Goldman Sachs Bank Europe SE

Pillar 3 Disclosures

For the period ended December 31, 2022

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Introduction

Overview

Goldman Sachs Bank Europe SE (GSBE or the bank) is engaged in a wide range of activities primarily in the E.U., including underwriting and market making in debt and equity securities and derivatives, asset and wealth management services, deposit-taking, lending (including securities lending) and advisory service. The bank is a primary dealer for government bonds issued by E.U. sovereigns. The bank also commenced providing transaction banking services from September 2022 onwards. The bank serves a diversified client base that includes corporations, financial institutions, governments and individuals, from its registered office in Frankfurt am Main and branches in Amsterdam, Athens, Copenhagen, Dublin, London, Luxembourg, Madrid, Milan, Paris, Stockholm and Warsaw. The bank is registered with the commercial register number HRB 114190.

The bank is directly supervised by the European Central Bank (ECB) and additionally by the Federal Financial Supervisory Authority (BaFin) and the Deutsche Bundesbank in the context of the E.U. Single Supervisory Mechanism.

The bank is a wholly owned subsidiary of Goldman Sachs Bank USA (GS Bank USA), a New York State chartered bank and a member of the Federal Reserve System (FRB). The bank's ultimate parent undertaking and controlling entity is The Goldman Sachs Group, Inc. (Group Inc. or the firm). Group Inc. is a bank holding company and a financial holding company regulated by the Board of Governors of the FRB. In relation to the bank, "group undertaking" means Group Inc. or any of its subsidiaries. Group Inc., together with its consolidated subsidiaries, form "GS Group" (also referred to as the firm). GS Group is a leading global financial institution that delivers a broad range of financial services across investment banking, securities and investment management and consumer banking to a large and diversified client base that includes corporations, financial institutions, governments and individuals. GS Group's purpose is to advance sustainable economic growth and financial opportunity. GS Group's goal, reflected in the One Goldman Sachs initiative, is to deliver its full range of services and expertise to support its clients in a more accessible, comprehensive and efficient manner, across business and product areas. GS Group has a presence in Europe, Middle East and Africa (EMEA) through a number of subsidiaries, including GSBE.

GSBE's regulatory capital requirement has been calculated in accordance with the E.U. Capital Requirements Directive (CRD) and the E.U. Capital Requirements Regulation (CRR). These are largely based on the Basel Committee on Banking Supervision's (Basel Committee) final capital framework for strengthening international capital standards (Basel III), which is structured around three pillars: Pillar 1 "minimum capital requirements", Pillar 2 "supervisory review process" and Pillar 3 "market discipline".

The term "CRR" in this document refers to the applicable version of Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012; as amended by Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 (known as CRR2) as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements.

GSBE's Pillar 3 disclosures published for December 31, 2022 have been prepared in accordance with the EBA Guidelines on disclosure requirements under Part Eight of the CRR.

All references to December 2022 and December 2021 refer to the dates, as the context requires, December 31, 2022 and December 31, 2021, respectively. Any reference to a future year refers to a year ending on December 31 of that year. Any statements relating to future periods are subject to a high degree of uncertainty.

Information on GSBE's 2022 Annual Pillar 3 disclosures, IFRS Financial Information and Financial Statements can be accessed via the following links:

https://www.goldmansachs.com/disclosures/gsbank-europe-se-disclosures.html

https://www.goldmansachs.com/investor-relations/financials/subsidiary-financial-info/gsbe/index.html

As of December 2022, GSBE has Nil exposures to disclose pursuant to the guidelines (EBA/GL/2020/07) on disclosure of exposures subject to measures applied in response to the COVID-19 crisis, as such the required tables have not been included in this document.

For information on Group Inc.'s financial statements and regulatory capital ratios, please refer to the firm's annual Pillar 3 Disclosures and Annual Report on Form 10-K. References to the "2022 Form 10-K" are to the firm's Annual Report on Form 10-K for the year ended December 2022.

https://www.goldmansachs.com/investor-relations/financials/other-information/2022/4q-pillar3-2022.pdf

https://www.goldmansachs.com/investor-relations/financials/current/annual-reports/2022-annual-report/multimedia/annual-report-2022.pdf

Measures of exposures and other metrics disclosed in this report may not be based on International Financial Reporting Standards (IFRS), may not be directly comparable to measures reported in the IFRS Financial Information, and may not be comparable to similar measures used by other companies.

The capital requirements are expressed as risk-based capital and leverage ratios that compare measures of regulatory capital to risk-weighted assets (RWAs), assets and off-balance-sheet exposures. Failure to comply with these capital requirements could result in restrictions being imposed by GSBE's regulators and could limit the bank's ability to pay dividends and make certain discretionary compensation payments. GSBE's capital levels are also subject to qualitative judgements by our regulators about components of capital, risk weightings and other factors.

Basis of Consolidation

GSBE and its subsidiaries are directly and indirectly wholly-owned by the immediate parent company, GS Bank USA and the ultimate parent company, Group Inc. respectively and included in their respective consolidated financial statements.

Due to immateriality of its subsidiaries pursuant to Section 296 (2) of HGB, GSBE waives its obligation from preparing consolidated financial statements.

The subsidiaries are:

- Goldman, Sachs & Co. Verwaltungs GmbH
- Goldman Sachs Gives gemeinnützige GmbH
- Goldman, Sachs Management GP GmbH

The additional information to be disclosed in accordance with Section 26(a) of the German Banking Act (Kreditwesengesetz; in the following, "KWG") was also included in GSBE's 2022 Financial Statements under the section of "Branches of the Bank" within Note 22.

GSBE is considered the parent company of a group under § 10a of KWG. Its subsidiary Goldman Sachs Management GP GmbH, Frankfurt am Main, a financial corporation according to § 1 Abs 3 KWG, may in line with Article 19 CRR be exempted from the scope of consolidation so that, in accordance with Article 11 of CRR, there is no requirement for a regulatory consolidation, and the rules on disclosure obligations on a consolidated basis under Article 13 do not apply. Therefore, these disclosures are prepared for GSBE on a stand-alone basis.

Restrictions on the Transfer of Funds or Regulatory Capital within the Firm

Group Inc. is a holding company and, therefore, utilises dividends, distributions and other payments from its subsidiaries to fund dividend payments and other payments on its obligations, including debt obligations. Regulatory capital requirements, as well as other provisions of applicable law and regulations restrict Group Inc.'s and GS Bank USA's ability to withdraw capital from its regulated subsidiaries. Capital is considered transferable between GSBE and its subsidiaries without any significant restriction except to the extent it is required for regulatory purposes. Any transfer of funds between GSBE and its subsidiaries is expected to be immaterial and therefore the bank does not elaborate on this further.

For information regarding the capital adequacy of GSBE, see "Risk Report - Capital Adequacy" within "Management Report" of GSBE's 2022 Financial Statements.

For further information about restrictions on the transfer of funds within Group Inc. and its subsidiaries, see "Note 20. Regulation and Capital Adequacy" in Part II, Item 8 "Financial Statements and Supplementary Data" and "Risk Management - Liquidity Risk Management" and "Equity Capital Management and Regulatory Capital" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2022 Form 10-K.

Definition of Risk-Weighted Assets

The risk weights used in the calculation of RWAs reflect an assessment of the riskiness of our assets and exposures. These risk weights are based on predetermined levels set by regulators. The relationship between available capital and capital requirements can be expressed in the form of a ratio, and capital requirements are arrived at by dividing RWAs by 12.5.

Fair Value

Financial assets that are not held for the collection of contractual cash flows or do not have cash flows that represent solely payments of principal and interest are mandatorily measured at fair value through profit or loss. Financial assets mandatorily measured at fair value are initially measured at fair value with transaction costs expensed in the income statement. Such financial assets are subsequently measured at fair value with gains or losses recognised in net revenues.

Financial liabilities held for trading are initially measured at fair value and subsequently at fair value through profit or loss, with gains or losses recognised in net revenues. The bank also designates certain financial liabilities at fair value through profit or loss. Financial liabilities designated at fair value through profit or loss are initially measured at fair value and subsequently at fair value through profit or loss, with Debt Valuation Adjustment (DVA) being recognised in other comprehensive income, if it does not create or enlarge an accounting mismatch, and the remaining changes in the fair value being recognised in net revenues. Amounts recognised in other comprehensive income attributable to own credit spreads are not subsequently transferred to the income statement, even upon derecognition of the financial liability. Gains or losses exclude contractual interest, which is included in interest income and interest expense, for all instruments other than hybrid financial instruments. The primary reasons for designating such financial liabilities at fair value through profit or loss are:

- To eliminate or significantly reduce a measurement or recognition inconsistency that would otherwise arise from measuring assets or liabilities or recognising the gains and losses on them on different bases; and
- The group of financial liabilities, or financial assets and liabilities, is managed and its performance evaluated on a fair value basis.

For additional information regarding the fair value measurement of GSBE's assets and liabilities, see "Note 2. Summary of Significant Accounting Policies. Financial Assets and Liabilities Measured at Fair Value Through Profit or Loss" in GSBE's IFRS Financial Information.

The bank has documented policies and maintains systems and controls for the calculation of Prudent Valuation Adjustment ("PVA") as required by the Commission Delegated Regulation (EU) No. 2016/101. PVA represents the excess of valuation adjustments required to achieve prudent value, over any adjustment applied in the bank's fair value that addresses the same source of valuation uncertainty. For a valuation input where the range of plausible values is created from mid prices, prudent value represents the point within the range where the firm is 90% confident that the mid value which could be achieved in exiting the valuation exposure would be at that price or better. The bank's methodology addresses fair value uncertainties arising from a number of sources; market price uncertainty, close-out costs, model risk, unearned credit spreads, investing and funding cost, concentrated positions, future administrative costs, early termination and operational risk. Methodologies utilised by our independent control functions to calculate PVA are aligned with, and use the same external data sources as, those used when carrying out price verification of fair value.

Banking Book / Trading Book Classification

The bank has a comprehensive framework of policies, controls and reporting to meet the requirements of the CRR for inclusion of positions in the banking book and trading book. In order to determine the appropriate regulatory capital treatment for our exposures, positions must first be classified into either "banking book" or "trading book". Positions are classified as banking book unless they qualify to be classified as trading book.

Trading book positions generally meet the following criteria: they are assets or liabilities that are accounted for at fair value; they are risk managed using a Value-at-Risk (VaR) internal model; they are held as part of our market-making and underwriting businesses and are intended to be resold in the short term, or positions intended to benefit from actual or expected short-term price differences between buying and selling prices or from other price or interest rate variations (as defined in point (85) of Article 4(1) in CRR). Trading book positions are subject to market risk regulatory capital requirements, as are foreign exchange and commodity positions, whether or not they meet the other criteria for classification as trading book positions. Market risk is the risk of loss in value of these positions due to changes in market conditions. Some trading book positions, such as derivatives, are also subject to counterparty credit risk regulatory capital requirements.

Banking book positions are accounted for in line with the principles outlined in the bank's Financial Statements. Banking book positions are subject to credit risk regulatory capital requirements. Credit risk represents the potential for loss due to the default or deterioration in credit quality of a counterparty (e.g., an Over-The-Counter (OTC) derivatives counterparty or a borrower) or an issuer of securities or other instruments the bank holds.

Regulatory Developments

The bank's businesses are subject to extensive regulation and supervision worldwide. New regulations have been adopted or are being considered by regulators and policy-makers. Given that many of the new and proposed rules are highly complex, the full impact of regulatory reform will not be known until the rules are implemented and market practices develop under final E.U. regulations.

Risk-Based Capital Ratios. The Basel Committee published standards that it described as the finalisation of the Basel III post-crisis regulatory reforms. These standards set a floor on internally developed capital requirements at a percentage of the capital requirements under the standardised approach. They also revise the Basel Committee's standardised and model-based approaches for credit risk, provide a new standardised approach for operational risk capital and revise the frameworks for credit valuation adjustment risk.

In addition, in December 2022, the Basel Committee published a final standard on the prudential treatment of cryptoasset exposures.

The Basel Committee's standards are not effective in any jurisdiction until respective regulations have been implemented by the relevant authorities in such jurisdiction. In June 2021, amendments to the CRR and CRD became effective in the E.U., including changes to rules for the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities (MREL), counterparty credit risk, market risk, large exposures and the requirement to establish an E.U. intermediate parent undertaking ("IPU").

In October 2021, the European Commission further published a proposed legislative package to amend the CRR and CRD to finalise the implementation of Basel III, which is expected to be concluded in 2023 with a proposed implementation date of January 1, 2025 at the earliest for substantial parts of the reforms. The impact of these draft rules on the bank (including its RWAs and regulatory capital ratios) is subject to uncertainty until legislation is finalised and implemented.

In February 2023, the ECB published a newsletter stating that the Basel Committee's standard on the treatment of cryptoasset exposures is not yet legally binding in the E.U. but banks wishing to engage in this market are expected to comply with the standards.

Minimum Requirements for Own Funds and Eligible Liabilities. The CRR and the Bank Recovery and Resolution Directive (BRRD) are designed to, among other things, implement the Financial Stability Board's (FSB) minimum Total Loss Absorbing Capacity (TLAC) requirement for global systemically important bank (G-SIB). For example, the CRR requires E.U. subsidiaries of a non- E.U. G-SIB to meet internal TLAC (iTLAC) requirements if they exceed the threshold of 5% of the G-SIB's RWAs, operating income or leverage exposure. The bank exceeds this threshold and is thereby required to meet 90% of the iTLAC requirement applicable to E.U. G-SIBs. The bank satisfies this requirement through its total regulatory capital and MREL eligible debt from intercompany borrowings.

The E.U. BRRD, as amended by BRRD II subjects institutions to a minimum requirement for own funds and eligible liabilities (MREL). The Single Resolution Board's (SRB) internal MREL (iMREL) requirements applicable to the bank are being phased in through to January 2024. The iMREL to RWAs requirement will be set at a higher level than the iTLAC to RWAs requirement at 22% excluding the combined buffer requirements.

Swaps, Derivatives and Commodities Regulation. The bank is a swap dealer registered with the Commodity Futures Trading Commission and a registered security-based swap dealer with the U.S. Securities Exchange Commissions. As of both December 2022 and December 2021 the bank was subject to and in compliance with applicable capital requirements for swap dealers and security-based swap dealers.

Business Outlook

The bank's Executive Board continues to be cautiously optimistic about the business outlook for 2023. The Executive Board expects net revenues in 2023 to be essentially unchanged compared to the year ended December 2022.

The bank's Executive Board expects that the total capital ratio will remain essentially unchanged compared to December 2022 driven by the increasing business activity largely offset by a contribution of €3.26 billion to the capital reserve conducted by the bank's sole shareholder on January 25, 2023. The expected total capital ratio will remain conservatively above minimum requirements.

The business outlook is based on the current expectations of the bank's Executive Board and the actual results could differ, possibly materially, to the anticipated results due to certain factors including those described in "Risk Report - Principal Risks and Uncertainties" in GSBE's Annual Financial Statements.

Stress in the Banking Sector. During the first quarter of 2023, Silicon Valley Bank and Signature Bank, two regional banks in the U.S., experienced large deposit outflows that ultimately resulted in the failure of these banks in March 2023 and the appointment of the Federal Deposit Insurance Corporation (FDIC) as receiver for them.

First Republic Bank (First Republic), another U.S. regional bank, also experienced large withdrawals of deposits, raising concerns about its financial stability. On May 1, 2023, First Republic was placed under FDIC receivership, and the FDIC entered into a purchase and assumption agreement with JPMorgan Chase Bank, N.A. under which JPMorgan Chase Bank, N.A. will assume all of the deposits, including uninsured deposits, and substantially all of the assets of First Republic.

In addition, concerns about the solvency of Credit Suisse Group AG, a G-SIB based in Switzerland, escalated rapidly and, as a result, UBS Group AG and Credit Suisse Group AG, working in conjunction with Swiss regulators, entered into an agreement under which UBS Group AG will acquire Credit Suisse Group AG.

These events have placed heightened focus on the impact that rising interest rates have had on the market values of securities portfolios of banks measured at amortised cost. As of December 2022, all of the bank's bonds and other fixed income securities were measured at fair value.

The bank's liquidity position during the first quarter of 2023 remained strong, and the bank's GCLA averaged €20.35 billion.

A more systemic spread of concerns regarding the financial stability or solvency of banks could negatively impact the bank's results of operations and financial condition.

Russian Invasion of Ukraine. The Russian invasion of Ukraine has negatively affected the global economy and has resulted in significant disruptions in financial markets and increased macroeconomic uncertainty. Governments around the world have responded to Russia's invasion by imposing economic sanctions and export controls on certain industry sectors, companies and individuals in Russia. Retaliatory restrictions against investors, non-Russian owned businesses and other sovereign states have been implemented by Russia. Businesses globally continue to experience shortages in materials and increased costs for transportation, energy and raw materials due, in part, to the negative effects of the war on the global economy. The escalation or continuation of the war between Russia and Ukraine presents heightened risks relating to cyber-attacks, the frequency and volume of failures to settle securities transactions, supply chain disruptions, and inflation, as well as the potential for increased volatility in commodity, currency and other financial markets. Complying with economic sanctions and restrictions imposed by governments has resulted in increased operational risk. The extent and duration of the war, sanctions and resulting market disruptions, as well as the potential adverse consequences for the bank's business, liquidity and results of operations, are difficult to predict.

As of December 2022, the bank had no credit exposure to Russian or Ukrainian counterparties or borrowers or market exposure to Russian or Ukrainian issuers.

Attestation

To the best of our knowledge, we attest that the Pillar 3 Disclosures of Goldman Sachs Bank Europe SE for the period ended December 31, 2022, prepared according to Part Eight of the CRR, have been prepared in accordance with the formal policies and internal processes, systems and controls agreed upon at the management body level.

Michael Holmes Chief Financial Officer Goldman Sachs Bank Europe SE	Heiman Lo Chief Risk Officer Goldman Sachs Bank Europe SE

Risk Management

Overview

The bank believes that effective risk management is critical to its success. Accordingly, the bank has established an enterprise risk management framework that employs a comprehensive, integrated approach to risk management, and is designed to enable comprehensive risk management processes through which the risks associated with the bank's business are identified, assessed, monitored and managed. These risks include liquidity, market, credit, operational, model, legal, compliance, conduct, regulatory, business environment and strategic risks, and reputational risks. The following section covers the bank's risk management structure which is consistent with GS Bank USA and GS Group and built around three core components: governance, processes and people.

Governance

Risk management governance starts with the bank's Executive Board, which both directly and through established committees, including the GSBE Risk Committee, oversees the risk management policies and practices. The GSBE Executive Board is also responsible for the annual review and approval of the GSBE Risk Appetite Statement (RAS). The RAS describes the levels and types of risk the bank is willing to assume within its risk capacity to achieve its strategic business objectives included in the bank's business plan, while remaining in compliance with regulatory requirements. The Executive Board reviews the business plan and is ultimately responsible for overseeing and setting strategy and risk appetite. For more details on the GSBE RAS refer to the 'Risk Profile and Strategy'.

Enterprise Risk at firmwide level in coordination with Regulatory Engagement at entity-level oversees the implementation of the firm's and the bank's risk governance structure and core risk management processes and is responsible for ensuring that the enterprise risk management framework provides senior management and relevant governing bodies, including the GSBE Executive Board and Risk Committee, with a consistent and integrated approach to managing the various risks in a manner consistent with the firm's and the bank's risk appetite.

The bank's revenue-producing units that directly report to the respective Executive Board members, as well as Engineering, Human Capital Management, Operations, and Corporate and Workplace Solutions that directly report to the bank's Chief Operating Officer (COO) and Corporate Treasury that directly reports to the bank's Chief Financial Officer (CFO), are considered the first line of defence. They are accountable for the outcomes of the risk-generating activities, as well as for assessing and managing those risks within the bank's risk appetite.

The bank's independent risk oversight and control functions are considered the second line of defence and provide independent assessment, oversight and challenge of the risks taken by the first line of defence, as well as lead and participate in risk-oriented committees. Independent risk oversight and control functions include Compliance that reports to the bank's COO and; Tax and Controllers that reports to the bank's CFO; Credit Risk, Liquidity Risk, Market Risk, Model Risk Management, Operational Risk, Regulatory Engagement, and Risk Engineering that directly report to the bank's Chief Risk Officer (CRO); and Legal that directly reports to the bank's General Counsel.

Internal Audit is considered the third line of defence and reports to the bank's Executive Board. Internal Audit includes professionals with a broad range of audit and industry experience, including risk management expertise. Internal Audit is responsible for independently assessing and validating the effectiveness of key controls, including those within the risk management framework, and providing timely reporting to the bank's senior management, Executive and Supervisory Boards and regulators.

The three lines of defence structure promotes the accountability of first line risk takers, provides a framework for effective challenge by the second line and empowers independent review from the third line.

Consistent with the firm, the bank maintains strong and proactive communication about risk and it has a culture of collaboration in decision-making among the first and second lines of defence, committees and senior management. While the first line of defence is responsible for management of their risk, the bank dedicates extensive resources to the second line of defence in order to ensure a strong oversight structure and an appropriate segregation of duties. The firm regularly reinforces its strong culture of escalation and accountability across all functions.

Additional oversight is provided by the GSBE Supervisory Board including its Committees which receives regular updates from the GSBE Executive Board on the bank's risk profile and other risk related matters.

Processes

The bank maintains various processes that are critical components of its risk management framework, including (i) risk identification and assessment, (ii) risk appetite, limit and threshold setting, (iii) risk reporting and monitoring, and (iv) risk decision making.

The bank has a comprehensive data collection process, including policies and procedures that require all employees to report and escalate risk events. The bank's approach for risk identification and assessment is comprehensive across all risk types, is dynamic and forward-looking to reflect and adapt to the bank's changing risk profile and business environment, leverages subject matter expertise, and allows for prioritisation of the bank's most critical risks.

To effectively assess and monitor risks, the bank maintains a daily discipline of marking substantially all of its inventory to current market levels. The bank does so because of its belief that this discipline is one of the most effective tools for assessing and managing risk and that it provides transparent and realistic insight into its inventory exposures. The bank also applies a comprehensive framework of limits and thresholds to control and monitor risk across transactions, products, businesses and markets. See "Credit Risk", "Market Risk" and "Liquidity Risk Management", "Operational Risk", "Model Risk", and "Climate Risk" for further information.

An important part of the bank's risk management process is stress testing. It allows the bank to quantify its exposure to tail risks, highlight potential loss concentrations, undertake risk/reward analysis, and assess and mitigate its risk positions. Stress tests are performed on a regular basis and are designed to ensure a comprehensive analysis of the bank's vulnerabilities, and idiosyncratic risks combining financial and non-financial risks, including, but not limited to, credit, market, liquidity and funding, operational and compliance, strategic, systemic and emerging risks. Ad hoc stress tests are also performed in anticipation of market events or conditions. Stress testing is also used to assess capital and liquidity adequacy as part of the bank's capital and liquidity planning processes.

The bank's risk reporting and monitoring processes are designed to take into account information about both existing and emerging risks, thereby enabling the bank's risk committees and senior management to perform their responsibilities with the appropriate level of insight into risk exposures. Furthermore, the bank's limit and threshold breach processes provide means for timely escalation. The bank evaluates changes in its risk profile and businesses, including changes in business mix and jurisdictions in which it operates, by monitoring risk factors at an entity level.

People

Even the best technology serves only as a tool for helping to make informed decisions in real time about the risks GSBE is taking. Ultimately, effective risk management requires people to interpret risk data on an ongoing and timely basis and adjust risk positions accordingly. The experience of the bank's and the firm's professionals, and their understanding of the nuances and limitations of each risk measure, guides the bank in assessing exposures and maintaining them within prudent levels.

Consistent with GS Group, the bank reinforces a culture of effective risk management, consistent with its risk appetite, in its training and development programmes, as well as in the way it evaluates performance, recognises and rewards people. The firm's training and development programmes, including certain sessions led by the most senior leaders, are focused on the importance of risk management, client relationships and reputational excellence. As part of the firm's annual performance review process, the firm assesses reputational excellence, including how an employee exercises good risk management and reputational judgement, and adheres to the firm's code of conduct and compliance policies. The firm's review and reward processes are designed to communicate and reinforce to its professionals the link between behaviour and how people are recognised, the need to focus on clients and reputation, and the need to always act in accordance with the highest standards of the firm.

Structure

The bank has a two-tier board structure consisting of the Supervisory Board and the Executive Board.

Supervisory Board.

The Supervisory Board supervises and advises the Executive Board and performs specific statutory tasks. In May 2021, the Supervisory Board established the Supervisory Board Audit Committee, Supervisory Board Risk Committee, Supervisory Board Remuneration Committee and Supervisory Board Nomination Committee to advise and support the Supervisory Board in fulfilling their duties and responsibilities. The key committees with regard to risk management are described below.

Supervisory Board Audit Committee. The Audit Committee of the Supervisory Board is responsible for providing advice to the Supervisory Board and assisting the Supervisory Board by overseeing (i) the integrity of the bank's financial statements and financial reporting processes; (ii) management's processes for ensuring the appropriateness and effectiveness of systems and controls; (iii) the process in relation to the appointment, re-appointment or replacement of the bank's external auditor; and (iv) safeguarding the independence and integrity of the bank's compliance and internal audit functions.

Supervisory Board Risk Committee. The Risk Committee of the Supervisory Board is responsible for providing advice to the Supervisory Board on the bank's current and future risk appetite and assisting the Supervisory Board in overseeing the implementation of that risk appetite and strategy by the Executive Board.

Executive Board.
The Executive Board has ultimate responsibility for all activities in the bank, including oversight of risk, both directly and through delegation to various committees. A series of committees within the bank with specific risk management mandates covering important aspects of the bank's businesses also have oversight or decision-making responsibilities. The key committees with oversight of the bank's activities are described below.

GSBE Risk Committee. The GSBE Risk Committee is responsible for the ongoing monitoring and control of all financial and non-financial risks associated with the bank's activities. This includes reviewing key financial and risk metrics, including but not limited to profit and loss, capital (including the Internal Capital Adequacy Assessment Process (ICAAP)), funding, liquidity (including the Internal Liquidity Adequacy Assessment Process (ILAAP)), credit risk, market risk, operational risk and stress tests. Within its mandate, the GSBE Risk Committee approves market risk, credit risk and liquidity risk limits as well as operational risk, model risk and climate risk thresholds or articulates recommendations with regard to risk limits and thresholds which require Executive Board approval. Its membership includes senior managers from the revenue-producing divisions and independent risk oversight and control functions. The GSBE Risk Committee reports to the bank's Executive Board.

GSBE Operational Risk and Resilience Committee. The GSBE Operational Risk and Resilience Committee provides oversight of the ongoing development and implementation of operational risk policies, framework and methodologies, with oversight from the GSBE Risk Committee, and monitors the effectiveness of operational risk and resilience management. The Committee is accountable for the implementation of business standards and practices, including reputational risk management, client service and conduct risk, within the scope of its mission.

GSBE Credit Risk Council. The GSBE Credit Risk Council is responsible for (i) ensuring that the bank has appropriate and effective credit risk management processes, and (ii) ongoing monitoring and review of credit risk exposure. The Council reports to the bank's Risk Committee.

GSBE Asset Liability Committee. The GSBE Asset and Liability Committee (ALCO) reviews and approves the strategic direction for the bank's financial resources including capital, liquidity, funding and balance sheet. The committee has oversight responsibility for asset liability management, including interest rate and currency risk, funds transfer pricing, capital allocation and incentives, and credit ratings. The committee makes recommendations as to any adjustments to asset liability management and financial resource allocation in light of current events, risks, exposures, and regulatory requirements and approves related policies. Its membership includes senior managers from the revenue-producing divisions and independent risk oversight and control functions. The GSBE Asset-Liability Committee reports to the bank's Executive Board.

Regional, GS Bank USA and GS Group Risk Governance.
As an indirect wholly-owned subsidiary and integrated part of GS Group, the comprehensive regional and global risk governance framework in place forms an important part of the strategy and risk management process of the bank. The integration into the firmwide risk management framework allows the bank to use the GS Group's methods and systems and a consistent implementation of firmwide structures and principles while considering the entity specificities and governance structure. In addition, as a direct wholly-owned subsidiary of GS Bank USA, the bank's risk management processes are embedded in the oversight provided by relevant governance bodies of GS Bank USA.

GS Group has established a series of committees with specific risk management mandates. Committees with oversight of matters relevant to the bank include representation from bank's senior management, where relevant. For more information regarding GS Group and regional risk and oversight committees which have also oversight of matters relevant for GSBE, see "Risk Report - Overview and Structure of Risk Management" within "Management Report" of GSBE's 2022 Financial Statements.

Risk Profile and Strategy

In the normal course of activities in serving clients, we commit capital, engage in derivative and lending transactions, and otherwise incur risk as an inherent part of our business. However, we endeavour not to undertake risk in form or amount that could potentially and materially impair our capital and liquidity position or the ability to generate revenues, even in a stressed environment. Where possible we employ mitigants and hedges, such as collateral, netting arrangements and other controls, in order to manage such risks and risk concentrations within our risk appetite levels.

The bank's overall risk appetite is established through an assessment of opportunities relative to potential losses, and is calibrated to, among others, GSBE's capital, liquidity and earnings capability, and reflective of its strategy. The primary means of evaluating risk-taking capacity is through the ICAAP. The bank's ICAAP is a comprehensive internal process which coherently integrates several key components including risk identification and materiality assessment, capital planning, and risk appetite, and is integrated into the broader risk management framework and decision making throughout the entity.

The RAS of GSBE is complemented by the GS Bank USA RAS and GS Group RAS, and articulates the risk philosophy, the identification of risks generated by its business activities, as well as the appetite, limits and thresholds set in order to manage effectively those risks. Consistent with this objective, we pay particular attention to evaluating risks that are concentrated, correlated, illiquid, or have other adverse characteristics. The intention is to mitigate or eliminate these risks, limiting them to such an extent that they could not, individually or collectively, materially and adversely affect GSBE. The bank regularly reviews risk exposure and risk appetite, and takes into consideration the key external stakeholders, in particular our clients, shareholders, creditors, rating agencies, and regulators. The long-term success of our business model is directly linked to the preservation of strong relationships with each of these key constituents.

The GSBE Executive Board, in coordination with the GSBE CRO and the GSBE Risk Committee and with further supervision from the GSBE Supervisory Board, is actively engaged in reviewing and approving our overall risk appetite, as well as in reviewing the risk profile.

The consideration of risk appetite and the underlying risk management framework ensures that GSBE's businesses are congruent with its strategy under both normal and stressed environments. We believe that the risk management framework and the associated risk policies, procedures and systems in place are comprehensive and effective with regard to our profile and strategy. The framework is evaluated on an ongoing basis and subject to independent internal audit assessments to ensure our risk management arrangements remain effective.

