Goldman Sachs Group UK Limited

Pillar 3 Disclosures

For the period ended November 30, 2019

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Introduction

Overview

The Goldman Sachs Group, Inc. (Group Inc. or parent company), a Delaware corporation, together with its consolidated subsidiaries (collectively, the firm), is a leading global investment banking, securities and investment management firm that provides a wide range of financial services to a substantial and diversified client base that includes corporations, financial institutions, governments and individuals. Goldman Sachs Group UK Limited (GSGUKL) is a wholly owned subsidiary of Group Inc.. When we use the terms "Goldman Sachs", "GS Group" and "the firm", we mean Group Inc. and its consolidated subsidiaries and when we use the terms "GSGUK", "the company", "we", "us" and "our", we mean GSGUKL and its consolidated subsidiaries.

The Board of Governors of the Federal Reserve System (FRB) is the primary regulator of Group Inc., a bank holding company (BHC) under the Bank Holding Company Act of 1956 and a financial holding company under amendments to this Act. The firm is subject to consolidated regulatory capital requirements which are calculated in accordance with the regulations of the FRB (Capital Framework).

GSGUK is supervised on a consolidated basis by the Prudential Regulation Authority (PRA) and as such is subject to minimum capital adequacy standards. Certain subsidiaries of GSGUK are regulated by the Financial Conduct Authority (FCA) and the PRA, or solely by the FCA, and are subject to minimum capital adequacy standards also on a standalone basis.

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

For information on Group Inc.'s financial statements and regulatory capital ratios, please refer to the firm's annual Pillar 3 Disclosures and Annual Report on Form 10-K. References to the "2019 Form 10-K" are to the firm's Annual Report on Form 10-K for the year ended December 31, 2019.

https://www.goldmansachs.com/investor-relations/financials/current/other-information/4q-pillar3-2019.pdf

https://www.goldmansachs.com/investor-relations/financials/current/10k/2019-10-k.pdf

The GSGUK consolidated regulatory capital requirement has been calculated in accordance with the E.U. Capital Requirements Directive (CRD) and the E.U. Capital Requirements Regulation (CRR). These are largely based on the Basel Committee's final capital framework for strengthening international capital standards (Basel III), which is structured around three pillars: Pillar 1 "minimum capital requirements", Pillar 2 "supervisory review process" and Pillar 3 "market discipline". The CRR is directly applicable in the UK and certain provisions of the CRD or discretionary aspects of CRR have been implemented in the PRA and FCA Rulebooks.

In 2018, GSGUK changed its accounting reference date from December 31 to November 30. As such, its financial statements have been prepared for the twelve months ended November 30, 2019. All references to November 2019 refer to the period ended, or the date, as the context requires, November 30, 2019.

The Pillar 3 disclosures set out the qualitative and quantitative elements of Part 8 of the CRR, as supplemented by the PRA and FCA Rulebooks. From March 2018, the Pillar 3 disclosures have also been prepared in accordance with the EBA Guidelines on disclosure requirements under Part 8 of the CRR published in December 2016.

The Pillar 3 disclosures have been published in conjunction with consolidated financial information for GSGUK for November 2019. The annual consolidated financial information for GSGUK can be accessed via the following link:

http://www.goldmansachs.com/disclosures/index.html

Measures of exposures and other metrics disclosed in this report may not be based on U.K. Generally Accepted Accounting Practices (U.K. GAAP), may not be directly comparable to measures reported in financial statements, and may not be comparable to similar measures used by other companies. These disclosures are not required to be, and have not been, audited by our independent auditors.

Basis of Consolidation

GSGUKL is the holding company for a group that provides a wide range of financial services to clients located worldwide. The company's functional currency is US dollars and these disclosures are prepared in that currency.

The following UK-regulated subsidiaries are included in the regulatory consolidation:

- Goldman Sachs International (GSI)
- Goldman Sachs International Bank (GSIB)
- Goldman Sachs Asset Management International (GSAMI)
- Goldman Sachs MB Services Limited (GSMBSL)

The scope of consolidation for regulatory capital purposes is consistent with the U.K. GAAP consolidation.

The company is required to make certain capital disclosures on an individual or subconsolidated basis for significant subsidiaries. The significant subsidiaries of GSGUK are GSI and GSIB. GSI is the firm's broker dealer in the Europe, Middle East and Africa (EMEA) region and its risk profile is materially the same as GSGUK. GSIB is GSGUK's deposit-taking subsidiary. Risk management policies and procedures are applied consistently to GSI, GSIB and to GSGUK as a whole. The remaining entities have minimal balance sheet activity and have not been determined material subsidiaries for the purposes of these disclosures.

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

Group Inc. is a holding company and, therefore, utilises dividends, distributions and other payments from its subsidiaries to fund dividend payments and other payments on its obligations, including debt obligations. Regulatory capital requirements, as well as other provisions of applicable law and regulations restrict Group Inc.'s ability to withdraw capital from its regulated subsidiaries. Within GSGUK, capital is provided by GSGUKL to subsidiary entities. Capital is considered transferable to other entities within the GSGUK Group without any significant restriction except to the extent it is required for regulatory purposes.

For information about restrictions on the transfer of funds within Group Inc. and its subsidiaries, see "Note 20. Regulation and Capital Adequacy" in Part II, Item 8 "Financial Statements and Supplementary Data" and "Risk Management - Liquidity Risk Management" and "Equity Capital Management and Regulatory Capital" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K.

Definition of Risk-Weighted Assets

The risk weights used in the calculation of RWAs reflect an assessment of the riskiness of our assets and exposures. These risk weights are based on either predetermined levels set by regulators or on internal models which are subject to various qualitative and quantitative parameters that are subject to approval by our regulators. The relationship between available capital and capital requirements can be expressed in the form of a ratio, and capital requirements are arrived at by dividing RWAs by 12.5. In this document, minimum capital ratios set out in Table 1 are expressed including the impact of additional buffers.

Fair Value

The inventory included in our consolidated balance sheets as trading assets and liabilities, certain investments and loans, as well as certain other financial assets and liabilities, are accounted for at fair value (i.e., marked-to-market), with related gains or losses generally recognised in our consolidated statement of earnings and, therefore, in capital. The fair value of a financial instrument is the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The use of fair value to measure financial instruments is fundamental to risk management practices and is our most critical accounting policy. The daily discipline of marking substantially all of our inventory to current market levels is an effective tool for assessing and managing risk and provides transparent and realistic insight into our financial exposures. The use of fair value is an important aspect to consider when evaluating our capital base and our capital ratios as changes in the fair value of our positions are reflected in the current period's shareholders' equity, and accordingly, regulatory capital; it is also a factor used to determine the classification of positions into the banking book and trading book.

For additional information regarding the determination of fair value under accounting principles generally accepted in the United States (U.S. GAAP) and controls over valuation of inventory, see "Note 3. Significant Accounting Policies" in Part II, Item 8 "Financial Statements and Supplementary Data" and "Critical Accounting Policies – Fair Value" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K.

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

Banking Book / Trading Book Classification

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

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

Banking book positions may be accounted for at amortised cost, fair value or in accordance with the equity method. Banking book positions are subject to credit risk regulatory capital requirements. Credit risk represents the potential for loss due to the default or deterioration in credit quality of a counterparty (e.g., an Over-The-Counter (OTC) derivatives counterparty or a borrower) or an issuer of securities or other instruments we hold.

Regulatory Developments

The firm's businesses are subject to significant and evolving regulation. Reforms have been adopted or are being considered by regulators and policy-makers worldwide. The expectation is that the principal areas of impact from regulatory reform for the firm will be increased regulatory capital requirements and increased regulation and restriction on certain activities. However, given that many of the new and proposed rules are highly complex, the full impact of regulatory reform will not be known until the rules are implemented and market practices develop under the final E.U. and/or U.K. regulations.

GSGUK is subject to the capital framework for E.U.-regulated financial institutions prescribed in the CRD and the CRR. These capital regulations are largely based on the Basel Committee on Banking Supervision's (Basel Committee) capital framework for strengthening international capital standards (Basel III). 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. During the Brexit transition period, the current E.U. rules on prudential regulation will continue to apply to GSGUK. The U.K. government is introducing legislation to provide that the current prudential rules will continue to apply from January 1, 2021.

Risk-Based Capital Ratios. In June 2019, amendments to the CRR and CRD were published in the Official Journal of the E.U.

The amendments to the CRR include changes to rules for the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities (MREL), counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, and reporting and disclosure requirements. Most of the amendments to the CRR will apply from June 28, 2021. The requirements for MREL are already effective. The implementation timing of the market risk revisions is dependent on technical standards, which have yet to be finalised. The firm expects that binding market risk rules will not apply before 2023.

[1] As defined in point (85) of Article 4(1) in CRR

The amendments to the CRD include provisions on financial holding companies, remuneration, interest rate risk management, supervisory powers and macro-prudential capital requirements. The U.K., as an E.U. member state at the time of publication in the Official Journal, is required to adopt the amendments to the CRD. The amendments to the CRD will be phased in over time with most changes applicable from June 28, 2021, some macro prudential measures applicable from January 1, 2022 and the requirement to have an intermediate E.U. parent holding company applicable from December 30, 2023.

In December 2017, the Basel Committee published standards that it described as the finalisation of the Basel III post-crisis regulatory reforms. These standards set a floor on internally developed capital requirements at a percentage of the capital requirements under the standardised approach. They also revised the Basel Committee's standardised and model-based approaches for credit risk, provide a new standardised approach for operational risk capital and revise the frameworks for credit valuation adjustment risk. The Basel Committee has proposed that national regulators implement these standards beginning January 1, 2023, and that the new floor be phased in through January 1, 2028.

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

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

Minimum Requirements for Own Funds and Eligible Liabilities. In June 2018, the Bank of England published a statement of policy on internal minimum requirement for MREL, which requires a material U.K. subsidiary of an overseas banking group to meet a minimum internal MREL requirement to facilitate the transfer of losses to its resolution entity, which for GSGUK is Group Inc. The transitional minimum internal MREL requirement began to phase in from January 1, 2019, and will become fully effective on January 1, 2022. GSGUK's regulatory capital and a portion of its intercompany borrowings, which have been amended to meet subordination and maturity requirements, serve to meet its internal MREL requirement. In addition, in order to comply with the MREL statement of policy, bail-in triggers have been provided to the Bank of England over certain intercompany regulatory capital and senior debt instruments issued by GSGUK. These triggers enable the Bank of England to write down such instruments or convert such instruments to equity. The triggers can be exercised by the Bank of England if it determines that the company has reached the point of non-viability and the FRB and the Federal Deposit Insurance Corporation have not objected to the bail-in or if Group Inc. enters bankruptcy or similar proceedings.

Climate Change

Climate change concerns could disrupt the firm's business, affect client activity levels and creditworthiness and damage the firm's reputation. Climate change may cause extreme weather events that disrupt operations at one or more of the firm's primary locations, which may negatively affect its ability to service and interact with its clients. Climate change may also have a negative impact on the financial condition of its clients, which may decrease revenues from those clients and increase the credit risk associated with loans and other credit exposures to those clients. Additionally, the firm's reputation may be damaged as a result of its involvement, or its clients' involvement, in certain industries or projects associated with climate change.

Other Developments

In response to the global outbreak of the coronavirus (COVID-19) pandemic, the company is harnessing its resources, experience and network to help where it can, working with public and private clients to partner on initiatives with a focus on community assistance, economic support for businesses, and serving its clients and customers. GS Group announced a number of important initiatives to support its employees, clients and the broader public during this crisis, reinforcing its core values of partnership, client service, integrity and excellence and successfully executed on its Business Continuity Planning (BCP) strategy amid the COVID-19 pandemic, providing clients with advice, execution and liquidity.

The emergence of the global outbreak of the COVID-19 pandemic has created economic and financial disruptions that have adversely affected, and are likely to continue to adversely affect, the company's business, financial condition, liquidity and results of operations. The extent to which the COVID-19 pandemic will continue to negatively affect the company's businesses, financial condition, liquidity and results of operations will depend on future developments, which are highly uncertain and cannot be predicted.

On April 28, 2020, the European Commission published a legislative proposal of amendments to the CRR to ease prudential constraints for banks and encourage lending to the economy during the COVID-19 pandemic. We expect these changes to not have a material impact on its binding capital constraints.

Risk Management

Overview

The firm believes that effective risk management is critical to the success of the firm and of GSGUK. Accordingly, the firm has established an Enterprise Risk Management (ERM) framework that employs a comprehensive, integrated approach to risk management, and is designed to enable comprehensive risk management processes through which the firm identifies, assesses, monitors and manages the risks associated with its business activities. These risks include liquidity, market, credit, operational, model, legal, compliance, conduct, regulatory and reputational risks. The following section covers the risk management structure which is built around three core components: governance, processes and people.

Governance

Risk management governance starts with the Board of Directors of the firm (Board), which both directly and through its committees, including its Risk Committee, oversees the risk management policies and practices implemented through the ERM framework. The Board is also responsible for the annual review and approval of the firm's risk appetite statement. The risk appetite statement describes the levels and types of risk the firm is willing to accept or to avoid, in order to achieve strategic business objectives, while remaining in compliance with regulatory requirements.

Enterprise Risk, which reports to the chief risk officer, oversees the implementation of the firm's risk governance structure and core risk management processes and is responsible for ensuring that the ERM framework provides the Board, the risk committees and senior management with a consistent and integrated approach to managing the various risks in a manner consistent with the firm's risk appetite.

The firm's revenue-producing units, as well as Treasury, Engineering, Human Capital Management, Operations, and Services, are considered the first line of defence and are accountable for the outcomes of the risk-generating activities, as well as for assessing and managing those risks within the firm's risk appetite.

The independent risk oversight and control functions are considered the second line of defence and provide independent assessment, oversight and challenge of the risks taken by the first line of defence, as well as lead and participate in risk committees. Independent risk oversight and control functions include Compliance, Conflicts Resolution, Controllers, Credit Risk, Enterprise Risk, Legal, Liquidity Risk, Market Risk, Model Risk, Operational Risk and Tax.

Internal Audit is considered the third line of defence and reports to the chief executive officer and the Audit Committee of the 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 Audit Committee of the 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.

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

Processes

The firm maintains various processes that are critical components of its risk management framework, including identifying, assessing, monitoring and limiting its risks.

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

People

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

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

Structure

Oversight of risk in the firm is ultimately the responsibility of the Boards of Directors, who oversee risk both directly and through delegation to various committees. A series of committees within the significant subsidiaries with specific risk management mandates covering important aspects of each entity's businesses also have oversight or decision-making responsibilities. The key committees with oversight of our activities are described below.

European Management Committee. The European Management Committee (EMC) oversees all of our activities in the region. It is chaired by the chief executive officer of GSI and its membership includes senior managers from the revenue-producing divisions and independent control and support functions. The EMC reports to GSI's Board of Directors.

GSI and GSIB Board Audit Committees. The GSI and GSIB Board Audit Committees assist the Boards of Directors in the review of processes for ensuring the suitability and effectiveness of the systems and controls in the region. The committees also have responsibility for overseeing the external audit arrangements and review of internal audit activities. Their membership includes non-executive directors of GSI and GSIB. The Board Audit Committees report to the GSI and GSIB Boards.

GSI and GSIB Board Risk Committees. The GSI and GSIB Board Risk Committees are responsible for providing advice to the Boards on the overall current and future risk appetite and assisting the Boards in overseeing the implementation of that risk appetite and strategy by senior management. This includes reviewing and advising on each company's risk strategy and oversight of the capital, liquidity and funding position. Their membership includes non-executive directors of GSI and GSIB. The Board Risk Committees report to the GSI and GSIB Boards.

GSI and GSIB Risk Committees. The GSI and GSIB Risk Committees are management committees, which are responsible for the ongoing monitoring and control of all financial and non-financial risks associated with each entity's activities. This includes reviewing key financial and risk metrics, including but not limited to profit and loss, capital (including the Internal Capital Adequacy Assessment Process (ICAAP)), funding, liquidity, credit risk, market risk, operational risk, price verification and stress tests. The GSI and GSIB Risk Committees approve market risk, credit risk, liquidity and regulatory capital limits. Their membership includes senior managers from the revenue-producing divisions and independent control and support functions. The Risk Committees report to the GSI and GSIB Boards.

EMEA Culture and Conduct Risk Committee. The EMEA Culture and Conduct Risk Committee has oversight responsibility for culture and conduct risk, business standards and practices. Its membership includes senior managers from the revenue-producing divisions and independent control and support functions. The EMEA Culture and Conduct Risk Committee reports to the EMC, to GS Group's Firmwide Client and Business Standards Committee, and to the GSI and GSIB Boards and their committees as appropriate.

Risk Profile and Strategy

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

GSGUKL's principal subsidiaries, GSI and GSIB, have their own Boards of Directors and their own Board Risk Committees, with the responsibility of assisting each Board in overseeing the implementation of the companies' risk appetite and strategy. Board Risk Committees held four scheduled meetings in 2019.

The companies' overall risk appetite is established through an assessment of opportunities relative to potential loss, and is calibrated to GSI and GSIB's respective capital, liquidity and earnings capability. The primary means of evaluating loss-taking capacity is through the ICAAP. The key aspects of risk management documented through the ICAAP process also form part of GSGUK's day-to-day decision making culture.

The Risk Appetite Statement (RAS) of GSI and GSIB complements the firm's RAS, and articulates the risk philosophy, the identification of risks generated by its business activities, as well as the tolerance and limits set in order to manage effectively those risks. Consistent with this objective, we pay particular attention to evaluating risks that are concentrated, correlated, illiquid, or have other adverse characteristics. The intention is to mitigate or eliminate these risks, limiting them to such an extent that they could not, individually or collectively, materially and adversely affect the companies. GSI and GSIB, regularly review risk exposure and risk appetite, and take into consideration the key external constituencies, in particular their clients, shareholders, creditors, rating agencies, and regulators. The long-term success of our business model is directly linked to the preservation of strong relationships with each of these key constituents.

The Boards of Directors of both GSI and GSIB, as well as their respective Board Risk Committees, are actively engaged in reviewing and approving our overall risk appetite, as well as in reviewing the risk profile. Risk appetite statements are reviewed in the first instance by the respective Board Risk Committees and finally, are endorsed by the Boards annually. The Board Risk Committees also approve any amendment to the risk appetite statements outside of the annual approval process. The Boards of Directors receive quarterly updates on risk as well as ad-hoc updates, as appropriate.

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

Risk Measurement

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

A number of specialist committees and governance bodies sit within the broader risk management framework with responsibilities for the monitoring of specific risks against limits or tolerances and the escalation of any breaches. Specific governance bodies are in place for the management of credit, market, liquidity, model and operational risk.

The firm's risk management framework, which relies on oversight from the Board of Directors, operates independently of revenue producing divisions and other non-revenue producing units such as compliance, finance, legal, internal audit and operations.

For an overview of the firm's risk management framework, including Board governance, processes and committee structure, see "Risk Management – Overview and Structure of Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K.

Adequacy of Risk Management Arrangements

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

Capital Framework

Capital Structure

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

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

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

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

- A capital conservation buffer of 2.5%, consisting entirely of capital that qualifies as CET1.
- A countercyclical capital buffer of up to 2.5% (consisting entirely of CET1) in order to counteract excessive credit growth. The buffer only applies to GSGUK's exposures to certain types of counterparties and exposures based in jurisdictions which have announced and implemented a countercyclical buffer. As of November 2019, the buffer increases the minimum CET1 ratio by 0.34%. During the COVID-19 pandemic most central banks and national governments set countercyclical capital buffers to zero to maintain lending to businesses and individuals. On March 11, 2020, the Bank of England announced that it has reduced the UK countercyclical capital buffer from 1% to 0% of banks' exposures to U.K. borrowers and counterparties with effect from March 11, 2020. This rate is expected to apply to the company for at least two years and result in the company's U.K. countercyclical capital buffer decreasing by approximately 0.20%.
- Individual capital requirement under Pillar 2A (an additional amount to cover risks not adequately captured in Pillar 1). The PRA performs a periodic supervisory review of GSI's and GSIB's Internal Capital Adequacy Assessment Process (ICAAP), which leads to a final determination by the PRA of individual capital requirement under Pillar 2A. This is a point in time assessment of the minimum amount of capital the PRA considers that a firm should hold.

Minimum Regulatory Capital Ratios

The risk-based capital requirements are expressed as capital ratios that compare measures of regulatory capital to RWAs. The CET1 ratio is calculated 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 following table presents GSGUK's minimum required ratios as of November 2019.

Table 1: Minimum Regulatory Capital Ratios

	November 2019 Minimum ratio[1]		
	GSGUK	**GSI**	**GSIB**
CET1 ratio	8.8%	8.8%	8.9%
Tier 1 capital ratio	10.7%	10.7%	11.0%
Total capital ratio	13.4%	13.4%	13.7%

1. Includes the capital conservation buffer and countercyclical capital buffer described above.

In the table above, the total capital ratios incorporate the Total Capital Requirement (TCR) received from the PRA, comprising Pillar 1 and Pillar 2A. As of November 2019, GSGUK TCR was 10.54%.

The PRA also defines forward looking capital requirement which represents the PRA's view of the capital that GSGUK would require to absorb losses in stressed market conditions. This is known as Pillar 2B or the "PRA buffer" and is not reflected in the minimum ratios shown in Table 1 above.

Compliance with Capital Requirements

As of November 30, 2019, all of GSGUK's regulated subsidiaries had capital levels in excess of their minimum regulatory capital requirements.

Regulatory Capital

Overview

The following table presents a breakdown of GSGUK's capital ratios under CRR as of November 30, 2019, including those for our significant subsidiaries GSI and GSIB.

Table 2: Regulatory Capital Ratios

$ in millions	As of November 2019		
	GSGUK	**GSI**	**GSIB**
CET1 Capital	$ 29,273	$ 24,082	$ 3,108
Tier 1 Capital	37,573	32,382	3,108
Tier 2 Capital	6,503	5,377	826
Total Capital	**$ 44,076**	**$ 37,759**	**$ 3,394**
RWAs	**$ 227,676**	**$ 206,768**	**$ 15,213**
CET1 Ratio	**12.9%**	**11.6%**	**20.4%**
Tier 1 Capital Ratio	**16.5%**	**15.7%**	**20.4%**
Total Capital Ratio	**19.4%**	**18.3%**	**25.9%**

Transitional Impact of IFRS 9

IFRS9 addresses the classification, measurement and recognition of financial assets and financial liabilities. It replaces the guidance in IAS 39 – Financial Instruments: Recognition and Measurement that relates to the classification and measurement of financial instruments. Based on materiality no further disclosures for the transitional impact of IFRS9 are made in this document.

Capital Structure

All capital, RWAs and ratios are based on current interpretation, expectations and understanding of the rules and may evolve as the interpretation and application is discussed with our regulators.

Assets that are deducted from capital in computing the numerator of the capital ratios are excluded from the computation of RWAs in the denominator of the ratios. The following tables contain information on the components of our regulatory capital structure. The capital resources of GSGUK are based on audited, consolidated non-statutory financial information and those of GSI and GSIB are based on audited statutory financial statements.

Table 3: Regulatory Capital Resources

$ in millions	As of November 2019		
	GSGUK	**GSI**	**GSIB**
Ordinary Share Capital	$ 2,135	$ 590	$ 63
Share Premium Account Including Reserves	421	5,028	2,087
Retained Earnings	28,789	20,330	1,077
CET1 Capital Before Deductions	**$ 31,345**	**$ 25,948**	**$ 3,227**
Net Pension Assets	(264)	(264)	-
CVA and DVA	8	1	7
Prudent Valuation Adjustments	(514)	(423)	(4)
Expected Loss Deduction and Loan Loss Provision	(865)	(789)	(76)
Other Adjustments[1]	(46)	-	(46)
Intangibles	(391)	(391)	-
CET1 Capital After Deductions	**$ 29,273**	**$ 24,082**	**$ 3,108**
Additional Tier 1 capital	**8,300**	**8,300**	**-**
Tier 1 Capital After Deductions	**$ 37,573**	**$ 32,382**	**$ 3,108**
Tier 2 Capital Before Deductions[2]	6,503	5,377	826
Other Adjustments	-	-	-
Tier 2 Capital After Deductions	**$ 6,503**	**$ 5,377**	**$ 826**
Total Capital Resources	**$ 44,076**	**$ 37,759**	**$ 3,934**

1. Other Adjustments represent regulatory adjustments for deferred tax assets.
2. Tier 2 Capital represents subordinated debt with an original term to maturity of five years or greater, and preference shares.

A further breakdown of the deductions from regulatory capital can be found in Table 30. We set out below a reconciliation between the capital resources of each entity and their respective balance sheets.

Table 4: Reconciliation to Balance Sheet

$ in millions	As of November 2019		
	GSGUK	**GSI**	**GSIB**
Total Shareholders' Funds per Balance Sheet	$ 31,345	$ 25,948	$ 3,227
Regulatory deductions	(2,072)	(1,866)	(119)
Additional Tier 1 Capital	8,300	8,300	-
Tier 2 Capital After Deductions	6,503	5,377	826
Total Capital Resources	**$ 44,076**	**$ 37,759**	**$ 3,934**

Minimum Requirement for Own Funds and Eligible Liabilities (MREL)

The amendments to the CRR published in June 2019 require material subsidiaries of an overseas banking group at the consolidated E.U. level, such as GSGUK, to have sufficient own funds and eligible liabilities to meet internal MREL. These rules began to phase in from June 27, 2019, and will become fully effective on January 1, 2022.

As of November 30, 2019, GSGUK had own funds and eligible liabilities in excess of its internal MREL.

GSGUK own funds and eligible liabilities key metrics are provided in Table 5.

Table 5: Own Funds and Eligible Liabilities

$ in millions	**As of November 2019**
	GSGUK
Total own funds and eligible liabilities	**$ 54,352**
Total RWA	227,676
Total own funds and eligible liabilities as a percentage of RWA	23.87%
Leverage Exposure	772,606
Total own funds and eligible liabilities as a percentage of leverage exposure	7.03%
Excluded Liabilities per Article 72a(2) of CRR	864,184

Table 6 provides details of the composition of GSGUK's own funds and eligible liabilities.

