Goldman Sachs Bank Europe SE

Pillar 3 Disclosures

For the period ended December 31, 2021

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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 market making in debt and equity securities and derivatives, financial advisory services, underwriting, asset and wealth management services, deposit-taking and lending (including securities lending) and is a primary dealer for government bonds issued by E.U. sovereigns. 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, Copenhagen, Dublin, London, Luxembourg, Madrid, Milan, Paris, Stockholm and Warsaw. On July 1, 2021, the bank became 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 is registered with the commercial register number HRB 114190.

The bank is supervised by the European Central Bank (ECB) within the context of the European Single Supervisory Mechanism, the Federal Financial Supervisory Authority (BaFin) and the Deutsche Bundesbank.

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 Federal Reserve System (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.

As a result of the U.K.'s withdrawal from the E.U. (Brexit) and in connection with GS Group's Brexit strategy, certain activities have moved from GS Group's U.K. entities to the bank. For example, GS Group has moved a significant number of relationships with E.U.-based clients of its Investment Banking, FICC, Equities, and Investment Management businesses to the bank; established access for the bank to exchanges, clearing houses and depositories and other market infrastructure in the E.U.; established branches of the bank in several E.U. member states and in the U.K; and strengthened the capital, personnel and other resources of the bank. This transition of activities has been the primary driver for the significant increase in the bank's risk weighted assets and leverage exposures in comparison to prior period.

The capital requirements are expressed as risk-based capital and leverage ratios that compare measures of regulatory capital to risk-weighted assets (RWAs), average assets and off-balance-sheet exposures. Failure to comply with these capital requirements could result in restrictions being imposed by our regulators and could limit our 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.

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, 2021 have been prepared in accordance with the EBA Guidelines on disclosure requirements under Part Eight of the CRR.

All references to December 2021 and December 2020 refer to the dates, as the context requires, December 31, 2021 and December 31, 2020, 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.

Pillar 3 disclosures have been published both in English and German languages. Information on GSBE's 2021 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 2021, 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 "2021 Form 10-K" are to the firm's Annual Report on Form 10-K for the year ended December 2021.

https://www.goldmansachs.com/investor-relations/financials/other-information/2021/4q-pillar3-2021.pdf

https://www.goldmansachs.com/investor-relations/financials/current/annual-reports/2021-annual-report/multimedia/annual-report-2021.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 IFRS Financial Information, and may not be comparable to similar measures used by other companies.

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. However, the subsidiaries are consolidated according to the equity method in the IFRS Financial Information and no fair values are disclosed separately.

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 2021 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. A transfer of funds between GSBE and its subsidiaries is considered immaterial and therefore we don't elaborate on this further.

For information regarding the capital adequacy of GSBE, see "Risk Report - Capital Adequacy" within "Management Report" of GSBE's 2021 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 2021 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. Minimum capital ratios set out in Table 2 within "Capital Framework" section are higher as they include the impact of additional regulatory requirements and buffers.

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. Financial liabilities held for trading include trading liabilities, which consists of trading cash instruments and derivative instruments.

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 2021 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 fair value that addresses the same source of valuation uncertainty. During 2021 the bank moved from applying the Simplified Approach to applying the Core Approach for the determination of Additional Valuation Adjustment (AVA) under Article 105 of CRR. For more details on category level AVAs, see table EU PV1 of Appendix I of this document.

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 we hold.

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. The expectation is that the principal impact from regulatory reform for the bank may lead to increased regulatory capital requirements and increased regulation and restriction on certain activities. However, 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. In December 2017, 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 revised 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. The Basel Committee has proposed that national regulators implement these standards beginning January 1, 2023, and that the new floor be phased in through January 1, 2028.

The Basel Committee's standards are not effective in any jurisdiction until rules implementing such standards have been implemented by the relevant authorities in such jurisdiction.

In June 2019, amendments to the CRR and CRD were published in the Official Journal of the E.U. The amendments to the CRR include 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, exposures to central counterparties, exposures to collective investment undertakings, large exposures, and reporting and disclosure requirements. Most of these requirements applied from June 28, 2021 in the E.U.. The amendments to the CRD include the requirement to establish an E.U. intermediate parent undertaking ("IPU") as well as provisions on remuneration, interest rate risk management, supervisory powers and macro-prudential capital requirements. The amendments to the CRD are expected to phase in over time.

In October 2021, the European Commission further published a proposed legislative package to amend to CRR and CRD to finalise the implementation of Basel III, which is expected to be finalised in 2023.

The impact of these latest Basel Committee developments on the bank (including its RWAs and regulatory capital ratios) is subject to uncertainty until corresponding legislation is implemented.

Minimum Requirements for Own Funds and Eligible Liabilities. In May 2021, the Single Resolution Board (SRB) published a statement of policy on minimum requirement for MREL under the revised Banking Package. The SRB policy requires material subsidiaries of banking groups to meet a minimum internal MREL requirement to facilitate the transfer of losses to its resolution entity, which for GSBE is Group Inc.

In July 2021 the SRB provided guidance on GSBE's internal MREL requirement which will become fully effective on January 1, 2024. The SRB requires GSBE to ensure a linear build up of MREL ahead of this date.

The CRR and the Bank Recovery and Resolution Directive are designed to, among other things, implement the Financial Stability Board's (FSB) minimum Total Loss Absorbing Capacity ("TLAC") requirement for G-SIBs. For example, the CRR requires E.U. subsidiaries of a non-E.U. G-SIB to meet internal TLAC requirements if they exceed the threshold of 5% of the G-SIB's RWAs, operating income or leverage exposure.

In the first quarter of 2022, GSBE exceeded this threshold and is thereby required to meet 90% of the TLAC requirement applicable to E.U. G-SIBs. GSBE satisfies this requirement through its regulatory capital and MREL eligible debt from intercompany borrowings.

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

Other Developments

COVID-19 Pandemic. In 2021, the global economy continued to recover from the impact of the coronavirus (COVID-19) pandemic, as the distribution of vaccines helped facilitate an increase in global economic activity. Economic activity continued to benefit from ongoing fiscal stimulus from governments and continued accommodative monetary policy from global central banks. In the second half of the year, the growth in economic activity and demand for goods and services, alongside supply chain complications, contributed to inflationary pressures. Late in the year, the surge in Omicron cases sparked renewed concerns globally, contributing to increased market volatility and increased pressures on labour supply. This may result in a negative impact on economic activity.

Despite broad improvements in the overall economy since the initial impact of the COVID-19 pandemic, uncertainty remains on the pace of the recovery going forward, reflecting concerns about virus resurgence from the Omicron variant and other possible variants and related concerns regarding vaccine distribution, efficacy and hesitancy, as well as concerns relating to inflation, supply chain complications and geopolitical risks.

As at the time of publication, there continues to be uncertainty regarding the impact of the COVID-19 on the bank's operational and financial performance. The extent of the impact will depend on future developments including the duration of the pandemic and potential future variants.

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. In addition, 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. Russia has imposed its own restrictions against investors and countries outside Russia and has proposed additional measures aimed at non-Russian-owned businesses. Businesses have experienced 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 or other hostilities presents heightened risks relating to cyber attacks, the frequency and volume of failures to settle securities transactions, supply chain disruptions, inflation, as well as the potential for increased volatility in commodity, currency and other financial markets. 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.

In response, the bank continues to proactively manage its market risk and credit risk exposures, including to Russia and Ukraine, while focusing on servicing its clients and supporting its employees. The bank's credit and market exposure to Russia and Ukraine as of December 2021 and at the time of publication was immaterial.

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, 2021, 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 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 Corporate Treasury, Engineering, Human Capital Management, Operations, and Corporate and Workplace Solutions that directly report to the bank's Chief Operating Officer (COO) and 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, Tax, and Controllers that directly report to the bank's CFO and COO; Credit Risk, Liquidity Risk, Market Risk, Model Risk Management, Operational Risk, Enterprise Risk, 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.

Michael Holmes joined the Executive Board as the CFO in May 2022 and since this date the bank's Controllers, Treasury and Tax functions have directly reported to the CFO while the other functions mentioned above continue to directly report to the COO.

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. The bank also recognises that climate change is an emerging risk that presents both challenges and opportunities for its business. Risk management functions continue to develop the bank's approach to identify and manage the risks to its assets and counterparties arising from climate change.

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" and "Model 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 adequacy as part of the bank's capital planning process.

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 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 and model 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 integral 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 2021 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 derivatives 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 and limits 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 2021 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 2021, June 2021 and December 2020. December 2021 and December 2020, 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

	€ in millions	As of December 2021	As of June 2021	As of December 2020
	Available own funds (amounts)			
1	Common Equity Tier 1 (CET1) capital	5,732	5,296	3,264
2	Tier 1 capital	5,732	5,296	3,264
3	Total capital	5,752	5,316	3,284
	Risk-weighted exposure amounts			
4	Total risk-weighted exposure amount	25,402	19,861	9,515
	Capital ratios (as a percentage of risk-weighted exposure amount)			
5	Common Equity Tier 1 ratio (%)	22.6%	26.7%	34.3%
6	Tier 1 ratio (%)	22.6%	26.7%	34.3%
7	Total capital ratio (%)	22.6%	26.8%	34.5%
	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%
EU 7b	of which: to be made up of CET1 capital (percentage points)	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%
EU 7d	Total SREP own funds requirements (%)	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%
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%
9	Institution specific countercyclical capital buffer (%)	0.0%	0.0%	0.0%
EU 9a	Systemic risk buffer (%)	0.0%	0.0%	0.0%
10	Global Systemically Important Institution buffer (%)	0.0%	0.0%	0.0%
EU 10a	Other Systemically Important Institution buffer	0.0%	0.0%	0.0%
11	Combined buffer requirement (%)	2.5%	2.5%	2.5%
EU 11a	Overall capital requirements (%)	13.5%	13.5%	13.5%
12	CET1 available after meeting the total SREP own funds requirements *	2,958	3,132	2,238
	Leverage ratio			
13	Leverage ratio total exposure measure	75,838	52,768	31,712
14	Leverage ratio %	7.6%	10.0%	n/a
	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%	n/a
EU 14b	of which: to be made up of CET1 capital (percentage points)	0.0%	0.0%	n/a
EU 14c	Total SREP leverage ratio requirements (%)	3.0%	3.1%	n/a
	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%	n/a
EU 14e	Overall leverage ratio requirements (%)	3.0%	3.1%	n/a

	Liquidity Coverage Ratio			
15	Total high-quality liquid assets (HQLA) (Weighted value - average)	11,734	5,516	2,382
EU 16a	Cash outflows - Total weighted value	11,894	7,173	n/a
EU 16b	Cash inflows - Total weighted value	6,219	3,916	n/a
16	Total net cash outflows (adjusted value)	5,675	3,284	1,067
17	Liquidity coverage ratio (%)	202.0%**	195.4%	240.0%
	Net Stable Funding Ratio* **			
18	Total available stable funding	28,337	13,369	n/a
19	Total required stable funding	16,224	7,660	n/a
20	NSFR ratio (%)	174.7%	174.5%	n/a

* Current and prior period values have been restated to reflect final reporting form
** LCR as of December 2021 has been updated from 209% to 202% to reflect the revised treatment of certain liquidity and credit facilities
*** NSFR details as at 30 September 2021 were as follows, Available Stable Funding €17,733, Required Stable Funding €11,648 and the NSFR ratio 152.2%. More details can be found in the Liquidity Risk Management Section

In the table above, ratios that are not binding as of December 2020 are represented as n/a. For more details on individual components in the table above, see the respective sections covered in this document.

