



Annual Financial Statements
and Management Report
December 31, 2022

Goldman Sachs Bank Europe SE

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Introduction

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

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

The bank is a wholly-owned subsidiary of Goldman Sachs Bank USA (GS Bank USA), a New York State-chartered bank and a member of the Federal Reserve System (FRB). The bank's ultimate parent undertaking and controlling entity is The Goldman Sachs Group, Inc. (Group Inc.). Group Inc. is a bank holding company and a financial holding company regulated by the FRB. In relation to the bank, "GS Group affiliate" means Group Inc. or any of its subsidiaries. Group Inc., together with its consolidated subsidiaries, form "GS Group". GS Group is a leading global financial institution that delivers a broad range of financial services to a large and diversified client base that includes corporations, financial institutions, governments and individuals.

The bank seeks to be the advisor of choice for its clients and a leading participant in financial markets. As part of GS Group, the bank also enters into transactions with affiliates in the normal course of business as part of its market-making activities and general operations.

The bank generates revenues from the following business activities: Investment Banking; Fixed Income, Currency and Commodities (FICC); Equities; and Investment Management, which includes Asset management and Wealth management.

The bank strives to maintain a work environment that fosters professionalism, excellence, diversity, cooperation among employees and high standards of business ethics. The bank recognises that it needs the most talented people to deliver outstanding results for clients. A diverse workforce in terms of gender, ethnicity, sexual orientation, background, culture and education ensures the development of better ideas, products and services. For further information about Goldman Sachs' people, culture and commitment to diversity, see www.goldmansachs.com/our-commitments/diversity-and-inclusion/.

References to "the financial statements" are to the audited financial statements as presented in Part II of this report.

All references to December 2022 refer to the year ended, or the date, as the context requires, December 31, 2022. All references to December 2021 refer to the year ended, or the date, as the context requires, December 31, 2021. 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.

The bank uses certain key performance indicators (KPIs) to measure financial performance as well as to manage the development of its business and capital strength. The primary KPI's for the development of the bank's business are net revenues and net income. Net revenues is defined as the sum of interest income, interest expense, commission income, commission expense and net trading result. The primary KPI to manage the bank's capital strength is the total capital ratio. The bank's results presented in the management report have been prepared under the German Commercial Code (HGB).

Executive Overview

Income Statement

The Income Statement is set out on page 31 of this annual report.

Net revenues for the year ended December 2022 were €1.49 billion, 8% higher than the year ended December 2021, reflecting significantly higher net revenues in FICC and higher net revenues in Equities, partially offset by significantly lower net revenues in Investment Banking. Net revenues in Investment Management were essentially unchanged.

Total expenses were €913 million for the year ended December 2022, 4% higher than the year ended December 2021, primarily due to significantly higher other administrative expenses, higher provision for loan losses, partially offset by lower salaries and wages. Income tax expenses were €242 million for the year ended December 2022, 88% higher than the year ended December 2021, primarily due to the impact of certain permanent differences and non-deductible expenses.

As a result the bank's net income for the year ended December 2022 was €346 million, a decrease of 8% compared with the year ended December 2021.

The bank had expected a slight decrease in net revenues and a decrease in net income for the year ended December 2022 given the strong business environment during the year ended December 2021. Net revenues for the year ended December 2022 exceeded the bank's expectation while net income was largely in line with the bank's expectation. The business environment remained stronger than initially expected driving stronger revenues, though the effect of this was offset predominantly by higher income tax expense.

See "Results of Operations" below for further information about the bank's net revenues and expenses.

Capital Ratios

The bank uses International Financial Reporting Standards (IFRS) as the basis of accounting, in accordance with Art. 24 (2) of Regulation (EU) No 575/2013, while calculating its prudential capital requirements.

The total capital ratio as of December 2022 was 31.7% (December 2021: 22.6%). This exceeded the bank's expectation that the total capital ratio would decrease as of December 2022. The total capital ratio increased due to a contribution to the bank's capital reserve by the bank's sole shareholder in March 2022 as well as lesser than expected growth in risk-weighted assets.

See "Regulatory Capital" below for further information about the bank's risk-based capital ratios.

Balance Sheet

The balance sheet is set out on page 30 of this annual report. As of December 2022, total assets were €66.69 billion, an increase of €11.57 billion from December 2021, primarily reflecting an increase in trading assets of €10.64 billion and an increase in receivables from customers of €5.27 billion, partially offset by a decrease in total cash placements (overnight or on demand) with central banks of €5.44 billion.

As of December 2022, total liabilities were €57.86 billion, an increase of €8.50 billion from December 2021, primarily reflecting an increase in liabilities to customers of €15.27 billion, an increase in trading liabilities of €4.27 billion and an increase in other liabilities of €2.04 billion, partially offset by a decrease in liabilities to credit institutions of €13.39 billion.

As of December 2022, total shareholder's equity was €8.83 billion, an increase of €3.08 billion from December 2021, primarily reflecting an increase in the capital reserve of €2.73 billion and the bank's profit for the year ended December 2022 of €346 million.

See "Balance Sheet and Funding Sources — Balance Sheet Analysis and Metrics" below for further information about the bank's balance sheet.

Business Environment

In 2022, the global economy was impacted by persistent broad macroeconomic and geopolitical concerns, including Russia's invasion of Ukraine and the ongoing war, and inflationary and labour market pressures. Governments around the world responded to Russia's invasion of Ukraine by imposing economic sanctions, and global central banks sought to address inflation by increasing policy interest rates several times over the course of the year. These factors contributed to increased market volatility during the year, as well as a decrease in global equity and bond prices and wider corporate credit spreads compared with the end of 2021.

The economic outlook remains uncertain, reflecting concerns about the continuation or escalation of the war between Russia and Ukraine and other geopolitical risks, inflation, and supply chain complications.

Results of Operations

Net Revenues

Net revenues are defined as the sum of interest income, interest expense, commission income, commission expense and net trading result. Net revenues arise from transactions with both third parties and GS Group affiliates. The bank has revenue sharing agreements with GS Group affiliates related to certain activities under which it receives revenues from, and transfer revenues to, such affiliates. The bank generates a significant proportion of its total net revenues from revenue sharing agreements with affiliates but the proportion has decreased for the year ended December 2022 compared to the year ended December 2021.

The table below presents net revenues by business activity.

€ in millions	Year Ended December	
	2022	2021
Investment Banking	€ 540	€ 780
FICC	491	178
Equities	304	264
Investment Management	151	153
Total	€1,486	€1,375

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The bank has updated the definition of net revenues for the year ended December 2022 to exclude other operating income. The bank has also updated its methodology for allocation of funding costs and trading related special reserve, reported within net revenues, to its business activities. As a result, in the table above, comparatives have been conformed to the current period presentation, with a decrease in net revenues by €10 million.

Investment Banking

Investment Banking primarily generates revenues from the following:

Advisory. Includes strategic advisory engagements with respect to mergers and acquisitions, divestitures, corporate defence activities, restructurings and spin-offs.

Underwriting. Includes public offerings and private placements of a wide range of securities and other financial instruments, including local and cross-border transactions and acquisition financing.

Other. Includes lending to corporate clients, including through relationship lending and acquisition financing, and transaction banking services.

December 2022 versus December 2021. Net revenues in Investment Banking were €540 million for the year ended December 2022, 31% lower than the year ended December 2021, primarily due to significantly lower net revenues in Underwriting and lower net revenues in Advisory. The decrease in Underwriting reflected significantly lower net revenues in Equity underwriting and Debt underwriting. Advisory net revenues were lower reflecting a decrease in industry-wide completed mergers and acquisitions transactions.

FICC and Equities

FICC and Equities serve the bank's clients who buy and sell financial products, raise funding and manage risk. The bank does this by acting as a market maker and offering expertise primarily to European clients. FICC and Equities make markets and facilitate client transactions in fixed income, currency, commodity and equity products. In addition, the bank makes markets in, and clears client transactions on, major stock, options and futures exchanges in Europe.

The bank executes a high volume of transactions for its clients in large, highly liquid markets. The bank also executes transactions for its clients in less liquid markets for spreads and fees that are generally somewhat larger than those charged in more liquid markets. Additionally, the bank structures and executes transactions involving customised or tailor-made products that address its clients' risk exposures, investment objectives or other complex needs, as well as derivative transactions related to client advisory and underwriting activities.

The bank's net revenues are influenced by a combination of interconnected drivers, including (i) client activity levels and transactional bid/offer spreads (collectively, client activity) and (ii) changes in the fair value of its inventory, and interest income and interest expense related to the holding, hedging and funding of its inventory.

FICC. FICC generates revenues from intermediation and financing activities.

- **FICC intermediation.** Includes client execution activities related to making markets in both cash and derivative instruments, as detailed below.

Interest Rate Products. Government bonds (including inflation-linked securities) across maturities, other government-backed securities, and interest rate swaps, options and other derivatives.

Credit Products. Investment-grade and high-yield corporate securities, credit derivatives, exchange-traded funds (ETFs), bank and bridge loans and municipal securities.

Currencies. Currency options, spot/forwards and other derivatives on G-10 currencies and emerging-market products.

Commodities. Commodity derivatives involving crude oil and petroleum products, natural gas, agricultural, base, precious and other metals, electricity, including renewable power, environmental products and other commodity products.

- **FICC financing.** Includes secured lending to the bank's clients through structured credit, asset-backed lending and through securities purchased under agreements to resell (resale agreements).

December 2022 versus December 2021. Net revenues in FICC were €491 million for the year ended December 2022, €313 million higher than the year ended December 2021, due to significantly higher net revenues in FICC intermediation and higher net revenues in FICC financing. The increase in FICC intermediation reflected significantly higher net revenues in interest rate products and higher net revenues in currencies and commodities, partially offset by lower net revenues in credit products. The increase in FICC intermediation reflected significantly higher client activity as the bank supported clients amid an evolving macroeconomic environment. The increase in FICC financing was primarily driven by resale agreements and structured finance.

Equities. Equities generates revenues from intermediation and financing activities.

- **Equities intermediation.** Includes client execution activities related to making markets in equity products and commissions and fees from executing and clearing institutional client transactions on major stock, options and futures exchanges in Europe, as well as over-the-counter (OTC) transactions.
- **Equities financing.** Includes prime brokerage and other equities financing activities, including securities lending, margin lending and swaps and generates revenues primarily in the form of interest rate spreads or fees.

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December 2022 versus December 2021. Net revenues in Equities were €304 million for the year ended December 2022, 15% higher than the year ended December 2021 due to higher net revenues in Equities intermediation and Equities financing. The increase in Equities intermediation reflected higher net revenues in derivatives. The increase in Equities financing primarily reflected higher activity.

Investment Management

Investment Management includes Asset management and Wealth management.

Asset management includes a share of asset-based fees on client assets that are being managed on a fiduciary basis by GS Group's portfolio managers, for the bank's sales and distribution efforts. The bank's asset management business significantly depends on its ability to delegate portfolio management to other GS Group affiliates.

Wealth management includes wealth advisory services, including portfolio management and financial counselling, brokerage and other transaction services to high-net-worth individuals and families.

December 2022 versus December 2021. Net revenues in Investment Management were €151 million for the year ended December 2022, essentially unchanged compared with the year ended December 2021.

Expenses

Expenses are primarily influenced by compensation (including the impact of the Group Inc. share price on share-based compensation), headcount and levels of business activity. Salaries and wages include salaries, allowances, year-end discretionary compensation, amortisation of share-based compensation, changes in the fair value of share-based payment awards between grant date and delivery date and other items such as benefits. Discretionary compensation is significantly impacted by, among other factors, the level of net revenues, overall financial performance, prevailing labour markets, business mix, the structure of share-based compensation programmes and the external environment.

The table below presents the bank's total expenses and headcount.

€ in millions	Year Ended December	
	2022	2021
Salaries and wages	€479	€536
Social security contributions	101	94
Other administrative expenses	243	185
Depreciation and amortisation	43	43
Other operating expenses	15	12
Provision for loan losses	32	9
Total expenses	€913	€879
Headcount at year-end	1,097	908

In the table above,

- Salaries and wages included a charge of €12 million for the year ended December 2022 (December 2021: €34 million) representing changes in the fair value of share-based payment awards recharged from Group Inc. during the period.
- Other administrative expenses include charges relating to operational and administrative support and management services received from GS Group affiliates.

December 2022 versus December 2021. Total expenses were €913 million for the year ended December 2022, 4% higher than the year ended December 2021.

Salaries and wages were €479 million for the year ended December 2022, 11% lower than the year ended December 2021. Excluding the impact of changes in the fair value of share-based payment awards recharged from Group Inc. for both years, salaries and wages were €467 million for the year ended December 2022, 7% lower than the year ended December 2021, mainly reflecting a decrease in year-end discretionary compensation partially offset by a 21% increase in headcount.

Other administrative expenses were €243 million for the year ended December 2022, 31% higher than the year ended December 2021, primarily due to increased accrued contributions to the E.U. Single Resolution Fund and an overall increase in other expenses (market development, occupancy and professional fees).

Provision for loan losses were €32 million for the year ended December 2022, compared with €9 million for the year ended December 2021, reflecting the growth in the bank's lending business as well as the impact of macroeconomic and geopolitical concerns.

As of December 2022, headcount was 21% higher compared with December 2021, mainly driven by the continued expansion of the bank's activities across Europe.

Income Tax Expense

The effective tax rate was 41.2% for the year ended December 2022, which is higher compared to the combined income tax rate for the jurisdictions in which the bank operates primarily due to the impact of certain permanent differences and non-deductible expenses. The effective tax rate represents the bank's income tax expense divided by its result from ordinary activities.

Net Income

Net income was €346 million for the ended December 2022, 8% lower than the year ended December 2021, primarily due to significantly higher income tax expense partially offset by higher result from ordinary activities.

Balance Sheet and Funding Sources

Balance Sheet Analysis and Metrics

The table below presents the bank's balance sheet on an aggregated level.

€ in millions	As of December	
	2022	2021
Cash reserve	€ 137	€17,884
Receivables from credit institutions/customers	31,104	13,252
Trading assets	28,518	17,880
Remaining assets	6,926	6,096
Total assets	€66,685	€55,112
Liabilities to credit institutions/customers	29,767	27,891
Trading liabilities	20,391	16,118
Provisions	837	671
Subordinated debt	20	20
Remaining liabilities	6,843	4,661
Shareholder's equity	8,827	5,751
Total liabilities and shareholder's equity	€66,685	€55,112

In the table above:

- Remaining assets include bonds and other fixed-income securities, assets held in trust, intangible assets, fixed assets, other assets and deferred tax assets.
- Remaining liabilities include liabilities held in trust, other liabilities, deferred income, and the fund for general banking risks.
- Total cash placements (overnight or on demand) with central banks were €12.44 billion as of December 2022 (December 2021: €17.88 billion).
- Cash reserve (on demand) decreased by €17.75 billion primarily due to cash deposit placed with Deutsche Bundesbank moved to overnight in the year ended December 2022.
- Receivables from credit institutions/customers increased by €17.85 billion primarily due to the overnight central bank cash deposit as well as an increase in intercompany reverse repurchase agreements and stock borrows.
- Trading assets increased by €10.64 billion and trading liabilities increased by €4.27 billion primarily due to increased activity.
- Liabilities to credit institutions/customers increased by €1.88 billion primarily due to an increase in repurchase agreements and deposits partially offset by a decrease in intercompany borrowings.
- Shareholder's equity increased by €3.08 billion primarily reflecting an increase in the capital reserve of €2.73 billion and the bank's profit for the year ended December 2022 of €346 million.