Risk Measurement

On a day-to-day basis, risk measurement plays an important role in articulating the risk appetite of the firm and GSBE and in managing the risk profile as expressed in the RAS. Risk may be monitored against bank, firmwide, product, divisional or business level limits or thresholds, or against a combination of such attributes. We measure risk using a suite of metrics, as relevant to each type of risk, including stress metrics to calculate the potential loss from a wide range of scenarios and sensitivity analysis. These risks are tracked systematically and they are monitored and reported to the relevant committees and Board on a regular basis.

A number of specialist committees and governance bodies sit within the broader risk management framework with responsibilities for the monitoring of specific risks against risk limits or thresholds and the escalation of any breaches as described above.

GSBE is fully integrated into the broader firmwide organizational structure and risk governance, and applies a risk philosophy and risk management principles consistent with GS Group. For an overview of the GS Group risk management framework, including governance, processes and committee structure, see "Risk Management – Overview and Structure of Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2022 Form 10-K.

Adequacy of Risk Management Arrangements

GSBE is satisfied that the risk management arrangements and systems, as described above, are appropriate given the strategy and risk profile of the bank. These elements are reviewed at least annually and, where appropriate, updated to reflect best practice, evolving market conditions and changing regulatory requirements.

Key Metrics

The table below provides an overview of the bank's prudential regulatory position as measured by key regulatory metrics as of December 2022 and previously reported reference periods. December 2022 and December 2021, in the table below and throughout the disclosure, includes the impact of inclusion of the respective year's audited profits, unless otherwise stated.

Table 1: EU KM1 - Key Metrics Table

		a.	b.	c.	d.	e.
€ in millions		As of December 2022	As of June 2022	As of March 2022	As of December 2021	As of June 2021
	Available own funds (amounts)					
1	Common Equity Tier 1 (CET1) capital	€ 8,911	€ 8,448	€ 8,457	€ 5,732	€ 5,296
2	Tier 1 capital	€ 8,911	€ 8,448	€ 8,457	€ 5,732	€ 5,296
3	Total capital	€ 8,931	€ 8,468	€ 8,477	€ 5,752	€ 5,316
	Risk-weighted exposure amounts					
4	Total risk-weighted exposure amount	€ 28,179	€ 26,932	€ 27,688	€ 25,402	€ 19,861
	Capital ratios (as a percentage of risk-weighted exposure amount)					
5	Common Equity Tier 1 ratio (%)	31.6%	31.4%	30.5%	22.6%	26.7%
6	Tier 1 ratio (%)	31.6%	31.4%	30.5%	22.6%	26.7%
7	Total capital ratio (%)	31.7%	31.4%	30.6%	22.6%	26.8%
	Additional own funds requirements based on SREP (as a percentage of risk-weighted exposure amount)					
EU 7a	Additional own funds requirements to address risks other than the risk of excessive leverage (%)	3.0%	3.0%	3.0%	3.0%	3.0%
EU 7b	of which: to be made up of CET1 capital (percentage points)	1.7%	1.7%	1.7%	1.7%	1.7%
EU 7c	of which: to be made up of Tier 1 capital (percentage points)	2.3%	2.3%	2.3%	2.3%	2.3%
EU 7d	Total SREP own funds requirements (%)	11.0%	11.0%	11.0%	11.0%	11.0%
	Combined buffer requirement (as a percentage of risk-weighted exposure amount)					
8	Capital conservation buffer (%)	2.5%	2.5%	2.5%	2.5%	2.5%
EU 8a	Conservation buffer due to macro-prudential or systemic risk identified at the level of a Member State (%)	0.0%	0.0%	0.0%	0.0%	0.0%
9	Institution specific countercyclical capital buffer (%)	0.3%	0.0%	0.1%	0.0%	0.0%
EU 9a	Systemic risk buffer (%)	0.0%	0.0%	0.0%	0.0%	0.0%
10	Global Systemically Important Institution buffer (%)	0.0%	0.0%	0.0%	0.0%	0.0%
EU 10a	Other Systemically Important Institution buffer	0.3%	0.3%	0.3%	0.0%	0.0%
11	Combined buffer requirement (%)	3.0%	2.8%	2.8%	2.5%	2.5%
EU 11a	Overall capital requirements (%)	14.0%	13.8%	13.8%	13.5%	13.5%
12	CET1 available after meeting the total SREP own funds requirements (%)	20.7%	20.4%	19.6%	11.6%	15.8%
	Leverage ratio					
13	Leverage ratio total exposure measure	€ 84,006	€ 102,621	€ 73,668	€ 75,838	€ 52,768
14	Leverage ratio %	10.6%	8.2%	11.5%	7.6%	10.0%
	Additional own funds requirements to address risks of excessive leverage (as a percentage of leverage ratio total exposure amount)					
EU 14a	Additional own funds requirements to address the risk of excessive leverage (%)	0.0%	0.0%	0.0%	0.0%	0.0%
EU 14b	of which: to be made up of CET1 capital (percentage points)	0.0%	0.0%	0.0%	0.0%	0.0%
EU 14c	Total SREP leverage ratio requirements (%)	3.0%	3.0%	3.0%	3.0%	3.1%

		a.	b.	c.	d.	e.
	€ in millions	As of December 2022	As of June 2022	As of March 2022	As of December 2021	As of June 2021
	Leverage ratio buffer and overall leverage ratio requirement (as a percentage of total exposure measure)					
EU 14d	Total SREP leverage ratio requirements (%)	0.0%	0.0%	0.0%	0.0%	0.0%
EU 14e	Overall leverage ratio requirements (%)	3.0%	3.0%	3.0%	3.0%	3.1%
	Liquidity Coverage Ratio					
15	Total high-quality liquid assets (HQLA) (Weighted value - average)	19,623	17,085	14,599	11,734	5,516
EU 16a	Cash outflows - Total weighted value	21,340	15,459	13,423	11,894	7,173
EU 16b	Cash inflows - Total weighted value	10,165	8,182	7,258	6,219	3,916
16	Total net cash outflows (adjusted value)	11,176	7,277	6,166	5,675	3,284
17	Liquidity coverage ratio (%)	189.0%	241.0%	234.0%	202.0%	195.4%
	Net Stable Funding Ratio					
18	Total available stable funding	18,997	23,381	19,964	28,337	13,369
19	Total required stable funding	12,335	17,151	13,954	16,224	7,660
20	NSFR ratio (%)	154.0%	136.3%	143.1%	174.7%	174.5%

The capital ratios and leverage ratio as of December 2022 includes 2022 profits that contributed approximately 76 basis points and 57 basis points to the CET1 ratio and leverage ratio, respectively.

The total capital ratio increased by 0.3 percentage points (pp) vs. June 2022 to 31.7% mainly driven by €0.5bn of 2022 profits, partially offset by increased RWAs of €1.2bn to €28.2bn. The increase in RWA resulted from increases in operational RWA by €0.9bn and market risk RWAs by €0.6bn partially offset by decreased credit and counterparty credit RWA by €0.2bn.

The Leverage ratio increased by 2.4pp vs. June 2022 to 10.6% mainly driven by €0.5bn of 2022 profits and leverage exposures decreasing by €18.6bn to €84.0bn, primarily due to decreases in on balance sheet exposures within derivatives, cash and other on balance sheet receivables.

Liquidity coverage ratio decreased by 52pp vs. June 2022 to 189%, mainly due to an increase in the net cash outflow by €3.9bn to €11.2bn, mainly due to an increase in contractual funding obligations partially offset by an increase in HQLA by €2.6bn to €19.6bn.

Net stable funding ratio increased by 18pp vs. June 2022 to 154%, due to a decrease in Required Stable Funding by €4.8bn to €12.3bn, mainly driven by derivative assets and inventory. This was partially offset by a decrease in Available Stable Funding by €4.4bn to €19.0bn, due to a decrease in the intercompany long-term operational loan.

EU iLAC

In accordance with the requirements of Article 92b of Regulation (EU) No 575/2013, the following table shows GSBE’s minimum requirement for eligible liabilities, as a material subsidiary of a non-EU headquartered G-SII.

Table 2: EU iLAC: Internal loss absorbing capacity: internal MREL and, where applicable, requirement for own funds and eligible liabilities for non-EU G-SIIs

€ in millions				As of December 2022
		a	b	c
		Minimum requirement for own funds and eligible liabilities (internal MREL)	**Non-EU G-SII Requirement for own funds and eligible liabilities (internal TLAC)**	**Qualitative information**
Applicable requirement and level of application				
EU 1	Is the entity subject to a Non-EU G-SII Requirement for own funds and eligible liabilities? (Y/N)			Y
EU 2	If EU 1 is answered by 'Yes', is the requirement applicable on a consolidated or individual basis? (C/I)			I
EU 2a	Is the entity subject to an internal MREL requirement? (Y/N)			N
EU 2b	If EU 2a is answered by 'Yes', is the requirement applicable on a consolidated or individual basis? (C/I)			N/A
Own funds and eligible liabilities				
EU 3	Common Equity Tier 1 capital (CET1)	€ 8,911	€ 8,911	
EU 4	Eligible Additional Tier 1 instruments	-	-	
EU 5	Eligible Tier 2 instruments	20	20	
EU 6	Eligible own funds	8,931	8,931	
EU 7	Eligible liabilities	800	800	
EU 8	Of which permitted guarantees	-		
EU 9a	(Adjustments)	-		
EU 9b	Own funds and eligible liabilities items after adjustments	€ 9,731	€ 9,731	
Total risk exposure amount and total exposure measure				
EU 10	Total risk exposure amount	€ 28,179	€ 28,179	
EU 11	Total exposure measure	€ 84,006	€ 84,006	
Ratio of own funds and eligible liabilities				
EU 12	Own funds and eligible liabilities (as a percentage of TREA)	34.5%	34.5%	
EU 13	*>>> of which permitted guarantees*	-		
EU 14	Own funds and eligible liabilities (as a percentage of leverage exposure)	11.6%	11.6%	
EU 15	*>>> of which permitted guarantees*	-		
EU 16	CET1 (as a percentage of TREA) available after meeting the entity’s requirements		16.4%	
EU 17	Institution-specific combined buffer requirement *		3.0%	
Requirements				
EU 18	Requirement expressed as a percentage of the total risk exposure amount	N/A	16.2%	
EU 19	*>>> of which may be met with guarantees*	N/A		
EU 20	Internal MREL expressed as percentage of the total exposure measure	N/A	6.1%	
EU 21	*>>> of which may be met with guarantees*	N/A		
Memorandum items				
EU 22	Total amount of excluded liabilities referred to in Article 72a(2) CRR **		198,896	

** Row EU 17 requires reporting Institution-specific combined buffer requirement, but EBA template mapping refers to cell M 03.00, r0540, c0020 (O-SII requirement). GSBE is reporting the Institution-specific combined buffer requirement in this row.*

*** Row EU 22 requires reporting Total amount of excluded liabilities referred to in Article 72a(2) CRR, but EBA template mapping refers to cell M 03.00, r0590, c0020 (Other bailinable liabilities with residual maturity of >= 1 year and < 2 years). GSBE is reporting Total amount of excluded liabilities in this row.*

The own funds and eligible liabilities as a percentage of TREA (EU 12) increased over the quarter by 5.7pp to 34.5% mainly driven by increasing capital by €0.5bn due to inclusion of 2022 profits and by risk exposure amounts decreasing by €3.9bn to €28.2bn primarily due to credit risk exposure amounts decreasing by €5.0bn mainly from OTC derivatives (-€2.7bn), lending activity (-€1.0bn), margin loans (-€0.7bn) and balance sheet exposures (-€0.4bn).

The own funds and eligible liabilities as a percentage of leverage exposure (EU 14) increased over the quarter by 3.5pp to 11.6%

mainly driven by increased capital by €0.5bn due to inclusion of 2022 profits and by leverage exposure decreasing by €29.6bn, primarily due to decreased on-balance sheet exposures mainly from a decrease in cash deposits with Central Banks (-€9.8bn) and securities financing transactions (-€8.2bn) and off balance sheet exposure (-€4.8bn).

EU TLAC2a

Table 3: EU TLAC2a: Creditor ranking - Entity that is not a resolution entity

€ in millions

As of December 2022

		Insolvency ranking								Sum of 1 to n
		1	**1**	**2**	**2**	3	4	**n**	**n**	
		(most junior)	**(most junior)**					**(most senior)**	**(most senior)**	
		resolution entity	**other**	**resolution entity**	**other**	resolution entity	other	**resolution entity**	**other**	
1	Empty set in the EU									
2	Description of insolvency rank (free text)		Common equity Tier 1 instruments			Tier 2 instruments	Claims subordinated by virtue of a contractual subordination clause not specifying the pertinent rank (other than Additional Tier 1 or Tier 2 instruments)			
3	Liabilities and own funds including derivative liabilities		€8,911			€20	€800			€9,731
4	o/w excluded liabilities		0			0	0			0
5	Liabilities and own funds less excluded liabilities		8,911			20	800			9,731
6	Subset of liabilities and own funds less excluded liabilities that are own funds and eligible liabilities for the purpose of [choose as a appropriate: internal TLAC/internal MREL]		8,911			20	800			9,731
7	o/w residual maturity ≥ 1 year < 2 years		0			0	0			0
8	o/w residual maturity ≥ 2 year < 5 years		0			0	0			0
9	o/w residual maturity ≥ 5 years < 10 years		0			0	800			800
10	o/w residual maturity ≥ 10 years, but excluding perpetual securities		0			0	0			0
11	o/w perpetual securities		8,911			20	0			8,931

Capital Framework

Capital Structure

For regulatory capital purposes, a bank's total available capital has the following components:

- Common Equity Tier 1 capital (CET1), which is comprised of common shareholders' equity, after giving effect to deductions for disallowed items and other adjustments;
- Tier 1 capital which is comprised of CET1 capital and other qualifying capital instruments; and
- Tier 2 capital which is comprised of long term qualifying subordinated debt and preference shares.

Certain components of GSBE's regulatory capital are subject to regulatory limits and restrictions under the rules. In general, to qualify as Tier 1 or Tier 2 capital, an instrument must be fully paid and unsecured. A qualifying Tier 1 or Tier 2 capital instrument must also be subordinated to all senior indebtedness of the organisation.

Under the rules, the minimum CET1, Tier 1 capital and Total capital ratios (collectively the Pillar 1 capital requirements) are supplemented by:

- A capital conservation buffer of 2.5%, consisting entirely of capital that qualifies as CET1.
- A countercyclical capital buffer of up to 2.5% (consisting entirely of CET1) in order to counteract excessive credit growth. The buffer only applies to GSBE's exposures to certain types of counterparties and exposures based in jurisdictions which have announced and implemented a countercyclical buffer. As of December 2022, the buffer increases the minimum CET1 ratio by 0.29%. Countercyclical capital buffer rates are expected to increase across relevant jurisdictions where GSBE has material exposures such as Germany, the Netherlands, France and the UK.
- In addition to the existing capital requirement resulting from Pillar 1, GSBE is subject to an annual Supervisory Review and Evaluation Process (SREP) by its regulators. As a result of this SREP process the supervisory authorities determine a SREP capital add-on. The SREP capital add-on is determined by the SREP process conducted by the ECB. This capital add-on consists of two components: a Pillar 2 Capital Requirement (P2R) and a Pillar 2 Capital Guidance (P2G). While the P2R is binding and breaches can have direct legal consequences for banks, the P2G signals to banks the supervisory view of the adequate level of capital to be maintained to provide a sufficient buffer to withstand stressed situations. Unlike the P2R, the P2G is not legally binding.
- GSBE's P2R capital add-on has been set by the ECB to 3.0% of which 1.69% has to be held in CET1 capital. The SREP ratios in table 1 incorporate P2R received from the ECB and excludes the P2G.
- **An additional capital requirement according to the degree of systemic importance of the bank (O-SII buffer).** The CRD and CRR provide that institutions that are systemically important at the E.U. or member state level, known as other systemically important institutions (OSIIs), may be subject to O-SII buffers. BaFin identified the bank as an O-SII in Germany and set an O-SII buffer of 25 basis points, applicable from January 1, 2022. Effective January 1, 2023, the O-SII buffer has been increased to 50 basis points.

Minimum Regulatory Capital Ratios

The following table presents GSBE's minimum required ratios as of December 2022.

Table 4: Minimum Regulatory Capital Ratios

	As of December 2022
	Minimum ratio
CET1 ratio	9.2%
Tier 1 capital ratio	11.3%
Total capital ratio	14.0%

The ratios in the above table incorporate P2R received from the ECB and excludes the P2G, which represents the ECB's view of the capital that bank would require to absorb losses in stressed market conditions.

Compliance with Capital Requirements

As of December 2022, GSBE had capital levels in excess of its overall capital requirements (OCR) which include the pillar 1 capital requirement, pillar 2 capital requirement, capital conservation buffer, countercyclical capital buffer and O-SII buffer.

Regulatory Capital

Overview

The following table presents a breakdown of GSBE's capital ratios under CRR as of December 2022.

Table 5: Regulatory Capital Ratios

€ in millions	As of December 2022
CET1 Capital	€ 8,911
Tier 1 Capital	8,911
Tier 2 Capital	20
Total Capital	**€ 8,931**
RWAs	**€ 28,179**
CET1 Ratio	**31.6%**
Tier 1 Capital Ratio	**31.6%**
Total Capital Ratio	**31.7%**

All capital, RWAs and ratios are based on current interpretation, expectations and understanding of the rules and may evolve in the future.

The following table contains information on the components of our regulatory capital structure. The capital resources are based on GSBE's 2022 IFRS Financial Information.

Table 6: Regulatory Capital

€ in millions	As of December 2022
Ordinary Share Capital and related share premium accounts	€ 354
Audited Retained Earnings	1,352
Other capital reserves	7,316
Accumulated Other Comprehensive Income	6
CET1 Capital Before Regulatory Adjustments	**€ 9,028**
CVA and DVA	(17)
Prudent Valuation Adjustments	(69)
Intangible Assets	(31)
CET1 Capital After Regulatory Adjustments	**€ 8,911**
Tier 1 Capital After Regulatory Adjustments	**€ 8,911**
Tier 2 Capital Before Regulatory Adjustments	20
Tier 2 Capital After Regulatory Adjustments	**€ 20**
Total Capital Resources	**€ 8,931**

GSBE's total capital resources increased by €3.2bn during 2022 primarily driven by a capital injection of €2.7bn into free capital reserves in Q1 2022 and €0.5bn of 2022 audited profits.

In January 2023, GSBE's shareholder injected a total of €3.26bn into free capital reserves.

We set out below a reconciliation between the capital resources of GSBE and its balance sheet as per IFRS Financial Information.

Table 7: Reconciliation to Balance Sheet

€ in millions	As of December 2022
Total Shareholders' Equity	€ 9,028
Regulatory Adjustments	(117)
Tier 2 Capital	20
Total Capital Resources	**€ 8,931**

Risk-Weighted Assets

RWAs are calculated based on measures of credit risk, market risk and operational risk. The table below presents a summary of the RWAs and capital requirements by type as at December 2022 and December 2021.

Table 8: EU OV1 - Overview of RWAs

€ in millions		Related table reference	Risk weighted exposure amounts (RWEAs)		Total own funds requirements
			a	b	c
			December 2022	December 2021	December 2022
1	**Credit risk (excluding CCR)**		**€ 5,627**	**€ 4,099**	**€ 450**
2	Of which the standardised approach	See EU CR4	5,627	4,099	450
3	Of which the foundation IRB (FIRB) approach		-	-	-
4	Of which: slotting approach		-	-	-
5	Of which equity IRB under the simple risk-weighted approach		-	-	-
6	Of which the Advanced IRB (A-IRB) approach		-	-	-
6	**Counterparty credit risk - CCR**		**€ 13,357**	**€ 13,170**	**€ 1,069**
7	Of which the standardised approach	See EU CCR1	514	567	41
8	Of which internal model method (IMM)	See EU CCR1	9,437	9,652	755
EU 8a	Of which exposures to a CCP	See EU CCR8	137	88	11
EU 8b	Of which credit valuation adjustment - CVA	See EU CCR2	2,658	1,673	213
9	Of which other CCR	See EU CCR1	612	1,190	49
15	**Settlement risk**		**€ 503**	**€ 369**	**€ 40**
16	**Securitisation exposures in the banking book (after the cap)**		**€ 110**	**€ 98**	**€ 9**
17	Of which SEC-IRBA approach		-	-	-
18	Of which SEC-ERBA (including IAA)	See EU SEC3	-	5	-
19	Of which SEC-SA approach	See EU SEC3	110	94	9
EU 19a	Of which 1250%		-	-	-
20	**Position, foreign exchange and commodities risks (Market risk)**		**€ 6,480**	**€ 6,415**	**€ 518**
21	Of which the standardised approach	See EU MR1	954	915	76
22	Of which IMA	See EU MR2-A	5,525	5,500	442
EU 22a	**Large exposures**		-	-	-
23	**Operational risk**		**€ 2,102**	**€ 1,251**	**€ 168**
EU 23a	Of which basic indicator approach	See EU OR1	2,102	1,251	168
EU 23b	Of which standardised approach		-	-	-
EU 23c	Of which advanced measurement approach		-	-	-
24	Amounts below the thresholds for deduction (subject to 250% risk weight)		246	202	20
29	**Total**		**€ 28,179**	**€ 25,402**	**€ 2,254**

**EBA mapping rows from 10 to 14 and from 25 to 28 are described as "Not Applicable" and hence not shown in the table above*

For RWA drivers, please refer to respective section references provided in the table above.

Credit Risk

Overview

Credit risk represents the potential for loss due to the default or deterioration in credit quality of a counterparty (e.g. an OTC derivatives counterparty or a borrower) or an issuer of securities or other instruments the bank holds. The bank further differentiates between trading counterparty risk, lending risk, deposit placement risk and settlement risk within its risk management approach.

The bank's exposure to credit risk comes mostly from cash placed with banks, client transactions in OTC derivatives and loans and lending commitments. Credit risk also comes from securities financing transactions (i.e. resale and repurchase agreements and securities borrowing and lending activities) and customer and other receivables. In addition, the bank may hold other positions that give rise to credit risk (e.g., bonds held in trading book) — these credit risks are captured as a component of market risk measures, which are monitored and managed by Market Risk, consistent with other inventory positions.

Credit Risk which is independent of the revenue-producing units and reports to the bank's chief risk officer, has primary responsibility for assessing, monitoring and managing the bank's credit risk through oversight across the bank's businesses.

The bank's framework for managing credit risk is consistent with the framework of GS Group established by GS Group's Firmwide Risk Appetite Committee, with the bank's Credit Risk function being an integral part of the GS Group Credit Risk function.

Credit Risk Management Process

The process for managing credit risk includes the critical components of the bank's risk management framework described in the "Overview and Structure of Risk Management" within "Management Report" of GSBE's 2022 Financial Statements. as well as the following:

- Setting of credit limits and monitoring compliance with established credit risk limits;
- Regular reporting (daily, weekly, monthly, quarterly) on the bank's credit exposures and credit concentrations to the bank's chief credit officer, chief risk officer, GSBE Credit Risk Council, GSBE Risk Committee, and the Executive Board of the bank;
- Assessing and determining internal credit ratings for counterparties and the associated likelihood that a counterparty will default on its payment obligations;
- Measuring our current and potential credit exposure and losses resulting from a counterparty default;
- Using credit risk mitigants, including netting, collateral, surety, subparticipations and hedging; and
- Maximizing recovery through active workout and restructuring of claims.

The bank performs credit analyses, which incorporate initial and ongoing evaluations of the capacity and willingness of a counterparty to meet its financial obligations. The bank employs well-defined underwriting standards and policies, which seek to mitigate credit risk through analysis of a borrower's credit history, financial information, cash flow, sustainability of liquidity and collateral quality adequacy, if applicable. For substantially all of the bank's credit exposures, the core of the process is an annual counterparty credit evaluation or more frequently if deemed necessary as a result of events or changes in circumstances. The bank determines an internal credit rating for the counterparty by considering the results of the credit evaluations and assumptions with respect to the nature of and outlook for the counterparty's industry and the economic environment. The internal credit rating does not take into consideration collateral received or other credit support arrangements. Senior personnel, with expertise in specific industries, inspect and approve credit reviews and internal credit ratings.

The bank's risk assessment may also include, where applicable, reviewing certain key metrics, including, but not limited to, delinquency status, collateral values and other risk factors.

The credit risk management systems capture credit exposure to individual counterparties and on an aggregate basis to counterparties and their subsidiaries. These systems also provide management with comprehensive information about aggregate credit risk by product, internal credit rating, industry and country.

Risk Measures

Credit risk is measured based on the potential loss in the event of non-payment by a counterparty using current and potential exposure. For loans and lending commitments, the primary measure is a function of the notional amount of the position. For derivatives and securities financing transactions, current exposure represents the amount presently owed to the bank after taking into account applicable netting and collateral arrangements, while potential exposure represents the bank's estimate of the future exposure that could arise over the life of a transaction. Potential exposure is calculated using internal models calibrated based on market movements within a specified confidence level (usually at the 95th-percentile). Potential exposure also takes into account netting and collateral arrangements.

Limits

Credit limits and escalation thresholds at various levels (e.g. counterparty, economic group, industry and country) as well as underwriting standards are used to manage the size and nature of the bank's credit exposures. The bank's Executive Board and the GSBE Risk Committee approve credit risk limits at the bank-wide level, and where appropriate the business and product level, consistent with the bank's risk appetite. Furthermore, the Executive Board or GSBE Risk Committee (and the GSBE Credit Risk Council) approve the framework that governs the setting of credit risk sub-limits at the bank level, which is delegated to Credit Risk. The counterparty limits are assigned based on multiple factors mainly internal credit rating, size of counterparty and tenor profile of the credit exposure.

Credit Risk is responsible for monitoring these limits and identifying and escalating to senior management and/or the appropriate risk committee, on a timely basis, instances where limits have been exceeded.

Credit Exposures

For information on the bank's credit exposures, including the gross fair value, netting benefits and current exposure of the bank's derivative exposures and the bank's securities financing transactions, see "Note 5. Repurchase Agreements" and "Note 6. Trading Assets and Liabilities" and "Credit Risk Management" in "Management Report" in the GSBE's 2022 financial statements.

Credit Risk and Counterparty Credit Risk RWAs

Credit RWAs are calculated based on measures of credit exposure, which are then risk weighted. Below is a description of the methodology used to calculate RWAs for wholesale exposures, which generally include credit exposures to corporates, institutions, sovereigns or government entities (other than securitisation, retail or equity exposures). GSBE does not have regulatory permission to compute risk weights in accordance with the Advanced Internal Ratings Based (AIRB) approach, which utilises internal assessments of each counterparty's creditworthiness. Instead, it uses Standardised Risk Weights for which nominated External Credit Assessment Institutions (ECAI) ratings are used.

Exposure at Default (EAD). The exposure amount that is risk weighted for regulatory capital calculations. For on-balance-sheet assets, such as receivables and cash, EAD is generally based on the balance sheet value. For the calculation of EAD for off-balance-sheet exposures, including commitments and guarantees, an equivalent exposure amount is calculated based on the notional amount of each transaction multiplied by a credit conversion factor in accordance with Article 166 of CRR.

For the measurement of substantially all counterparty credit exposure on OTC, cleared and listed derivative and securities financing transactions, GSBE was granted permission to use the Internal Model Method (IMM) in April 2022 which replaced the prior temporary tolerance framework. GSBE applied the IMM for purposes of its regulatory capital calculation throughout the reporting period. The models estimate Expected Exposures (EE) at various points in the future using risk factor simulations. The model parameters are derived from historical and implied market data using the most recent three-year period as well as a stressed three-year period. The models also estimate the Effective Expected Positive Exposure (EEPE) over the first year of the portfolio, which is the time-weighted average of non-declining positive credit exposure over the EE simulation. EAD is calculated by multiplying the EEPE by a standard regulatory factor which was set to 1.45 effective April 22, 2022.

The EAD detailed in the following tables represents the exposures used in computing capital requirements and is not a directly comparable metric to balance sheet amounts presented in the IFRS Financial Information of GSBE for the year ended December 31, 2022 due to differences in measurement methodology, counterparty netting and collateral offsets used.

As GSBE calculates the majority of its counterparty credit exposure under the IMM, the impacts of netting and collateral are integral to the calculation of the exposure. The exposures disclosed below are presented on a net and collateralised basis where there is a legally enforceable netting and collateral opinion. They do not include the effect of any credit protection purchased on counterparties.

Governance and Validation of Risk Parameters

Approaches and methodologies for quantifying EAD are monitored and managed by the Risk Engineering department within the Risk Division. Models are independently reviewed, validated and approved by Model Risk

Management. For further information, see “Model Risk”. The performance of each IMM model used to quantify EAD is assessed quarterly via backtesting procedures, performed by comparing the predicted and realised exposure of a set of representative trades and portfolios at certain horizons. The bank’s models are monitored and enhanced in response to backtesting.

External Credit Rating Assessment Institutions. The External Credit Assessment Institutions (ECAIs) used are Standard & Poor’s Ratings Services (S&P), Moody’s Investors Service (Moody’s) and Fitch, Inc. (Fitch) for all types of exposure categories in accordance with Articles 135 and 444 of CRR.

The following table present the methods used to calculate Counterparty Credit Risk RWAs and main parameters used within each method for GSBE as of December 2022.

Table 9: EU CCR1 - Analysis of CCR Exposure by Approach

€ in millions As of December 2022

		a	b	c	d	e	f	g	h
		Replace ment 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**
EU1	EU - Original Exposure Method (for derivatives)	-	-		1.4	-	-	-	-
EU2	EU - Simplified SA-CCR (for derivatives)	-	-		1.4	-	-	-	-
1	SA-CCR (for derivatives)	€ 286	€ 485		1.4	€ 1,111	€ 1,111	€ 1,111	€ 514
2	IMM (for derivatives and SFTs)			9,608	1.45	80,131	13,931	13,931	9,437
2a	*Of which securities financing transactions netting sets*			804		53,534	1,166	1,166	552
2b	*Of which derivatives and long settlement transactions netting sets*			8,804		26,597	12,766	12,766	8,886
2c	*Of which from contractual cross-product netting sets*			-		-	-	-	-
3	Financial collateral simple method (for SFTs)					-	-	-	-
4	Financial collateral comprehensive method (for SFTs)					4,119	869	869	612
5	VaR for SFTs					-	-	-	-
6	**Total**					**€ 85,360**	**€ 15,911**	**€ 15,911**	**€ 10,562**

Total Counterparty Credit Risk (CCR) RWA decreased by €0.8bn over the course of 2022 mainly due to decreased OTC derivatives exposure primarily from foreign exchange derivatives (-€1.2bn), decreased margin lending exposures (-€0.6bn) primarily from change in methodology for calculating the RWA under Financial Collateral Comprehensive Method (FCCM) methodology, partially offset by increased listed derivative exposure activity (+€0.9bn).

The following table presents GSBE's exposures subject to CVA capital charges and corresponding RWEAs as of December 2022.

