of Conduct. The Code was updated in March 2017 and approved by the Board of Directors after review by the Executive Committee. It is a public document and can be consulted on the Bank's institutional investor portal *(https://www.societegenerale.com/sites/default/files/documents/Code%20de%20conduite/tax_code_of_conduct_of_societe_generale_group_uk.pdf)*.

The five main principles of the Code of Conduct are as follows:

- Societe Generale ensures compliance with the tax rules applicable to its business in all countries where the Group operates, in accordance with international conventions and national laws;
- in its customer relationships, Societe Generale ensures that customers are informed of their tax obligations relating to transactions carried out with the Group, and the Group complies with the reporting obligations that apply to it as bookkeeper or in any other way;
- in its relations with the tax authorities, Societe Generale is committed to strictly respecting tax procedures and ensures that it maintains open and transparent relations to maintain its reputation;
- Societe Generale does not encourage or promote tax evasion for itself, its subsidiaries or its customers;
- Societe Generale has a tax policy in line with its strategy of sustainable profitability and refrains from any operation, whether for its own account or for its customers, whose main purpose or effect is tax motivated, unless this is consistent with the intention of the legislation.

The Board of Directors annually reviews the application of the Code and the procedures and systems in place within the Group to ensure that new products and new establishments comply with the Group's tax principles.

(1) The Volcker Rule does not offer a specific definition of the term "covered fund". It sets out a general prohibition to deal with hedge funds and private equity funds, also including a list of exceptions based on the products and/or strategy of the fund, which may provide an exemption from this category. For example, retirement or pension funds, foreign public funds, acquisition vehicles and securitisation vehicles are not considered covered funds.

Relationships with legislators and tax law policy makers are governed by the Charter for Responsible Advocacy with respect to Public Authorities and Representative Institutions *(https://www.societegenerale.com/sites/default/files/documents/Document%20RSE/societe-generale-obligations-for-a-responsible-advocacy.pdf).*

The Group is committed to a strict policy with regard to tax havens. No Group entity is authorised in a state or territory on the official French list of ETNCs (*États et territoires non coopératifs* in French)(1) and internal rules have been in place since 2003 to monitor an expanded list of countries or territories.

The Group follows the Organization for Economic Co-operation and Development's (OECD) transfer pricing standards. However, local constraints may require deviations from OECD methodologies, in which case the local constraints must be documented.

The Group publishes information on its entities and activities annually on a country-by-country basis *(Section 2.12 – page 58)* and confirms that its presence in a number of countries is for commercial purposes only, and not to benefit from special tax provisions. The Group also complies with the tax transparency rules for its own account (CbCR – country-by-Country Reporting).

The Group is fully committed to implementing regulations aimed at ensuring tax transparency for its customers' accounts (in particular FATCA and the Common Reporting Standard – CRS, DAC6).

Some of the tax regulations define tax transparency requirements. FATCA (Foreign Account Tax Compliance Act), CRS (Common Reporting Standard), QI (Qualified Intermediary) and DAC6 (Directive on Administrative Cooperation 6) regulations have the common goal of combating fraud and tax evasion by customers. The risks borne by financial institutions are financial, commercial and reputational in nature. The Group's main challenges involve adapting to regulatory developments, which are becoming increasingly stringent over the years, and strengthening its control systems.

Societe Generale complies with tax transparency standards. The Common Reporting Standard (CRS) enables tax authorities to be systematically informed of income received abroad by their tax residents, including where the accounts are held in asset management structures. Moreover, Societe Generale complies with the requirements of the United States FATCA (Foreign Account Tax Compliance Act), which aims to combat tax evasion involving foreign accounts or entities held by US taxpayers. Non-US financial intermediaries are thus responsible for identifying US taxpayers in their customer base in order to declare the income received by said taxpayers, directly or indirectly, to the US tax administration, thereby enabling an automatic reconciliation with their individual tax returns. The tax transparency objectives have been achieved by generating a tax report filed at national level and sharing tax information between partner countries on the basis of existing bilateral tax treaties and inter-governmental agreements (IGAs).

Lastly, the Group has implemented the new European Directive on transparency between intermediaries (referred to as DAC6), which will require the reporting of cross-border tax arrangements. The Group Compliance Division has supported the Group Tax Department in implementing DAC6, more specifically the D regulatory marker regarding schemes aimed at circumventing the CRS and those involving opaque chains of beneficial owners.