As of December 2022, irrevocable lending commitments were €5.71 billion, an increase of €621 million from December 2021, primarily reflecting an increase in the bank's lending business.

The liquidity management of the bank is designed to ensure sufficient liquidity is available at all times. Refer "Risk Report — Liquidity Risk Management" for more information about the bank's Global Core Liquid Assets (GCLA).

The bank had sufficient liquidity to meet its payment obligations at all times during the financial year. The bank is a wholly-owned subsidiary of GS Bank USA and an indirect, wholly-owned subsidiary of Group Inc. The shareholders' equity of Group Inc. was \$117 billion as of December 2022 and \$110 billion as of December 2021. GS Bank USA and Group Inc. make a comprehensive range of liquidity and financing alternatives available for the bank, allowing the greatest possible flexibility in refinancing.

Funding Sources

The bank's primary sources of funding are collateralised financings (included within liabilities to credit institutions/customers and trading liabilities), unsecured borrowings (included within liabilities to credit institutions/customers and trading liabilities), deposits (included within liabilities to customers) and shareholder's equity.

The table below presents information about funding sources.

€ in millions	As of December			
	2022		2021	
Collateralised financings	€19,266	47 %	€ 8,277	22%
Unsecured borrowings	6,803	16 %	20,653	54%
Deposits	6,767	16 %	3,461	9%
Shareholder's equity	8,827	21 %	5,751	15%
Total	€41,663	100 %	€38,142	100%

Collateralised Financings. The bank funds a significant amount of inventory on a secured basis, with GS Group affiliates as well as external counterparties.

The bank seeks to raise secured funding with a term appropriate for the liquidity of the assets that are being financed, and seeks longer maturities for secured funding collateralised by asset classes that may be harder to fund on a secured basis, especially during times of market stress.

Unsecured Borrowings. The bank has both intercompany and external unsecured borrowings.

Intercompany Unsecured Borrowings

Intercompany unsecured borrowings include borrowings and subordinated loans. The bank's unsecured intercompany borrowings are primarily from its immediate parent undertaking, GS Bank USA.

External Unsecured Borrowings

External unsecured borrowings include registered bonds and promissory notes, debt securities issued and overdrafts.

Deposits. The deposits provide the bank with a diversified source of funding and reduce its reliance on wholesale funding. The bank accepts deposits, including demand and time deposits. The depositors primarily include private wealth clients, institutional clients and transaction banking clients.

Shareholder's Equity. Shareholder's equity is a stable and perpetual source of funding. See Note 15 to the financial statements for further information.

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Regulatory Capital

The bank is subject to the capital requirements prescribed in the amended E.U. Capital Requirements Directive (CRD) and E.U. Capital Requirements Regulation (CRR), which are largely based on the Basel Committee on Banking Supervision's (Basel Committee) capital framework for strengthening international capital standards. The Basel Committee is the primary global standard setter for prudential bank regulation and its member jurisdictions implement regulations based on its standards and guidelines.

The bank uses IFRS as the basis of accounting, in accordance with Art. 24 (2) of Regulation (EU) No 575/2013, while calculating its prudential capital requirements.

The risk-based capital requirements are expressed as capital ratios that compare measures of regulatory capital to risk-weighted assets (RWAs). The Common Equity Tier 1 (CET1) capital ratio is defined as CET1 capital divided by RWAs. The Tier 1 capital ratio is defined as Tier 1 capital divided by RWAs. The total capital ratio is defined as total capital divided by RWAs.

The CET1 capital, Tier 1 capital and Total capital ratio requirements (collectively, the Pillar 1 capital requirements) are supplemented by:

- A capital conservation buffer of 2.5% of RWAs, consisting entirely of capital that qualifies as CET1 capital.
- A countercyclical capital buffer of up to 2.5% of RWAs (and also consisting entirely of CET1 capital) in order to counteract excessive credit growth. The buffer only applies to the bank's exposures to certain types of counterparties based in jurisdictions which have announced a countercyclical buffer. The buffer was 29 basis points as of December 2022. In 2023, increases in countercyclical capital buffer rates are expected to come into force across a number of jurisdictions where the bank has exposures such as Germany, the Netherlands, France and the United Kingdom.
- The individual Pillar 2 capital requirement (P2R) (an additional amount to cover risks not adequately captured in Pillar 1). The ECB performs an annual Supervisory Review and Evaluation Process (SREP), which leads to a final determination by the ECB of the SREP capital add-on which consists of P2R and a Pillar 2 capital guidance (P2G). The bank's P2R capital add-on for 2022 and 2023 has been set at 3.0% of which 1.69% has to be held in CET1 capital.
- An additional capital requirement according to the degree of systemic importance of the bank (O-SII buffer). The CRD and CRR provide that institutions that are systemically important at the E.U. or member state level, known as other systemically important institutions (O-SIIs), may be subject to O-SII buffers. BaFin identified the bank as an O-SII in Germany and set an O-SII buffer of 25 basis points, applicable from January 1, 2022. Effective January 1, 2023, the O-SII buffer has been increased to 50 basis points.

Regulatory Risk-Based Capital Ratios

The table below presents information about the bank's risk-based capital requirements.

	As of December	
	2022	2021
Risk-based capital requirements		
CET1 capital	9.2%	8.7%
Tier 1 capital	11.3%	10.8%
Total capital ratio	14.0%	13.5%

In the table above:

- The bank's minimum risk-based capital requirements as of December 2022 increased compared with December 2021 due to the O-SII buffer of 25 basis points being applicable to the bank from January 1, 2022 and an increase in the countercyclical capital buffer by 25 basis points.
- The minimum risk-based capital requirements incorporate the P2R set by the ECB and could change in the future.
- The minimum risk-based capital requirements do not include the P2G which represents the ECB's view of the capital that the bank would require to absorb losses in stressed market conditions.

The table below presents information about the bank's risk-based capital ratios.

€ in millions	As of December	
	2022	2021
Risk-based capital and RWAs		
CET1 capital	€ 8,911	€ 5,732
Tier 1 capital	€ 8,911	€ 5,732
Tier 2 capital	€ 20	€ 20
Total capital	€ 8,931	€ 5,752
RWAs	€28,179	€25,402
Risk-based capital ratios		
CET1 capital	31.6%	22.6%
Tier 1 capital	31.6%	22.6%
Total capital ratio	31.7%	22.6%

In the table above:

- CET1 capital comprises the bank's shareholder's equity less certain regulatory adjustments and deductions.
- The risk-based capital ratios as of December 2022 included the bank's profits after foreseeable charges for the year ended December 2022, which will be approved to be included as regulatory capital by the bank's shareholder on May 17, 2023. These profits contributed approximately 76 basis points to the CET1 capital ratio.

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Leverage Ratio

The bank is subject to a minimum leverage ratio requirement of 3.0%. The leverage ratio compares 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.

The table below present information about the bank's leverage ratio.

€ in millions	As of December	
	2022	2021
Tier 1 capital	€ 8,911	€ 5,732
Leverage exposure	€84,006	€75,838
Leverage ratio	10.6%	7.6%

In the table above, the leverage ratio as of December 2022 included the bank's profits after foreseeable charges for the year ended December 2022, which will be approved to be included as regulatory capital by the bank's shareholder on May 17, 2023. These profits contributed approximately 57 basis points to the leverage ratio.

Minimum Requirement for Own Funds and Eligible Liabilities (MREL)

The CRR and the BRRD are designed to, among other things, implement the Financial Stability Board's (FSB) minimum Total Loss Absorbing Capacity (TLAC) requirement for global systemically important bank (G-SIB). For example, the CRR requires E.U. subsidiaries of a non-E.U. G-SIB to meet internal TLAC (iTLAC) requirements if they exceed the threshold of 5% of the G-SIB's RWAs, operating income or leverage exposure. In the first quarter of 2022, the bank exceeded 5% of GS Group's leverage exposure and is thereby required to meet 90% of the iTLAC requirement applicable to E.U. G-SIBs. The bank satisfies this requirement through its total regulatory capital and MREL eligible debt from intercompany borrowings.

The table below presents information about the bank's iTLAC requirements.

	As of December 2022
iTLAC to RWAs	19.2%
iTLAC to leverage exposure	6.1%

The table below presents information about the bank's iTLAC ratios.

€ in millions	As of December 2022
iTLAC	€ 9,731
RWAs	€28,179
Leverage exposure	€84,006
iTLAC to RWAs	34.5%
iTLAC to leverage exposure	11.6%

In the tables above:

- iTLAC ratios as of December 2021 have not been presented since the iTLAC requirements only became applicable to the bank in the first quarter of 2022.
- iTLAC comprises the bank's total regulatory capital and MREL eligible debt from intercompany borrowings.
- iTLAC to RWAs requirements includes capital conservation buffer, countercyclical capital buffer and O-SII buffer.
- iTLAC ratios as of December 2022 reflect the bank's profits after foreseeable charges for the year ended December 2022, which will be approved to be included as regulatory capital by the bank's shareholder on May 17, 2023. These profits contributed approximately 76 basis points to the iTLAC to RWAs ratio and 57 basis points to the iTLAC to leverage exposure ratio.

The E.U. Bank Recovery and Resolution Directive (BRRD), as amended by BRRD II subjects institutions to a minimum requirement for own funds and eligible liabilities. The Single Resolution Board's (SRB) internal MREL (iMREL) requirements applicable to the bank are required to be phased in through January 2024. The iMREL to RWAs requirement will be set at a higher level than the iTLAC to RWAs requirement at 22% excluding any combined buffer requirements. As of December 2022, the bank was in compliance with the forthcoming requirements.

Deposit Protection

The deposits of the bank are covered by the German statutory deposit compensation scheme to the extent provided by law. In addition, the bank has elected to participate in the German voluntary deposit protection scheme which provides insurance for certain eligible deposits not covered by the German statutory deposit compensation scheme.

The voluntary deposit compensation scheme has been substantially reformed with effect from January 1, 2023, reducing the scope of eligible deposits as well as the protection ceilings of the protection under the voluntary deposit compensation scheme for funds deposited with the bank.

Minimum Reserves

The bank is subject to minimum reserve requirements at central banks in certain of the E.U. jurisdictions in which it operates under the harmonised minimum reserve requirements of the ECB. The combined minimum reserve requirement was €221 million as of December 2022 and €166 million as of December 2021 and the bank was in compliance with these requirements.

Swaps, Derivatives and Commodities Regulation

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

Forecast and Opportunities Report

Economy

Economic momentum held up relatively well towards the end of December 2022 and was off to a strong start in 2023. Following resilient activity data, lower gas prices, easier financial conditions and earlier China reopening, the bank has upgraded its 2023 growth forecasts to an above-consensus view and no longer expects a recession in Germany or the Euro area. The bank now estimates 2023 growth of 0.5% for Germany and 0.9% for the Euro area. In March 2023, momentum was disrupted by stress in the banking sector, including the failure of two regional banks in the U.S. and the planned combination of Switzerland's two largest financial institutions, which resulted in a period of high interest rate volatility.

Measures of underlying inflationary pressures remain strong despite a larger-than-expected decline in headline inflation since the peak in October 2022. The bank expects headline inflation to average 5.7% and core inflation 5.0% in the Euro area in 2023. Although the bank forecasts that seasonally adjusted monthly core inflation will begin to ease, sequential price pressures remain significantly above the ECB's target.

Given the firm sequential core inflation numbers, the more resilient activity data and recent ECB commentary, the bank expects a hike in the rate by 25 basis points each in the ECB meeting to be held in June 2023 and July 2023, reaching a peak rate of 3.75%. The bank maintains its view that the ECB will maintain the peak rate until the end of the fourth quarter of 2024.

Business Outlook

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

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

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

Russian Invasion of Ukraine. The Russian invasion of Ukraine continues to negatively affect the global economy and has resulted in significant disruptions in financial markets and increased macroeconomic uncertainty. Governments around the world have responded to Russia's invasion by imposing economic sanctions and export controls on specific industry sectors, companies and individuals in Russia.

Retaliatory restrictions against investors, non-Russian owned businesses and other sovereign states have been implemented by Russia. Businesses globally continue to experience shortages in materials and increased costs for transportation, energy and raw materials due, in part, to the negative effects of the war on the global economy. The escalation or continuation of the war between Russia and Ukraine presents heightened risks relating to cyber attacks, third party and agent bank dependencies, supply chain disruptions, and inflation, as well as the potential for increased volatility in commodity, currency and other financial markets. Complying with economic sanctions and restrictions imposed by governments has resulted in increased operational risk. The extent and duration of the war, sanctions and resulting market disruptions, as well as the potential adverse consequences for the bank's business, liquidity and results of operations, are difficult to predict.

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

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

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

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

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

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

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

Principal Risks and Uncertainties

The bank faces a variety of risks that are substantial and inherent in its businesses. The principal risks and uncertainties that the bank faces are: liquidity risk, market risk, credit risk, operational risk, legal and regulatory risk, competition risk, and market developments and general business environment risk. These risks have been summarised below.

The risks are primarily addressed through the bank's risk management and corporate governance framework, see "Risk Report — Overview and Structure of Risk Management" for further information. For further information about liquidity risk, market risk, credit risk and operational risk and the bank's mitigants, see "Liquidity Risk Management", "Market Risk Management", "Credit Risk Management", and "Operational Risk Management", respectively. Legal and regulatory risks are primarily managed by the bank's independent risk oversight and control functions, see "Risk Report — Overview and Structure of Risk Management" for further information. Competition risk is primarily managed by the bank's strategy and the bank's engagement with employees. Market developments and general business environment risks are overseen by a series of committees, councils and working groups at both the GS Group and the bank level, see "Risk Report — Overview and Structure of Risk Management" and "Risk Report — Strategic and Business Environment Risk" for further information.

Liquidity

- Loss of deposits could increase the bank's funding costs and adversely affect the bank's liquidity and ability to grow its business.
- The bank's businesses have been and may in the future be adversely affected by disruptions or lack of liquidity in the credit markets, including reduced access to credit and higher costs of obtaining credit.
- The bank's liquidity, profitability and businesses may be adversely affected by an inability of the bank's immediate parent, GS Bank USA and ultimate parent, Group Inc. to access the debt capital markets or to sell assets.
- Reductions in the credit ratings or an increase in the credit spreads of the bank or its immediate parent, GS Bank USA or the ultimate parent, Group Inc. may adversely affect the bank's liquidity and cost of funding.

Market

- The bank's businesses have been and may in the future be adversely affected by conditions in the global financial markets and broader economic conditions.
- The bank's businesses have been and may in the future be adversely affected by declining asset values, particularly where it has net "long" positions, or receives or posts collateral.
- The bank's market-making activities have been and may in the future be affected by changes in the levels of market volatility.
- The bank's investment banking and investment management businesses have been adversely affected and may in the future be adversely affected by market uncertainty or lack of confidence among investors and chief executive officers due to declines in economic activity and other unfavourable economic, geopolitical or market conditions.
- The bank's investment management business has been and may in the future be adversely affected by the poor investment performance of the bank's investment products or a client preference for products other than those which the bank offers or for products that generate lower fees.
- Changes in market interest rates could adversely affect the bank's net revenues and expenses, the value of assets and obligations, and the availability and cost of funding.

Credit

- The bank's businesses, profitability and liquidity may be adversely affected by deterioration in the credit quality of or defaults by third parties.
- Concentration of risk increases the potential for significant losses in the bank's lending, market-making, underwriting and other activities.
- Derivative transactions and delayed documentation or settlements may expose the bank to credit risk, unexpected risks and potential losses.
- The bank might underestimate the credit losses inherent in the bank's loan portfolio and have credit losses in excess of the amount reserved.