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 our 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 2021, the buffer increases the minimum CET1 ratio by 0.04%.
- 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 indicates 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, effective from January 1, 2021 onwards, has been set by the ECB to 3.0% of which 1.69% have to be held in CET1 capital. The P2R capital add-on remained at 3.0% for 2022.

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 (O-SIIs), may be subject to additional capital ratio requirements, according to their degree of systemic importance (O-SII buffers). In 2021, 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.

Minimum Regulatory Capital Ratios

The following table presents GSBE's minimum required ratios as of December 2021.

Table 2: Minimum Regulatory Capital Ratios

	As of December 2021
	Minimum ratio
CET1 ratio	8.7%
Tier 1 capital ratio	10.8%
Total capital ratio	13.5%

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 2021, 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 and countercyclical capital buffer.

Regulatory Capital

Overview

The following table presents a breakdown of GSBE's capital ratios under CRR as of December 2021.

Table 3: Regulatory Capital Ratios

€ in millions	As of December 2021
CET1 Capital	€ 5,732
Tier 1 Capital	5,732
Tier 2 Capital	20
Total Capital	**€ 5,752**
RWAs	**€ 25,402**
CET1 Ratio	**22.6%**
Tier 1 Capital Ratio	**22.6%**
Total Capital Ratio	**22.6%**

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 2021 IFRS Financial Information.

Table 4: Regulatory Capital

€ in millions	As of December 2021
Ordinary Share Capital and related share premium accounts	€ 355
Audited Retained Earnings	898
Other capital reserves	4,586
Accumulated Other Comprehensive Income	(26)
CET1 Capital Before Regulatory Adjustments	**€ 5,813**
CVA and DVA	(11)
Prudent Valuation Adjustments	(36)
Intangible Assets	(34)
CET1 Capital After Regulatory Adjustments	**€ 5,732**
Tier 1 Capital After Regulatory Adjustments	**€ 5,732**
Tier 2 Capital Before Regulatory Adjustments	20
Tier 2 Capital After Regulatory Adjustments	**€ 20**
Total Capital Resources	**€ 5,752**

GSBE's total capital resources increased by € 2.5bn during 2021 primarily driven by capital injections totalling € 2.0bn into free capital reserves and € 0.4bn of 2021 audited profits.

During the first half of 2022, GSBE's shareholder injected a total of € 2.73bn 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 5: Reconciliation to Balance Sheet

€ in millions	As of December 2021
Total Shareholders' Equity	€ 5,813
Regulatory Adjustments	(81)
Tier 2 Capital	20
Total Capital Resources	**€ 5,752**

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 2021 and December 2020.

Table 6: EU OV1 - Overview of RWAs

€ in millions

			RWAs		Minimum capital requirements
		Related table reference	**December 2021**	**December 2020**	
1	**Credit risk (excluding CCR)**		**€ 4,099**	**€ 882**	**€ 328**
2	Of which the standardised approach	See EU CR4	4,099	882	328
6	**Counterparty credit risk - CCR**		**€ 13,170**	**€ 5,607**	**€ 1,054**
7	Of which the standardised approach	See EU CCR1	567	150	45
8	Of which internal model method (IMM)	See EU CCR1	9,652	4,876	772
EU 8a	Of which exposures to a CCP	See EU CCR8	88	156	7
EU 8b	Of which credit valuation adjustment - CVA	See EU CCR2	1,673	426	134
9	Of which other CCR	See EU CCR1	1,190	-	95
15	**Settlement risk**		**€ 369**	**€ 221**	**€ 30**
16	**Securitisation exposures in the banking book (after the cap)**		**€ 98**	**€ 13**	**€ 8**
18	Of which SEC-ERBA (including IAA)	See EU SEC3	5	1	0
19	Of which SEC-SA approach	See EU SEC3	94	12	8
20	**Position, foreign exchange and commodities risks (Market risk)**		**€ 6,415**	**€ 2,352**	**€ 513**
21	Of which the standardised approach	See EU MR1	915	438	73
22	Of which IMA	See EU MR2-A	5,500	1,914	440
EU 22a	**Large exposures**		-	-	-
23	**Operational risk**		**€ 1,251**	**€ 441**	**€ 100**
EU 23a	Of which basic indicator approach	See EU OR1	1,251	441	100
24	*Amounts below the thresholds for deduction (subject to 250% risk weight)*		*202*	-	*16*
29	**Total**		**€ 25,402**	**€ 9,515**	**€ 2,032**

December 2021 is based on the mapping given by CRR2 while December 2020 comparative information is based on previously applicable mappings.

RWAs as of December 2020 have been updated to reflect an increase of € 1.56bn due to revised assignment of certain individual exposures to exposure classes. In addition, RWAs as of December 2020 and December 2021 include updates to operational RWA in order to take into account the profits for 2020 and 2021 respectively. Total RWAs increased in 2021 by € 15.9bn mainly due to increased counterparty credit risk and market risk driven by higher trading volumes as a result of business growth.

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 GS Group's Chief Risk Officer, has primary responsibility for assessing, monitoring and managing GS Group's credit risk through oversight across the GS Group's global businesses.

The bank's framework for managing credit risk is consistent with the framework of GS Group established by GS Group's Risk Governance Committee, with the bank's Credit Risk function being an integral part of the GS Group Credit Risk function and reporting to the bank's Chief Risk Officer.

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 2021 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 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 collateral and hedging; and
- Maximizing recovery through active workout and restructuring of claims.

The bank performs credit reviews, which include initial and ongoing analyses of the bank's counterparties. A credit review is an independent analysis of the capacity and willingness of a counterparty to meet its financial obligations, resulting in an internal credit rating. The determination of internal credit ratings also incorporates assumptions with respect to the nature of and outlook for the counterparty's industry, and the economic environment. 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, country and region.

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.

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 6. Repurchase Agreements" and "Note 7. Trading Assets and Liabilities" and "Credit Risk Management" in "Management Report" in the GSBE's 2021 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 has been granted temporary tolerance to use the Internal Model Method (IMM) which GSBE has applied 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 1.4 during the reporting period.

Subsequent to December 31, 2021, GSBE has been granted permission to use IMM by the ECB which replaced the prior temporary tolerance framework. In this context, the regulatory factor used for calculating EAD has been 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, 2021 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 2021.

Table 7: EU CCR1 - Analysis of CCR Exposure by Approach

€ in millions — As of December 2021

		a	b	c	d	e	f	g	h
		Replacement cost (RC)	**Potential future exposure (PFE)**	**EEPE**	**Alpha used for computing regulatory exposure value**	**Exposure value pre-CRM**	**Exposure value post-CRM**	**Exposure value**	**RWA**
1	SA-CCR (for derivatives)	€ 220	€ 442		1.4	€ 927	€ 927	€ 927	€ 567
2	IMM (for derivatives and SFTs)			9,954	1.4	86,478	13,936	13,936	9,636
2a	*Of which securities financing transactions netting sets*			797		64,156	1,115	1,115	732
2b	*Of which derivatives and long settlement transactions netting sets*			9,158		22,322	12,821	12,821	8,904
4	Financial collateral comprehensive method (for SFTs)					3,030	1,636	1,636	1,190
6	**Total**					**€ 90,435**	**€ 16,500**	**€ 16,500**	**€ 11,393**

Total Counterparty Credit Risk (CCR) RWA increased by € 6.4bn over the course of 2021 mainly due to increased derivatives and SFTs business activity.

The following table presents GSBE's exposures subject to CVA capital charges and corresponding RWAs as of December 2021.

Table 8: EU CCR2 - Transactions subject to own funds requirements for CVA risk

€ in millions		As of December 2021	
		Exposure value	**RWAs**
1	Total transactions subject to the Advanced method	€ 6,377	€ 1,552
2	(i) VaR component (including the 3× multiplier)		214
3	(ii) Stressed VaR component (including the 3× multiplier)		1,337
4	Transactions subject to the Standardised method	449	121
5	**Total transactions subject to own funds requirements for CVA risk**	**€ 6,826**	**€ 1,673**

Total CVA RWA increased by € 1.2bn in 2021 mainly due to (a) increased RWAs associated with exposures to U.K. counterparties, which following the U.K.'s decision to leave the E.U. does not benefit from a European Commission equivalence determination and (b) higher trading volumes as a result of business growth.

The following table presents annual flow statement of the RWAs and capital requirements under the IMM as of December 2021.

Table 9: EU CCR7 - RWA Flow Statements of CCR Exposures under the IMM

€ in millions		**RWA**
1	**RWAs as at the end of the previous reporting period (December 2020)**	**€ 4,876**
2	Asset size	4,950
3	Credit quality of counterparties	0
4	Model updates (IMM only)	0
7	Foreign exchange movements	(94)
8	Other	(55)
9	**RWAs as at the end of the current reporting period (December 2021)**	**€ 9,678**

The following table presents GSBE's EAD after credit risk mitigation and RWAs on exposures to CCPs as of December 2021.