Importantly, the account-keeping entities of the Private Banking business line are established exclusively in countries with the strictest tax transparency rules imposed by G20 member countries and the OECD. These countries ratified the Convention on Mutual Administrative Assistance in Tax Matters, introduced the automatic exchange of information in financial accounts (CRS) and obtained the "largely compliant" and "compliant" rating as part of the peer review process conducted under the aegis of the OECD. Assets deposited in Private Banking books are subject to enhanced scrutiny using comprehensive due diligence procedures to ensure they are tax compliant.

In accordance with regulatory requirements, Societe Generale also includes tax fraud in its anti-money laundering procedures.

ANTI-CORRUPTION MEASURES

Societe Generale is fully committed to fighting corruption and has given clear undertakings in this respect by participating in the Wolfsberg Group and the Global Compact.

The Group applies strict principles that are included in its Code of Conduct and its "Anti-Corruption and Influence Peddling Code".

Societe Generale's anti-corruption programme is built around the following themes:

- code of conduct;
- risk mapping;
- appropriate training at all levels (senior management, exposed persons, all employees);
- control systems;
- accounting procedures;
- evaluation of third parties;
- disciplinary system;
- right to whistleblow.

Within this context, processes and tools continue to be strengthened with the provision of staff dedicated to anti-corruption practices within the Group, and the creation of monitoring indicators and new controls – including accounting and operational controls to reduce the risk of corruption.

The Group's anti-corruption instructions have been revised and expanded to include a new version of the Anti-Corruption and Influence Peddling Code, which was incorporated into the Internal Rules in April 2021.

The Societe Generale Group now has several tools at its disposal, such as the tool for declaring gifts and invitations (GEMS), the tool for whistleblowing management (WhistleB), and the annual conflict of interest declaration tool (DACI).

Training measures have been strengthened, in particular with respect to persons most exposed to the risk of corruption, accounting controllers, and members of General Management and the Board of Directors.

Third-party knowledge procedures have been improved, with special focus on intermediaries, as well as the introduction of due diligence for suppliers and associations benefiting from donations or sponsorship initiatives.

CORPORATE SOCIAL RESPONSIBILITY

European financial regulations have seen significant changes from a social and environmental perspective, in particular with the entry into force in March 2021 of Regulation (EU) 2019/2088 – SFDR on sustainability-related disclosures in the financial services sector, and the Taxonomy Regulation (EU) 2020/852 on the establishment of a framework to facilitate sustainable investment. The Compliance Division is developing the normative framework relative to the European Union regulations on sustainable investment. A dedicated programme is helping the business lines to comply with regulations and is producing deliverables pertaining to normative documentation, training, controls and supervision.

(1) Including the European Union blacklist.

Over and above the regulations, the Group is making voluntary, public commitments in this area. To manage the implementation of the environmental and social risk management system and ensure the Group's commitments are upheld, the Compliance Division has taken the following measures:

- developing normative controls;
- deploying e-learning on environmental and social risk management. The training was made compulsory for all employees having a direct or indirect relationship with corporate customers. Moreover, specific workshops were conducted with targeted employees in the Compliance Division to foster an understanding of and compliance with the criteria for applying voluntary commitments;
- defining an environmental and social escalation procedure with respect to corporate customers to set out the criteria requiring business lines to reach out to the Compliance Division and, where applicable, the Responsible Commitments Committee, to connect with a company or during situations likely to present a reputational risk arising from environmental or social factors.

DATA PROTECTION

As a trusted partner of its customers, Societe Generale is especially sensitive to personal data protection.

Following the entry into force of the General Data Protection Regulation (GDPR), which increases the Company's obligations and the level of sanctions in case of non-compliance with these obligations (up to 4% of revenue), the Societe Generale Group has considerably strengthened its personal data processing management system.

Across all Group entities, internal instructions and associated procedures in line with local and European regulations define the rules to apply and the measures to take to guarantee the protection and security of customer and staff data. In particular, measures to inform data subjects (customers, employees, shareholders, suppliers, etc.) and process their demands are in place so that such persons can exercise their rights, notably *via* dedicated digital platforms. A personal data security policy has been defined, which fits in with the Group's overall security strategy, especially as regards cybersecurity. Moreover, there has been a specific effort to increase staff awareness *via* dedicated training.