Management Report

Operational

- A failure in the bank's operational systems or human error, malfeasance or other misconduct, could impair the bank's liquidity, disrupt its businesses, result in the disclosure of confidential information, damage its reputation and cause losses.
- A failure or disruption in the bank's infrastructure, or in the operational systems or infrastructure of third parties or those of GS Group affiliates', could impair the bank's liquidity, disrupt its businesses, damage its reputation and cause losses.
- A failure to protect the bank's computer systems, networks and information, and its clients' information, against cyber attacks and similar threats could impair its ability to conduct its businesses, result in the disclosure, theft or destruction of confidential information, damage its reputation and cause losses.
- The bank may incur losses as a result of ineffective risk management processes and strategies.
- The bank is reliant on Group Inc. and other GS Group affiliates for certain client business, various services, liquidity and capital.

Legal and Regulatory

- The bank's businesses and those of its clients are subject to extensive and pervasive regulation in various jurisdictions in which the bank or its branches operate.
- A failure to appropriately identify and address potential conflicts of interest could adversely affect the bank's businesses.
- Substantial civil or criminal liability or significant regulatory action against the bank could have material adverse financial effects, or cause it significant reputational harm, which in turn could seriously harm its business prospects.
- In conducting its business in various jurisdictions, the bank is subject to political, legal, regulatory and other risks that are inherent in operating in many countries.
- The application of regulatory strategies and requirements to facilitate the orderly resolution of large financial institutions could create greater risk of loss for the bank's security holders.

Competition

- The bank's results have been and may in the future be adversely affected by the composition of its client base.
- The financial services industry is highly competitive.
- The bank's businesses would be adversely affected if it was unable to hire and retain qualified employees.

Market Developments and General Business Environment

- The bank's businesses, financial condition, liquidity and results of operations have been and may in the future be adversely affected by unforeseen or catastrophic events, including pandemics, terrorist attacks, extreme weather events or other natural disasters.
- The bank may be adversely affected by negative publicity.
- Climate change could disrupt the bank's businesses, adversely affect client activity levels, and the creditworthiness of its client, counterparties, and the bank's efforts to address concerns relating to climate change could result in damage to its reputation.
- The bank's business, financial condition, liquidity and results of operations may be adversely affected by disruptions in the global economy caused by Russia's invasion of Ukraine and related sanctions and other developments.
- Certain of the bank's businesses and its funding instruments may be adversely affected by changes in other reference rates, currencies, indices, baskets or ETF's to which products it offers or funding it raises are linked.
- The bank's business, financial condition, liquidity and results of operations may be adversely affected by disruptions in the global economy caused by escalating tensions between the U.S. and China.
- The bank faces enhanced risks as continued expansion of its activities lead it to engage in new activities, operate in new locations, transact with a broader array of clients and counterparties, and expose the bank to new asset classes and markets including the risk of retaining qualified employees.

Risk Report

Risks are inherent in the bank's businesses and include liquidity, market, credit, operational, model, legal, compliance, conduct, regulatory, business environment and strategic risks, and reputational risks. The bank's risks include the risks across its risk categories, regions or businesses, as well as those which have uncertain outcomes and have the potential to materially impact the bank's financial results, its liquidity and its reputation. For further information about the bank's risk management processes, see "Overview and Structure of Risk Management". For information about the bank's areas of risk and capital adequacy, see "Liquidity Risk Management", "Market Risk Management", "Credit Risk Management", "Operational Risk Management", "Compliance Risk Management", "Model Risk Management", "Strategic and Business Environment Risk" and "Capital Adequacy".

Changes in Risk Management

As the bank continued to execute on its strategic plan during the year ended December 2022, this resulted in a further increase in the activities and risk taking across market, credit, liquidity and operational risks in the bank, which were supported by increases in capital, funding and Risk Appetite Limits. To adequately manage these risks, the bank continued to further evolve its risk management framework, policies and processes during the year. Key risk management changes implemented during the year ended December 2022 thereby included enhancements to the bank's risk limit framework commensurate with the expanded activities. Moreover, the bank has taken steps to further enhance its climate change risk management framework and integrate this risk into its broader risk management processes and governance. In addition, the bank also further expanded its staffing level in several areas to ensure a sufficiently resourced and experienced independent control function to provide for an active and appropriate monitoring, evaluation and management of the risks associated with the bank's activities.

Changes in the broader operating environment including heightened volatility across asset classes, notably the surge in commodity prices, inflation expectations and rates developments, led to temporary increases in the bank's counterparty credit risk exposure and traded market risk profile during the year ended December 2022, with a reduction in risk observed by December 2022 driven by the general market environment where implied volatilities subsided. Associated risks are closely monitored and controlled. The bank's operational risk profile remained stable during the year.

Overview and Structure of 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 businesses are identified, assessed, monitored and managed.

The implementation of the bank's risk governance structure and core risk management processes are overseen by the bank's Executive Board, which is responsible for ensuring that the bank's framework provides a consistent and integrated approach to managing the various risks in a manner consistent with the bank's risk appetite.

The bank has defined its Risk Strategy which together with its Risk Appetite Statement (RAS), and in conjunction with GS Bank USA's RAS and GS Group's RAS, lays out the primary risk management philosophy, objectives and principles on how risks are managed within appetite. For all material risks, the bank articulates its risk appetite and how it manages the risk profile within that appetite using qualitative, and where applicable, quantitative measures, thresholds and/or limits.

Together with the bank's Executive Board, an adequate committee structure with representation from senior management of the bank is key to the risk management culture throughout the bank. The bank's risk management structure, consistent with GS Bank USA and GS Group, is built around three core components: governance; processes; and people.

Governance. Risk management governance starts with the bank's Executive Board, which defines the Risk Strategy and risk appetite of the bank and, both directly and through established committees, including the GSBE Risk Committee, oversees the bank's risk management policies and practices implemented through the enterprise risk management framework.

The bank's revenue-producing units that directly report to the respective Executive Board members, as well as Engineering, Human Capital Management, Operations, and Corporate and Workplace Solutions that directly report to the bank's chief operating officer and Treasury that directly report to the bank's chief financial officer, are considered the first line of defence. They are accountable for the outcomes of the bank's 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 as 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 committees. Independent risk oversight and control functions include Compliance that directly report to the bank's chief operating officer and Tax and Controllers that directly report to the bank's chief financial officer, Credit Risk, Liquidity Risk, Market Risk, Model Risk, Operational Risk, Risk Engineering and Regulatory Engagement that directly report to the bank's chief risk officer, and Legal that directly report to the bank's General Counsel.

Internal Audit is considered as the third line of defence and directly 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 Executive Board, senior management 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.

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

The bank has a comprehensive data collection process, including bank-wide policies and procedures that require all employees to report and escalate risk events. The bank's approach for risk identification and control 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 tasks. The bank's approach leverages the GS Group identification process complemented by an entity level process by which all material risks are determined. This approach also encompasses the bank's control assessment, led by the second line of defence, to ensure appropriate review and challenge of the control environment to ensure it supports the bank's strategic business plan.

To effectively assess and monitor the bank's risks, the bank maintains a daily discipline of marking substantially all of its inventory to current market levels.

Management Report

An important part of the bank's risk management processes 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, market, credit, liquidity and funding, operational and compliance, strategic, systemic and emerging risks into a single combined scenario.

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 broader capital planning and stress testing process. See "Capital Adequacy" for further information.

The bank has defined a comprehensive risk limit framework reflective of its risk profile and risk appetite which are embedded into the risk decision making of the bank. Limits are set with the aim to ensure that the bank maintains an adequate capital and liquidity position, and overall risk taking on an ongoing basis. Further details on the limit system at the overall entity and risk category level and the risk decision making are described in the following sections.

The bank's risk metrics, 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. A detailed quarterly risk reporting to management is complemented by more frequent regular (daily, weekly or monthly) and ad-hoc reporting on the bank's material risks. Furthermore, the bank's early warning indicators, and 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 a bank-wide level.

People. The experience of the bank's professionals, and their understanding of the nuances and limitations of each risk measure, guide the bank in assessing exposures and maintaining them within prudent levels.

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. The Supervisory Board is supported and advised by the Supervisory Board Audit Committee, Supervisory Board Risk Committee, Remuneration Committee and Nomination Committee in fulfilling their duties and responsibilities.

The key committees of the Supervisory Board 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 bank's Executive Board.

Management Report

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 Internal Capital Adequacy Assessment Process), funding, liquidity (including Internal Liquidity Adequacy Assessment Process), credit risk, market risk, operational risk, model risk, price verification and stress tests. Within its mandate, the GSBE Risk Committee approves market risk, credit risk, liquidity limits as well as operational risk and model risk thresholds or articulates recommendations with regard to those risk limits and thresholds which require Executive Board approval. Its membership includes senior managers from the revenue-producing units 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. This 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. The GSBE Operational Risk and Resilience Committee reports to the GSBE Risk Committee.
- **GSBE Credit Risk Council.** The GSBE Credit Risk Council is responsible for ensuring that the bank has appropriate and effective credit risk management processes, and the ongoing monitoring and review of credit risk exposure. The GSBE Credit Risk Council reports to the GSBE Risk Committee.

GSBE Asset and Liability Committee. The GSBE Asset and Liability Committee reviews and approves the strategic direction for the bank's financial resources, including capital, liquidity, funding and balance sheet. This committee has oversight responsibility for asset liability management, including interest rate and currency risk, funds transfer pricing, capital allocation and incentives, and credit ratings. This 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 units and independent risk oversight and control functions. The GSBE Asset and Liability Committee reports to the bank's Executive Board.

GS Group, Regional and GS Bank USA 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 processes of the bank. The integration into the firmwide risk management framework allows the bank to use GS Group's methods and systems and a consistent implementation of firmwide structures and principles while respecting the bank's own requirements and governance structure. GS Group has established a series of committees with specific risk management mandates, many of which include representation from the bank's senior management.

Primary GS Group risk and oversight committees include the Management Committee, Firmwide Enterprise Risk Committee and Firmwide Asset Liability Committee.

Primary regional committees include the European Management Committee, EMEA Operational Risk and Resilience Committee and EMEA Conduct Committee.

As a direct wholly-owned subsidiary of GS Bank USA, the bank's risk management processes are also embedded in the oversight provided by relevant governance bodies of GS Bank USA which includes Bank Management Committee and Bank Risk and Asset Liability Committee.

Liquidity Risk Management

Overview

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 either through GS Group or external funding sources and to enable its core businesses to continue to serve clients and generate revenues, even under adverse circumstances.

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. The bank's Treasury function is integrated with GS Group's Treasury function which reports to GS Group's chief financial officer.

Liquidity Risk, which is independent of the revenue-producing units and the bank's Treasury function, and reports to the bank's chief risk officer, has primary responsibility for identifying, monitoring and managing the bank's liquidity risk through oversight across the bank's businesses and the establishment of stress testing and limits frameworks.

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

Liquidity Risk Management Principles

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

GCLA. 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 the bank's 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.

Asset-Liability Management. The bank's liquidity risk management policies are designed to ensure that the bank has a sufficient amount of financing, even when funding markets experience persistent stress. The bank seeks to maintain a diversified funding profile with an appropriate tenor, taking into consideration the characteristics and liquidity profile of the bank's assets and modelled tenor of deposits with no stated maturity.

The bank's approach to asset-liability management includes:

- Conservatively managing the overall characteristics of the bank's funding book, with a focus on maintaining long-term, diversified sources of funding in excess of the bank's current requirements;
- Actively managing and monitoring the bank's asset base, with particular focus on the liquidity, holding period and ability to fund assets on a secured basis. The bank assesses its funding requirements and its ability to liquidate assets in a stressed environment while appropriately managing risk. This enables the bank to determine the most appropriate funding products and tenors; and
- Raising deposits and obtaining other secured and unsecured funding sources that have a long contractual or modelled tenor relative to the liquidity profile of the bank's assets. This reduces the risk that the bank's liabilities will come due in advance of the bank's ability to generate liquidity from the sale of its assets.

The bank's goal is to ensure it maintains sufficient liquidity to fund its assets and meet its contractual and contingent obligations in normal times, as well as during periods of market stress. The bank's funding plan is reviewed by the GSBE Asset Liability Committee and the GSBE Executive Board. In a liquidity crisis, the bank would first use its GCLA in order to avoid reliance on asset sales (other than its GCLA). However, the bank recognises that orderly asset sales may be prudent or necessary in a severe or persistent liquidity crisis.

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 include 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.

Management Report

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 Tests

In order to determine the appropriate size of the bank's GCLA, the bank models liquidity outflows over a range of scenarios and time horizons. One of the bank's primary internal liquidity risk models, referred to as the Modeled Liquidity Outflow, quantifies the bank's liquidity risks over a 30-day stress scenario. The bank also considers other factors, including, but not limited to, an assessment of its potential intraday liquidity needs through an additional internal liquidity risk model, referred to as the Intraday Liquidity Model, the results of its long-term stress testing models, other applicable regulatory requirements and a qualitative assessment of the condition of the bank, as well as the financial markets. The results of the Modeled Liquidity Outflow, long-term stress testing models and the Intraday Liquidity Model are reported to the bank's Executive Board and senior management on a regular basis.

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

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

The following are key modelling elements of the Modeled 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 Modeled Liquidity Outflow. The model assesses the risk of increased intraday liquidity requirements during a scenario where access to sources of intraday liquidity may become constrained.

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

Resolution Liquidity Models. In connection with GS Group's resolution planning efforts, GS Group has established a Resolution Liquidity Adequacy and Positioning framework, which estimates liquidity needs of its major subsidiaries, including the bank, 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 the bank, to stabilise and wind-down following a Group Inc. bankruptcy filing in accordance with GS Group's preferred resolution strategy.

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. The bank has also established resolution related liquidity triggers as part of its triggers and alerts framework.

In addition, the bank has capabilities to run resolution liquidity models in accordance with guidance published by local resolution authorities (e.g. SRB).

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 bank's Executive Board and the GSBE Risk Committee approve the bank's risk appetite and limits. Limits derived from the bank's risk appetite 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 GSBE Risk Committee, on a timely basis, instances where limits have been exceeded.

Management Report

GCLA Metrics

Based on the results of the bank's internal liquidity risk models, described above, as well as consideration of other factors, including, but not limited to, a qualitative assessment of the condition of the bank, as well as the financial markets, the bank believes its liquidity position as of both December 2022 and December 2021 was appropriate. The bank strictly limits its GCLA to a narrowly defined list of securities and cash because they are highly liquid, even in a difficult funding environment. The bank does not include other potential sources of excess liquidity in its GCLA, such as less liquid unencumbered securities or committed credit facilities.

The table below presents information about GCLA.

€ in millions	Average for the Year Ended December	
	2022	2021
Central Bank cash placements	€15,649	€ 8,642
U.S. government obligations	519	699
Non-U.S. government obligations	3,596	1,177
Total	€19,764	€10,518

The GCLA held by the bank is intended for use only by the bank to meet its liquidity requirements. In addition to GCLA held in the bank, GS Group holds a portion of global GCLA directly at Group Inc. or Funding IHC, which in some circumstances may be additionally provided to the bank or other major subsidiaries.

Liquidity Regulatory Framework

The implementation of the Basel Committee's international framework for liquidity risk management, standards and monitoring calls for a liquidity coverage ratio (LCR) and a net stable funding ratio (NSFR).