Table 10: EU CCR2 - Transactions subject to own funds requirements for CVA risk

€ in millions		As of December 2022	
		Exposure value	**RWEAs**
1	Total transactions subject to the Advanced method	€ 7,646	€ 2,470
2	(i) VaR component (including the 3× multiplier)		564
3	(ii) Stressed VaR component (including the 3× multiplier)		1,906
4	Transactions subject to the Standardised method	749	188
5	**Total transactions subject to own funds requirements for CVA risk**	**€ 8,395**	**€ 2,658**

Total CVA RWEA increased by €1.0bn in 2022 mainly due to an increase in the average VaR and SVaR of €0.6bn and clarification of rules leading to the inclusion of third country GS affiliate exposures €0.2bn.

The following table presents annual flow statement of the RWEAs and capital requirements under the IMM as of December 2022.

Table 11: EU CCR7 - RWEA Flow Statements of CCR Exposures under the IMM

€ in millions		As of December 2022
		a
		RWEA
1	**RWEAs as at the end of the previous reporting period (Dec 2021)**	**€ 9,678**
2	Asset size	(537)
3	Credit quality of counterparties	40
4	Model updates (IMM only)	17
5	Methodology and policy (IMM only)	-
6	Acquisitions and disposals	-
7	Foreign exchange movements	(96)
8	Other	374
9	**RWEAs as at the end of the current reporting period (Dec 2022)**	**€ 9,476**

Other category in row 8 mainly includes the impact on RWEA due to change in risk weight category and change in maturity.

The following table presents GSBE's EAD after credit risk mitigation and RWEAs on exposures to CCPs as of December 2022.

Table 12: EU CCR8 - Exposures to CCPs

€ in millions			As of December 2022
		a	b
		Exposure value	**RWEA**
1	**Exposures to QCCPs (total)**		**€ 137**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	337	7
3	(i) OTC derivatives	205	4
4	(ii) Exchange-traded derivatives	129	3
5	(iii) SFTs	4	0

6	(iv) Netting sets where cross-product netting has been approved	-	-
7	Segregated initial margin	-	-
8	Non-segregated initial margin	1,588	32
9	Prefunded default fund contributions	440	98
11	**Exposures to non-QCCPs (total)**		-
12	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which	-	-
13	(i) OTC derivatives	-	-
14	(ii) Exchange-traded derivatives	-	-
15	(iii) SFTs	-	-
16	(iv) Netting sets where cross-product netting has been approved	-	-
17	Segregated initial margin	-	-
18	Non-segregated initial margin	-	-
19	Prefunded default fund contributions	-	-
20	Unfunded default fund contributions	-	-

Credit Risk Mitigation

To reduce the bank's credit exposures on loans and lending commitments, depending on the credit quality of the borrower and other characteristics of the transaction, the bank employs a variety of potential risk mitigants. Risk mitigants include collateral provisions, guarantees, covenants, structural seniority of the bank loan claims and, for certain lending commitments, provisions in the legal documentation that allow the bank to adjust loan amounts, pricing, structure and other terms as market conditions change. The type and structure of risk mitigants employed can significantly influence the degree of credit risk involved in a loan or lending commitment.

For derivatives and securities financing transactions, the bank may enter into netting agreements with counterparties that permit it to offset receivables and payables with such counterparties. The bank may also reduce credit risk with counterparties by entering into agreements that enable it to obtain collateral from them on an upfront or contingent basis and/or to terminate transactions if the counterparty's credit rating falls below a specified level. An enforceable credit support agreement grants the non-defaulting party exercising termination provisions the right to liquidate collateral and apply the proceeds to any amounts owed. In order to assess enforceability of our right to setoff under netting and credit support agreements, we evaluate various factors, including applicable bankruptcy laws, local statutes and regulatory provisions in the jurisdiction of the parties to the agreement. The collateral we hold consists primarily of cash and securities of high quality government bonds (mainly E.U. and U.S.), subject to haircuts as deemed appropriate by the Credit Risk function. Credit Risk performs ongoing collateral monitoring to ensure the firm maintains an appropriate quality and level of diversification of collateral.

The bank's collateral is managed by certain functions within the firm which review exposure calculations, make margin calls with relevant counterparties, and ensure subsequent settlement of collateral movements. The bank monitors the fair value of the collateral on a daily basis to ensure our credit exposures are appropriately collateralised.

As of December 2022, the aggregate amounts of additional collateral or termination payments related to the bank's net derivative liabilities under bilateral agreements that could have been called by our counterparties in the event of a one- and two-notch downgrade of our credit ratings are immaterial.

When the bank does not have sufficient visibility into a counterparty's financial strength or when it believes a counterparty requires support, the bank may obtain third-party guarantees of the counterparty's obligations. The bank may also mitigate its credit risk using credit derivatives or participation agreements. As of December 2022, €0.2bn CDS hedges qualified as credit risk mitigants with hedge provider being Goldman Sachs International. Guarantees of €0.2bn were provided by Goldman Sachs Group Inc. for certain counterparty exposures.

The following table presents GSBE's net carrying amount secured by different CRM techniques as of December 2022.

Table 13: EU CR3 – CRM Techniques: Disclosure of the use of credit risk mitigation techniques

€ in millions						As of December 2022
		Unsecured carrying amount	**Secured carrying amount**			
				Of which **secured by collateral**	Of which **secured by financial guarantees**	
						Of which **secured by credit derivatives**
		a	b	c	d	e
1	Loans and advances	35,743	13,881	13,881	-	-
2	Debt securities	-	-	-	-	-
3	**Total**	**35,743**	**13,881**	**13,881**	-	-
4	*Of which non-performing exposures*	-	-	-	-	-
EU-5	*Of which defaulted*	-	-			

Credit Derivatives

GSBE enters into credit derivative transactions primarily to facilitate client activity and to manage the credit risk associated with market-making.

GSBE may also use credit derivatives to hedge credit risk exposures associated with financing and lending activities as well as counterparty credit risk exposures resulting from derivatives activity. Some of these hedges may qualify as eligible credit risk mitigation under Part III, Title II, Chapter 4 of the CRR, allowing the firm to recognise the protection via risk weight substitution. Where the aggregate notional of credit derivatives hedging exposure to a loan obligor is less than the notional loan exposure, the substitution approach is only employed for the percentage of loan exposure covered by eligible credit derivatives.

For further information on the Credit Risk management process please refer to the "Credit Risk Management" within "Management Report" of GSBE's 2022 Financial Statements.

The following table presents GSBE's exposure to credit derivatives based on notional and fair values as of December 2022.

Table 14 : EU CCR6 – Credit Derivatives Exposures

€ in millions		As of December 2022	
		a	B
		Protection bought	**Protection sold**
Notionals			
1	Single-name credit default swaps	€ 67,990	€ 65,422
2	Index credit default swaps	135,582	135,554
3	Total return swaps	294	294
4	Credit options	5,722	5,722
5	Other credit derivatives	2,533	2,546
6	**Total notionals**	**€ 212,120**	**€ 209,538**
Fair values			
7	Positive fair value (asset)	€ 1,696	€ 2,112
8	Negative fair value (liability)	€ (2,207)	€ (1,522)

Wrong-way Risk

Wrong Way Risk arises when there is a significant positive correlation between the probability of default of a counterparty and our exposure to that counterparty (net of the market value of any collateral we receive). Wrong-way risk is commonly categorised into two types: specific wrong-way risk and general wrong-way risk. We categorise exposure as specific wrong-way risk when our counterparty and the issuer of the reference asset of the transaction are the same entity or are affiliates, or if the collateral supporting a transaction is issued by the counterparty or its affiliates. General wrong-way risk arises when there is a significant positive correlation between the probability of default of a counterparty and general market risk factors affecting the exposure to that counterparty. We have procedures in place to actively identify, monitor and control specific and general wrong-way risk, beginning at the inception of a transaction and continuing through its life, including assessing the level of risk through stress tests. We ensure that material wrong-way risk is mitigated using collateral agreements or increases to initial margin, where appropriate.

Credit Valuation Adjustment Risk-Weighted Assets

RWAs for CVA address the risk of losses related to changes in counterparty credit risk arising from OTC derivatives. We calculate RWAs for CVA primarily using the Advanced CVA approach set out in CRR, which permits the use of regulator approved VaR models. Consistent with our Regulatory VaR calculation (see “Market Risk” for further details), the CVA RWAs are calculated at a 99% confidence level over a 10-day time horizon.

The CVA RWAs also include a stressed CVA component, which is also calculated at a 99% confidence level over a 10-day time horizon using both a stressed VaR period and stressed Ees. The CVA VaR model estimates the impact on our credit valuation adjustments of changes to our counterparties’ credit spreads. It may reflect eligible CVA hedges (as defined in CRR), but it excludes those hedges that, although used for risk-management purposes, are ineligible for inclusion in the regulatory CVA VaR model. Examples of such hedges are interest rate hedges, or those that do not reference the specific exposures they are intended to mitigate, but are nevertheless highly correlated to the underlying credit risk.

Other Credit Risk-Weighted Assets

Credit RWAs also include the following components:

Cleared Transactions

RWAs for cleared transactions and default fund contributions (defined as payments made by clearing members to central clearing agencies pursuant to mutualised loss arrangements) are calculated based on specific rules within CRR. A majority of our exposures on centrally cleared transactions are to counterparties that are considered to be Qualifying Central Counterparties (QCCPs) in accordance with the European Market Infrastructure Regulation (EMIR). Such exposures may arise from OTC derivatives, exchange-traded derivatives, and securities financing transactions and are required to be risk weighted at either 2% or 4% based on the specified criteria.

Other Assets

Other assets primarily include fixed assets and assets for which there is no defined capital methodology or that are not material. RWAs for other assets are generally based on the carrying value and are typically risk weighted at 100%.

Equity Exposures in the Banking Book

The bank has direct investments in equity securities of its affiliated companies. These investments are typically longer-term in nature and they are therefore classified for regulatory capital purposes as banking book equity investments.

Default, past due exposures, impaired exposures and impairment provisions

A default is considered to have occurred when either or both of the following events have taken place: (i) we consider that the obligor is unlikely to pay its credit obligations to us in full; or (ii) the exposure is considered past due.

The bank’s definition of unlikeliness to pay include:

- Bankruptcy, insolvency or local jurisdictional equivalent (e.g. conservatorship, winding-up, etc.) of a counterparty or commencement of an involuntary proceeding against the counterparty for bankruptcy or similar legal process

- Distressed restructuring of an obligation due to the financial distress of a borrower, including bank loan obligations, where concessions granted result in a diminished obligation to GS, whether or not counterparty is in bankruptcy, insolvency or local jurisdictional equivalent
- Estimated high probability of imminent / near-term risk of financial default, bankruptcy, distressed liquidation or distressed restructuring
- Distressed fund liquidations to meet margin or other contractual obligations (excluding voluntary liquidation as a result of underperformance)
- Situation where we place an obligation on non-accrual, consider the obligation credit-impaired, or material mark down a facility as a result of significant perceived decline in credit quality
- Situation where we experience a material credit-related economic loss from the sale of all or a part of an asset or from the transfer of an asset from held-for-investment to held-for-sale or fair value accounting
- Cross-default to any of the above for a counterparty

Payments aged more than 90 days on any material credit obligation to the bank and/or the payments beyond the agreed grace period are considered past due.

An exposure is considered impaired when it is probable that the borrower will be unable to pay all amounts due, including principal and interest, according to the contractual terms of the agreement.

Loans that are deemed to be impaired are evaluated individually to estimate impairment provisions based on one of the following methods: (i) The present value of expected future cash flows discounted at the loan’s effective interest rate i.e. the Probability Weighted Enterprise Value (“EV”) Method (for non-collateral dependent loans), (ii) The fair value of the underlying collateral (for collateral-dependent loans) and (iii) The loan’s observable fair value market price.

The applicability of these methods may differ based on the loan characteristics, such as product type, primary source of repayment, industry or region.

Expected Credit Losses

The bank assesses the expected credit losses (ECL) associated with financial assets measured at amortised cost on a forward looking basis in accordance with the provisions of IFRS 9.

For information on GSBE’s ECL associated with financial assets measured at amortised cost, see Note 2. Summary of Significant Accounting Policies – Financial Assets and Liabilities – Impairment of GSBE’s 2022 IFRS Financial Information.

Securitisations

Overview

CRR defines certain activities as securitisation transactions which attract capital requirements under the "Securitisation Framework." A securitisation is defined as a transaction or scheme, whereby the credit risk associated with an exposure or pool of exposures is tranched, having both of the following characteristics:

- Payments in the transaction or scheme are dependent upon the performance of the exposure or pool of exposures; and
- The subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme.

The rules also distinguish between traditional and synthetic securitisations, the primary difference being that a traditional securitisation involves the transfer of assets from a bank's balance sheet into a securitisation vehicle, whereas a synthetic securitisation involves the transfer of credit risk through credit derivatives or guarantees.

GSBE engages in business activities that use securitisations. The main objective is to provide clients with access to risk and returns related to specific portfolios of assets. We currently hold the risk retention portion of securitised mortgages issued by securitisation vehicles (e.g., trusts and special purpose vehicles) as part of our role as the originator. Securitisation positions may qualify as simple, transparent and standardised securitisations (STS). As of December 2022 there are no STS positions in GSBE. Risk retentions are subject to the standard monitoring process with risk management actions such as hedging or disposals constrained by regulatory requirements.

Beneficial interests issued by securitisation entities are debt or equity securities that give the investors rights to receive all or portions of specified cash inflows to a securitisation vehicle and include senior and subordinated interests in principal, interest and/or other cash inflows. The proceeds from the sale of beneficial interests are used to pay the transferor for the financial assets sold to the securitisation vehicle or to purchase securities which serve as collateral.

GSBE accounts for a securitisation of assets as a sale when we have transferred the financial assets and in a transaction where substantially all of the risk and the reward of the financial assets is also transferred. Prior to securitisation, we account for assets pending transfer at fair value consistent with our IFRS 9 business model for those assets and therefore do not typically recognise significant gains or losses upon the transfer of assets.

Banking Book Activity

All securitisation exposures as of December 2022 were classified in the banking book. The securitisation exposures in the banking book within GSBE that meet the regulatory definition of a securitisation are exposures that we hold with the objective of meeting the risk retention requirement as originator according to Regulation (EU) 2017/2402 that require to retain on an ongoing basis a material economic interest in the securitisation of not less than 5%. The list of legal entities that are affiliated with the bank and that may invest in securitisations originated by the bank primarily include Goldman Sachs International, Goldman Sachs International Bank, Goldman Sachs Bank USA, Goldman Sachs Lending Partners LLC, GS EMI Ireland Designated Activity Company.

By engaging in the banking book securitisation activities noted above, we are primarily exposed to credit risk and to the performance of the underlying assets where GSBE is the originator and retention holder. Liquidity risk associated with securitisations is consistently managed as part of the bank's overall liquidity risk management framework. Part of the bank's securitisations exposure involve significant risk transfer from GSBE. For additional details on GSBE's risk management process and practices, see "Credit Risk" and "Market Risk" sections of this report, which also apply to securitisation positions covered in this chapter.

Calculation of Risk-Weighted Assets

The current securitisation framework came into effect in 2019. All securitisation exposures held by GSBE are capitalized under this securitisation framework.

The hierarchy consists of three primary methods, the SEC-IRBA (Internal Ratings Based Approach), SEC-SA (Standardised Approach), and SEC-ERBA (External Ratings Based Approach). The External Credit Assessment Institutions (ECAIs) used for the SEC-ERBA are Standard & Poor's Ratings Services (S&P), Moody's Investors Service (Moody's) and Fitch, Inc. (Fitch) for all types of exposures. For trading and banking book positions we follow the hierarchy of RWA approaches.

The RWAs for securitisation positions are calculated by multiplying the exposure amount by the specific risk-weighting factors assigned. The exposure amount is defined as the carrying value for securities, or the market value of the effective notional of the instrument or indices underlying derivative positions.

The following tables show our securitisation exposures in the banking book by type of exposure as of December 2022.

Table 15: EU-SEC1 – Securitisation exposures in the non-trading book

€ in millions *As of December 2022*

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
		Institution acts as originator							Institution acts as sponsor				Institution acts as investor			
		Traditional				Synthetic		Sub-total	Traditional		Synthetic	Sub-total	Traditional		Synthetic	Sub-total
		STS		Non-STS			of which SRT		STS	Non-STS			STS	Non-STS		
			of which SRT		of which SRT											
1	**Total exposures**	**-**	**-**	**54**	**54**	**-**	**-**	**54**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2	Retail (total)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	residential mortgage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	credit card	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	other retail exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	re-securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Wholesale (total)	-	-	54	54	-	-	54	-	-	-	-	-	-	-	-
8	loans to corporates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	commercial mortgage	-	-	54	54	-	-	54	-	-	-	-	-	-	-	-
10	lease and receivables	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	other wholesale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	re-securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 16: EU-SEC3 – Securitisation exposures in the non-trading book and associated regulatory capital requirements – institution acting as originator or as sponsor

€ in millions As of December 2022

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	EU-p	EU-q
		Exposure values (by RW bands/deductions)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital charge after cap			
		≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	*of which: 1250% RW*	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	*of which: 1250% RW*	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	*of which: 1250% RW*
1	**Total exposures**	**13**	**-**	**-**	**42**	**-**	**-**	**-**	**54**	-	**-**	**-**	**110**	-	-	-	9	-
2	Traditional) transactions	13	-	-	42	-	-	-	54	-	-	-	110	-	-	-	9	-
3	Securitisation	13	-	-	42	-	-	-	54	-	-	-	110	-	-	-	9	-
4	Retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Of which STS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Wholesale	13	-	-	42	-	-	-	54	-	-	-	110	-	-	-	9	-
7	Of which STS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Re-securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Synthetic transactions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Wholesale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Re-securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 17: EU-SEC5 – Exposures securitised by the institution – Exposures in default and specific credit risk adjustments

€ in millions				As of December 2022
		a	**b**	**c**
		Exposures securitised by the institution – Institution acts as originator or as sponsor		
		Total outstanding nominal amount		**Total amount of specific credit risk adjustments made during the period**
			Of which exposures in default	
1	**Total exposures**	**1,058**	**-**	**-**
2	Retail (total)	-	-	-
3	residential mortgage	-	-	-
4	credit card	-	-	-
5	other retail exposures	-	-	-
6	re-securitisation	-	-	-
7	Wholesale (total)	1,058	-	-
8	loans to corporates	-	-	-
9	commercial mortgage	1,058	-	-
10	lease and receivables	-	-	-
11	other wholesale	-	-	-
12	re-securitisation	-	-	-

Market Risk

Overview

Market risk is the risk of loss in the value of inventory, investments, loans and other financial assets and liabilities accounted for at fair value, due to changes in market conditions. Categories of market risk include the following:

- Interest rate risk and credit spread risk: results from exposures to changes in the level, slope and curvature of yield curves, the volatilities of interest rates, prepayment speeds and credit spreads;
- Equity price risk: results from exposures to changes in prices and volatilities of individual equities, baskets of equities and equity indices;
- Currency rate risk: results from exposures to changes in spot prices, forward prices and volatilities of currency rates; and
- Commodity price risk: results from exposures to changes in spot prices, forward prices and volatilities of commodities, such as crude oil, petroleum products, natural gas, electricity, and precious and base metals.

Market Risk, which is independent of the revenue-producing units and reports to the bank's Chief Risk Officer, has primary responsibility for assessing, monitoring and managing market risk through oversight across the bank's businesses. GSBE's framework for managing market risk is consistent with and part of GS Group's framework

Managers in revenue-producing units and Market Risk discuss market information, positions and estimated loss scenarios on an ongoing basis. Managers in revenue-producing units are accountable for managing risk within prescribed limits. These managers have in-depth knowledge of their positions, markets and the instruments available to hedge their exposures.

Market Risk Management Process

The bank's process for managing market risk includes the critical components of the risk management framework described in the "Overview and Structure of Risk Management" within "Management Report" of GSBE's 2022 Financial Statements, as well as the following:

- Monitoring compliance with established market risk limits and reporting our exposures;
- Diversifying exposures;
- Controlling position sizes; and
- Evaluating mitigants, such as economic hedges in related securities or derivatives.

Market Risk produces risk measures and monitors them against established market risk limits. These measures reflect an extensive range of scenarios and the results are aggregated at product, business, entity and firmwide levels. For additional information regarding market risk measures and risk limits, see "Market Risk Management" within "Management Report" of GSBE's 2022 Financial Statements.

Market Risk-Weighted Assets

Trading book positions are subject to market risk capital requirements which are designed to cover the risk of loss in value of these positions due to changes in market conditions. These capital requirements are determined either by applying prescribed risk weighting factors in accordance with the standardised approach, or they are based on internal models which are subject to various qualitative and quantitative parameters. The CRR market risk capital rules require that a firm obtains prior written permission from its regulators before using any internal model to calculate its risk-based capital requirement. GSBE has been granted temporary tolerance to use the Internal Model Approach (IMA).

For positions captured by GSBE's model permission, the capital requirements for market risk are calculated using the following internal models: Value-at-Risk (VaR), Stressed VaR (SVaR), and Incremental Risk Charge (IRC). In addition, Standardised Rules, in accordance with Title IV of Part Three of CRR, are used to calculate capital requirements for market risk for certain securitised and non-securitised positions by applying risk-weighting factors predetermined by regulators to positions after applicable netting is performed. RWAs for market risk are the sum of each of these measures multiplied by 12.5. An overview of each of these measures is provided below.

Regulatory VaR

VaR is the potential loss in value of trading assets and liabilities, as well as certain investments, loans, and other financial assets and liabilities accounted for at fair value, due to adverse market movements over a defined time horizon with a specified confidence level. For both risk management purposes (positions subject to VaR limits) and regulatory capital calculations, the firm uses a single VaR model, which captures risks including those related to interest rates, equity prices, currency rates and commodity prices. As such, VaR facilitates comparison across portfolios of different risk characteristics. VaR also captures the diversification of aggregated risk at the firmwide level.

VaR used for regulatory capital requirements (Regulatory VaR) differs from risk management VaR due to different time horizons and confidence levels (10-day and 99% for Regulatory VaR vs. one-day and 95% for risk management VaR), as well as differences in the scope of positions on which VaR is calculated. The 10-day VaR is based on scaling the 1-day VaR by the square root of 10. Moreover, Regulatory VaR is multiplied by a scaler to obtain an effective observation period of at least one year as per CRR market risk regulatory capital requirements.

VaR is calculated daily using historical simulations with full valuation of market factors, capturing both general and specific market risk. VaR is calculated at a positional level based on simultaneously shocking the relevant market risk factors for that position, using a mix of absolute and relative returns. We sample from five years of historical data to generate the scenarios for our VaR calculation. The historical data is weighted so that the relative importance of data reduces over time. This gives greater importance to more recent observations and reflects current asset volatilities.

In accordance with the CRR market risk regulatory capital requirements, we evaluate the accuracy of our Regulatory VaR model through daily backtesting. The results of the backtesting determine the size of the Regulatory VaR multiplier used to compute RWAs.

Table EU MR3 presents our period end, maximum, minimum and average daily GSBE 99% 10-day Regulatory VaR over the twelve-month period ended December 2022.

Stressed VaR

SVaR is the potential loss in value of trading assets and liabilities, as well as certain investments, loans, and other financial assets and liabilities accounted for at fair value, during a period of significant market stress. SVaR is based on a full valuation at a 99% confidence level over a 10-day time horizon using market data inputs from a continuous 12-month period of stress. The 10-day SVaR is calculated as the 1-day SVaR scaled by the square root of 10. We identify the stressed period by comparing VaR using market data inputs from different historical periods.

Table EU MR3 presents our period end, maximum, minimum and average weekly GSBE 99% 10-day SVaR over the twelve-month period ended December 2022.

Incremental Risk

Incremental risk is the potential loss in value of non-securitised positions due to the default or credit migration of issuers of financial instruments over a one-year time horizon. As required by the CRR market risk regulatory capital rules, this measure is calculated at a 99.9% confidence level over a one-year time horizon. The model is based on the assumption of a constant level of risk. The model uses a multifactor approach to simulate correlated rating migration and default events, and takes into account various characteristics, including region, industry, basis between different products, credit quality and maturity of the debt. The liquidity horizons are determined based on the speed at which issuer exposures can be reduced by hedging or unwinding, given our experience during a historical stress period, and the prescribed regulatory minimum. The average liquidity horizon as of December 2022 was 3 months.

Table EU MR3 below presents our period end, maximum, minimum and average weekly GSBE Incremental risk measure over the twelve-month period ended December 2022.

Table 18: EU MR3 – IMA values for trading portfolios

€ in millions		As of December 2022
VaR (10 day 99%)		
1	Maximum value	66
2	Average value	30
3	Minimum value	16
4	Period end	22
SVaR (10 day 99%)		
5	Maximum value	122
6	Average value	69
7	Minimum value	41
8	Period end	75
IRC (99.9%)		
9	Maximum value	184
10	Average value	115
11	Minimum value	85
12	Period end	87
Comprehensive risk measure (99.9%)		
13	Maximum value	-
14	Average value	-
15	Minimum value	-
16	Period end	-

The table below presents the own funds requirements and RWA under the IMA for Market Risk as of December 2022.

Table 19: EU MR2-A - Market risk under the IMA

€ in millions			As of December 2022
		RWEAs	**Own funds requirements**
1	**VaR** (higher of values a and b)	**€ 1,055**	**€ 84**
(a)	Previous day's VaR (Article 365(1) of the CRR (VaRt-1))		22
(b)	Average of the daily VaR (Article 365(1)) of the CRR on each of the preceding 60 business days (VaRavg) x multiplication factor (mc) in accordance with Article 366 of the CRR		84
2	**SVaR** (higher of values a and b)	**€ 2,445**	**€ 196**
(a)	Latest SVaR (Article 365(2) of the CRR (SVaRt-1))		75
(b)	Average of the SVaR (Article 365(2) of the CRR) during the preceding 60 business days (SVaRavg) x multiplication factor (ms) (Article 366 of the CRR)		196
3	**IRC** (higher of values a and b)	**€ 1,666**	**€ 133**
(a)	Most recent IRC value (incremental default and migration risks calculated in accordance with Article 370 and Article 371 of the CRR)		87
(b)	Average of the IRC number over the preceding 12 weeks		133
4	**Comprehensive risk measure (higher of values a, b and c)**	-	-
(a)	Most recent risk number for the correlation trading portfolio (Article 377 of the CRR)		-
(b)	Average of the risk number for the correlation trading portfolio over the preceding 12 weeks		-
(c)	8% of the own funds requirement in the standardised approach on the most recent risk number for the correlation trading portfolio (Article 338(4) of the CRR)		-
5	**Other**	**€ 360**	**€ 29**
6	**Total**	**€ 5,525**	**€ 442**

"Other" (row 5) in the table above includes additional capital according to Article 101 of Directive 2013/36/EU

Table 20: EU MR2-B - RWEA flow statements of market risk exposures under the IMA

€ in millions								As of December 2022
		VaR	**SVaR**	**IRC**	**Comprehensive risk measure**	**Other**	**Total RWEAs**	**Total own funds requirements**
1	**RWEAs at previous reporting period (Dec 2021)**	**€ 1,016**	**€ 2,852**	**€ 1,510**	-	**€ 122**	**€ 5,500**	**€ 440**
1a	*Regulatory adjustment*	(640)	(1,673)	-	-	(81)	(2,394)	(192)
1b	**RWEAs at previous reporting period (Dec 2021)**	**€ 375**	**€ 1,180**	**€ 1,510**	-	**€ 41**	**€ 3,106**	**€ 248**
2	Movement in risk levels	(96)	(246)	(420)	-	299	(463)	(37)
3	Model updates/changes	(1)	(1)	-	-	-	(2)	(0)
4	Methodology and policy	-	-	-	-	-	-	-
5	Acquisitions and disposals	-	-	-	-	-	-	-
6	Foreign exchange movements	-	-	-	-	-	-	-
7	Other	-	-	-	-	-	-	-
8a	***RWEAs at the end of the reporting period (Dec 2022)***	**278**	**933**	**1,090**	-	**340**	**2,641**	**211**
8b	*Regulatory adjustment*	777	1,512	576	-	20	2,884	231
8	**RWEAs at the end of the reporting period (Dec 2022)**	**€ 1,055**	**€ 2,445**	**€ 1,666**	-	**€ 360**	**€ 5,525**	**€ 442**

Movement in risk levels (line 2 in the table above) decreased by €0.5bn, driven by reduced equities and credit exposure impacting IRC as well as reduced equity exposure impacting SVaR, partially offset by increased currency exposure impacting Risks not in VaR add-ons (under "Other").

Model Review and Validation

The models discussed above, which are used to determine Regulatory VaR, SVaR and Incremental Risk, are independently reviewed, validated and approved by Model Risk Management.

These models are regularly reviewed and enhanced in order to incorporate changes in the composition of positions included in market risk measures, as well as variations in market conditions. Prior to implementation in production, any changes to those models are subject to validation and approval by Model Risk Management.

Regulatory VaR Backtesting Results

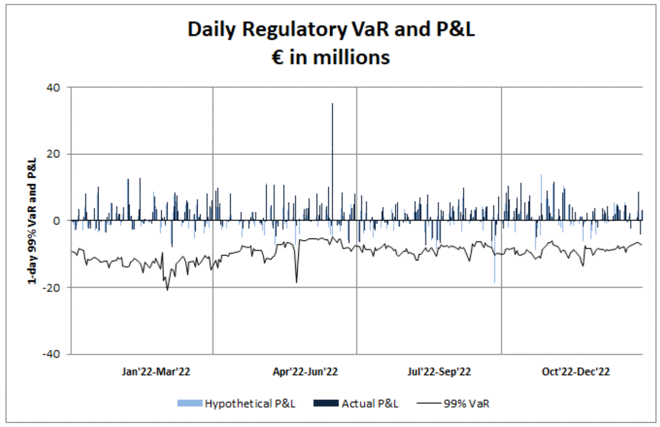
As required by the CRR market risk capital rules, we validate the accuracy of our Regulatory VaR models by backtesting the output of such models against daily loss results. The number of exceptions (that is, the higher of the number of overshootings based on comparing the positional or actual losses to the corresponding 99% one-day Regulatory VaR) over the most recent 250 business days is used to determine the size of the VaR multiplier, which could increase from a minimum of three to a maximum of four, depending on the number of exceptions

As defined in the CRR market risk capital rules, hypothetical net revenues for any given day represent the impact of that day's price variation on the value of positions held at the close of business the previous day. As a consequence, these results exclude certain revenues associated with market-making businesses, such as bid/offer net revenues, which are more likely than not to be positive by their nature. In addition, hypothetical net revenues used in our Regulatory VaR backtesting relate only to positions which are included in Regulatory VaR and, as noted above, differ from positions included in our risk management VaR. This measure of hypothetical net revenues is used to evaluate the performance of the Regulatory VaR model and is not comparable to our actual daily net revenues.