Table 10: EU CCR8 - Exposures to CCPs

€ in millions		As of December 2021	
		Exposure value	**RWA**
1	**Exposures to QCCPs (total)**		**€ 88**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	385	8
3	(i) OTC derivatives	218	4
4	(ii) Exchange-traded derivatives	167	3
8	Non-segregated initial margin	1,714	34
9	Prefunded default fund contributions	432	46
11	**Exposures to non-QCCPs (total)**		-

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 2021, 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 2021, $ 0.2bn CDS hedges qualified as credit risk mitigants with hedge provider being Goldman Sachs International. Guarantees of $ 2.25bn 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 2021.

Table 11: EU CR3 - CRM Techniques: Disclosure of the use of credit risk mitigation techniques

€ in millions						As of December 2021
		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	€ 35,045	€ 15,369	€ 15,369	-	-
2	Debt securities	43	-	-	-	-
3	**Total**	**€ 35,088**	**€ 15,369**	**€ 15,369**	-	-

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 2021 Financial Statements.

The following table presents GSBE's exposure to credit derivatives based on notional and fair values as of December 2021.

Table 12: EU CCR6 - Credit Derivatives Exposures

€ in millions		As of December 2021	
		a	b
		Protection bought	**Protection sold**
Notionals			
1	Single-name credit default swaps	€ 59,348	€ 57,919
2	Index credit default swaps	79,699	79,640
3	Total return swaps	-	-
4	Credit options	3,867	3,867
5	Other credit derivatives	3,508	3,531
6	**Total notionals**	**€ 146,422**	**€ 144,958**
Fair values			
7	Positive fair value (asset)	€ 400	€ 4,592
8	Negative fair value (liability)	€ (4,636)	€ (262)

Wrong-way Risk

GSBE seeks to minimise risk where 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), which is known as "wrong-way risk". 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 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 2021 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. A subset of securitisation positions may qualify as simple, transparent and standardised securitisations (STS). 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 2021 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 capitalised 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 2021.

Table 13: EU-SEC1 - Securitisation exposures in the non-trading book

€ in millions — As of December 2021

		a	b	c	d	e	f	g
		Institution acts as originator						
		Traditional				Synthetic		Sub-total
		STS		Non-STS				
			of which SRT		of which SRT		of which SRT	
1	**Total exposures**	**43**	**-**	**34**	**34**	**-**	**-**	**78**
2	Retail (total)	43	-	-	-	-	-	43
3	residential mortgage	43	-	-	-	-	-	43
4	credit card	-	-	-	-	-	-	-
5	other retail exposures	-	-	-	-	-	-	-
6	re-securitisation	-	-	-	-	-	-	-
7	Wholesale (total)	-	-	34	34	-	-	34
8	loans to corporates	-	-	-	-	-	-	-
9	commercial mortgage	-	-	34	34	-	-	34
10	lease and receivables	-	-	-	-	-	-	-
11	other wholesale	-	-	-	-	-	-	-
12	re-securitisation	-	-	-	-	-	-	-

Table 14: 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 2021

		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**	**40**	**-**	**0**	**38**	**2**	**-**	**2**	**76**	*2*	**-**	**5**	**94**	*21*	-	0	8	2
2	Traditional) transactions	40	-	0	38	2	-	2	76	*2*	-	5	94	*21*	-	0	8	2
3	Securitisation	40	-	0	38	2	-	2	76	*2*	-	5	94	*21*	-	0	8	2
4	Retail	40	-	0	3	2	-	2	41	*2*	-	5	25	*21*	-	0	2	2
5	Of which STS	40	-	0	3	2	-	2	41	*2*	-	5	25	*21*	-	0	2	2
6	Wholesale	-	-	-	34	-	-	-	34	-	-	-	69	-	-	-	6	-
7	Of which STS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Re-securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Synthetic transactions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 15: EU-SEC5 - Exposures securitised by the institution - Exposures in default and specific credit risk adjustments

€ in millions As of December 2021

		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**	**1,648**	**1**	-
2	Retail (total)	913	1	-
3	residential mortgage	913	1	-
4	credit card	-	-	-
5	other retail exposures	-	-	-
6	re-securitisation	-	-	-
7	Wholesale (total)	735	-	-
8	loans to corporates	-	-	-
9	commercial mortgage	735	-	-
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: 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 firm's Chief Risk Officer and locally into GSBE's Chief Risk Officer, has primary responsibility for assessing, monitoring and managing market risk through firmwide oversight across global 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 is described in the "Overview and Structure of Risk Management" within "Management Report" of GSBE's 2021 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 2021 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 2021.

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 2021.

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 2021 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 2021.

Table 16: EU MR3 – IMA values for trading portfolios

€ in millions		As of December 2021
VaR (10 day 99%)		
1	Maximum value	€ 50
2	Average value	22
3	Minimum value	12
4	Period end	30
SVaR (10 day 99%)		
5	Maximum value	140
6	Average value	60
7	Minimum value	39
8	Period end	94
IRC (99.9%)		
9	Maximum value	134
10	Average value	66
11	Minimum value	32
12	Period end	121

The table below presents the own funds requirements and RWA under the IMA for Market Risk as of December 2021.

Table 17: EU MR2-A - Market risk under the IMA

€ in millions		As of December 2021	
		RWAs	**Own funds requirements**
1	**VaR** (higher of values a and b)	**€ 1,016**	**€ 81**
(a)	Previous day's VaR (Article 365(1) of the CRR (VaRt-1))		30
(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		81
2	**SVaR** (higher of values a and b)	**€ 2,852**	**€ 228**
(a)	Latest SVaR (Article 365(2) of the CRR (SVaRt-1))		94
(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)		228
3	**IRC** (higher of values a and b)	**€ 1,510**	**€ 121**
(a)	Most recent IRC value (incremental default and migration risks calculated in accordance with Article 370 and Article 371 of the CRR)		121
(b)	Average of the IRC number over the preceding 12 weeks		95
5	**Other**	**€ 122**	**€ 10**
6	**Total**	**€ 5,500**	**€ 440**

"Other" (row 5) in the table above includes additional capital according to Article 101 of Directive 2013/36/EU.
Total Market RWA under IMA increased by € 3.6bn during the course of 2021 primarily due to higher trading volumes driven by business growth.

Table 18: EU MR2-B - RWA flow statements of market risk exposures under the IMA

€ in millions						As of December 2021	
		VaR	**SVaR**	**IRC**	**Other**	**Total RWAs**	**Total own funds requirements**
1	**RWAs at previous reporting period (December 2020)**	**€ 214**	**€ 816**	**€ 788**	**€ 95**	**€ 1,914**	**€ 153**
1a	*Regulatory adjustment*	(77)	(474)	-	10	(541)	(43)
1b	**RWAs at previous reporting period**	**€ 138**	**€ 342**	**€ 788**	**€ 105**	**€ 1,373**	**€ 110**
2	Movement in risk levels	237	924	722	(67)	1,817	145
3	Model updates/changes	(0)	(87)	-	3	(84)	(7)
8a	***RWAs at the end of the reporting period***	**375**	**1,180**	**1,510**	**41**	**3,106**	**248**
8b	*Regulatory adjustment*	640	1,673	-	81	2,394	192
8	**RWAs at the end of the reporting period (December 2021)**	**€ 1,016**	**€ 2,852**	**€ 1,510**	**€ 122**	**€ 5,500**	**€ 440**

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

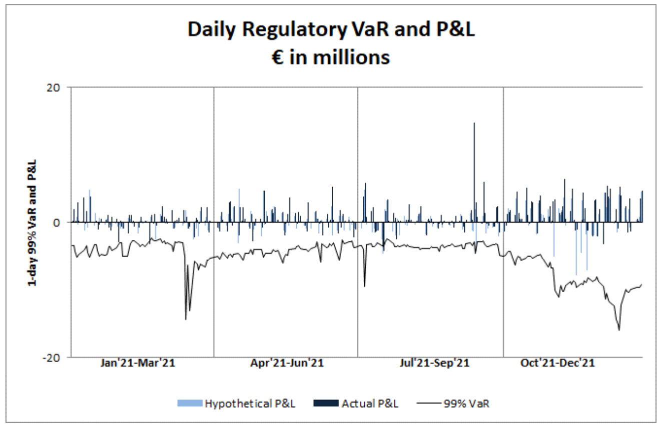
As required by the CRR market risk capital rules, we validate the accuracy of our Regulatory VaR models by backtesting the output of such models against daily loss results. The number of exceptions (that is, the higher of the number of overshootings based on comparing the positional or actual losses 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 (July and September 2021) during 12 months preceding December 2021. Hypothetical loss exceedance over 99% one-day Regulatory VaR occurred on the back of increased market volatility from renewed growth concerns related to the Delta variant of the COVID-19 (July 2021) and due to trade expiry (September 2021). GSBE's actual losses observed on a single day exceeded our 99% one-day Regulatory VaR three times (once in February 2021 and twice in July 2021) during 12 months preceding December 2021. Actual excesses over one-day 99% Regulatory VaR was driven by intraday losses on newly traded positions (February 2021) and occurred on the back of increased market volatility from renewed growth concerns related to the Delta variant of the COVID-19 (July 2021). 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 19: 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**	**3**

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 2021 Financial Statements.

The table below presents the components of RWAs under Standardised approach as of December 2021.

Table 20: EU MR1 - Market risk under the standardised approach

	€ in millions	As of December 2021
		RWAs
	Outright products	
1	Interest rate risk (general and specific)	€ 766
3	Foreign exchange risk	149
9	**Total**	**€ 915**

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 2021 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 implication 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 and unexpected parallel shift in interest rates including unfloored scenarios.

The table below shows the change in banking book EVE sensitivity results under the supervisory scenarios and guidance defined by the EBA. NII results are not included in the table below pending completion of the supervisory framework.

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

Table 21: EU IRRBB1 - Interest rate risks of non-trading book activities

€ in millions As of December 2021

	Supervisory shock scenarios	Changes of the economic value of equity
1	Parallel shock up	32
2	Parallel shock down	(12)
3	Steepener	19
4	Flattener	(22)
5	Short rates shock up	(3)
6	Short rates shock down	4

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 GS Group's Chief Risk Officer and locally into GSBE'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 GSBE's exposure to operational risk at levels that are within its risk appetite.