Lastly, Societe Generale Group has appointed a Data Protection Officer (DPO) who reports to the Head of Group Compliance and is the main contact person for the Personal Data Protection Authority (*Commission Nationale de l'Informatique et des Libertés* – CNIL). The DPO is responsible for ensuring sound Group compliance for personal data protection. Alongside the network of local DPOs and correspondents throughout the Group entities, the DPO assists them with security issues and personal data usage. As part of his or her duties, the DPO regularly reviews a number of indicators, notably the number and nature of requests by persons seeking to exercise their rights under GDPR, the internal training completion rate, and the local DPO certification programme.

Other regulatory risks

RISK AND COMPENSATION POLICY

In keeping with the regulatory framework defined by European Directive CRD4, Societe Generale has had a specific governance in place to determine variable compensation since the end of 2010. The rules introduced by this directive apply not only to financial market professionals, but to all persons whose activity is likely to have a substantial impact on the risk profile of the institutions which employ them, including those exercising control functions.

The regulatory framework defined by European Directive CRD4 since 2014 and by European Directive CRD5 which has applied since 1 January 2022 does not modify the rules determining the variable compensation of persons whose activity is likely to have an impact on the risk profile of the Group and of the employees who exercise control functions. The above-mentioned principles and governance remain in place within the Group.

According to the principles approved by the Board of Directors as proposed by the Compensation Committee, the compensation mechanisms and processes for the identified population not only factor in the financial results of the transactions undertaken, but also the broader context and how these results are generated, especially in terms of control and management of all risks and adherence to compliance rules. Control function employees are compensated independently of the results of the transactions that they control, and according to criteria specific to their activity.

Variable compensation includes a non-deferred portion and a deferred portion. The acquisition of the deferred portion of the variable compensation is subject to three conditions: a minimum length of service, a minimum level of financial performance of the Company and/or the activity, and appropriate management of risks and compliance (malus and clawback provisions). All deferred variables of the regulated population are subject to a non-payment clause to sanction any excessive risk-taking or behaviour deemed unacceptable. Subject to applicable regulations, a clawback clause enables Societe Generale to request the return of deferred variables, in part or in full, after the holding period and for a five-year period after their allocation was included in the Group's plan for deferred variable compensation allocated for 2021.

At least 50% of this compensation is paid in shares or equivalent securities. The purpose of these payment methods is to align the compensation with the Company's performance and risk horizon.

The Risk Division and Compliance Division help define and implement this policy. In particular, every year they independently assess the main activities of Wholesale Banking, and of French and International Retail Banking, and the principal risk takers, together with the desk managers subject to the Separation and Regulation of Banking Activities Act and the Volcker Rule in relation to their risk management and compliance. These assessments are reviewed by General Management and taken into account when determining the amounts of variable compensation.

Furthermore, Societe Generale has implemented a specific system and governance aimed at the holders of trading mandates to ensure that the compensation policy genuinely factors in the requirements of the Separation and Regulation of Banking Activities Act of 26 July 2013 and the Volcker Rule.

In keeping with our historical approach and in accordance with the recommendations of the Committee of European Banking Supervisors, several regulatory principles – the portion of deferred compensation, the acquisition of which is subject to conditions of presence, the minimum performance of the Group and the activity, and appropriate risk and compliance management – apply to a wider population than the regulated population depending on the level of variable compensation, notably across the scope of Wholesale Banking.

In addition, the Group's annual employee appraisal tool has included a Conduct and Compliance section since 2018, enabling managers to factor in cases of non-compliant employee behaviour with respect to risk management, quality of service and respecting customers' interests. Where an employee has failed to observe conduct and compliance rules, the manager must draft and implement a dedicated action plan to assist him or her. The results of this specific appraisal measure are crucial in determining the employee's career path and compensation.

The consideration given to risks in the compensation policy is presented every year to the Risks Committee and a Director sitting on the Risks Committee also sits on the Compensation Committee.

Management of reputational risk

The reputational risk management system is described in the Societe Generale Code.

It is coordinated by the Compliance Department, which:

- supports the Compliance Control Officers of the businesses in their strategy for preventing, identifying, assessing and controlling reputational risk;
- develops a reputational risk dashboard that is communicated quarterly to the Risk Committee of the Board of Directors, based on information from the businesses/Business Units and support functions/Service Units (in particular the Human Resources, Communications, Legal, Corporate Social Responsibility and Data Protection Departments).