Table 6: Own Funds and Eligible Liabilities Composition

$ in millions	**As of November 2019**
	GSGUK
Common Equity Tier 1 capital (CET1)	**29,273**
Additional Tier 1 capital (AT1) before own funds and eligible liabilities adjustments	8,300
AT1 instruments not eligible to meet internal MREL	(2,800)
AT1 instruments eligible under the own funds and eligible liabilities framework	**5,500**
Tier 2 capital (T2) before own funds and eligible liabilities adjustments	6,503
Amortised portion of T2 instruments where remaining maturity > 1 year	-
Other adjustments	-
T2 instruments eligible under the own funds and eligible liabilities framework	**6,503**
Own funds and eligible liabilities arising from regulatory capital	**41,276**
Eligible liabilities instruments subordinated to excluded liabilities	13,076
Own funds and eligible liabilities instruments arising from non-regulatory capital instruments before adjustments	**13,076**
Own funds and eligible liabilities instruments before deductions	**54,352**
Deduction of investments in own other own funds and eligible liabilities	-
Other adjustments to internal own funds and eligible liabilities	-
Own funds and eligible liabilities instruments after deductions	**54,352**
Total RWAs	227,676
Leverage exposure measure	772,606
Own funds and eligible liabilities as a percentage of total RWAs	23.87%
Own funds and eligible liabilities as a percentage of leverage exposure	7.03%
CET1 (as a percentage of total RWAs) available after meeting minimum capital requirements and MREL	5.56%
Institution-specific combined buffer requirement	2.84%
Of which: capital conservation buffer requirement	2.50%
Of which: bank specific countercyclical buffer requirement	0.34%

Table 7 provides a breakdown of eligible instruments in the creditor hierarchy of GSGUK.

Table 7: Own Funds and Eligible Liabilities Creditor Ranking

$ in millions						As of November 2019
						GSGUK
	(most junior)				**(most senior)**	**Total**
Description of creditor ranking	**Ordinary Shares[1]**	**AT1 Instru-ments**	**Tier 2 Preference Shares**	**Tier 2 Sub-ordinated Loans**	**Senior Sub-ordinated Loans**	
Total capital and liabilities net of credit risk mitigation	**$2,135**	**$8,300**	**$2,300**	**$4,203**	**$13,076**	**$30,014**
Subset of row 3 that are excluded liabilities						
Total capital and liabilities less excluded liabilities	2,135	8,300	2,300	4,203	13,076	$30,014
Eligible as own funds and eligible liabilities	2,135	5,500	2,300	4,203	13,076	$27,214
with 1 year ≤ residual maturity < 2 years						
with 2 years ≤ residual maturity < 5 years					13,076	$13,076
with 5 years ≤ residual maturity < 10 years			2,300	4,203		$6,503
with residual maturity ≥ 10 years						
perpetual securities	2,135	5,500				$7,635

1. Ordinary shares excludes the value of share premium and reserves

Risk-Weighted Assets

RWAs are calculated based on measures of credit risk, market risk and operational risk. The tables below represent a summary of the RWAs and capital requirements for GSGUK, GSI and GSIB by type as at November 30, 2019 and August 31, 2019.

Table 8: Overview of RWAs

GSGUK

$ in millions

		RWAs		
		November 2019	**August 2019**	**Minimum capital requirements**
1	Credit risk (excluding CCR)	**$ 33,265**	**$ 32,704**	**$ 2,661**
2	Of which the standardised approach	6,031	5,980	482
4	Of which the advanced IRB (AIRB) approach	26,085	25,527	2,087
5	Of which equity IRB under the simple risk-weighted approach or the IMA	1,149	1,197	92
6	CCR	**$ 88,379**	**$ 89,727**	**$ 7,071**
7	Of which mark to market	7,444	7,661	596
9	Of which the standardised approach	-	2	-
10	Of which internal model method (IMM)	65,453	67,026	5,236
11	Of which risk exposure amount for contributions to the default fund of a CCP	573	497	46
12	Of which CVA VaR	14,909	14,541	1,193
13	Settlement risk	**$ 1,990**	**$ 1,835**	**$ 159**
14	Securitisation exposures in the banking book (after the cap)	**$ 927**	**$ 885**	**$ 74**
15	Of which IRB approach	381	408	30
18	Of which standardised approach	546	477	44
19	Market risk	**$ 86,105**	**$ 85,229**	**$ 6,888**
20	Of which the standardised approach	34,864	36,860	2,789
21	Of which IMA	51,241	48,369	4,099
22	Large exposures			-
23	Operational risk	**$ 17,010**	**$ 17,010**	**$ 1,361**
24	Of which basic indicator approach		-	-
25	Of which standardised approach	17,010	17,010	1,361
29	**Total**	**$ 227,676**	**$ 227,390**	**$ 18,214**

GSI

$ in millions

		RWAs		
		November 2019	**August 2019**	**Minimum capital requirements**
1	Credit risk (excluding CCR)	**$ 16,398**	**$ 16,822**	**$ 1,312**
2	Of which the standardised approach	1,146	1,343	92
4	Of which the advanced IRB (AIRB) approach	14,103	14,282	1,128
5	Of which equity IRB under the simple risk-weighted approach or the IMA	1,149	1,197	92
6	CCR	**$ 87,941**	**$ 89,017**	**$ 7,035**
7	Of which mark to market	7,283	7,473	583
9	Of which the standardised approach	-	2	-
10	Of which internal model method (IMM)	65,229	66,585	5,218
11	Of which risk exposure amount for contributions to the default fund of a CCP	563	497	45
12	Of which CVA VaR	14,866	14,460	1,189
13	Settlement risk	**$ 1,990**	**$ 1,835**	**$ 159**
14	Securitisation exposures in the banking book (after the cap)	**-**	**-**	**-**
15	Of which IRB approach	-	-	-
18	Of which standardised approach	-	-	-
19	Market risk	**$ 85,031**	**$ 84,443**	**$ 6,802**
20	Of which the standardised approach	33,790	36,074	2,703
21	Of which IMA	51,241	48,369	4,099
22	Large exposures			-
23	Operational risk	**$ 15,408**	**$ 15,408**	**$ 1,233**
24	Of which basic indicator approach		-	-
25	Of which standardised approach	15,408	15,408	1,233
29	**Total**	**$ 206,768**	**$ 207,525**	**$ 16,541**

GSIB

$ in millions

		RWAs		
		November 2019	**August 2019**	**Minimum capital requirements**
1	Credit risk (excluding CCR)	**$ 12,737**	**$ 12,271**	**$ 1,019**
2	Of which the standardised approach	281	312	23
4	Of which the advanced IRB (AIRB) approach	12,456	11,959	996
5	Of which equity IRB under the simple risk-weighted approach or the IMA	-	-	-
6	CCR	**$ 402**	**$ 656**	**$ 32**
7	Of which mark to market	125	132	10
9	Of which the standardised approach	-	2	-
10	Of which internal model method (IMM)	224	441	18
11	Of which risk exposure amount for contributions to the default fund of a CCP	10		1
12	Of which CVA VaR	43	81	3
13	Settlement risk	**-**	**-**	**-**
14	Securitisation exposures in the banking book (after the cap)	**$ 927**	**$ 885**	**$ 74**
15	Of which IRB approach	381	408	30
18	Of which standardised approach	546	477	44
19	Market risk	**$ 646**	**$ 356**	**$ 52**
20	Of which the standardised approach	646	356	52
21	Of which IMA		-	-
22	Large exposures			-
23	Operational risk	**$ 501**	**$ 501**	**$ 40**
24	Of which basic indicator approach		-	-
25	Of which standardised approach	501	501	40
29	**Total**	**$ 15,213**	**$ 14,669**	**$ 1,217**

GSGUK total capital ratio increased from 19.0% in August 2019 to 19.4% in November 2019 primarily due to the following movements:

- GSGUK Credit RWAs as of November 2019 decreased by $1 billion compared with August 2019, primarily reflecting lower counterparty credit risk and decreased exposures.
- GSGUK Market RWAs as of November 2019 increased by $1 billion compared with August 2019, primarily reflecting an increase in modelled market risk offset by a decrease in standardized market risk as a result of changes in risk exposures.

Credit Risk

Overview

Credit risk represents the potential for loss due to the default or deterioration in credit quality of a counterparty (e.g. an OTC derivatives counterparty or a borrower) or an issuer of securities or other instruments we hold. Our exposure to credit risk comes mostly from client transactions in OTC derivatives and loans and lending commitments. Credit risk also comes from cash placed with banks, securities financing transactions (i.e., resale and repurchase agreements and securities borrowing and lending activities) and customer and other receivables.

Credit Risk, which is independent of the revenue-producing units and reports to the firm's chief risk officer, has primary responsibility for assessing, monitoring and managing credit risk through firmwide oversight across the firm's global businesses. The Risk Governance Committee reviews and approves credit policies and parameters. In addition, we hold other positions that give rise to credit risk (e.g., bonds held in our inventory and secondary bank loans). These credit risks are captured as a component of market risk measures, which are monitored and managed by Market Risk. We also enter into derivatives to manage market risk exposures. Such derivatives also give rise to credit risk, which is monitored and managed by Credit Risk.

Credit Risk Management Process

The firm's process for managing credit risk includes the critical components of the risk management framework described in the "Overview and Structure of Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K, as well as the following:

- Monitoring compliance with established credit risk limits and reporting our credit exposures and credit concentrations;
- Establishing or approving underwriting standards;
- Assessing the likelihood that a counterparty will default on its payment obligations;
- Measuring our current and potential credit exposure and losses resulting from a counterparty default;
- Using credit risk mitigants, including collateral and hedging; and
- Maximizing recovery through active workout and restructuring of claims.

Credit Risk also performs credit reviews, which include initial and ongoing analyses of the firm's counterparties. For substantially all credit exposures, the core of the process is an annual counterparty credit review. A credit review is an independent analysis of the capacity and willingness of a counterparty to meet its financial obligations, resulting in an internal credit rating. The determination of internal credit ratings also incorporates assumptions with respect to the nature of and outlook for the counterparty's industry, and the economic environment. Senior personnel, with expertise in specific industries, inspect and approve credit reviews and internal credit ratings.

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

The firm's 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 on the firm's aggregate credit risk by product, internal credit rating, industry, country and region.

Risk Measures

The firm measures credit risk based on the potential loss in the event of non-payment by a counterparty using current and potential exposure. For derivatives and securities financing transactions, current exposure represents the amount presently owed after taking into account applicable netting and collateral arrangements, while potential exposure represents the firm's estimate of the future exposure that could arise over the life of a transaction based on market movements within a specified confidence level. Potential exposure also takes into account netting and collateral arrangements. For loans and lending commitments, the primary measure of credit risk is a function of the notional amount of the position.

Limits

Credit limits are used at various levels, as well as underwriting standards, to manage the size and nature of the company's credit exposures. For GS Group, the Risk Committee of the Board and the Risk Governance Committee approve credit risk limits at GS Group, business and product levels, consistent with the risk appetite statement. The GSI and GSIB Risk Committees approve the framework that governs the setting of credit risk limits at the entity level, and delegate responsibility for the ongoing execution and monitoring to the GSI and GSIB chief credit officers respectively. Credit Risk (through delegated authority from the Risk Governance Committee) sets credit limits for individual counterparties, economic groups, industries and countries. Limits for counterparties and economic groups are reviewed regularly and revised to reflect changing risk appetites for a given counterparty or group of counterparties. Limits for industries and countries are based on our risk appetite and are designed to allow for regular monitoring, review, escalation and management of credit risk concentrations. For information on the limit approval process, see "Overview and Structure of Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K.

Policies authorised by GS Group's Enterprise Risk Committee and the Risk Governance Committee prescribe the level of formal approval required for GS Group to assume credit exposure to a counterparty across all product areas, taking into account any applicable netting provisions, collateral or other credit risk mitigants.

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

Credit Exposures

For information on the firm's credit exposures, including the gross fair value, netting benefits and current exposure of the firm's derivative exposures and the firm's securities financing transactions, see "Note 7. Derivatives and Hedging Activities" and "Note 11. Collateralized Agreements and Financings" in Part II, Item 8 "Financial Statements and Supplementary Data" and "Credit Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K.

Credit Risk and Counterparty Credit Risk RWAs

Credit RWAs are calculated based on measures of credit exposure, which are then risk weighted. Below is a description of the methodology used to calculate RWAs for Wholesale exposures, which generally include credit exposures to corporates, institutions, sovereigns or government entities (other than securitisation, retail or equity exposures). GSGUK has regulatory permission from the PRA to compute risk weights for certain exposures in accordance with the Advanced Internal Ratings Based (AIRB) approach which utilises internal assessments of each counterparty's creditworthiness. The internal credit rating is assigned to each exposure class based on a credit-worthiness review methodology determined by the Credit Risk department.

As such, the Credit Risk exposure that does not qualify for the AIRB approach but is instead calculated under the standardised approach, for which nominated external credit assessment institutions (ECAI) ratings are potentially eligible to be used, is immaterial. Exposure classes under the standardised approach include corporates, retail and private equity for which external ratings are generally unavailable, unrated or private corporates. These exposures represent less than 5% of the total Credit Risk exposures.

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

For the measurement of substantially all counterparty credit exposure on OTC, cleared and listed derivative and securities financing transactions, GSGUK has regulatory permission from the PRA to use the Internal Model Method (IMM). GSGUK uses IMM for substantially all of the counterparty credit risk arising from OTC derivatives, exchange-traded derivatives and securities financing transactions. The models estimate Expected Exposures (EE) at various points in the future using risk factor simulations. The model parameters are derived from historical and implied market data using the most recent three-year period as well as a stressed three-year period. The models also estimate the Effective Expected Positive Exposure (EEPE) over the first year of the portfolio, which is the time-weighted average of non-declining positive credit exposure over the EE simulation. EAD is calculated by multiplying the EEPE by a standard regulatory factor of 1.4.

The EAD detailed in the following tables represents the exposures used in computing capital requirements and is not a directly comparable metric to balance sheet amounts presented in the consolidated financial information of GSGUK for the year ended November 30, 2019 due to differences in measurement methodology, counterparty netting and collateral offsets used.

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

Advanced IRB Approach. RWAs are calculated by multiplying EAD by the counterparty's risk weight. In accordance with the AIRB approach, risk weights are a function of the counterparty's Probability of Default (PD), Loss Given Default (LGD) and the maturity of the trade or portfolio of trades. We also use internal ratings for risk management purposes.

- PD is an estimate of the probability that an obligor will default over a one-year horizon. For the majority of Wholesale exposures, the PD is assigned using an approach where quantitative factors are combined with a qualitative assessment to determine internal credit rating grades. For each internal credit rating grade, over 5 years of historical empirical data is used to calculate a long run average annual PD which is assigned to each counterparty with that credit rating grade.

  Internal credit rating grades each have external public rating agency equivalents. The scale that is employed for internal credit ratings corresponds to that used by the major rating agencies and the internal credit ratings, while arrived at independently of public ratings, are assigned using definitions of each internal credit rating grade that are consistent with the definitions used by the major rating agencies for their equivalent credit rating grades. As a result, default data published by the major rating agencies for obligors with public ratings can be mapped to counterparties with equivalent internal credit ratings for quantification and validation of risk parameters.

- LGD is an estimate of the economic loss rate if a default occurs during economic downturn conditions. For Wholesale exposures, LGDs are estimated using data from recognised vendor models, from a downturn period, and are mapped to obligors based on attributes identified as being statistically significant to the ultimate recovery. LGD estimates for low default portfolios are calibrated using the same data, i.e. from corporate portfolios, which is deemed to be a conservative approach.

- The definition of maturity depends on the nature of the exposure. For OTC, cleared and listed derivatives, maturity is an average time measure weighted by credit exposure (based on EE and EEPE) as required by the applicable capital regulation. For securities financing transactions, maturity represents the notional weighted average number of days to maturity. Maturity is floored at one year and capped at five years except where the rules allow a maturity of less than one year to be used as long as certain criteria are met.

Governance and Validation of Risk Parameters

Approaches and methodologies for quantifying PD, LGD, and EAD are monitored and managed by Credit Risk. Models used for regulatory capital are independently reviewed, validated and approved by Model Risk. For further information, see "Model Risk".

To assess the performance of the PD parameters used, on an annual basis the firm performs a benchmarking exercise which includes comparisons of realised annual default rates to the expected annual default rates for each credit rating band and comparisons of the internal realised long-term average default rates to the empirical long-term average default rates assigned to each credit rating band. For 2019, as well as in previous annual periods, the PDs used for regulatory capital calculations were, on average, higher (i.e., more conservative) than the firm's actual internal realised default rate.

During 2019, the total number of counterparty defaults remained low, representing less than 0.5% of all counterparties, and such defaults primarily occurred within loans and lending commitments. Estimated losses associated with counterparty defaults were not material.

To assess the performance of LGD parameters used, on an annual basis the firm compares recovery rates following counterparty defaults to the recovery rates based on LGD parameters assigned to the corresponding exposures prior to default. While the actual realised recovery on each defaulted exposure varies due to transaction and other situation-specific factors, on average, recovery rates remain higher than those implied by the LGD parameters used in regulatory capital calculations.

The performance of each IMM model used to quantify EAD is assessed quarterly via backtesting procedures, performed by comparing the predicted and realised exposure of a set of representative trades and portfolios at certain horizons. The firm's models are monitored and enhanced in response to backtesting.

The following three tables present the methods used to calculate Counterparty Credit Risk RWAs and main parameters used within each method for GSGUK, GSI and GSIB as of November 30, 2019.

Table 9: Analysis of CCR Exposure by Approach

GSGUK

$ in millions — **As of November 2019**

		Notional	**Replacement cost/current market value**	**Potential future credit exposure**	**EEPE**	**Multiplier**	**EAD post CRM**	**RWAs**
1	Mark to market		$ 2,535	$ 7,670			$ 8,980	$ 7,424
3	Standardised approach						-	-
4	IMM (for derivatives and SFTs)				84,758	1.40	118,661	65,116
5	*Of which securities financing transactions*				28,161	1.40	39,426	13,418
6	*Of which derivatives and long settlement transactions*				56,597	1.40	79,235	51,698
11	**Total**							**$ 72,540**

GSI

$ in millions — **As of November 2019**

		Notional	**Replacement cost/current market value**	**Potential future credit exposure**	**EEPE**	**Multiplier**	**EAD post CRM**	**RWAs**
1	Mark to market		$ 2,399	$ 7,659			$ 8,834	$ 7,263
3	Standardised approach							
4	IMM (for derivatives and SFTs)				83,609	1.40	117,053	64,892
5	*Of which securities financing transactions*				27,966	1.40	39,152	13,375
6	*Of which derivatives and long settlement transactions*				55,643	1.40	77,900	51,517
11	**Total**							**$ 72,155**

GSIB

$ in millions — **As of November 2019**

		Notional	**Replacement cost/current market value**	**Potential future credit exposure**	**EEPE**	**Multiplier**	**EAD post CRM**	**RWAs**
1	Mark to market		$ 97	$ 2			$ 99	$ 125
3	Standardised approach							-
4	IMM (for derivatives and SFTs)				1,149	1.40	1,608	224
5	*Of which securities financing transactions*				195	1.40	273	43
6	*Of which derivatives and long settlement transactions*				954	1.40	1,335	181
11	**Total**							**$ 349**

The following table presents GSGUK, GSI and GSIB's EAD after credit risk mitigation and RWAs on exposures to CCPs as of November 30, 2019.

Table 10: Exposures to CCPs

$ in millions							As of November 2019
		EAD post CRM			**RWAs**		
		GSGUK	**GSI**	**GSIB**	**GSGUK**	**GSI**	**GSIB**
1	**Exposures to QCCPs (total)**				**$ 927**	**917**	**$ 10**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	3,882	3,882	-	78	78	-
3	(i) OTC derivatives	609	609	-	12	12	-
4	(ii) Exchange-traded derivatives	2,988	2,988	-	60	60	-
5	(iii) SFTs	285	285	-	6	6	-
6	(iv) Netting sets where cross-product netting has been approved	-	-	-	-	-	-
7	Segregated initial margin	-	-	-			
8	Non-segregated initial margin	13,846	13,821	25	277	276	1
9	Prefunded default fund contributions	572	563	9	572	563	9
10	Alternative calculation of own funds requirements for exposures				-	-	-
11	**Exposures to non-QCCPs (total)**				3	3	-
12	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which	3	3	-	3	3	-
13	(i) OTC derivatives	3	3	-	3	3	-
14	(ii) Exchange-traded derivatives	-	-	-	-	-	-
15	(iii) SFTs	-	-	-	-	-	-
16	(iv) Netting sets where cross-product netting has been approved	-	-	-	-	-	-
17	Segregated initial margin	-	-	-			
18	Non-segregated initial margin	-	-	-	-	-	-
19	Prefunded default fund contributions	-	-	-	-	-	-
20	Unfunded default fund contributions	-	-	-	-	-	-

The following table presents GSGUK, GSI and GSIB's exposures subject to CVA capital charges and corresponding RWAs as of November 30, 2019. Some derivative portfolios in GSI and GSIB for which CVA VaR capital was previously calculated under the advanced method are reported under the standardised method for CVA VaR capital as at November 2019.

Table 11: CVA VaR Capital Charge

$ in millions							As of November 2019
		Exposure value			**RWAs**		
		GSGUK	**GSI**	**GSIB**	**GSGUK**	**GSI**	**GSIB**
1	Total portfolios subject to the advanced method	$ 41,705	$ 41,705	-	$ 11,190	$ 11,190	-
2	(i) VaR component (including the 3× multiplier)				3,055	3,055	-
3	(ii) SVaR component (including the 3× multiplier)				8,135	8,135	-
4	All portfolios subject to the standardised method	4,916	4,796	120	3,719	3,676	43
5	Total subject to the CVA capital charge	**$ 46,621**	**$ 46,501**	**$ 120**	**$ 14,909**	**$ 14,866**	**$ 43**

The following table presents a quarterly flow statement of the RWAs and Capital requirements under the IMM for GSGUK, GSI and GSIB as of November 30, 2019.

Table 12: RWA Flow Statements of CCR Exposures under the IMM

$ in millions							As of November 2019
		RWA amounts			Capital requirements		
		GSGUK	GSI	GSIB	GSGUK	GSI	GSIB
1	**RWAs as at the end of the previous reporting period**	**$ 67,026**	**$ 66,585**	**$ 441**	**$ 5,362**	**$ 5,327**	**$ 35**
2	Asset size	(1,478)	(1,437)	(41)	(118)	(115)	**$ (3)**
3	Credit quality of counterparties	(273)	(257)	(16)	(22)	(21)	**$ (1)**
7	Foreign exchange movements	421	418	3	33	33	**$ 0**
8	Other	(243)	(80)	(163)	(19)	(6)	**$ (13)**
9	**RWAs as at the end of the current reporting period**	**$ 65,453**	**$ 65,229**	**$ 224**	**$ 5,236**	**$ 5,218**	**$ 18**

The following table presents GSGUK, GSI and GSIB total and average amount of net balance sheet Credit Risk exposures over the twelve-month period by exposure class as of November 30, 2019.

Table 13: Total and Average Net Amount of Exposures

$ in millions							As of November 2019
		GSGUK		GSI		GSIB	
		Net value of exposures at the end of the period	Average net exposures over the period	Net value of exposures at the end of the period	Average net exposures over the period	Net value of exposures at the end of the period	Average net exposures over the period
1	Central governments or central banks	$ 19,492	$ 19,173	$ 13,950	$ 12,965	$ 5,542	$ 6,208
2	Institutions	12,376	10,935	10,055	10,088	3,043	1,872
3	Corporates	17,449	15,891	4,957	4,552	12,885	11,946
14	Equity	346	409	346	409	-	-
14a	Non-credit obligation assets	34	39	33	36	1	3
15	***Total IRB approach***	**$ 49,697**	**$ 46,447**	**$ 29,341**	**$ 28,050**	**$ 21,471**	**$ 20,029**
16	Central governments or central banks	-	-	-	-	-	-
21	Institutions	362	742	-	-	-	-
22	Corporates	1,952	2,221	546	694	6	4
24	Retail	628	607	-	-	235	
26	Secured by mortgages on immovable property	285	163	-	-	285	163
28	Exposures in default	-	-	-	-	-	-
29	Items associated with particularly high risk	1,826	1,666	-	-	-	-
33	Equity exposures	243	161	-	-	-	-
34	Other exposures	248	266	248	266	-	-
35	***Total standardised approach***	**$ 5,544**	**$ 5,826**	**$ 794**	**$ 960**	**$ 526**	**$ 167**
36	***Total***	**$ 55,241**	**$ 52,273**	**$ 30,135**	**$ 29,010**	**$ 21,997**	**$ 20,196**

The following table presents a quarterly flow statement of the RWAs and Capital requirements under the IRB approach for GSGUK, GSI and GSIB as of November 30, 2019.

Table 14: RWA Flow Statements of Credit Risk Exposures under the IRB Approach

$ in millions							As of November 2019
		RWA amounts			Capital requirements		
		GSGUK	GSI	GSIB	GSGUK	GSI	GSIB
1	**RWAs as at the end of the previous reporting period**	**$ 25,527**	**$ 14,282**	**$ 11,959**	**$ 2,042**	**$ 1,143**	**$ 957**
2	Asset size	366	(129)	495	29	(11)	$ 40
3	Asset quality	123	107	16	10	9	$ 1
7	Foreign exchange movements	107	45	62	9	4	$ 5
8	Other	(72)	(234)	(77)	(6)	(19)	$ (6)
9	**RWAs as at the end of the current reporting period**	**$ 26,051**	**$ 14,071**	**$ 12,455**	**$ 2,084**	**$ 1,126**	**$ 997**

Credit Risk Mitigation

To reduce credit exposures on derivatives and securities financing transactions, we may enter into master netting agreements or similar arrangements (collectively, netting agreements) with counterparties that permit the firm to offset receivables and payables with such counterparties. A netting agreement is a contract with a counterparty that permits net settlement of multiple transactions with that counterparty, including upon the exercise of termination rights by a non-defaulting party. Upon exercise of such termination rights, all transactions governed by the netting agreement are terminated and a net settlement amount is calculated.