GSBE's hypothetical losses observed on a single day exceeded our 99% one-day Regulatory VaR twice (both in September 2022) during 12 months preceding December 2022. Hypothetical loss exceedances over 99% one-day Regulatory VaR occurred on the back of increased market volatility on the back of UK government fiscal plans announcement and the subsequent Bank of England announcement that it will intervene in the market. Note that, although a one-day time horizon is used for backtesting purposes, a 10-day time horizon is used, as described earlier, to determine RWAs associated with Regulatory VaR.

The table below presents our 99% one-day Regulatory VaR and hypothetical and actual PnL during the previous 12 months.

Table 21: EU MR4 – Comparison of VaR estimates with gains/losses



The table below summarizes the number of reported excesses for GSBE for the previous 12 months.

		Number of reported excesses	
	Multiplier	Hypothetical	Actual
Backtesting			
GSBE	**3.00**	**2**	**0**

Stress Testing

Stress testing is a method of determining the effect of various hypothetical stress scenarios on the firm and GSBE individually. Stress testing is used to examine risks of specific portfolios as well as the potential impact of significant risk exposures across GSBE. A variety of stress testing techniques are used to calculate the potential loss from a wide range of market moves on portfolios, including firmwide stress tests, sensitivity analysis and scenario analysis.

For a detailed description of the bank's stress testing practices, see "Market Risk Management –Stress Testing" within "Management Report" of GSBE's 2022 Financial Statements.

The table below presents the components of RWAs under Standardised approach as of December 2022.

Table 22: EU MR1 - Market risk under the standardised approach

€ in millions		As of December 2022
		RWEAs
	Outright products	
1	Interest rate risk (general and specific)	€ 891
2	Equity risk (general and specific)	-
3	Foreign exchange risk	64
4	Commodity risk	-
	Options	
5	Simplified approach	-
6	Delta-plus method	-
7	Scenario approach	-
8	Securitisation (specific risk)	-
9	**Total**	**€ 954**

Interest Rate Sensitivity

GSBE monitors and sets limits on interest rate risk sensitivity on both trading and banking book activities. GSBE's interest rate risk is managed dynamically in response to changing market conditions.

Interest Rate Risk in the Trading Book

The bank's exposure to interest rate risk in our trading book arises mostly from positions held to support client market-making activities. These positions are accounted for at fair value and the interest rate risk is monitored as a component of Market risk. For additional information regarding interest rate risk, see "Risk Report – Market Risk Management" within "Management Report" of GSBE's 2022 Financial Statements.

Interest Rate Risk in the Banking Book

The bank's exposure to interest rate risk in the banking book (IRRBB) arises from changes in the present value of assets and liabilities as interest rates change, as well as differences in interest earned or paid due to the reset characteristics of our assets and liabilities. Changes in market interest rates on banking book assets and liabilities can have an adverse effect on our earnings and economic value.

GSBE evaluates periodically the sensitivity to changes in interest rates across a range of interest rate scenarios, including parallel rally and sell-off scenarios, using different methodologies such as Net Interest Income (NII) and Economic Value of Equity (EVE) sensitivity analysis. NII sensitivity measures the impacts of changes in rates on the accrued interest of banking book assets and liabilities over a defined time horizon. EVE sensitivity measures the change in the present value of banking book assets and liabilities as a function of different interest rate assumptions.

The GSBE Asset and Liability Committee and Risk Committee are the primary oversight bodies responsible for reviewing and managing GSBE's IRRBB, and overseeing the strategic implementation of risk management activities.

IRRBB sensitivity is subject to stress testing and to limits.
In addition to monitoring the metrics shown in the table below, GSBE manages to other scenarios such as instantaneous parallel shift in interest rates including unfloored scenarios.

The table below shows the change in banking book EVE sensitivity under the supervisory scenarios and guidance defined by the EBA. The increase in the EVE sensitivity maximum loss compared to the last period is driven by a larger effective shock in the parallel down scenario as interest rates have increased and moved higher relative to the post-shock prescribed floors. The majority of non-maturity deposits in GSBE reprice overnight and therefore do not contribute materially to EVE sensitivity.

As part of internal risk monitoring in GSBE, NII sensitivities are also calculated. As of December 2022, projected NII sensitivity for the supervisory shock scenarios over the next 12 months using a static balance sheet assumption is €(126mm) in a parallel down scenario, and €124mm in a parallel up scenario.

Table 23: EU IRRBB1 - Interest rate risks of non-trading book activities

€ in millions As of December 2022

Supervisory shock scenarios		a	b
		Changes of the economic value of equity	
		Current period	Last period
1	Parallel up	19	32
2	Parallel down	(70)	(12)
3	Steepener	10	19
4	Flattener	(19)	(22)
5	Short rates up	(3)	(3)
6	Short rates down	(2)	4
	Maximum loss	(70)	(22)

The results in the table above incorporate the currency-specific haircuts on net gains and the down shocks incorporate post-shock floors specified by the regulatory guidance.

Operational Risk

Overview

Operational risk is the risk of an adverse outcome resulting from inadequate or failed internal processes, people, systems, or from external events. GSBE's exposure to operational risk arises from routine processing errors, as well as extraordinary incidents, such as major systems failures or legal and regulatory matters.

Potential types of loss events related to internal and external operational risk include:

- Clients, products and business practices;
- Execution, delivery and process management;
- Business disruption and system failures;
- Employment practices and workplace safety;
- Damage to physical assets;
- Internal fraud; and
- External fraud.

Operational Risk, which is independent of revenue-producing units, and reports to the bank's chief risk officer, has primary responsibility for developing and implementing a formalised framework for assessing, monitoring and managing operational risk with the goal of maintaining the bank's exposure to operational risk at levels that are within its risk appetite.

The bank's framework for managing operational risk is consistent with the framework of GS Group established by GS Group's Firmwide Risk Appetite Committee. The bank's Operational Risk function is integrated with GS Group's Operational Risk function which reports to GS Group's chief risk officer.

Operational Risk Management Process

GSBE's process for managing operational risk includes the critical components of the risk management framework described in "Overview and Structure of Risk Management" within "Management Report" within GSBE's 2022 Financial Statements.

The firm combines top-down and bottom-up approaches to manage and measure operational risk. From a top-down perspective, senior management assesses firmwide as well as entity and business-level operational risk profiles, as appropriate. From a bottom-up perspective, the first and second lines of defence are responsible for risk identification and risk management on a day-to-day basis, including escalating operational risks to senior management.

The firm maintains a comprehensive control framework designed to provide a well-controlled environment to minimise operational risks. The GSBE Operational Risk and Resilience Committee is responsible for overseeing the bank's operational risk, and for ensuring the operational resilience of the bank's business.

GSBE's operational risk management framework is designed to comply with the operational risk measurement rules under the Capital Framework at GS Group level and has evolved based on the changing needs of its businesses and regulatory guidance, including at the GSBE entity level.

A comprehensive data collection process is in place, including firmwide policies and procedures, for operational risk events. According to these policies all employees are required to report and escalate operational risk events. When operational risk events are identified, the policies require that the events be documented and analysed to determine whether changes are required in the systems and/or processes to further mitigate the risk of future events.

GSBE uses operational risk management applications to capture and organise operational risk event data and key metrics. One of the key risk identification and assessment tools is an operational risk and control self-assessment process, which is performed by managers across the firm. This process consists of the identification and rating of operational risks, on a forward-looking basis, and the related controls. The results from this process are analysed to evaluate operational risk exposures and identify businesses, activities or products with heightened levels of operational risk.

Risk Measurement

GSBE measures operational risk exposure using both statistical modelling and scenario analyses, which involves qualitative and quantitative assessments of internal and external operational risk event data and internal control factors for each of our businesses. Operational risk measurement also incorporates an assessment of business environment factors, including:

- Evaluations of the complexity of business activities;
- The degree of automation in our processes;

- New activity information;
- The legal and regulatory environment; and
- Changes in the markets for our products and services, including the diversity and sophistication of our customers and counterparties.

The results from these scenario analyses are used to monitor changes in operational risk and to determine business lines that may have heightened exposure to operational risk. These analyses are used in the determination of the appropriate level of operational risk capital to hold in accordance with GSBE's internal capital adequacy framework.

Model Review and Validation

The models used to measure operational risk exposure are independently reviewed, validated and approved by the Model Risk Management. See "Model Risk" for further information.

Capital Requirements

The operational risk capital requirements for GSBE are calculated under the Basic Indicator Approach in accordance with the CRR.

Table 24: EU OR1 - Operational risk own funds requirements and risk-weighted exposure amounts

€ in millions						As of December 2022
Banking activities		**a**	**b**	**c**	**d**	**e**
		Relevant indicator			Own funds requirements	Risk exposure amount
		Year-3	Year-2	Last year		
1	Banking activities subject to basic indicator approach (BIA)	348	1,443	1,571	168	2,102
2	Banking activities subject to standardised (TSA) / alternative standardised (ASA) approaches					
3	*Subject to TSA:*					
4	*Subject to ASA:*					
5	Banking activities subject to advanced measurement approaches AMA					

Operational RWA increased by €0.9bn in 2022 mainly due to increased revenues from business growth over the course of the year.

Model Risk

Overview

Model risk is the potential for adverse consequences from decisions made based on model outputs that may be incorrect or used inappropriately. The firm relies on quantitative models across business activities primarily to value certain financial assets and liabilities, to monitor and manage risk, and to measure and monitor regulatory capital.

Model Risk, which is independent of revenue-producing units, model developers, model owners and model users, and reports to the firm's Chief Risk Officer, has primary responsibility for assessing, monitoring and managing model risk through oversight across global businesses, and provides periodic updates to senior management, risk committees and the Risk Committee of the GS Board.

GSBE's framework for managing model risk is consistent with the framework of GS Group established by GS Group's Firmwide Risk Appetite Committee, with the bank's Model Risk function being an integral part of the GS Group's Model Risk function. The head of the bank's Model Risk function has accountability to the bank's Chief Risk Officer for the management of the bank's model risk.

The firm's model risk management framework is managed through a governance structure and risk management controls, which encompass standards designed to ensure we maintain a comprehensive model inventory, including risk assessment and classification, sound model development practices, independent review and model-specific usage controls. The Firmwide Model Risk Control Committee oversees the firm's model risk management framework. The GSBE Risk Committee, in coordination with Model Risk, is responsible for the ongoing oversight of model risk within GSBE.

Model Review and Validation Process

Model Risk consists of quantitative professionals who perform an independent review, validation and approval of the models. This review includes an analysis of the model documentation, assumptions, input and output data, limitations and uncertainties, independent testing, an assessment of the appropriateness of the methodology used, verification of compliance with model development and implementation standards, and assessment of adequacy of the ongoing monitoring plan. Model Risk provides regular updates to the GSBE Risk Committee and the bank's Executive Board.

The firm regularly refines and enhances models to reflect changes in market or economic conditions and its business mix. All models are reviewed on an annual basis, and new models or significant changes to existing models and their assumptions are approved prior to implementation.

The model validation process incorporates a review of models and their assumptions in order to critically evaluate and verify the model's conceptual soundness, suitability of calculation techniques, accuracy and sensitivity to input parameters and assumptions, as well as the scope of testing performed by the model developers.

See "Liquidity Risk", "Market Risk", "Credit Risk", and "Operational Risk" for further information about the use of models within these areas.

Leverage Ratio

GSBE is subject to the leverage ratio framework established by the CRR. This leverage ratio compares CRR's definition of Tier 1 capital to a measure of leverage exposure, defined as the sum of certain assets plus certain off-balance-sheet exposures (which include a measure of derivatives, securities financing transactions, commitments and guarantees), less Tier 1 capital deductions. In June 2019, the European Commission published updates to the CRR to implement a 3% minimum leverage ratio requirement for certain E.U. financial institutions, including GSBE. The required minimum leverage ratio became effective for GSBE on June 28, 2021.

Table 25: Leverage Ratio

€ in millions	As of December 2022
Tier 1 Capital	€ 8,911
Leverage Ratio Exposure	€ 84,006
Leverage Ratio	**10.61%**

The following tables present further information on the leverage ratio. Table EU LR1 below reconciles the exposure measure to the balance sheet of GSBE as per IFRS Financial Information. Table EU LR2 gives further details on the adjustments and drivers of the leverage ratio. Table EU LR3 breaks down the exposures from on-balance sheet assets by trading and banking book.

Table 26: EU LR1 - Summary Reconciliation of Accounting Assets and Leverage Ratio Exposures

€ in millions		As of December 2022
1	**Total assets as per published financial statements**	**€ 240,103**
2	Adjustment for entities which are consolidated for accounting purposes but are outside the scope of prudential consolidation	-
3	(Adjustment for securitised exposures that meet the operational requirements for the recognition of risk transference)	-
4	(Adjustment for temporary exemption of exposures to central banks (if applicable))	-
5	(Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting framework but excluded from the total exposure measure in accordance with point (i) of Article 429a(1) CRR)	-
6	Adjustment for regular-way purchases and sales of financial assets subject to trade date accounting	-
7	Adjustment for eligible cash pooling transactions	-
8	Adjustments for derivative financial instruments	(148,560)
9	Adjustment for securities financing transactions (SFTs)	569
10	Adjustment for off-balance sheet items (ie conversion to credit equivalent amounts of off-balance sheet exposures)	5,569
11	(Adjustment for prudent valuation adjustments and specific and general provisions which have reduced Tier 1 capital)	-
EU-11a	(Adjustment for exposures excluded from the total exposure measure in accordance with point (c) of Article 429a(1) CRR)	-
EU-11b	(Adjustment for exposures excluded from the total exposure measure in accordance with point (j) of Article 429a(1) CRR)	-
12	Other adjustments	(13,676)
13	**Total exposure measure**	**€ 84,006**

Adjustments for derivatives, SFTs and off-balance sheet items above represent differences between accounting values recognised as assets on the IFRS balance sheet and the leverage ratio exposure values. See below EU LR2 for further breakdown of these differences.

Table 27: EU LR2 - Leverage Ratio Common Disclosure

€ in millions		As of December 2022	As of December 2021
		CRR leverage ratio exposures	**CRR leverage ratio exposures**
On-balance sheet exposures (excluding derivatives and SFTs)			
1	On-balance sheet items (excluding derivatives, SFTs, but including collateral)	€ 44,500	€ 34,947
2	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	-	-
3	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	(13,645)	(9,307)
4	(Adjustment for securities received under securities financing transactions that are recognised as an asset)	-	-
5	(General credit risk adjustments to on-balance sheet items)	-	-
6	(Asset amounts deducted in determining Tier 1 capital)	(31)	(70)
7	**Total on-balance sheet exposures (excluding derivatives and SFTs)**	**30,824**	**25,570**
Derivative exposures			
8	Replacement cost associated with SA-CCR derivatives transactions (ie net of eligible cash variation margin)	11,330	7,509
EU-8a	Derogation for derivatives: replacement costs contribution under the simplified standardised approach	-	-
9	Add-on amounts for potential future exposure associated with SA-CCR derivatives transactions	20,012	19,491
EU-9a	Derogation for derivatives: Potential future exposure contribution under the simplified standardised approach	-	-
EU-9b	Exposure determined under Original Exposure Method	-	-
10	(Exempted CCP leg of client-cleared trade exposures) (SA-CCR)	(455)	(1,337)
EU-10a	(Exempted CCP leg of client-cleared trade exposures) (simplified standardised approach)	-	-
EU-10b	(Exempted CCP leg of client-cleared trade exposures) (original Exposure Method)	-	-
11	Adjusted effective notional amount of written credit derivatives	209,538	144,958
12	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	(204,681)	(140,162)
13	**Total derivatives exposures**	**35,743**	**30,459**
Securities financing transaction (SFT) exposures			
14	Gross SFT assets (with no recognition of netting), after adjustment for sales accounting transactions	27,198	17,465
15	(Netted amounts of cash payables and cash receivables of gross SFT assets)	(13,296)	(2,192)
16	Counterparty credit risk exposure for SFT assets	569	1,501
EU-16a	Derogation for SFTs: Counterparty credit risk exposure in accordance with Articles 429e(5) and 222 CRR	-	-
17	Agent transaction exposures	-	-
EU-17a	(Exempted CCP leg of client-cleared SFT exposure)	-	-
18	**Total securities financing transaction exposures**	**14,471**	**16,775**
Other off-balance sheet exposures			
19	Off-balance sheet exposures at gross notional amount	5,937	6,070
20	(Adjustments for conversion to credit equivalent amounts)	(2,970)	(3,035)
21	(General provisions deducted in determining Tier 1 capital and specific provisions associated with off-balance sheet exposures)	-	-
22	**Off-balance sheet exposures**	**2,967**	**3,035**
Excluded exposures			
EU-22a	(Exposures excluded from the total exposure measure in accordance with point (c) of Article 429a(1) CRR)	-	-
EU-22b	(Exposures exempted in accordance with point (j) of Article 429a (1) CRR (on and off balance sheet))	-	-
EU-22c	(Excluded exposures of public development banks (or units) - Public sector investments)	-	-
EU-22d	(Excluded exposures of public development banks (or units) - Promotional loans): - Promotional loans granted by a public development credit institution - Promotional loans granted by an entity directly set up by the central government, regional governments or local authorities of a Member State - Promotional loans granted by an entity set up by the central government, regional governments or local authorities of a Member State through an intermediate credit institution)	-	-
EU-22e	(Excluded passing-through promotional loan exposures by non-public development banks (or units)): - Promotional loans granted by a public development credit institution - Promotional loans granted by an entity directly set up by the central government, regional governments or local authorities of a Member State - Promotional loans granted by an entity set up by the central government, regional governments or local authorities of a Member State through an intermediate credit institution)	-	-
EU-22f	(Excluded guaranteed parts of exposures arising from export credits)	-	-
EU-22g	(Excluded excess collateral deposited at triparty agents)	-	-

€ in millions		As of December 2022	As of December 2021
		CRR leverage ratio exposures	**CRR leverage ratio exposures**
EU-22h	(Excluded CSD related services of CSD/institutions in accordance with point (o) of Article 429a(1) CRR)	-	-
EU-22i	(Excluded CSD related services of designated institutions in accordance with point (p) of Article 429a(1) CRR)	-	-
EU-22j	(Reduction of the exposure value of pre-financing or intermediate loans)	-	-
EU-22k	(Total exempted exposures)	-	-
Capital and total exposure measure			
23	**Tier 1 capital**	**€ 8,911**	**€ 5,732**
24	**Total exposure measure**	**€ 84,006**	**€ 75,839**
Leverage ratio			
25	Leverage ratio	10.6%	7.6%
EU-25	Leverage ratio excluding the impact of the exemption of public sector investments and promotional loans) (%)	10.6%	7. 6%
25a	Leverage ratio (excluding the impact of any applicable temporary exemption of central bank reserves)	10.6%	7. 6%
26	Regulatory minimum leverage ratio requirement (%)	3.0%	3.0%
EU-26a	Additional own funds requirements to address the risk of excessive leverage (%)	0.0%	0.0%
EU-26b	of which: to be made up of CET1 capital (percentage points)	0. 0%	0.0%
27	Leverage ratio buffer requirement (%)	0.0%	0.0%
EU-27a	Overall leverage ratio requirement (%)	3.0%	3.0%
Choice on transitional arrangements and relevant exposures			
EU-27b	Choice on transitional arrangements for the definition of the capital measure	NA	NA
Disclosure of mean values			
28	Mean value of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables	18,611	10,980
29	Quarter-end value of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables	13,902	15,273
30	Total exposure measure (including the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	88,715	71,545
30a	Total exposure measure (excluding the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	88,715	79,172
31	Leverage ratio (including the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	10.0%	8.0%
31a	Leverage ratio (excluding the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	10.0%	7.2%

Table 28: EU LR3 - LRSpl: Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)

€ in millions		As of December 2022
EU-1	**Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:**	**€ 30,712**
EU-2	**Trading book exposures**	**€ 14,821**
EU-3	**Banking book exposures, of which:**	**€ 15,891**
EU-4	Covered bonds	-
EU-5	Exposures treated as sovereigns	12,545
EU-6	Exposures to regional governments, MDB, international organisations and PSE not treated as sovereigns	-
EU-7	Institutions	806
EU-8	Secured by mortgages of immovable properties	-
EU-9	Retail exposures	-
EU-10	Corporate	2,147
EU-11	Exposures in default	-
EU-12	Other exposures (eg equity, securitisations, and other non-credit obligation assets)	393

Factors impacting the Leverage Ratio

The leverage ratio has increased from 7.6% as of December 2021 to 10.6% as of December 2022 mainly due to increased capital driven by capital injection described in "Regulatory Capital" section partially offset by an increase in on-balance sheet exposures reflecting an increase in balance sheet size and business activity throughout the year.

Until March 2022, GSBE also applied the "CRR quick fix" allowing for the temporary exemption of eligible central bank cash balances from the Leverage Exposures per Article 500b of CRR. In February 2022, the ECB announced the end of the relief from April 1, 2022. This decreased the ratio by approximately 168 bps at the time.

Risk of Excessive Leverage

The risk of excessive leverage is the risk resulting from a vulnerability due to leverage or contingent leverage that may require unintended corrective measures to our business plan, including distressed selling of assets which might result in losses or in valuation adjustments to our remaining assets.

The GSBE ALCO is the primary governance committee for the management of the bank's balance sheet. The GSBE ALCO is responsible for maintaining leverage ratio in accordance with the levels expressed in the bank's risk appetite statement.

GSBE monitors the leverage ratio regularly and has processes in place to dynamically manage our assets and liabilities. Leverage ratio monitoring thresholds have been established for GSBE and reported to the ALCO, CRO, CFO, CEO, Risk Committee and Executive Board if the ratio drops below these escalation thresholds.

Potential new transactions which could have a material impact on GSBE capital and/or leverage position are escalated to Controllers and other managers from independent control and support functions.

Capital Adequacy

Overview

Capital adequacy is of critical importance to the bank. We have in place a comprehensive capital management policy that provides a framework, defines objectives and establishes guidelines to assist us in maintaining the appropriate level and composition of capital in both business-as-usual and stressed conditions.

We determine the appropriate level and composition of capital by considering multiple factors including current and future regulatory capital requirements, results of capital planning and stress testing processes and other factors such as rating agency guidelines, the business environment and conditions in the financial markets.

Internal Capital Adequacy Assessment Process

We perform an ICAAP with the objective of ensuring that GSBE is appropriately capitalised relative to the risks in our business. We assess capital adequacy based on two complementary perspectives, the Economic Internal Perspective and the Normative Perspective. In both perspectives, we define and articulate capital adequacy based on the comparison of available capital resources against the amount of capital needed to mitigate material risks.

In the Economic Internal Perspective, we define our internal capital adequacy based on the ratio of our internal capital to the sum of risks that could have a material impact on our capital position from an economic (i.e. fair market value) perspective over a one-year horizon, quantified using internal methodologies. In the Normative Perspective capital adequacy is considered from a regulatory and accounting view, by comparing the regulatory definition of capital resources to regulatory capital requirements for material risks. We assess our ability to maintain sufficient capital to meet Overall Capital Requirements (OCR) in a baseline scenario and Total SREP Capital Requirements (TSCR) under an adverse scenario over a three-year projection horizon.

GSBE ensures sufficient capital adequacy in both the Economic Internal Perspective and in the Normative Perspective.

Own Funds Template

The table below presents further information on the detailed capital position of GSBE.

Table 29: EU CC1 - Composition of regulatory own funds

€ in millions — As of December 2022

		(a)	(b)
		Amounts	**Source based on reference numbers/letters of the balance sheet under the regulatory scope of consolidation**
Common Equity Tier 1 (CET1) capital: instruments and reserves			
1	Capital instruments and the related share premium accounts	354	**(h)**
	of which: Ordinary Shares	354	
	of which: Instrument type 2	0	
	of which: Instrument type 3	0	
2	Retained earnings	1,352	
3	Accumulated other comprehensive income (and other reserves)	7,322	
EU-3a	Funds for general banking risk	0	
4	Amount of qualifying items referred to in Article 484 (3) and the related share premium accounts subject to phase out from CET1	0	
5	Minority interests (amount allowed in consolidated CET1)	0	
EU-5a	Independently reviewed interim profits net of any foreseeable charge or dividend	0	
6	**Common Equity Tier 1 (CET1) capital before regulatory adjustments**	9,028	
Common Equity Tier 1 (CET1) capital: regulatory adjustments			
7	Additional value adjustments (negative amount)	-69	
8	Intangible assets (net of related tax liability) (negative amount)	-31	**(a) minus (d)**
9	Not applicable	0	
10	Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability where the conditions in Article 38 (3) are met) (negative amount)	0	
11	Fair value reserves related to gains or losses on cash flow hedges of financial instruments that are not valued at fair value	0	
12	Negative amounts resulting from the calculation of expected loss amounts	0	
13	Any increase in equity that results from securitised assets (negative amount)	0	
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	1	
15	Defined-benefit pension fund assets (negative amount)	0	
16	Direct and indirect holdings by an institution of own CET1 instruments (negative amount)	0	
17	Direct, indirect and synthetic holdings of the CET 1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	0	
18	Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	0	
19	Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	0	
20	Not applicable	0	
EU-20a	Exposure amount of the following items which qualify for a RW of 1250%, where the institution opts for the deduction alternative	0	
EU-20b	of which: qualifying holdings outside the financial sector (negative amount)	0	
EU-20c	of which: securitisation positions (negative amount)	0	
EU-20d	of which: free deliveries (negative amount)	0	
21	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability where the conditions in Article 38 (3) are met) (negative amount)	0	
22	Amount exceeding the 17,65% threshold (negative amount)	0	
23	of which: direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities	0	
24	Not applicable	0	
25	of which: deferred tax assets arising from temporary differences	0	
EU-25a	Losses for the current financial year (negative amount)	0	
EU-25b	Foreseeable tax charges relating to CET1 items except where the institution suitably adjusts the amount of CET1 items insofar as such tax charges reduce the amount up to which those items may be used to cover risks or losses (negative amount)	0	
26	Not applicable	0	

		(a}	(b)
		Amounts	**Source based on reference numbers/letters of the balance sheet under the regulatory scope of consolidation**
27	Qualifying AT1 deductions that exceed the AT1 items of the institution (negative amount)	0	
27a	Other regulatory adjustments	-18	
28	**Total regulatory adjustments to Common Equity Tier 1 (CET1)**	-117	
29	**Common Equity Tier 1 (CET1) capital**	8,911	
Additional Tier 1 (AT1) capital: instruments			
30	Capital instruments and the related share premium accounts		**(i)**
31	of which: classified as equity under applicable accounting standards		
32	of which: classified as liabilities under applicable accounting standards		
33	Amount of qualifying items referred to in Article 484 (4) and the related share premium accounts subject to phase out from AT1		
EU-33a	Amount of qualifying items referred to in Article 494a(1) subject to phase out from AT1		
EU-33b	Amount of qualifying items referred to in Article 494b(1) subject to phase out from AT1		
34	Qualifying Tier 1 capital included in consolidated AT1 capital (including minority interests not included in row 5) issued by subsidiaries and held by third parties		
35	of which: instruments issued by subsidiaries subject to phase out		
36	**Additional Tier 1 (AT1) capital before regulatory adjustments**		
Additional Tier 1 (AT1) capital: regulatory adjustments			
37	Direct and indirect holdings by an institution of own AT1 instruments (negative amount)		
38	Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)		
39	Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)		
40	Direct, indirect and synthetic holdings by the institution of the AT1 instruments of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions) (negative amount)		
41	Not applicable		
42	Qualifying T2 deductions that exceed the T2 items of the institution (negative amount)		
42a	Other regulatory adjustments to AT1 capital		
43	**Total regulatory adjustments to Additional Tier 1 (AT1) capital**		
44	**Additional Tier 1 (AT1) capital**		
45	**Tier 1 capital (T1 = CET1 + AT1)**	8,911	
Tier 2 (T2) capital: instruments			
46	Capital instruments and the related share premium accounts	20	
47	Amount of qualifying items referred to in Article 484 (5) and the related share premium accounts subject to phase out from T2 as described in Article 486 (4) CRR		
EU-47a	Amount of qualifying items referred to in Article 494a (2) subject to phase out from T2		
EU-47b	Amount of qualifying items referred to in Article 494b (2) subject to phase out from T2		
48	Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in rows 5 or 34) issued by subsidiaries and held by third parties		
49	of which: instruments issued by subsidiaries subject to phase out		
50	Credit risk adjustments		
51	**Tier 2 (T2) capital before regulatory adjustments**	20	
Tier 2 (T2) capital: regulatory adjustments			
52	Direct and indirect holdings by an institution of own T2 instruments and subordinated loans (negative amount)		
53	Direct, indirect and synthetic holdings of the T2 instruments and subordinated loans of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)		
54	Direct and indirect holdings of the T2 instruments and subordinated loans of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)		
54a	Not applicable		
55	Direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions) (negative amount)		
56	Not applicable		
EU-56a	Qualifying eligible liabilities deductions that exceed the eligible liabilities items of the institution (negative amount)		

		(a}	(b)
		Amounts	**Source based on reference numbers/letters of the balance sheet under the regulatory scope of consolidation**
56b	Other regulatory adjusments to T2 capital		
57	**Total regulatory adjustments to Tier 2 (T2) capital**		
58	**Tier 2 (T2) capital**	20	
59	**Total capital (TC = T1 + T2)**	8,931	
60	**Total risk exposure amount**	28,179	
Capital ratios and requirements including buffers			
61	Common Equity Tier 1	31.6%	
62	Tier 1	31.6%	
63	Total capital	31.7%	
64	Institution CET1 overall capital requirements	9.2%	
65	of which: capital conservation buffer requirement	2.5%	
66	of which: countercyclical capital buffer requirement	0.3%	
67	of which: systemic risk buffer requirement	0.0%	
EU-67a	of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer requirement	0.3%	
EU-67b	of which: additional own funds requirements to address the risks other than the risk of excessive leverage	1.7%	
68	**Common Equity Tier 1 capital (as a percentage of risk exposure amount) available after meeting the minimum capital requirements**	20.7%	
69	Not applicable		
70	Not applicable		
71	Not applicable		
Amounts below the thresholds for deduction (before risk weighting)			
72	Direct and indirect holdings of own funds and eligible liabilities of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	320	
73	Direct and indirect holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 17.65% thresholds and net of eligible short positions)	2	
74	Not applicable		
75	Deferred tax assets arising from temporary differences (amount below 17.65% threshold, net of related tax liability where the conditions in Article 38 (3) are met)	97	
Applicable caps on the inclusion of provisions in Tier 2			
76	Credit risk adjustments included in T2 in respect of exposures subject to standardised approach (prior to the application of the cap)		
77	Cap on inclusion of credit risk adjustments in T2 under standardised approach	0	
78	Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)		
79	Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach		
Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2014 and 1 Jan 2022)		N/A	
80	Current cap on CET1 instruments subject to phase out arrangements		
81	Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	0.0%	**g**
82	Current cap on AT1 instruments subject to phase out arrangements		
83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	0.0%	
84	Current cap on T2 instruments subject to phase out arrangements		
85	Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)		

GSBE does not make use of any transitional provisions for calculating its regulatory capital resources, including transitional arrangements on IFRS 9 and hence no further disclosures are made in this regard.