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 2021 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 and business-level operational risk profiles. 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 Operational Risk and Resilience Committee provides oversight of the ongoing development and implementation of operational risk policies, framework and methodologies, with oversight from the directors of the firm, and monitors the effectiveness of operational risk management.

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.

Policies are in place that require all employees 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.

Capital Requirements

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

Table 22: EU OR1 - Operational risk own funds requirements and risk-weighted exposure amounts

€ in millions As of December 2021

		a	b	c	d	e
Banking activities		**Relevant indicator**			**Own funds requirements**	**Risk exposure amount**
		Year-3	**Year-2**	**Last year**		
1	Banking activities subject to basic indicator approach (BIA)	€ 210	€ 348	€ 1,443	€ 100	**€ 1,251**

Operational RWA increased by € 0.8bn in 2021 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 Risk Governance 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 23: Leverage Ratio

€ in millions	As of December 2021
Tier 1 Capital	€ 5,732
Leverage Ratio Exposure	€ 75,838
Leverage Ratio	**7.6%**

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

	€ in millions	As of December 2021
1	**Total assets as per published financial statements**	**€ 119,737**
4	(Adjustment for temporary exemption of exposures to central banks (if applicable))	(7,626)
6	Adjustment for regular-way purchases and sales of financial assets subject to trade date accounting	2,646
8	Adjustments for derivative financial instruments	(43,385)
9	Adjustment for securities financing transactions (SFTs)	1,501
10	Adjustment for off-balance sheet items (ie conversion to credit equivalent amounts of off-balance sheet exposures)	3,035
12	Other adjustments	(70)
13	**Total exposure measure**	**€ 75,838**

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 25: EU LR2 - Leverage Ratio Common Disclosure

€ in millions		As of December 2021
		CRR leverage ratio exposures
On-balance sheet exposures (excluding derivatives and SFTs)		
1	On-balance sheet items (excluding derivatives, SFTs, but including collateral)	€ 34,947
3	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	(9,307)
6	(Asset amounts deducted in determining Tier 1 capital)	(70)
7	**Total on-balance sheet exposures (excluding derivatives and SFTs)**	**25,570**
Derivative exposures		

8	Replacement cost associated with SA-CCR derivatives transactions (ie net of eligible cash variation margin)	7,509
9	Add-on amounts for potential future exposure associated with SA-CCR derivatives transactions	19,491
10	(Exempted CCP leg of client-cleared trade exposures) (SA-CCR)	(1,337)
11	Adjusted effective notional amount of written credit derivatives	144,958
12	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	(140,162)
13	**Total derivatives exposures**	**30,459**
Securities financing transaction (SFT) exposures		
14	Gross SFT assets (with no recognition of netting), after adjustment for sales accounting transactions	17,465
15	(Netted amounts of cash payables and cash receivables of gross SFT assets)	(2,192)
16	Counterparty credit risk exposure for SFT assets	1,501
18	**Total securities financing transaction exposures**	**16,775**
Other off-balance sheet exposures		
19	Off-balance sheet exposures at gross notional amount	6,070
20	(Adjustments for conversion to credit equivalent amounts)	(3,035)
22	**Off-balance sheet exposures**	**3,035**
Excluded exposures		
Capital and total exposure measure		
23	**Tier 1 capital**	**€ 5,732**
24	**Total exposure measure**	**€ 75,838**
Leverage ratio		
25	**Leverage ratio**	**7.6%**
EU-25	Leverage ratio (excluding the impact of the exemption of public sector investments and promotional loans)	7.6%
25a	Leverage ratio (excluding the impact of any applicable temporary exemption of central bank reserves)	6.9%
26	Regulatory minimum leverage ratio requirement (%)	3.0%
EU-26a	Additional own funds requirements to address the risk of excessive leverage (%)	0.0%
EU-26b	of which: to be made up of CET1 capital (percentage points)	0.0%
27	Leverage ratio buffer requirement (%)	0.0%
EU-27a	Overall leverage ratio requirement (%)	3.0%
Choice on transitional arrangements and relevant exposures		
EU-27b	Choice on transitional arrangements for the definition of the capital measure	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	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	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)	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)	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)	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)	7.2%

Table 26: EU LR3 - LRSpl: Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)

€ in millions	As of December 2021
Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:	**€ 25,603**
Trading book exposures	**€ 5,443**
Banking book exposures, of which:	**€ 20,160**
Exposures treated as sovereigns	17,970
Exposures to regional governments, MDB, international organisations and PSE not treated as sovereigns	73
Institutions	592
Corporate	1,217
Other exposures (eg equity, securitisations, and other non-credit obligation assets)	308

Factors impacting the Leverage Ratio

The leverage ratio has decreased from 10.3% as of December 2020 to 7.6% as of December 2021 due to increases in On and Off Balance Sheet exposures reflecting an increase in balance sheet size and business activity throughout the year, partly offset by increase in Tier 1 capital driven by capital injection described in “Regulatory Capital” section.

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. The ratio without application of this exemption would have been 6.9%.

In February 2022, the ECB announced the end of the relief from April 1, 2022.

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 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.

Our goal is to hold sufficient capital to ensure we remain adequately capitalised 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 27: EU CC1 - Composition of regulatory own funds

€ in millions — As of December 2021

		(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	355	Table 52: EU CC2 : row 14 + row 15
	of which: Ordinary Shares	355	
2	Retained earnings	898	Table 52: EU CC2 : row 17
3	Accumulated other comprehensive income (and other reserves)	4,560	Table 52: EU CC2 : row 16 + row 18
6	**Common Equity Tier 1 (CET1) capital before regulatory adjustments**	**5,813**	
Common Equity Tier 1 (CET1) capital: regulatory adjustments			
7	Additional value adjustments (negative amount)	(36)	
8	Intangible assets (net of related tax liability) (negative amount)	(34)	
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	(1)	
27a	Other regulatory adjusments	(10)	
28	**Total regulatory adjustments to Common Equity Tier 1 (CET1)**	**(81)**	
29	**Common Equity Tier 1 (CET1) capital**	**5,732**	
Additional Tier 1 (AT1) capital: instruments			
Additional Tier 1 (AT1) capital: regulatory adjustments			
45	**Tier 1 capital (T1 = CET1 + AT1)**	**5,732**	
Tier 2 (T2) capital: instruments			
46	Capital instruments and the related share premium accounts	20	
51	**Tier 2 (T2) capital before regulatory adjustments**	**20**	
Tier 2 (T2) capital: regulatory adjustments			
58	**Tier 2 (T2) capital**	**20**	
59	**Total capital (TC = T1 + T2)**	**5,752**	
60	**Total risk exposure amount**	**25,402**	
Capital ratios and requirements including buffers			
61	Common Equity Tier 1	22.6%	
62	Tier 1	22.6%	
63	Total capital	22.4%	
64	Institution CET1 overall capital requirements	8.7%	
65	of which: capital conservation buffer requirement	2.5%	
66	of which: countercyclical capital buffer requirement	0.04%	
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	0.0%	
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**	**16.4%**	
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)	279	
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	
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)	81	
Applicable caps on the inclusion of provisions in Tier 2			
77	Cap on inclusion of credit risk adjustments in T2 under standardised approach	318	
Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2014 and 1 Jan 2022)		N/A	

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 28: EU CCyB2 - Countercyclical Capital Buffer

€ in millions	As of December 2021
Total risk exposure amount	**€ 25,402**
Institution specific countercyclical capital buffer rate	**0.04%**
Institution specific countercyclical capital buffer requirement	**€ 11**

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 2021 GSBE had recognised exposures to counterparties from Czech Republic, Hong Kong, Luxembourg, Norway and Slovakia as implemented in the calculation of this buffer according to rates set by the ESRB. These are shown as separate rows below with their respective contributions to own funds requirements for GSBE.

Table 29: EU CCyB1 Geographical distribution of credit exposures relevant for the calculation of the countercyclical buffer

€ in millions	a	b	c	d	e	f	g	h	i	j	k	l	m
	General credit exposures		Relevant credit exposures – Market risk		Securitisation exposures	Total exposure value	Own funds requirements						
Breakdown by Country	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	Own funds require-ment weights	Counter-cyclical capital buffer rate
Czech Republic	2	-	-	-	-	2	0	-	-	0	2	0.0%	0.50%
Hong Kong, Special Administrative Region Of China	49	-	-	-	-	49	4	-	-	4	48	0.3%	1.00%
Luxembourg	2,080	-	10	115	-	2,205	86	8	-	93	1,167	7.3%	0.50%
Norway	51	-	-	145	-	196	4	0	-	4	54	0.3%	1.00%
Slovakia	0	-	-	0	-	0	0	0	-	0	0	0.0%	1.00%
Other	19,929	-	849	133,384	78	154,239	1,013	160	8	1,181	14,758	92.1%	0.00%
Total	**22,112**	**-**	**858**	**133,644**	**78**	**156,691**	**1,107**	**168**	**8**	**1,282**	**16,029**	**100.0%**	

Capital Instruments

The following table summarises the main features of capital instruments for GSBE as of December 2021

Table 30: EU CCA: Main features of regulatory own funds instruments

		a	b
1	Issuer	GSBE	GSBE
2	Unique identifier	N/A	N/A
2a	Public or private placement	Private	Private
3	Governing law(s) of the instrument	Germany	Germany
3a	Contractual recognition of write down and conversion powers of resolution authorities	N/A	N/A
	Regulatory treatment		
4	Current treatment taking into account, where applicable, transitional CRR rules	Common Equity Tier 1	Tier 2
5	Post-transitional CRR rules	Common Equity Tier 1	Tier 2
6	Eligible at solo/(sub-)consolidated/ solo&(sub-)consolidated	Solo	Solo
7	Instrument type (types to be specified by each jurisdiction)	Ordinary share capital	Subordinated debt
8	Amount recognised in regulatory capital or eligible liabilities (€ in million, as of December 2021)	€ 355	€ 20
9	Nominal amount of instrument	€ 355	€ 20
EU-9a	Issue price	At par	At par
EU-9b	Redemption price	At par	At par
10	Accounting classification	Shareholder's equity	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
12	Perpetual or dated	Perpetual	Perpetual
13	Original maturity date	No maturity	No maturity
14	Issuer call subject to prior supervisory approval	No	No
15	Optional call date, contingent call dates and redemption amount	N/A	N/A
16	Subsequent call dates, if applicable	N/A	N/A
	Coupons / dividends		
17	Fixed or floating dividend/coupon	N/A	Floating
18	Coupon rate and any related index	No	3-months-euro-libor plus 150 bps
19	Existence of a dividend stopper	No	No
EU-20a	Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully discretionary	Mandatory
EU-20b	Fully discretionary, partially discretionary or mandatory (in terms of amount)	Fully discretionary	Mandatory
21	Existence of step up or other incentive to redeem	No	No
22	Noncumulative or cumulative	Noncumulative	Noncumulative
23	Convertible or non-convertible	Nonconvertible	Nonconvertible
24	If convertible, conversion trigger(s)	N/A	N/A
25	If convertible, fully or partially	N/A	N/A
26	If convertible, conversion rate	N/A	N/A
27	If convertible, mandatory or optional conversion	N/A	N/A
28	If convertible, specify instrument type convertible into	N/A	N/A