We may also reduce credit risk with counterparties by entering into agreements that enable us to receive and post cash and securities collateral with respect to our derivatives and securities financing transactions, subject to the terms of the related credit support agreements or similar arrangements (collectively, credit support agreements). An enforceable credit support agreement grants the non-defaulting party exercising termination provisions the right to liquidate collateral and apply the proceeds to any amounts owed. In order to assess enforceability of our right to setoff under netting and credit support agreements, we evaluate various factors, including applicable bankruptcy laws, local statutes and regulatory provisions in the jurisdiction of the parties to the agreement. The collateral we hold consists primarily of cash and securities of high quality government bonds (mainly US and EU), subject to haircuts as deemed appropriate by the Credit Risk function. The function performs ongoing collateral monitoring, to ensure the firm maintains an appropriate level of diversification of collateral, and distribution of collateral quality.

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

As of November 2019, the aggregate amounts of additional collateral or termination payments related to our net derivative liabilities under bilateral agreements that could have been called by our counterparties in the event of a one- and two-notch downgrade of our credit ratings are $166 million and $594 million respectively for GSI, and immaterial for GSIB.

For additional information about the firm's derivatives (including collateral and the impact of the amount of collateral required in the event of a ratings downgrade), see "Note 7. Derivatives and Hedging Activities" in Part II, Item 8 "Financial Statements and Supplementary Data" in the firm's 2019 Form 10-K. See "Note 11. Collateralized Agreements and Financings" in Part II, Item 8 "Financial Statements and Supplementary Data" in the firm's 2019 Form 10-K for further information about collateralised agreements and financings.

For loans and lending commitments, depending on the credit quality of the borrower and other characteristics of the transaction, we employ 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 us 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.

When we do not have sufficient visibility into a counterparty's financial strength or when we believe a counterparty requires support from its parent, we may obtain third-party guarantees of the counterparty's obligations. The main providers of guarantees are sovereigns, certain supranational and multilateral development banks, banks and other financial institutions. We may also mitigate our credit risk using credit derivatives or participation agreements.

The following three tables presents GSGUK, GSI and GSIB net carrying values of credit risk exposures secured by different CRM techniques as of November 30, 2019.

Table 15: CRM Techniques

GSGUK

$ in millions						As of November 2019
		Exposures unsecured – Carrying amount	**Exposures secured – Carrying amount**	**Exposures secured by collateral**	**Exposures secured by financial guarantees**	**Exposures secured by credit derivatives**
1	Total loans	$ 6,762	$ 9,445	$ 7,394	$ 647	$ 1,404
2	Total debt securities	$ 2,604	-	-	-	-
3	**Total exposures**	**$ 9,366**	**$ 9,445**	**$ 7,394**	**$ 647**	**$ 1,404**
4	Of which defaulted	$ 129	-	-	-	-

GSI

$ in millions						As of November 2019
		Exposures unsecured – Carrying amount	**Exposures secured – Carrying amount**	**Exposures secured by collateral**	**Exposures secured by financial guarantees**	**Exposures secured by credit derivatives**
1	Total loans	$ 534	$ 1,024	$ 1,024	-	-
2	Total debt securities	$ 1,161	-	-	-	-
3	**Total exposures**	**$ 1,695**	**$ 1,024**	**$ 1,024**	**-**	**-**
4	Of which defaulted	129	-	-	-	-

GSIB

$ in millions						As of November 2019
		Exposures unsecured – Carrying amount	**Exposures secured – Carrying amount**	**Exposures secured by collateral**	**Exposures secured by financial guarantees**	**Exposures secured by credit derivatives**
1	Total loans	$ 6,908	8,421	$ 6,370	$ 647	$ 1,404
2	Total debt securities	822	-	-	-	-
3	**Total exposures**	**$ 7,730**	**$ 8,421**	**$ 6,370**	**$ 647**	**$ 1,404**
4	Of which defaulted	-	-	-	-	-

The following table presents the impact of credit derivatives on the RWAs under the IRB approach for GSGUK, GSI and GSIB based on exposure class.

Table 16: IRB Approach - Effect on the RWAs of Credit Derivatives Used as CRM Techniques

$ in millions							As of November 2019
		Pre-Credit Derivatives RWAs			**Actual RWAs**		
		GSGUK	**GSI**	**GSIB**	**GSGUK**	**GSI**	**GSIB**
1	**Exposures under AIRB**						
2	Central governments and central banks	$ 919	$ 666	$ 253	$ 919	$ 666	$ 253
3	Institutions	$ 3,772	$ 3,269	$ 503	$ 3,793	$ 3,269	$ 524
6	Corporates – Other	$ 21,385	$ 10,135	$ 14,437	$ 21,339	$ 10,135	$ 11,677
12	Equity IRB	$ 1,149	$ 1,149	$ 0	$ 1,149	$ 1,149	-
13	Other Non-Credit obligation assets	$ 34	$ 33	$ 1	$ 34	$ 33	$ 1
14	**Total**	**$ 27,259**	**$ 15,252**	**$ 15,194**	**$ 27,234**	**$ 15,252**	**$ 12,455**

Credit Derivatives

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

We also use credit derivatives to hedge counterparty exposure associated with investing and financing activities and to a lesser extent derivative exposure. Some of these hedges qualify as credit risk mitigants for regulatory capital purposes using the PD and LGD substitution approach (and subject to the regulatory haircuts for maturity and currency mismatch where applicable).

Where the aggregate notional of credit derivatives hedging exposure to a loan obligor is less than the notional loan exposure, the substitution approach is only employed for the percentage of loan exposure covered by eligible credit derivatives.

For further information regarding the firm's credit derivative transactions, see "Note 7. Derivatives and Hedging Activities" in Part II, Item 8 "Financial Statements and Supplementary Data" in the firm's 2019 Form 10-K.

For information regarding credit risk concentrations, see "Note 26. Credit Concentrations" in Part II, Item 8 "Financial Statements and Supplementary Data" in the firm's 2019 Form 10-K.

The following table presents GSGUK, GSI and GSIB exposure to credit derivatives based on notional and fair values as of November 30, 2019.

Table 17: Credit Derivatives Exposures

$ in millions									**As of November 2019**
	Credit derivative hedges								
	Protection bought			**Protection sold**			**Other credit derivatives**		
	GSGUK	**GSI**	**GSIB**	**GSGUK**	**GSI**	**GSIB**	**GSGUK**	**GSI**	**GSIB**
Notionals									
Index Credit Default Swaps	$ 362,789	$ 361,569	$ 1,220	$ 353,429	$ 352,463	$ 966	-	-	-
Total Return swaps	10,148	10,148	-	2,498	2,498	-	-	-	-
Other Credit Default Swaps	332,031	330,533	1,498	319,366	318,381	985	-	-	-
Other Credit Derivatives	-	-	-	-	-	-	263,913	263,560	353
Total notionals	**$ 704,968**	**$ 702,250**	**$ 2,718**	**$ 675,293**	**$ 673,342**	**$ 1,951**	**$ 263,913**	**$ 263,560**	**$ 353**
Fair values	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Positive fair value (asset)	**$ 9,160**	**$ 9,142**	**$ 18**	**$ 18,379**	**$ 18,331**	**$ 48**	**$ 6,521**	**$ 6,514**	**$ 7**
Negative fair value (liability)	**$ 19,984**	**$ 19,895**	**$ 89**	**$ 7,742**	**$ 7,660**	**$ 82**	**$ 5,382**	**$ 5,316**	**$ 66**

Wrong-way Risk

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

Credit Valuation Adjustment Risk-Weighted Assets

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

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

Other Credit Risk-Weighted Assets

Credit RWAs also include the following components:

Cleared Transactions

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

Retail Exposures

As of November 30, 2019, we have immaterial retail exposures (defined as residential mortgage exposures, qualifying revolving exposures, or other retail exposures that are managed as part of a segment of exposures with homogeneous risk characteristics, not on an individual exposure basis) subject to standardised risk weights.

Other Assets

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

Equity Exposures in the Banking Book

The firm makes direct investments in public and private equity securities; it also makes investments, through funds that it manages (some of which are consolidated), in debt securities and loans, public and private equity securities and real estate entities. These investments are typically longer-term in nature and are primarily held for capital appreciation purposes; they are therefore classified for regulatory capital purposes as banking book equity investments. The firm also makes commitments to invest, primarily in private equity, real estate and other assets. Such commitments are made both directly and indirectly through funds that the firm manages. Equity exposures held in GSGUK's banking book are included in the Credit RWAs within row 5 of Table 8 and were not material as of November 30, 2019.

Past due exposures, impaired exposures and impairment provisions

Payments aged more than a threshold of 90 days on any material credit obligation to the company, 180 days on residential mortgage obligations or 120 days on other retail obligations are considered past due.

An exposure is considered impaired when it is probable that the borrower will be unable to pay all amounts due according to the contractual terms of the loan agreement. The firm's definition of unlikeliness to pay includes the distressed restructuring of an obligation, including bank loan obligations, that results in deferred or reduced payment to GS, whether or not counterparty is in bankruptcy, insolvency or local jurisdictional equivalent.

There are no instances for GSGUK, GSI or GSIB where past-due exposures are not considered to be impaired.

The allowance for impairment is determined using various risk factors, including industry default and loss data, current macroeconomic indicators, borrower's capacity to meet its financial obligations, borrower's country of risk, loan seniority and collateral type. In addition, for loans backed by real estate, risk factors include loan to value ratio, debt service ratio and home price index. The firm also records an allowance for losses on lending commitments that are held for investment and accounted for on an accrual basis. Such allowance is determined using the same methodology as the allowance for impairment, while also taking into consideration the probability of drawdowns or funding, and is included in other liabilities and accrued expenses. Additionally, loans are charged off against the impairment provision when deemed to be uncollectible.

Allowance for Losses on Loans and Lending Commitments

For information on the firm's impaired loans, past due loans, loans on non-accrual status, and allowance for losses on loans and lending commitments, see “Note 9. Loans” in Part II, Item 8 "Financial Statements and Supplementary Data” in the firm's 2019 Form 10-K.

Securitisations

Overview

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

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

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

Within the GSGUK group, we securitise commercial mortgages, loans and other types of financial assets by selling these assets to securitisation vehicles (e.g., trusts and special purpose vehicles). GSGUK acts as underwriter of the beneficial interests that are sold to investors.

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

A portion of our positions that meet the regulatory definition of a securitisation are classified in our trading book, and capital requirements for these positions are calculated under the market risk capital rules. However, we also have certain banking book positions that meet the regulatory definition of a securitisation.

We account for a securitisation as a sale when we have relinquished control over the transferred financial assets. Prior to securitisation, we account for assets pending transfer at fair value and therefore do not typically recognise significant gains or losses upon the transfer of assets. GSGUK did not, as of November 30, 2019 have material assets held with the intent to securitise.

Banking Book Activity

Securitisation exposures classified in the banking book were immaterial as of November 30, 2019. The small amount of securitisation exposures in the banking book within the GSGUK group that meet the regulatory definition of a securitisation fall into the following categories:

- **Warehouse Financing and Lending**. We provide financing to clients who warehouse financial assets. These arrangements are secured by the warehoused assets, primarily consisting of corporate loans and asset-backed and other loans.
- **Other**. We have certain other banking book securitisation activities such as holding securities issued by securitisation vehicles.

By engaging in the banking book securitisation activities noted above, we are primarily exposed to credit risk and to the performance of the underlying assets.

Trading Book Activity

Our securitisation exposures classified as trading book comprise mortgage-backed securities (MBS) and other asset-backed securities (ABS), derivatives referencing MBS or ABS, or derivatives referencing indices of MBS or ABS, which are held in inventory. The population also includes credit correlation positions, which are discussed in the "Comprehensive Risk" section of the "Market Risk Management" chapter.

The primary risks included in beneficial interests and other interests from our involvement with securitisation vehicles are the performance of the underlying collateral, the position of our investment in the capital structure of the securitisation vehicle and the market yield for the security. These interests are accounted for at fair value and are incorporated into the overall risk management approach for financial instruments. For a detailed discussion of the firm's risk management process and practices, see "Risk Management – Market Risk Management" and "Risk Management – Credit Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K.

Calculation of Risk-Weighted Assets

A new securitisation framework came into effect in 2019. As a result, securitisations issued prior to 2019 are capitalised under the previous securitisation framework, whereas new issuances during 2019 are capitalised under the new securitisation framework.

For securitisations issued prior to 2019, the Ratings Based Approach (RBA) was used. Under the RBA, the risk weighted exposure amount of a rated securitisation position or resecuritisation position is calculated by applying to the exposure value a risk weight that depends on the associated external credit rating. The External Credit Assessment Institutions (ECAIs) used are Standard & Poor's Ratings Services (S&P), Moody's Investors Service (Moody's) and Fitch, Inc. (Fitch) for all types of exposures.

For securitisations issued during 2019, a new hierarchy of approaches was used. The hierarchy introduces three primary methods, the SEC-IRBA (Internal Ratings Based Approach), SEC-SA (Standardized Approach), and SEC-ERBA (External Ratings Based Approach).

The RWAs for trading book securitisation positions are calculated by multiplying the exposure amount by the specific risk-weighting factors assigned and then multiplying by the specified regulatory factor of 1.06. The exposure amount is defined as the carrying value for securities, or the market value of the effective notional of the instrument or indices underlying derivative positions. The securitisation capital requirements are capped at the maximum loss that could be incurred on any given transaction.

RWAs for banking book securitisation exposures (including counterparty credit risk exposures that arise from trading book derivative positions) are calculated using the RBA capped at the maximum amount that could be lost on the position.

The following tables show our securitisation exposures in the trading book by type of exposure and risk weight band as of November 30, 2019.

Table 18: Securitisation Exposures by Type

$ in millions	As of November 2019		
	On-balance-sheet Exposures	Off-balance-sheet Exposures	Total Exposure Amount
	Traditional	Synthetic	
Residential mortgages	$ 155	$ 982	$ 1,137
Commercial mortgages	84	-	84
Corporates	-	122	122
Asset-backed and other	241	670	911
GSGUK Total	**$ 480**	**$ 1,774**	**$ 2,254**

Table 19: Securitisation Exposures and Related RWAs by Risk Weight Bands

$ in millions	As of November 2019		
	Long Exposure Amount	Short Exposure Amount	Total RWAs
0% - 25%	$ 233	$ 683	$ 104
26% - 100%	404	149	200
101% - 250%	-	-	1
251% - 650%	26	9	164
651% - 1,250%	305	445	2,658
GSGUK Total	**$ 968**	**$ 1,286**	**$ 3,127**

Market Risk

Overview

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

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

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

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

Market Risk Management Process

The firm's process for managing market risk includes the critical components of the risk management framework described in the "Overview and Structure of Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K, as well as the following:

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

Market Risk produces risk measures and monitors them against established market risk limits. These measures reflect an extensive range of scenarios and the results are aggregated at product, business and firmwide levels. For additional information regarding the firm's market risk measures and risk limits, see "Risk Management – Market Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K.

Market Risk-Weighted Assets

Trading book positions are subject to market risk capital requirements which are designed to cover the risk of loss in value of these positions due to changes in market conditions. These capital requirements are determined either by applying prescribed risk weighting factors in accordance with the standardised approach, or they are based on internal models which are subject to various qualitative and quantitative parameters. The CRR market risk capital rules require that a firm obtains prior written permission from its regulators before using any internal model to calculate its risk-based capital requirement. Within GSGUK, GSI has permission to calculate capital requirements using internal models at the solo and consolidated levels, while other entities including GSIB calculate capital requirements using the standardised approach.

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

Regulatory VaR

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

VaR used for regulatory capital requirements (Regulatory VaR) differs from risk management VaR due to different time horizons and confidence levels (10-day and 99% for Regulatory VaR vs. one-day and 95% for risk management VaR), as well as differences in the scope of positions on which VaR is calculated. The 10-day VaR is based on scaling the 1-day VaR by the square root of 10.

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

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

Table 20 presents our period end, maximum, minimum and average daily GSGUK and GSI 99% 10-day Regulatory VaR over the six-month period ended November 2019.

Stressed VaR

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

Table 20 presents our period end, maximum, minimum and average weekly GSGUK and GSI 99% 10-day SVaR over the six-month period ended November 2019.

Incremental Risk

Incremental risk is the potential loss in value of non-securitised positions due to the default or credit migration of issuers of financial instruments over a one-year time horizon. As required by the CRR market risk regulatory capital rules, this measure is calculated at a 99.9% confidence level over a one-year time horizon. It uses a multi-factor model assuming a constant level of risk. When assessing the risk, we take into account market and issuer-specific concentration, credit quality, liquidity horizons and correlation of default and migration risk. The liquidity horizon is calculated based upon the size of exposures and the speed at which we can reduce risk by hedging or unwinding positions, given our experience during a historical stress period, and is subject to the prescribed regulatory minimum. The average liquidity horizon for GSI as of November 2019 was 3.4 months.

Table 20 presents our period end, maximum, minimum and average of the weekly GSGUK and GSI Incremental Risk measure over the six-month period ended November 2019.

Comprehensive Risk

Comprehensive risk is the potential loss in value, due to price risk and defaults, within credit correlation positions. A credit correlation position is defined as a securitisation position for which all or substantially all of the value of the underlying exposures is based on the credit quality of a single company for which a two-way market exists, or indices based on such exposures for which a two-way market exists, or hedges of these positions (which are typically not securitisation positions).

As required under the CRR market risk capital rules, the Comprehensive Risk Measure comprises a model-based measure, which is subject to a floor based on the minimum capital requirement of 8% of RWA calculated under the standard rules for the portfolio. The model-based measure is calculated at a 99.9% confidence level over a one-year time horizon applying a constant level of risk. The model comprehensively covers price risks including nonlinear price effects and takes into account contractual structure of cash flows, the effect of multiple defaults, credit spread risk, volatility of implied correlation, recovery rate volatility and basis risk. The liquidity horizon is based upon our experience during a historical stress period, subject to the prescribed regulatory minimum.

As of November 2019, we had credit correlation positions, subject to the Comprehensive Risk Measure, with a fair value under US GAAP of $28 million in net assets and $244 million in net liabilities, and under UK GAAP of $290 million in net assets and $429 million in net liabilities.

Table 20 presents the period end, maximum, minimum and average of the GSGUK and GSI Comprehensive Risk Measure for the over the six-month period ended November 2019.

Table 20: IMA Values for Trading Portfolios

$ in millions		As of November 2019	
		GSGUK	**GSI**
VaR (10 day 99%)			
1	Maximum value	**224**	**224**
2	Average value	**157**	**157**
3	Minimum value	**108**	**108**
4	Period end	**145**	**145**
SVaR (10 day 99%)			
5	Maximum value	**825**	**825**
6	Average value	**579**	**579**
7	Minimum value	**410**	**410**
8	Period end	**639**	**639**
IRC (99.9%)			
9	Maximum value	**1,181**	**1,181**
10	Average value	**1,006**	**1,006**
11	Minimum value	**829**	**829**
12	Period end	**1,146**	**1,146**
Comprehensive risk capital charge (99.9%)			
13	Maximum value	**83**	**83**
14	Average value	**59**	**59**
15	Minimum value	**42**	**42**
16	Period end	**43**	**43**

Table 21: Market Risk under the IMA

The table below presents the capital requirements and RWA under the IMA for Market Risk as of November 30, 2019.

$ in millions				As of November 2019	
		RWAs		Capital requirements	
		GSGUK	**GSI**	**GSGUK**	**GSI**
1	**VaR (higher of values a and b)**	**$ 6,451**	**$ 6,451**	**$ 516**	**$ 516**
(a)	Previous day's VaR (Article 365(1) of the CRR (VaRt-1))			145	145
(b)	Average of the daily VaR (Article 365(1)) of the CRR on each of the preceding 60 business days (VaRavg) x multiplication factor (mc) in accordance with Article 366 of the CRR			516	516
2	**SVaR (higher of values a and b)**	**$ 21,108**	**$ 21,108**	**$ 1,689**	**$ 1,689**
(a)	Latest SVaR (Article 365(2) of the CRR (SVaRt-1))			639	639
(b)	Average of the SVaR (Article 365(2) of the CRR) during the preceding 60 business days (SVaRavg) x multiplication factor (ms) (Article 366 of the CRR)			1,689	1,689
3	**IRC (higher of values a and b)**	**$ 14,323**	**$ 14,323**	**$ 1,146**	**$ 1,146**
(a)	Most recent IRC value (incremental default and migration risks calculated in accordance with Article 370 and Article 371 of the CRR)			1,146	1,146
(b)	Average of the IRC number over the preceding 12 weeks			1,081	1,081
4	**Comprehensive risk measure (higher of values a, b and c)**	**$ 681**	**$ 681**	**$ 54**	**$ 54**
(a)	Most recent risk number for the correlation trading portfolio (Article 377 of the CRR)			43	43
(b)	Average of the risk number for the correlation trading portfolio over the preceding 12 weeks			54	54
(c)	8% of the own funds requirement in the standardised approach on the most recent risk number for the correlation trading portfolio (Article 338(4) of the CRR)			49	49
5	**Other**	**$ 8,678**	**$ 8,678**	**$ 694**	**$ 694**
6	**Total**	**$ 51,241**	**$ 51,241**	**$ 4,099**	**$ 4,099**

Table 22: RWA Flow Statements of Market Risk Exposures under the IMA

GSGUK

$ in millions — **As of November 2019**

		VaR	SVaR	IRC	Comprehensive risk measure	Other	Total RWAs	Total capital requirements
1	**RWAs at previous quarter end**	**$ 5,228**	**$ 22,181**	**$ 11,659**	**$ 775**	**$ 8,526**	**$ 48,369**	**$ 3,870**
1a	*Regulatory adjustment*	(2,614)	(13,840)	(466)	(87)	(1,548)	(18,555)	(1,485)
1b	***RWAs at the previous quarter-end***	**$ 2,614**	**$ 8,341**	**$ 11,193**	**$ 688**	**$ 6,978**	**$ 29,814**	**$ 2,385**
2	Movement in risk levels	(779)	(242)	3,130	(148)	166	2,127	170
3	Model updates/changes	(21)	(111)	-	-	-	(132)	(10)
8a	***RWAs at the end of the reporting period***	**$ 1,814**	**$ 7,988**	**$ 14,323**	**$ 540**	**$ 7,144**	**$ 31,809**	**$ 2,545**
8b	*Regulatory adjustment*	4,637	13,120	-	141	1,534	19,432	1,554
8	**RWAs at the end of the reporting period**	**$ 6,451**	**$ 21,108**	**$ 14,323**	**$ 681**	**$ 8,678**	**$ 51,241**	**$ 4,099**

GSI

$ in millions — **As of November 2019**

		VaR	SVaR	IRC	Comprehensive risk measure	Other	Total RWAs	Total capital requirements
1	**RWAs at previous quarter end**	**$ 5,228**	**$ 22,181**	**$ 11,659**	**$ 775**	**$ 8,526**	**$ 48,369**	**$ 3,870**
1a	*Regulatory adjustment*	(2,614)	(13,840)	(466)	(87)	(1,548)	(18,555)	(1,485)
1b	***RWAs at the previous quarter-end***	**$ 2,614**	**$ 8,341**	**$ 11,193**	**$ 688**	**$ 6,978**	**$ 29,814**	**$ 2,385**
2	Movement in risk levels	(779)	(242)	3,130	(148)	166	2,127	170
3	Model updates/changes	(21)	(111)	-	-	-	(132)	(10)
8a	***RWAs at the end of the reporting period***	**$ 1,814**	**$ 7,988**	**$ 14,323**	**$ 540**	**$ 7,144**	**$ 31,809**	**$ 2,545**
8b	*Regulatory adjustment*	4,637	13,120	-	141	1,534	19,432	1,554
8	**RWAs at the end of the reporting period**	**$ 6,451**	**$ 21,108**	**$ 14,323**	**$ 681**	**$ 8,678**	**$ 51,241**	**$ 4,099**

Model Review and Validation

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

These models are regularly reviewed and enhanced in order to incorporate changes in the composition of positions included in market risk measures, as well as variations in market conditions. Prior to implementing significant changes to our assumptions and/or models, Model Risk performs model validations. Significant changes to VaR and stress testing models are reviewed with the firm's chief market risk officer, and approved by the Risk Governance Committee.

Regulatory VaR Backtesting Results

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

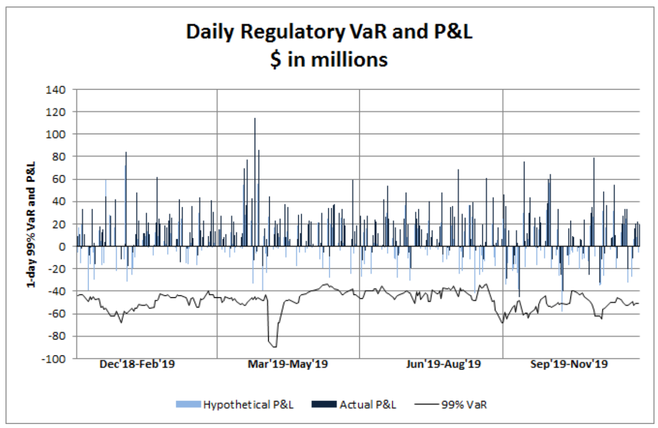
As defined in the CRR market risk capital rules, hypothetical net revenues for any given day represent the impact of that day's price variation on the value of positions held at the close of business the previous day. As a consequence, these results exclude certain revenues associated with market-making businesses, such as bid/offer net revenues, which are more likely than not to be positive by their nature. In addition, hypothetical net revenues used in our Regulatory VaR backtesting relate only to positions which are included in Regulatory VaR and, as noted above, differ from positions included in our risk management VaR. This measure of hypothetical net revenues is used to evaluate the performance of the Regulatory VaR model and is not comparable to our actual daily net revenues. See "Risk Management — Market Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K.