Moreover, Chief Compliance Officers dedicated to Business Units take part in the various bodies (new product Committees, *ad hoc* Committees, etc.) organised to approve new types of transactions, products, projects or customers, and formulate a written opinion as to their assessment of the level of risk of the planned initiative, and notably the reputational risk.

COMPLIANCE REMEDIATION PLAN IN THE WAKE OF AGREEMENTS ENTERED INTO WITH FRENCH AND US AUTHORITIES

In June 2018, Societe Generale entered into agreements with the US Department of Justice (DOJ) and the US Commodity Futures Trading Commission (CFTC) to resolve their investigations into IBOR submissions, and with the DOJ and the French Financial Prosecutions Department (*Parquet National Financier* - PNF) to resolve their investigations into certain transactions involving Libyan counterparties.

In November 2018, Societe Generale entered into agreements with the US authorities to resolve their investigations into certain US dollar transactions involving countries, persons or entities subject to US economic sanctions.

As part of these agreements, the Bank committed to enhance its compliance system in order to prevent and detect any violation of anti-corruption and bribery, market manipulation and US economic sanction regulations, and any violation of New York state laws. The Bank also committed to enhance corporate oversight of its economic sanctions compliance programme.

Moreover, the Bank agreed with the US Federal Reserve to hire an independent consultant to assess the Bank's progress on the implementation of measures to strengthen its compliance programme with respect to sanctions and embargoes.

To meet the commitments made by Societe Generale as part of these agreements, the Bank developed a programme to implement these commitments and strengthen its compliance system in the relevant areas. This programme has been placed under the direct supervision of the Group Head of Compliance. In addition, the programme's Steering Committee is chaired by a member of the Bank's General Management, and a programme progress report is presented to the Board of Directors on a monthly basis.

In 2021, the Programme was rolled out according to the schedule presented to the internal Governance bodies and the various authorities who have received regular reports on the progress of remedial actions. Moreover, the external audits provided for in the agreements have been conducted or are under way.

On 30 November and 2 December 2021, the US federal court confirmed the termination of legal proceedings by the DOJ, which confirmed that Societe Generale complied with obligations relating to the deferred prosecution agreements (DPA) of June and November 2018. In December 2020, the PNF resolved proceedings against Societe Generale and acknowledged that Societe Generale had fulfilled its obligations with respect to the public interest judicial convention.

UNITED STATES COMPLIANCE REMEDIATION PLAN

On 19 November 2018, Societe Generale Group and its New York branch (SGNY) entered into an agreement (enforcement action) with the NY State Department of Financial Services regarding the SGNY anti-money laundering compliance programme. This agreement requires (i) submitting an enhanced anti-money laundering programme, (ii) an anti-money laundering governance plan, and (iii) the performance of an external audit in 2020.

As background information, on 14 December 2017, Societe Generale and SGNY on the one hand, and the Board of Governors of the Federal Reserve on the other hand, agreed to a Cease and Desist order (the "Order") regarding the SGNY compliance programme to adhere to the Bank Secrecy Act ("BSA") and its anti-money laundering ("AML") obligations (the "Anti-Money Laundering Compliance Program"), and regarding some aspects of its Know Your Customer (KYC) programme.

This Cease and Desist Order signed on 14 December 2017 with the US Federal Reserve supersedes the Written Agreement entered into in 2009 between Societe Generale Group and SGNY on the one hand, and the US Federal Reserve and the New York State Financial Services Department on the other.

On 17 December 2019, Societe Generale SA and SGNY signed an agreement with the Federal Reserve Bank of New York (FRB) regarding compliance risk management. This agreement included the submission and approval by the FRB, followed by the implementation, of (i) an action plan to strengthen supervision by the US Risk Committee of the compliance risk management programme, (ii) an action plan to improve the compliance risk management programme in the US, and (iii) revisions of the internal audit programme concerning compliance risk management audits in the US. As at the end of 2021, these actions were being implemented.

4.11.2 LITIGATION

The information pertaining to risks and litigation is included in Note 9 to the consolidated financial statements, page 534.