Countercyclical Capital Buffer Template

The following tables present information on the impact of the countercyclical capital buffer as prescribed under CRR 440.

Table 30: EU CCyB2 - Countercyclical Capital Buffer

€ in millions	As of December 2022
Total risk exposure amount	**€ 28,179**
Institution specific countercyclical capital buffer rate	**0.29%**
Institution specific countercyclical capital buffer requirement	**€ 83**

The geographical distribution of credit exposures relevant for the calculation of the countercyclical capital buffer is broken down in Table EU CCyB1 below.

As of December 2022 GSBE had recognized exposures to counterparties from below countries as implemented in the calculation of this buffer according to rates set by the ESRB, BIS and Bank of England. Breakdown by countries for their respective contributions to own funds requirements for GSBE are provided in below table. GSBE has newly introduced rates against United Kingdom, Denmark, Sweden, Estonia, Iceland and Romania during 2022.

Table 31: EU CCyB1 Geographical distribution of credit exposures relevant for the calculation of the countercyclical buffer

€ in millions												As of December 2022	
Breakdown by Country	General credit exposures		Relevant credit exposures – Market risk		Securitisation exposures Exposure value for non-trading book	Total exposure value	Own funds requirements					Own funds requirement weights	Counter-cyclical capital buffer rate
	Exposure value under the standardised approach	Exposure value under the IRB approach	Sum of long and short positions of trading book exposures for SA	Value of trading book exposures for internal models			Relevant credit risk exposures - Credit risk	Relevant credit exposures – Market risk	Relevant credit exposures – Securitisation positions in the non-trading book	Total	Risk-weighted exposure amounts		
Czech Republic	0	-	-	4	-	4	0	0	-	0	1	0.0%	1.50%
Denmark	527	-	-	697	-	1,225	42	6	-	48	604	3.5%	2.00%
Estonia	10	-	-	-	-	10	1	-	-	1	10	0.1%	1.00%
United Kingdom	4,716	-	59	33,052	-	37,827	187	36	-	223	2,794	16.4%	1.00%
Hong Kong, Special Administrative Region Of China	45	-	-	-	-	45	3	-	-	3	33	0.2%	1.00%
Iceland	5	-	-	5	-	10	0	0	-	0	6	0.0%	2.00%
Luxembourg	1,425	-	10	43	-	1,478	86	4	-	90	1,127	6.6%	0.50%
Norway	3	-	2	281	-	286	0	2	-	2	27	0.2%	2.00%
Romania	-	-	-	-	-	-	-	-	-	-	-	0.0%	0.50%
Sweden	595	-	2	393	-	991	26	1	-	27	336	2.0%	1.00%
Slovakia	-	-	-	34	-	34	-	0	-	0	3	0.0%	1.00%
Other	15,477	-	1,012	161,868	54	178,411	826	136	9	971	12,135	71.1%	0.00
Total	**22,803**	**-**	**1,086**	**196,378**	**54**	**220,321**	**1,172**	**185**	**9**	**1,366**	**17,075**	**100.0%**	

Capital Instruments

The following table summarises the main features of capital instruments for GSBE as of December 2022

Table 32: EU CCA: Main features of regulatory own funds instruments

				As of December 2022
€ in millions		a	b	c
1	Issuer	GSBE	GSBE	GSBE
2	Unique identifier (eg CUSIP, ISIN or Bloomberg identifier for private placement)	N/A	N/A	N/A
2a	Public or private placement	Private	Private	Private
3	Governing law(s) of the instrument	Germany	Germany	Germany
3a	Contractual recognition of write down and conversion powers of resolution authorities	N/A	N/A	N/A
	Regulatory treatment			
4	Current treatment taking into account, where applicable, transitional CRR rules	Common Equity Tier 1	Tier 2	MREL
5	Post-transitional CRR rules	Common Equity Tier 1	Tier 2	MREL
6	Eligible at solo/(sub-)consolidated/ solo&(sub-)consolidated	Solo	Solo	Solo
7	Instrument type (types to be specified by each jurisdiction)	Ordinary share capital	Subordinated debt	Subordinated debt
8	Amount recognised in regulatory capital or eligible liabilities (Currency in million, as of most recent reporting date)	€ 329	€ 20	€ 800
9	Nominal amount of instrument	€ 329	€ 20	€ 800
EU-9a	Issue price	At par	At par	At par
EU-9b	Redemption price	At par	At par	At par
10	Accounting classification	Shareholder's equity	Liability - amortised cost	Liability - amortised cost
11	Original date of issuance	01/07/2011; 25/02/2019; 07/06/2020;05/11/2020; 08/2/2021	22/03/2004; 15/04/2008	3/2/2021
12	Perpetual or dated	Perpetual	Perpetual	Dated
13	Original maturity date	No maturity	No maturity	3/2/2031
14	Issuer call subject to prior supervisory approval	No	No	No
15	Optional call date, contingent call dates and redemption amount	N/A	N/A	N/A
16	Subsequent call dates, if applicable	N/A	N/A	N/A
	Coupons / dividends			
17	Fixed or floating dividend/coupon	N/A	Floating	N/A
18	Coupon rate and any related index	No	3m Euribor + 210 bps	12m Euribor + 60bps
19	Existence of a dividend stopper	No	No	No
EU-20a	Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully discretionary	Mandatory	Mandatory
EU-20b	Fully discretionary, partially discretionary or mandatory (in terms of amount)	Fully discretionary	Mandatory	Mandatory
21	Existence of step up or other incentive to redeem	No	No	No
22	Noncumulative or cumulative	Noncumulative	Noncumulative	Noncumulative
23	Convertible or non-convertible	Nonconvertible	Nonconvertible	Nonconvertible
24	If convertible, conversion trigger(s)	N/A	N/A	N/A
25	If convertible, fully or partially	N/A	N/A	N/A
26	If convertible, conversion rate	N/A	N/A	N/A
27	If convertible, mandatory or optional conversion	N/A	N/A	N/A
28	If convertible, specify instrument type convertible into	N/A	N/A	N/A
29	If convertible, specify issuer of instrument it converts into	N/A	N/A	N/A
30	Write-down features	No	No	No
31	If write-down, write-down trigger(s)	N/A	N/A	N/A
32	If write-down, full or partial	N/A	N/A	N/A
33	If write-down, permanent or temporary	N/A	N/A	N/A
34	If temporary write-down, description of write-up mechanism	N/A	N/A	N/A
34a	Type of subordination (only for eligible liabilities)	N/A	N/A	N/A
EU-34b	Ranking of the instrument in normal insolvency proceedings	1	3	4

35	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Tier 2	Repayment of loan only after claims of other, non-subordinated creditors	Claims for repayment of shareholder loans and accrued interest thereon
36	Non-compliant transitioned features	No	No	No
37	If yes, specify non-compliant features	N/A	N/A	N/A
37a	Link to the full term and conditions of the instrument (signposting)	N/A	https://www.goldmansachs.com/disclosures/pdfs/subordinated-loan-agreement.pdf	N/A

Key changes during the period

No highlights.

Liquidity Risk Management

Introduction

Liquidity risk is the risk that the bank will be unable to fund itself or meet its liquidity needs in the event of bank-specific, broader industry, or market liquidity stress events. The bank has in place a comprehensive and conservative set of liquidity and funding policies. The bank's principal objective is to be able to fund itself and to enable its core businesses to continue to serve clients and generate revenues, even under adverse circumstances.

Corporate Treasury, which reports to the bank's Chief Financial Officer, has primary responsibility for developing, managing and executing the bank's liquidity and funding strategy within its risk appetite.

Liquidity Risk, which is independent of the revenue-producing units and Treasury, and reports to the bank's Chief Risk Officer, has primary responsibility for identifying, monitoring and managing the bank's liquidity risk through oversight across the bank's businesses and the establishment of stress testing and limits frameworks. The bank's framework for managing liquidity risk is consistent with, and part of, the GS Group framework.

The bank has a robust liquidity risk management framework in place, which we consider adequate. It leverages this framework to maintain a sufficient amount of liquidity to ensure we remain appropriately funded and liquid in the event of stress.

The bank manages liquidity risk according to three principles: (i) hold sufficient excess liquidity in the highest quality to cover outflows during a stressed period, (ii) maintain appropriate Asset-Liability Management and (iii) maintain a viable Contingency Funding Plan.

Liquid Assets

Global Core Liquid Assets (GCLA) is liquidity that the bank maintains to meet a broad range of potential cash outflows and collateral needs in a stressed environment. A primary liquidity principle is to pre-fund estimated potential cash and collateral needs during a liquidity crisis and hold this liquidity in the form of unencumbered, highly liquid securities and cash. The bank believes that the securities held in its GCLA would be readily convertible to cash in a matter of days, through liquidation, by entering into repurchase agreements or from maturities of resale agreements, and that this cash would allow it to meet immediate obligations without needing to sell other assets or depend on additional funding from credit- sensitive markets.

The bank's GCLA is distributed across asset types, issuers and clearing agents to provide sufficient operating liquidity to ensure timely settlement in all major markets, even in a difficult funding environment.

Limits

The bank uses liquidity risk limits at various levels and across liquidity risk types to manage the size of its liquidity exposures. Limits are measured relative to acceptable levels of risk given the liquidity risk tolerance of the bank. The purpose of these limits is to assist senior management in monitoring and controlling the bank's overall liquidity profile.

The Executive Board approves the bank's risk appetite. Additional limits are derived from the RAS and are approved by the Risk Committee and at departmental levels. They are reviewed frequently and amended, with required approvals, on a permanent and temporary basis, as appropriate, to reflect changing market or business conditions.

Limits are monitored by Treasury and Liquidity Risk. Liquidity Risk is responsible for identifying and escalating to the Executive Board and/or the Risk Committee, on a timely basis, instances where limits have been exceeded.

Contingency Funding Plan

GS Group maintains a contingency funding plan, which has a GSBE-specific addendum, to provide a framework for analysing and responding to a liquidity crisis situation or periods of market stress. The contingency funding plan outlines a list of potential risk factors, key reports and metrics that are reviewed on an ongoing basis to assist in assessing the severity of, and managing through, a liquidity crisis and/or market dislocation. The contingency funding plan also describes the bank's potential responses if assessments indicate that the bank has entered a liquidity crisis, which includes pre-funding for what the bank estimates will be its potential cash and collateral needs, as well as utilising secondary sources of liquidity. Mitigants and action items to address specific risks which may arise are also described and assigned to individuals responsible for execution.

The contingency funding plan identifies key groups of individuals and their responsibilities, which include fostering effective coordination, control and distribution of information, implementing liquidity maintenance activities and managing internal and external communication, all of which are critical in the management of a crisis or period of market stress.

Stress Testing

Stress Tests

In order to determine the appropriate size of the bank's liquidity pool, an internal liquidity model is used, referred to as the Modelled Liquidity Outflow, which captures and quantifies the bank's liquidity risks over a 30-day stress scenario. Other factors are considered including, but not limited to, an assessment of potential intraday liquidity needs through an additional internal liquidity risk model, referred to as the Intraday Liquidity Model, other applicable regulatory requirements and a qualitative assessment of the condition of the bank as well as the financial markets. The results of the Modelled Liquidity Outflow and the Intraday Liquidity Model are reported to the Executive Board and senior management on a regular basis.

Modelled Liquidity Outflow

The Modelled Liquidity Outflow is based on conducting multiple scenarios that include combinations of market-wide stress and GS specific stress, characterised by the following qualitative elements:

- Severely challenged market environments, including low consumer and corporate confidence, financial and political instability, adverse changes in market values, including potential declines in equity markets and widening of credit spreads; and
- A GS specific crisis potentially triggered by material losses, reputational damage, litigation, executive departure, and/or a ratings downgrade.

The following are key modelling elements of the Modelled Liquidity Outflow:

- Liquidity needs over a 30-day scenario;
- A two-notch downgrade of the long-term senior unsecured credit ratings of Group Inc. and its rated subsidiaries;
- Changing conditions in funding markets, which limit the bank's access to unsecured and secured funding;
- A combination of contractual outflows, such as upcoming maturities of unsecured debt, and contingent outflows.

Intraday Liquidity Model

The bank's Intraday Liquidity Model measures the bank's intraday liquidity needs using a scenario analysis characterised by the same qualitative elements as the Modelled Liquidity Outflow. The model assesses the risk of increased intraday liquidity requirements during a scenario where access to sources of intraday liquidity may become constrained.

Long Term Stress Testing

The bank utilises longer-term stress tests to take a forward view on its liquidity position through prolonged stress periods in which the bank experiences a severe liquidity stress and recovers in an environment that continues to be challenging.

Resolution Liquidity Models

In connection with GS Group's resolution planning efforts, GS Group has established a Resolution Liquidity Adequacy and Positioning framework, which estimates liquidity needs of its major subsidiaries, including GSBE, in a stressed environment. GS Group has also established a Resolution Liquidity Execution Need framework, which measures the liquidity needs of its major subsidiaries, including GSBE, to stabilise and wind-down following a Group Inc. bankruptcy filing in accordance with GS Group's preferred resolution strategy. The bank also has capabilities to run resolution liquidity models in accordance with guidance published by local resolution authorities.

In addition, GS Group has established a triggers and alerts framework, which is designed to provide GS Group's Board of Directors with information needed to make an informed decision on whether and when to commence bankruptcy proceedings for Group Inc. GSBE has also established Resolution related liquidity triggers as part of its triggers and alerts framework.

Liquidity Coverage Ratio

Overview

The liquidity coverage ratio (LCR) is designed to ensure that a bank maintains an adequate amount of unencumbered high-quality liquid assets (HQLA) equal to or greater than the total net cash outflows (NCOs) over a prospective 30 calendar-day stress scenario. GSBE is subject to the liquidity requirements as set out in the European Commission Delegated Regulation 2018/1620 and Delegated Regulation 2015/61 to supplement Regulation No 575/2013 of the European Parliament and the Council with regard to liquidity coverage requirement for credit institutions. When we use the term "liquidity standards", we refer to the aforementioned regulations.

CRR, as amended, which became effective from 28th June 2021, requires banks to disclose, on an annual basis, the average monthly LCR for the trailing twelve-months.

GSBE's average monthly LCR for the trailing twelve-month period ended December 2022 was 189% compared to the minimum requirement of 100%. The calculation of the ratio is based on our current interpretation and understanding of the liquidity standards and may evolve in the future.

The table below presents a breakdown of the bank's LCR calculated in accordance with the liquidity standards.

Table 33: Liquidity Coverage Ratio

€ in millions

	Twelve Months Ended December 2022
	Average Weighted
Total high-quality liquid assets	19,623
Net cash outflows	11,176
Liquidity coverage ratio	189%

The ratio reported above is calculated as average of the monthly LCRs for the trailing twelve months and may not equal the calculation of ratio using component amounts reported in "Total high-quality liquid assets" and "Net cash outflows".

We expect business-as-usual fluctuations in our client activity, business mix and overall market environment to affect our average LCR on an ongoing basis.

High-Quality Liquid Assets

Total HQLA represents unencumbered, high-quality liquid assets held by a bank. The liquidity standards define HQLA in three asset categories: Level 1, Level 2A and Level 2B, and applies haircuts and limits to certain asset categories.

Level 1 assets are considered the most liquid and are eligible for inclusion in a bank's HQLA amount without a haircut or limit. Level 2A and 2B assets are considered less liquid than Level 1 assets and are subject to additional adjustments as prescribed in the liquidity standards. In addition, the sum of Level 2A and 2B assets cannot comprise more than 40% of a bank's HQLA amount, and Level 2B assets cannot comprise more than 15% of a bank's HQLA amount. The bank's HQLA substantially consists of Level 1 assets.

Net Cash Outflows

Overview

Regulatory requirements define NCOs as the net of cash outflows and inflows during a prospective stress period of 30 calendar days. NCOs are calculated by applying prescribed outflow and inflow rates to certain assets, liabilities and off-balance-sheet arrangements. These outflow and inflow rates reflect a specific standardised stress scenario to a firm's funding sources, contractual obligations and assets over the prospective stress period, as prescribed by the regulatory requirements. Due to the inherently uncertain and variable nature of stress events, a firm's actual cash outflows and inflows in a realised liquidity stress event may differ, possibly materially, from those reflected in a firm's NCOs.

To capture outflows and inflows that would occur within a 30 calendar-day period, the regulatory requirements require that a firm's NCOs calculation reflects outflows and inflows based on the contractual maturity of certain assets, liabilities and off-balance-sheet arrangements. To determine the maturity date of outflows, the regulatory requirements account for any option that could accelerate the maturity date of an instrument or the date of a transaction. Where contractual maturity is not applicable, the regulatory requirements also set forth stressed outflow assumptions. In addition, the regulatory requirements require a firm to recognise contractual outflows within a 30 calendar-day period that are not otherwise described in the regulatory requirements and to not recognise inflows not specified in the regulatory requirements. The inflows included in the NCOs calculation are subject to a cap of 75% of a firm's calculated outflows.

Table 33 above presents a summary of GSBE's NCOs, calculated in accordance with the regulatory requirements.

More details on each of the material components of our NCOs, including a description of the applicable sections of the regulatory requirements, are described below.

In the tables referenced in the remainder of this section, unweighted balances reflect certain GSBE's assets, liabilities and off-balance-sheet arrangements captured in the regulatory requirements. Weighted balances reflect the application of prescribed outflow and inflow rates to these unweighted balances.

Unsecured and Secured Funding

Our primary sources of funding are deposits, collateralised financings, unsecured short-term and long-term borrowings (including funding from Group Inc. and affiliates), and shareholders' equity. We seek to maintain broad and diversified funding sources across products, programs, markets, currencies and creditors.

Unsecured Net Cash Outflows

GSBE's unsecured funding consists of a number of different products, including:

- Unsecured long-term borrowings, including registered bonds (Namensschuldverschreibungen), promissory note (Schuldscheindarlehen), debt securities issued, which include notes certificates and warrants, and funding from Group Inc. and affiliates.

- Time deposits and demand deposits from private bank clients, institutional clients and affiliates

GSBE's unsecured debt and deposits are a source of funding for inventory, lending activity and other assets, including a portion of our liquid assets.

The liquidity standards require that the NCOs calculation reflects a bank's upcoming maturities of unsecured long-term borrowing during a 30 calendar-day period, assuming no rollover of debt that matures. The liquidity standards also prescribe outflows related to a partial loss of deposits funding.

Inflows from deposits placed with agent banks and lending activity are included as part of "Inflows from fully performing exposures" (see Table 34).

The table below presents a summary of GSBE's NCOs related to our unsecured borrowing and lending activity, calculated in accordance with the liquidity standards.

Table 34: Unsecured Net Cash Outflows

€ in millions

	Twelve Months Ended December 2022	
	Average Unweighted	**Average Weighted**
Outflows		
Retail deposits and deposits from small business customers, of which:	**1,068**	**178**
Stable deposits	0	0
Less stable deposits	1,068	178
Unsecured wholesale funding, of which:	**2,791**	**1,430**
Non-operational deposits	2,625	1,265
Unsecured debt	165	165
Inflows		
Inflows from fully performing exposures	**459**	**123**
Net unsecured cash outflows/(inflows)	**3,400**	**1,485**

Net unsecured cash outflows/(inflows) reflects the subtraction of the inflow amounts from the outflow amounts shown in the table above and is included for illustrative purposes.

Secured Net Cash Outflows

GSBE funds inventory on a secured basis, through various secured funding transactions including repurchase agreements, securities loaned and other secured financings. In addition, we provide financing to our clients for their securities trading activities, as well as securities lending and other prime brokerage services.

The liquidity standards consider outflows and inflows related to secured funding and securities services together as part of "Secured wholesale funding" and "Secured lending".

Specifically, under the liquidity standards, secured funding transactions include repurchase agreements, collateralized deposits, securities lending transactions and other secured wholesale funding arrangements. Secured lending transactions, as defined under the liquidity standards, include reverse repurchase transactions, margin loans, securities borrowing transactions and secured loans.

The standardized stress scenario prescribed in the liquidity standards applies outflow and inflow rates between 0-100% to secured funding and lending transactions. Specific outflow and inflow rates are based on factors such as the quality of the underlying collateral, as well as the type, tenor, and counterparty of a transaction.

The table below presents a summary of GSBE's NCOs related to our secured funding and lending activity, calculated in accordance with the liquidity standards.

Table 35: Secured Net Cash Outflows

€ in millions

	Twelve Months Ended December 2022	
	Average Unweighted	**Average Weighted**
Outflows		
Secured wholesale funding		**2,890**
Inflows	**24,871**	**2,206**
Secured lending		
Net secured cash outflows/(inflows)		**684**

Net secured cash outflows/(inflows) reflects the subtraction of the inflow amounts from the outflow amount shown in the table above and is included for illustrative purposes

Derivatives

Overview

Derivatives are instruments that derive their value from underlying asset prices, indices, reference rates and other inputs, or a combination of these factors. Derivatives maybe traded on an exchange or they maybe privately negotiated contracts, which are usually referred to as OTC derivatives. Certain OTC derivatives are cleared and settled through central clearing counterparties, while others are bilateral contracts between two counterparties.
The bank is exposed to derivative risk through:

- **Market-Making.** As a market maker, GSBE enters into derivative transactions to provide liquidity to clients and to facilitate the transfer and hedging of their risks. In this role, we typically act as principal and are required to commit capital to provide execution, and maintains market-making positions in response to, or in anticipation of, client demand.

- **Risk Management.** GSBE also enters into derivatives to actively manage risk exposures that arise from its market-making and investing and lending activities in derivative and cash instruments. Our holdings and exposures are hedged, in many cases, on either a portfolio or risk-specific basis, as opposed to an instrument-by-instrument basis. In addition, the bank may enter into derivatives that are used to manage interest rate exposure in certain fixed-rate unsecured long-term and short-term borrowings, and deposits.

GSBE enters into various types of derivatives, including futures, forwards, swaps and options.

Derivative Net Cash Outflows

The liquidity standards require that derivative NCOs reflect outflows and inflows resulting from contractual settlements related to derivative transactions occurring over a 30 calendar-day period. These outflows and inflows can generally be netted at a counterparty level if subject to a valid qualifying master netting agreement. In addition, the liquidity standards require that NCOs reflect certain contingent outflows related to a bank's derivative positions that may arise during a 30 calendar-day stress scenario, including:

- Incremental collateral required as a result of a change in a bank's financial condition;
- Legal right of substitution of collateral posted to a bank for less liquid or non-HQLA collateral;
- Collateral required as a result of market movements. The liquidity standards require that a bank reflects in its NCOs calculation the absolute value of the largest net cumulative collateral outflow or inflow in a 30 calendar-day period over the last two years; and
- Excess collateral greater than the current collateral requirement under the governing contract that a bank may be contractually required to return to counterparty.

The table below presents a summary of the GSBE's derivative NCOs, calculated in accordance with the liquidity standards.

Table 36: Derivative Net Cash Outflows

€ in millions

	Twelve Months Ended December 2022	
	Average Unweighted	**Average Weighted**
Outflows related to derivative exposures and other collateral requirements	**4,449**	**4,412**

Unfunded Commitments

The liquidity standards apply outflow rates to the undrawn portion of committed credit and liquidity facilities that a bank has extended based on counterparty type and purpose. The undrawn portion is defined as the amount of the facility that could be drawn upon within 30 calendar days under the governing agreement, less the fair value of any liquid assets that serve as collateral, after recognising the applicable haircut for those assets. Commitments extended to non-financial sector corporates are prescribed an outflow rate of 10-30%, insurance sector entities an outflow rate of 40-100%, credit institutions an outflow rate of 40% and all others an outflow rate of 100%.

The table below presents a summary of GSBE's NCOs related to our unfunded commitments, calculated in accordance with the liquidity standards.

Table 37: Unfunded Commitments Net Cash Outflows

€ in millions

	Twelve Months Ended December 2022	
	Average Unweighted	**Average Weighted**
Credit and liquidity facilities	**6,770**	**2,369**

Other Net Cash Outflows

The table below presents a summary of GSBE's other cash outflows and inflows, including, but not limited to, overnight and term funding from parent and affiliate entities, derivative inflows, unsettled inventory balances, loans of collateral to effect customer short sales and other prime brokerage services.

Table 38: Other Net Cash Outflows

€ in millions

	Twelve Months Ended December 2022	
	Average Unweighted	**Average Weighted**
Outflows	**15,827**	**10,061**
Other contractual obligations	14,609	9,031
Other contingent funding obligations	1,218	1,030
Inflows	**7,836**	**7,836**
Other cash inflows	7,836	7,836
Net other cash outflows/(inflows)	**7,991**	**2,225**

Net other cash outflows/(inflows) reflects the subtraction of the inflow amounts from the outflow amounts shown in the table above and is included for illustrative purposes.

Table 39: EU LIQ1 - Liquidity Coverage Ratio Summary

	Scope of consolidation (Consolidated)	Total Unweighted Value				Total Weighted Value			
	Currency and units (€ in millions)								
	Period ended	**March 2022**	**June 2022**	**September 2022**	**December 2022**	**March 2022**	**June 2022**	**September 2022**	**December 2022**
	Number of data points used in the calculation of averages	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
	HIGH-QUALITY LIQUID ASSETS								
1	Total high-quality liquid assets (HQLA)					14,599	17,085	19,198	19,623
	CASH – OUTFLOWS								
2	Retail deposits and deposits from small business customers, of which:	773	843	931	1,068	127	140	155	178
3	*Stable deposits*	0	0	0	0	0	0	0	0
4	*Less stable deposits*	773	843	931	1,068	127	140	155	178
5	Unsecured wholesale funding	2,207	2,362	2,553	2,791	1,090	1,198	1,314	1,430
6	*Operational deposits (all counterparties) and deposits in networks of cooperative banks*	0	0	0	0	0	0	0	0
7	*Non-operational deposits (all counterparties)*	2,112	2,228	2,379	2,625	996	1,064	1,140	1,265
8	*Unsecured debt*	94	134	174	165	94	134	174	165
9	Secured wholesale funding					1,582	2,081	2,451	2,890
10	Additional requirements	8,010	9,130	10,282	11,219	4,890	5,521	6,258	6,781
11	*Outflows related to derivative exposures and other collateral requirements*	2,473	2,888	3,774	4,449	2,457	2,850	3,735	4,412
12	*Outflows related to loss of funding on debt products*	0	0	0	0	0	0	0	0
13	*Credit and liquidity facilities*	5,537	6,242	6,508	6,770	2,432	2,671	2,523	2,369
14	Other contractual funding obligations	8,147	9,423	12,192	14,609	5,066	5,750	7,676	9,031
15	Other contingent funding obligations	783	906	1,237	1,218	668	769	1,036	1,030
16	**TOTAL CASH OUTFLOWS**					13,423	15,459	18,890	21,430
	CASH – INFLOWS								
17	Secured lending (e.g. reverse repos)	12,681	16,001	21,298	24,871	1,544	1,756	2,121	2,206
18	Inflows from fully performing exposures	527	473	477	459	232	162	123	123
19	Other cash inflows	5,482	6,264	7,392	7,836	5,482	6,264	7,392	7,836
EU-19a	(Difference between total weighted inflows and total weighted outflows arising from transactions in third countries where there are transfer restrictions or which are denominated in non-convertible currencies)					0	0	0	0
EU-19b	(Excess inflows from a related specialised credit institution)					0	0	0	0
20	**TOTAL CASH INFLOWS**	18,690	22,738	29,167	33,166	7,258	8,182	9,936	10,165
EU-20a	***Fully exempt inflows***	0	0	0	0	0	0	0	0
EU-20b	***Inflows Subject to 90% Cap***	0	0	0	0	0	0	0	0
EU-20c	***Inflows Subject to 75% Cap***	18,690	22,738	29,167	33,166	7,258	8,182	9,936	10,165
						TOTAL ADJUSTED VALUE			
21	**LIQUIDITY BUFFER**					14,599	17,085	19,198	19,623
22	**TOTAL NET CASH OUTFLOWS**					6,166	7,277	9,253	11,176
23	**LIQUIDITY COVERAGE RATIO (%)**					234%	241%	229%	189%

Net Stable Funding Ratio

The Net Stable Funding Ratio (NSFR) is designed to promote medium and long-term stable funding of the assets and off-balance sheet activities over a one-year time horizon.

The NSFR is defined as the regulatory measurement of the bank's available stable funding ("ASF") against its asset funding needs, or required stable funding ("RSF"), over a one-year time horizon.

The ASF is calculated as the sum of carrying values of the firm's liabilities and regulatory capital, each multiplied by a standardised weighting ranging from zero to 100 percent to reflect the relative stability of such liabilities and capital over a one-year time horizon.

The RSF is calculated as: (1) the sum of the carrying value of assets, each multiplied by a standardized weight ranging from zero to 100 percent to reflect the relative need for funding over a one-year time horizon based on the liquidity characteristics of the asset, plus (2) RSF amounts based on the firm's committed facilities and derivative exposures.

The bank is subject to the applicable NSFR requirement in the E.U., which became effective in June 2021 and requires the bank to maintain an NSFR of 100%. As of December 2022, the bank's NSFR exceeded the regulatory minimum requirement. See table 40 for more detail.