GSI hypothetical losses observed on a single day exceeded our 99% one-day Regulatory VaR once during the four quarters preceding November 2019, driven by Ecuador Credit spreads on the back of protests after the president ended fuel subsidies. GSI actual losses observed on a single day did not exceed our 99% one-day Regulatory VaR during the four quarters preceding November 2019. Note that, although a one-day time horizon is used for backtesting purposes, a 10-day time horizon is used, as described earlier, to determine RWAs associated with Regulatory VaR.

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

Table 23: Comparison of VaR estimates with gains/losses

- GSI



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

	Multiplier	Number of reported excesses: Hypothetical	Number of reported excesses: Actual
Backtesting			
GSI	**3.00**	**1**	**0**

Stress Testing

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

For a detailed description of the firm's stress testing practices, see "Risk Management – Market Risk Management – Risk Measures – Stress Testing" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 10-K.

The table below presents the components of own funds requirements under the standardised approach as of November 30, 2019.

Table 24: Market Risk under the Standardised Approach

$ in millions		As of November 2019					
		RWAs			**Capital Requirements**		
		GSGUK	**GSI**	**GSIB**	**GSGUK**	**GSI**	**GSIB**
	Outright products						
1	Interest rate risk (general and specific)	$ 21,234	$ 21,070	$ 164	$ 1,699	$ 1,686	$ 13
2	Equity risk (general and specific)	2,799	2,672	127	224	214	10
3	Foreign exchange risk	3,093	2,606	355	247	208	29
4	Commodity risk	774	478	-	62	38	-
4a	Collective investment undertakings	1,337	1,337	-	107	107	-
	Options						
6	Delta-plus method	2,500	2,500	-	200	200	-
8	Securitisation (specific risk)	3,127	3,127	-	250	250	-
9	**Total**	**$ 34,864**	**$ 33,790**	**$ 646**	**$ 2,789**	**$ 2,703**	**$ 52**

Interest Rate Sensitivity

Interest Rate Risk in the Trading Book

Our exposure to interest rate risk in our trading book arises mostly from positions held to support client market-making activities. These positions are accounted for at fair value and its interest rate risk is monitored as a component of Market risk. For additional information regarding interest rate risk, see “Risk Management – Market Risk Management” in Part II, Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in the firm’s 2019 Form 10-K.

Interest Rate Risk in the Banking Book

Our exposure to interest rate risk in the banking book (IRRBB) arises from differences in interest earned or paid as interest rates change, due to the reset characteristics of our assets and liabilities. In September 2018, the introduction of Instant Access Savings deposits via our Marcus by Goldman Sachs brand resulted in an increase of IRRBB risk for GSIB. IRRBB risk may increase further as GSIB continues to focus on the expansion of its lending and deposit taking activities. However, our banking book activities’ exposure to movements in interest rates remains immaterial for GSGUK as a whole as at November 30, 2019.

For further information regarding asset-liability management, see “Risk Management – Liquidity Risk Management” in Part II, Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in the firm’s 2019 Form 10-K.

Operational Risk

Overview

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

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

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

Operational Risk, which is independent of the firm's revenue-producing units and reports to the firm'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 firm's exposure to operational risk at levels that are within its risk appetite.

Operational Risk Management Process

The firm's process for managing operational risk includes the critical components of the risk management framework described in "Overview and Structure of Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K.

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

The firm maintains a comprehensive control framework designed to provide a well-controlled environment to minimise operational risks. The EMEA Operational Risk Committee provides oversight of the ongoing development and implementation of operational risk policies, framework and methodologies, with oversight from the directors of the firm, and monitors the effectiveness of operational risk management.

The firm's operational risk management framework is in part designed to comply with the operational risk measurement rules under the Capital Framework and has evolved based on the changing needs of its businesses and regulatory guidance.

The firm has a comprehensive data collection process, including firmwide policies and procedures, for operational risk events.

The firm has established policies that require all employees to report and escalate operational risk events. When operational risk events are identified, the policies require that the events be documented and analysed to determine whether changes are required in the systems and/or processes to further mitigate the risk of future events.

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

Risk Measurement

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

- Evaluations of the complexity of business activities;
- The degree of automation in our processes;
- New activity information;
- The legal and regulatory environment; and
- Changes in the markets for our products and services, including the diversity and sophistication of our customers and counterparties.

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

Model Review and Validation

The statistical models used to measure operational risk exposure are independently reviewed, validated and approved by Model Risk.

Capital Requirements

The consolidated operational risk capital requirements for GSGUK, GSI and GSIB are calculated under the Standardised Approach in accordance with the CRR. GSIB transitioned from the Basic Indicator Approach to the Standardised Approach in March 2019.

Table 25: Operational Risk Capital Requirement

$ in millions	As of November 2019		
	GSGUK	**GSI**	**GSIB**
Standardised Approach	$ 1,361	$ 1,233	$ 40

Model Risk

Overview

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

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

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

Model Review and Validation

Model Risk consists of quantitative professionals who perform an independent review, validation and approval of the firm's 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 firm regularly refines and enhances models to reflect changes in market or economic conditions and its business mix. All models are reviewed on an annual basis, and new models or significant changes to existing models and their assumptions are approved prior to implementation.

The model validation process incorporates a review of models and 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, including the reasonableness of model assumptions, and suitability for intended use;
- The testing strategy utilised by the model developers to ensure that the models function as intended;
- The suitability of the calculation techniques incorporated in the model;
- The model's accuracy in reflecting the characteristics of the related product and its significant risks;
- The model's consistency with models for similar products; and
- The model's sensitivity to input parameters and assumptions.

For more information regarding the use of models within these areas, see "Critical Accounting Policies – Fair Value – Review of Valuation Models," "Risk Management – Liquidity Risk Management," "Risk Management – Market Risk Management," "Risk Management – Credit Risk Management" and "Risk Management – Operational Risk Management" in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's 2019 Form 10-K and "Credit Risk", "Market Risk", and "Operational Risk" in this document.

Leverage Ratio

GSGUK is required to monitor and disclose its leverage ratio using the CRR's definition of exposure as amended by the European Commission Leverage Ratio Delegated Act. In June 2019, the European Commission published updates to the CRR to implement a 3% minimum leverage ratio requirement for certain E.U. financial institutions, including GSGUK. This leverage ratio compares CRR's definition of Tier 1 capital to a measure of leverage exposure, defined as the sum of certain assets plus certain off-balance-sheet exposures (which include a measure of derivatives, securities financing transactions, commitments and guarantees), less Tier 1 capital deductions. The required minimum leverage ratio will become effective for GSGUK on 27 June 2021. This leverage ratio is based on our current interpretation and understanding of this rule and may evolve as the interpretation and application of this rule is discussed with our regulators.

Table 26: Leverage Ratio

$ in millions

	As of November 2019		
	GSGUK	**GSI**	**GSIB**
Tier 1 Capital	$ 37,573	$ 32,382	$ 3,108
Leverage Ratio Exposure	$ 772,606	$ 740,306	$ 28,506
Leverage Ratio	**4.9%**	**4.4%**	**10.9%**

The following tables present further information on the leverage ratio. Table 27 reconciles the exposure measure to the balance sheets of GSGUK, GSI and GSIB. Table 28 breaks down the exposures from on-balance sheet assets by trading and banking book. Table 29 gives further details on the adjustments and drivers of the leverage ratio.

Table 27: Summary Reconciliation of Accounting Assets and Leverage Ratio Exposures

$ in millions

	As of November 2019		
	GSGUK	**GSI**	**GSIB**
Total assets as per balance sheet	**$ 1,066,979**	**$ 1,041,518**	**$ 45,412**
Adjustment for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	-	-	-
Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting framework but excluded from the leverage ratio exposure measure in accordance with Article 429(13) of Regulation (EU) No 575/2013 "CRR"	-	-	-
Adjustments for derivative financial instruments[1]	(325,527)	(325,014)	(54)
Adjustments for securities financing transactions[1]	16,598	17,326	843
Adjustment for off-balance sheet items [1]	16,726	11,121	5,605
Adjustment for intragroup exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (7) of Regulation (EU) No 575/2013[1]	-	(80)	(21,732)
Adjustment for exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (14) of Regulation (EU) No 575/2013	-	-	-
Other adjustments	(2,170)	(4,565)	(1,568)
Total leverage ratio exposure	**$ 772,606**	**$ 740,306**	**$ 28,506**

1. Differences between the accounting values recognised as assets on the balance sheet and the leverage ratio exposure values. A further breakdown of these amounts can be found in Table 26.

Table 28: On-Balance Sheet Exposures

$ in millions

	As of November 2019		
	GSGUK	**GSI**	**GSIB**
Total on-balance sheet exposures[1] (excluding derivatives, SFTs, and exempted exposures), of which:	**$ 175,099**	**$ 153,181**	**$ 17,750**
Trading book exposures	**$ 127,924**	**$ 123,046**	**$ 3,887**
Banking book exposures, of which:	**$ 47,175**	**$ 30,135**	**$ 13,863**
Covered bonds	-	-	-
Exposures treated as sovereigns	19,493	$ 13,950	$ 5,543
Exposures to regional governments, MDB, international organisations and PSE not treated as sovereigns	-	-	-
Institutions	8,735	$ 6,608	$ 1,745
Secured by mortgages of immovable properties	-	-	$ 285
Retail exposures	-	-	$ 234
Corporate	14,741	$ 8,821	$ 4,715
Exposures in default	129	$ 129	-
Other exposures	4,077	$ 627	$ 1,341

Table 29: Leverage Ratio Common Disclosure

$ in millions	As of November 2019		
	GSGUK	**GSI**	**GSIB**
On-balance sheet exposures (excluding derivatives and SFTs)			
On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	$ 212,310	$ 190,235	$ 19,574
Asset amounts deducted in determining Tier 1 capital	(2,171)	(1,742)	(119)
Total on-balance sheet exposures[1] (excluding derivatives, SFTs and fiduciary assets)	**$ 210,139**	**$ 188,493**	**$ 19,455**
Derivative exposures			
Replacement cost associated with all derivatives transactions (ie net of eligible cash variation margin)	33,543	33,437	192
Add-on amounts for PFE associated with all derivatives transactions (mark-to-market method)	313,766	314,342	766
Exposure determined under Original Exposure Method	-	-	-
Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	-	-	-
Deductions of receivables assets for cash variation margin provided in derivatives transactions	(35,881)	(35,644)	(237)
Exempted CCP leg of client-cleared trade exposures	(4,605)	(4,605)	-
Adjusted effective notional amount of written credit derivatives	778,296	776,336	1,960
Adjusted effective notional offsets and add-on deductions for written credit derivatives	(729,445)	(727,485)	(1,960)
Total derivative exposures	**$ 355,674**	**$ 356,381**	**$ 721**
Securities financing transaction exposures			
Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	234,036	229,105	25,063
Netted amounts of cash payables and cash receivables of gross SFT assets	(60,568)	(60,568)	0
Counterparty credit risk exposure for SFT assets	16,598	17,326	843
Derogation for SFTs: Counterparty credit risk exposure in accordance with Article 429b (4) and 222 of Regulation (EU) No 575/2013	-	-	-
Agent transaction exposures	-	-	-
Exempted CCP leg of client-cleared SFT exposure	-	-	-
Total securities financing transaction exposures	**$ 190,066**	**$ 185,863**	**$ 25,906**
Other off-balance sheet exposures			
Off-balance sheet exposures at gross notional amount	89,856	73,465	16,390
Adjustments for conversion to credit equivalent amounts	(73,129)	(62,344)	(10,785)
Other off-balance sheet exposures	**$ 16,727**	**$ 11,121**	**$ 5,605**
Exempted exposures in accordance with CRR Article 429 (7) and (14) (on and off balance sheet)			
Exemption of intragroup exposures (solo basis) in accordance with Article 429(7) of Regulation (EU) No 575/2013 (on and off balance sheet)	-	(1,552)	(23,181)
Exposures exempted in accordance with Article 429 (14) of Regulation (EU) No 575/2013 (on and off balance sheet)	-	-	-
Capital and total exposures			
Tier 1 capital	$ 37,573	$ 32,382	3,108
Total leverage ratio exposures	**$ 772,606**	**$ 740,306**	**$ 28,506**
Leverage ratio			
Leverage ratio	**4.9%**	**4.4%**	**10.9%**
Choice on transitional arrangements and amount of derecognised fiduciary items			
Choice on transitional arrangements for the definition of the capital measure	**-**	**-**	**-**
Amount of derecognised fiduciary items in accordance with Article 429(11) of Regulation (EU) No 575/2013	**-**	**-**	**-**

[1] The On Balance Sheet Exposures in Table 22 include cash collateral posted on derivative which is excluded from Table 21 in accordance with the European Commission Implementing Regulation (EU) 2016/200

Factors impacting the Leverage Ratio

The leverage ratio has remained constant at 4.9% from May to November 2019.

Risk of Excessive Leverage

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

The GSI and GSIB Asset and Liability Committees (GSI and GSIB ALCOs) are the primary governance committees for the management of the UK material subsidiaries' balance sheets, and are responsible for maintaining leverage ratios in accordance with the levels expressed in each entity's risk appetite statement.

We monitor the leverage ratio as calculated above and have processes in place to dynamically manage our assets and liabilities. These processes include:

- Monthly leverage ratio monitoring is conducted for GSI and GSIB. Leverage ratio monitoring thresholds have been established for GSI and GSIB and reported to the respective ALCOs, CROs, CFOs, CEOs, Risk Committees and Boards depending on size of movement.
- Quarterly leverage ratio planning which combines our projected leverage ratio assets (on- and off-balance sheet) and Tier 1 capital of GSGUK, GSI and GSIB.
- Potential new transactions which could have a material impact on GSGUK's capital and/or leverage position are escalated to and approved by Corporate Treasury, and by Controllers and other managers from independent control and support functions.

Capital Adequacy

Overview

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

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

Internal Capital Adequacy Assessment Process

We perform an ICAAP with the objective of ensuring that GSGUK is appropriately capitalised relative to the risks in our business. The ICAAP is a comprehensive assessment of the risks to which we are or may be exposed and covers both the risks for which we consider capital to be an appropriate mitigant, and those for which we consider mitigants other than capital to be appropriate.

As part of our ICAAP, we perform an internal risk-based capital assessment. We evaluate capital adequacy based on the result of our internal risk-based capital assessment, which includes the results of stress tests, and our regulatory capital ratios. Stress testing is an integral component of our ICAAP. It is designed to measure our estimated performance under various stressed market conditions and assists us in analysing whether GSGUK holds an appropriate amount of capital relative to the risks of our businesses. Our goal is to hold sufficient capital to ensure we remain adequately capitalised after experiencing a severe stress event. Our assessment of capital adequacy is viewed in tandem with our assessment of liquidity adequacy and is integrated into our overall risk management structure, governance and policy framework.

Own Funds Template

The table below presents further information on the detailed capital position of GSGUK, GSI and GSIB, in accordance with the format prescribed by the Commission Implementing Regulation (EU) No 1423/2013.

Table 30: Own Funds Disclosure

$ in millions	As of November 2019		
	GSGUK	**GSI**	**GSIB**
Capital instruments and the related share premium accounts	$ 2,707	$ 5,786	$ 2,157
Paid up capital instruments	2,135	590	63
Share premium	572	5,196	2,094
Retained earnings	28,789	20,330	1,077
Accumulated other comprehensive income (and other reserves, to include unrealised gains and losses under the applicable accounting standards)	(151)	(168)	(7)
Common Equity Tier 1 (CET1) capital before regulatory adjustments	**$ 31,345**	**$ 25,948**	**$ 3,227**
Additional value adjustments	(514)	(423)	(4)
Intangible assets	(391)	(391)	-
Negative amounts resulting from the calculation of expected loss amounts	(865)	(789)	(76)
Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	8	1	7
Deferred tax assets	(46)		(46)
Defined-benefit pension fund assets	(264)	(264)	-
Total regulatory adjustments to Common equity Tier 1 (CET1)	**$ (2,072)**	**$ (1,866)**	**$ (119)**
Common Equity Tier 1 (CET1) capital	**$ 29,273**	**$ 24,082**	**$ 3,108**
Additional Tier 1 (AT1) capital	**8,300**	**8,300**	**-**
Tier 1 capital (T1 = CET1 + AT1)	**$ 37,573**	**$ 32,382**	**$ 3,108**
Capital instruments and the related share premium accounts	6,503	5,377	826
Qualifying own funds instruments included in consolidated T2 capital issued by subsidiaries and held by third parties	-	-	-
Of which: Instruments issued by subsidiaries subject to phase out	-	-	-
Non qualifying T2 capital instruments	-	-	-
Tier 2 (T2) capital before regulatory adjustments	**$ 6,503**	**$ 5,377**	**$ 826**
Tier 2 (T2) capital	**$ 6,503**	**$ 5,377**	**$ 826**
Total capital (TC = T1 + T2)	**$ 44,076**	**$ 37,759**	**$ 3,934**
Total risk weighted assets	**$ 227,676**	**$ 206,768**	**$ 15,213**
Common Equity Tier 1 (as a percentage of risk exposure amount)	12.9%	11.6%	20.4%
Tier 1 (as a percentage of risk exposure amount)	16.5%	15.7%	20.4%
Total capital (as a percentage of risk exposure amount)	19.4%	18.3%	25.9%
Institution specific buffer requirement (CET1 requirement in accordance with article 92 (1) (a) plus capital conservation and countercyclical buffer requirements, plus systemic risk buffer, plus the systemically important institution buffer (G-SII or O-SII buffer), expressed as a percentage of risk exposure amount)	7.34%	7.32%	7.31%
Of which: Capital conservation buffer requirement[1]	2.50%	2.50%	2.50%
Of which: Counter cyclical buffer requirement	0.34%	0.32%	0.31%
Common Equity Tier 1 available to meet buffers (as a percentage of risk exposure amount)	4.1%	2.9%	11.5%
Direct and indirect holdings of the capital of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	$ 1,618	$ 1,465	-
Direct and indirect holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	-	-	-

1. Capital conservation buffer fully transitioned by January 1, 2019.

Countercyclical Capital Buffer Template

The following tables present information on the impact of the countercyclical capital buffer as prescribed under CRR 440 which came into force from January 1, 2017.

Table 31: Countercyclical Capital Buffer

$ in millions	As of November 2019		
	GSGUK	**GSI**	**GSIB**
Total risk exposure amount	$ 227,676	$ 206,768	$ 15,213
Countercyclical buffer rate	0.34%	0.32%	0.31%
Countercyclical buffer requirement	775	666	48

The geographical distribution of credit exposures relevant for the calculation of the countercyclical capital buffer is broken down in Table 29.

As of November 30, 2019 the Financial Policy Committee (FPC) had recognised exposures of U.K. institutions from Norway, Sweden, Hong Kong, Czech Republic, Iceland, Slovakia, Lithuania, Denmark, Ireland, France, Bulgaria in addition to the UK as implemented in the calculation of this buffer. These are shown as separate rows below with their respective contributions to own funds requirements for GSGUK, GSI and GSIB.

During the COVID-19 pandemic most central banks and national governments set countercyclical capital buffers to zero to maintain lending to businesses and individuals. On March 11, 2020, the Bank of England announced that it has reduced the UK countercyclical capital buffer from 1% to 0% of banks' exposures to U.K. borrowers and counterparties with effect from March 11, 2020. This rate is expected to apply to the company for at least two years and result in the company's U.K. countercyclical capital buffer decreasing by approximately 0.20%.

Table 32: Geographical Distribution of Credit Exposures Relevant for the Calculation of the Buffer

$ in millions — **As of November 2019**

	General credit exposures		Trading book exposure[1]		Securitisation exposure		Own funds requirements					
Breakdown by Country	**Exposure value for SA**	**Exposure value for IRB**	**Sum of long and short position of trading book**	**Value of trading book exposure for internal models**	**Exposure value for SA**	**Exposure value for IRB**	**Of which: General credit exposures**	**Of which: Trading book exposures**	**Of which: Securiti-sation exposures**	**Total**	**Own funds requirement weights**	**Counter-cyclical capital buffer rate**
Norway	-	$ 194	-	$ 497	-	-	$ 24	$ 6	-	$ 30	0.4%	2.00%
Sweden	-	1,081	2	605	-	-	74	10	-	84	1.1%	2.50%
Hong Kong	-	419	15	2,074	-	-	51	11	-	62	0.8%	2.50%
Czech Republic	-	8	-	112	-	-	0	1	-	1	0.0%	1.50%
Iceland	-	21	-	28	-	-	6	2	-	8	0.1%	1.75%
Slovakia	-	30	-	5	-	-	1	1	-	2	0.0%	1.50%
United Kingdom	3,340	21,215	29,680	1,759,279	452	512	1,142	523	54	1,719	22.4%	1.00%
Lithuania	-	3	-	7	-	-	0	-	-	0	0.0%	1.00%
Denmark	-	717	-	180	-	-	42	3	-	45	0.6%	1.00%
Ireland	212	1,218	1,112	3,107	-	-	99	231	-	330	4.3%	1.00%
France	-	4,584	56	3,562	-	-	244	66	-	310	4.0%	1.00%
Bulgaria	-	-	-	7	-	-	-	1	-	1	0.0%	0.50%
Other	816	53,448	19,349	720,338	215	-	3,428	1,647	20	5,095	66.3%	0.00%
GSGUK Total	**$ 4,368**	**$ 82,938**	**$ 50,214**	**$ 2,489,801**	**$ 667**	**$ 512**	**$ 5,111**	**$ 2,502**	**$ 74**	**$ 7,687**	**100.0%**	0.34%
Norway	-	86	-	497	-	-	8	6	-	14	0.2%	2.00%
Sweden	-	923	2	605	-	-	53	10	-	63	1.0%	2.50%
Hong Kong	-	359	15	2,074	-	-	42	11	-	53	0.8%	2.50%
Czech Republic	-	7	-	112	-	-	0	1	-	1	0.0%	1.50%
Iceland	-	21	-	28	-	-	6	2	-	8	0.1%	1.75%
Slovakia	-	30	-	5	-	-	1	1	-	2	0.0%	1.50%
United Kingdom	546	19,271	29,650	1,759,279	-	-	772	521	-	1,293	20.7%	1.00%
Lithuania	-	3	-	7	-	-	0	-	-	0	0.0%	1.00%

Denmark	-	714	-	180	-	-	42	3	-	45	0.7%	1.00%
Ireland	-	1,042	1,109	3,107	-	-	79	231	-	310	5.0%	1.00%
France	-	2,415	38	3,562	-	-	59	64	-	123	2.0%	1.00%
Bulgaria	-	-	-	7	-	-	-	1	-	1	0.0%	0.50%
Other	-	47,288	19,279	720,338	-	-	2,703	1,644	-	4,347	69.4%	0.00%
GSI Total	**$ 546**	**$ 72,159**	**$ 50,093**	**$ 2,489,801**	**-**	**-**	**$ 3,765**	**$ 2,495**	**-**	**$ 6,260**	**100.0%**	0.32%
Norway	-	108	-	-	-	-	16	-	-	16	1.5%	2.00%
Sweden	-	158	-	-	-	-	20	-	-	20	1.9%	2.50%
Hong Kong	-	60	-	-	-	-	9	-	-	9	0.8%	2.50%
Czech Republic	-	0	-	-	-	-	0	-	-	0	0.0%	1.50%
Iceland	-	-	-	-	-	-	-	-	-	-	0.0%	1.75%
Slovakia	-	-	-	-	-	-	-	-	-	-	0.0%	1.50%
United Kingdom	232	1,944	30	-	452	512	113	2	54	169	15.5%	1.00%
Lithuania	-	-	-	-	-	-	-	-	-	-	0.0%	1.00%
Denmark	-	3	-	-	-	-	0	-	-	0	0.0%	1.00%
Ireland	212	176	3	-	-	-	20	-	-	20	1.8%	1.00%
France	-	2,170	18	-	-	-	185	2	-	187	17.2%	1.00%
Bulgaria	-	-	-	-	-	-	-	-	-	-	0.0%	0.50%
Other	81	6,160	70	-	215	-	646	4	20	670	61.3%	0.00%
GSIB Total	**$ 525**	**$ 10,779**	**$ 121**	**-**	**$ 667**	**$ 512**	**$ 1,009**	**$ 8**	**$ 74**	**$ 1,091**	**100.0%**	0.31%

1. The value of trading book exposures for both internal models and standard approach has been reported on a gross basis in line with the reporting requirements however does not form the basis for the capital calculation.

Capital and MREL Instruments

The following table summarises the main features of capital and MREL instruments for GSGUK as of November 2019.