4.12 MODEL RISK

Many choices made within the Group are based on quantitative decision support tools (models). Model risk is defined as the risk of losses due to decisions reached based on results of internal modeling due to errors in development, implementation or use of these models. It can take the form of model uncertainty or errors in the implementation of model management processes.

4.12.1 MODEL RISK MONITORING

The Group is fully committed to maintaining a solid governance system in terms of model risk management in order to ensure the efficiency and reliability of the identification, design, implementation, modification monitoring processes, independent review and approval of the models used. An MRM ("Model Risk Management") Department in charge of controlling model risk was created within the Risk Department in 2017. Since then, the model risk management framework has been consolidated and structured and is based today on the following device.

Actors and responsibilities

The model risk management system is implemented by the three independent lines of defence, which correspond to the responsibility of the business lines in risk management, to the review and independent supervision and evaluation of the system and which are segregated and independent to avoid any conflict of interest.

The device is as follows:

- the first line of defence (LoD1), which brings together several teams with diverse skills within the Group, is responsible for the development, implementation, use and monitoring of the relevance over time of the models, in accordance with model risk management system; these teams are housed in the Business Departments or their Support Departments;
- the second line of defence (LoD2) is made up of governance teams and independent model review teams, and supervised by the "Model Risk" Department within the Risk Department;
- the third line of defence (LoD3) is responsible for assessing the overall effectiveness of the model risk management system (the relevance of governance for model risk and the efficiency of the activities of the second line of defence) and independent audit of models: it is housed within the Internal Audit Department.

Governance, steering and monitoring

A MRM Committee chaired by the Risk Director meets at least every three months to ensure the implementation of the management system and monitor the risk of models at Group level. Within the second line of defence and the "Model risk" Department, a governance team is in charge of the design and management of the model risk management system at Group level.

As such:

- the normative framework applicable to all of the Group's models is defined, applied when necessary to the main families of models to provide details on the specifics, and maintained while ensuring the consistency and homogeneity of the system, its integrity and its compliance with regulatory provisions; this framework specifies in particular the definition of expectations with regard to LoD1, the principles for the model risk assessment methodology and the definition of guiding principles for the independent review and approval of the model;
- the identification, recording and updating of information of all models within the Group (including models under development or recently withdrawn) are carried out in the model inventory according to a defined process and piloted by LoD2;
- the monitoring and reporting system relating to model risk incurred by the Group in Senior Management has been put in place. The appetite for model risk, corresponding to the level of model risk that the Group is ready to assume in the context of achieving its strategic objectives, is also formalised through statements relating to risk tolerance, translated under form of specific indicators associated with warning limits and thresholds.

Model life cycle and review and approval process

For each model, risk management is based on compliance with the rules and standards defined for the entire Group by each LoD1 player, it is guaranteed by an effective challenge from LoD2 and a uniform approval process.

The need to examine a model is assessed according to the level of model risk, its model family and applicable regulatory requirements. The independent review by the second line of defence is triggered in particular for new models, periodic model reviews, proposals to change models and transversal reviews in response to a recommendation:

- it corresponds to all the processes and activities which aim to verify the conformity of the functioning and use of the models with respect to the objectives for which they were designed and to the applicable regulations, on the basis of the activities and controls implemented by LoD1;
- it is based on certain principles aimed at verifying the theoretical robustness (evaluation of the quality of the design and development of the model), the conformity of the implementation and use, and the relevance of the monitoring of the model;
- it gives rise to an Independent Review Report, which describes the scope of the review, the tests carried out, the results of the review, the conclusions or the recommendations.

The approval process follows the same approval scheme for all models, the composition of governance bodies being able to vary according to the level of model risk, the family of models, the applicable regulatory requirements and the Business Units/Service Units in which model is applicable. Responsible for LOD2, the approval process consists of two consecutive instances:

- the Review Authority which aims to present the conclusions identified by the review team in the independent Review Report and to discuss, allowing for a contradictory debate between LoD1 and LoD2. Based on the discussions, LoD2 confirms or modifies the conclusions of the review report, including the findings and recommendations, without being limited thereto;
- the Approval Authority, a body which has the power to approve (with or without reservation) or reject the use of a model, changes made to the existing model or continuous monitoring of the relevance of the model along the time proposed by the LOD1, from the Independent Review Report and the minutes of the Review Authority.