29	If convertible, specify issuer of instrument it converts into	N/A	N/A
30	Write-down features	No	No
31	If write-down, write-down trigger(s)	N/A	N/A
32	If write-down, full or partial	N/A	N/A
33	If write-down, permanent or temporary	N/A	N/A
34	If temporary write-down, description of write-up mechanism	N/A	N/A
34a	Type of subordination (only for eligible liabilities)	N/A	N/A
EU-34b	Ranking of the instrument in normal insolvency proceedings	1	3
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
36	Non-compliant transitioned features	No	No
37	If yes, specify non-compliant features	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

Key changes during the period

With effectiveness as of November 5, 2020, 3,816,600 shares of €1 each were allotted to GSI. The total consideration received was €26,597,615 incorporating a share premium of €22,781,015. With effectiveness as of February 8, 2021, Goldman Sachs Paris Inc. et Cie (GSPIC) contributed €16,415,000 in cash, and its investment banking, certain FICC and Equities, and certain asset management businesses into the bank by way of a contribution in kind. In exchange, 14,460,100 shares of € 1 each were allotted to GSPIC, incorporating a share premium of € 1,954,900. The shares issued to GSI and GSPIC have subsequently been transferred to the former shareholders of GSBE, prior to the ultimate transfer of all shares of GSBE to GS Bank USA.

Both of the above were approved to be included as CET1 instruments in 2021 and included in the table above.

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 assessing, 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.

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 2021 was 202% compared to the minimum requirement of 100%.[1] The calculation of the ratio is based on our current interpretation and understanding of the liquidity standards and may evolve in the future.

[1] LCR as of December 2021 has been updated from 209% to 202% to reflect the revised treatment of certain liquidity and credit facilities.

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

Table 31: Liquidity Coverage Ratio

€ in millions

Twelve Months Ended December 2021	Average Weighted
Total high-quality liquid assets	11,734
Net cash outflows	5,675
Liquidity coverage ratio	202%

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 31 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 32).

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 32: Unsecured Net Cash Outflows

€ in millions

	Twelve Months Ended December 2021	
	Average Unweighted	**Average Weighted**
Outflows		
Retail deposits and deposits from small business customers, of which:	**675**	**111**
Stable deposits	0	0
Less stable deposits	675	111
Unsecured wholesale funding, of which:	**2,063**	**985**
Non-operational deposits	2,011	933
Unsecured debt	52	52
Inflows		
Inflows from fully performing exposures	**400**	**157**
Net unsecured cash outflows/(inflows)	**2,338**	**939**

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.

Table 33: Secured Net Cash Outflows

€ in millions

	Twelve Months Ended December	
	Average Unweighted	**Average Weighted**
Outflows		
Secured wholesale funding		**1,444**
Inflows		
Secured lending	**9,912**	**1,338**
Net secured cash outflows/(inflows)		**106**

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.

Table 34: Derivative Net Cash Outflows

€ in millions

	Twelve Months Ended December 2021	
	Average Unweighted	Average Weighted
Outflows related to derivative exposures and other collateral requirements	**2,229**	**2,225**

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%.

Table 35: Unfunded Commitments Net Cash Outflows

€ in millions

	Twelve Months Ended December 2021	
	Average Unweighted	Average Weighted
Credit and liquidity facilities	**4,555**	**2,168**

Table 36: 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.

€ in millions

	Twelve Months Ended December 2021	
	Average Unweighted	Average Weighted
Outflows	**7,739**	**4,962**
Other contractual obligations	7,111	4,426
Other contingent funding obligations	628	536
Inflows	**4,724**	**4,724**
Other cash inflows	4,724	4,724
Net other cash outflows/(inflows)	**3,015**	**238**

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 37: EU LIQ1 - Liquidity Coverage Ratio Summary

Scope of consolidation (Consolidated)		**Total Unweighted Value**				**Total Weighted Value**			
Currency and units (€ in millions)									
Period ended		**March 2021**	**June 2021**	**September 2021**	**December 2021**	**March 2021**	**June 2021**	**September 2021**	**December 2021**
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)					3,729	5,516	7,893	11,734
CASH – OUTFLOWS									
2	Retail deposits and deposits from small business customers, of which:	149	321	505	675	24	53	83	111
3	*Stable deposits*	0	0	0	0	0	0	0	0
4	*Less stable deposits*	149	321	505	675	24	53	83	111
5	Unsecured wholesale funding	534	987	1,496	2,063	239	450	691	985
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)*	533	987	1,495	2,011	239	449	691	933
8	*Unsecured debt*	0	0	0	52	0	0	0	52
9	Secured wholesale funding					599	977	1,337	1,444
10	Additional requirements	2,127	3,596	5,197	6,784	1,733	2,544	3,496	4,392
11	*Outflows related to derivative exposures and other collateral requirements*	1,321	1,601	1,904	2,229	1,320	1,599	1,903	2,225
12	*Outflows related to loss of funding on debt products*	0	0	0	0	0	0	0	0
13	*Credit and liquidity facilities*	806	1,995	3,293	4,555	413	944	1,593	2,168
14	Other contractual funding obligations	2,744	4,308	5,941	7,111	2,011	2,896	3,762	4,426
15	Other contingent funding obligations	148	290	422	628	133	254	374	536
16	**TOTAL CASH OUTFLOWS**					4,739	7,173	9,743	11,894
CASH – INFLOWS									
17	Secured lending (e.g. reverse repos)	2,834	4,926	7,091	9,912	393	682	1,025	1,338
18	Inflows from fully performing exposures	114	244	346	400	9	94	155	157
19	Other cash inflows	2,231	3,139	4,025	4,724	2,231	3,139	4,025	4,724
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**	5,179	8,309	11,462	15,036	2,633	3,916	5,204	6,219
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***	5,179	8,309	11,462	15,036	2,633	3,916	5,204	6,219
						TOTAL ADJUSTED VALUE			
21	**LIQUIDITY BUFFER**					3,729	5,516	7,893	11,734
22	**TOTAL NET CASH OUTFLOWS**					2,134	3,284	4,566	5,675
23	**LIQUIDITY COVERAGE RATIO (%)**					207%	195%	184%	202%

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 2021, the bank's NSFR exceeded the regulatory minimum requirement. See table 38 for more detail

Table 38a: EU LIQ2 - Net Stable Funding Ratio

As of December 2021

		a	b	c	d	e
(€ in millions)		Unweighted value by residual maturity				Weighted value
		No maturity	< 6 months	6 months to < 1yr	≥ 1yr	
AVAILABLE STABLE FUNDING (ASF) ITEMS						
1	Capital items and instruments	5,813	0	0	20	5,833
2	*Own funds*	5,813	0	0	20	5,833
3	*Other capital instruments*		0	0	0	0
4	Retail deposits		866	0	0	779
5	*Stable deposits*		0	0	0	0
6	*Less stable deposits*		866	0	0	779
7	Wholesale funding:		9,695	97	20,495	21,725
8	*Operational deposits*		0	0	0	0
9	*Other wholesale funding*		9,695	97	20,495	21,725
10	Interdependent liabilities		2,938	0	0	0
11	Other liabilities:	0	13,435	0	0	0
12	*NSFR derivative liabilities*	0				
13	*All other liabilities and capital instruments not included in the above categories*		13,435	0	0	0
14	**TOTAL AVAILABLE STABLE FUNDING (ASF)**					**28,337**
REQUIRED STABLE FUNDING (RSF) ITEMS						
15	Total high-quality liquid assets (HQLA)					78
EU-15a	Assets encumbered for more than 12m in cover pool		0	0	0	0
16	Deposits held at other financial institutions for operational purposes		264	0	0	132
17	Performing loans and securities:		13,852	36	3,990	9,363
18	*Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut*		11,386	0	0	5,464
19	*Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		2,072	0	243	377
20	*Performing loans to non- financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		356	0	648	729
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*		39	36	3,100	2,793
25	Interdependent assets		3,135	0	0	0
26	Other assets:		14,316	0	5,255	6,358
27	*Physical traded commodities*				0	0
28	*Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		10	0	2,426	2,071
29	*NSFR derivative assets*		723			723
30	*NSFR derivative liabilities before deduction of variation margin posted*		13,160			658
31	*All other assets not included in the above categories*		423	0	2,829	2,906
32	Off-balance sheet items		7,206	0	0	293
33	**TOTAL RSF**					**16,224**
34	**NET STABLE FUNDING RATIO (%)**					**174.7%**