Table 33: GSGUK Capital and MREL Instruments' Main Features Template

$ in millions							As of November 2019
Issuer	GSGUK	GSGUK	GSGUK	GSGUK	GSGUK	GSGUK	GSGUK
Unique Identifier (e.g. CUSIP, ISIN, or Bloomberg identifier for private placement)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Public or private placement	Private placement	Private placement	Private placement	Private placement	Private placement	Private placement	N/A
Governing law(s) of the instrument	UK	UK	UK	UK	UK	UK	UK
Contractual recognition of write down and conversion powers of resolution authorities	No	Yes	Yes	Yes	Yes	Yes	Yes
Transitional CRR rules	CET1	Additional Tier 1	Tier 2	Tier 2	Tier 2	Tier 2	Eligible Liability
Post-transitional CRR rules	CET1	Additional Tier 1	Tier 2	Tier 2	Tier 2	Tier 2	Eligible Liability
Eligible at solo/(sub-) consolidated/solo&(sub-) consolidated	Consolidated	Consolidated	Consolidated	Consolidated	Consolidated	Consolidated	Consolidated
Instrument type	Ordinary Shares	Deeply Subordinated Undated Additional Tier 1 Notes	Preference Shares	Preference Shares	Subordinated Debt	Subordinated Debt	Senior debt
Amount recognised in regulatory capital	2,135	8,300	300	2,000	3,528	675	0
Nominal amount of instrument	2,135	3,000; 2,800; 2,500	300	2,000	3,528	675	13,076
Issue Price	2,135	$1,000,000 per Note	$1.00 per Preference Share	$1.00 per Preference Share	3,528	675	13,076
Redemption Price	2,135	$1,000,000 per Note	$1.00 per Preference Share	$1.00 per Preference Share	3,528	675	13,076
Accounting Classification	Shareholders' Equity	Shareholders' Equity	Amortised Cost	Amortised Cost	Amortised Cost	Amortised Cost	Amortised Cost
Original date of issuance[1]	Aug 20, 2013	June 27, 2017; June 28, 2017; November 28, 2018	June 27, 2018	July 11, 2019	Aug 1, 2005	Mar 20, 2013	Mar 6, 2012
Perpetual or dated	Perpetual	Perpetual	Dated	Dated	Dated	Dated	Dated
Original maturity date[2]	No maturity	No maturity	July 11, 2029	July 11, 2029	Sep 9, 2025	Dec 26, 2024	Mar 6, 2022
Issuer call subject to prior supervisory approval	N/A	No	Yes	Yes	No	No	No
Option call date, contingent call dates and redemption amount	N/A	N/A	With notice and PRA approval but not earlier than five years from the issue date	With notice and PRA approval but not earlier than five years from the issue date	No	No	N/A
Subsequent call dates, if applicable	N/A	N/A	Daily	Daily	N/A	N/A	N/A
Fixed or floating dividend / coupon	N/A	Fixed	Floating	Floating	Floating	Floating	Floating
Coupon rate and any related index[3]	N/A	8.55 per cent.; 8.55 per cent.; 8.67 per cent.	CoF + LTDS + 65 bps	CoF + LTDS + 65 bps	CoF + LTDS + 100bps	CoF + LTDS + 100bps	CoF + LTDS + 40bps
Existence of a dividend stopper	No	No	No	No	No	No	No
Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully Discretionary	Fully Discretionary	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory

Fully discretionary, partially discretionary or mandatory (in terms of amount)	**Fully Discretionary**	**Fully Discretionary**	**Mandatory**	**Mandatory**	**Mandatory**	**Mandatory**	**Mandatory**
Existence of step up or other incentive to redeem	**N/A**	**N/A**	**No**	**No**	**N/A**	**N/A**	**No**
Noncumulative or cumulative	**Non-cumulative**	**Non-cumulative**	**Cumulative**	**Cumulative**	**Cumulative**	**Cumulative**	**Cumulative**
Convertible or non-convertible	**N/A**	**Non-convertible**	**Convertible**	**Convertible**	**Convertible**	**Convertible**	**Convertible**
If convertible, conversion trigger(s)	**N/A**	**N/A**	**Resolution trigger**	**Resolution trigger**	**Resolution trigger**	**Resolution trigger**	**Resolution trigger**
If convertible, fully or partially	**N/A**	**N/A**	**Fully**	**Fully**	**Fully**	**Fully**	**Fully**
If convertible, conversion rate	**N/A**	**N/A**	**Conversion rate to be determined by the BoE**	**Conversion rate to be determined by the BoE**	**Conversion rate to be determined by the BoE**	**Conversion rate to be determined by the BoE**	**Conversion rate to be determined by the BoE**
If convertible, mandatory or optional conversion	**N/A**	**N/A**	**Optional**	**Optional**	**Optional**	**Optional**	**Optional**
If convertible, specify instrument type convertible into	**N/A**	**N/A**	**Ordinary Shares**	**Ordinary Shares**	**Ordinary Shares**	**Ordinary Shares**	**Ordinary Shares**
If convertible, specify issuer of instrument it converts to	**N/A**	**N/A**	**GSGUKL**	**GSGUKL**	**GSGUKL**	**GSGUKL**	**GSGUKL**
Write-down features	**N/A**	**Yes**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
If write-down, write-down trigger(s)	**N/A**	**Regulatory Trigger Event[4] and Resolution trigger**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
If write-down, full or partial	**N/A**	**Always fully (to $0.01 per Note)**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
If write-down, permanent or temporary	**N/A**	**Permanent**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
If temporary write-down, description of write-up mechanism	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Type of subordination (only for eligible liabilities)	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**Contractual**
Ranking of the instrument in normal insolvency proceedings	**Equity**	**Perpetual unsecured securities**	**Preference shares**	**Preference shares**	**Subordinated loan facility**	**Subordinated loan facility**	**Senior loan**
Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	**Preference shares**	**Preference Shares**	**Unsecured and subordinated debt**	**Unsecured and subordinated debt**	**Unsecured and unsubordinated debt**	**Unsecured and unsubordinated debt**	**Unsecured and senior debt**
Non-compliant transitioned features	**No**	**No**	**No**	**No**	**No**	**No**	**No**
If yes, specify non-compliant features	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Link to the full term and conditions of the instrument (signposting)[5]	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

1. First date of ordinary share issuance.
2. The original maturity date has been extended following amendment and the current maturity date is reflected in the table.
3. CoF represents Cost of Funds (the US Federal Reserve Funds Rate) and LTDS represents Long Term Debt Spread (the Goldman Sachs Weighted Average Cost of Debt).
4. Regulatory Trigger Event will be deemed to have occurred at any time where: (i) the CET1 Ratio of the GSGUKL and its consolidated subsidiaries as calculated by GSGUKL or the PRA is less than 7 per cent.; and or (ii) the CET1 Ratio of GSI as calculated by GSGUKL or the PRA is less than 7 per cent.
5. Instruments are internally issued as such no prospectus is available.

Key Changes during the Period

During 2019, the UK group executed a capital restructure as follows:

On 11 July 2019, GSGUK issued $2 billion of preference shares to its parent, Goldman Sachs (UK) L.L.C.

GSGUK repaid $450 million Advance originally drawn under the Subordinated Loan Agreement on 20 March 2013 reducing the aggregate principal amount outstanding under the Subordinated Loan Agreement to $675 million.

GSGUK repaid $1.55 billion originally drawn under the Subordinated Loan Agreement on 15 December 2011 reducing the aggregate principal amount outstanding under the Subordinated Loan Agreement to $3.528 billion.

The following table summarises the main features of capital instruments for GSI and GSIB as of November 2019.

Table 34: GSI and GSIB Capital Instruments' Main Features Template

$ in millions							As of November 2019
Issuer	GSI	GSI	GSI	GSI	GSI	GSIB	GSIB
Unique Identifier (e.g. CUSIP, ISIN, or Bloomberg identifier for private placement)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Public or private placement	Private placement	Private placement	Private placement	Private placement	Private placement	Private placement	Private placement
Governing law(s) of the instrument	UK	UK	UK	UK	UK	UK	UK
Contractual recognition of write down and conversion powers of resolution authorities	No	No	No	No	No	No	No
Transitional CRR rules	CET1	Additional Tier 1	Tier 2	Tier 2	Tier 2	CET1	Tier 2
Post-transitional CRR rules	CET1	Additional Tier 1	Tier 2	Tier 2	Tier 2	CET1	Tier 2
Eligible at solo/(sub-) consolidated/solo&(sub-) consolidated	Consolidated	Consolidated	Consolidated	Consolidated	Consolidated	Consolidated	Consolidated
Instrument type	Ordinary Shares	Deeply Subordinated Undated Additional Tier 1 Notes	Sub-ordinated Debt	Sub-ordinated Debt	Sub-ordinated Debt	Ordinary Shares	Sub-ordinated Debt
Amount recognised in regulatory capital	582	8,300	4,252	675	450	63	826
Nominal amount of instrument	582	3,300; 2,500; 2,500	4,252	675	450	63	826
Issue Price	582	$1,000,000 per Note	4,252	675	450	63	826
Redemption Price	582	$1,000,000 per Note	4,252	675	450	63	826
Accounting Classification	Shareholder's Equity	Shareholder's Equity	Amortised Cost	Amortised Cost	Amortised Cost	Shareholder's Equity	Amortised Cost
Original date of issuance[1]	May 18, 1988	June 27, 2017; June 28, 2017; 28 November, 2018	July 31, 2003	June 26, 2012	Mar 20, 2013	Jun 28, 1973	Sep 9, 2015
Perpetual or dated	Perpetual	Perpetual	Dated	Dated	Dated	Perpetual	Dated
Original maturity date[2]	No maturity	No maturity	Sep 9, 2025	Dec 26, 2024	Dec 26, 2024	No maturity	10 years from agreement
Issuer call subject to prior supervisory approval	N/A	No	N/A	N/A	N/A	N/A	N/A
Option call date, contingent call dates and redemption amount	N/A	N/A	No	No	No	N/A	No
Subsequent call dates, if applicable	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fixed or floating dividend / coupon	N/A	Fixed	Floating	Floating	Floating	N/A	Floating
Coupon rate and any related index[3]	N/A	8.55 per cent.; 8.55 per cent.; 8.67 per cent.	CoF + LTDS + 100bps	CoF + LTDS + 100bps	CoF + LTDS + 100bps	N/A	CoF + 341bps
Existence of a dividend stopper	No	No	No	No	No	No	No
Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully discretionary	Fully Discretionary	Mandatory	Mandatory	Mandatory	Fully discretionary	Mandatory
Fully discretionary, partially discretionary or mandatory (in terms of amount)	Fully discretionary	Fully Discretionary	Mandatory	Mandatory	Mandatory	Fully discretionary	Mandatory
Existence of step up or other incentive to redeem	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Noncumulative or cumulative	**Non-cumulative**	**Non-cumulative**	**Cumulative**	**Cumulative**	**Cumulative**	**Non-cumulative**	**Cumulative**
Convertible or non-convertible	**N/A**	**Non-Convertible**	**Convertible**	**Convertible**	**Convertible**	**N/A**	**Non-Convertible**
If convertible, conversion trigger(s)	**N/A**	**N/A**	**Resolution trigger**	**Resolution trigger**	**Resolution trigger**	**N/A**	**N/A**
If convertible, fully or partially	**N/A**	**Non-convertible**	**Fully**	**Fully**	**Fully**	**N/A**	**N/A**
If convertible, conversion rate	**N/A**	**N/A**	**Conversion rate to be determined by the BoE**	**Conversion rate to be determined by the BoE**	**Conversion rate to be determined by the BoE**	**N/A**	**N/A**
If convertible, mandatory or optional conversion	**N/A**	**N/A**	**Optional**	**Optional**	**Optional**	**N/A**	**N/A**
If convertible, specify instrument type convertible into	**N/A**	**N/A**	**Ordinary Shares**	**Ordinary Shares**	**Ordinary Shares**	**N/A**	**N/A**
If convertible, specify issuer of instrument it converts to	**N/A**	**N/A**	**GSI**	**GSI**	**GSI**	**N/A**	**N/A**
Write-down features	**N/A**	**Yes**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
If write-down, write-down trigger(s)	**N/A**	**Regulatory Trigger Event[4] and Resolution trigger**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
If write-down, full or partial	**N/A**	**Always fully (to $0.01 per Note)**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
If write-down, permanent or temporary	**N/A**	**Permanent**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
If temporary write-down, description of write-up mechanism	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Type of subordination (only for eligible liabilities)	**N/A**	**Contractual**	**Contractual**	**Contractual**	**Contractual**	**N/A**	**Contractual**
Ranking of the instrument in normal insolvency proceedings	**Equity**	**Perpetual unsecured securities**	**Subordinated loan facility**	**Subordinated loan facility**	**Subordinated loan facility**	**Equity**	**Subordinated loan facility**
Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	**Preference shares**	**Preference Shares**	**Unsecured and unsubord-inated debt**	**Unsecured and unsubord-inated debt**	**Unsecured and unsubord-inated debt**	**Preference shares**	**Unsecured and unsubord-inated debt**
Non-compliant transitioned features	**No**	**No**	**No**	**No**	**No**	**No**	**No**
If yes, specify non-compliant features	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Link to the full term and conditions of the instrument (signposting)[5]	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

1. First date of ordinary share issuance.
2. The original maturity date has been extended following amendment and the current maturity date is reflected in the table.
3. CoF represents Cost of Funds (the US Federal Reserve Funds Rate) and LTDS represents Long Term Debt Spread (the Goldman Sachs Weighted Average Cost of Debt).
4. Regulatory Trigger Event will be deemed to have occurred at any time where: (i) the CET1 Ratio of the GSGUKL and its consolidated subsidiaries as calculated by GSGUKL or the PRA is less than 7 per cent.; and or (ii) the CET1 Ratio of GSI as calculated by GSGUKL or the PRA is less than 7 per cent.
5. Instruments are internally issued as such no prospectus is available.

Governance Arrangements

Directors of GSI and GSIB are selected based primarily on the following criteria: (i) judgement, character, expertise, skills and knowledge useful to the oversight of the companies' businesses; (ii) diversity of viewpoints, backgrounds, experiences, and other demographics; (iii) business or other relevant experience; and (iv) the extent to which the interplay of the candidate's expertise, skills, knowledge and experience with that of other Board members will build a Board that is effective, collegial and responsive to the needs of the companies.

In selecting new directors, we consider a number of factors in seeking to develop a Board that, as a whole, reflects a range of skills, diversity, experience and expertise. It is our aim that at least 40% of the members of the Boards of the regulated entities in our UK group are women.

As of November 30, 2019, 41.67% of the members of the Boards of GSI, GSIB and GSAMI were women.

We have set out below the biographies of the members of the Boards of Directors of GSI and GSIB as of November 30, 2019, together with the positions and number of directorships they held at that date, including those at Goldman Sachs. We have excluded appointments held with organisations which do not pursue predominantly commercial objectives, such as charitable, educational and religious community organisations and counted directorships held within the same group as a single directorship in accordance with the PRA's General Organisational Requirements at 5.4-5.6 and the FCA's Senior Management Arrangements, Systems and Controls (SYSC) handbook at 4.3A.5-7.

Table 35: GSI Board of Directors

Name	Role	Background	Director-ships
J. M. D. Barroso	Non-executive director and chair	José Manuel joined the GSI Board of Directors in July 2016 as chair and a non-executive director, and also acts as an advisor to the firm. He is also a member of the GSI Board Nominations Committee. He served as President of the European Commission from 2004 to 2014 and as the Prime Minister of Portugal from 2002 to 2004, having been elected to the Portuguese Parliament in 1985 and having held various ministerial positions. José Manuel has a number of academic positions and has received various honorary degrees, prizes and decorations. On behalf of the European Union, Jose Manuel received the Nobel Peace Prize in 2012. José Manuel graduated in Law from the University of Lisbon and earned an MA in Political Science and a diploma in European studies from the University of Geneva.	**3**
S. A. Boyle	Executive director	Sally was appointed as a director of GSI in July 2018. Sally is head of Human Capital Management (HCM) in Europe, the Middle East and Africa (EMEA) and is responsible for HCM manager experience functions globally. Sally is also a member of the Supervisory Boards of Goldman Sachs Bank Europe SE, Goldman Sachs Group Europe SE and Goldman Sachs Europe SE. She is a member of the European Management Committee, Firmwide Conduct and Operational Risk Committee, EMEA Culture and Conduct Risk Committee and the Vendor Management Operating Committee. Sally joined Goldman Sachs in 1999, before which she was a partner at Mills & Reeve Solicitors. Sally is also a non-executive director of the Royal Air Force.	**1**
C. G. Cripps	Non-executive director	Catherine joined the GSI Board of Directors in April 2019 and is a member of the GSI Board Risk Committee. Catherine was formerly an Investment Director at GAM, the CEO of a multi-strategy fund of Aida Capital Limited and has held various positions in equity derivatives trading, risk management and product control at different investment banks. Catherine also currently serves as a non-executive director at each of CQS Management Ltd, the Nuclear Liabilities Fund Ltd and Merian Global Investors Ltd, assuming these roles in 2015, 2017 and 2019 respectively. Alongside her role at the Nuclear Liabilities Fund Ltd, she is a trustee of The Nuclear Trust. Catherine earned an MA in Physics from Oxford University.	**4**
R. J. Gnodde	Executive director and chief executive officer	Richard is chief executive officer of GSI having joined the GSI Board in October 2006. He has been a member of the Firmwide Management Committee since 2003 and is also chair of the European Management Committee and a member of the Firmwide Reputational Risk Committee. Richard joined Goldman Sachs in 1987. Richard serves as a trustee of the University of Cape Town Trust, on the Campaign Board of Cambridge University and is a member of the Alzheimer's Research UK Pioneers' Circle. Richard earned a BA from the University of Cape Town and an MA from Cambridge University.	**1**
Lord Grabiner QC	Non-executive director	Lord Grabiner joined the GSI Board of Directors in June 2015 and is chair of the GSI Board Remuneration and Nominations Committees and a member of the GSI Board Audit Committee. He is an experienced commercial barrister and QC and Head of Chambers at One Essex Court in the Temple, and also sits as a Deputy High Court Judge. He became a life peer in 1999 and has sat on a number of UK Parliamentary Committees in the House of Lords. Lord Grabiner also serves as non-executive director and President of The University of Law Limited and as the Master of Clare College, Cambridge University. Lord Grabiner has a LLB and LLM from the London School of Economics..	**2**
N. Harman	Non-executive director	Nigel joined the GSI Board of Directors in December 2016 and is chair of the GSI Board Audit Committee and a member of the GSI Board Risk Committee. He was formerly a partner at KPMG, acting in a number of roles including Chairman of UK Banking, Head of Banking and Head of Financial Risk Management. Nigel earned a BSc (Hons) in Economics and Accountancy from Bristol University. He is also a fellow of the Institute of Chartered Accountants.	**1**
D. W. McDonogh	Executive director	Dermot joined the GSI Board of Directors in December 2016 and is chief operating officer for EMEA. He is also the Chair of the Supervisory Boards of Goldman Sachs Bank Europe SE, Goldman Sachs Group Europe SE and Goldman Sachs Europe SE and a non-executive director of Goldman Sachs Bank USA, since August 2019. He serves on a number of the firm's committees including the European Management Committee,	**1**

		Firmwide Enterprise Risk Committee, Global Business and Operational Resilience Committee, Firmwide Risk Committee and the Firmwide Asset and Liability Committee. Additionally, Dermot co-chairs the GSI Risk Committee and the EMEA Culture and Conduct Risk Committee. He joined Goldman Sachs in 1994. Dermot earned a degree in Finance from the University of Limerick in Ireland.	
T. L. Miller OBE	Non-executive director	Therese ("Terry") Miller joined the GSI Board of Directors in July 2018 and is chair of the GSI Board Risk Committee and a member of the GSI Board Audit Committee. She served as general counsel for the London Organising Committee of the Olympic Games and Paralympic Games ("LOCOG") from 2006 to 2013. Prior to joining LOCOG, Terry was the International General Counsel of GSI. She is a non-executive director of Rothesay Life plc and the senior independent director of Galliford Try plc, as well as a trustee of the Invictus Games Foundation until December 2018. In 2019, Terry was a member of the HM Government public appointments Assessment Panel for the Court of the Bank of England Non-Executive Director appointment. She was appointed an Officer of the Order of the British Empire for her services to the London 2012 Games.	**3**
E. E. Stecher	Non-executive director	Esta joined the GSI Board of Directors in July 2018 and is a member of the GSI Remuneration Committee. She also chairs the Goldman Sachs Bank USA Board of Directors and is the Deputy Chair of the Supervisory Boards of Goldman Sachs Bank Europe SE, Goldman Sachs Group Europe SE and Goldman Sachs Europe SE, and a director of the Goldman Sachs Philanthropy Fund. She is chair of the Consent Order Oversight Sub-Committee and a member of the Firmwide Reputational Risk Committee and Firmwide Enterprise Risk Committee. Esta is a trustee emeritus of Columbia University and remains involved in other roles at Columbia University. Esta joined Goldman Sachs in 1994, prior to which she was a partner at Sullivan & Cromwell. Esta earned a BA from the University of Minnesota and a JD from Columbia Law School.	**1**
M. O. Winkelman	Non-executive director	Mark joined the GSI Board of Directors in June 2016 and is a member of the GSI Board Risk (of which he was chair until July 2019) and Remuneration Committees. He has also served as a director of The Goldman Sachs Group, Inc. since December 2014 and is chair of The Goldman Sachs Group, Inc. Risk Committee and a member of its Audit and Governance Committees. Mark previously held a number of senior roles at Goldman Sachs between 1978 and 1994, including as a member of the Management Committee, co-head of the Fixed Income Division and head of the J. Aron Division. Mark is also a trustee emeritus of the Board of Penn Medicine of the University of Pennsylvania.	**1**

Table 36: GSIB Board of Directors

Name	**Role**	**Background**	**Director-ships**
D. C. M. Bicarregui	Executive director	David joined the GSIB Board of Directors in December 2016 and is the chief financial officer of GSIB and the firm's EMEA treasurer. He serves on a number of the firm's Asset and Liability Committees including as chair of the GSI and GSIB, co-chair of the Goldman Sachs Europe SE and Goldman Sachs Bank Europe SE and as a member on the Firmwide Committees. He is also a member of the Firmwide New Activity Committee, the GSIB Management Committee, the GSI and GSIB Risk Committees and the Deposit Pricing and Acquisition Subcommittee. David joined Goldman Sachs in 1997. He serves on the board of St. George's College in Weybridge. David earned a BA (Hons) in Economics and Politics from Exeter University and an MBA from Columbia University and London Business School.	**2**
C. G. Cripps	Non-executive director	Catherine joined the GSIB Board of Directors in April 2019 and is a member of the GSIB Board Risk Committee. Catherine was formerly an Investment Director at GAM, the CEO of a multi-strategy fund of Aida Capital Limited and has held various positions in equity derivatives trading, risk management and product control at different investment banks. Catherine also currently serves as a non-executive director at each of CQS Management Ltd, the Nuclear Liabilities Fund Ltd and Merian Global Investors Ltd, assuming these roles in 2015, 2017 and 2019 respectively. Alongside her role at the Nuclear Liabilities Fund Ltd, she is a trustee of The Nuclear Trust. Catherine earned a MA in Physics from Oxford University.	**4**
Lord Grabiner QC	Non-executive director	Lord Grabiner joined the GSIB Board of Directors in March 2016 and is chair of the GSIB Board Remuneration and Nominations Committees and a member of the GSIB Board Audit Committee. He is an experienced commercial barrister and QC, and Head of Chambers at One Essex Court in the Temple, and also sits as a Deputy High Court Judge. He became a life peer in 1999 and has sat on a number of UK Parliamentary Committees in the House of Lords. Lord Grabiner also serves as non-executive director and President of The University of Law Limited and is the Master of Clare College, Cambridge University. Lord Grabiner has a LLB and LLM from the London School of Economics.	**2**
N. Harman	Non-executive director	Nigel joined the GSIB Board of Directors in December 2016 and is chair of the GSIB Board Audit Committee and a member of the GSIB Board Risk Committee. He was formerly a partner at KPMG, acting in a number of roles including Chairman of UK Banking, Head of Banking and Head of Financial Risk Management. Nigel earned a BSc (Hons) in Economics and Accountancy from Bristol University. He is also a fellow of the Institute of Chartered Accountants.	**1**
D. W. McDonogh	Executive director and chief executive officer	Dermot is chief executive officer of GSIB having joined the GSIB Board in February 2009 and is chief operating officer for EMEA. He is also the Chair of the Supervisory Boards of Goldman Sachs Bank Europe SE, Goldman Sachs Group Europe SE and Goldman Sachs Europe SE and a non-executive director of Goldman Sachs Bank USA, since August 2019. He serves on a number of the firm's committees including the European Management Committee, Firmwide Enterprise Risk Committee, Global Business and Operational Resilience Committee, Firmwide Risk Committee and the Firmwide Asset and Liability Committee. Additionally, Dermot chairs the GSIB Management Committee and co-chairs the GSIB Risk Committee and the EMEA Culture and Conduct Risk Committee. He joined Goldman Sachs in 1994. Dermot earned a degree in Finance from the University of Limerick in Ireland.	**1**
T. L. Miller OBE	Non-executive director	Therese ("Terry") Miller joined the GSIB Board of Directors in August 2015 and is chair of the GSIB Board Risk Committee and a member of the GSIB Board Audit Committee. She served as general counsel for the London Organising Committee of the Olympic Games and Paralympic Games ("LOCOG") from 2006 to 2013. Prior to joining LOCOG, Terry was the International General Counsel of GSI. She is a non-executive director	**3**

		of Rothesay Life plc and the senior independent director of Galliford Try plc, as well as a trustee of the Invictus Games Foundation until December 2018. In 2019, Terry was a member of the HM Government public appointments Assessment Panel for the Court of the Bank of England Non-Executive Director appointment. She was appointed an Officer of the Order of the British Empire for her services to the London 2012 Games.	
E. E. Stecher	Non-executive director and chair	Esta joined the GSIB Board of Directors in July 2011 and was appointed chair in October 2016. She is a member of the GSIB Board Nominations and Remuneration Committees. She also chairs the Goldman Sachs Bank USA Board of Directors and is the Deputy Chair of the Supervisory Boards of Goldman Sachs Bank Europe SE, Goldman Sachs Group Europe SE and Goldman Sachs Europe SE, and a director of the Goldman Sachs Philanthropy Fund. She is chair of the Consent Order Oversight Sub-Committee and a member of the Firmwide Reputational Risk Committee and Firmwide Enterprise Risk Committee. Esta is a trustee emeritus of Columbia University and remains involved in other roles at Columbia University. Esta joined Goldman Sachs in 1994, prior to which she was a partner at Sullivan & Cromwell. Esta earned a BA from the University of Minnesota and a JD from Columbia Law School.	**1**
D. D. Wildermuth	Non-executive director	David joined the GSIB Board of Directors in March 2012 and is a member of the GSIB Board Risk Committee. He is the firm's deputy risk officer with oversight for credit risk, debt underwriting, enterprise risk and liquidity risk. David serves as chair of the Allowance for Loan and Leases Losses Committee and the Firmwide Model Risk Control Committee and co-chair of the Firmwide Conduct and Operational Risk Committee and Global Markets Investment Committee. He is also a member of various other Firmwide committees including the Risk, Capital, Enterprise Risk and Risk Governance Committees. David joined Goldman Sachs in 1997. He also serves on the Board of Trustees of the East Harlem Scholars Academy. David earned a AB in Computer Science and Economics from Dartmouth College.	**1**

Cautionary Note on Forward-Looking Statements

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

It is possible that our actual results and financial condition may differ, possibly materially, from the anticipated results and financial condition indicated in these forward-looking statements. Important factors that could cause our actual results and financial condition to differ from those indicated in the forward-looking statements include, among others, those discussed in "Risk Factors" in Part I, Item 1A in the firm's 2019 Form 10-K.