4.13 RISK RELATED TO INSURANCE ACTIVITIES

Risk related to insurance activities: through its insurance subsidiaries, the Group is also exposed to a variety of risks linked to this business. In addition to balance sheet management risks (interest rate, valuation, counterparty and exchange rate risk), these risks include premium pricing risk, mortality risk and the risk of an increase in claims.

4.13.1 MANAGEMENT OF INSURANCE RISKS

There are two main types of insurance risks:

- underwriting risks, particularly risk through life insurance, individual personal protection and non-life insurance. This risk can be biometrical: disability, longevity, mortality, or related to policyholders' behavior (risk of lapses). To a lesser extent, the Insurance business line is also exposed to non-life and health risks. Such risks can come from pricing, selection, claims management or catastrophic risk;
- risks related to financial markets and ALM: the Insurance business line, mainly through life insurance on the French market, is exposed to instabilities on the financial markets (changes in interest rates and stock market fluctuations) which can be made worse by policyholder behavior.

Managing these risks is key to the Insurance business line's activity. It is carried out by qualified and experienced teams, with major bespoke IT resources. Risks are monitored and regularly reported, they are framed by risk policies validated by the Board of Directors of each entity.

Risk management techniques are based on the following:

- heightened security for the risk acceptance process, with the aim of guaranteeing that the price schedule matches the policyholder's risk profile and the guarantees provided;
- regular monitoring of indicators on product claims rates in order to adjust certain product parameters, such as pricing or the level of guarantee, if necessary;
- implementation of a reinsurance plan to protect the business line from major/serial claims;
- application of policies on risk, provisioning and reinsurance.

Management of risks linked to the financial markets and to ALM is an integral part of the investment strategy as long-term performance objectives. The optimisation of these two factors is highly influenced by the asset/liability balance. Liability commitments (guarantees offered to customers, maturity of policies), as well as the amounts booked under the major items on the balance sheet (shareholders' equity, income, provisions, reserves, etc.) are analysed by the Finance and Risk Departments of the Insurance business line.

Risk management related to financial markets (interest rates, credit and shares) and to ALM is based on the following:

- monitoring short- and long-term cash flows (match between the term of a liability and the term of an asset, liquidity risk management);
- particular monitoring of policyholder behavior (redemption);
- close monitoring of financial markets;
- hedging against exchange rate risks (both rising and falling);
- hedging downside equity risk;
- defining thresholds and limits per counterparty, per issuer rating and assets class;
- stress tests, the results of which are presented annually at entities' Board of Directors' meetings, as part of the ORSA Report (Own Risk and Solvency Assessment), transferred to the ACPR after approval by the Board;
- application of policies related to ALM and investment risks.

4.13.2 INSURANCE RISK MODELING

The models are reviewed by the Insurance Risks Department, which is the second line of defence in the context of model risk management. The review works relate to the theoretical robustness (evaluation of the quality of design and development) of the models, the use of the model, the conformity of the implementation and the continuous monitoring of the relevance of the model over time. The independent review process ends with (i) a report describing the scope of the review, the tests performed, the results of the review, conclusions or recommendations and by (ii) validation Committees. The model control system gives rise to recurring reporting to the appropriate bodies.

4.14 OTHER RISKS

4.14.1 PRIVATE EQUITY RISK

The Group has limited appetite for financial shareholdings in proprietary private equity operations. The types of admissible private equity operations chiefly relate to:

- commercial support for the network through the private equity arm of the Societe Generale and Crédit du Nord networks and those of certain foreign subsidiaries;
- shareholdings in innovative companies, either directly or through private equity funds;
- shareholdings in financial services companies such as Euroclear and Crédit Logement.

Private equity investments are managed directly by the networks concerned (Societe Generale, Crédit du Nord and foreign subsidiaries) and are capped at EUR 25 million. Any investments above this threshold must be approved by the Group Strategy Department based on a file submitted by the Business Unit in conjunction with the Finance Department. The file must include arguments justifying a private equity investment of the allotted size, the projected outcome and the expected profitability based on the consumption of the associated capital, the investment criteria (criteria, typology, duration, etc.), risk analysis and the proposed governance. The Group's General Management must approve the investment amount if it exceeds EUR 50 million and base its decision on the opinion delivered by the Strategy Department, the Finance Department, the General Secretary and the Compliance Department. Every six months, the relevant Business Unit must submit a report to the Strategy Department which tracks the operations and the use of the allocated investment amount.