The bank is subject to a minimum LCR of 100% under the LCR rule approved by the European Parliament and Council. The bank's average monthly LCR for the trailing twelve-month period ended December 2022 was 189%. The bank's average monthly LCR for the trailing twelve-month period ended December 2021 was updated from 208% to 202%, reflecting the revised treatment of certain liquidity and credit facilities.

The 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 Basel Committee's NSFR framework requires banking organisations to maintain a NSFR of 100%. The bank is subject to the applicable NSFR requirement in the E.U. As of December 2022, the bank's NSFR exceeded the regulatory minimum requirement.

The implementation of these rules and any amendments adopted by the regulatory authorities, could impact the bank's liquidity and funding requirements and practices in the future.

Credit Ratings

Credit ratings are important when the bank is competing in certain markets, such as OTC derivatives, and when it seeks to engage in longer-term transactions.

The table below presents the unsecured credit ratings and outlook of the bank, GS Bank USA and Group Inc.

	As of December 2022		
	Fitch	Moody's	S&P
GSBE			
Short-term debt	F1	P-1	A-1
Long-term debt	A+	A1	A+
Short-term bank deposits	N/A	P-1	N/A
Long-term bank deposits	N/A	A1	N/A
Ratings outlook	Stable	Stable	Stable
GS Bank USA			
Short-term debt	F1	P-1	A-1
Long-term debt	A+	A1	A+
Short-term bank deposits	F1+	P-1	N/A
Long-term bank deposits	AA-	A1	N/A
Ratings outlook	Stable	Stable	Stable
Group Inc.			
Short-term debt	F1	P-1	A-2
Long-term debt	A	A2	BBB+
Ratings outlook	Stable	Stable	Stable

Certain of the bank's derivatives have been transacted under bilateral agreements with counterparties who may require the bank to post collateral or terminate the transactions based on changes in the credit ratings of either the bank and/or Group Inc. The bank assesses the impact of these bilateral agreements by determining the collateral or termination payments that would occur assuming a downgrade by all rating agencies of both Group Inc. and the bank simultaneously and of each entity individually.

Market Risk Management

Overview

Market risk is the risk of an adverse impact to the bank's earnings due to changes in market conditions. The bank's assets and liabilities that give rise to market risk primarily include inventory in the trading book and banking book, as well as certain other financial assets and liabilities. The bank employs a variety of risk measures, each described in the respective sections below, to monitor market risk. Categories of market risk include the following:

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

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

The bank's framework for managing market risk is consistent with the framework of GS Group established by GS Group's Firmwide Risk Appetite Committee. The bank's Market Risk function is integrated with GS Group's Market Risk function which reports to GS Group's chief risk officer. Managers in revenue-producing units, Treasury and Market Risk discuss market information, positions and estimated loss scenarios on an ongoing basis. Managers in revenue-producing units and Treasury are accountable for managing risk within prescribed limits. The bank's Market Risk function monitors this risk against the bank's limits.

Market Risk Management Process

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

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

The results are analysed by business and in aggregate, at both the GS Group and the bank level.

Risk Measures

The bank 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 the product, business and bank-wide level.

A variety of risk measures are used to estimate the size of potential losses for both moderate and more extreme market moves over both short- and long-term time horizons. Primary risk measures are value-at-risk (VaR), which is used for shorter-term periods, and stress tests. The bank's risk report details key risks, drivers and changes, and is distributed daily to the senior management of both the revenue-producing units, independent risk oversight and control functions and members of the the bank's Executive Board.

VaR. The bank calculates and monitors VaR for trading book positions, which is the potential loss in value due to adverse market movements over a defined time horizon with a specified confidence level. A one-day time horizon with a 95% confidence level is employed. The VaR model is a simulation model that simulates market risk factors including interest rates, credit spreads, equity prices, currency rates and commodity prices in the trading book. As such, VaR facilitates comparison across portfolios of different risk characteristics. VaR also captures the diversification of aggregated risk across the bank. The VaR model is applied consistently across GS Group, including the bank.

VaR is analysed at the bank-wide level and a variety of more detailed levels, including risk category and business. Inherent limitations to VaR include:

- VaR does not estimate potential losses over longer time horizons where moves may be extreme;
- VaR does not take account of the relative liquidity of different risk positions; and
- Previous moves in market risk factors may not produce accurate predictions of all future market moves. To comprehensively capture the bank's exposures and relevant risks in the VaR calculations, historical simulations with full valuation of market factors at the position level by simultaneously shocking the relevant market factors for that position are used. These market factors include spot prices, credit spreads, funding spreads, yield curves, volatility and correlation, and are updated periodically based on changes in the composition of positions, as well as variations in market conditions. A sample from five years of historical data is taken to generate the scenarios for the VaR calculation. The historical data is weighted so that the relative importance of the data reduces over time. This gives greater importance to more recent observations and reflects current asset volatilities, which improves the accuracy of estimates of potential loss. As a result, even if positions included in VaR were unchanged, VaR would increase with increasing market volatility and vice versa.

Management Report

Given its reliance on historical data, VaR is most effective in estimating risk exposures in markets in which there are no sudden fundamental changes or shifts in market conditions.

Daily backtesting of the VaR model is performed (i.e., comparing daily trading net revenues to the VaR measure calculated as of the prior business day) at the GS Group and the bank level. The trading book VaR (95%, 1 day) of the bank was €4.9 million as of December 2022 (December 2021: €3.1 million). The increase was mainly driven by the continued expansion of the bank's activities mainly in FICC and Equities businesses during the year ended December 2022. Hence, risk concentrations are identified in the trading book across interest rates, credit, equities and foreign exchange.

Stress Testing. Stress testing is a method of determining the effect on the bank of various hypothetical stress scenarios. The bank uses stress testing to examine risks of specific portfolios, as well as the potential impact of significant risk exposures across the bank. A variety of stress testing techniques to calculate the potential loss from a wide range of market moves on the bank's portfolios are used, including firmwide stress tests which are considered to be appropriate for the bank's positions, sensitivity analysis and scenario analysis. Where relevant, market liquidity considerations are incorporated. The results of the various stress tests are analysed together for risk management purposes.

Unlike VaR measures, which have an implied probability because they are calculated at a specified confidence level, there may not be an implied probability that the bank stress testing scenarios will occur. Instead, stress tests are used to model both moderate and more extreme moves in underlying market risk factors. When estimating potential loss, it is generally assumed that positions cannot be reduced or hedged (although experience demonstrates that some risk reduction or hedging is possible).

Interest Rate Risk in the Banking Book (IRRBB). The bank's exposure to IRRBB arises from differences in interest earned or paid as interest rates change, due to the reset characteristics of the bank's assets and liabilities. IRRBB is subject to stress testing and the results are monitored against appropriate limits.

The table below presents the change in Economic Value of Equity (EVE) for +/-100 basis points (bps) instantaneous shock in interest rates (without rate flooring) across the bank's banking book positions as of December 2022. This exposure is primarily Euro denominated and is driven by the bank's unfunded pension liabilities.

€ in millions	As of December 2022	
	+100bps	-100bps
ΔEVE ex Pension	€ 2.0	€ (1.3)
ΔEVE Pension	€ 20.9	€ (28.9)
ΔEVE	€ 22.9	€ (30.2)

Limits

The bank uses market risk limits at various levels to manage the size of the bank's market exposures. These limits are set based on VaR and stress tests relevant to the bank's exposures and reported to the Executive Board, mainly daily.

Limits are monitored by Treasury and Risk, as applicable. Risk is responsible for identifying and escalating to senior management and/or the GSBE Risk Committee in accordance with the delegation authority granted by the Executive Board, on a timely basis, instances where limits have been exceeded (e.g., due to positional changes or changes in market conditions, such as increased volatilities or changes in correlations). Such instances are remediated by a reduction in the positions the bank holds and/or a temporary or permanent increase to the limit, if warranted.

Credit Risk Management**Overview**

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

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

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

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

The bank's credit risk strategy during the year ended December 2022 aimed to maintain a high credit quality standard, to mitigate credit exposure as appropriate through the use of collateral or other forms of risk mitigation, and to avoid excessive concentration risks. The majority of counterparties which give risk to credit risk are expected to be of investment grade quality.

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", as well as the following:

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

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

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

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

Management Report

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 ‘Financial Instruments’ (IFRS 9) in conjunction with IDW RS BFA 7. The ECL is determined by projecting the probability of default, loss given default and exposure at default (EAD) for each individual exposure. To calculate expected credit losses these three components are multiplied together and discounted back to the reporting date. The bank uses internal credit risk ratings that reflect the assessment of the probability of default of individual counterparties. See Note 2 to the financial statements for further information about the bank’s accounting policy on impairment.

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.

Stress Tests

The bank conducts regular stress tests to calculate the credit exposures, including potential concentrations that would result from applying shocks to counterparty credit ratings or risk factors (e.g., currency rates, interest rates, equity prices). These shocks cover a wide range of moderate and more extreme market movements, including shocks to multiple risk factors, consistent with the occurrence of a severe market or economic event. In the case of sovereign default the bank estimates the direct impact of the default on its sovereign credit exposures, changes to its credit exposures arising from potential market moves in response to the default, and the impact of credit market deterioration on corporate borrowers and counterparties that may result from the sovereign default. Unlike potential exposure, which is calculated within a specified confidence level, stress testing does not generally assume a probability of these events occurring. The bank also performs bank-wide stress tests. See “Overview and Structure of Risk Management” for further information about stress tests.

Limits

Credit limits and thresholds are used at various levels (e.g., counterparty, economic group, industry and country) as well as underwriting standards 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) approves 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.

Risk Mitigants

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. The bank monitors the fair value of the collateral to ensure that credit exposures are appropriately collateralised. The bank seeks to minimise exposures where there is a significant positive correlation between the creditworthiness of counterparties and the market value of collateral received.

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.

Management Report

The table below presents bank's EAD.

<i>€ in millions</i>	As of December	
	2022	2021
Counterparty credit risk	€18,276	€19,030
Credit risk excluding counterparty credit risk	18,695	22,689
Settlement risk	214	99
Securitisation exposures in the banking book	54	78
Total	€37,239	€41,896

In the table above,

- EAD represents the credit exposure used to calculate the RWAs for regulatory capital purposes and is not directly comparable to the amounts presented on the balance sheet due to differences in measurement methodology, counterparty netting and collateral offsets used.
- Counterparty credit risk primarily relates to credit exposure on derivative and securities financing transactions.
- As of December 2022, counterparty credit risk includes credit exposure of €13.93 billion (December 2021: €13.94 billion) calculated using approved internal models, credit exposure of €2.37 billion (December 2021: €2.53 billion) against central clearing counterparties and credit exposure of €1.11 billion (December 2021: €927 million) calculated using standardised approach.
- Credit risk excluding counterparty credit risk is calculated using the standardised approach and primarily relates to credit exposure on customer and other receivable balances, loans and lending commitments.

The table below present the bank's EAD by industry sectors.

<i>€ in millions</i>	As of December	
	2022	2021
Central Banks	€12,671	€17,954
Credit Institutions	4,040	6,424
Other Financial Corporations	13,267	11,121
Non-Financial Corporations	6,536	5,409
General Governments	479	847
Households	246	141
Total	€37,239	€41,896

Credit Concentrations

The bank's concentrations to credit risk arise primarily from its client facilitation, underwriting, lending and collateralised transactions, and cash management activities, and may be impacted by changes in economic, industry or political factors. These activities expose the bank to many different industries and countries, and may also subject the bank to a concentration of credit risk to a particular central bank, counterparty, borrower or issuer, or to a particular clearing house or exchange. Material counterparties are also subject to additional interconnectedness assessment taking into consideration economic dependencies. The bank seeks to mitigate credit risk including potential wrong way risk exposures (where the size of the bank's credit exposure to a counterparty is considered adversely correlated to the counterparty's credit quality), by actively monitoring aggregate exposures against limits on individual entities and their consolidating groups, as well as countries and industries, and obtaining collateral from counterparties as deemed appropriate.

As of December 2022, the majority of the bank's credit exposures resulted from counterparties domiciled in Germany, United Kingdom, France, Netherlands and United States of America, with more than 80% of the credit exposure. The majority of bank's net credit exposure was to mutual / pension funds, financial institutions (including central banks) and central clearing counterparties with more than 75% of the credit exposure. Aggregation to respective country and industry is based on classification of each single counterparty.

The bank measures and monitors its credit exposure based on amounts owed to the bank after taking into account risk mitigants that management considers when determining credit risk. Such risk mitigants include netting and collateral arrangements and economic hedges, such as credit derivatives, futures and forward contracts. Netting and collateral agreements permit the bank to offset receivables and payables with such counterparties and/or enable the bank to obtain collateral on an upfront or contingent basis.

Operational Risk Management

Overview

Operational risk is the risk of an adverse outcome resulting from inadequate or failed internal processes, people, systems or from external events. 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:

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

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

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

Operational Risk Management Process

The bank's process for managing operational risk includes the critical components of the bank's risk management framework described in the "Overview and Structure of Risk Management", including a comprehensive data collection process.

Top-down and bottom-up approaches are combined to manage and measure operational risk. From a top-down perspective, senior management assesses bank-wide 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 and risk events to senior management.

The bank has a comprehensive control framework designed to provide a well-controlled environment to minimise operational risks. The GSBE Operational Risk and Resilience Committee provides oversight of the ongoing development and implementation of operational risk policies, framework and methodologies, and monitors the effectiveness of operational risk management with oversight from the Executive Board.

The operational risk management framework is designed to comply with the operational risk measurement rules under Basel III and has evolved based on the changing needs of the bank's businesses and regulatory guidance.

Policies are in place that require all employees and consultants to report and escalate operational risk events. When operational risk events are identified, policy requires 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.

Operational risk management applications are used to capture, analyse and report operational risk event data and key metrics. One of the bank's key risk identification and control assessment tools is an operational risk and control self-assessment process, which is performed by the bank's senior management. This process consists of the identification and rating of operational risks, on a forward-looking basis, and the related controls. The risk assessment is overseen by Operational Risk. 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

The bank's operational risk exposure is measured using both statistical modelling and scenario analyses, which involve qualitative and quantitative assessments of internal and external operational risk event data, business environment and internal control factors for each of the bank's businesses.

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. The bank also performs stress tests (sensitivity analysis), in which the elementary model parameters used for the determination of the bank's internal operational risk capital, loss severity and frequency are varied to measure the sensitivity of the outputs. See "Capital Adequacy" for the results as of December 2022.

See "Overview and Structure of Risk Management" for further information about stress tests.

Types of Operational Risks

Increased reliance on technology and third-party relationships has resulted in increased operational risks, such as information and cyber security risk, third-party risk and business resilience risk. The bank manages those risks as follows:

Information and Cybersecurity Risk. Information and cybersecurity risk is the risk of compromising the confidentiality, integrity or availability of the bank's or GS Group affiliates' data and systems, leading to an adverse impact to the bank, its reputation, its clients and/or the broader financial system. The bank seeks to minimise the occurrence and impact of unauthorised access, disruption or use of information and/or information systems. The bank in conjunction with GS Group affiliates deploys and operates preventive and detective controls and processes to mitigate emerging and evolving information security and cyber security threats, including monitoring the bank's network for known vulnerabilities and signs of unauthorised attempts to access its data and systems. There is increased information risk through diversification of the bank's data across external service providers, including use of a variety of cloud-provided or hosted services and applications.