Asset Encumbrance

Disclosure of the information required under article 443 of the CRR, including those detailed in the EU Commission Delegated Regulation on encumbered and unencumbered assets, has been made under separate disclosure on November 30, 2019.

The asset encumbrance disclosure for GSGUK, published on the firm's website adjacent to this document, can be accessed via the following link:

http://www.goldmansachs.com/disclosures/index.html

Liquidity Risk Management

Disclosure of the information required under article 435 of the CRR, including those detailed in the EBA Guidelines on liquidity risk management, has been made under separate disclosure on December 31, 2019.

The liquidity risk management disclosure for GSGUK, published on the firm's website adjacent to this document, can be accessed via the following link:

http://www.goldmansachs.com/disclosures/index.html

UK Remuneration Disclosures

Disclosure of the information required under article 450 of the CRR, including those detailed in the EBA Guidelines on remuneration policy, has been made under separate disclosure on December 31, 2019.

The remuneration disclosure for GSGUK, published on the firm's website adjacent to this document, can be accessed via the following link:

http://www.goldmansachs.com/disclosures/index.html

Glossary

- **Advanced Internal Ratings-Based (AIRB).** The AIRB approach of CRR provides a methodology for banks, subject to supervisory approval, to use various risk parameters to determine the EAD and risk-weights for regulatory capital calculations. Other risk parameters used in the determination of risk weights are each counterparty's Probability of Default (PD), Loss Given Default (LGD) and the effective maturity of the trade or portfolio of trades.

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

- **Comprehensive Risk.** The potential loss in value, due to price risk and defaults, for credit correlation positions. Comprehensive risk consists of a modelled measure which is calculated at a 99.9% confidence level over a one-year time horizon, subject to a floor which is 8% of the standardised specific risk add-on.

- **Credit Correlation Position.** A securitisation position for which all or substantially all of the value of the underlying exposures is based on the credit quality of a single company for which a two-way market exists, or indices based on such exposures for which a two-way market exists, or hedges of these positions (which are typically not securitisation positions).

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

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

- **Debt Valuation Adjustment (DVA).** An adjustment applied to debt held at fair value representing the mark-to-market of unilateral own credit risk in unsecured debt held at fair value.

- **Default.** A default is considered to have occurred when either or both of the two following events have taken place: (i) we consider that the obligor is unlikely to pay its credit obligations to us in full; or (ii) the obligor has defaulted on a payment and/or is past due more than 90 days on any material Wholesale credit obligation, 180 days on residential mortgage obligations or 120 days on other retail obligations.

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

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

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

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

- **Exposure at Default (EAD).** The exposure amount that is risk weighted for regulatory capital calculations. For on-balance-sheet assets, such as receivables and cash, EAD is generally based on the balance sheet value. For the calculation of EAD for off-balance-sheet exposures, including commitments and guarantees, an equivalent exposure amount is calculated based on the notional amount of each transaction multiplied by a credit conversion factor designed to estimate the net additions to funded exposures that would be likely to occur over a one-year horizon, assuming the obligor were to default. For substantially all of the counterparty credit risk arising from OTC derivatives, exchange-traded derivatives and securities financing transactions, internal models calculate the distribution of exposure upon which the EAD calculation is based.

- **Idiosyncratic Risk.** The risk of loss in the value of a position that arises from changes in risk factors unique to that position.

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

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

- **Loss Given Default (LGD).** An estimate of the economic loss rate if a default occurs during economic downturn conditions.

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

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

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

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

- **Probability of Default (PD).** Estimate of the probability that an obligor will default over a one-year horizon.

- **Ratings Based Approach.** Under the ratings based method, the risk weighted exposure amount of a rated securitisation position or resecuritisation position are calculated by applying to the exposure value the risk weight associated with the credit quality step as prescribed in CRR multiplied by 1.06.

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

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

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

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

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

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

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

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

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

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

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

Appendix I: Scope of Consolidation Tables

Consolidated Balance Sheet under the Regulatory Scope of Consolidation

The following three tables provide a reconciliation of GSGUK, GSI and GSIB balance sheet as of November 30, 2019 on an accounting consolidation basis to the GSGUK, GSI and GSIB balance sheet under the regulatory scope of consolidation. It also breaks down how carrying values under the scope of regulatory consolidation are allocated to the different risk frameworks laid out in Part Three of the CRR.

Table 37: Differences Between Accounting and Regulatory Scopes of Consolidation and Mapping of Financial Statement Categories with Regulatory Risk Categories

GSGUK

$ in millions						**As of November 2019**
	Carrying values as reported in published financial statements and under the scope of regulatory consolidation	**Carrying values of items**				
		Subject to the credit risk framework	**Subject to the CCR framework**	**Subject to the securitisation framework**	**Subject to the market risk framework**	**Not subject to capital requirements or subject to deduction from capital**
Assets						
Cash at bank and in hand	$ 28,626	$ 27,339	-	-	-	$ 1,287
Receivables from Broker Dealers and Customers	67,665	5,166	62,032	468	-	-
Cash Instruments Owned	109,942	6,997	-	684	106,422	-
Derivative financial instruments	681,202	-	681,202	-	679,919	-
Collateralised agreements	161,279	2,040	159,240	-	138,387	-
Fixed assets	529	138	-	-	-	391
Other Assets	17,736	5,213	12,097	-	-	425
Total assets	**$ 1,066,979**	**$ 46,893**	**$ 914,571**	**$ 1,152**	**$ 924,728**	**$ 2,103**
Liabilities						
Deposits from banks	$ 5	-	-	-	-	$ 5
Amounts due to Broker Dealers and Customers	$ 110,417	-	-	-	547	109,870
Collateralised financings	113,175	-	113,175	-	113,175	-
Cash instrument sold but not yet purchased	44,152	-	-	-	43,433	719
Derivative financial instruments	670,355	-	670,355	-	669,535	-
Other creditors	89,093	-	-	-	-	89,093
Total liabilities	**$ 1,027,197**	**-**	**$ 783,530**	**-**	**$ 826,690**	**$ 199,687**

GSI

$ in millions						As of November 2019
	Carrying values as reported in published financial statements and under the scope of regulatory consolidation	**Carrying values of items**				
		Subject to the credit risk framework	**Subject to the CCR framework**	**Subject to the securitisation framework**	**Subject to the market risk framework**	**Not subject to capital requirements or subject to deduction from capital**
Assets						
Cash at bank and in hand	$ 22,397	$ 21,126	-	-	-	$ 1,271
Receivables from Broker Dealers and Customers	59,102	800	58,302	-	-	-
Cash Instruments Owned	106,982	3,112	-	-	104,993	-
Derivative financial instruments (Assets)	681,425	-	681,425	-	680,590	-
Collateralised agreements	156,348	-	156,348	-	154,076	-
Fixed assets	409	17	-	-	-	392
Other Assets	14,855	5,081	9,395	-	-	379
Total assets	**$ 1,041,518**	**$ 30,136**	**$ 905,470**	**-**	**$ 939,659**	**$ 2,042**
Liabilities						
Deposits from banks	-	-	-	-	-	-
Amounts due to Broker Dealers & Customers	62,254	-	-	-	-	62,254
Collateralised financings	130,087	-	130,087	-	130,087	-
Cash Instruments sold but not yet purchased	44,150	-	-	-	43,444	706
Derivative financial instruments (Liabilities)	670,490	-	670,490	-	670,159	-
Other Creditors	100,289	-	-	-	-	100,289
Total liabilities	**$ 1,007,270**	**-**	**$ 800,577**	**-**	**$ 843,690**	**$ 163,249**

GSIB

$ in millions						As of November 2019
	Carrying values as reported in published financial statements and under the scope of regulatory consolidation	**Carrying values of items**				
		Subject to the credit risk framework	**Subject to the CCR framework**	**Subject to the securitisation framework**	**Subject to the market risk framework**	**Not subject to capital requirements or subject to deduction from capital**
Assets						
Cash at bank and in hand	$ 5,833	$ 5,817	-	-	-	$ 16
Receivables from Customers	8,224	4,193	3,563	468	-	-
Cash Instruments Owned	1,531	817	30	684	0	-
Derivative financial instruments (Assets)	769	-	769	-	321	-
Collateralised agreements	28,227	2,039	26,188	-	779	-
Fixed assets	0	0	-	-		-
Other Assets	828	782	-	-		46
Total assets	**$ 45,412**	**$ 13,648**	**$ 30,550**	**$ 1,152**	**$ 1,100**	**$ 62**
Liabilities						
Deposits from banks	$ 2,335	-	-	-	-	$ 2,335
Amounts due to Customers	37,619	-	-	-	-	$ 37,619
Collateralised financings	-	-	-	-	-	-
Cash Instruments sold but not yet purchased	13	-	$ 13	-	-	-
Derivative financial instruments (Liabilities)	761	-	$ 761	-	$ 272	-
Long-term subordinated loans from group undertakings	826	-	-	-	-	$ 826
Other Liabilities	631	-	-	-	-	$ 631
Total liabilities	**$ 42,185**	**-**	**$ 774**	**-**	**$ 272**	**$ 41,411**

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

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

Table 38: Main Sources of Differences Between Regulatory Exposures Amounts and Carrying Values in Financial Statements

GSGUK

$ in millions		As of November 2019		
		Items subject to		
		Credit risk framework	**CCR framework**	**Securitisation framework**
1	**Assets carrying value amount under the scope of regulatory consolidation (as per template EU LI1)**	**$ 46,893**	**$ 914,571**	**$ 1,152**
2	Liabilities carrying value amount under the regulatory scope of consolidation (as per template EU LI1)	-	(783,530)	-
3	Total net amount under the regulatory scope of consolidation	46,893	131,041	1,152
4	Off-balance-sheet amounts	8,352	-	187
5	*Differences due to credit conversion factor*	(2,185)	-	-
6	*Differences due netting of collateral, haircut and EAD modelling*	(1,105)	14,256	-
7	**Exposure amounts considered for regulatory purposes**	**$ 51,955**	**$ 145,297**	**$ 1,339**

GSI

$ in millions		As of November 2019		
		Items subject to		
		Credit risk framework	**CCR framework**	**Securitisation framework**
1	**Assets carrying value amount under the scope of regulatory consolidation (as per template EU LI1)**	**$ 30,136**	**$ 905,470**	**-**
2	Liabilities carrying value amount under the regulatory scope of consolidation (as per template EU LI1)	-	(800,577)	**-**
3	Total net amount under the regulatory scope of consolidation	30,136	104,893	**-**
4	Off-balance-sheet amounts	972	-	**-**
5	*Differences due to credit conversion factor*	-	-	**-**
6	*Differences due netting of collateral, haircut and EAD modelling*	-	38,695	**-**
7	**Exposure amounts considered for regulatory purposes**	**$ 31,108**	**$ 143,588**	**-**

GSIB

$ in millions				As of November 2019
		Items subject to		
		Credit risk framework	**CCR framework**	**Securitisation framework**
1	**Assets carrying value amount under the scope of regulatory consolidation (as per template EU LI1)**	**$ 13,648**	**$ 30,550**	**$ 1,152**
2	Liabilities carrying value amount under the regulatory scope of consolidation (as per template EU LI1)	-	(774)	-
3	Total net amount under the regulatory scope of consolidation	13,648	29,776	1,152
4	Off-balance-sheet amounts[1]	8,348	-	187
5	*Differences due to credit conversion factor*	(2,185)	-	
6	*Differences due netting of collateral, haircut and EAD modelling*	(1,100)	(28,068)	
7	**Exposure amounts considered for regulatory purposes**	**$ 18,711**	**$ 1,708**	**$ 1,339**

[1]**Off balance sheet amounts**: Off balance sheet amounts are stated gross and primarily consist of undrawn committed facilities and guarantees.

Explanations of differences between accounting and regulatory exposure amounts

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

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

Appendix II: Credit Risk Tables

The following three tables present GSGUK, GSI and GSIB's net values of on-balance-sheet and off-balance-sheet exposures by geographical areas and exposure classes as of November 30, 2019.

Table 39: Geographical Breakdown of Exposures

GSGUK

$ in millions												**As of November 2019**
		Net value										
		EMEA	Germany	United Kingdom	Other countries	**Asia**	Hong Kong	Other countries	**Americas**	United States	Other countries	**Total**
1	Central governments or central banks	$ 19,492	$ 16,471	$ 2,878	$ 142	-	-	-	$ 0	$ 0	-	$ 19,492
2	Institutions	4,722	103	2,473	2,146	2,231	1,046	1,185	5,423	5,145	278	12,376
3	Corporates	12,909	808	3,279	8,823	2,264	0	2,264	2,276	1,769	507	17,449
4	Retail	-	-	-	-	-	-	-	-	-	-	-
5	Equity	328	-	220	108	9	-	9	9	-	9	346
5a	Non-credit obligation assets	34	-	34	0	-	-	-	-	-	-	34
6	***Total IRB approach***	**$ 37,485**	**$ 17,382**	**$ 8,884**	**$ 11,219**	**$ 4,504**	**$ 1,046**	**$ 3,458**	**$ 7,708**	**$ 6,914**	**$ 794**	**$ 49,697**
7	Central governments or central banks	-	-	-	-	-	-	-	-	-	-	-
12	Institutions	351	-	9	342	11	-	11	-	-	-	362
13	Corporates	1,876	-	1,521	354	76	-	76	-	-	-	1,952
14	Retail	628	-	-	628	-	-	-	-	-	-	628
15	Secured by mortgages on immovable property	285	-	13	272	-	-	-	-	-	-	285
16	Exposures in default	-	-	-	-	-	-	-	-	-	-	-
17	Items associated with particularly high risk	1,779	-	923	856	47	-	47	-	-	-	1,826
21	Equity exposures	243	12	-	232	-	-	-	-	-	-	243
22	Other exposures	248	-	248	-	-	-	-	-	-	-	248
23	***Total standardised approach***	**$ 5,410**	**$ 12**	**$ 2,714**	**$ 2,684**	**$ 134**	**-**	**$ 134**	**-**	**-**	**-**	**$ 5,544**
24	***Total***	**$ 42,895**	**$ 17,394**	**$ 11,598**	**$ 13,903**	**$ 4,638**	**$ 1,046**	**$ 3,592**	**$ 7,708**	**$ 6,914**	**$ 794**	**$ 55,241**

GSI

$ in millions — **As of November 2019**

		Net value										
		EMEA	Germany	United Kingdom	Other countries	**Asia**	Hong Kong	Other countries	**Americas**	United States	Other countries	**Total**
1	Central governments or central banks	$ 13,950	$ 11,833	$ 1,975	$ 142	-	-	-	$ 0.35	$ 0.35	-	$ 13,950
2	Institutions	3,009	4	1,270	1,735	2,216	1,046	1,170	4,830	4,564	266	10,055
3	Corporates	3,483	22	1,336	2,125	1,127	0	1,127	347	152	195	4,957
4	Retail	-	-	-	-	-	-	-	-	-	-	-
5	Equity	328	-	220	108	9	-	9	9	-	9	346
5a	Non-credit obligation assets	33	-	33	0	-	-	-	-	-	-	33
6	***Total IRB approach***	**$ 20,803**	**$ 11,859**	**$ 4,834**	**$ 4,110**	**$ 3,352**	**$ 1,046**	**$ 2,306**	**$ 5,186**	**$ 4,716**	**$ 470**	**$ 29,341**
7	Central governments or central banks	-	-	-	-	-	-	-	-	-	-	-
12	Institutions	-	-	-	-	-	-	-	-	-	-	-
13	Corporates	546	-	546	-	-	-	-	-	-	-	546
14	Retail	-	-	-	-	-	-	-	-	-	-	-
15	Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-	-
16	Exposures in default	-	-	-	-	-	-	-	-	-	-	-
17	Items associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-
21	Equity exposures	-	-	-	-	-	-	-	-	-	-	-
22	Other exposures	248	-	248	-	-	-	-	-	-	-	248
23	***Total standardised approach***	**$ 794**	**-**	**$ 794**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**$ 794**
24	***Total***	**$ 21,597**	**$ 11,859**	**$ 5,628**	**$ 4,110**	**$ 3,352**	**$ 1,046**	**$ 2,306**	**$ 5,186**	**$ 4,716**	**$ 470**	**$ 30,135**

GSIB

$ in millions — **As of November 2019**

		Net value										
		EMEA	Germany	United Kingdom	Other countries	**Asia**	Australia	Other countries	**Americas**	United States	Other countries	**Total**
1	Central governments or central banks	$ 5,542	$ 4,638	$ 904	$ 0	-		-				$ 5,542
2	Institutions	2,435	99	1,925	411	15	5	10	593	581	12	3,043
3	Corporates	9,820	786	1,943	7,091	1,137	1,014	123	1,928	1,616	312	12,885
4	Retail	-	-	-	-	-	-	-	-	-	-	-
5	Equity	-	-	-	-	-	-	-	-	-	-	-
5a	Non-credit obligation assets	1	-	1	-	-	-	-	-	-	-	1
6	***Total IRB approach***	**$ 17,798**	**$ 5,523**	**$ 4,773**	**$ 7,502**	**$ 1,152**	**$ 1,019**	**$ 133**	**$ 2,521**	**$ 2,197**	**$ 324**	**$ 21,471**
7	Central governments or central banks	-	-	-	-	-	-	-	-	-	-	-
12	Institutions	-	-	-	-	-	-	-	-	-	-	-
13	Corporates	6	-	6	-	-	-	-	-	-	-	6
14	Retail	235	-	-	235	-	-	-	-	-	-	235
15	Secured by mortgages on immovable property	285	-	13	272	-	-	-	-	-	-	285
16	Exposures in default	-	-	-	-	-	-	-	-	-	-	-
17	Items associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-
21	Equity exposures	-	-	-	-	-	-	-	-	-	-	-
22	Other exposures	-	-	-	-	-	-	-	-	-	-	-
23	***Total standardised approach***	**$ 526**	**-**	**$ 19**	**$ 507**	**-**	**-**	**-**	**-**	**-**	**-**	**$ 526**
24	***Total***	**$ 18,324**	**$ 5,523**	**$ 4,792**	**$ 8,009**	**$ 1,152**	**$ 1,019**	**$ 133**	**$ 2,521**	**$ 2,197**	**$ 324**	**$ 21,997**

The following three tables present GSGUK, GSI and GSIB's net values of on-balance-sheet and off-balance-sheet exposures by industry or counterparty types and exposure classes as of November 30, 2019.

Table 40: Concentration of Exposures by Industry or Counterparty Types

GSGUK

$ in millions											**As of November 2019**
		Sovereigns (including Central Banks)	**Banks**	**CCPs and Exchanges**	**Other Financials**	**Real Estate**	**Manufac turing**	**Transport, Utilities & Storage**	**Retail / Wholesale trade**	**Services and other Industries**	**Total**
1	Central governments or central banks	$ 19,492	-	-	-	-	-	-	-	-	$ 19,492
2	Institutions	-	7,235	181	4,954	-	-	-	-	6	12,376
3	Corporates	-	1,116	405	8,424	992	1,615	1,949	193	2,755	17,449
4	Retail	-	-	-	-	-	-	-	-	-	-
5	Equity	-	18	-	94	-	0	5	-	229	346
5a	Non-credit obligation assets	-	-	-	-	-	-	-	-	34	34
6	***Total IRB approach***	**$ 19,492**	**$ 8,369**	**$ 586**	**$ 13,472**	**$ 992**	**$ 1,615**	**$ 1,954**	**$ 193**	**$ 3,024**	**$ 49,697**
7	Central governments or central banks	-	-	-	-	-	-	-	-	-	-
12	Institutions	-	362	-	-	-	-	-	-	-	362
13	Corporates	-	-	-	930	-	76	0	-	946	1,952
14	Retail	-	-	-	-	628	-	-	-	-	628
15	Secured by mortgages on immovable property	-	-	-	-	285	-	-	-	-	285
16	Exposures in default	-	-	-	-	-	-		-	-	-
17	Items associated with particularly high risk	-	-	-	840	38	41	130	74	703	1,826
21	Equity exposures	-	-	-	140	-	-	-	11	92	243
22	Other exposures	-	-	-	-	-	-	-	-	248	248
23	***Total standardised approach***	**-**	**$ 362**	**-**	**$ 1,910**	**$ 951**	**$ 117**	**$ 130**	**$ 85**	**$ 1,989**	**$ 5,544**
24	***Total***	**$ 19,492**	**$ 8,731**	**$ 586**	**$ 15,382**	**$ 1,943**	**$ 1,732**	**$ 2,084**	**$ 278**	**$ 5,013**	**$ 55,241**

GSI

$ in millions **As of November 2019**

		Sovereigns (including Central Banks)	Banks	CCPs and Exchanges	Other Financials	Real Estate	Manufac turing	Transport, Utilities & Storage	Retail / Wholesale trade	Services and other Industries	Total
1	Central governments or central banks	$ 13,950	-	-	-	-	-	-	-	-	$ 13,950
2	Institutions	-	6,904	180	2,971	-	-	-	-	-	10,055
3	Corporates	-	1,115	110	2,699	7	-	136	3	887	4,957
4	Retail	-	-	-	-	-	-	-	-	-	-
5	Equity	-	18	-	94	-	0	5	-	229	346
5a	Non-credit obligation assets	-	-	-	-	-	-	-	-	33	33
6	***Total IRB approach***	**$ 13,950**	**$ 8,037**	**$ 290**	**$ 5,764**	**$ 7**	**$ 0**	**$ 141**	**$ 3**	**$ 1,149**	**$ 29,341**
7	Central governments or central banks	-	-	-	-	-	-	-	-	-	-
12	Institutions	-	-	-	-	-	-	-	-	-	-
13	Corporates	-	-	-	-	-	0	0	-	546	546
14	Retail	-	-	-	-	-	-	-	-	-	-
15	Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-
16	Exposures in default	-	-	-	-	-	-	-	-	-	-
17	Items associated with particularly high risk	-	-	-	-	-	-	-	-	-	-
21	Equity exposures	-	-	-	-	-	-	-	-	-	-
22	Other exposures	-	-	-	-	-	-	-	-	248	248
23	***Total standardised approach***	**-**	**-**	**-**	**-**	**-**	**$ 0**	**$ 0**	**-**	**$ 794**	**$ 794**
24	***Total***	**$ 13,950**	**$ 8,037**	**$ 290**	**$ 5,764**	**$ 7**	**$ 0**	**$ 141**	**$ 3**	**$ 1,943**	**$ 30,135**

GSIB

$ in millions **As of November 2019**

		Sovereigns (including Central Banks)	Banks	CCPs and Exchanges	Other Financials	Real Estate	Manufac turing	Transport, Utilities & Storage	Retail / Wholesale trade	Services and other Industries	Total
1	Central governments or central banks	$ 5,542	-	-	-	-	-	-	-	-	$ 5,542
2	Institutions	-	331	-	2,706	-	-	-	-	6	3,043
3	Corporates	-	0	295	5,725	1,378	1,615	1,813	190	1,869	12,885
4	Retail	-	-	-	-	-	-	-	-	-	-
5	Equity	-	-	-	-	-	-	-	-	-	-
5a	Non-credit obligation assets	-	-	-	-		-	-	-	1	1
6	***Total IRB approach***	**$ 5,542**	**$ 331**	**$ 295**	**$ 8,431**	**$ 1,378**	**$ 1,615**	**$ 1,813**	**$ 190**	**$ 1,876**	**$ 21,471**
7	Central governments or central banks	-	-	-	-	-	-	-	-	-	-
12	Institutions	-	-	-	-	-	-	-	-	-	-
13	Corporates	-	-	-	-	-	-	-	-	6	6
14	Retail	-	-	-	-	235	-	-	-	-	235
15	Secured by mortgages on immovable property	-	-	-	-	285	-	-	-	-	285
16	Exposures in default	-	-	-	-	-	-	-	-	-	-
17	Items associated with particularly high risk	-	-	-	-	-	-	-	-	-	-
21	Equity exposures	-	-	-	-	-	-	-	-	-	-
22	Other exposures	-	-	-	-	-	-	-	-	-	-
23	***Total standardised approach***	**-**	**-**	**-**	**-**	**$ 520**	**-**	**-**	**-**	**$ 6**	**$ 526**
24	***Total***	**$ 5,542**	**$ 331**	**$ 295**	**$ 8,431**	**$ 1,898**	**$ 1,615**	**$ 1,813**	**$ 190**	**$ 1,882**	**$ 21,997**

The following three tables present GSGUK, GSI and GSIB's net values of on-balance-sheet and off-balance-sheet exposures by industry or counterparty types and exposure classes as of November 30, 2019.