Other private equity minority investments undergo a dedicated validation process for both the investment and divestment phases. They are approved by the Heads of the Business Units and of the entities concerned and by their Finance Department, the Strategy Department and also the Group's General Management for amounts exceeding EUR 50 million, in addition to the Board of Directors for amounts above EUR 250 million. These files are assessed by the Strategy Department with the assistance of experts from the Services and Business Units involved in the operation, comprising at least the Finance Department, the Corporate Secretary's Legal and Tax Departments and the Compliance Department. The assessment is based on a review of the proposed shareholding, the arguments in favour of such an investment and its context, the structuring of the operation, its financial and prudential impacts, the assessment of identified risks and the resources employed to track and manage them.

4.14.2 RESIDUAL VALUE RISK

Through its Specialised Financial Services Division, mainly in its long-term vehicle leasing subsidiary, the Group is exposed to residual value risk (where the net resale value of an asset at the end of the leasing contract is less than expected).

Risk identification

Société Générale Group holds, inside its ALDA Business Units (automobile leasing activity) cars on its balance sheet with a risk related to the residual value of these vehicles at the moment of their disposals. This residual value risk is managed by ALD Automotive (ALDA).

The Group is exposed to potential losses in a given reporting period caused by (i) the resale of vehicles associated with leases terminated in the reporting period where the used car resale price is lower than its net book value and (ii) additional depreciation booked during the lease term if the expected residual values of its vehicles decline below the contractual residual value. The future sales results and estimated losses are affected by external factors like macroeconomic, government policies, environmental and tax regulations, consumer preferences, new vehicles pricing, etc.

ALDA gross operating income derived from car sales totalled EUR 437.7 million at 31 December 2021 versus EUR 61.1 million at 31 December 2020.

Risk management

The residual value setting procedure defines the processes, roles and responsibilities involved in the determination of residual values that will be used by ALDA as a basis for producing vehicle lease quotations.

A Residual Value Review Committee is held at least twice a year within each operating entity of ALDA. This Committee debates and decides residual values, taking into account local market specificities, documenting its approach, ensuring that there is a clear audit trail.

A central ALDA team dedicated to control validates the proposed residual values prior to their being notified to the operating entities and updated in the local quotation system. This team informs ALD's Group Finance Director and Risk Manager in case of disagreements.

Additionally, the fleet revaluation process determines an additional depreciation in countries where an overall loss on the portfolio is identified. This process is performed locally twice a year for operating entities owning more than 5,000 cars (once a year for smaller entities) under the supervision of the central team and using common tools and methodologies. This depreciation is booked in accordance with accounting standards.

4.14.3 STRATEGIC RISKS

Strategic risks are defined as the risks inherent in the choice of a given business strategy or resulting from the Group's inability to execute its strategy. They are monitored by the Board of Directors, which approves the Group's strategic trajectory and reviews them at least once a year. Moreover, the Board of Directors approves strategic investments and any transaction (particularly disposals and acquisitions) that could significantly affect the Group's results, the structure of its balance sheet or its risk profile.

Strategic steering is carried out under the authority of General Management, by the General Management Committee (which meets weekly without exception), by the Group Strategy Committee and by the Strategic Oversight Committees of the Business Units and Service Units. The composition of these various bodies is set out in the Corporate Governance chapter of the present document, Chapter 3 (see pages 61 and following). The Internal Rules of the Board of Directors (provided in Chapter 7 of of the present document, at page 617) lay down the procedures for convening meetings.

4.14.4 ENVIRONMENTAL AND SOCIAL RISKS

The Group's approach in terms of environmental and social issues is set out in Chapter 5 of this Universal Registration Document (pages 265 and following).

4.14.5 CONDUCT RISK

The Group is also exposed to conduct risk through all of its core businesses. The Group defines conduct risk as resulting from actions (or inactions) or behaviours of the Bank or its employees, inconsistent with the Group's Code of Conduct, which may lead to adverse consequences for its stakeholders, or place the Bank's sustainability or reputation at risk.

Stakeholders include in particular the clients, employees, investors, shareholders, suppliers, the environment, markets and countries in which the Group operates.

See also "Culture and Conduct programme" (see pages 276 and 277).