Third-Party Risk. Third-party risk, including vendor risk, is the risk of an adverse impact due to reliance on third parties performing services or activities on the bank's behalf. These risks may include legal, regulatory, information security, reputational, operational or any other risks inherent in engaging a third party. The bank identifies, manages and reports key third-party risks and conducts due diligence across multiple risk domains, including information security and cyber security, resilience and additional supply chain dependencies. The bank is part of GS Group's Third-Party Risk Program which monitors, reviews and reassesses third-party risks on an ongoing basis. This program ensures a consistent approach to those third parties which perform services directly for the bank, and those which perform services for GS Group affiliates who themselves provide outsourcing services to the bank. The bank also has an Outsourcing Governance Group (OGG) which oversees the outsourced activities of the bank. The OGG assists the bank's management in applying a comprehensive, risk-based approach to inter-affiliate outsourcing across GS Group, management of third party vendor relationships and ensuring continuity of access to vendors, facilities, intellectual property and data from a recovery and resolution planning perspective. In order to assist the bank's management, the OGG reviews new outsourcing arrangements, conducts annual performance and quality assessments of the outsourced services and coordinates with relevant groups within GS Group.

Business Resilience Risk. Business resilience risk is the risk of disruption to the bank's critical processes. The bank seeks to monitor threats and assess risks to ensure its state of readiness in the event of a significant operational disruption to the normal operations of its critical functions or their dependencies, such as critical facilities, systems, third-parties, data and/or personnel. The resilience framework defines the fundamental principles for business continuity planning (BCP) and crisis management to ensure that critical functions can continue to operate in the event of a disruption.

The BCP is comprehensive, consistent across GS Group and up-to-date, incorporating new information, including updated resilience capabilities as and when they become available. The bank's resilience assurance program encompasses testing of response and recovery strategies on a regular basis with the objective of minimizing and preventing significant operational disruptions.

Compliance Risk Management

Compliance risk is the risk of legal or regulatory breaches, material financial loss or damage to the bank's reputation arising from its failure to comply with the requirements of applicable laws, rules and regulations, and its internal policies and procedures. Compliance risk is inherent in all activities through which the bank conducts its businesses. GS Group's Compliance Risk Management Program, administered by Compliance, assesses its compliance, regulatory and reputational risk; monitors for compliance with new or amended laws, rules and regulations; designs and implements controls, policies, procedures and training; conducts independent testing; investigates, surveils and monitors for compliance risks and breaches; and leads GS Group's responses to regulatory examinations, audits and inquiries. GS Group monitors and reviews business practices to assess whether they meet or exceed minimum regulatory and legal standards in all markets and jurisdictions in which it conducts business. The bank's framework for managing compliance risk is consistent with, and part of, the GS Group framework.

Model Risk Management

Overview

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

Model Risk, which is independent of the revenue-producing units, model developers, model owners and model users has primary responsibility for assessing, monitoring and managing the bank's model risk through oversight across the bank's businesses. 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 bank's framework for managing model risk is consistent with the framework of GS Group established by GS Group's Firmwide Risk Appetite Committee. The bank's Model Risk function is integrated with GS Group's Model Risk function which reports to GS Group's chief risk officer.

GS Group's model risk management framework is managed through a governance structure and risk management controls, which encompass standards designed to ensure it maintains a comprehensive model inventory, including risk assessment and classification, sound model development practices, independent review and model-specific usage controls. GS Group's Firmwide Model Risk Control Committee oversees the model risk management framework.

Model Review and Validation Process

Model Risk consists of quantitative professionals who perform an independent review, validation and approval of models. This review includes an analysis of the model documentation, independent testing, an assessment of the appropriateness of the methodology used, and verification of compliance with model development and implementation standards. The bank's Model Risk function provides regular updates to the GSBE Risk Committee and the bank's Executive Board.

GS Group regularly refines and enhances its 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 trade and risk parameters across a broad range of scenarios (including extreme conditions) in order to critically evaluate and verify the model's conceptual soundness, suitability of calculation techniques, accuracy in reflecting the characteristics of the related product and significant risks, and sensitivity to input parameters and assumptions, as well as the scope of testing performed by the model developers.

See "Liquidity Risk Management", "Market Risk Management", "Credit Risk Management", "Operational Risk Management", and "Capital Adequacy" for further information about the bank's use of models within these areas.

Strategic and Business Environment Risk

Overview

Strategic and Business Environment Risk is the risk of an adverse outcome to the bank from its strategic business decisions or structural changes to the bank's business environment.

Risk Monitoring and Reporting

To adequately mitigate and control the key strategic and business environment risks inherent in its activities, the bank has implemented a number of governance structures and controls processes. Consistent with the GS Group's three lines of defence framework, business units take responsibility to identify, monitor and manage risk in executing the bank's strategy and relating to changes in the operating environment. The bank's control functions have established robust monitoring processes which are designed to ensure regular reporting of performance metrics and underlying drivers to the bank's governance bodies, including the Executive Board, and appropriate escalation procedures. Certain aspects of strategic and business environment risk may also manifest through other risk categories such as credit risk, market risk, liquidity risk or operational risk, which are in turn managed by the respective risk functions. Further, Strategic and Business Environment Risk integrates Climate Change Risk Management.

Climate Risk Management

Climate change risk is the risk of adverse outcomes arising from the long and/or short term impacts of climate change. The bank categorises 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 decarbonisation.

As a global financial institution, climate-related risks manifest in different ways across GS Group's businesses and GS Group has continued to make significant enhancements to its climate risk management framework, including steps to further integrate climate risk into its broader risk management processes. Consistent with GS Group's integration of oversight of climate-related risks into its risk management governance structure from senior management to GS Group Board and its committees, including GS Group's Risk and Public Responsibilities Committee, the bank has integrated oversight of climate-related risks into the bank's risk management governance structure, including the oversight by the bank's Executive Board and GSBE Risk Committee. The bank has begun incorporating climate risk into its credit evaluation and underwriting processes for select industries. Climate risk factors are now evaluated as part of transaction due diligence for select loan commitments.

As part of its oversight responsibility, the Executive Board and the GSBE Risk Committee receive regular reporting on risk appetite metrics for physical and transition risk and updates on its risk management approach to climate risk, including its approach towards scenario analysis and integration into existing risk management processes. In general, the bank is integrated into and thereby benefits from the broader firmwide risk management and control framework supporting climate change risk management commensurate with the banks' activities.

As of December 2022, climate change related risks are identified as relevant but assessed as non material risks to the bank.

Capital Adequacy

Overview

Capital risk is the risk that the bank's capital is insufficient to support its business activities under normal and stressed market conditions, or it faces capital reductions or RWA increases, including from new or revised rules or changes in interpretations of existing rules, and is therefore unable to meet its internal capital targets or external regulatory capital requirements. Capital adequacy is of critical importance to the bank. Accordingly, the bank has in place a comprehensive capital management policy that provides a framework, defines objectives and establishes guidelines to maintain an appropriate level and composition of capital in both business-as-usual and stressed conditions. The internal capital management framework is designed to provide it with the information needed to comprehensively manage risk, and develop and apply projected stress scenarios that capture idiosyncratic vulnerabilities with a goal of holding sufficient capital to remain adequately capitalised even after experiencing a severe stress event.

The bank has established a comprehensive governance structure to manage and oversee its day-to-day capital management activities and compliance with capital rules and related policies. The bank's capital management activities are overseen by the Executive Board and its committees. The Executive Board is responsible for approving the bank's Internal Capital Adequacy Assessment Process (ICAAP) framework and outcomes and its capital management policy. In addition, committees and members of senior management are responsible for the ongoing monitoring of the bank's capital adequacy and evaluate current and future regulatory capital requirements, review the results of its capital planning and stress tests processes, and the results of its capital models, review its key capital adequacy metrics, including regulatory capital ratios, as well as capital plan metrics, such as capital distributions and monitor risk limits and breaches. The bank's framework for capital risk management is consistent with, and part of, the GS Group framework.

Internal Capital Adequacy Assessment Process

The bank undertakes regular internal capital adequacy assessments as part of its broader ICAAP framework with the objective of ensuring appropriate capitalisation relative to the bank's risk. 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.

In line with the ECB Guide "ECB Guide to the internal capital adequacy assessment process (ICAAP)" (November 2018), the ICAAP comprises two complementary perspectives, the Normative Perspective and the Economic Internal Perspective. The bank's limit and escalation framework incorporates metrics based on both perspectives.

In the Normative Perspective, capital adequacy is considered from a regulatory and accounting view, and expressed in terms of regulatory metrics. The perspective includes determination of regulatory metrics as part of ongoing business-as-usual processes and integrates 3-year forward looking projections of the bank's ability to meet regulatory capital requirements under baseline and adverse macro-economic conditions. Capital requirements are calculated in accordance with regulatory capital rules over the assessment time horizon, taking into account the permission to use internal models for market risk (Internal Model Approach and CVA VaR), as well as internal models to calculate the counterparty credit risk exposure (Internal Model Method). The bank thereby leverages internal methodologies to project stress impacts reflective of the underlying scenario and consistent with the principles of the Normative Perspective. In all assessments performed during the year, the bank was projected to have sufficient capital to meet its regulatory capital requirements over the assessment period of the Normative Perspective.

The Economic Internal Perspective consists of the definition and quantification of internal capital resources and the amount of capital that the bank needs to hold to mitigate risks that could have a material impact on its capital position from an economic view on risk.

The bank uses the regulatory definition of total capital resources as a starting point to quantify internal capital, and incorporates adjustments to reflect economic value considerations. The bank applies its internal risk quantification methodologies that allow capturing an economic view on risk, targeting a risk horizon of one year.

Management Report

Economic capital requirements for Market Risk in the Trading book is primarily quantified using Stressed Value at Risk (sVaR) and Incremental Risk Charge (IRC). sVaR is the potential loss in value of inventory positions during a period of significant market stress. sVaR is calculated at a 99% confidence level over a 10-day holding period, and is calibrated based on a historical stress period which is appropriate for the bank's portfolio. IRC estimates the 99.9% tail loss in the loss distribution due to events of rating migration or default over the capital horizon of one year for the portfolio of credit-sensitive instruments. Further stress-based methods are applied to quantify additional risks in the trading book, which were of comparatively lower significance in the reporting year. Capital requirements for Market Risk in the Banking Book is mainly driven by Interest Rate Risk in the Banking Book quantified through economic value of equity using +/- 100bp shocks without flooring. Other stress tests may be applied where appropriate to risk concentrations.

Economic capital requirements for Credit Risk are mainly driven by simulated losses in the bank's derivative and loan portfolio which are calibrated to a confidence level of 99.9% and assume a 1-year holding period. For other credit risk positions, the economic capital requirements are mainly determined using a credit risk model, which is based on internal assessments (including internal credit ratings). Additional stress testing and model based approaches are applied to calculate further capital requirements for credit risk, which were of comparatively lower significance in the reporting year.

Economic capital requirements for Operational Risk are quantified using the bank's internal Advanced Measurement Approach model, which is calibrated to a confidence level of 99.9% and assumes a 1-year holding period. The internal capital requirement thereby reflects the tail exposure posed by the bank's current and anticipated activities. The bank does not see any incremental loss potential for Strategic and Business Environment Risk to be covered by economic capital in the reporting year based on the entity's robust control framework in place and historical performance analysis, and non-materiality of climate change related risk.

Economic capital requirements are conservatively aggregated across material risk categories without taking benefit of diversification effects. The bank's limit system requires a minimum economic capital adequacy ratio of 100%. Capital is not deemed an adequate mitigant for liquidity risks which are managed in the course of the bank's liquidity management. The risk bearing capacity based on Economic Internal Perspective is assessed on a monthly basis.

The table below presents the comparison of internal capital and economic capital requirements.

€ in millions	As of December	
	2022	2021
Components of Internal Capital resources		
Total regulatory capital	€8,931	€5,752
Other adjustments between regulatory capital and internal capital	(123)	(137)
Internal Capital Resources	€8,808	€5,615
Risk Components		
Market Risk	€ 516	€ 535
Credit Risk	1,222	1,052
Operational Risk	340	338
Strategic and Business Environment Risk	—	—
Economic Capital Requirements	€2,078	€1,925
Economic Capital Adequacy ratio	424%	292%

As of December 2022 and December 2021, the bank was adequately capitalised and reported an economic capital adequacy ratio of 424% and 292%, respectively. Capital Ratios in the normative perspective are shown in the 'Regulatory Capital' section.

The assessment of capital adequacy is viewed in tandem with the bank's assessment of liquidity adequacy and is integrated into its overall risk management structure, governance and policy framework. See 'Overview and Structure of Risk Management' and 'Liquidity Risk Management' for further information.

Relationship with Affiliated Companies

Based on the circumstances known to it at the time that the legal transaction or measure was performed or refrained from, the Executive Board declares that the bank received appropriate consideration for each legal transaction and the fact that the measure was performed or refrained from was not detrimental to the bank.

Non-Financial Disclosure

The non-financial report for the bank prepared in accordance with Section 340a (1a) of the HGB in conjunction with Section 289b to 289e of the HGB and in compliance with the European Union Directive 2014/95/EU and the German "CSR-Richtlinie-Umsetzungsgesetz" can be found at www.goldmansachs.com/disclosures/gsbank-europe-se-disclosures.html.