Table 41: Maturity of Exposures

GSGUK

$ in millions		Net exposure value					As of November 2019
		On demand	**<= 1 Year**	**> 1 Year <= 5 Years**	**>5 years**	**No Stated Maturity**	**Total**
1	Central governments or central banks	$ 19,475	$ 0	-	$ 17	-	$ 19,492
2	Institutions	6,576	3,777	1,408	515	100	12,376
3	Corporates	918	2,915	10,379	3,207	30	17,449
4	Retail	-	-	-	-	-	-
5	Equity	-	-	0	-	346	346
5a	Non-credit obligation assets	-	34	-	-	-	34
6	***Total IRB approach***	**$ 26,969**	**$ 6,726**	**$ 11,787**	**$ 3,739**	**$ 476**	**$ 49,697**
12	Institutions	362	-	-	-	-	362
13	Corporates	-	950	79	493	430	1,952
14	Retail	-	-	-	628	-	628
15	Secured by mortgages on immovable property	-	-	-	285	-	285
16	Exposures in default	-	-	-	-	-	-
17	Items associated with particularly high risk	-	-	-	-	1,826	1,826
21	Equity exposures	-	-	-	-	243	243
22	Other exposures	-	248	-	-	-	248
23	***Total standardised approach***	**$ 362**	**$ 1,198**	**$ 79**	**$ 1,406**	**$ 2,499**	**$ 5,544**
24	***Total***	**$ 27,331**	**$ 7,924**	**$ 11,866**	**$ 5,145**	**$ 2,975**	**$ 55,241**

GSI

$ in millions		Net exposure value				As of November 2019	
		On demand	**<= 1 Year**	**> 1 Year <= 5 Years**	**>5 years**	**No Stated Maturity**	**Total**
1	Central governments or central banks	$ 13,933	-	-	$ 17	-	$ 13,950
2	Institutions	6,301	3,320	15	319	100	10,055
3	Corporates	917	1,880	1,995	135	30	4,957
4	Retail	-	-	-	-	-	-
5	Equity	-	-	-	-	346	346
5a	Non-credit obligation assets	-	33	-	-	-	33
6	***Total IRB approach***	**$ 21,151**	**$ 5,233**	**$ 2,010**	**$ 471**	**$ 476**	**$ 29,341**
12	Institutions	-	-	-	-	-	-
13	Corporates	-	546	-	-	-	546
14	Retail	-	-	-	-	-	-
15	Secured by mortgages on immovable property	-	-	-	-	-	-
16	Exposures in default	-	-	-	-	-	-
17	Items associated with particularly high risk	-	-	-	-	-	-
21	Equity exposures	-	-	-	-	-	-
22	Other exposures	-	248	-	-	-	248
23	***Total standardised approach***	**-**	**$ 794**	**-**	**-**	**-**	**$ 794**
24	***Total***	**$ 21,151**	**$ 6,027**	**$ 2,010**	**$ 471**	**$ 476**	**$ 30,135**

GSIB

$ in millions		As of November 2019					
		Net exposure value					
		On demand	<= 1 Year	> 1 Year <= 5 Years	>5 years	No Stated Maturity	Total
1	Central governments or central banks	$ 5,542	$ 0				$ 5,542
2	Institutions	275	1,179	1,393	196		3,043
3	Corporates	1	1,035	8,777	3,072		12,885
4	Retail						
5	Equity			0			0
5a	Non-credit obligation assets		1				1
6	***Total IRB approach***	**$ 5,818**	**$ 2,215**	**$ 10,170**	**$ 3,268**	**-**	**$ 21,471**
12	Institutions						
13	Corporates		6				6
14	Retail				235		235
15	Secured by mortgages on immovable property				285		285
16	Exposures in default						
17	Items associated with particularly high risk						
21	Equity exposures						
22	Other exposures						
23	***Total standardised approach***	**-**	**$ 6**	**-**	**$ 520**	**-**	**$ 526**
24	***Total***	**$ 5,818**	**$ 2,221**	**$ 10,170**	**$ 3,788**	**-**	**$ 21,997**

Table 42: Credit Quality of Exposures by Exposure Class and Instrument

GSGUK

$ in millions								**As of November 2019**
		Gross carrying values of						
		Defaulted exposures[1]	**Non-defaulted exposures**	**Specific credit risk adjustment**	**General credit risk adjustment**	**Accumulated write-offs**	**Credit risk adjustment charges of the period**	**Net values**
1	Central governments or central banks	-	$ 19,492	-	-	-	-	$ 19,492
2	Institutions	99	12,280	3	-	-	-	12,376
3	Corporates	30	17,441	22	-	-	-	17,449
3a	Non-credit obligation assets	-	34	-	-	-	-	34
14	Equity	-	346	-	-	-	-	346
15	***Total IRB approach***	**$ 129**	**$ 49,593**	**$ 25**	**-**	**-**	**-**	**$ 49,697**
16	Central governments or central banks	-	-	-	-	-	-	-
21	Institutions	-	362	-	-	-	-	362
22	Corporates	-	1,952	-	-	-	-	1,952
24	Retail	-	628	-	-	-	-	628
26	Secured by mortgages on immovable property	-	285	-	-	-	-	285
28	Exposures in default	-	-	-	-	-	-	-
29	Items associated with particularly high risk	-	1,826	-	-	-	-	1,826
33	Equity exposures	-	243	-	-	-	-	243
34	Other exposures	-	248	-	-	-	-	248
35	***Total standardised approach***	**-**	**$ 5,544**	**-**	**-**	**-**	**-**	**$ 5,544**
36	***Total***	**$ 129**	**$ 55,137**	**$ 25**	**-**	**-**	**-**	**$ 55,241**
37	Of which: Loans	37	7,823	21	-	-	-	7,839
38	Of which: Debt securities	93	2,507	-	-	-	-	2,600
39	Of which: Off- balance-sheet exposures	-	8,352	4	-	-	-	8,348

GSI

$ in millions								**As of November 2019**
		Gross carrying values of						
		Defaulted exposures[1]	**Non-defaulted exposures**	**Specific credit risk adjustment**	**General credit risk adjustment**	**Accumulated write-offs**	**Credit risk adjustment charges of the period**	**Net values**
1	Central governments or central banks	-	$ 13,950	-	-	-	-	$ 13,950
2	Institutions	99	9,956	-	-	-	-	10,055
3	Corporates	30	4,927	-	-	-	-	4,957
3a	Non-credit obligation assets	-	33	-	-	-	-	33
14	Equity	-	346	-	-	-	-	346
15	***Total IRB approach***	**$ 129**	**$ 29,212**	**-**	**-**	**-**	**-**	**$ 29,341**
16	Central governments or central banks	-		-	-	-	-	-
21	Institutions	-		-	-	-	-	-
22	Corporates	-	546	-	-	-	-	546
24	Retail	-	-	-	-	-	-	-
26	Secured by mortgages on immovable property	-	-	-	-	-	-	-
28	Exposures in default	-	-	-	-	-	-	-
29	Items associated with particularly high risk	-	-	-	-	-	-	-
33	Equity exposures	-	-	-	-	-	-	-
34	Other exposures	-	248	-	-	-	-	248
35	***Total standardised approach***	**-**	**$ 794**	**-**	**-**	**-**	**-**	**$ 794**
36	***Total***	**$ 129**	**$ 30,006**	**-**	**-**	**-**	**-**	**$ 30,135**
37	Of which: Loans	37	1,521	-	-	-	-	1,558
38	Of which: Debt securities	93	1,068	-	-	-	-	1,161
39	Of which: Off- balance-sheet exposures	-	-	-	-	-	-	-

GSIB

$ in millions								As of November 2019
		Gross carrying values of						
		Defaulted exposures[1]	**Non-defaulted exposures**	**Specific credit risk adjustment**	**General credit risk adjustment**	**Accumu-lated write-offs**	**Credit risk adjustment charges of the period**	**Net values**
1	Central governments or central banks	-	$ 5,542	-	-	-		$ 5,542
2	Institutions	-	3,046	3	-	-		3,043
3	Corporates	-	12,907	22	-	-		12,885
3a	Non-credit obligation assets	-	1	-	-	-		1
14	Equity	-	-	-	-	-		-
15	***Total IRB approach***	**-**	**$ 21,496**	**$ 25**	**-**	**-**	**-**	**$ 21,471**
16	Central governments or central banks	-	-	-	-	-		-
21	Institutions	-	-	-	-	-		-
22	Corporates	-	6	-	-	-	-	6
24	Retail	-	235	-	-	-	-	235
26	Secured by mortgages on immovable property	-	285	-	-	-	-	285
28	Exposures in default	-	-	-	-	-	-	-
29	Items associated with particularly high risk	-	-	-	-	-	-	-
33	Equity exposures	-	-	-	-	-	-	-
34	Other exposures	-	-	-	-	-	-	-
35	***Total standardised approach***	**-**	**$ 526**	**-**	**-**	**-**	**-**	**$ 526**
36	***Total***	**-**	**$ 22,022**	**$ 25**	**-**	**-**	**-**	**$ 21,997**
37	Of which: Loans	-	6,981	21	-	-	-	6,960
38	Of which: Debt securities	-	817	-	-	-	-	817
39	Of which: Off- balance-sheet exposures	-	8,352	4	-	-	-	8,348

[1]The defaulted exposures quantified in the tables above include positions where the obligor defaulted prior to our purchase of the position.

Table 43: Credit Quality of Exposures by Industry or Counterparty Types

GSGUK

$ in millions								As of November 2019
		Gross carrying values of						
		Defaulted exposures	**Non-defaulted exposures**	**Specific credit risk adjustment**	**General credit risk adjustment**	**Accumulated write-offs**	**Credit risk adjustment charges of the period**	**Net values**
1	Central governments or central banks	-	$ 19,492	-	-	-	-	$ 19,492
2	Services and other Industries	24	4,994	5	-	-	-	5,013
3	Banks	99	8,632	0	-	-	-	8,731
4	Other Financials	6	15,388	12	-	-	-	15,382
5	CCPs and Exchanges	-	586	-	-	-	-	586
6	Manufacturing	0	1,734	2	-	-	-	1,732
7	Transport, Utilities & Storage	0	2,087	3	-	-	-	2,084
8	Retail / Wholesale trade	-	280	2	-	-	-	278
9	Real Estate	-	1,944	1	-	-	-	1,943
10	***Total***	**$ 129**	**$ 55,137**	**$ 25**	**-**	**-**	**-**	**$ 55,241**

GSI

$ in millions								As of November 2019
		Gross carrying values of						
		Defaulted exposures	**Non-defaulted exposures**	**Specific credit risk adjustment**	**General credit risk adjustment**	**Accumulated write-offs**	**Credit risk adjustment charges of the period**	**Net values**
1	Central governments or central banks	-	$ 13,950	-	-	-	-	$ 13,950
2	Services and other Industries	24	1,918	-	-	-	-	1,942
3	Banks	99	7,938	-	-	-	-	8,037
4	Other Financials	6	5,758	-	-	-	-	5,764
5	CCPs and Exchanges	-	291	-	-	-	-	291
6	Manufacturing	0	0	-	-	-	-	0
7	Transport, Utilities & Storage	0	141	-	-	-	-	141
8	Retail / Wholesale trade	-	3	-	-	-	-	3
9	Real Estate	-	7	-	-	-	-	7
10	***Total***	**$ 129**	**$ 30,006**	**-**	**-**	**-**	**-**	**$ 30,135**

GSIB

$ in millions								As of November 2019
		Gross carrying values of						
		Defaulted exposures	**Non-defaulted exposures**	**Specific credit risk adjustment**	**General credit risk adjustment**	**Accumulated write-offs**	**Credit risk adjustment charges of the period**	**Net values**
1	Central governments or central banks	-	$ 5,542	-	-	-		$ 5,542
2	Services and other Industries	-	1,887	5	-	-		1,882
3	Banks	-	331	0	-	-		331
4	Other Financials	-	8,443	12	-	-		8,431
5	CCPs and Exchanges	-	295	-	-	-		295
6	Manufacturing	-	1,617	2	-	-		1,615
7	Transport, Utilities & Storage	-	1,816	3	-	-		1,813
8	Retail / Wholesale trade	-	192	2	-	-		190
9	Real Estate	-	1,899	1	-	-		1,898
10	***Total***	**-**	**$ 22,022**	**$ 25**	**-**	**-**	**-**	**$ 21,997**

Table 44: Credit Quality of Exposures by Geography

GSGUK

$ in millions		Gross carrying values of						As of November 2019
		Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustment	General credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges of the period	Net values
1	EMEA	$ 104	$ 42,812	$ 21	-	-	-	$ 42,895
2	Germany	-	17,396	2	-	-	-	17,394
3	United Kingdom	0	11,603	5	-	-	-	11,598
4	Other Countries	104	13,813	14	-	-	-	13,903
5	Asia	19	4,620	1	-	-	-	4,638
6	Hong Kong	-	1,046	-	-	-	-	1,046
7	Other Countries	19	3,574	1	-	-	-	3,592
8	Americas	6	7,705	3	-	-	-	7,708
9	United States	5	6,909	0	-	-	-	6,914
10	Other Countries	1	796	3	-	-	-	794
12	***Total***	**$ 129**	**$ 55,137**	**$ 25**	**-**	**-**	**-**	**$ 55,241**

GSI

$ in millions		Gross carrying values of						As of November 2019
		Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustment	General credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges of the period	Net values
1	EMEA	$ 104	$ 21,493	-	-	-	-	$ 21,597
2	Germany	-	11,859	-	-	-	-	11,859
3	United Kingdom	0	5,628	-	-	-	-	5,628
4	Other Countries	104	4,006	-	-	-	-	4,110
5	Asia	19	3,333	-	-	-	-	3,352
6	Hong Kong	-	1,046	-	-	-	-	1,046
7	Other Countries	19	2,287	-	-	-	-	2,306
8	Americas	6	5,180	-	-	-	-	5,186
9	United States	5	4,711	-	-	-	-	4,716
10	Other Countries	1	469	-	-	-	-	470
12	***Total***	**$ 129**	**$ 30,006**	**-**	**-**	**-**	**-**	**$ 30,135**

GSIB

$ in millions		Gross carrying values of						As of November 2019
		Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustment	General credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges of the period	Net values
1	EMEA	-	$ 18,345	$ 21	-	-		$ 18,324
2	Germany	-	5,525	2	-	-		5,523
3	United Kingdom	-	4,797	5	-	-		4,792
4	Other Countries	-	8,023	14	-	-		8,009
5	Asia	-	1,153	1	-	-		1,152
6	Australia	-	1,019	-	-	-		1,019
7	Other Countries	-	134	1	-	-		133
8	Americas	-	2,524	3	-	-		2,521
9	United States	-	2,197	0	-	-		2,197
10	Other Countries	-	327	3	-	-		324
12	***Total***	**-**	**$ 22,022**	**$ 25**	**-**	**-**	**-**	**$ 21,997**

Table 45: IRB (Equity Exposures Subject to the Simple Risk - Weighted Approach)[1]

GSGUK

$ in millions						As of November 2019
	Equities under the simple risk-weighted approach					
Categories	**On BS amount**	**Off BS amount**	**Risk Weight**	**Exposure Amount**	**RWAs**	**Capital Requirements**
Exchange-traded equity exposures	$ 167	-	290%	$ 167	$ 485	$ 39
Other Equity Exposures	$ 180	-	370%	$ 180	$ 664	$ 53
Total	$ 347			$ 347	$ 1,149	$ 92

GSI

$ in millions						As of November 2019
	Equities under the simple risk-weighted approach					
Categories	**On BS amount**	**Off BS amount**	**Risk Weight**	**Exposure Amount**	**RWAs**	**Capital Requirements**
Exchange-traded equity exposures	$ 167	-	290%	$ 167	$ 485	$ 39
Other Equity Exposures	$ 180	-	370%	$ 180	$ 664	$ 53
Total	$ 347			$ 347	$ 1,149	$ 92

1. GSGUK and its subsidiaries do not have private equity exposures which are risk-weighted at 190%.

Table 46: IRB Approach - Credit Risk Exposures by Exposure Class and PD Range

GSGUK

$ in millions												As of November 2019
PD Scale	**Original on - BS gross exposures**	**Off-BS exposures pre-CCF**	**Average CCF**	**EAD post CRM and post CCF**	**Average PD**	**Number of Obligors**	**Average LGD**	**Average Maturity**	**RWAs**	**RWA density**	**EL**	**Value Adjustment s and provisions**
Central governments or central banks												
0.00 to <0.15	$ 19,475	-	-	$ 19,475	0.00011	9	0.5000	1.0000	$ 872	4%	$ 1	
0.15 to <0.25	-	-	-	-	-	-	-	-	-	0%	-	
0.25 to <0.50	-	-	-	-	-	-	-	-	-	0%	-	
0.50 to <0.75	0	-	-	0	0.00664	3	0.5000	1.0000	0	71%	0	
0.75 to <2.50	-	-	-	-	-	-	-	-	-	0%	-	
2.50 to <10.00	-	-	-	-	-	-	-	-	-	0%	-	
10.00 to <100.00	17	-	-	17	0.23780	4	0.5000	1.0027	47	274%	2	
100.00 (Default)	-	-	-	0	-	1	-	-	-	0%	-	
Subtotal	$ 19,492	-	-	$ 19,492	0.00032	17	0.5000	1.0000	$ 919	5%	$ 3	0
Institutions												
0.00 to <0.15	$ 9,875	$ 1,043	$ 1	$ 10,831	0.00053	90	0.5994	1.1062	$ 1,962	18%	$ 3	
0.15 to <0.25	1,216	198	1	1,368	0.00171	49	0.6638	1.2569	808	59%	$ 2	
0.25 to <0.50	101	-	-	101	0.00260	15	0.6549	1.0012	73	73%	$ 0	
0.50 to <0.75	129	-	-	129	0.00669	12	0.6798	1.0000	162	126%	$ 1	
0.75 to <2.50	26	4	1	28	0.01996	7	0.6516	1.3532	54	190%	$ 0	
2.50 to <10.00	200	-	-	200	0.07140	34	0.6120	1.9263	546	272%	$ 9	
10.00 to <100.00	199	-	-	200	0.23780	109	0.6604	1.0010	804	403%	$ 31	
100.00 (Default)	99	-	-	99	1.00000	12	0.5634	1.0027	149	0%	-	
Subtotal	$ 11,845	$ 1,245	$ 1	$ 12,956	0.01319	328	0.6084	1.1310	$ 4,558	35%	$ 46	$ 3
Corporates												
0.00 to <0.15	$ 2,206	$ 3,124	$ 1	$ 4,267	0.00052	218	0.6141	2.1852	$ 1,287	30%	$ 1	
0.15 to <0.25	2,874	1,087	1	3,610	0.00174	88	0.5837	2.3880	2,357	65%	4	
0.25 to <0.50	491	752	1	1,089	0.00260	33	0.5881	3.9657	1,159	106%	2	
0.50 to <0.75	437	781	1	1,154	0.00631	52	0.6320	2.7654	1,540	134%	5	
0.75 to <2.50	879	184	1	986	0.01929	62	0.5482	3.6778	1,807	183%	10	
2.50 to <10.00	2,720	946	1	3,239	0.07456	139	0.5701	3.2067	8,587	265%	139	
10.00 to <100.00	1,131	233	1	1,296	0.23780	91	0.5301	3.6545	4,266	329%	148	
100.00 (Default)	30	-	-	30	1.00000	7	0.5055	1.0027	45	150%	-	
Subtotal	$ 10,768	$ 7,107	$ 1	$ 15,671	0.03939	690	0.5862	2.8226	$ 21,048	134%	$ 309	$ 22
Total (all portfolios)	**$ 42,105**	**$ 8,352**	**-**	**$ 48,119**	**0.01651**	**1,035**	**0.5573**	**1.6288**	**$ 26,525**	**55%**	**$ 358**	**$ 25**

GSI

$ in millions												As of November 2019
PD Scale	**Original on - BS gross exposures**	**Off-BS exposures pre-CCF**	**Average CCF**	**EAD post CRM and post CCF**	**Average PD**	**Number of Obligors**	**Average LGD**	**Average Maturity**	**RWAs**	**RWA density**	**EL**	**Value Adjustments and provisions**
Central governments or central banks												
0.00 to <0.15	$ 13,933	-	-	$ 13,933	0.00010	4	0.5000	1.0000	$ 619	4%	$ 1	
0.15 to <0.25	-	-	-	-	-	-	-	-	-	0%	-	
0.25 to <0.50	-	-	-	-	-	-	-	-	-	0%	-	
0.50 to <0.75	-	-	-	-	-	-	-	-	-	0%	-	
0.75 to <2.50	-	-	-	-	-	-	-	-	-	0%	-	
2.50 to <10.00	-	-	-	-	-	-	-	-	-	0%	-	
10.00 to <100.00	17	-	-	17	0.23780	2	0.5000	1.0027	47	274%	2	
100.00 (Default)	-	-	-	-	-	-	-	-	-	0%	-	
Subtotal	$ 13,950	-	-	$ 13,950	0.00039	6	0.5000	1.0000	$ 666	5%	$ 3	-
Institutions												
0.00 to <0.15	$ 8,160	-	-	$ 8,160	0.00051	40	0.5906	1.0000	$ 1,749	21%	$ 3	
0.15 to <0.25	1,209	-	-	1,209	0.00171	36	0.6640	1.0002	679	56%	1	
0.25 to <0.50	101	-	-	101	0.00260	12	0.6549	1.0012	74	73%	0	
0.50 to <0.75	129	-	-	129	0.00669	12	0.6798	1.0000	162	126%	1	
0.75 to <2.50	25	-	-	25	0.02042	5	0.6505	1.0000	46	182%	0	
2.50 to <10.00	140	-	-	140	0.07723	31	0.6596	1.0027	401	287%	7	
10.00 to <100.00	192	-	-	192	0.23780	104	0.6602	1.0010	775	404%	30	
100.00 (Default)	99	-	-	99	1.00000	12	0.5634	1.0027	149	150%	-	
Subtotal	$ 10,055	-	-	$ 10,055	0.01628	252	0.6034	1.0002	$ 4,035	40%	$ 42	-
Corporates												
0.00 to <0.15	$ 1,760	-	-	$ 1,760	0.00051	120	0.6530	1.0003	$ 349	20%	$ 0	
0.15 to <0.25	1,153	-	-	1,153	0.00170	33	0.6327	1.0000	614	53%	1	
0.25 to <0.50	61	-	-	95	0.00260	14	0.6510	1.2585	65	69%	0	
0.50 to <0.75	225	-	-	359	0.00638	12	0.6472	1.6723	421	117%	2	
0.75 to <2.50	128	-	-	128	0.01957	7	0.6265	2.8131	237	185%	2	
2.50 to <10.00	608	-	-	1,412	0.08556	10	0.6366	1.8512	4,134	293%	77	
10.00 to <100.00	992	-	-	992	0.23780	15	0.5321	3.6843	3,505	353%	126	
100.00 (Default)	30	-	-	30	1.00000	7	0.5055	1.0027	45	150%	-	
Subtotal	$ 4,957	-	-	$ 5,929	0.06654	218	0.62321	1.73584	$ 9,370	158%	$ 208	-
Total (all portfolios)	**28,962**	**-**	**-**	**29,934**	**0.01883**	**476**	**0.55914**	**1.14580**	**14,071**	47%	**253**	**-**

GSIB

$ in millions — **As of November 2019**

PD Scale	Original on - BS gross exposures	Off-BS exposures pre-CCF	Average CCF	EAD post CRM and post CCF	Average PD	Number of Obligors	Average LGD	Average Maturity	RWAs	RWA density	EL	Value Adjustments and provisions
Central governments or central banks												
0.00 to <0.15	$ 5,542	-	100.00%	$ 5,542	0.00013	5	0.50000	1.00000	$ 253	5%	$ 0	
0.15 to <0.25	-	-	100.00%	-	-	-	-	-	-	0%	-	
0.25 to <0.50	-	-	100.00%	-	-	-	-	-	-	0%	-	
0.50 to <0.75	0	-	100.00%	0	0.00664	3	0.50000	1.00000	0	71%	0	
0.75 to <2.50	-	-	100.00%	-	-	-	-	-	-	0%	-	
2.50 to <10.00	-	-	100.00%	-	-	-	-	-	-	0%	-	
10.00 to <100.00	0	-	100.00%	0	0.23780	2	0.50000	1.00000	0	272%	0	
100.00 (Default)	-	-	100.00%	0	-	1	-	-	-	-	-	
Subtotal	$ 5,542	-	100.00%	$ 5,542	0.00014	11	0.50000	1.00000	$ 253	5%	$ 0	0
Institutions												
0.00 to <0.15	$ 1,715	$ 1,043	96.47%	$ 2,670	0.00057	50	0.62628	1.43065	$ 213	8%	$ 0	
0.15 to <0.25	6	198	77.94%	159	0.00171	13	0.66213	3.20795	129	81%	0	
0.25 to <0.50	0	-	100.00%	0	0.00260	3	0.65874	1.00000	0	73%	0	
0.50 to <0.75	-	-	-	-	-	-			-	0%	-	
0.75 to <2.50	0	4	66.21%	3	0.01560	2	0.66157	4.68406	7	264%	0	
2.50 to <10.00	61	-	100.00%	61	0.05800	3	0.50266	4.04880	146	240%	2	
10.00 to <100.00	8	-	100.00%	8	0.23780	5	0.66380	1.00000	29	369%	1	
100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
Subtotal	$ 1,790	$ 1,245	95.25%	$ 2,901	0.00250	76	0.62579	1.58478	$ 524	18%	$ 3	3
Corporates												
0.00 to <0.15	$ 446	$ 3,124	70.81%	$ 2,507	0.00053	98	0.58687	3.01722	$ 939	37%	$ 1	
0.15 to <0.25	1,722	1,087	87.50%	2,457	0.00176	55	0.56080	3.03921	1,743	71%	2	
0.25 to <0.50	430	752	84.10%	994	0.00260	19	0.58206	4.22415	1,094	110%	2	
0.50 to <0.75	212	781	79.95%	794	0.00628	40	0.62518	3.26053	1,119	141%	3	
0.75 to <2.50	750	184	91.79%	858	0.01925	55	0.53648	3.80703	1,570	183%	9	
2.50 to <10.00	2,112	946	59.75%	1,827	0.06605	129	0.51867	4.25410	4,452	244%	62	
10.00 to <100.00	139	233	81.83%	304	0.23780	76	0.52386	3.55714	761	250%	23	
100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
Subtotal	$ 5,811	$ 7,107	75.55%	$ 9,741	0.02287	472	0.56373	3.48421	$ 11,678	120%	$ 102	22
Total (all portfolios)	**$ 13,143**	**$ 8,352**	**84.60%**	**$ 18,184**	**0.01269**	**559**	**0.55421**	**2.42401**	**$ 12,455**	**68%**	**$ 105**	**$ 25**