Table 38b: EU LIQ2 - Net Stable Funding Ratio

As of September 2021

		a	b	c	d	e
(€ in millions)		Unweighted value by residual maturity				Weighted value
		No maturity	< 6 months	6 months to < 1yr	≥ 1yr	
AVAILABLE STABLE FUNDING (ASF) ITEMS						
1	Capital items and instruments	5,372	0	0	20	5,392
2	*Own funds*	5,372	0	0	20	5,392
3	*Other capital instruments*		0	0	0	0
4	Retail deposits		729	0	0	656
5	*Stable deposits*		0	0	0	0
6	*Less stable deposits*		729	0	0	656
7	Wholesale funding:		9,726	17	10,609	11,684
8	*Operational deposits*		0	0	0	0
9	*Other wholesale funding*		9,726	17	10,609	11,684
10	Interdependent liabilities		3,108	0	0	0
11	Other liabilities:	0	13,614	0	0	0
12	*NSFR derivative liabilities*	0				
13	*All other liabilities and capital instruments not included in the above categories*		13,614	0	0	0
14	**TOTAL AVAILABLE STABLE FUNDING (ASF)**					**17,733**
REQUIRED STABLE FUNDING (RSF) ITEMS						
15	Total high-quality liquid assets (HQLA)					**102**
EU-15a	Assets encumbered for more than 12m in cover pool		0	0	0	0
16	Deposits held at other financial institutions for operational purposes		288	0	0	144
17	Performing loans and securities:		10,220	16	3,834	5,094
18	*Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut*		7,287	0	0	525
19	*Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		2,462	0	342	1,281
20	*Performing loans to non- financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		415	0	1,230	1,253
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*		56	16	2,262	2,034
25	Interdependent assets		2,112	0	0	0
26	Other assets:		12,636	0	5,165	5,985
27	*Physical traded commodities*				0	0
28	*Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		1	0	1,494	1,271
29	*NSFR derivative assets*		416			416
30	*NSFR derivative liabilities before deduction of variation margin posted*		11,878			594
31	*All other assets not included in the above categories*		340	0	3,671	3,705
32	Off-balance sheet items		8,227	0	45	323
33	**TOTAL RSF**					**11,648**
34	**NET STABLE FUNDING RATIO (%)**					**152.2%**

Table 38c: EU LIQ2 - Net Stable Funding Ratio

As of June 2021

		a	b	c	d	e
(€ in millions)		Unweighted value by residual maturity				Weighted value
		No maturity	< 6 months	6 months to < 1yr	≥ 1yr	
AVAILABLE STABLE FUNDING (ASF) ITEMS						
1	Capital items and instruments	5,372	0	0	20	5,392
2	*Own funds*	5,372	0	0	20	5,392
3	*Other capital instruments*		0	0	0	0
4	Retail deposits		726	0	0	653
5	*Stable deposits*		0	0	0	0
6	*Less stable deposits*		726	0	0	653
7	Wholesale funding:		6,554	0	6,355	7,324
8	*Operational deposits*		0	0	0	0
9	*Other wholesale funding*		6,554	0	6,355	7,324
10	Interdependent liabilities		2,683	0	0	0
11	Other liabilities:	73	10,906	0	0	0
12	*NSFR derivative liabilities*	73				
13	*All other liabilities and capital instruments not included in the above categories*		10,906	0	0	0
14	**TOTAL AVAILABLE STABLE FUNDING (ASF)**					**13,369**
REQUIRED STABLE FUNDING (RSF) ITEMS						
15	Total high-quality liquid assets (HQLA)					96
EU-15a	Assets encumbered for more than 12m in cover pool		0	0	0	0
16	Deposits held at other financial institutions for operational purposes		325	0	0	162
17	Performing loans and securities:		7,603	124	3,193	3,914
18	*Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut*		5,919	0	0	228
19	*Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		1,297	3	312	941
20	*Performing loans to non- financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		375	99	895	998
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*		11	22	1,986	1,747
25	Interdependent assets		964	0	0	0
26	Other assets:		9,188	0	2,791	3,182
27	*Physical traded commodities*				0	0
28	*Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		0	0	487	414
29	*NSFR derivative assets*		0			0
30	*NSFR derivative liabilities before deduction of variation margin posted*		8,678			434
31	*All other assets not included in the above categories*		509	0	2,304	2,334
32	Off-balance sheet items		8,801	0	43	305
33	**TOTAL RSF**					**7,660**
34	**NET STABLE FUNDING RATIO (%)**					**174.5%**

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, 2021. 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 39: 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	**12,104**	**1,256**	**N/a[2]**	**N/a[2]**	**82,775**	**9,747**	**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 40: 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	**348**	**5**	**348**	**5**	**1,218**	**33**	**1,218**	**33**
Debt Securities[5]	**1,558**	**1,252**	**1,558**	**1,252**	**1,018**	**182**	**1,018**	**182**
of which: covered bonds	-	-	-	-	8		8	-
of which: asset-backed securities	-	-	-	-	-	-	-	-
of which: issued by general governments	1,243	1,191	1,243	1,191	498	164	498	164
of which: issued by financial corporations	116	1	116	1	211	4	211	4
of which: issued by non-financial corporations	177	82	177	82	407	15	407	15
Other Assets	**10,125**	**-**	**N/a[4]**	**N/a[4]**	**80,683[6]**	**9,488**	**N/a[4]**	**N/a[4]**

[3] The figures in Table 40 are a subset of Assets of the Reporting Institution in Table 39

[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 41: EU AE2 - Collateral Received

	Fair Value of Encumbered Collateral Received or Own Debt Securities Issued		Fair Value of Collateral Received or Own Debt Securities Issued Available for Encumbrance	
€ in millions		Of which notionally eligible EHQLA and HQLA		Of which notionally eligible EHQLA and HQLA
Collateral Received by the Reporting Institution[1]	**13,602**	**8,379**	**3,998**	**2,864**

[1]Collateral Received by the Reporting Institution does not include cash collateral which is included as an on-balance-sheet asset in Tables 39 and 40

Table 42: EU AE2 - Components of Collateral Received[2]

	Fair Value of Encumbered Collateral Received or Own Debt Securities Issued		Fair Value of Collateral Received or Own Debt Securities Issued Available for Encumbrance	
€ in millions		Of which notionally eligible EHQLA and HQLA		Of which notionally eligible EHQLA and HQLA
Loans on Demand	**-**	**-**	**-**	**-**
Equity Instruments	**3,127**	**428**	**1,059**	**150**
Debt Securities	**10,398**	**7,950**	**2,929**	**2,654**
of which: covered bonds	1	-	1	-
of which: asset-backed securities	-	-	-	-
of which: issued by general governments	10,011	7,870	2,654	2,639
of which: issued by financial corporations[3]	147	27	109	-
of which: issued by non-financial corporations	482	188	122	7
Loans and advances other than loans on demand	**-**	**-**	**20**	**-**
Other Collateral Received	**63**	**-**	**-**	**-**
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[4]**	**N/a[4]**	**-**	**-**
Total Assets, Collateral received and Own Debt Securities Issued	**25,131**	**9,690**	**N/a[5]**	**N/a[5]**

[2]The figures shown in Table 42 are a subset of Collateral Received by the Reporting Institution in Table 41
[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 43: 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]	**62,031**	**18,523**

[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 39 and 40 and the underlying collateral received is reported in Tables 41 and 42 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 methodologies applied to the bank for both physical and transition risk. This is a foundation for the quantifiable measurement and integration of climate risk into relevant GSBE risk management. We use a variety of measurement methodologies to assess the potential impact of climate-related risks, and perform GSBE level scenario analysis to identify vulnerabilities and risks.

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) and our internal methodologies to project how climate variables such as temperature 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 scenario used, we categorize the physical risk severity of the relevant assets in GSBE's portfolio. We continue to monitor the severity of impacts for GSBE resiliency.

Transition Risk. Transition risk emerges from policy, legal, technology and market changes resulting from the shift to a lower carbon economy. For example, when implementing the Paris Agreement, carbon-intensive sectors may suffer from transition risk due to regulatory pressures and changed market 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 a climate policy change 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.

Climate Risk Integration. For GSBE, climate-related risks manifest in different ways across our business and 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. Consistent with the firmwide governance structure from senior management to the GS Group Board and its committees, including the Risk and Public Responsibilities Committee, we have integrated oversight of climate-related risks into GSBE's risk management governance structure, including the oversight by the bank's Executive Board and Risk Committee. We have begun incorporating climate risk into our credit evaluation and underwriting processes for select industries and in select loan commitments.

As part of its oversight responsibility the GSBE Executive Board and Risk Committee receive reporting of risk appetite metrics and updates on our risk management approach to climate risk, including our approach towards scenario analysis and integration into existing risk management processes. 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 2021, climate change related risks were identified as relevant but based on the quantification analysis 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 2021 there are no goals or targets to achieve a specified ratio of female members of the Executive Board or Supervisory Board. As of December 31, 2021 female members comprised 40% of the Supervisory Board and 20% of the Executive Board. In April 2022 GSBE has established a Diversity Policy, setting out the current 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.

We have set out below the biographies of the members of the Executive Board and the Supervisory Board as of December 31, 2021, 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 44a: GSBE Executive Board of Directors

Name	Background	Director-ships
Dr. Bock	Matthias Bock joined the Executive Board in July 2011 and is general counsel of GSBE. Dr. Bock is also a member of the GSBE Risk Committee. In addition to his duties for GSBE he also oversees the Legal department in Moscow. He is deputy chairman of the regional banking Association of Banks Mitte and holds different positions within the German Banking Association (chairman of its Committee for Foreign Banks, member of its Legal Committee). He also serves on the board of the Civitas-Bernhard-Vogel foundation. Dr. Bock joined Goldman Sachs in 2000 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**
T. Degn-Petersen	Thomas Degn-Petersen is the chief operating officer of GSBE, having joined the Executive Board in March 2018. 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. As of December 31, 2021 Mr. Degn-Petersen also served as the co-branch manager of Goldman Sachs International Bank, Frankfurt. He resigned from this role in February 2022. 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 EMEA Operational Risk and Resilience Committee, the GSBE Risk Committee and GSBE Asset & Liability Committee. He is also a member of the International Banking Committee of the German Banking Association. Previously, Mr. Degn-Petersen was co-head of Controllers in India and global head of the Shared Services Management office from 2014 to 2018. Prior to that, in the period from 2009 to 2013, he served as head of Finance and head of the Federation in Moscow. He is a qualified accountant and 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**
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 and Asset Management Divisions. In addition, he is member of the firm´s EMEA Conduct Committee and the European Management Committee and head of Goldman Sachs in Germany and Austria. Dr. Fink is also a board member of German Banking Association. He joined Goldman Sachs in Mergers & Acquisitions in London in 1993 and later worked in the Principal Investment Area. He subsequently served as co-head of Investment Banking for Russia and Central and Eastern Europe before heading the European Industrials Group in Investment Banking. Dr. Fink was named managing director in 2004 and partner in 2008. Dr. Fink earned an 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 with responsibilities for GSBE's Global Markets, Consumer and Wealth Management and Global Investment Research Divisions. He is the head of GSBE's Global Market Division and serves as the co-head of the Nordic Region, including managing the firm's presence in Denmark, Finland, Norway and Sweden. Mr. Hermann is branch manager of the GSBE, Copenhagen branch. He is also a member of the GSBE Risk Committee. He joined the firm in 2009 and was named managing director in 2012 and partner in 2016. Mr. Hermann earned an MSc in Economics and Finance from Aarhus University in 2002.	**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 EMEA region. She is a member of various global committees and key GSBE governance bodies most notably including GSBE Risk Committee (chair), GSBE Asset and Liability Committee, EMEA Capital and Stress Testing Steering Group and Global Climate Assumption Governance Group . 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 Department and was named managing director in 2017. Prior to joining the firm, Ms. Lo worked as an economist in Barclays Capital and as an emerging market risk specialist in the industry. 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, 2021. Michael Holmes joined the Executive Board as the chief financial officer in May 2022.