Annual Financial Statements

GOLDMAN SACHS BANK EUROPE SE

Balance Sheet as of December 31, 2022

€ in millions	Note	As of December	
		2022	2021
Assets			
Cash reserve			
Balances with central banks (thereof with Deutsche Bundesbank: €1, 2021: €17,829)		€ 137	€17,884
Receivables from credit institutions	3,4		
Due on demand		12,527	251
Other receivables		382	77
Receivables from customers	3,4	18,195	12,924
Bonds and other fixed-income securities	8		
Bonds and notes of other issuers		—	43
Trading assets	6	28,518	17,880
Assets held in trust	7	67	—
Intangible assets	8		
Internally developed intangible assets		6	—
Purchased intangible assets		—	6
Goodwill		—	30
Fixed assets	8	22	27
Other assets	9	6,716	5,899
Deferred tax assets	10	115	91
Total assets		€66,685	€55,112
Liabilities			
Liabilities to credit institutions	3,4		
Due on demand		€ 67	€ 79
With agreed term or notice period		6,645	20,024
Liabilities to customers	3,4		
Other liabilities			
Due on demand		8,718	4,646
With agreed term or notice period		14,337	3,142
Trading liabilities	6	20,391	16,118
Liabilities held in trust	7	67	—
Other liabilities	9	6,613	4,575
Deferred income		3	10
Provisions			
Provisions for pensions and similar commitments		117	98
Tax provisions		126	65
Other provisions	13	594	508
Subordinated debt	14	20	20
Fund for general banking risks (thereof: trading-related special reserve: €160, 2021: €76)		160	76
Shareholder's equity	15		
Ordinary share capital		329	329
Capital reserve		7,342	4,612
Profit reserves			
Other profit reserves		810	433
Distributable profit		346	377
Total liabilities and shareholder's equity		€66,685	€55,112
Other obligations			
Irrevocable lending commitments	16	€ 5,705	€ 5,084

Income Statement for the period from January 1, 2022 to December 31, 2022

€ in millions	Note	Year Ended December	
		2022	2021
Interest income from			
Lending and money market business (thereof: negative interest €58 , 2021: €87)		€ 290	€ (50)
Interest expense (thereof: positive interest €55 , 2021: €57)		(333)	30
Commission income		1,084	935
Commission expense		(207)	(95)
Net trading result (thereof: additions to the trading-related special reserve €84 , 2021: €61)		652	555
Other operating income	18	15	10
General administration expenses			
Staff expenses			
Wages and salaries		(479)	(536)
Compulsory social security contributions and expenses for pensions and other employee benefits (thereof for pensions: €23 , 2021: €6)		(101)	(94)
Other administration expenses		(243)	(185)
Depreciation, amortisation and valuation allowance for intangible and fixed assets	8	(43)	(43)
Other operating expenses	18	(15)	(12)
Write-downs of and value adjustments to claims and certain securities as well as additions to provisions for loan losses		(32)	(9)
Result from ordinary activities		588	506
Income tax expense (thereof: deferred taxes benefit €24 , 2021: €91)		(242)	(129)
Net income/ Distributable profit	19	€ 346	€ 377

Statement of Cash Flows for the period from January 1, 2022 to December 31, 2022

<i>€ in millions</i>	Note	Year Ended December	
		2022	2021
Net income		€ 346	€ 377
Depreciation, amortisation and valuation allowance on loans and intangible and fixed assets		75	43
Increase / decrease in provisions	20	119	373
Foreign exchange gain on cash and cash equivalents		(5)	—
Increase / decrease in receivables from credit institutions		(12,581)	(188)
Increase / decrease in receivables from customers		(5,202)	(8,318)
Increase / decrease in trading assets/liabilities		(6,365)	13
Increase / decrease in other assets from operating activities		(790)	(406)
Increase / decrease in liabilities to credit institutions		(13,391)	19,242
Increase / decrease in liabilities to customers		15,194	1,625
Increase / decrease in other liabilities from operating activities		2,180	(199)
Interest expenses / interest income		43	20
Income tax expense		242	129
Interest payments and dividend payments received		313	86
Interest paid		(356)	(92)
Income tax payments		(323)	(202)
Cash flow from operating activities		(20,501)	12,503
Payments received from disposals of financial assets		43	—
Payments for investments in financial assets		—	(26)
Payments for investments in fixed assets		(1)	(4)
Payments for investments in intangible assets		(7)	—
Cash flow from investing activities		35	(30)
Proceeds from equity contributions from shareholders of the parent company		2,730	2,016
Increase in MREL-eligible intercompany borrowings	3, 4	—	800
Interest paid on MREL-eligible intercompany borrowings		(16)	—
Cash flow from financing activities		2,714	2,816
Net increase / decrease in cash and cash equivalents	20	(17,752)	15,289
Changes in cash and cash equivalents due to exchange rates and valuation		5	—
Cash and cash equivalents, beginning balance		17,884	2,595
Cash and cash equivalents, ending balance		€ 137	€17,884

See Note 20 for further information about statement of cash flows.

Note 1.**General Information**

Goldman Sachs Bank Europe SE (GSBE or the bank) is registered with the commercial register number HRB 114190 at the local district court in Frankfurt am Main, Germany.

These financial statements have been prepared in accordance with the requirements of the German Commercial Code (HGB), the German Stock Corporation Act (AktG) and the Ordinance Regulating the Accounting Requirements for Banks and Financial Services Institutions (RechKredV). The financial statements also include the disclosure as required under Section 26a (1) sentence 2 of the German Banking Act (KWG).

The bank has reclassified €111 million of revenues from net trading result to commission income for the year ended December 2022 as they predominately relate to underwriting engagements.

Note 2.**Accounting and Valuation Methods****Cash Reserve and Receivables**

Cash reserve is recognised at its nominal value. Receivables from credit institutions and from customers are recognised at their nominal values less any irrecoverable amounts and provision for loan losses and include accrued interest.

Impairment

The bank assesses the expected credit losses (ECL) associated with financial assets measured at amortised cost and irrevocable lending commitments on a forward-looking basis in accordance with the provisions of IFRS 9 'Financial Instruments' (IFRS 9) in conjunction with IDW RS BFA 7. The measurement of ECL reflects an unbiased and probability weighted amount that is determined by evaluating a range of possible outcomes, the time value of money, and reasonable and supportable information that is available without undue cost or effort at the reporting date about past events, current conditions and forecasts of future economic conditions. Expected credit losses are recognised in write-downs of and value adjustments to claims and certain securities as well as additions to provisions for loan losses.

The bank's impairment model is based on changes in credit quality since initial recognition of financial assets measured at amortised cost and incorporates the following three stages:

- **Stage 1.** Financial assets measured at amortised cost that are not credit-impaired on initial recognition and where there has been no significant increase in credit risk since initial recognition. The ECL is measured at an amount equal to the expected credit losses that result from default events possible within the next twelve months.

- **Stage 2.** Financial assets measured at amortised cost where there has been a significant increase in credit risk since initial recognition, however not yet deemed to be credit-impaired. The ECL is measured based on expected credit losses on a lifetime basis.

- **Stage 3.** Financial assets measured at amortised cost that are in default, or are defined as credit-impaired. The ECL is measured based on expected credit losses on a lifetime basis.

Determination of the relevant staging for each financial asset is dependent on the definition of 'significant increase in credit risk' (stage 1 to stage 2) and the definition of 'credit-impaired' (stage 2 to stage 3). The bank considers a financial asset to have experienced a significant increase in credit risk when certain quantitative or qualitative conditions are met. Quantitative thresholds include absolute probability of default thresholds on investment-grade financial assets and relative probability of default thresholds on non-investment grade financial assets. Qualitative review is also performed as part of the bank's credit risk management process, including a back-stop consideration of 30 days past due. The bank considers a financial asset to be credit-impaired when it meets Credit Risk's definition of default, which is either when the bank considers that the obligor is unlikely to pay its credit obligations to the bank in full, without recourse by the bank to actions, such as realising security (if held), or the obligor has defaulted on a payment and/or is past due more than 90 days.

The ECL is determined by projecting the probability of default, loss given default and exposure at default for each individual exposure. To calculate the expected credit losses these three components are multiplied together and discounted back to the reporting date. The discount rate used in the ECL calculation is the original effective interest rate. The probability of default represents the likelihood of a borrower defaulting on its financial obligation. The loss given default is the bank's expectation of the extent of loss on the default exposure, and takes into consideration amongst other things, collateral on the financial asset. The exposure at default is the amount the bank expects to be owed at the time the financial obligation defaults. The bank uses internal credit risk ratings that reflect the assessment of the probability of default of individual counterparties.

The bank uses multiple macroeconomic scenarios within the ECL calculation, the weightings for which are subject to ongoing internal review and approval.

Notes to the Financial Statements

The ECL model takes into account the weighted average of a range of forecasts of future economic conditions. The forecasts include baseline, favourable and adverse economic scenarios over a three-year period. To the extent the bank has financial assets in Stage 2 or Stage 3 which have an expected life beyond three years, the model reverts to historical loss information based on a non-linear modelled approach. The bank applies judgement in weighting individual scenarios each quarter based on a variety of factors, including internally derived economic outlook, market consensus, recent macroeconomic conditions and industry trends. Forward-looking information, such as key economic variables impacting credit risk and expected credit losses, is incorporated into both the assessment of staging and the calculation of ECL.

The allowance for impairment losses also includes qualitative components which allow management to reflect the uncertain nature of economic forecasting and account for model imprecision and concentration risk.

The bank writes off financial assets, in whole or in part, when it has concluded that there is no reasonable expectation of recovery. When a financial asset is deemed to be uncollectable, the bank concludes this to be an indicator that there is no reasonable expectation of recovery. The bank still seeks to recover amounts it is legally owed in full, but which have been wholly or partially written off due to no reasonable expectation of full recovery.

Securities

Securities classified to the banking book are accounted at acquisition cost. Write-downs to the lower of cost or market value are made only if the impairment is expected to be permanent. The bank also writes-down the securities for temporary impairments. Impairments of securities are reversed if the reason for the write-down no longer exists. Temporary impairments of securities net of write-ups are reported within write-downs of and value adjustments to claims and securities as well as additions to provisions for loan losses.

Trading Assets and Liabilities

Financial instruments which are held with a trading intent are recognised at fair value less risk adjustment in accordance with Section 340e (3) of the HGB. Fair value is defined as the amount at which a financial instrument could be exchanged in a current transaction between knowledgeable, willing and unrelated parties. Fair value measurements do not include transaction costs. Fair value gains and losses are included in the net trading result in the income statement.

The fair value of cash instruments and derivative financial instruments is either based on unadjusted quoted prices in active markets to which the bank had access at the measurement date for identical, unrestricted assets or liabilities or valuation models. If valuation models are used to determine fair value, the bank uses valuation inputs that are observable, either directly or indirectly. If fair value cannot be determined, the amortised cost is used in accordance with Section 255 (4) of the HGB.

Valuation techniques for cash instruments where the inputs are unobservable vary, but are generally based on discounted cash flow techniques. The bank's derivatives are valued using derivative pricing models (e.g., discounted cash flow models, correlation models, and models that incorporate option pricing methodologies, such as Monte Carlo simulations).

The fair valuation of certain financial instruments may require valuation adjustments that a market participant would require to arrive at fair value for factors, such as counterparty and the bank's and GS Group's credit quality, funding risk, transfer restrictions, liquidity and bid/offer spreads. Valuation adjustments are generally based on market evidence.

Valuation adjustments are integral to determining the fair value of derivative portfolios and are used to adjust the mid-market valuations produced by derivative pricing models to the exit price valuation.

These adjustments incorporate bid/offer spreads, the cost of liquidity, credit valuation adjustments, debt valuation adjustments and funding valuation adjustments, which account for the credit and funding risk inherent in the uncollateralised portion of derivative portfolios. The bank also makes funding valuation adjustments to collateralised derivatives where the terms of the agreement do not permit the bank to deliver or repledge collateral received.

Market-based inputs are generally used when calibrating valuation adjustments to market-clearing levels. In addition, for derivatives that include significant unobservable inputs, the bank makes model or exit price adjustments to account for the valuation uncertainty present in the transaction.

In order to reflect any remaining realisation risk for unrealised gains, the result of the fair value measurement is reduced by a risk adjustment, which is deducted from trading assets in accordance with Section 340e(3) of the HGB. The risk adjustment is based on value-at-risk which is calculated using a holding period of ten days and a confidence level of 99% for the whole portfolio. Additionally, a trading-related special reserve in accordance with Section 340e(4) of the HGB is established by taking at least 10% of the net trading result (after risk adjustment). This reserve has to increase until the trading-related special reserve corresponds to 50% of the five-year average of net trading result after risk adjustment. The reserve may, amongst others, be consumed to either release an amount exceeding the 50% limit or to cover net trading losses.

To reduce credit exposures on derivatives, the bank may enter into master netting agreements or similar arrangements (collectively, netting agreements) with counterparties that permit it to offset receivables and payables with such counterparties. In addition, the bank receives and posts cash and securities collateral with respect to its derivatives, subject to the terms of the related credit support agreements or similar arrangements (collectively, credit support agreements). Collateral receivables and payables are presented as other assets or other liabilities, respectively.

Notes to the Financial Statements

Receivables and payables from reverse repurchase agreements and repurchase agreements with the same maturity and with counterparties that permit it to offset are reported on a net basis. Securities lending/borrowing transactions remain recognised in the transferor's balance sheet.

Assets & Liabilities Held In Trust

Assets held by the bank as a trustee in its own name but on behalf of third parties is reported within Assets held in trust as per Sec 6(3) RechKredV. This asset corresponds to a liability position reported within Liabilities held in trust. The asset and liability is measured at fair value initially and subsequently with no impact to net revenues. Fees earned by the bank for providing the trustee services are recognised within commission income.

Investments in Affiliated Companies

Investments in affiliated companies are recognised at their acquisition cost less any write down due to impairment that is likely to be permanent. If the reasons for prior write downs performed are no longer applicable, they are reversed.

Fixed and Intangible Assets

Fixed and intangible assets are reported at their acquisition or manufacturing cost less any depreciation or amortisation. The amortisation and depreciation rates are based on the useful economic life of the asset. Write-downs are made for any impairment that is likely to be permanent.

The bank recognises internally developed software assets as permitted by Section 248(2) of the HGB. Capitalisation of development cost are only permitted in case that development cost can clearly be separated from research cost, and the intangible asset can be valued individually and will generate a future economic benefit. The estimated useful life of the internally developed software is three years.

The goodwill reported under intangible assets was amortised over its estimated useful life. Its determination was based on economic and organisational factors such as future growth and profit prospects, mode and duration of expected synergies, leveraging customer base and assembled workforce of the acquired business. The estimated useful life of the goodwill was two years and has been fully amortised as of December 2022.

Deferred Tax

The bank recognises deferred tax as permitted by Section 274(1) sentence 2 of the HGB. Deferred tax is recognised in respect of all temporary differences that have originated, but not reversed at the balance sheet date, where transactions or events have occurred at that date that will result in an obligation to pay more tax or a right to pay less tax in the future with the following exceptions:

- Deferred tax assets are recognised only to the extent that it is more likely than not that there will be suitable taxable profits from which the future reversal of the underlying temporary differences can be deducted.
- Deferred tax is measured on an undiscounted basis at the tax rates that are expected to apply in the periods in which temporary differences reverse, based on tax rates and laws enacted or substantively enacted at the balance sheet date.

Liabilities

Liabilities are recognised with their settlement amounts. Registered bonds and promissory notes issued by the bank are recognised at nominal value and presented as liabilities to credit institutions/customers with agreed term or notice period.

Valuation Units (Hedge Accounting)

In instances in which for accounting purposes assets, liabilities, pending transactions or highly probable forecasted transactions (hedged items) and financial instruments (hedging instruments) are designated in a valuation unit to achieve an offset for changes in fair value or cash flows attributable to the hedged risk the general measurement rules are not applied. The bank utilises the freeze method, which means that offsetting value changes related to the hedged risk are not recorded and negative fair value changes related to the same type of risk are not recognised during the period of the hedge unless a net loss, i.e., negative ineffectiveness, arises which is recognised as a provision for imminent losses.

Equity

The ordinary share capital is recognised at nominal value and is fully paid up.

Notes to the Financial Statements

Provisions

Provisions are measured at the settlement amount that is determined necessary in accordance with reasonable commercial judgment. Provisions with a remaining term of more than one year are discounted with the average market interest rate of the past seven years according to their remaining term.

The applicable discount rate is determined and published by the German central bank (Deutsche Bundesbank) in accordance with the German discounting ordinance (Rückabzinsungsverordnung).

Provisions for pensions are valued using the Projected Unit Credit Method. The basis for valuation is the periodic allocation of the benefit obligation during the service period of the employee, the present value of this obligation is calculated with the help of actuarial assumptions. The actuarial assumptions reflect the fair value of cash flows (actuarial interest rate) and the likelihood of payments (assumptions about mortality, fluctuation and early retirement, etc.). The interest expense component and the effect from changes in the interest rate are recognised in other operating expenses. The interest rate is based on the average interest rate of the previous ten years. The difference, according to Section 253(6) sentence 1 of the HGB, when applying the average interest rate from the past seven years was €12 million.

The table below presents the actuarial assumptions used in the calculation.

As of December 2022	
Biometrics	Mortality tables Heubeck 2018 G
Actuarial interest rate	2.04%
Dynamic of eligible payments	3.25%
Dynamics of the social security contribution ceiling of the statutory pension scheme	3.00%
Dynamics of adjustments to current pensions (inflation rate p.a.)	1.00% for commitments after 1 Dec 2007, otherwise 2.42%

Provisions for share-based compensation are recognised from the grant date up to the delivery date and are valued as of December 2022 with the share price of Group Inc.