Table 40a: EU LIQ2 - Net Stable Funding Ratio

As of December 2022

		a	b	c	d	e
(€ millions)		Unweighted value by residual maturity				Weighted value
		No maturity[1]	< 6 months	6 months to < 1yr	≥ 1yr	
AVAILABLE STABLE FUNDING (ASF) ITEMS						
1	Capital items and instruments	**9,028**	**0**	**0**	**20**	**9,048**
2	*Own funds **	9,028	0	0	20	9,048
3	*Other capital instruments*		0	0	0	0
4	Retail deposits		**1,502**	**0**	**0**	**1,351**
5	*Stable deposits*		0	0	0	0
6	*Less stable deposits*		1,502	0	0	1,351
7	Wholesale funding:		**13,122**	**771**	**6,050**	**8,597**
8	*Operational deposits*		0	0	0	0
9	*Other wholesale funding*		13,122	771	6,050	8,597
10	Interdependent liabilities		**2,640**	**0**	**0**	**0**
11	Other liabilities:	**279**	**26,036**	**0**	**0**	**0**
12	*NSFR derivative liabilities*	279				
13	*All other liabilities and capital instruments not included in the above categories*		26,036	0	0	0
14	**TOTAL AVAILABLE STABLE FUNDING (ASF)**					**18,997**
REQUIRED STABLE FUNDING (RSF) ITEMS						
15	Total high-quality liquid assets (HQLA)					**67**
EU-15a	Assets encumbered for a residual maturity of one year or more in a cover pool		**0**	**0**	**0**	**0**
16	Deposits held at other financial institutions for operational purposes		**206**	**0**	**0**	**103**
17	Performing loans and securities:		**11,404**	**23**	**3,634**	**3,987**
18	*Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut*		7,730	0	0	174
19	*Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		3,071	0	647	831
20	*Performing loans to non- financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		569	9	0	1,294
21	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		0	0	0	0
22	*Performing residential mortgages, of which:*		0	0	0	0
23	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		0	0	0	0
24	*Other loans and securities that are not in default and do not qualify as HQLA, including exchange-traded equities and trade finance on-balance sheet products*		33	14	1,805	1,688
25	Interdependent assets		**2,640**	**0**	**0**	**0**
26	Other assets:		**23,378**	**0**	**7,104**	**7,885**
27	*Physical traded commodities*				0	0
28	*Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		0	0	2,713	2,306
29	*NSFR derivative assets*		0			0
30	*NSFR derivative liabilities before deduction of variation margin posted*		22,759			1,138
31	*All other assets not included in the above categories*		619	0	4,391	4,440
32	Off-balance sheet items		**8,632**	**0**	**0**	**293**
33	**TOTAL RSF**					**12,335**
34	**NET STABLE FUNDING RATIO (%)**					**154.0%**

* *Own funds in Row 2 of the table above for NSFR purposes corresponds to regulatory capital before any regulatory adjustments (Refer to table EU CC1, Row 6)*

Table 40b: EU LIQ2 - Net Stable Funding Ratio

As of September 2022

		a	b	c	d	e
(€ millions)		Unweighted value by residual maturity				Weighted value
		No maturity[1]	< 6 months	6 months to < 1yr	≥ 1yr	
AVAILABLE STABLE FUNDING (ASF) ITEMS						
1	Capital items and instruments	**8,543**	**0**	**0**	**20**	**8,563**
2	*Own funds*	8,543	0	0	20	8,563
3	*Other capital instruments*		0	0	0	0
4	Retail deposits		**1,128**	**0**	**0**	**1,015**
5	*Stable deposits*		0	0	0	0
6	*Less stable deposits*		1,128	0	0	1,015
7	Wholesale funding:		**29,851**	**817**	**12,811**	**14,896**
8	*Operational deposits*		0	0	0	0
9	*Other wholesale funding*		29,851	817	12,811	14,896
10	Interdependent liabilities		**2,699**	**0**	**0**	**0**
11	Other liabilities:	**597**	**27,167**	**0**	**0**	**0**
12	*NSFR derivative liabilities*	597				
13	*All other liabilities and capital instruments not included in the above categories*		27,167	0	0	0
14	**TOTAL AVAILABLE STABLE FUNDING (ASF)**					**24,474**
REQUIRED STABLE FUNDING (RSF) ITEMS						
15	Total high-quality liquid assets (HQLA)					**383**
EU-15a	Assets encumbered for a residual maturity of one year or more in a cover pool		**0**	**0**	**0**	**0**
16	Deposits held at other financial institutions for operational purposes		**494**	**0**	**0**	**247**
17	Performing loans and securities:		**19,560**	**214**	**3,373**	**3,746**
18	*Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut*		15,468	132	0	264
19	*Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		3,430	51	419	625
20	*Performing loans to non- financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		594	20	1,038	1,190
21	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		0	0	0	0
22	*Performing residential mortgages, of which:*		0	0	0	0
23	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		0	0	0	0
24	*Other loans and securities that are not in default and do not qualify as HQLA, including exchange-traded equities and trade finance on-balance sheet products*		68	11	1,915	1,668
25	Interdependent assets		**2,699**	**0**	**0**	**0**
26	Other assets:		**23,952**	**0**	**8,830**	**9,598**
27	*Physical traded commodities*				0	0
28	*Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		2	0	3,073	2,614
29	*NSFR derivative assets*		0			0
30	*NSFR derivative liabilities before deduction of variation margin posted*		23,258			1,163
31	*All other assets not included in the above categories*		692	0	5,757	5,821
32	Off-balance sheet items		**11,840**	**27**	**0**	**335**
33	**TOTAL RSF**					**14,309**
34	**NET STABLE FUNDING RATIO (%)**					**171.0%**

Table 40c: EU LIQ2 - Net Stable Funding Ratio

As of June 2022

		a	b	c	d	e
(€ millions)		Unweighted value by residual maturity				Weighted value
		No maturity[1]	< 6 months	6 months to < 1yr	≥ 1yr	
AVAILABLE STABLE FUNDING (ASF) ITEMS						
1	Capital items and instruments	**8,543**	**0**	**0**	**20**	**8,563**
2	*Own funds*	8,543	0	0	20	8,563
3	*Other capital instruments*		0	0	0	0
4	Retail deposits		**982**	**0**	**0**	**883**
5	*Stable deposits*		0	0	0	0
6	*Less stable deposits*		982	0	0	883
7	Wholesale funding:		**22,609**	**948**	**12,352**	**13,934**
8	*Operational deposits*		0	0	0	0
9	*Other wholesale funding*		22,609	948	12,352	13,934
10	Interdependent liabilities		**0**	**0**	**0**	**0**
11	Other liabilities:	**646**	**22,976**	**0**	**0**	**0**
12	*NSFR derivative liabilities*	646				
13	*All other liabilities and capital instruments not included in the above categories*		22,976	0	0	0
14	**TOTAL AVAILABLE STABLE FUNDING (ASF)**					**23,381**
REQUIRED STABLE FUNDING (RSF) ITEMS						
15	Total high-quality liquid assets (HQLA)					**549**
EU-15a	Assets encumbered for a residual maturity of one year or more in a cover pool		**0**	**0**	**0**	**0**
16	Deposits held at other financial institutions for operational purposes		**275**	**0**	**0**	**138**
17	Performing loans and securities:		**22,036**	**238**	**5,486**	**5,660**
18	*Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut*		17,528	137	0	69
19	*Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		3,895	51	354	610
20	*Performing loans to non- financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		565	11	782	952
21	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		0	0	0	0
22	*Performing residential mortgages, of which:*		0	0	0	0
23	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		0	0	0	0
24	*Other loans and securities that are not in default and do not qualify as HQLA, including exchange-traded equities and trade finance on-balance sheet products*		48	39	4,350	4,029
25	Interdependent assets		**2,464**	**0**	**0**	**0**
26	Other assets:		**19,562**	**3**	**9,969**	**10,438**
27	*Physical traded commodities*				0	0
28	*Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		65	0	4,009	3,463
29	*NSFR derivative assets*		0			0
30	*NSFR derivative liabilities before deduction of variation margin posted*		18,968			948
31	*All other assets not included in the above categories*		529	3	5,960	6,026
32	Off-balance sheet items		**11,527**	**0**	**0**	**367**
33	**TOTAL RSF**					**17,151**
34	**NET STABLE FUNDING RATIO (%)**					**136.3%**

Table 40d: EU LIQ2 - Net Stable Funding Ratio

As of March 2022

		a	b	c	d	e
(€ millions)		Unweighted value by residual maturity				Weighted value
		No maturity[1]	< 6 months	6 months to < 1yr	≥ 1yr	
AVAILABLE STABLE FUNDING (ASF) ITEMS						
1	Capital items and instruments	**8,543**	**20**	**0**	**0**	**8,543**
2	*Own funds*	8,543	20	0	0	8,543
3	*Other capital instruments*		0	0	0	0
4	Retail deposits		**852**	**0**	**0**	**767**
5	*Stable deposits*		0	0	0	0
6	*Less stable deposits*		852	0	0	767
7	Wholesale funding:		**14,091**	**588**	**9,241**	**10,654**
8	*Operational deposits*		0	0	0	0
9	*Other wholesale funding*		14,091	588	9,241	10,654
10	Interdependent liabilities		**0**	**0**	**0**	**0**
11	Other liabilities:	**0**	**77,563**	**0**	**0**	**0**
12	*NSFR derivative liabilities*	0				
13	*All other liabilities and capital instruments not included in the above categories*		77,563	0	0	0
14	**TOTAL AVAILABLE STABLE FUNDING (ASF)**					**19,964**
REQUIRED STABLE FUNDING (RSF) ITEMS						
15	Total high-quality liquid assets (HQLA)					**264**
EU-15a	Assets encumbered for a residual maturity of one year or more in a cover pool		**0**	**0**	**0**	**0**
16	Deposits held at other financial institutions for operational purposes		**282**	**0**	**0**	**141**
17	Performing loans and securities:		**14,295**	**47**	**4,143**	**6,080**
18	*Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut*		11,454	0	0	1,937
19	*Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		2,425	0	907	1,034
20	*Performing loans to non- financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		407	9	685	790
21	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		0	0	0	0
22	*Performing residential mortgages, of which:*		0	0	0	0
23	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		0	0	0	0
24	*Other loans and securities that are not in default and do not qualify as HQLA, including exchange-traded equities and trade finance on-balance sheet products*		10	38	2,551	2,319
25	Interdependent assets		**1,817**	**0**	**0**	**0**
26	Other assets:		**19,423**	**0**	**6,185**	**7,151**
27	*Physical traded commodities*				0	0
28	*Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		78	0	2,930	2,556
29	*NSFR derivative assets*		551			551
30	*NSFR derivative liabilities before deduction of variation margin posted*		15,167			758
31	*All other assets not included in the above categories*		3,628	0	3,256	3,285
32	Off-balance sheet items		**8,340**	**0**	**0**	**318**
33	**TOTAL RSF**					**13,954**
34	**NET STABLE FUNDING RATIO (%)**					**143.1%**

Asset Encumbrance

Overview

Asset encumbrance refers to the pledging or use of an asset as a means to secure, collateralise or credit-enhance any on-balance-sheet or off-balance-sheet transaction from which it cannot be freely withdrawn. The majority of the encumbrance in GSBE is driven by derivatives and secured funding activity. A portion of the bank's assets are encumbered in currencies other than Euros. Asset encumbrance is an integral part of GSBE's liquidity, funding and collateral management process.

The tables in this section identify components of our encumbered and unencumbered assets for the period ended December 31, 2022 Median values are computed over the preceding 4 quarterly data points. This disclosure is being made in accordance with the format outlined in CRR.

Table 41: EU AE1 - Encumbered and Unencumbered Assets

	Carrying Amount of Encumbered Assets		Fair Value of Encumbered Assets		Carrying Amount of Unencumbered Assets		Fair Value of Unencumbered Assets	
€ in millions		Of which notionally eligible EHQLA[1] and HQLA		Of which notionally eligible EHQLA[1] and HQLA		Of which notionally eligible EHQLA[1] and HQLA		Of which notionally eligible EHQLA[1] and HQLA
Assets of the Reporting Institution	**24,590**	**3,444**	**N/A[2]**	**N/A[2]**	**191,394**	**13,510**	**N/A[2]**	**N/A[2]**

[1] Liquidity standards define Level 1 assets as extremely high liquidity and credit quality (EHQLA) and Level 2 assets as assets of high liquidity and credit quality (HQLA)
[2] Cells are marked N/A to indicate those components which are not reportable under EBA Guidelines

Table 42: EU AE1 - Components of Encumbered and Unencumbered Assets[3]

	Carrying Amount of Encumbered Assets		Fair Value of Encumbered Assets		Carrying Amount of Unencumbered assets		Fair Value of Unencumbered Assets	
€ in millions		Of which notionally eligible EHQLA and HQLA		Of which notionally eligible EHQLA and HQLA		Of which notionally eligible EHQLA and HQLA		Of which notionally eligible EHQLA and HQLA
Equity Instruments	**603**	**154**	**603**	**154**	**1,305**	**86**	**1,305**	**86**
Debt Securities[5]	**4,242**	**3,290**	**4,242**	**3,290**	**1,223**	**459**	**1,223**	**459**
of which: covered bonds	122	-	122	-	15		15	
of which: asset-backed securities	-	-	-	-				
of which: issued by general governments	3,713	3,114	3,713	3,114	809	427	809	427
of which: issued by financial corporations	227	56	227	56	381	2	381	2
of which: issued by non-financial corporations	224	129	224	129	105	49	105	49
Other Assets	**18,723**		**N/A[2]**	**N/A[2]**	**188,951**	**12,869**	**N/A[2]**	**N/A[2]**

[3]The figures in Table 42 are a subset of Assets of the Reporting Institution in Table 41
[4] Cells are marked N/A to indicate those components which are not reportable under EBA Guidelines
[5] Fair value is the same as carrying value for Debt Securities
[6] The majority of unencumbered Other Assets relate to derivative instruments

The bank receives securities collateral in respect of securities purchased under agreement to resell, secured borrowings, margin loans and derivatives. The tables below break down securities collateral received into the portion which has been treated as encumbered and the portion which is available for encumbrance.

Table 43: EU AE2 - Collateral Received

€ in millions	Fair Value of Encumbered Collateral Received or Own Debt Securities Issued		Fair Value of Collateral Received or Own Debt Securities Issued Available for Encumbrance	
		Of which notionally eligible EHQLA and HQLA		Of which notionally eligible EHQLA and HQLA
Collateral Received by the Reporting Institution[1]	**33,264**	**27,325**	**4,392**	**3,325**

[1]Collateral Received by the Reporting Institution does not include cash collateral which is included as an on-balance-sheet asset in Tables 41 and 42

Table 44: EU AE2 - Components of Collateral Received[2]

€ in millions	Fair Value of Encumbered Collateral Received or Own Debt Securities Issued		Fair Value of Collateral Received or Own Debt Securities Issued Available for Encumbrance	
		Of which notionally eligible EHQLA and HQLA		Of which notionally eligible EHQLA and HQLA
Loans on Demand	**-**	**-**	**-**	**-**
Equity Instruments	**4,210**	**719**	**990**	**146**
Debt Securities	**29,128**	**26,588**	**3,381**	**3,179**
of which: covered bonds	118	-	2	-
of which: asset-backed securities	-	-	-	-
of which: issued by general governments	27,466	25,925	3,172	3,112
of which: issued by financial corporations[3]	560	86	59	
of which: issued by non-financial corporations	849	423	135	58
Loans and advances other than loans on demand	**-**	**-**	**19**	**-**
Other Collateral Received	**332**	**-**	**-**	**-**
Own Debt Securities Issued other than Own Covered Bonds or ABSs	**-**	**-**	**-**	**-**
Own Covered Bonds and Asset-Backed Securities issued and not yet pledged	**N/A**[2]	**N/A**[2]	**-**	**-**
Total Assets, Collateral received and Own Debt Securities Issued	**59,202**	**31,075**	**N/A**[2]	**N/A**[2]

[2]The figures shown in Table 44 are a subset of Collateral Received by the Reporting Institution in Table 43
[3]HQLA balances reported in this row mainly comprise of securities issued by Multinational Development Banks and Public Sector Enterprises
[4]Cells are marked N/A to indicate those components which are not reportable under EBA Guidelines

The table below shows the extent to which liabilities have been matched to encumbered assets.

Table 45: EU AE3 - Sources of Encumbrance

€ in millions	Matching Liabilities, Contingent Liabilities or Securities Lent	Assets, Collateral Received and Own Debt Securities Issued other than Covered Bonds and ABSs Encumbered
Carrying amount of selected financial liabilities[5]	**168,491**	**47,971**

[5]There may be a mismatch between liabilities and encumbered assets and collateral received driven by the accounting standard presentation of derivatives

Commentary

In the above Asset Encumbrance disclosure, derivative instruments are reported in accordance with the applicable accounting standard. In addition, total assets include collateralised lending where the receivable is reported as a balance sheet asset in Tables 41 and 42 and the underlying collateral received is reported in Tables 43 and 44 resulting in double counting of these assets.

GSBE primarily adopts standard collateral agreements and collateralises based on industry standard contractual agreements (mostly Deutscher Rahmenvertrag für Finanztermingeschäfte (DRV), Credit Support Annexes (CSA) and Global Master Repurchase Agreements (GMRAs)). The rights and obligations on collateral posted to counterparties for derivatives are dependent on the counterparty and the nature and jurisdiction of the CSA. Derivative liabilities are collateralised primarily using G10 currencies and government bonds.

Climate Risk

Overview

Climate risk is the risk of adverse outcomes arising from the long and/or short term impacts of climate change. GSBE categorizes climate risk into physical risk and transition risk. Physical risk is the risk that asset values may decline as a result of changes in the climate, while transition risk is the risk that asset values may decline because of changes in climate policies or changes in the underlying economy due to de-carbonisation.

Informed by the results of our risk identification process, we have developed and implemented methodologies for both physical and transition risk, to assess the potential impact of climate-related and environmental (C&E) risks and perform scenario analysis to identify vulnerabilities and risks. This foundation of quantification propels robust integration of climate-related risk into relevant risk management processes and transaction considerations.

Physical Risk. In both our physical and transition risk stress testing, we leverage open-source data and models used by the scientific and climate policy communities. For physical risk stress tests, we employ a combination of open-source data Global Circulation Models (GCM) to our internal hazard methodologies to project how climate variables may evolve over time at different geographical locations for GSBE. We have developed a climate scoring approach for a number of significant physical risks, such as extreme temperature, water stress, wildfire, etc. For each of these physical climate risk indices, and based on the chosen scenario, we categorize the physical risk severity of the relevant assets in GSBE's portfolio. We continue to monitor the severity of impacts to ensure GSBE's resiliency.

We analyse concentrations of real estate loan exposure in cities with extremely high physical risk as projected under the climate change scenarios. Also, we recognize that through our own operational footprint in the EU, foreign branch offices, and GS service entities across the world, we may have exposure to physical risk. We monitor our people and buildings closely to ensure efficient cooling systems and appropriate infrastructure are in place.

Transition Risk. Transition risk emerges from policy, legal, technology and market changes resulting from the shift to a lower carbon economy. For example, under certain scenarios that implement new policies and regulations supportive of the Paris Agreement, carbon-intensive sectors may suffer from transition risk especially as the market experiences changed preferences. In GSBE's transition risk stress tests, we use Integrated Assessment Models (IAM) as a foundation to which we add our internally developed methodologies. IAMs, which are open-source models used by the climate policy community, combine a physical climate model with an underlying economic model.

We project the effects of climate policy changes from a base case to other more stringent climate policy scenarios. As a result, we model transition risk by generating risk factor shocks such as equity shocks, credit spread shocks and credit rating shocks by country and by industry under different climate policy scenarios. Once we develop the shocks, we apply them to relevant GSBE portfolios to produce stress tests and assess impacts.

Under our current approach, we have estimated the magnitude of potential losses in equity investments and wholesale loans across climate scenario pathways. These estimates assume that changes in climate policies have an immediate impact on market prices and related economic and market variables. We actively monitor the estimated loss impact from transition risk to the firm but deem the impact to be currently non-material for the entity. We continue to refine our estimates and methodologies as the industry and regulatory landscape evolve.

Risk Identification and Appetite. Risk discovery is based on top-down, greenhouse gas emission pathways, and bottom-up processes, portfolio-aligned loan level analysis. The firm identifies risks, assesses materiality through scenario analysis and stress testing, integrates considerations into transaction and risk management decisions, and continues to evaluate impacts during ongoing monitoring. Based on our findings and as industry-wide capabilities, including data availability, advance we are continuously evaluating relevant enhancements to our approach.

GSBE evaluates multiple scenarios which consider macroeconomic assumptions to understand the potential range of impacts. The scenarios, with varying implementation dates of policy changes and probabilities of temperature change, provide insight into the financial risks that may arise. A key component of GSBE's climate-related and environmental risk program has included establishing Risk Appetite Statement (RAS) thresholds on the financial risks generated by physical risk and transition risk. Through scenario analysis and risk appetite, GSBE monitors the results of physical and transition risk to understand the materiality of its most exposed portfolios. GSBE continues to enhance climate risk assessments through developing versatile stress testing capabilities and integrating considerations of the broader climate-related framework at relevant stages of the transaction underwriting process.

In the assessment of the firm's climate risk drivers and their transmission channels, we also recognize the importance of categorizing climate risks and their integration into our existing risk practices across risk categories (credit, market, liquidity, operational) and have integrated climate change into risk management processes and procedures.

Climate Risk Integration. For GSBE, climate-related risks manifest in different ways across our business. We have continued to make significant enhancements to our climate risk management framework, including steps to further integrate climate risk into our broader entity risk management processes.

Broadly, we have processes in place to assess materiality of climate-related and environmental risk per risk category. As follows, we detail how climate-related and environmental risks are assessed and managed across categories.

- Credit Risk: incorporates climate risk into credit evaluations and underwriting processes for select industries and in select loan commitments

- Market Risk: considers climate-related and environmental impacts in the firm's equity investments through the current physical climate risk assessment performed as a part of transaction due diligence. In addition, we are further developing capabilities to stress market risk factors using climate risk scenarios for select sectors subject to high transition risk

- Operational Risk: the Environmental Risk unit reviews physical climate risk data for equity and credit investments in real estate transactions, including those relating to GSBE, and instructs the business to evaluate mitigants for transactions with high risk factors, including for biodiversity and broader environmental risks

- Liquidity Risk: evaluates the potential impact of transition and physical risk on the GSBE's potential liquidity outflows

Second Line Integration. Credit Risk Spotlight. For a counterparty within a high-emitting sector and meeting the eligibility criteria, Credit Risk analyses the company's ability to mitigate the risk associated with their transition to a low-carbon economy. Credit Risk assesses the counterparty's disclosures and available public statements on emission reduction targets and assigns an appropriate mitigation score. This score is incorporated into the overall credit rating of the counterparty.

First Line Integration. A significant focus of our climate risk management program is appropriate integration in our first line business strategy. The firm, including GSBE, incorporates climate-related and environmental risk assessments in select transaction underwriting decisions and continues to further strengthen business adoption of climate-related and environmental risk management. Our upfront business selection and due diligence processes include sector and geographical guidelines and are overseen through designated committee review processes. Enhanced considerations for assessing climate-related and environmental risk during underwriting have been established, including a dedicated section to document physical and transition risk exposure and potential mitigation within select investment committee reporting. Targeted trainings have been conducted with teams most frequently impacted by these changes, and we continue to enhance ongoing monitoring

Consistent with the firmwide governance structure from senior management to the GS Group Board and its committees, including the Risk Committee of the Board and Public Responsibilities Committee of the Board, we have integrated oversight of climate-related risks into GSBE's risk management governance structure. This includes oversight by the bank's Executive Board and Risk Committee, these governing and management bodies regularly.

As part of their responsibilities, the GSBE Executive Board and the Risk Committee receive reporting of climate risk appetite metrics and updates on our risk management approach to climate risk, as the firm continues to enhance its framework. In general, GSBE is integrated into and thereby benefits from the broader firmwide risk management and control framework supporting climate change risk management commensurate with the bank's activities. As of December 2022, climate change related risks were identified as relevant but based on the quantification analysis and risk category (credit, market, liquidity, operational) assessments, they have been assessed as non-material risks to GSBE.

Governance Arrangements

GSBE is managed by its Executive Board under its own responsibility. The Executive Board carries the full responsibility for the management of the bank in accordance with the German Stock Corporation Act. Its members are appointed and dismissed by the Supervisory Board, an independent body.

Recruitment and Diversity Policy

As part of the Goldman Sachs Group, GSBE implements the global principles, measures, and goals for diversity at Goldman Sachs.

In the selection of the members of the Executive Board and Supervisory Board, a candidate for each role is considered when, in addition to the actual knowledge, capabilities and experience required by regulations, professional and personal competence of the candidates is also demonstrated. GSBE thereby places the highest requirements on persons who are considered for selection.

GSBE considers diversity to be a priority for the bank and is committed to promoting the participation of qualified women in leadership positions. Female and male candidates are given equal consideration.

As of December 2022, in accordance with the GSBE Diversity Policy, GSBE has a target to have at least 40% women representation on the Supervisory Board and at least 15% women representation on the Executive Board with the aspirational goal to increase women representation on the Executive Board to 25% over time. As of December 31, 2022 female members comprised 33.3% of the Supervisory Board and 16.6% of the Executive Board.

We have set out below the biographies of the members of the Executive Board and the Supervisory Board as of December 31 2022, together with the positions and number of directorships they held at that date, including those with other Goldman Sachs affiliates.

Risk Committee

In May 2021, the Supervisory Board has established the Audit Committee, Risk Committee, Remuneration Committee and Nomination Committee to the Supervisory Board for the purpose of advising and supporting the Supervisory Board in fulfilling its duties and responsibilities.

The Supervisory Board Risk Committee is responsible for providing advice to the Supervisory Board on GSBE’s current and future risk appetite and is assisting the Supervisory Board in overseeing the implementation of that risk appetite and strategy by the Executive Board. The Risk Committee meets at least four times a year although meetings may occur more frequently as necessary to enable the Risk Committee to perform its functions.

Description of the information flow on risk to the management body

For a description of the information flow on risk to the management body please refer to Risk Management section of this document.

Table 46a: GSBE Executive Board of Directors

Name	Background	Director -ships
Dr. Fink	Wolfgang Fink is the chief executive officer of GSBE, having joined the Executive Board in April 2015. He is responsible for GSBE´s Investment Banking, Asset Management and Transaction Banking. In addition, he is a member of the European Management Committee and the head of Goldman Sachs in Germany and Austria. Mr. Fink also serves as a board member of the German Banking Association, Deutsches Aktieninstitut, American institute for contemporary German studies, and as the advisory board member of Foerderverein fuer das Festival Theater der Welt. He joined Goldman Sachs in Mergers and Acquisitions in London in 1993 and later worked in the Principal Investment Area. He subsequently, from 2006, served as the co-head of Investment Banking for Russia and Central and Eastern Europe before heading the European Industrials Group in Investment Banking. Mr. Fink was named managing director in 2004 and partner in 2008. Mr. Fink earned a MSc from Vienna University and a PhD in Economics from the European Business School.	**1**
P. Hermann	Peter Hermann has joined the Executive Board in August 2021, responsible for GSBE's FICC and Equities, Private Wealth Management and Global Investment Research businesses. In addition to his role as the head of GSBE's FICC and Equities, he serves as the co-head of the Nordic Region, including managing the firm's presence in Denmark, Finland, Norway and Sweden. Mr. Hermann is the branch manager of the GSBE Copenhagen branch. He is also a member of the EMEA Conduct Committee. Prior to his current role, Mr. Hermann was the head of the European Pension and Insurance Strategy Group. He joined the firm in 2009 and was named managing director in 2012 and partner in 2016. Mr. Hermann earned a MSc in Economics and Finance from the Aarhus University in 2002.	**1**
T. Degn-Petersen	Thomas Degn-Petersen is the chief operating officer of GSBE, having joined the Executive Board in March 2018. He is responsible for GSBE's Compliance, Operations, Human Capital Management, Engineering, Corporate and Workplace Solutions. He is also a member of the board of Goldman Sachs Poland Services Sp. z.o.o., and a non-executive director of Goldman Sachs Saudi Arabia. Mr. Degn-Petersen served as the GSBE chief financial officer until May 1, 2022.In addition, Mr. Degn-Petersen is a member of various GS committees including the GSBE Operational Risk and Resilience Committee, the GSBE Risk Committee, GSBE Asset and Liability Committee, the EMEA Operational Risk and Resilience Committee and the Goldman Sachs Bank USA ("GS Bank") Management Committee. He is also a member of the International Banking Committee of the German Banking Association. Previously, Mr. Degn-Petersen was the co-head of Controllers in India and the global head of the Shared Services Management office from 2014 to 2018. Prior to that, in the period from 2007 to 2013, he served as the head of Finance and from 2009 as the head of the Federation of OOOGSB in Russia. He is a qualified accountant and a member of the Chartered Institute of Management Accountants. Mr. Degn-Petersen earned a BSc (Hons) in Management Studies from the University of Surrey in 1996.	**1**
M. Holmes	Michael Holmes is the chief financial officer of GSBE, having joined the Executive Board in May 2022. Mr. Holmes is responsible for GSBE's Controllers, Corporate Treasury and Tax . He is also the chair of the board of OOO Goldman Sachs Bank ("OOOGSB"), and a non-executive director of Goldman Sachs Realty Management Europe GmbH and Goldman Sachs International Service Entities Holdings Ltd. In addition, Mr. Holmes is a member of the GS Bank Risk and Asset Liability Committee, the GSBE Risk Committee and he co-chairs the GSBE Asset and Liability Committee and the GSBE Recovery and Resolution Steering Group. Mr. Holmes has held various senior positions in GS's Controllers and Reporting divisions. From 2013 to 2022 he was a managing director at GSI and served as Legal Entity Controller with oversight of other EMEA Financial Reporting teams. He gained professional experience in the DACH region as Head of Operations, Finance, Technology and Services (OFT&S) at Goldman Sachs Bank AG, Zurich from 2011 to 2013 and as Regional Controller at Goldman Sachs and Co. OHG, Frankfurt from 2001 to 2004. He earned a BSc (Hons) in Mathematics from the University of Cambridge in 1992 and an ACA from the Institute of Chartered Accountants in England and Wales in 1997.	**1**
Dr. Bock	Matthias Bock joined the Executive Board in July 2011 and is the general counsel of GSBE, responsible for Legal. In addition to his duties for GSBE he also oversees the Legal department in OOOGSB in Russia. He is a board member and a deputy chairman of the regional banking Association of Banks Mitte and holds different positions within the German Banking Association (the chairman of its Committee for Foreign Banks, a member of its Legal Committee). He also serves on the board of the Bernhard-Vogel foundation (*Kuratorium*) and of the Civitas-Bernhard-Vogel foundation *(Beirat*). Mr. Bock joined Goldman Sachs in 1999 in London and transferred to Frankfurt in 2007. He studied in Heidelberg (First State Exam 1992), Hamburg (Second State Exam and Dr. iur. 1995) and at the University of Chicago (LLM 1996). He is admitted to the New York Bar.	**1**
H. Lo	Hei Man Lo is the chief risk officer of GSBE, having joined the Executive Board in November 2021. Ms. Lo also has a senior oversight responsibility as Credit Risk Officer for the EMEA region. She is a member of various GS committees, including GSBE Risk Committee (chair), GSBE Asset and Liability Committee and the GS Bank Risk and Asset Liability Committee. Ms. Lo also serves as an ambassador of the Asian Network Steering Committee. She joined Goldman Sachs in 2010 as an executive director in the Credit Risk Department and was named managing director in 2017. Prior to joining the firm, Ms. Lo worked as an economist in Barclays Bank PLC and as an emerging market risk specialist in Merrill Lynch International. Ms. Lo earned a BSc in Economics in 2000 and a MSc in Economics and Management in 2001, both from the London School of Economics.	**1**

In accordance with Article 91(3), (4) and (5) of Directive 2013/36/EU, we counted directorships within the same group as a single directorship and did not count directorships in organisations which do not pursue predominantly commercial objectives.

The table reflects the members of the Executive Board as of December 31, 2022. Robert Charnley, GSBE's Chief Administrative Officer, joined the Executive Board in April 2023, assuming responsibility for Compliance.