Table 47: IRB Approach - Backtesting of PD per Exposure Class

GSGUK

	PD Range		External rating equivalent		Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate (5 years)
Exposure class	Min	Max	Min	Max			Beginning of the year	End of the year			
Central governments or central banks	0.01%	23.78%	AAA	CCC	0.03%	11.56%	30	17	-	-	0.00%
Institutions	0.03%	23.78%	AAA	CCC	1.77%	4.07%	540	328	4	4	0.30%
Corporates	0.03%	23.78%	AAA	CCC	3.29%	9.51%	456	690	13	12	1.37%

GSI

	PD Range		External rating equivalent		Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate (5 years)
Exposure class	Min	Max	Min	Max			Beginning of the year	End of the year			
Central governments or central banks	0.01%	23.78%	AAA	CCC	0.04%	4.77%	17	6	-	-	0.00%
Institutions	0.03%	23.78%	AAA	CCC	2.39%	4.94%	478	252	4	4	0.35%
Corporates	0.03%	23.78%	AAA	CCC	4.29%	12.30%	363	218	12	11	1.80%

GSIB

	PD Range		External rating equivalent		Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate (5 years)
Exposure class	Min	Max	Min	Max			Beginning of the year	End of the year			
Central governments or central banks	0.01%	23.78%	AAA	CCC	0.01%	14.96%	13	11	-	-	0.00%
Institutions	0.03%	23.78%	AAA	CCC	0.26%	2.20%	62	76	-	-	0.00%
Corporates	0.03%	23.78%	AAA	CCC	2.35%	7.28%	93	472	1	1	0.35%

Table 48: Exposure-Weighted Average LGD and PD by Geography

GSGUK

		LGD			PD		
		EMEA	**Americas**	**Asia**	**EMEA**	**Americas**	**Asia**
1	Central governments or central banks	50.00%	50.01%	50.28%	0.06%	0.43%	0.11%
2	Institutions	65.76%	57.28%	65.51%	0.88%	0.24%	0.15%
3	Corporates	63.91%	57.97%	64.05%	2.58%	1.33%	0.36%

GSI

		LGD			PD		
		EMEA	**Americas**	**Asia**	**EMEA**	**Americas**	**Asia**
1	Central governments or central banks	50.00%	50.01%	50.28%	0.07%	0.42%	0.11%
2	Institutions	65.82%	57.37%	65.51%	0.95%	0.25%	0.15%
3	Corporates	65.67%	58.29%	65.64%	2.57%	1.30%	0.35%

GSIB

		LGD			PD		
		EMEA	**Americas**	**Asia**	**EMEA**	**Americas**	**Asia**
1	Central governments or central banks	50.00%	50.00%	50.00%	0.01%	21.08%	0.60%
2	Institutions	65.26%	53.66%	65.35%	0.21%	0.06%	0.06%
3	Corporates	58.00%	53.21%	52.71%	2.61%	1.77%	0.41%

Table 49: Standardised Approach - Credit Risk Exposure and CRM Effects

GSGUK

$ in millions — **As of November 2019**

	Exposure classes	Exposures before CCF and CRM		Exposures post CCF and CRM		RWAs and RWA density	
		On-balance-sheet amount	**Off-balance-sheet amount**	**On-balance-sheet amount**	**Off-balance-sheet amount**	**RWAs**	**RWA density**
1	Central governments or central banks	-	-	-	-	-	-
6	Institutions	362	-	362	-	72	20%
7	Corporates	1,952	-	1,952	-	1,942	100%
8	Retail	628	-	628	-	334	53%
9	Secured by mortgages on immovable property	285	-	285	-	100	35%
10	Exposures in default	-	-	-	-	-	-
11	Higher-risk categories	1,826	-	1,826	-	2,740	150%
15	Equity	243	-	243	-	243	100%
16	Other items	248	-	248	-	600	242%
17	**Total**	**$ 5,544**	**-**	**$ 5,544**	**-**	**$ 6,031**	**109%**

GSI

$ in millions — **As of November 2019**

	Exposure classes	Exposures before CCF and CRM		Exposures post CCF and CRM		RWAs and RWA density	
		On-balance-sheet amount	**Off-balance-sheet amount**	**On-balance-sheet amount**	**Off-balance-sheet amount**	**RWAs**	**RWA density**
1	Central governments or central banks	-	-	-	-	-	-
6	Institutions	-	-	-	-	-	-
7	Corporates	546	-	546	-	546	100%
8	Retail	-	-	-	-	-	-
9	Secured by mortgages on immovable property	-	-	-	-	-	-
10	Exposures in default	-	-	-	-	-	-
11	Higher-risk categories	-	-	-	-	-	-
15	Equity	-	-	-	-	-	-
16	Other items	248	-	248	-	600	242%
17	**Total**	**$ 794**	**-**	**$ 794**	**-**	**$ 1,146**	**144%**

GSIB

$ in millions — **As of November 2019**

	Exposure classes	Exposures before CCF and CRM		Exposures post CCF and CRM		RWAs and RWA density	
		On-balance-sheet amount	**Off-balance-sheet amount**	**On-balance-sheet amount**	**Off-balance-sheet amount**	**RWAs**	**RWA density**
1	Central governments or central banks	-	-	-	-	-	-
6	Institutions	-	-	-	-	-	-
7	Corporates	5	-	5	-	5	100%
8	Retail	235	-	235	-	176	75%
9	Secured by mortgages on immovable property	285	-	285	-	100	35%
10	Exposures in default	-	-	-	-	-	-
11	Higher-risk categories	-	-	-	-	-	-
15	Equity	-	-	-	-	-	-
16	Other items	-	-	-	-	-	-
17	**Total**	**$ 526**	**-**	**$ 525**	**-**	**$ 281**	**54%**

Table 50: Standardised Approach

GSGUK

$ in millions — **As of November 2019**

		Risk weight									
	Exposure classes	**0%**	**20%**	**35%**	**50%**	**75%**	**100%**	**150%**	**250%**	**Total**	**Of which unrated**
1	Central governments or central banks	-	-	-	-	-	-	-	-	-	-
6	Institutions	-	362	-	-	-	-	-	-	362	-
7	Corporates	-	-	-	18	-	1,934	-	-	1,952	1,952
8	Retail	-	-	$ 343	-	284	-	-	-	628	235
9	Secured by mortgages on immovable property	-	-	285	-	-	-	-	-	285	285
10	Exposures in default	-	-	-	-	-	-	-	-	-	-
11	Higher-risk categories	-	-	-	-	-	-	1,826	-	1,826	1,826
15	Equity	-	-	-	-	-	243	-	-	243	243
16	Other items	-	-	-	-	-	13	-	235	248	248
17	**Total**	**-**	**$ 362**	**$ 628**	**$ 18**	**$ 284**	**$ 2,190**	**$ 1,826**	**$ 235**	**$ 5,544**	**$ 4,789**

GSI

$ in millions — **As of November 2019**

		Risk weight									
	Exposure classes	**0%**	**20%**	**35%**	**50%**	**75%**	**100%**	**150%**	**250%**	**Total**	**Of which unrated**
1	Central governments or central banks	-	-	-	-	-	-	-	-	-	-
6	Institutions	-	-	-	-	-	-	-	-	-	-
7	Corporates	-	-	-	-	-	546	-	-	546	546
8	Retail	-	-	-	-	-	-	-	-	-	-
9	Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-
10	Exposures in default	-	-	-	-	-	-	-	-	-	-
11	Higher-risk categories	-	-	-	-	-	-	-	-	-	-
15	Equity	-	-	-	-	-	-	-	-	-	-
16	Other items	-	-	-	-	-	13	-	235	248	248
17	**Total**	**-**	**-**	**-**	**-**	**-**	**$ 559**	**-**	**$ 235**	**$ 794**	**$ 794**

GSIB

$ in millions — **As of November 2019**

		Risk weight									
	Exposure classes	**0%**	**20%**	**35%**	**50%**	**75%**	**100%**	**150%**	**250%**	**Total**	**Of which unrated**
1	Central governments or central banks	-	-	-	-	-	-	-	-	-	-
6	Institutions	-	-	-	-	-	-	-	-	-	-
7	Corporates	-	-	-	-		6	-	-	6	6
8	Retail	-	-	-	-	235	-	-	-	235	235
9	Secured by mortgages on immovable property	-	-	285			-	-	-	285	285
10	Exposures in default	-	-	-	-	-	-	-	-	-	-
11	Higher-risk categories	-	-	-	-	-	-	-	-	-	-
15	Equity	-	-	-	-	-	-	-	-	-	-
16	Other items	-	-	-	-	-	-	-	-	-	-
17	**Total**	**-**	**-**	**$ 285**	**-**	**$ 235**	**$ 6**	**-**	**-**	**$ 526**	**$ 526**

Appendix III: Counterparty Credit Risk Tables

Table 51: IRB Approach - CCR Exposures by Portfolio and PD Scale

GSGUK

$ in millions | **As of November 2019**

	PD Scale	EAD post CRM	Average PD	Number of Obligors	Average LGD	Average Maturity	RWAs	RWA density
Sovereign								
	0.00 to <0.15	$ 10,071	0.00011	146	0.0002	2.59	$ 1,161	12%
	0.15 to <0.25	$ 2,291	0.00085	14	0.0017	0.06	$ 506	22%
	0.25 to <0.50	$ 3,434	0.00130	13	0.0026	3.61	$ 2,489	72%
	0.50 to <0.75	$ 17	0.00305	10	0.0061	1.48	$ 12	73%
	0.75 to <2.50	$ 8	0.00780	2	0.0156	1.00	$ 9	107%
	2.50 to <10.00	$ 21	0.04675	13	0.0935	1.00	$ 43	205%
	10.00 to <100.00	-	-	1	-	-	$ 0	0%
	100.00 (Default)	-	-	-	-	-	-	0%
	Subtotal	$ 15,842	0.00054	199	0.0011	2.44	$ 4,220	27%
Institutions								
	0.00 to <0.15	$ 44,708	0.00035	5,078	0.0216	1.85	$ 12,756	29%
	0.15 to <0.25	$ 11,478	0.00113	1,670	0.0028	2.13	$ 7,828	68%
	0.25 to <0.50	$ 2,139	0.00171	1,082	0.0026	1.36	$ 1,718	80%
	0.50 to <0.75	$ 4,598	0.00400	935	0.0071	1.32	$ 2,485	54%
	0.75 to <2.50	$ 2,800	0.01235	2,585	0.0188	2.73	$ 5,629	201%
	2.50 to <10.00	$ 1,031	0.05401	185	0.0823	1.08	$ 2,673	259%
	10.00 to <100.00	$ 51	0.15488	249	0.2378	1.98	$ 202	393%
	100.00 (Default)	$ 3	0.65536	2	0.9990	1.73	$ 0	1%
	Subtotal	$ 66,808	0.00245	11,786	0.0465	1.93	$ 33,291	50%
Corporates								
	0.00 to <0.15	$ 26,498	0.00029	2,955	0.0008	1.82	$ 6,876	26%
	0.15 to <0.25	$ 7,333	0.00115	1,058	0.0186	3.18	$ 6,311	86%
	0.25 to <0.50	$ 1,776	0.00171	644	0.0037	2.18	$ 1,501	84%
	0.50 to <0.75	$ 2,558	0.00426	1,386	0.0153	1.78	$ 3,468	136%
	0.75 to <2.50	$ 4,042	0.01163	2,608	0.0161	1.41	$ 7,398	183%
	2.50 to <10.00	$ 1,325	0.05903	1,053	0.0977	2.37	$ 4,019	303%
	10.00 to <100.00	$ 1,402	0.15345	1,338	0.2378	2.13	$ 5,423	387%
	100.00 (Default)	$ 9	0.59200	2	0.9990	2.02	$ 0	1%
	Subtotal	$ 44,943	0.01003	11,044	0.0360	2.10	$ 34,996	78%
	Total (all portfolios)	**$ 127,593**	**0.00419**	**$ 23,029**	**0.0153**	**1.02**	**$ 72,507**	**57%**

GSI

$ in millions — **As of November 2019**

	PD Scale	EAD post CRM	Average PD	Number of Obligors	Average LGD	Average Maturity	RWAs	RWA density
Sovereign								
	0.00 to <0.15	$ 10,071	0.0001	146	0.0002	2.59	$ 1,161	12%
	0.15 to <0.25	2,291	0.0009	14	0.0017	0.06	506	22%
	0.25 to <0.50	3,434	0.0013	13	0.0026	3.61	2,489	72%
	0.50 to <0.75	17	0.0031	10	0.0061	1.48	12	73%
	0.75 to <2.50	8	0.0078	2	0.0156	1.00	9	107%
	2.50 to <10.00	21	0.0468	13	0.0935	1.00	43	205%
	10.00 to <100.00	-	0.1273	1	0.2378	0.02	0	0%
	100.00 (Default)	-	-	-	-	-	-	0%
	Subtotal	$ 15,842	0.0005	199	0.0011	2.44	$ 4,220	27%
Institutions								
	0.00 to <0.15	$ 43,274	0.0003	5,049	0.0006	1.87	$ 12,724	29%
	0.15 to <0.25	11,459	0.0011	1,668	0.0017	2.13	7,815	68%
	0.25 to <0.50	2,139	0.0017	1,082	0.0026	1.36	1,718	80%
	0.50 to <0.75	4,594	0.0040	930	0.0066	1.32	2,481	54%
	0.75 to <2.50	2,800	0.0124	2,585	0.0188	2.73	5,629	201%
	2.50 to <10.00	1,031	0.0540	185	0.0823	1.08	2,673	259%
	10.00 to <100.00	52	0.1549	249	0.2378	1.98	202	393%
	100.00 (Default)	3	0.6554	2	0.9990	1.73	0	1%
	Subtotal	$ 65,352	0.0023	11,750	0.0035	1.88	$ 33,242	51%
Corporates								
	0.00 to <0.15	$ 26,474	0.0003	2,950	0.0005	1.82	$ 6,865	26%
	0.15 to <0.25	7,170	0.0011	847	0.0017	3.18	6,145	86%
	0.25 to <0.50	1,774	0.0017	635	0.0026	2.18	1,499	84%
	0.50 to <0.75	2,524	0.0042	1,378	0.0064	1.79	3,429	136%
	0.75 to <2.50	4,042	0.0116	2,608	0.0161	1.41	7,399	183%
	2.50 to <10.00	1,291	0.0591	1,043	0.0855	2.36	3,934	305%
	10.00 to <100.00	1,402	0.1534	1,336	0.2378	2.13	5,422	387%
	100.00 (Default)	9	0.5920	2	0.9990	2.02	0	1%
	Subtotal	$ 44,686	0.0084	10,799	0.0126	2.04	$ 34,693	78%
	Total (all portfolios)	**$ 125,880**	**0.0042**	**22,748**	**0.0872**	**2.01**	**$ 72,155**	57%

GSIB

$ in millions								As of November 2019
	PD Scale	**EAD post CRM**	**Average PD**	**Number of Obligors**	**Average LGD**	**Average Maturity**	**RWAs**	**RWA density**
Sovereign								
	0.00 to <0.15	-	-	-	-	-	-	0%
	0.15 to <0.25	-	-	-	-	-	-	0%
	0.25 to <0.50	-	-	-	-	-	-	0%
	0.50 to <0.75	-	-	-	-	-	-	0%
	0.75 to <2.50	-	-	-	-	-	-	0%
	2.50 to <10.00	-	-	-	-	-	-	0%
	10.00 to <100.00	-	-	-	-	-	-	0%
	100.00 (Default)	-	-	-	-	-	-	0%
	Subtotal	**-**	**-**	**-**	**-**	**-**	**-**	**0%**
Institutions								
	0.00 to <0.15	$ 1,433	0.0010	29	0.6570	1.32	$ 32	2%
	0.15 to <0.25	19	0.0020	2	0.6620	1.50	13	68%
	0.25 to <0.50	-	-	-	-	-	-	0%
	0.50 to <0.75	4	0.0070	5	0.6570	1.00	4	119%
	0.75 to <2.50	-	-	-	-	-	0	0%
	2.50 to <10.00	-	-	-	-	-	-	0%
	10.00 to <100.00	-	-	-	-	-	-	0%
	100.00 (Default)	-	-	-	-	-	-	0%
	Subtotal	$ 1,456	0.0010	36	0.6571	1.32	$ 49	3%
Corporates								
	0.00 to <0.15	$ 17	-	5	0.5360	4.12	$ 8	47%
	0.15 to <0.25	164	0.0020	211	0.7600	3.29	165	101%
	0.25 to <0.50	2	0.0030	9	1.0000	1.00	2	84%
	0.50 to <0.75	34	0.0070	8	0.6620	1.00	39	113%
	0.75 to <2.50	0	-	-	-	-	-	0%
	2.50 to <10.00	34	0.0580	10	0.5630	2.77	84	251%
	10.00 to <100.00	-	0.2380	2	0.6620	1.00	2	0%
	100.00 (Default)	-	-		-	-	-	0%
	Subtotal	$ 251	0.0101	245	0.7055	2.94	$ 300	119%
	Total (all portfolios)	**$ 1,707**	**0.00236**	**281**	**0.6642**	**1.56**	**$ 349**	20%

Table 52: Impact of Netting and Collateral Held on Exposure Values[1]

GSGUK

$ in millions						As of November 2019
		Gross positive fair value or net carrying amount	Netting benefits	Netted current credit exposure	Collateral held	Net credit exposure[2]
1	Derivatives	$ 682,238	$ 611,326	$ 70,912	$ 143,222	$ 35,119
2	SFTs	260,239	75,362	184,877	391,403	14,862
4	**Total**	**$ 942,477**	**$ 686,688**	**$ 255,789**	**$ 534,625**	**$ 49,981**

GSI

$ in millions						As of November 2019
		Gross positive fair value or net carrying amount	Netting benefits	Netted current credit exposure	Collateral held	Net credit exposure[2]
1	Derivatives	$ 681,673	$ 610,920	$ 70,753	$ 141,066	$ 35,019
2	SFTs	252,692	84,166	168,526	385,111	14,830
4	**Total**	**$ 934,365**	**$ 695,086**	**$ 239,279**	**$ 526,177**	**$ 49,849**

GSIB

$ in millions						As of November 2019
		Gross positive fair value or net carrying amount	Netting benefits	Netted current credit exposure	Collateral held	Net credit exposure[2]
1	Derivatives	$ 1,601	$ 1,256	$ 345	$ 2,156	$ 100
2	SFTs	31,653	2,617	29,036	27,789	31
4	**Total**	**$ 33,254**	**$ 3,873**	**$ 29,381**	**$ 29,945**	**$ 131**

[1] GSGUK and its subsidiaries do not have cross-product netting where both derivatives and SFTs are netted at a counterparty level.

[2] Net credit exposure for derivatives and SFTs represents the current exposure component of the modelled EAD, and takes into account legally enforceable collateral received.

Table 53: Composition of Collateral for Exposures to CCR

GSGUK

$ in millions	As of November 2019					
	Collateral used in derivative transactions				**Collateral used in SFTs**	
	Fair value of collateral received		**Fair value of posted collateral**		**Fair value of collateral received**	**Fair value of posted collateral**
	Segregated	**Unsegregated**	**Segregated**	**Unsegregated**		
Sovereign	$ 14,789	$ 15,630	$ 7,085	$ 13,633	$ 244,408	$ 181,058
Equities	7,541	375	587	-	124,252	117,892
Corporate Bonds	629	1,517	184	334	14,118	9,524
Cash	41,478	60,491	1,823	57,008	385	123
Other	769	3	-	25	8,240	12,978
Total	**$ 65,206**	**$ 78,016**	**$ 9,679**	**$ 71,000**	**$ 391,403**	**$ 321,575**

GSI

$ in millions	As of November 2019					
	Collateral used in derivative transactions				**Collateral used in SFTs**	
	Fair value of collateral received		**Fair value of posted collateral**		**Fair value of collateral received**	**Fair value of posted collateral**
	Segregated	**Unsegregated**	**Segregated**	**Unsegregated**		
Sovereign	$ 14,672	$ 15,630	$ 7,080	$ 13,633	$ 243,584	$ 190,719
Equities	5,720	375	587	-	123,580	$ 122,805
Corporate Bonds	622	1,517	184	334	9,333	$ 14,215
Cash	41,447	60,311	1,823	56,769	374	$ 120
Other	769	3	-	25	8,240	$ 15,186
Total	**$ 63,230**	**$ 77,836**	**$ 9,674**	**$ 70,761**	**$ 385,111**	**$ 343,045**

GSIB

$ in millions	As of November 2019					
	Collateral used in derivative transactions				**Collateral used in SFTs**	
	Fair value of collateral received		**Fair value of posted collateral**		**Fair value of collateral received**	**Fair value of posted collateral**
	Segregated	**Unsegregated**	**Segregated**	**Unsegregated**		
Sovereign	$ 117	-	$ 5	-	$ 10,509	$ 26
Equities	1,821	-	-	-	5,585	-
Corporate Bonds	7	-	-	-	9,476	-
Cash	31	180	-	239	11	40
Other	-	-	-	-	2,208	-
Total	**$ 1,976**	**$ 180**	**$ 5**	**$ 239**	**$ 27,789**	**$ 66**

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

Table 54: Aging of Past-due Exposures

$ in millions **As of November 2019**

		Gross carrying values					
		≤ 30 days	> 30 days ≤ 60 days	> 60 days ≤ 90 days	> 90 days ≤ 180 days	> 180 days ≤ 1 year	> 1 year
1	Loans	-	-	-	-	-	1
2	Debt securities	-	-	-	-	-	82
3	***GSGUK Total exposures***	**-**	-	-	-	-	**$ 83**
1	Loans	-	-	-	-	-	1
2	Debt securities	-	-	-	-	-	82
3	***GSI Total exposures***	**-**	-	-	-	-	**$ 83**
1	Loans	-	-	-	-	-	-
2	Debt securities	-	-	-	-	-	-
3	***GSIB Total exposures***	**-**	**-**	**-**	**-**	**-**	**-**

Table 55: Non-performing and Forborne Exposures

$ in millions **As of November 2019**

		Gross carrying amount of performing and non-performing exposures							Accumulated impairment and provisions and negative fair value adjustments due to credit risk				Collaterals and financial guarantees received	
			Of which performing but past due > 30 days and <= 90 days	Of which performing forborne	Of which non-performing				On performing exposures		On non-performing exposures		On non-performing exposures	Of which forborne exposures
						Of which defaulted	Of which impaired	Of which forborne		Of which forborne		Of which forborne		
	GSGUK													
010	Debt securities	**$ 2,599**	**-**	**-**	**$ 93**	**$ 93**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
020	Loans and advances	**$ 7,859**	**-**	**-**	**$ 37**	**$ 37**	**-**	**-**	**$ (21)**	**-**	**-**	**-**	**-**	**-**
030	Off-balance-sheet exposures	**$ 8,353**	**-**	**-**	**-**	**-**	**-**	**-**	**$ (4)**	**-**	**-**	**-**	**-**	**-**
	GSI													
010	Debt securities	1,161	-	-	93	93	-	-	-	-	-	-	-	-
020	Loans and advances	1,558	-	-	37	37	-	-	-	-	-	-	-	-
030	Off-balance-sheet exposures	-	-	-	-	-	-	-	-	-	-	-	-	-
	GSIB													
010	Debt securities	817	-	-	-	-	-	-		-	-	-	-	-
020	Loans and advances	6,980	-	-	-	-	-	-	(21)	-	-	-	-	-
030	Off-balance-sheet exposures	8,353	-	-	-	-	-	-	(4)	-	-	-	-	-

Table 56: Changes in the Stock of General and Specific Credit Risk Adjustments[1]

$ in millions		As of November 2019			
		Accumulated specific credit risk adjustment		Accumulated general credit risk adjustment	
		GSGUK	GSIB	GSGUK	GSIB
1	**Opening balance as of May 2019**	**$ 45**	**$ 45**	**-**	**-**
2	Increases due to amounts set aside for estimated loan losses during the period	0	0	-	-
3	Decreases due to amounts reversed for estimated loan losses during the period	(1)	(1)	-	-
6	Impact of exchange rate differences	(0)	(0)	-	-
8a	Position and valuation changes	(19)	(19)	-	-
9	**Closing balance as of November 2019**	**$ 25**	**$ 25**	**-**	**-**

[1]Changes in specific credit risk adjustment are due to position and valuation changes rather than changes in amounts set aside for estimated loan losses, transfers between credit risk adjustments, exchange rate differences or business combinations (such as acquisitions and disposals of subsidiaries).

Table 57: Changes in the Stock of Defaulted and Impaired Loans and Debt Securities[1]

$ in millions		As of November 2019		
		Gross carrying value defaulted exposures		
		GSGUK	GSI	GSIB
1	**Opening balance as of May 2019**	**$ 149**	**$ 131**	**$ 18**
2	Loans and debt securities that have defaulted or impaired since the last reporting period	19	19	-
5	Other changes	(39)	(21)	(18)
6	**Closing balance as of November 2019**	**$ 129**	**$ 129**	**-**

[1]There were no defaulted or impaired loans and debt securities written off or returned to non-defaulted status during the period.

Appendix V: Index of Tables to EBA Templates

1. Template 3 (The disclosure on differences in the scopes of consolidation) has been disclosed within the Basis of Consolidation section of the document.

2. The specialised lending section of Template 5 (IRB (specialised lending and equities)) has not been disclosed as GSGUK and its subsidiaries does not have specialised lending exposure.

3. Template 6 (Non-deducted participation in insurance undertakings) has not been disclosed as GSGUK and its subsidiaries do not have material holdings of own funds instruments of an insurance undertaking, re-insurance undertaking or an insurance holding company.

4. Template 28 (Standardised approach – CCR exposures by regulatory portfolio and risk) has not been disclosed as the material entities within GSGSUK have regulatory permission from the PRA to compute risk weights in accordance with the AIRB approach. As a result, CCR exposures outside of these entities that are subject to the Standardised approach are deemed to be immaterial. The CCR exposure class, institutions, represents less than 5% of the total CCR exposure.