A potential provision requirement for interest rate risk for the purposes of the loss-free valuation was assessed for all interest bearing financial instruments in the non-trading book using the present value method. The bank used the simplified two step approach. The assessment resulted in no need to recognise a provision for anticipated losses.

Provision for impending losses from pending derivative transactions in the banking book (onerous contract) are recognised at the present value on the reporting date.

Currency translation

Assets and liabilities denominated in foreign currencies were converted to Euro on the balance sheet date using GS Group currency conversion rates. Expenses and income are converted using the foreign exchange rates valid at the time of the transaction. The bank reports foreign currency changes of the trading book in net trading result. Trading book foreign currency forwards are measured at fair value. Due to the specific coverage in the same currency, profits and losses from currency translation in the non-trading book are recognised through profit or loss in other operating income/expense.

Notes to the Balance Sheet

Note 3.

Residual Maturity of Receivables and Liabilities

The tables below present receivables from credit institutions and customers by expected maturity.

€ in millions	As of December	
	2022	2021
Receivables from credit institutions		
With a remaining maturity of:		
up to three months	€328	€—
more than one year up to five years	54	77
Total	€382	€77

€ in millions	As of December	
	2022	2021
Receivables from customers		
With a remaining maturity of:		
up to three months	€16,980	€12,278
more than three months up to one year	11	—
more than one year up to five years	1,091	406
more than five years	113	240
Total	€18,195	€12,924

In the table above, receivable from customers does not include any balance with an indefinite term.

The tables below present liabilities to credit institutions and customers with agreed term or notice period by expected maturity.

€ in millions	As of December	
	2022	2021
Liabilities to credit institutions with agreed term or notice period		
With a remaining maturity of:		
up to three months	€ 328	€ —
more than three months up to one year	496	—
more than one year up to five years	5,021	19,224
more than five years	800	800
Total	€6,645	€20,024

Other liabilities to customers with agreed term or notice period

With a remaining maturity of:		
up to three months	€13,993	€2,801
more than three months up to one year	160	17
more than one year up to five years	109	249
more than five years	75	75
Total	€14,337	€3,142

Note 4.

Receivables and Liabilities with Affiliates

The table below presents the bank's receivables and liabilities with affiliates.

€ in millions	As of December	
	2022	2021
Receivables from credit institutions	€ 412	€ 90
Receivables from customers	€15,861	€10,868
Liabilities to credit institutions	€ 5,849	€20,057
Liabilities to customers	€16,366	€ 4,139
Subordinated debt	€ 20	€ 20

In the table above, receivables from customers and liabilities to customers primarily include balances with a broker-dealer affiliate, Goldman Sachs International.

Note 5.

Repurchase Agreements

The book value of assets transferred under repurchase agreements reported on the balance sheet as of December 2022 was €2.84 billion (December 2021: €500 million).

Note 6.

Trading Assets and Liabilities

The criteria related to the designation of financial instruments to trading assets and trading liabilities have not changed in the reporting period.

The table below presents trading assets.

€ in millions	As of December	
	2022	2021
Derivatives	€13,712	€ 8,056
Receivables	9,623	5,661
Bonds and other fixed-income securities	4,188	2,014
Equity shares and other variable-yield securities	1,017	2,179
Risk adjustment	(22)	(30)
Total	€28,518	€17,880

The table below presents trading liabilities.

€ in millions	As of December	
	2022	2021
Derivatives	€10,498	€8,896
Liabilities	9,893	7,222
Total	€20,391	€16,118

As of December 2022, trading assets and trading liabilities include offsetting of positive fair values of €167.58 billion with negative fair values of €167.58 billion on financial instruments held for trading with the associated cash collateral receivables of €11.38 billion and payables of €14.09 billion.

Forward transactions outstanding at the balance sheet date are concluded almost exclusively to hedge interest rate, exchange rate and market price fluctuations in trading activities.

The table below presents trading and banking book derivative notionals.

€ in billions	As of December	
	2022	2021
OTC products		
Interest rates	€6,329	€2,504
Credit	418	283
Currency	304	495
Commodity	50	71
Equity	95	69
Exchange traded products	24	13
Total	€7,220	€3,435

In the table above, OTC products include notional for banking book derivatives of €27.90 billion as of December 2022 primarily within currency (December 2021: €27.70 billion).

Notes to the Financial Statements

Note 7.

Assets and Liabilities Held In Trust

The bank acts as a platform operator, registrar, underwriter, custodian and paying agent for certain digital debt issuances in Europe. The bank's obligation to safeguard the digital debt issuances for the custody platform users is recognised within Liabilities held in trust along with a corresponding asset within Assets held in trust on the balance sheet.

Note 8.

Non-Current Assets

Non-current assets include intangible assets, fixed assets, investments in affiliated companies and bonds and other fixed-income securities (Securities). Net book value of fixed assets as of December 2022 included furniture and office equipment of €3 million (December 2021: €4 million).

The table below presents the bank's non-current assets.

€ in millions	As of December	
	2022	2021
Intangible assets	€ 6	€ 36
Fixed assets	22	27
Securities	—	43
Total	€28	€106

The table below presents the movements in intangible assets during the year.

€ in millions	Internally developed intangible assets	Purchased intangible assets	Goodwill	Total
Acquisition cost				
As of December 2021	€—	€13	€59	€72
Additions	7	—	—	7
As of December 2022	7	13	59	79
Accumulated Depreciation				
As of December 2021	—	7	29	36
Charge for the period	1	6	30	37
As of December 2022	1	13	59	73
Net book value				
As of December 2022	€ 6	€—	€—	€ 6
As of December 2021	€—	€ 6	€30	€36

The table below presents the movements in fixed assets and securities during the year.

€ in millions	Fixed assets	Securities
Acquisition cost		
As of December 2021	€63	€43
Additions	1	—
Disposals	—	(43)
As of December 2022	64	—
Accumulated Depreciation		
As of December 2021	36	—
Charge for the period	6	—
As of December 2022	42	—
Net book value		
As of December 2022	€22	€—
As of December 2021	€27	€43

The table below presents the companies in which the bank owns more than 20%.

€ in thousands	Equity	Net profit in 2021
Goldman, Sachs & Co. Verwaltungs GmbH	€26	€12
Goldman, Sachs Management GP GmbH	€25	€14
Goldman Sachs Gives gGmbH	€25	€(6)

In the table above, all the companies are registered in Frankfurt am Main and the bank is the sole shareholder.

Note 9.

Other Assets and Other Liabilities

Other assets as of December 2022 primarily consisted of balances related to listed derivative activity of €3.33 billion (December 2021: €3.70 billion), collateral posted in connection with derivative transactions of €2.59 billion (December 2021: €1.62 billion), and default fund contributions to various clearing houses and exchanges of €468 million (December 2021: €490 million).

Other liabilities as of December 2022 primarily consisted of balances related to listed derivative activity of €3.41 billion (December 2021: €2.94 billion) and collateral received in connection with derivative transactions of €2.51 billion (December 2021: €1.51 billion).

Note 10.

Deferred Tax Assets

The deferred tax assets recognised on the balance sheet primarily arose from temporary differences relating to compensation and benefits including share-based compensation, pension obligations, goodwill and provision for loan losses. The deferred taxes in the head office are measured using the relevant combined German income tax rate of 31.93% which includes corporate tax, trade tax and solidarity surcharge. The deferred taxes in the foreign branches are measured using the applicable tax rates which range from 13% to 30%.

As of December 2022, deferred tax assets presented on the balance sheet were €115 million (December 2021: €91 million).

The deferred tax assets recognised on the balance sheet are non-distributable as per Section 268 (8) and Section 285(28) of the HGB.

Note 11.

Foreign Currency Volumes

The table below presents the bank's assets and liabilities denominated in foreign currencies.

€ in millions	As of December	
	2022	2021
Assets	€12,434	€20,941
Liabilities	€ 3,526	€26,708

Notes to the Financial Statements

Note 12.

Valuation Units

Registered bonds, promissory notes and offsetting interest rate swaps with a nominal value of €110 million as of December 2022 (December 2021: €136 million) were designated to valuation units for their whole duration. As per Section 285(19) of the HGB, the fair values of the interest rate swaps are determined following the market approach.

The table below presents the carrying value and the fair value of the interest rate swaps which are included within Receivable from customers, Other assets, Liabilities to customers and Other liabilities in the balance sheet.

€ in millions	Carrying value	Market value
As of December 2022		
Asset	€ 6	€ 1
Liability	€ (4)	€ —
As of December 2021		
Asset	€ 7	€ 30
Liability	€ (1)	€ (1)

The amount of hedged risk is €1 million as of December 2022 (December 2021: €3 million) and represents the net cumulative increase in fair value of assets/increase in liabilities that were not recognised in profit and loss, after considering hedges.

Note 13.

Other Provisions

The table below presents other provisions by type.

€ in millions	As of December	
	2022	2021
Compensation and benefits	€407	€397
Onerous losses	2	11
Loan losses	16	5
Accrued expenses and other	169	95
Total	€594	€508

In the table above:

- Compensation and benefits included provision for share-based compensation.
- Onerous losses relate to negative present value of derivatives in the banking book.
- Accrued expenses and other included a provision of €6.6 million as of December 2022 related to an administrative penalty to be levied by the ECB relating to the bank's regulatory reporting obligations. This penalty has been paid by the bank in May 2023 as full resolution of the matter.

In accordance with Section 246 (2) sentence 2 of the HGB, shares and other variable-income securities relating to the employee benefit plan with a fair value of €40 million as of December 2022 (December 2021: €50 million) were set off against the commitment for the employee benefit plans. There is no excess amount resulting from the offsetting of assets with the obligations.

Note 14.

Subordinated Debt

Subordinated debt was granted for an indefinite period of time by Group Inc. and remained unchanged in the reporting period. The rate of interest on the subordinated debt is 3 month EURIBOR plus 210 basis points. The bank paid interest on the subordinated debt of €0.4 million for the year ended December 2022 and €0.2 million for the year ended December 2021. An early repayment obligation does not exist.

Note 15.

Shareholder's Equity

Ordinary share capital

The sole shareholder of the bank is Goldman Sachs Bank USA (GS Bank USA) with its registered office in New York, New York., U.S.A.

The table below presents ordinary share capital.

As of December 2021	328,642,800
As of December 2022	328,642,800

Capital reserve

The capital reserve increased by €2.73 billion to €7.34 billion due to capital injection of €2.73 billion on March 29, 2022 by GS Bank USA.

Profit reserves

The table below presents profit reserve.

€ in millions	
As of December 2021	€433
Allocation to profit reserves	377
of which: addition from distributable profit of prior year	377
As of December 2022	€810

Notes to the Financial Statements

Note 16.

Off-Balance Sheet Transactions

The table below presents off-balance sheet transactions.

€ in millions	As of December	
	2022	2021
Irrevocable lending commitments	€ 5,705	€5,084
Collateralised agreements	9,148	74
Collateralised financings	10,741	126
Other	199	252
Total	€25,793	€5,536

The bank originates a number of bank loans which are held as principal risk. The bank also holds bank loans which are sub-participated to GS Group affiliates and third party institutions. The unfunded portion of these agreements, where cash has not been deposited with the bank to collateralise the undrawn commitment is presented above in lending commitments. Risks arising from these transactions are considered in the impairment calculations and corresponding provisions are recognised.

Collateralised agreements include forward starting resale and securities borrowing agreements, and collateralised financings include forward starting repurchase and secured lending agreements that settle at a future date, generally within three business days. Collateralised agreements also include transactions where the bank has entered into commitments to provide contingent financing to its clients and counterparties through resale agreements. The bank's funding of these commitments depends on the satisfaction of all contractual conditions to the resale agreement and these commitments can expire unused.

Other primarily relate to collateral commitments and lease commitments.

Notes to the Income Statement

Note 17.

Breakdown of Income by Geographical Markets

The table below presents total amount of interest income, commission income, net trading result and other operating income broken down by geographical markets pursuant to Section 34 (2) No. 1 RechKredV.

€ in millions	Year Ended December	
	2022	2021
Europe	€1,686	€1,283
Americas	313	149
Asia	42	18
Total	€2,041	€1,450

Note 18.

Other Operating Income and Expense

Other operating income for the year ended December 2022 primarily included income from reimbursements for services from GS Group affiliates of €12 million (December 2021: €7 million).

Other operating expenses for the year ended December 2022 included a provision of €6.6 million related to an administrative penalty to be levied by the ECB relating to the bank's regulatory reporting obligations, interest expense on pensions and similar commitments of €6 million (December 2021: €12 million), accrual for a potential late payment fee of €2 million, and the net result from currency translation of €1 million (December 2021: income €1 million).

Note 19.

Profit Distribution

The Executive Board and Supervisory Board will propose that the net income of €346 million for the year ended December 2022 is transferred to profit reserves at the Annual General Meeting. The net income for the year ended December 2021 of €377 million was transferred to profit reserves at the Annual General Meeting on May 17, 2022.

Note 20.

Statement of Cash Flows

The cash flow statement is prepared using the indirect method and shows the composition and the net increase/decrease in cash and cash equivalents in the financial year.

Cash and cash equivalents represents the bank's cash balance held with central banks due on demand and are not subject to any restrictions on disposal.

Increase/decrease in provisions for the year ended December 2022 included other non-cash expense of €105 million (December 2021: €250 million) relating to share-based compensation expense and pension expense net of contributions.

Cash and cash equivalents decreased by €17.75 billion during the year ended December 2022 due to cash deposit placed with Deutsche Bundesbank being moved to overnight as of December 2022 and reported within Receivables from credit institutions compared to due on demand as of December 2021. Total cash placements (overnight or on demand) with central banks were €12.44 billion as of December 2022 (December 2021: €17.88 billion).

Note 21.

Report on Subsequent Events

A contribution of €3.26 billion to the capital reserve was conducted by the bank's sole shareholder following the end of the reporting period on January 25, 2023. No other relevant issues occurred after the end of the reporting period that might significantly impact the financial situation of the bank.

Notes to the Financial Statements

Note 22.

Other Information

Other Items not included in the Balance Sheet

Other items not included in the balance sheet that are significant for the financial assessment of the bank include guarantees of \$165 million as of December 2022 (December 2021: \$2.25 billion) provided by Group Inc. for certain counterparty exposures.

Total Auditor's Fee

The table below presents the fees payable to the bank's statutory auditor, which are included in other administration expenses.

€ in millions	Year Ended December	
	2022	2021
Audit fees	€3.5	€3.3
Other audit-related services	0.5	0.5
Total	€4.0	€3.8

In the table above, other audit-related services relate to the audit of the bank's non-statutory financial information prepared for the limited purpose of supporting regulatory filings.

Executive Board

The table below presents members of the Executive Board who served throughout the year and to the date of this report, except where noted.

Name
Dr. Wolfgang Fink, Managing Director (Chair)
Peter Hermann, Managing Director
Robert Charnley, Managing Director (appointed on April 1, 2023)
Thomas Degn-Petersen, Managing Director
Michael Holmes, Managing Director (appointed on May 1, 2022)
Dr. Matthias Bock, Managing Director
Hei Man Lo, Managing Director

The total remuneration of the members of the Executive Board for the year ended December 2022 was €21 million (December 2021: €13 million). No advances or loans were granted to the members of the Executive Board in the reporting period.

Supervisory Board

The table below presents members of the Supervisory Board who served throughout the year and to the date of this report, except where noted.