Table 46b: GSBE Supervisory Board of Directors[1]

Name	Background	Director -ships
R. J. Gnodde[2]	Richard J. Gnodde is the chair of the Supervisory Board, having joined the Supervisory Board in October 2022. Mr. Gnodde is also the chief executive officer of GSI, having joined the GSI Board in October 2006. He has been a member of the Firmwide Management Committee since 2003 and is also the chair of the European Management Committee, the co-chair of the EMEA Inclusion and Diversity Committee and a member of the Firmwide Reputational Risk Committee. Mr. Gnodde joined Goldman Sachs in 1987. He also serves as a trustee of the University of Cape Town Trust and is on the Campaign Board of Cambridge University. Mr. Gnodde earned a BA from the University of Cape Town and an MA from Cambridge University.	1
E. E. Stecher[3]	Esta Stecher is the deputy chair of the Supervisory Board, having joined the Supervisory Board in February 2018. She is a director at GSI and chairs the Board of Directors of GS Bank, Goldman Sachs International Bank ("GSIB") and Goldman Sachs Philanthropy Fund. In September 2021, Ms. Stecher retired as a partner and became a senior advisor to the firm. Ms. Stecher is a trustee emeritus of Columbia University and remains involved in other roles at Columbia University. Ms. Stecher joined Goldman Sachs in 1994, prior to which she was a partner at Sullivan and Cromwell. Ms. Stecher earned a BA from the University of Minnesota and a JD from Columbia Law School.	1
J.F.W. Rogers[4]	John F.W. Rogers joined the Supervisory Board in November 2022. Mr. Rogers serves as the executive vice president, the firm's chief of staff and secretary to the board of directors of The Goldman Sachs Group, Inc. He is a member of various GS committees including the Firmwide Management Committee, the Firmwide Client Franchise Committee and the Firmwide Reputational Risk Committee. He is also the chairman of the Goldman Sachs Foundation and of the board of the Atlantic Council and vice chairman of the board of the American Academy in Rome. Mr. Rogers also serves as the chairman of the board of the White House Historical Association a life trustee of the Ronald Reagan Presidential Foundation. In addition, he is chair emeritus of the board of directors of the Securities Industry and Financial Markets Association and chairman emeritus of the National Museum of American History at the Smithsonian Institution. Mr. Rogers joined Goldman Sachs in 1994. He was named managing director in 1997 and partner in 2000. Previously, Mr. Rogers served as the under secretary of state for management at the United States Department of State. He was the executive vice president of the Oliver Carr Company. Earlier, Mr. Rogers served as the assistant secretary of the Treasury and as an assistant to the president of the United States. In 1985, he received the Presidential Citizens Medal. He earned a BA degree in Public Affairs from the George Washington University in USA. ,	1
P. Berlinski	Philip Berlinski joined the Supervisory Board in November 2022. Mr. Berlinski is the global treasurer of Goldman Sachs and the chief executive officer and a board director of GS Bank. Mr. Berlinski serves on a number of GS committees including the Firmwide Management Committee, the Firmwide Conduct Committee, the Firmwide Enterprise Risk Committee, and he co-chairs the Firmwide Asset and Liability Committee. Previously, Mr. Berlinski served as the chief operating officer of Global Equities. Before that, he was co-head of Global Equities Trading and Execution Services. Earlier in his career, Mr. Berlinski held various positions within Equities. He joined Goldman Sachs as an analyst in Equity Derivatives Research in 1998. Mr. Berlinski was named managing director in 2007 and partner in 2008. He earned an MA in Physics from the University of Oxford.	1
E. Chryssikou	Efthalia Chryssikou joined the Supervisory Board in November 2022. Ms. Chryssikou is the head of Global FICC Sales Strats and Structuring. Ms.Chryssikou co-chairs the Structured Investments Product Committee and is a member of the Securities Division Client Index and Strategy Committee. In addition to that, Ms. Chryssikou serves as the chair of the Association for Financial Markets in Europe. Prior to her current role, Ms. Chryssikou was the co-head of Global Sales Strats and Structuring across FICC and Equities. Previously, she was the head of European Interest Rate Product Sales, having previously managed the European Macro Sales Strats and Structuring team from 2008 to 2014. From 2004 to 2007, Ms. Chryssikou served as the head of the Pensions and Insurance Strategies Group. In 2001, she became a member of the Interest Rate Products Strats Group after joining Goldman Sachs in 1998 as an associate in the Firmwide Risk Department. Ms. Chryssikou was named managing director in 2007 and partner in 2010. She earned her MSSc in Civil Engineering from the National Technical University in Athens and a PhD in Operation Research from the Massachusetts Institute of Technology in USA.	1
L. Donnelly	Lisa Donnelly joined the Supervisory Board in January 2022. Ms. Donnelly also serves as a director on the boards of GSI and GSIB. Ms. Donnelly is the chief administrative officer for EMEA. She also oversees Operations, where she is responsible for coordinating common practices, standards and protocols for global Operations functions. Ms. Donnelly is the chair of the EMEA Federation Leadership Group, the Operations Leadership Group, the co-chair of the Firmwide Operational Risk and Resilience Committee, a member of the European Management Committee, the GSIB Management Committee, the Firmwide Conduct Committee, the EMEA Conduct Committee, the GSI Risk Committee, the GSIB Risk Committee and the EMEA Inclusion and Diversity Committee . Ms. Donnelly joined Goldman Sachs in 2000. Prior to joining the firm, she worked at Deloitte Consulting. Ms. Donnelly earned a BA in English Literature from the University of Cambridge.	1

1 Mr. McDonogh retired as the chair and as a member of GSBE Supervisory Board on 10 October 2022.
2 Richard J. Gnodde was appointed as a director and chief executive officer of GSIB on 5 January 2023.
3 Ms. Stecher retired as the deputy chair and as a member of GSBE Supervisory Board on 31 January 2023.
4 Mr. Rogers was appointed deputy chair of the GSBE Supervisory Board in February 2023.

S. Morris	Simon Morris joined the Supervisory Board as an independent Supervisory Board member in November 2022. Mr. Morris is also a non-executive director of GS Bank. Previously, from 2004 to 2017 he was a partner in GSI with various leadership roles across the global FICC and Credit Franchise Divisions. He earned a BA degree in Geography and Economics from the London School of Economics.	**1**
Dr. Feuring	Wolfgang Feuring joined the Supervisory Board as an independent Supervisory Board member in February 2020. Mr. Feuring is Of Counsel at Sullivan and Cromwell LLP. Before joining Sullivan and Cromwell as a partner in 2001, Mr. Feuring was a partner of Freshfields Bruckhaus Deringer and predecessor firms and worked in the legal department of Deutsche Bank AG. He was admitted to the bar in 1981.	**1**
U. Pukropski	Ulrich Pukropski joined the Supervisory Board as an independent Supervisory Board member in April 2021. Mr. Pukropski also serves as an independent member of the Risk Monitoring Committee for Deposit Insurance Scheme for „Landesbanken" in Germany. He served as Partner in Financial Services at KPMG Germany for 26 years, heading the Financial Services Practice as Managing Partner from 2013 to 2018. He was also a member of the KPMG Global Financial Services Leadership Team in that period. Mr. Pukropski earned his MBA at the University of Cologne and is a CPA in Germany.	**1**

In accordance with Article 91(3), (4) and (5) of Directive 2013/36/EU, we counted directorships within the same group as a single directorship and did not count directorships in organisations which do not pursue predominantly commercial objectives.

Remuneration

Introduction

The following disclosures are made by GSBE in accordance with CRR and Section 16 of the German Remuneration Ordinance for Institutions (Institutsvergütungsverordnung, "IVV").

Remuneration Programme Philosophy

Retention of talented employees is critical to executing the firm's business strategy successfully. Remuneration is, therefore, a key component of the costs the firm incurs to generate revenues, similar to cost of goods sold or manufacturing costs in other industries.

The remuneration philosophy and the objectives of the remuneration programme for the firm are reflected in the Compensation Principles for GS Group, as posted on the Goldman Sachs public website:

http://www.goldmansachs.com/investor-relations/corporate-governance/corporate-governance-documents/compensation-principles.pdf

In particular, effective remuneration practices should:

(i) Encourage a real sense of teamwork and communication, binding individual short-term interests to the institution's long-term interests;

(ii) Evaluate performance on a multi-year basis;

(iii) Discourage excessive or concentrated risk-taking;

(iv) Allow an institution to attract and retain proven talent;

(v) Align aggregate remuneration for the firm with performance over the cycle; and

(vi) Promote a strong risk management & control environment.

Remuneration Frameworks

The Amended and Restated Firmwide Performance Assessment & Variable Compensation Framework ("Firmwide Compensation Framework") formalizes the variable remuneration practices of the firm.

The primary purpose of this Firmwide Compensation Framework is to assist the firm in assuring that its variable compensation program does not provide "covered employees" (i.e., senior executives as well as other employees of the firm, who, either individually or as part of a group, have the ability to expose the firm to material amounts of risk) with incentives to take imprudent risks and is consistent with the safety and soundness of the firm.

Each business (*e.g.,* Asset & Wealth Management, Global Banking & Markets) and each of its underlying business units (*e.g.,* Asset Management, Investment Banking) maintains a Performance Assessment & Variable Compensation Framework that is specific to the business or the business unit, as applicable, and that is consistent with the Firmwide Compensation Framework (collectively, the "Compensation Frameworks").

Remuneration Governance

The Compensation Committee

The Board of Directors of GS Group (the "Group Board") oversees the development, implementation and effectiveness of the firm's global remuneration practices and it generally exercises this responsibility directly or through delegation to the Compensation Committee of the Group Board (the "Compensation Committee"). The responsibilities of the Compensation Committee include:

- Review and approval of (or recommendation to the Group Board to approve) the firm's variable remuneration structure, including the portion to be paid as share-based awards, all year-end share-based grants for eligible employees (including those employed by GSBE), and the terms and conditions of such awards.

- Assisting the Group Board in its oversight of the development, implementation and effectiveness of policies and strategies relating to the Human Capital Management ("HCM") function, including recruiting, retention, career development and progression, management succession (other than that within the purview of the Corporate Governance and Nominating Committee) and diversity.

The Compensation Committee held 8 meetings in 2022 to discuss and make determinations regarding remuneration.

The members of the Compensation Committee at the end of 2022 were Mark O. Winkelman (Chair), M. Michele Burns, Drew G. Faust, Kimberley D. Harris, Kevin R. Johnson, Ellen J. Kullman, Lakshmi N. Mittal and Adebayo O. Ogunlesi (ex-officio). None of the members of the Compensation Committee was an employee of the firm. All members of the Compensation Committee were "independent" within the meaning of the New York Stock Exchange Rules and the

Group Board Policy on Director Independence.

External Consultants

The Compensation Committee recognises the importance of using a remuneration consultant that is appropriately qualified and is determined to be independent.

For 2022, the Compensation Committee received the advice of a remuneration consultant from Meridian.

Other Group Stakeholders

In carrying out the responsibilities of the Compensation Committee, the Chair of the Compensation Committee met multiple times with senior management during the year, including the firm's Chief Operating Officer ("COO"), the Executive Vice President, the Global Head of HCM and other members of senior management.

The GSBE Remuneration Committee

The Board Remuneration Committee of GSBE (the "Remuneration Committee") was established in 2021. The responsibilities of the Remuneration Committee include:

- Overseeing the development and implementation of the GSBE remuneration policy (the "GSBE Remuneration Policy") and related practices of GSBE in accordance with the relevant provisions in the German Banking Act (Kreditwesengesetz, "KWG"), the IVV, the EBA Guidelines on Sound Remuneration Systems ("EBA/GL/2021/04") ("EBA Guidelines") and any other applicable law and regulation.

- Supporting and advising the GSBE Supervisory Board (the "Supervisory Board") on the design of GSBE's remuneration systems in line with the GSBE Remuneration Policy and applicable law and regulation;

- Preparing resolutions for the Supervisory Board on the remuneration of the members of the GSBE Executive Board (the "Executive Board"), having regard to GSBE's performance and risk management among other factors;

- Assisting the Supervisory Board in monitoring the process of designating the Material Risk Takers of GSBE.

The Remuneration Committee held 6 meetings in 2022 in fulfilment of these responsibilities.

At the end of 2022:

– the members of the Remuneration Committee were Wolfgang Feuring (Chair), Ulrich Pukropski, Esta Stecher, Simon Morris and John F. W. Rogers;
– none of the members of the Remuneration Committee was an employee of GSBE.

GSBE Remuneration Officer

GSBE appointed a Remuneration Officer in 2021. The Remuneration Officer oversees the design and implementation of remuneration systems applicable to all GSBE employees, excluding Executive Board members and provides support to the Supervisory Board and to the Remuneration Committee related to their respective supervisory tasks and design monitoring in relation to all remuneration systems in the entity.

GSBE Board Governance

The Executive Board is responsible for overseeing the development and implementation of the GSBE Remuneration Policy in alignment with GSBE's business and risk strategies. The Executive Board will ensure that the GSBE Remuneration Policy is subject to an independent internal review at least annually, and, as far as it applies to the remuneration of the Executive Board, by the Supervisory Board. The Executive Board will at least annually update the Supervisory Board on the GSBE Remuneration Policy. In 2022, the Executive Board held 56 meetings.

In addition, the firm's EMEA Conduct Committee assists senior management of GSBE in the oversight of conduct risk and business standards.

Compensation-related Risk Assessment

The GS Group's Chief Risk Officer ("CRO") presented an annual compensation-related risk assessment to the Compensation Committee, meeting jointly with the Risk Committee of the GS Board, to assist the Compensation Committee in its assessment of the effectiveness of the firm's remuneration programme, and particularly, whether the programme is consistent with the principle that variable remuneration does not encourage employees to expose the firm to imprudent risk. This assessment most recently occurred in December 2022.

The compensation-related risk assessment was also presented to the Executive Board and Remuneration Committee by the GSBE CRO.

Remuneration Recommendations for GSBE employees

The firm's global process for setting variable remuneration (including the requirement to consider risk and compliance issues) applies to employees of GSBE in the same way as to employees in other regions and is subject to oversight by the senior management of the firm in the region. The firm uses a highly disciplined and robust process for setting variable remuneration across all regions following the processes outlined in the Compensation Frameworks.

This process involves compensation managers and compensation committees, at various levels in the firm, along with the business and business unit heads,, HCM and the Firmwide Management Committee (the firm's most senior leaders), as appropriate.

In addition, as part of the remuneration determination process, members of the firm's Compliance, Risk, Employment Law Group and Employee Relations functions make arrangements for business and business unit management to take into consideration certain compliance, risk or control matters when determining remuneration of individuals. Before any individual remuneration decisions are finalised, Employee Relations and the Employment Law Group assess the recommended remuneration for relevant individuals in the context of overall performance and other factors, and recommendations are reviewed with respect to comparators.

Remuneration recommendations for individual GSBE employees developed via the global remuneration determination process are presented for approval to the relevant Executive Board members or their delegates for each GSBE business, and recommendations developed for Executive Board members are presented to the Supervisory Board for approval.

Link Between Pay and Performance

In 2022, annual remuneration for employees comprised fixed remuneration (including base salary) and variable remuneration. The firm's remuneration practices provide for variable remuneration determinations to be made on a discretionary basis. Variable remuneration is based on multiple factors and is not set as a fixed percentage of revenue or by reference to any other formula, consistent with the process outlined in the Compensation Frameworks. Firmwide performance is a key factor in determining variable remuneration.

The firm is committed to aligning variable remuneration with performance. In order to do so, the performance of the firm, relevant business, and/or business unit, desk (if applicable) and individual over the past year, as well as over prior years, are taken into account. The firm believes that the firm's senior leaders have responsibility for overall performance and, as a result, senior employees have experienced more volatility in their remuneration year-over-year, particularly in periods when the firm's performance declined significantly.

The firm believes that multi-year guarantees should be avoided as they risk misaligning remuneration and performance, and guaranteed variable remuneration should be awarded in exceptional circumstances only (for example, for certain new hires).

Performance Measurement

Variable remuneration determinations take into account firm, relevant business and/or business unit, desk (if applicable) and individual performance. GSBE performance and risk metrics are also considered.

Firmwide performance

Certain firmwide financial metrics and year-on-year changes in those metrics are reviewed, including the following:

- Return on average common equity;
- Efficiency ratio;
- Book value per common share;
- Pre-tax earnings;
- Net revenues; and
- Diluted earnings per common share;

Business, business unit, desk performance

Additionally, at both the business and business unit level, quantitative and/or qualitative metrics specific to such levels, respectively, and below are used to evaluate the performance of the business/business unit and their respective employees.

Individual performance

Employees are evaluated annually as part of the performance review feedback process. This process reflects input from a number of employees, including supervisors, peers and those who are junior to the employee, regarding an array of performance measures. The performance evaluations for 2022 included assessments of Teamwork and Collaboration (One GS); Compliance, Risk Management, Code of Conduct, and Firm Reputation; sensitivity to Risk and Control (revenue-producing employees); Control Side Empowerment (control functions); and Culture. As part of the performance review feedback process, managers with three or more direct reports are assessed and receive feedback on their performance as a manager.

Risk Management and Adjustment

Prudent risk management is a hallmark of the firm's culture and sensitivity to risk and risk management are key elements in assessing employee performance, including as part of the performance review feedback process noted above.

The firm takes risk, including conduct risk, into account both on an ex-ante and ex-post basis when setting the amount and form of variable remuneration for employees. As indicated in the Compensation Frameworks, different lines of business have different risk profiles and these are taken into account when determining remuneration. These include credit, market, liquidity, operational, reputational, legal, compliance and conduct risks. Guidelines are provided to assist compensation managers when exercising discretion during the remuneration process to promote appropriate consideration of the different risks presented by the firm's businesses. Further, to ensure the independence of control function employees, remuneration for those employees is not determined by individuals in revenue-producing positions but rather by the management of the relevant control function.

Consistent with prior years, for 2022 certain employees receive a portion of their variable remuneration as a share-based award that is subject to a number of terms and conditions that could result in forfeiture or recapture. For further details, see "Structure of Remuneration" below.

In the 2022 annual compensation-related risk assessment presented to the Compensation Committee, meeting jointly with the Risk Committee of the Group Board, GS Group's CRO confirmed that the various components of the firm's remuneration programmes and policies (for example, process, structure and governance) balanced risk and incentives in a manner that does not encourage imprudent risk-taking. In addition, the CRO stated that the firm has a risk management process that, among other things, is consistent with the safety and soundness of the firm and focuses on our:

(i) Risk management culture: the firm's culture emphasises continuous and prudent risk management

(ii) Risk-taking authority: there is a formal process for identifying employees who, individually or as part of a group, have the ability to expose the firm to material amounts of risk

(iii) Upfront risk management: the firm has tight controls on the allocation, utilisation and overall management of risk-taking, as well as comprehensive profit and loss and other management information which provide ongoing performance feedback. In addition, in determining variable remuneration, the firm reviews performance metrics that incorporate ex-ante risk adjustments; and

(iv) Governance: the oversight of the Group Board, management structure and the associated processes all contribute to a strong control environment and control functions have input into remuneration structure and design

Structure of Remuneration

In accordance with a resolution of the shareholders of GSBE, the variable component of remuneration paid to GSBE employees and to the Executive Board shall not exceed 200% of the fixed component (for control function employees, the variable component shall not exceed 50% of the fixed component). The resolution concluded that the variable remuneration ratio does not incentivise inappropriate risk taking and is consistent with the prudential management of fixed remuneration.

Employees who meet the criteria set out in Commission Delegated Regulation (EU) 2021/923 ("Risk Taker Regulation") and all Supervisory Board and Executive Board members have been identified as Material Risk Takers.

Fixed Remuneration

The firm has a global salary approach to ensure consistency in salary levels and to achieve an appropriate balance between fixed and variable remuneration.

For certain employees additional fixed remuneration is awarded in the form of an allowance generally paid in cash. The selection of recipients and the value of allowances awarded are determined as a result of an evaluation, role and level of organisational responsibility.

Variable Remuneration

For employees with total remuneration and variable remuneration above specific thresholds, variable remuneration is generally paid in a combination of cash and share-based remuneration. In general, the portion paid in the form of a share-based award increases as variable remuneration increases and, for Material Risk Takers, is set to ensure compliance with the KWG, IVV and EBA Guidelines.

The variable remuneration programme is flexible to allow the firm to respond to changes in market conditions and to maintain its pay-for-performance approach. Variable remuneration is discretionary (even if paid consistently over a period of years).

Share-Based Remuneration

The firm believes that remuneration should encourage a long-term, firmwide approach to performance and discourage imprudent risk-taking. Paying a significant portion of variable remuneration in the form of share-based remuneration that delivers over time, changes in value according to the price of shares of common stock (shares) of GS Group, and is subject to forfeiture or recapture encourages a long-term, firmwide focus because its value is realised through long-term responsible behaviour and the financial performance of the firm.

The firm imposes transfer restrictions, retention requirements, and anti-hedging policies to further align the interests of the firm's employees with those of the firm's shareholders. The firm's retention and transfer restriction policies, coupled with the practice of paying senior employees a significant portion of variable remuneration in the form of share-based awards, leads to a considerable investment in shares of GS Group over time. For share-based awards granted to certain employees, performance conditions may also be applicable.

- **Deferral Policy**: The deferred portion of fiscal year 2022 annual variable remuneration was generally awarded in the form of Restricted Stock Units (RSUs). GS Group Inc. issues awards in the form of RSUs to the bank's employees in exchange for employee services. An RSU is an unfunded, unsecured promise to deliver a share on a predetermined date. RSUs awarded in respect of fiscal year 2022 generally deliver in three equal instalments on or about each of the first, second and third anniversaries of the grant date, assuming the employee has satisfied the terms and conditions of the award at each such date. Where required under the KWG, IVV and EBA Guidelines, RSUs awarded in respect of fiscal year 2022 for Material Risk Takers generally deliver in four equal instalments on or about each of the first, second, third and fourth anniversaries of the grant date, or, for members of GSBE Senior Management on or about each of the first, second, third, fourth and fifth anniversaries of the grant date, assuming in each case, the employee has satisfied the terms and conditions of the award at each such date.
- **Transfer Restrictions**: The firm generally requires certain individuals to hold a material portion of the shares they receive in respect of RSUs granted as part of their year-end remuneration according to the firm's global deferral table. These transfer restrictions apply to the lower of 50% of the shares delivered before reduction for tax withholding, or the number of shares received after reduction for tax withholding.

  An employee generally cannot sell, exchange, transfer, assign, pledge, hedge or otherwise dispose of any RSUs or shares that are subject to transfer restrictions.
- **Retention Requirement**: All shares delivered to employees designated as Material Risk Takers in relation to their variable remuneration are subject to retention in accordance with the requirements of the KWG, IVV and EBA Guidelines.
- **Forfeiture and Recapture Provisions:** The RSUs and shares delivered thereunder in relation to variable remuneration are subject to forfeiture or recapture if the Compensation Committee or its delegate(s) determine(s) that during 2022 the employee participated (or otherwise oversaw or was responsible for, depending on the circumstances, another individual's participation) in the structuring or marketing of any product or service, or participated on behalf of the firm or any of its clients in the purchase or sale of any security or other property, in any case without appropriate consideration of the risk to the firm or the broader financial system as a whole (for example, if the employee were to improperly analyse risk or fail sufficiently to raise concerns about such risk) and, as a result of such action or omission, the Compensation Committee or its delegate(s) determine(s) there has been, or reasonably could be expected to be, a material adverse impact on the firm, the employee's business unit or the broader financial system.

  This provision is not limited to financial risks, is in addition to the KWG and IVV requirements and is designed to encourage the consideration of the full range of risks associated with the activities (for example, legal, compliance or reputational). The provision also does not require that a material adverse impact actually occur, but rather may be triggered if the firm determines that there is a reasonable expectation of such an impact.

  The Compensation Committee previously adopted guidelines that set forth a formal process regarding determinations to forfeit or recapture awards for failure to consider risk appropriately upon the occurrence of certain pre-determined events (for example, in the event of annual firmwide, business unit and below or individual losses). The review of whether forfeiture or recapture is appropriate includes input from the CRO, as well as representatives from Legal and Compliance, as appropriate. Determinations are made by the Compensation Committee or its delegates, with any determinations made by delegates reported to the Compensation Committee.

RSUs granted to all Material Risk Takers in relation to variable remuneration are generally subject to forfeiture until delivery of the underlying shares if US bank regulators recommend the appointment of a receiver under the US Dodd-Frank Wall Street Reform and Consumer Protection Act 2010 ("Dodd-Frank") based on its determination that GS Group is "in default" or "in danger of default" as defined under Dodd-Frank or fails to maintain for 90 consecutive business days, the required "minimum tier 1 capital ratio" (as defined under Federal Reserve Board regulations).

Additionally, RSUs and shares delivered thereunder in relation to variable remuneration are generally subject to forfeiture or recapture if it is appropriate to hold a Risk Taker accountable in whole or in part for an "adjustment event" that occurred during 2022. This may include conduct which resulted in a material loss of capital or a material relevant regulatory sanction for the Firm

An employee's RSUs may also be forfeited, and shares delivered thereunder recaptured if the employee engages in conduct constituting "cause" at any time before the RSUs are delivered and any applicable transfer restrictions lapse. Cause includes, among other things, any material violation of any firm policy, any act or statement that negatively reflects on the firm's name, reputation or business interests and any conduct detrimental to the firm.

With respect to all of the forfeiture conditions, if the firm determines after delivery or release of transfer restrictions that an RSU or share delivered thereunder should have been forfeited or recaptured, the firm can require return of any shares delivered or repayment to the firm of the fair market value of the shares when delivered (including those withheld to pay taxes) or any other amounts paid or delivered in respect thereof.

- **Severance:** Except as may be required by applicable law (such as contractual notice pay), severance pay is discretionary and the severance terms for departing employees are generally agreed with employees and will depend on the circumstances of the particular case.
- **Hedging**: The firm's anti-hedging policy ensures employees maintain the intended exposure to the firm's stock performance. In particular, all employees are prohibited from hedging RSUs, shares that are subject to transfer restrictions, and, to the extent applicable, retention shares. In addition, executive officers of GS Group (as defined under the Securities Exchange Act of 1934) are prohibited from hedging any shares that they can freely sell. Employees, other than executive officers, may hedge only shares that they can otherwise sell. However, no employee may enter into uncovered hedging transactions or sell short any shares. Employees may only enter into transactions or otherwise make investment decisions with respect to shares during applicable "window periods".
- **Treatment upon Termination or Change-in-Control:** As a general matter, delivery schedules are not accelerated, and transfer restrictions are not removed, when an employee leaves the firm. The limited exceptions include death and "conflicted employment." A change in control alone is not sufficient to trigger acceleration of any deliveries or removal of transfer restrictions; only if the change in control is followed within 18 months by a termination of employment by the firm without "cause" or by the employee for "good reason" will delivery and release of transfer restrictions be accelerated.

Quantitative Disclosures

The following tables show aggregate quantitative remuneration information for 224 individuals, categorised as Material Risk Takers for the purposes of the KWG, IVV, and EBA Guidelines.

During the financial year, GSBE paid overall total remuneration of €406mn. This includes fixed remuneration totalling €282mn and variable remuneration totalling €124mn for 1,080 individuals.

A more detailed overview of the Material Risk Taker quantitative information is presented in the below tables.

Material Risk Takers are also eligible to receive certain general non-discretionary ancillary payments and benefits on a similar basis to other employees. These payments and benefits are not included in the disclosures below. All elements of remuneration are disclosed in EUR in millions, unless otherwise stated.