Table 44b: GSBE Supervisory Board of Directors

Name	Background	Directorships
S. A. Boyle	Sally Boyle joined the Supervisory Board in July 2015. She is also an advisory director to GSI, having recently retired as international head of Human Capital Management (HCM), a position she held since 2015. Ms. Boyle joined Goldman Sachs in 1999, before which she was a partner at Mills & Reeve Solicitors. Ms. Boyle is also a non-executive director of the Royal Air Force. Sally Boyle retired from her role as the Supervisory Board member effective as of December 31, 2021.	**1**
D. W. McDonogh	Dermot McDonogh is the Chair of the Supervisory Board, having joined the Supervisory Board in February 2018. Mr. McDonogh is a director at GSI and Goldman Sachs (UK) L.L.C. and a non-executive director of Goldman Sachs Bank USA. He is the chief executive officer of GSIB and chief operating officer for EMEA. Mr. McDonogh serves on a number of the firm's committees including the European Management Committee, Firmwide Enterprise Risk Committee, Firmwide Risk Council, Firmwide Conduct Committee and the Firmwide Asset Liability Committee. Additionally, Mr. McDonogh chairs the GSIB Management Committee, co-chairs the GSI Risk Committee, the GSIB Risk Committee and the EMEA Conduct Committee. He joined Goldman Sachs in 1994. Mr. McDonogh earned a degree in Finance from the University of Limerick in Ireland.	**1**
E. E. Stecher	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 Goldman Sachs Bank USA, Goldman Sachs International Bank and Goldman Sachs Philantrophy 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 & Cromwell. Ms. Stecher earned a BA from the University of Minnesota and a JD from Columbia Law School.	**1**
Dr. Feuring	Wolfgang Feuring joined the Supervisory Board as an independent Supervisory Board member in February 2020. Dr. Feuring is Of Counsel at Sullivan & Cromwell LLP. Before joining Sullivan & Cromwell as a partner in 2001, Dr. 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. 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.

The table reflects the members of the Supervisory Board as of December 31, 2021. Lisa Donnelly joined the Supervisory Board in January 2022.

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

GS Group's Compensation Principles were approved by shareholders at the 2010 annual shareholders' meeting. 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; and

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

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 division maintains a division-specific Performance Assessment & Variable Compensation Framework 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 10 meetings in 2021 to discuss and make determinations regarding remuneration.

The members of the Compensation Committee at the end of 2021 were M. Michele Burns (Chair), Drew G. Faust, Kimberley D. Harris, 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 2021, the Compensation Committee received the advice of a remuneration consultant from Meridian (formerly of FW Cook).

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 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/2015/22") ("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 Risk Takers of GSBE.

The Remuneration Committee held 7 meetings in 2021 in fulfilment of these responsibilities.

At the end of 2021:

– the members of the Remuneration Committee were Wolfgang Feuring (Chair), Ulrich Pukropski and Esta Stecher;
– 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 2021, the Executive Board held 25 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 2021.

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 divisions and regions following the process outlined in the Compensation Frameworks.

This process involves divisional compensation managers, divisional compensation committees, division 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 divisional 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 division, and recommendations developed for Executive Board members are presented to the Supervisory Board for approval.

Link Between Pay and Performance

In 2021, 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, division 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, division, business unit, desk and individual performance, as applicable. 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 shareholders' equity;
- Return on average tangible common shareholders' equity;
- Efficiency ratio;
- Book value per common share growth;
- Pre-tax earnings;
- Net revenues;
- Diluted earnings per common share; and
- Total shareholder return

Divisional performance

Additionally, each revenue-producing division has quantitative and/or qualitative metrics specific to the division, its business units and, where applicable, desks that are used to evaluate the performance of the division and its 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

2021 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 2021 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 2021 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 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 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 2021 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 2021 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 2021 for 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 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 2021 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, divisional, business unit 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 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 2021. 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 188 individuals, categorised as Risk Takers for the purposes of the KWG, IVV, and EBA Guidelines.

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 45: 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	5	5	16	162
2		Total fixed remuneration	0.30	7.20	23.78	98.87
3		Of which: cash-based	0.30	7.20	23.78	98.87
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	5	5	16	162
10		Total variable remuneration	-	12.76	42.86	154.65
11		Of which: cash-based	-	1.24	2.28	25.65
12		Of which: deferred	-	-	-	-
EU-13a		Of which: shares or equivalent ownership interests	-	11.51	40.58	129.00
EU-14a		Of which: deferred	-	10.27	38.37	105.18
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)**		**0.30**	**19.95**	**66.64**	**253.52**

Table 46: 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
2	Guaranteed variable remuneration awards -Total amount	-	-	-	2.10
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 47: 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**	**7.33**	**2.23**	**5.10**	**-**	**-**	**1.70**	**2.23**	**2.23**
8	Cash-based	-	-	-	-	-	-	-	-
9	Shares or equivalent ownership interests	7.33	2.23	5.10	-	-	1.70	2.23	2.23
10	Share-linked instruments or equivalent non-cash instruments	-	-	-	-	-	-	-	-
11	Other instruments	-	-	-	-	-	-	-	-
12	Other forms	-	-	-	-	-	-	-	-
13	**Other senior management**	**0.92**	**0.31**	**0.61**	**-**	**-**	**0.21**	**0.31**	**0.31**
14	Cash-based	-	-	-	-	-	-	-	-
15	Shares or equivalent ownership interests	0.92	0.31	0.61	-	-	0.21	0.31	0.31
16	Share-linked instruments or equivalent non-cash instruments	-	-	-	-	-	-	-	-
17	Other instruments	-	-	-	-	-	-	-	-
18	Other forms	-	-	-	-	-	-	-	-
19	**Other identified staff**	**4.37**	**1.46**	**2.92**	**-**	**-**	**0.98**	**1.46**	**1.46**
20	Cash-based	-	-	-	-	-	-	-	-
21	Shares or equivalent ownership interests	4.37	1.46	2.92	-	-	0.98	1.46	1.46
22	Share-linked instruments or equivalent non-cash instruments	-	-	-	-	-	-	-	-
23	Other instruments	-	-	-	-	-	-	-	-
24	Other forms	-	-	-	-	-	-	-	-
25	**Total amount**	**12.62**	**3.99**	**8.63**	**-**	**-**	**2.88**	**3.99**	**3.99**

Table 48: 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	24
2	1 500 000 to below 2 000 000	28
3	2 000 000 to below 2 500 000	9
4	2 500 000 to below 3 000 000	6
5	3 000 000 to below 3 500 000	2
6	3 500 000 to below 4 000 000	6
7	4 000 000 to below 4 500 000	3
8	4 500 000 to below 5 000 000	1
9	5 000 000 to below 6 000 000	5
10	6 000 000 to below 7 000 000	5
11	7 000 000 to below 8 000 000	1
12	8 000 000 to below 9 000 000	-
13	9 000 000 and above	6

Table 49: 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**										**188**
2	Of which: members of the MB	5	5	10							
3	Of which: other senior management				6	-	2	4	4	-	
4	Of which: other identified staff				138	-	14	3	7	-	
5	**Total remuneration of identified staff**	**0.30**	**19.95**	**20.26**	**294.97**	**-**	**17.69**	**4.23**	**3.27**	**-**	
6	Of which: variable remuneration	-	12.76	12.76	183.94	-	10.51	2.25	0.81	-	
7	Of which: fixed remuneration	0.30	7.20	7.50	111.03	-	7.18	1.98	2.46	-	

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 2021 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 2021 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 50: EU LI1 - Differences Between Accounting and Regulatory Scopes of Consolidation and Mapping of Financial Statement Categories with Regulatory Risk Categories

€ in millions						As of December 2021
		Carrying values of items:				
	Carrying values as reported in published IFRS Financial Information and under the scope of regulatory 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	€ 18,148	€ 18,148	-	-	-	-
Collateralised agreements	14,126	-	14,126	-	-	-
Customer and other receivables	17,292	897	16,396	-	-	-
Trading Assets	69,022	-	64,537	-	69,022	-
Investments	43	-	-	43	-	-
Loans	633	599	-	34	-	-
Other assets	473	439	-	-	-	34
Total assets	**€ 119,737**	**€ 20,083**	**€ 95,058**	**€ 78**	**€ 69,022**	**€ 34**
Liabilities						
Collateralised financings	€ 6,536	-	€ 6,536	-	-	-
Customer and other payables	13,779	-	9,810	-	-	3,969
Trading liabilities	68,462	-	66,584	-	68,462	-
Deposits	3,461	-	-	-	-	3,461
Unsecured borrowings	20,672	-	-	-	-	20,672
Other liabilities	1,014	-	-	-	-	1,014
Total liabilities	**€ 113,924**	**-**	**€ 82,929**	**-**	**€ 68,462**	**€ 29,117**

Carrying values under the scope of regulatory consolidation shown in the first column 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.