Name
Richard J. Gnodde, Managing Director (Chair) (appointed on October 10, 2022)
Esta Stecher, Chair of GS Bank USA (Deputy Chair) (resigned on January 31, 2023)
Philip Berlinski, Managing Director (appointed on November 8, 2022)
Efthalia Chryssikou, Managing Director (appointed on November 8, 2022)
Lisa Donnelly, Managing Director (appointed on January 17, 2022)
Dr. Wolfgang Feuring, Lawyer
Dermot W. McDonogh, Managing Director (resigned on October 10, 2022)
Simon Morris, Non-Executive Director (appointed on November 12, 2022)
Ulrich Pukropski, German Certified Auditor
John F.W. Rogers, Managing Director (appointed on November 8, 2022)

In the table above:

- Dermot W. McDonogh served as chair of the Supervisory Board until his resignation on October 10, 2022.
- John F.W. Rogers was appointed as deputy chair of the Supervisory Board from February 3, 2023.

Four members of the Supervisory Board received remuneration of €0.5 million from the bank for the year ended December 2022. The publication of the information required under Section 285, no. 9, letter a and b of the HGB for the year ended December 2021 has been waived in accordance with the exceptional provision of Section 286, no. 4 of the HGB. No advances or loans were granted to the members of the Supervisory Board in the reporting period.

Headcount

The table below presents the bank's average full time equivalent (FTE) headcount.

	Year Ended December	
	2022	2021
Investment Banking	322	295
FICC & Equities	280	222
Investment Management	192	164
Support functions	234	160
Total average FTE	1,028	841

Consolidated Financial Statements

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

The immediate parent undertaking and the parent company of the smallest group for which consolidated financial statements are prepared is GS Bank USA, a New York State-chartered bank and a member of the FRB with its principal office in New York, New York. Copies of its consolidated financial statements, as well as certain regulatory filings, that provide further information about GS Bank USA and its business activities, can be obtained at www.goldmansachs.com/investor-relations.

The ultimate controlling undertaking and the parent company of the largest group for which consolidated financial statements are prepared is Group Inc., a company incorporated in the United States of America. Copies of its consolidated financial statements, as well as certain regulatory filings that provide further information about GS Group and its business activities, can be obtained from Investor Relations, 200 West Street, New York, NY 10282, United States of America, Group Inc's principal place of business, or at www.goldmansachs.com/investor-relations.

Notes to the Financial Statements

Branches of the bank

The table below presents a breakdown of the bank's head office in Frankfurt and the bank's branches according to Section 26a (1) sentence 2 KWG where net revenues refers to the sum of interest income, interest expense, commission income, commission expense and net trading result. All figures presented are € millions, except FTE which show the average FTE for the year ended December 2022. All of the bank's branches are active in the business activities Investment Banking, FICC, Equities and Investment Management, except where otherwise stated.

Name	Trading Name	Business	Location	2022			
				Net revenues	Average FTE	Result from ordinary activities	Income tax expense
GSBE Frankfurt Head Office	GSBE	All	Frankfurt, Germany	€ 290	377	€ (76)	€ 21
GSBE Amsterdam Branch	GSBE Amsterdam Branch	Investment Banking, Investment Management	Amsterdam, Netherlands	28	21	16	5
GSBE Athens Branch	GSBE Athens Branch	Investment Banking	Athens, Greece	2	1	—	—
GSBE Copenhagen Branch, filial af Goldman Sachs Bank Europe SE, Tyskland	GSBE Copenhagen Branch	All	Copenhagen, Denmark	18	9	9	2
GSBE	GSBE Dublin Branch	All	Dublin, Ireland	5	11	—	—
GSBE London Branch	GSBE London Branch	All	London, UK	332	50	191	62
GSBE Luxembourg Branch	GSBE Luxembourg Branch	Investment Management	Luxembourg	23	12	18	5
GSBE Sucursal en España	GSBE Madrid Branch	All	Madrid, Spain	43	61	12	5
GSBE Succursale Italia	GSBE Milan Branch	All	Milan, Italy	192	73	125	44
GSBE Succursale de Paris	GSBE Paris Branch	All	Paris, France	472	253	244	87
GSBE Sweden Bankfilial	GSBE Stockholm Branch	All	Stockholm, Sweden	80	71	48	11
GSBE Spółka Europejska Oddział w Polsce	GSBE Warsaw Branch	Investment Banking, Investment Management	Warsaw, Poland	1	89	1	—
Total				€1,486	1,028	€588	€242

There were no public subsidies in the reporting period according to Section 26a sentence 2 no. 6. The return on assets, calculated as a ratio of net income to total assets, was 0.5% for the year ended December 2022 and decreased from 0.7% for the year ended December 2021.


Frankfurt am Main, May 5, 2023


Goldman Sachs Bank Europe SE

The Executive Board


Dr. Wolfgang Fink


Peter Hermann


Robert Charnley


Thomas Degn-Petersen


Michael Holmes


Dr. Matthias Bock


Hei Man Lo

INDEPENDENT AUDITOR'S REPORT

To the Goldman Sachs Bank Europe SE, Frankfurt am Main

REPORT ON THE AUDIT OF THE ANNUAL FINANCIAL STATEMENTS AND OF THE MANAGEMENT REPORT

Audit Opinions

We have audited the Annual Financial Statements of Goldman Sachs Bank Europe SE, which comprise the balance sheet as at December 31, 2022, the statement of profit and loss and the cash flow statement for the financial year from January 1, 2022 to December 31, 2022, the cash flow statement as well as the notes to the financial statements, including the presentation of the recognition and measurement policies. In addition, we have audited the Management Report of Goldman Sachs Bank Europe SE for the financial year from January 1, 2022 to December 31, 2022. We have not audited the content of the components of the Management Report referred to in the "Other information" section of our audit opinion in accordance with German legal requirements.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying Annual Financial Statements comply, in all material respects, with the requirements of German commercial law and give a true and fair view of the assets, liabilities and financial position of the Company as at December 31, 2022 and of its financial performance for the financial year from January 1, 2022 to December 31, 2022 in compliance with German Legally Required Accounting Principles, and
- the accompanying Management Report as a whole provides an appropriate view of the Company's position. In all material respects, this Management Report is consistent with the Annual Financial Statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our audit opinion on the Management Report does not cover the content of the parts of the Management Report listed in the "Other Information" section.

Pursuant to § 322 Abs. 3 Satz 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the Annual Financial Statements and of the Management Report.

Basis for the Audit Opinions

We conducted our audit of the Annual Financial Statements and of the Management Report in accordance with § 317 HGB and the EU Audit Regulation (No. 537/2014, referred to subsequently as "EU Audit Regulation") in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the Annual Financial Statements and of the Management Report" section of our auditor's report. We are independent of the Company in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the Annual Financial Statements and on the Management Report.

Key Audit Matters in the Audit of the Annual Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the Annual Financial Statements for the financial year January 1, 2022, to December 31, 2022. These matters were addressed in the context of our audit of the Annual Financial Statements as a whole, and in forming our audit opinion thereon, we do not provide a separate audit opinion on these matters.

Valuation of Financial Instruments

Related information in the Annual Financial Statements and Management Report

As of December 31, 2022, trading assets amount to EUR 28,518 million and trading liabilities amount to EUR 20,391 million. The trading portfolio is mainly characterized by positions in derivative financial instruments (EUR 13,712 million on the asset side and EUR 10,498 million on the liability side), bonds and other fixed-income securities (EUR 4,188 million) as well as shares and other non-fixed-income securities (EUR 1,017 million). Net trading result amounts to EUR 652 million. For information on the recognition and measurement policies applied, please refer to Note 2 in the notes to the financial statements, and for information on the trading portfolio to Note 6 in the notes to the financial statements.

Facts and risk for the audit

In accordance with § 340e HGB, financial instruments held for trading are measured at fair value less a risk discount. Goldman Sachs Bank Europe SE enters into transactions in derivatives and other financial instruments which it reports in the balance sheet items "Trading assets" and "Trading liabilities". The income and expenses from these transactions are reported in the income statement under the item "Net trading result".

These transactions include financial instruments that are valued on the basis of input parameters that are observable, either directly or indirectly, in an active market, but do not relate to identical assets or liabilities. In addition, transactions are included where the valuation methodology is based on unobservable parameters. The valuation of these financial instruments may be based on complex valuation methods and involve assumptions and estimates regarding the input parameters used.

Furthermore, the determination of the fair value of financial instruments may require valuation adjustments that are subject to management estimate.

Due to the resulting estimation uncertainties, the valuation of these products was of particular importance for our audit.

Audit approach and results

We obtained an understanding of the processes for the valuation of financial instruments in the trading portfolio and assessed the adequacy and effectiveness of the controls implemented in this regard. This involved in particular the controls relating to independent price verification, and the independent validation of valuation models.

In addition, the process for determining and recording the necessary valuation adjustments was of material importance. In this context, we also engaged the external auditor of the Goldman Sachs Group Inc., New York / USA, to audit the Group-wide controls related to the valuation of financial instruments, independent price verification, as well as the input parameters to be used in this context and the model validation process. In addition, we engaged the external auditor of the Goldman Sachs Group Inc., New York / USA to audit the effectiveness of controls to ensure the completeness and accuracy of the valuation adjustments.

When determining the nature and scope of the further substantive audit procedures, we have taken into account the results of our audit, and those of the external auditor of Goldman Sachs Group Inc., New York / USA, of the controls.

In consultation with our valuation experts, we examined the valuation of the financial instruments on a sample basis. For this purpose, we performed an independent revaluation for selected products as of the balance sheet date.

Based on our audit procedures, we concluded that the methods and assumptions used to determine the fair values are overall appropriate.

Intra-Group revenue allocation

Related information in the Annual Financial Statements and Management Report

As of December 31, 2022, commission income amounts to EUR 877 million and thus represents one of the main income items in the Financial Statements of Goldman Sachs Bank Europe SE. Commission income includes in particular revenues from revenue sharing

agreements with affiliates. For information on the accounting policies applied, please refer to Note 2 in the notes to the financial statements.

As of December 31, 2022, net trading income amounts to EUR 652 Mio. and thus represents one of the main income items in the Financial Statements of Goldman Sachs Bank Europe SE. Net trading income includes in particular revenues from revenues from revenue sharing agreements with affiliates. For information on the accounting policies applied, please refer to Note 2 in the notes to the Financial Statements.

Facts and risk for the audit

The recognition of revenue on the basis of intercompany transfer pricing was of particular significance in the context of our audit due to the complex internal calculation and the fact that these are not transactions with external third parties. Furthermore, the transfer pricing methods have a significant impact on the commission income and the net trading result of Goldman Sachs Bank Europe SE.

If transactions with related parties have been concluded on terms that are not at arm's length, this must be disclosed in the notes to the financial statements, together with other information in accordance with Section 285 No. 21 HGB.

Audit approach and results

As part of the audit of the Annual Financial Statements we first assessed the effectiveness of the relevant internal control system of the Company with regard to intercompany revenue and cost allocation. In doing so, we also considered the relevant business organisation, the process flows defined for this purpose and the IT systems and supporting tools implemented. In this context, we also engaged the external auditor of Goldman Sachs Group Inc., New York / USA, to audit the Group-wide controls relating to intercompany revenue allocation.

As part of our substantive audit procedures, we assessed, among other things, the intercompany reconciliation within the Group; in this context, we also obtained balance confirmations from the Group company involved. We also reviewed the intercompany cost allocation with regard to the appropriateness of the methods, assumptions made and input parameters from a tax perspective.

As part of our audit, we were able to satisfy ourselves overall both of the existence and accuracy of the revenue earned from Goldman Sachs Group affiliates and of the appropriateness and effectiveness of the Company's implemented processes and controls.

Other information

The Executive Board is responsible for the other information. The other information comprises the following parts of the Management Report that have not been audited as to their contents:

- the non-financial report in accordance with Section 289b HGB

Our audit opinions on the Financial Statements and the Management Report do not cover the other information and, accordingly, we do not express an audit opinion or any other form of audit conclusion thereon.

In connection with our audit, we have a responsibility to read the other information and, in doing so, determine whether the other information:

- presents material inconsistencies with the Annual Financial Statements, the Management Report or our knowledge gained during the audit or
- otherwise appear to be materially misrepresented.

Responsibilities of the Executive Board and the Supervisory Board for the Annual Financial Statements and the Management Report

The executive board is responsible for the preparation of the Annual Financial Statements that comply, in all material respects, with the requirements of German commercial law applicable to business corporations, and that the Annual Financial Statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Company in compliance with German Legally Required Accounting Principles. In addition, the executive board is responsible for such internal control as they, in accordance with German Legally Required Accounting Principles, have determined necessary to enable the preparation of Annual Financial Statements that are free from material misstatement due to fraudulent acts (i.e. manipulation of accounting and damage to the Company's assets) or error.

In preparing the Annual Financial Statements, the executive board is responsible for assessing the Company's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting, provided no actual or legal circumstances conflict therewith.

Furthermore, the executive board is responsible for the preparation of the Management Report that, as a whole, provides an appropriate view of the Company's position and is, in all material respects, consistent with the Annual Financial Statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive board is responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a Management Report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the Management Report.

The supervisory board is responsible for overseeing the Company's process for the preparation of the Annual Financial Statements and of the Management Report.

Auditor's Responsibilities for the Audit of the Annual Financial Statements and of the Management Report

Our objectives are to obtain reasonable assurance about whether the Annual Financial Statements as a whole are free from material misstatement due to fraudulent acts or error, and

whether the Management Report as a whole provides an appropriate view of the Company's position and, in all material respects, is consistent with the Annual Financial Statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our audit opinions on the Annual Financial Statements and on the Management Report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with § 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraudulent acts or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these Annual Financial Statements and this Management Report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the Annual Financial Statements and of the Management Report due to fraudulent acts or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinions. The risk of not detecting a material misstatement resulting from fraudulent acts is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.
- Obtain an understanding of internal control relevant to the audit of the Annual Financial Statements and of arrangements and measures (systems) relevant to the audit of the Management Report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems of the Company.
- Evaluate the appropriateness of accounting policies used by the executive board and the reasonableness of estimates made by the executive board and related disclosures.
- Conclude on the appropriateness of the executive board's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the Annual Financial Statements and in the Management Report or, if such disclosures are inadequate, to modify our respective audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to be able to continue as a going concern.

- Evaluate the overall presentation, structure and content of the Annual Financial Statements, including the disclosures, and whether the Annual Financial Statements present the underlying transactions and events in a manner that the Annual Financial Statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Company in compliance with German Legally Required Accounting Principles.
- Evaluate the consistency of the Management Report with the Annual Financial Statements, its conformity with German law, and the view of the Company's position it provides.
- Perform audit procedures on the prospective information presented by the executive board in the Management Report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive board as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the actions taken or safeguards in place to eliminate threats to independence.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the Annual Financial Statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

Other Legal and Regulatory Requirements

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as auditor by the annual general meeting on May 17, 2022. We were engaged by the supervisory board on August 16, 2022. We have been the auditor of the Goldman Sachs Bank Europe SE, Frankfurt am Main, since the financial year 2021.

We declare that the audit opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

German Public Auditor Responsible for the Engagement

The German Public Auditor responsible for the engagement is Mr. Wirtschaftsprüfer Markus Morfeld.

Frankfurt am Main, 8 May 2023

Mazars GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft
Steuerberatungsgesellschaft

Markus Morfeld
Wirtschaftsprüfer

Steffen Neuweiler
Wirtschaftsprüfer