Table 47: EU REM1 - Remuneration awarded for the financial year

			MB Supervisory function	MB Management function	Other senior management	Other identified staff
1	Fixed remuneration	Number of identified staff	10	6	14	194
2		Total fixed remuneration	0.52	10.57	22.34	153.89
3		Of which: cash-based	0.52	10.57	22.34	153.89
4		(Not applicable in the EU)				
EU-4a		Of which: shares or equivalent ownership interests	-	-	-	-
5		Of which: share-linked instruments or equivalent non-cash instruments	-	-	-	-
EU-5x		Of which: other instruments	-	-	-	-
6		(Not applicable in the EU)				
7		Of which: other forms	-	-	-	-
8		(Not applicable in the EU)				
9	Variable remuneration	Number of identified staff	10	6	14	194
10		Total variable remuneration	-	2.86	8.99	79.01
11		Of which: cash-based	-	0.22	0.90	11.23
12		Of which: deferred	-	-	-	-
EU-13a		Of which: shares or equivalent ownership interests	-	2.64	8.09	67.78
EU-14a		Of which: deferred	-	2.43	7.25	57.55
EU-13b		Of which: share-linked instruments or equivalent non-cash instruments	-	-	-	-
EU-14b		Of which: deferred	-	-	-	-
EU-14x		Of which: other instruments	-	-	-	-
EU-14y		Of which: deferred	-	-	-	-
15		Of which: other forms	-	-	-	-
16		Of which: deferred	-	-	-	-
17	**Total remuneration (2 + 10)**		**0.52**	**13.44**	**31.33**	**232.89**

Table 48: EU REM2 - Special payments to staff whose professional activities have a material impact on institutions' risk profile (identified staff)

		MB Supervisory function	MB Management function	Other senior management	Other identified staff
	Guaranteed variable remuneration awards				
1	Guaranteed variable remuneration awards - Number of identified staff	-	-	-	-
2	Guaranteed variable remuneration awards -Total amount	-	-	-	-
3	Of which guaranteed variable remuneration awards paid during the financial year, that are not taken into account in the bonus cap	-	-	-	-
	Severance payments awarded in previous periods, that have been paid out during the financial year				
4	Severance payments awarded in previous periods, that have been paid out during the financial year - Number of identified staff	-	-	-	-
5	Severance payments awarded in previous periods, that have been paid out during the financial year - Total amount	-	-	-	-
	Severance payments awarded during the financial year				
6	Severance payments awarded during the financial year - Number of identified staff	-	-	-	-
7	Severance payments awarded during the financial year - Total amount	-	-	-	-
8	Of which paid during the financial year	-	-	-	-
9	Of which deferred	-	-	-	-
10	Of which severance payments paid during the financial year, that are not taken into account in the bonus cap	-	-	-	-
11	Of which highest payment that has been awarded to a single person	-	-	-	-

Table 49: EU REM3 - Deferred remuneration

	Deferred and retained remuneration	Total amount of deferred remuneration awarded for previous performance periods	Of which due to vest in the financial year	Of which vesting in subsequent financial years	Amount of performance adjustment made in the financial year to deferred remuneration that was due to vest in the financial year	Amount of performance adjustment made in the financial year to deferred remuneration that was due to vest in future performance years	Total amount of adjustment during the financial year due to ex post implicit adjustments (i.e.changes of value of deferred remuneration due to the changes of prices of instruments)	Total amount of deferred remuneration awarded before the financial year actually paid out in the financial year	Total of amount of deferred remuneration awarded for previous performance period that has vested but is subject to retention periods
1	**MB Supervisory function**	-	-	-	-	-	-	-	-
2	Cash-based	-	-	-	-	-	-	-	-
3	Shares or equivalent ownership interests	-	-	-	-	-	-	-	-
4	Share-linked instruments or equivalent non-cash instruments	-	-	-	-	-	-	-	-
5	Other instruments	-	-	-	-	-	-	-	-
6	Other forms	-	-	-	-	-	-	-	-
7	**MB Management function**	**9.66**	**3.00**	**6.66**	**-**	**-**	**-1.04**	**3.00**	**3.00**
8	Cash-based	-	-	-	-	-	-	-	-
9	Shares or equivalent ownership interests	9.66	3.00	6.66	-	-	-1.04	3.00	3.00
10	Share-linked instruments or equivalent non-cash instruments	-	-	-	-	-	-	-	-
11	Other instruments	-	-	-	-	-	-	-	-
12	Other forms	-	-	-	-	-	-	-	-
13	**Other senior management**	**24.58**	**5.06**	**19.52**	**-**	**-**	**-2.65**	**5.06**	**5.06**
14	Cash-based	-	-	-	-	-	-	-	-
15	Shares or equivalent ownership interests	24.58	5.06	19.52	-	-	-2.65	5.06	5.06
16	Share-linked instruments or equivalent non-cash instruments	-	-	-	-	-	-	-	-
17	Other instruments	-	-	-	-	-	-	-	-
18	Other forms	-	-	-	-	-	-	-	-
19	**Other identified staff**	**71.92**	**21.64**	**50.28**	**-**	**-**	**-7.82**	**21.64**	**21.64**
20	Cash-based	-	-	-	-	-	-	-	-
21	Shares or equivalent ownership interests	71.92	21.64	50.28	-	-	-7.82	21.64	21.64
22	Share-linked instruments or equivalent non-cash instruments	-	-	-	-	-	-	-	-
23	Other instruments	-	-	-	-	-	-	-	-
24	Other forms	-	-	-	-	-	-	-	-
25	**Total amount**	**106.16**	**29.71**	**76.45**	**-**	**-**	**-11.51**	**29.71**	**29.71**

Table 50: EU REM4 - Remuneration of 1 million EUR or more per year

	EUR	Identified staff that are high earners as set out in Article 450(i) CRR
1	1 000 000 to below 1 500 000	38
2	1 500 000 to below 2 000 000	23
3	2 000 000 to below 2 500 000	11
4	2 500 000 to below 3 000 000	11
5	3 000 000 to below 3 500 000	1
6	3 500 000 to below 4 000 000	3
7	4 000 000 to below 4 500 000	1
8	4 500 000 to below 5 000 000	0
9	5 000 000 and above	7

Table 51: EU REM5 - Information on remuneration of staff whose professional activities have a material impact on institutions' risk profile (identified staff)

		Management body remuneration			Business areas						-
		MB Supervisory function	MB Management function	Total MB	Investment banking	Retail banking	Asset management	Corporate functions	Ind. internal control functions	All other	Total
1	**Total number of identified staff**										**224**
2	Of which: members of the MB	10	6	16							
3	Of which: other senior management				6	-	2	3	3	-	
4	Of which: other identified staff				163	-	17	6	8	-	
5	**Total remuneration of identified staff**	**0.52**	**13.44**	**13.95**	**231.81**	**-**	**26.38**	**2.72**	**3.30**	**-**	
6	Of which: variable remuneration	-	2.86	2.86	72.25	-	14.40	0.86	0.49	-	
7	Of which: fixed remuneration	0.52	10.57	11.09	159.56	-	11.98	1.86	2.81	-	

Cautionary Note on Forward-Looking Statements

We have included in these disclosures, and our management may make, statements that may constitute “forward-looking statements.” Forward-looking statements are not historical facts or statements of current conditions, but instead represent only our beliefs regarding future events, many of which, by their nature, are inherently uncertain and outside our control. These statements include statements other than historical information or statements of current conditions.

It is possible that our actual results and financial condition may differ, possibly materially, from the anticipated results and financial condition indicated in these forward-looking statements. Important factors that could cause our actual results and financial condition to differ from those indicated in the forward-looking statements include, among others, those discussed in “Forecast and Opportunities Report” within “Management Report” of GSBE’s 2022 Financial Statements.

Glossary

Central Counterparty (CCP). A counterparty, such as a clearing house, that facilitates trades between counterparties.

Credit Risk. The potential for loss due to the default or deterioration in credit quality of a counterparty (e.g., an OTC derivatives counterparty or a borrower) or an issuer of securities or other instruments we hold.

Credit Valuation Adjustment (CVA). An adjustment applied to uncollateralised OTC derivatives to cover the risk of mark-to-market losses of bilateral credit risk (i.e. counterparty and own) in uncollateralised derivatives.

Default Risk. The risk of loss on a position that could result from failure of an obligor to make timely payments of principal or interest on its debt obligation, and the risk of loss that could result from bankruptcy, insolvency, or similar proceedings.

Effective Expected Positive Exposure (EEPE). The time-weighted average of non-declining positive credit exposure over the EE simulation. EEPE is used in accordance with the IMM as the exposure measure that is then risk weighted to determine counterparty risk capital requirements.

Event Risk. The risk of loss on equity or hybrid equity positions as a result of a financial event, such as the announcement or occurrence of a company merger, acquisition, spin-off, or dissolution.

Expected Exposure (EE). The expected value of the probability distribution of non-negative credit risk exposures to a counterparty at any specified future date before the maturity date of the longest term transaction in a netting set.

Exposure at Default (EAD). The exposure amount that is risk weighted for regulatory capital calculations. For on-balance-sheet assets, such as receivables and cash, EAD is generally based on the balance sheet value. For the calculation of EAD for off-balance-sheet items, including commitments and guarantees, an equivalent exposure amount is calculated based on rules-based credit conversion factors (CCF), which typically depend on whether the commitment is less than one year (20%), greater than one year (50%) or are unconditionally cancellable or that effectively provide for automatic cancellation due to deterioration in a borrower's creditworthiness (0%).

For substantially all of the counterparty credit risk arising from OTC derivatives, exchange-traded derivatives and securities financing transactions, internal models calculate the distribution of exposure upon which the EAD calculation is based.

Incremental Risk. The potential loss in value of non-securitised positions due to the default or credit migration of issuers of financial instruments over a one-year time horizon. This measure is calculated at a 99.9% confidence level over a one-year time horizon using a multi-factor model.

Internal Models Methodology (IMM). The IMM establishes a methodology for entities to use their internal models to estimate exposures arising from OTC derivatives, securities financing transactions and cleared transactions, subject to qualitative and quantitative requirements and supervisory approval.

Market Risk. The risk of loss in the value of our inventory, investments, loans and other financial assets and liabilities accounted for at fair value, due to changes in market conditions.

Operational Risk. The risk of an adverse outcome resulting from inadequate or failed internal processes, people, systems or from external events.

Other Systemically Important Institutions. Institutions identified by national regulators as those whose failure or malfunction could potentially lead to serious negative consequences for the domestic financial systems and real economy.

Prudent Valuation Adjustment (PVA). A deduction from CET1 capital where the prudent value of trading assets or other financial assets measured at fair value is materially lower than the fair value recognised in the financial information.

Regulatory Value-at-Risk (VaR). The potential loss in value of trading positions due to adverse market movements over a 10-day time horizon with a 99% confidence level.

Regulatory VaR Backtesting. Comparison of daily positional loss results to the Regulatory VaR measure calculated as of the end of the prior business day.

Resecuritisation Position. Represents an on or off-balance-sheet transaction in which the risk associated with an underlying pool of exposures is tranched and at least one of the underlying exposures is a securitisation position.

SA-CCR. Effective from June 2021, the new standardised approach to counterparty credit risk (SA-CCR) replaces the mark-to-market method to determine the exposure value for derivatives. The approach is used for the purposes of determining the exposure value for derivatives that are not in scope of the internal model method, for leverage and for large exposure purposes.

Securitisation Position. Represents a transaction or scheme in which the credit risk associated with an exposure or pool of exposures is tranched and both payments in the transaction or scheme are dependent upon the performance of the exposure or pool of exposures and the subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme.

Specific Risk. The risk of loss on a position that could result from factors other than broad market movements and includes event risk, default risk and idiosyncratic risk. The specific risk add-on is applicable for both securitisation positions and for certain non-securitised debt and equity positions, to supplement the model-based measures.

Stress Testing. Stress testing is a method of determining the effect of various hypothetical stress scenarios.

Stressed VaR (SVaR). The potential loss in value of trading assets and liabilities, as well as certain investments, loans, and other financial assets and liabilities, during a period of significant market stress. SVaR is calculated at a 99% confidence level over a 10-day horizon using market data inputs from a continuous 12-month period of stress.

Synthetic Securitisation. Defined as a securitisation transaction in which the tranching is achieved by the use of credit derivatives or guarantees, and the pool of exposures is not removed from the balance sheet of the originator.

Traditional Securitisation. Defined as a securitisation transaction which involves the economic transfer of the exposures being securitised to a securitisation special purpose entity which issues securities; and so that this must be accomplished by the transfer of ownership of the securitised exposures from the originator or through sub-participation; and the securities issued do not represent payment obligations of the originator.

Value-at-Risk (VaR). The potential loss in value of trading assets and liabilities, certain investments, loans, and other financial assets and liabilities accounted for at fair value, due to adverse market movements over a defined time horizon with a specified confidence level. Risk management VaR is calculated at a 95% confidence level over a one-day horizon.

Wholesale Exposure. A term used to refer collectively to credit exposures to companies, sovereigns or government entities (other than Securitisation, Retail or Equity exposures).

Appendix I: Scope of Consolidation Tables

Consolidated Balance Sheet under the Regulatory Scope of Consolidation

The following table provides a reconciliation of GSBE's balance sheet as of December 2022 on an accounting consolidation basis to the GSBE's balance sheet under the regulatory scope of consolidation. It also breaks down how carrying values under the scope of regulatory consolidation are allocated to the different risk frameworks laid out in Part Three of the CRR.

Table 52: EU LI1 - Differences Between Accounting and Regulatory Scopes of Consolidation and Mapping of Financial Statement Categories with Regulatory Risk Categories

Carrying values under the scope of regulatory consolidation shown in the third column below may not be the sum of the carrying values shown in the remaining columns as some items are subject to capital requirements in one or more risk frameworks.

€ in millions							As of December 2022
			Carrying values of items:				
	Carrying values as reported in published financial statements	**Carrying values under scope of prudential consolidation**	**Subject to the credit risk framework**	**Subject to the CCR framework**	**Subject to the securitisation framework**	**Subject to the market risk framework**	**Not subject to capital requirements or subject to deduction from capital**
Assets							
Cash and cash equivalents	€ 12,642	€ 12,642	€ 12,642	-	-	-	-
Collateralised agreements	12,985	12,985	-	12,985	-	-	-
Customer and other receivables	22,378	22,378	3,165	19,213	-	-	-
Trading Assets	190132	190132	-	184,303	-	190,132	-
Investments	-	-	-	-	-	-	-
Loans	1,210	1,210	1,155	-	54	-	-
Other assets	756	756	781	-	-	-	31
Total assets	**€ 240,103**	**€ 240,103**	**€ 17,742**	**€ 216,502**	**€ 54**	**€ 190,132**	**€ 31**
Liabilities							
Collateralised financings	€ 7,830	€ 7,830	-	€ 7,830	-	-	-
Customer and other payables	18,731	18,731	-	13,796	-	-	4,935
Trading liabilities	190,180	190,180	-	183,574	-	190,180	-
Deposits	6764	6764	-	-	-	-	6,764
Unsecured borrowings	6506	6506	-	-	-	-	6,506
Other liabilities	1,063	1,063	-	-	-	-	1,063
Total liabilities	**€ 231,075**	**€ 231,075**	**-**	**€ 205,201**	**-**	**€ 190,180**	**€ 19,268**

Regulatory Balance Sheet Assets Reconciliation to Exposure at Default (EAD)

The following table presents a reconciliation of the consolidated regulatory balance sheet to EAD for items subject to credit risk, CCR and securitisation frameworks.

Table 53: EU LI2 - Main Sources of Differences Between Regulatory Exposures Amounts and Carrying Values in IFRS Financial Information

€ in millions As of December 2022

		a	b	c	d	e
		Total	Items subject to			
			Credit risk framework	Securitisation framework	CCR framework	Market risk framework
1	**Assets carrying value amount under the scope of prudential consolidation (as per template LI1)**	**€ 424,431**	**€ 17,742**	**€ 54**	**€ 216,502**	**€ 190,132**
2	Liabilities carrying value amount under the scope of prudential consolidation (as per template LI1)	(395,382)	-	-	(205,201)	(190,180)
3	Total net amount under the scope of prudential consolidation	29,049	17,742	54	11,300	(48)
4	Off-balance-sheet amounts	5,930	5,930	-	-	
5	*Differences in valuations*					
6	*Differences due to different netting rules, other than those already included in row 2*					
7	*Differences due to consideration of provisions*					
8	*Differences due to the use of credit risk mitigation techniques (CRMs)*					
9	*Differences due to credit conversion factors*	(2,862)	(2,862)	-	-	
10	*Differences due to Securitisation with risk transfer*					
11	***Other differences*	4,420	(2,116)	-	6,535	
12	**Exposure amounts considered for regulatory purposes**	**€ 36,585**	**€ 18,695**	**€ 54**	**€ 17,836**	*

**Exposure amounts considered for regulatory purposes under row 12 in the table above are not disclosed for market risk framework given exposure amounts are more relevant for credit, counterparty credit and securitisation frameworks..*
***Other differences mainly contains difference due to netting of collateral, haircut and EAD modelling.*

Off-balance sheet amounts in row 4 above are stated gross and primarily consist of undrawn committed facilities and guarantees.

Explanations of differences between accounting and regulatory exposure amounts

The carrying value of assets is usually measured at amortised cost or fair value as at the balance sheet date. For on-balance-sheet assets, such as receivables and cash, the EAD is generally based on the carrying value. For the calculation of EAD for off-balance-sheet exposures, including commitments and guarantees, a credit equivalent exposure amount is calculated based on the notional amount of each transaction multiplied by a credit conversion factor in accordance with Article 166 of CRR.

As GSBE calculates the majority of its credit exposure under the IMM, the impacts of netting and collateral are integral to the calculation of the exposure. The exposures considered for regulatory purposes are presented on a net and collateralised basis where there is a legally enforceable netting and collateral opinion. Under IFRS, netting is permitted if legal right of set-off exists and the cash flows are intended to be settled on a net basis.

Table 54: EU CC2 - Reconciliation of regulatory own funds to balance sheet in the audited financial statements

Following table represents balance sheet as in published consolidated IFRS Financial Information prepared in accordance with the applicable accounting framework and under regulatory scope of consolidation. There are no differences in consolidation methodology under the accounting and regulatory frameworks.

		a	b	c
		Balance sheet as in published IFRS Financial Information	**Under regulatory scope of consolidation**	**Reference**
	€ in millions	**As at period end**	**As at period end**	
	Assets - *Breakdown by asset classes according to the balance sheet in the published financial statements*			
1	Cash and cash equivalents	€ 12,642	€ 12,642	GSBE FY 2022 IFRS Financial Information
2	Collateralised agreements	€ 12,985	€ 12,985	"
3	Customer and other receivables	€ 22,378	€ 22,378	"
4	Trading assets	€ 190,132	€ 190,132	"
5	Investments	€ -	€ -	"
6	Loans	€ 1,210	€ 1,210	"
7	Other assets	€ 756	€ 756	"
	Total assets	**€ 240,103**	**€ 240,103**	"
	Liabilities - *Breakdown by liability classes according to the balance sheet in the published financial statements*			
8	Collateralised financings	€ 7,830	€ 7,830	GSBE FY 2022 IFRS Financial Information
9	Customer and other payables	€ 18,731	€ 18,731	"
10	Trading liabilities	€ 190,180	€ 190,180	"
11	Deposits	€ 6,764	€ 6,764	"
12	Unsecured borrowings	€ 6,506	€ 6,506	"
13	Other liabilities	€ 1,063	€ 1,063	"
	Total liabilities	**€ 231,075**	**€ 231,075**	"
	Shareholders' Equity			
14	Share capital	€ 329	€ 329	GSBE FY 2022 IFRS Financial Information
15	Share premium account	€ 26	€ 26	"
16	Other equity instruments	€ 7,316	€ 7,316	"
17	Retained earnings	€ 1,351	€ 1,351	"
18	Accumulated other comprehensive income	€ 6	€ 6	"
	Total shareholders' equity	**€ 9,028**	**€ 9,028**	"

Table 55: EU PV1: Prudent valuation adjustments (PVA)

€ in millions — As of December 2022

	a	b	c	d	e	EU e1	EU e2	f	g	h
	Risk category					**Category level AVA - Valuation uncertainty**		**Total category level post-diversification**		
Category level AVA	**Equity**	**Interest Rates**	**Foreign exchange**	**Credit**	**Commodities**	**Unearned credit spreads AVA**	**Investment and funding costs AVA**		**Of which: Total core approach in the trading book**	**Of which: Total core approach in the banking book**
Market price uncertainty	6	13	0	20	0	3	8	26	18	8
Not applicable										
Close-out cost	9	0	0	2	0	0	0	6	6	0
Concentrated positions	0	0	0	2	0	NA	NA	2	2	0
Early termination	0	0	0	0	0	NA	NA	0	0	0
Model risk	0	0	0	0	0	65	0	32	32	0
Operational risk	1	1	0	1	0	NA	NA	3	2	0
Not applicable										
Not applicable										
Future administrative costs	0	0	0	0	0	NA	NA	0	0	0
Not applicable										
Total Additional Valuation Adjustments (AVAs)	-	-	-	-	-	-	-	**€ 69**	**€ 60**	**€ 8**

Appendix II: Credit Risk Tables

The following tables present GSBE's credit risk exposures by exposure classes and by CCF and CRM impacts, by risk weights and by maturity respectively as of December 2022.

Table 56: EU CR4 - Standardised Approach - Credit Risk Exposure and CRM Effects

€ in millions — As of December 2022

		Exposures before CCF and CRM		Exposures post CCF and CRM		RWEAs and RWEA density	
	Exposure classes	**On-balance-sheet amount**	**Off-balance-sheet amount**	**On-balance-sheet amount**	**Off-balance-sheet amount**	**RWEA**	**RWEA density**
1	Central governments or central banks	12,534	-	12,534	-	242	1.93%
2	Regional government or local authorities	0	-	0	-	-	-
3	Public sector entities	10	-	10	-	-	-
4	Multilateral development banks	-	-	-	-	-	-
5	International organisations	1	-	1	-	-	-
6	Institutions	806	80	806	255	256	24.14%
7	Corporates	3,708	5,789	2,147	2,604	4,787	100.77%
8	Retail	-	-	-	-	-	-
9	Secured by mortgages on immovable property	334	62	-	-	-	-
10	Exposures in default	10	-	-	-	-	-
11	Exposures associated with particularly high risk	-	-	-	-	-	-
12	Covered bonds	-	-	-	-	-	-
13	Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-
14	Collective investment undertakings	-	-	-	-	-	-
15	Equity	2	-	2	-	5	223.49%
16	Other items	336	-	336	-	336	100.00%
17	**TOTAL**	**€ 17,742**	**€ 5,930**	**€ 15,836**	**€ 2,859**	**€ 5,627**	**30.10%**

Total Credit RWA increased by €1.5bn over the course of 2022 mainly due to increase in lending activity (+€1.0bn) and Other receivables (+€0.4bn).

Table 57: EU CR5 - Standardised Approach

€ in millions As of December 2022

	Exposure classes	Risk weight															Total	Of which unrated
		0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others		
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
1	Central governments or central banks	12,437	-	-	-	-	-	-	-	-	0	-	97	-	-	-	12,534	-
2	Regional government or local authorities	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-
3	Public sector entities	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	0
4	Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	International organisations	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
6	Institutions	43	166	-	-	588	-	264	-	-	-	-	-	-	0	-	1,061	-
7	Corporates	-	-	-	-	152	-	525	-	-	3,738	313	-	-	23	-	4,751	2,421
8	Retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Exposures in default	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Institutions and corporates with a short-term cred	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Unit or shares in collective investment undertakin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Equity	-	-	-	-	-	-	-	-	-	0	-	2	-	-	-	2	2
16	Other items	-	-	-	-	-	-	-	-	-	336	-	-	-	-	-	336	336
17	**TOTAL**	**12,491**	**166**	**-**	**-**	**740**	**-**	**789**	**-**	**-**	**4,075**	**313**	**99**	**-**	**23**	**-**	**18,695**	**2,759**

Table 58: EU CR1-A - Maturity of Exposures

€ in millions As of December 2022

		a	b	c	d	e	f
		Net exposure value					
		On demand	**<= 1 year**	**> 1 year <= 5 years**	**> 5 years**	**No stated maturity**	**Total**
1	Loans and advances	30,961	4,744	1,166	111	-	36,982
2	Debt securities	-	-	-	-	-	-
3	***Total***	**€ 30,961**	**€ 4,744**	**€ 1,166**	**€ 111**	**-**	**€ 36,982**

Appendix III: Counterparty Credit Risk Tables

Table 59: EU CCR3 - Standardised approach – CCR exposures by regulatory exposure class and risk weights

In Millions € As of December 2022

Exposure classes		Risk weight											
		a	b	c	d	e	f	g	h	i	j	k	l
		0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	Other	Total exposure
1	Central governments or central banks	245	-	-	-	-	-	-	-	3	-	-	248
2	Regional government or local authorities	309	-	-	-	-	-	-	-	-	-	-	309
3	Public sector entities	316	-	-	-	4	-	-	-	-	-	-	319
4	Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-
5	International organisations	31	-	-	-	-	-	-	-	-	-	-	31
6	Institutions	-	1.925	-	-	1.905	1.378	-	-	64	6	-	5.278
7	Corporates	-	-	-	-	143	4.306	-	-	7.135	66	-	11.650
8	Retail	-	-	-	-	-	-	-	-	-	-	-	-
9	Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-
10	Other items	-	-	-	-	-	-	-	-	-	-	-	-
11	**Total exposure value**	901	1.925	-	-	2.051	5.685	-	-	7.202	72	-	17.836

Table 60: EU CCR5 - Composition of Collateral for CCR Exposures

€ in millions									As of December 2022
		Collateral used in derivative transactions				**Collateral used in SFTs**			
		Fair value of collateral received		**Fair value of posted collateral**		**Fair value of collateral received**		**Fair value of posted collateral**	
	Collateral type	**Segregated**	**Unsegregated**	**Segregated**	**Unsegregated**	**Segregated**	**Unsegregated**	**Segregated**	**Unsegregated**
1	Cash – domestic currency	€ 1,227	€ 12,281	€ 47	€ 10,814	-	€ 244	-	€ 1
2	Cash – other currencies	€ 165	€ 5,227	€ 224	€ 14,830	-	€ 294	-	€ 0
3	Domestic sovereign debt	€ 230	€ 3,349	€ 214	€ 366	-	€ 7,464	-	€ 6,257
4	Other sovereign debt	€ 1,855	€ 2,190	€ 1,397	€ 1,450	-	€ 17,085	-	€ 14,469
5	Government agency debt	-	-	-	-	-	-	-	-
6	Corporate bonds	€ 162	-	-	-	-	€ 560	-	€ 753
7	Equity securities	€ 299	-	-	-	-	€ 2,626	-	€ 1,873
8	Other collateral	€ 1	-	-	-	-	€ 905	-	€ 691
9	**Total**	**€ 3,940**	**€ 23,047**	**€ 1,883**	**€ 27,460**	**-**	**€ 29,177**	**-**	**€ 24,045**

Appendix IV: Past Due Exposures, Impaired Exposures and Impairment Provisions Tables

Table 61: EU CR1 - Performing and non-performing exposures and related provisions

€ millions — As of December 2022

		Gross carrying amount/nominal amount						Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions						Accumulated partial write-off	Collateral and financial guarantees received	
		Performing exposures			Non-performing exposures			Performing exposures – accumulated impairment and provisions			Non-performing exposures – accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions				On performing exposures	On non-performing exposures
			Of which stage 1	Of which stage 2		Of which stage 2	Of which stage 3		Of which stage 1	Of which stage 2		Of which stage 2	Of which stage 3			
1	**Cash balances at central banks and other demand deposits**	**€ 12,642**	**€ 12,642**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2	**Loans and advances**	**36,982**	**25,977**	**482**	**-**	**-**	**-**	**(25)**	**(10)**	**(15)**	**-**	**-**	**-**	**-**	**13,881**	**-**
3	Central banks	170	1	-	-	-	-	-	-	-	-	-	-	-	170	-
4	General governments	600	600	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Credit institutions	10,360	4,087	-	-	-	-	(0)	(0)	-	-	-	-	-	6,245	-
6	Other financial corporations	24,324	20,258	14	-	-	-	(2)	(2)	(0)	-	-	-	-	7,172	-
7	Non-financial corporations	1,328	831	467	-	-	-	(22)	(8)	(15)	-	-	-	-	116	-
8	Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Households	200	200	-	-	-	-	-	-	-	-	-	-	-	179	-
10	**Debt securities**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
11	Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	**Off-balance-sheet exposures**	**5,046**	**4,850**	**197**	**-**	**-**	**-**	**16**	**13**	**3**	**-**	**-**	**-**	**-**	**-**	**-**
17	Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Credit institutions	80	80	-	-	-	-	0	0	-	-	-	-	-	-	-
20	Other financial corporations	473	473	-	-	-	-	1	1	-	-	-	-	-	-	-
21	Non-financial corporations	4,493	4,297	197	-	-	-	15	12	3	-	-	-		-	-
22	Households	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	**Total**	**€ 54,670**	**€ 43,468**	**678**				**(9)**	**3**	**(12)**					**€ 13,881**	

Table 62: EU CQ3 - Credit quality of performing and non-performing exposures by past due days

€ millions | As of December 2022

		Gross carrying amount / Nominal amount											
		Performing exposures			Non-performing exposures								
			Not past due or Past due <= 30 days	Past due > 30 days <= 90 days		Unlikely to pay that are not past-due or past-due <= 90 days	Past due > 90 days <= 180 days	Past due > 180 days <= 1 year	Past due > 1 year <= 2 years	Past due > 2 year <= 5 years	Past due > 5 year <= 7 years	Past due > 7 years	Of which default-ed
005	**Cash balances at central banks and other demand deposits**	**€ 12,642**	**€ 12,642**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
010	**Loans and advances**	**36,982**	**36,982**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
020	Central banks	170	170	-	-	-	-	-	-	-	-	-	-
030	General governments	600	600	-	-	-	-	-	-	-	-	-	-
040	Credit institutions	10,360	10,360	-	-	-	-	-	-	-	-	-	-
050	Other financial corporations	24,324	24,324	-	-	-	-	-	-	-	-	-	-
060	Non-financial corporations	1,328	1,328	-	-	-	-	-	-	-	-	-	-
070	Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-
080	Households	200	200	-	-	-	-	-	-	-	-	-	-
090	**Debt Securities**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
100	Central banks	-	-	-	-	-	-	-	-	-	-	-	-
110	General governments	-	-	-	-	-	-	-	-	-	-	-	-
120	Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-
130	Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
140	Non-financial corporations	-	-		-								-
150	**Off-balance sheet exposures**	**5,046**	**-**		**-**								**-**
160	Central banks	-	-		-								-
170	General governments	-	-		-								-
180	Credit institutions	80	-		-								-
190	Other financial corporations	473	-		-								-
200	Non-financial corporations	4,493	-		-								-
210	Households	-	-		-								-
220	**Total**	**€ 54,670**	**€ 49,624**		-	-	-	-	-	-	-	-	-

Table 63: EU CQ4 - Quality of non-performing exposures by geography

€ millions — As of December 2022

		a	b	c	d	e	f	g
		Gross carrying/Nominal amount				Accumulated impairment	Provisions on off-balance sheet commitments and financial guarantee given	Accumulated negative changes in fair value due to credit risk on non-performing exposures
			of which: non-performing		of which: subject to impairment			
				of which: defaulted				
010	**On balance sheet exposure**	**36,982**		-		**(25)**	**-**	-
020	Country GB	14,810		-		(3)		-
030	Country US	9,981		-		(1)		-
040	Country DE	3,745		-		(1)		-
050	Country FR	2,887		-		(7)		-
060	Country NL	1,477		-		(1)		-
070	Other countries	4,083		-		(13)		-
080	**Off balance sheet exposures**	**5,046**		-			**(16)**	
090	Country FR	2,112		-			(3)	
100	Country NL	622		-			(2)	
110	Country DE	511		-			(2)	
120	Country IT	454		-			(4)	
130	Country SE	366		-			(1)	
140	Other countries	981		-			(5)	
150	**Total**	**€ 42,028**		-		**€ (25)**	**€ (16)**	-

Higher of top 5 countries or countries representing greater than 50% of total exposure have been specifically reported in the table above.

Table 64: EU CQ5 - Credit quality of loans and advances to non-financial corporations by industry

€ millions — As of December 2022

		a	b	c	d	e	f
		Gross carrying amount				Accumulated impairment	Accumulated negative changes in fair value due to credit risk on non-performing exposures
			Of which non-performing		Of which loans and advances subject to impairment		
				Of which defaulted			
010	Agriculture, forestry and fishing	-		-		-	-
020	Mining and quarrying	0		-		-	-
030	Manufacturing	270		-		(9)	-
040	Electricity, gas, steam and air conditioning supply	128		-		(0)	-
050	Water supply	1		-		(0)	-
060	Construction	26		-		(0)	-
070	Wholesale and retail trade	55		-		(1)	-
080	Transport and storage	411		-		(6)	-
090	Accommodation and food service activities	0		-		-	-
100	Information and communication	103		-		(1)	-
110	Financial and insurance activities	0		-		-	-
120	Real estate activities	22		-		(0)	-
130	Professional, scientific and technical activities	188		-		(3)	-
140	Administrative and support service activities	66		-		(1)	-
150	Public administration and defence, compulsory social security	-		-		-	-
160	Education	-		-		-	-
170	Human health services and social work activities	33		-		(0)	-
180	Arts, entertainment and recreation	0		-		-	-
190	Other services	25		-		-	-
200	***Total***	**€ 1,328**		**-**		**€ (22)**	**-**

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[1] These templates have not been disclosed as GSBE has no reportable values
[2] These templates have not been disclosed as GSBE does not have permission to use IRB
[3] These templates have not been disclosed pursuant to guidance on disclosure as per EBA/GL/2018/06 and pursuant to Article 8 of Commission Implementing Regulation (EU) 2021/637
[4] Information pertaining to this template has been disclosed within the Basis of Consolidation section of the document
[5] These templates have not been disclosed as GSBE has not met the criteria for applicability of a resolution entity

Templates disclosed in this document are according to Implementing Technical Standards on institutions' public disclosures of the information referred to in Titles II and III of Part Eight of CRR.