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

€ in millions		As of December 2021		
		Items subject to		
		Credit risk framework	**CCR framework**	**Securitisation framework**
1	**Assets carrying value amount under the scope of regulatory consolidation (as per template EU LI1)**	**€ 20,083**	**€ 95,058**	**€ 78**
2	Liabilities carrying value amount under the regulatory scope of consolidation (as per template EU LI1)	-	(82,929)	-
3	Total net amount under the regulatory scope of consolidation	20,083	12,128	78
4	Off-balance sheet amounts	7,985	-	-
5	*Differences due to credit conversion factor*	(2,607)	-	-
6	*Differences due to netting of collateral, haircut and EAD modelling*	(2,772)	6,470	-
7	**Exposure amounts considered for regulatory purposes**	**€ 22,689**	**€ 18,599**	**€ 78**

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 52: 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	€ 18,148	€ 18,148	GSBE FY 2021 IFRS Financial Information
2	Collateralised agreements	14,126	14,126	"
3	Customer and other receivables	17,292	17,292	"
4	Trading assets	69,022	69,022	"
5	Investments	43	43	"
6	Loans	633	633	"
7	Other assets	473	473	"
	Total assets	**119,737**	**119,737**	"
Liabilities - *Breakdown by liability classes according to the balance sheet in the published financial statements*				
8	Collateralised financings	6,536	6,536	GSBE FY 2021 IFRS Financial Information
9	Customer and other payables	13,779	13,779	"
10	Trading liabilities	68,462	68,462	"
11	Deposits	3,461	3,461	"
12	Unsecured borrowings	20,672	20,672	"
13	Other liabilities	1,014	1,014	"
	Total liabilities	**113,924**	**113,924**	"
Shareholders' Equity				
14	Share capital	329	329	GSBE FY 2021 IFRS Financial Information
15	Share premium account	26	26	"
16	Other equity instruments	4,586	4,586	"
17	Retained earnings	898	898	"
18	Accumulated other comprehensive income	(26)	(26)	"
	Total shareholders' equity	**€ 5,813**	**€ 5,813**	"

Table 53: EU PV1: Prudent valuation adjustments (PVA)

€ in millions As of December 2021

	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	4	1	0	10	0	2	3	10	7	3
Close-out cost	9	0	0	2	0	1	0	5	5	0
Concentrated positions	0	0	0	3	0	NA	NA	3	0	3
Early termination	0	0	0	0	0	NA	NA	0	0	0
Model risk	1	0	0	1	0	31	0	16	16	0
Operational risk	1	0	0	1	0	NA	NA	1	1	0
Future administrative costs	0	0	0	0	0	NA	NA	0	0	0
Total Additional Valuation Adjustments (AVAs)	-	-	-	-	-	-	-	**€ 36**	**€ 30**	**€ 6**

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 2021.

Table 54: EU CR4 - Standardised Approach - Credit Risk Exposure and CRM Effects

€ in millions As of December 2021

		Exposures before CCF and CRM		Exposures post CCF and CRM		RWAs and RWA density	
	Exposure classes	**On-balance-sheet amount**	**Off-balance-sheet amount**	**On-balance-sheet amount**	**Off-balance-sheet amount**	**RWA**	**RWA density**
1	Central governments or central banks	€ 17,970	-	€ 17,970	-	€ 257	1.43%
2	Regional government or local authorities	0	-	0	-	-	-
3	Public sector entities	73	-	73	-	0	-
6	Institutions	592	112	592	428	309	30.31%
7	Corporates	1,217	7,440	1,217	2,179	3,300	97.19%
9	Secured by mortgages on immovable property	-	433	-	-	-	-
15	Equity	2	-	2	-	5	224.14%
16	Other items	228	-	228	-	228	100.00%
17	**TOTAL**	**€ 20,083**	**€ 7,985**	**€ 20,083**	**€ 2,607**	**€ 4,099**	**18.07%**

Table 55: EU CR5 - Standardised Approach

€ in millions As of December 2021

		Risk weight									
	Exposure classes	**0%**	**2%**	**20%**	**50%**	**100%**	**150%**	**250%**	**1250%**	**Total**	**Of which unrated**
1	Central governments or central banks	€ 17,834	-	-	-	€ 55	-	€ 81	-	€ 17,970	-
2	Regional government or local authorities	0	-	-	-	-	-	-	-	0	-
3	Public sector entities	73	-	0	-	-	-	-	-	73	71
6	Institutions	-	164	414	438	4	0	-	0	1,020	531
7	Corporates	-	-	102	541	2,327	421	-	4	3,396	1,543
15	Equity	-	-	-	-	0	-	2	-	2	2
16	Other items	-	-	-	-	228	-	-	-	228	228
17	**TOTAL**	**€ 17,907**	**€ 164**	**€ 516**	**€ 979**	**€ 2,615**	**€ 421**	**€ 82**	**€ 4**	**€ 22,689**	**€ 2,376**

Table 56: EU CR1-A - Maturity of Exposures

€ in millions As of December 2021

		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	€ 19,638	€ 11,914	€ 468	€ 246	-	€ 32,266
2	Debt securities	-	-	-	43	-	43
3	**Total**	**€ 19,638**	**€ 11,914**	**€ 468**	**€ 289**	**-**	**€ 32,309**

Appendix III: Counterparty Credit Risk Tables

Table 57: EU CCR3 - Standardised approach – CCR exposures by regulatory exposure class and risk weights

€ in millions | As of December 2021

	Exposure classes	Risk weight						
		a	b	e	f	i	j	l
		0%	**2%**	**20%**	**50%**	**100%**	**150%**	**Total exposure value**
1	Central governments or central banks	€ 60	-	-	-	€ 5	-	€ 65
2	Regional government or local authorities	592	-	-	-	-	-	592
3	Public sector entities	451	-	2	-	9	-	462
5	International organisations	49	-	-	-	-	-	49
6	Institutions	-	2,099	2,446	1,024	39	26	5,634
7	Corporates	-	-	98	2,968	8,603	128	11,797
11	**Total exposure value**	**€ 1,152**	**€ 2,099**	**€ 2,545**	**€ 3,993**	**€ 8,656**	**€ 154**	**€ 18,599**

Table 58: EU CCR5 - Composition of Collateral for CCR Exposures

As of December 2021

	€ in millions	a	b	c	d	e	f	g	h
		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	-	€ 11,213	-	€ 8,227	-	€ 5	-	€ 1
2	Cash – other currencies	-	2,953	-	8,413	-	54	-	24
3	Domestic sovereign debt	299	477	40	395	-	4,244	-	2,469
4	Other sovereign debt	2,347	784	888	1,827	-	18,053	-	11,279
5	Government agency debt	-	637	-	-	-	-	-	-
6	Corporate bonds	63	364	9	964	-	548	-	497
7	Equity securities	336	-	3	-	-	2,180	-	2,703
8	Other collateral	-	-	-	-	-	261	-	301
9	**Total**	**€ 3,045**	**€ 16,428**	**€ 939**	**€ 19,826**	**-**	**€ 25,345**	**-**	**€ 17,273**

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

Table 59: EU CR1 - Performing and non-performing exposures and related provisions

€ millions — As of December 2021

		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**	**€ 18,148**	**€ 18,148**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2	**Loans and advances**	**32,266**	**19,291**	**-**	**-**	**-**	**-**	**(3)**	**(3)**	**-**	**-**	**-**	**-**	**-**	**15,369**	**-**
3	Central banks	58	0	-	-	-	-	-	-	-	-	-	-	-	56	-
4	General governments	96	96	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Credit institutions	3,114	1,467	-	-	-	-	(0)	(0)	-	-	-	-	-	1,772	-
6	Other financial corporations	27,772	16,607	-	-	-	-	(0)	(0)	-	-	-	-	-	13,318	-
7	Non-financial corporations	1,063	957	-	-	-	-	(3)	(3)	-	-	-	-	-	130	-
8	Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Households	163	163	-	-	-	-	-	-	-	-	-	-	-	143	-
10	**Debt securities**	**43**	**42**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
11	Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Other financial corporations	43	42	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	**Off-balance-sheet exposures**	**3,599**	**3,599**	**-**	**-**	**-**	**-**	**5**	**5**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
17	Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Other financial corporations	591	591	-	-	-	-	1	1	-	-	-	-	-	-	-
21	Non-financial corporations	3,008	3,008	-	-	-	-	5	5	-	-	-	-		-	-
22	Households	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	**Total**	**€ 54,056**	**€ 41,080**												€ 15,369	

Table 60: EU CQ3 - Credit quality of performing and non-performing exposures by past due days

€ millions | As of December 2021

		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**	**€ 18,148**	**€ 18,148**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
010	**Loans and advances**	**32,266**	**32,266**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
020	Central banks	58	58	-	-	-	-	-	-	-	-	-	-
030	General governments	96	96	-	-	-	-	-	-	-	-	-	-
040	Credit institutions	3,114	3,114	-	-	-	-	-	-	-	-	-	-
050	Other financial corporations	27,772	27,772	-	-	-	-	-	-	-	-	-	-
060	Non-financial corporations	1,063	1,063	-	-	-	-	-	-	-	-	-	-
070	Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-
080	Households	163	163	-	-	-	-	-	-	-	-	-	-
090	**Debt Securities**	**43**	**43**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
100	Central banks	-	-	-	-	-	-	-	-	-	-	-	-
110	General governments	-	-	-	-	-	-	-	-	-	-	-	-
120	Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-
130	Other financial corporations	43	43	-	-	-	-	-	-	-	-	-	-
140	Non-financial corporations	-	-		-								-
150	**Off-balance sheet exposures**	**3,599**	**-**		**-**								**-**
160	Central banks	-	-		-								-
170	General governments	-	-		-								-
180	Credit institutions	-	-		-								-
190	Other financial corporations	591	-		-								-
200	Non-financial corporations	3,008	-		-								-
210	Households	-	-		-								-
220	**Total**	**€ 54,056**	**€ 50,457**		-	-	-	-	-	-	-	-	-

Appendix V: Index of Tables to EBA Templates

40	EU CQ6-Collateral valuation - loans and advances [1]	NA	NA
41	EU CQ7-Collateral obtained by taking possession and execution processes [1]	NA	NA
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71	EU TLAC1-Composition - MREL and, where applicable, G-SII requirement for own funds and eligible liabilities [5]	NA	NA
72	EU iLAC-Internal loss absorbing capacity: internal MREL and, where applicable, requirement for own funds and eligible liabilities for non-EU G-SIIs [5]	NA	NA
73	EU TLAC2-Creditor ranking - Entity that is not a resolution entity [5]	NA	NA
74	EU TLAC3-Creditor ranking - resolution entity [5]	NA	NA

[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

[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

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. To the extent rows are not visible for a disclosed EBA prescribed table, it indicates there are no reportable values.