

Goldman Sachs Group UK Limited

# Pillar 3 Disclosures

For the period ended June 30, 2018

## TABLE OF CONTENTS

## Page No.

ntroduction	;
Capital Framework	;
Regulatory Capital7	,
lisk-Weighted Assets	5
redit Risk Management	)
19/19/19/19/19	)
0perational Risk Management	,
hterest Rate Sensitivity	j
iquidity Coverage Ratio27	
everage Ratio	
quity Capital Management and Regulatory Capital	j
autionary Note on Forward-Looking Statements	į
Blossary	1
ppendix I: Credit Risk Tables	
ppendix II: Counterparty Credit Risk Tables	
ppendix III: Past Due Exposures, Impaired Exposures and Impairment Provisions Tables	j
ppendix IV: Index of Tables to EBA Templates	,

## **INDEX OF TABLES**

## Page No.

Table 1: Minimum Regulatory Capital Ratios	6
Table 2: Regulatory Capital Ratios	7
Table 3: Regulatory Capital Resources	7
Table 4: Overview of RWAs	8
Table 5: Analysis of CCR exposure by approach	13
Table 6: Exposures to CCPs	14
Table 7: CVA VaR capital charge	14
Table 8: RWA flow statements of CCR exposures under the IMM	14
Table 9: RWA flow statements of credit risk exposures under the IRB approach	
Table 10: CRM techniques	
Table 11: IRB approach - Effect on the RWAs of credit derivatives used as CRM techniques	
Table 12: Credit derivatives exposures	17
Table 13: IMA values for trading portfolios	21
Table 14: Market risk under the IMA	21
Table 15: RWA flow statements of market risk exposures under the IMA	22
Table 16: Comparison of VaR estimates with gains/losses	23
Table 17: Market risk under the standardised approach	24
Table 18: Operational Risk Capital Requirement	26
Table 19: Liquidity Coverage Ratio	27
Table 20: Leverage Ratio	27
Table 21: Credit quality of exposures by exposure class and instrument	31
Table 22: Credit quality of exposures by industry or counterparty types	
Table 23: Credit quality of exposures by geography	
Table 24: IRB (Equity exposures subject to the simple risk-weighted approach)	35
Table 25: IRB approach - Credit risk exposures by exposure class and PD range	
Table 26: Standardised approach – Credit risk exposure and CRM effects	
Table 27: Standardised approach	40
Table 28: IRB approach - CCR exposures by portfolio and PD scale	41
Table 29: Impact of netting and collateral held on exposure values	
Table 30: Composition of collateral for exposures to CCR	45
Table 31: Aging of past-due exposures	
Table 32: Non-performing and forborne exposures	
Table 33: Changes in the stock of general and specific credit risk adjustments	47
Table 34: Changes in the stock of defaulted and impaired loans and debt securities	47

## 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" and "the firm", we mean Group Inc. and its consolidated subsidiaries and when we use the terms "GSGUK", "we", "us" and "our", we mean GSGUKL and its consolidated subsidiaries.

The Board of Governors of the Federal Reserve System (Federal Reserve Board) is the primary regulator of Group Inc., a bank holding company under the Bank Holding Company Act of 1956 (BHC Act) and a financial holding company under amendments to the BHC Act. As a bank holding company, the firm is subject to consolidated regulatory capital requirements which are calculated in accordance with the revised risk-based capital and leverage regulations of the Federal Reserve Board, subject to certain transitional provisions.

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 and are subject to minimum capital adequacy standards also on a standalone basis.

The risk-based capital requirements are expressed as capital ratios that compare measures of regulatory capital to Risk-Weighted Assets (RWAs). Failure to comply with these requirements could result in restrictions being imposed by our regulators. 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 most recent Quarterly Pillar 3 Disclosures and Quarterly Report on Form 10-Q. References in this document to the "Quarterly Pillar 3 Disclosures" are to the firm's Pillar 3 Disclosures for the quarterly period ended June 30, 2018, references to the "Quarterly Report on Form 10-Q" are to the firm's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2018. All references to June 2018 refer to the period ended, or the date June 30, 2018 as the context. These forms can be accessed via the following links:

https://www.goldmansachs.com/investorrelations/financials/current/other-information/2q-pillar3-2018.pdf

https://www.goldmansachs.com/investorrelations/financials/current/10q/second-quarter-2018-10q.pdf

The GSGUK consolidated regulatory capital requirement has been calculated in accordance with the E.U. Fourth Capital Requirements Directive (CRD IV) and the E.U. Capital Requirements Regulation (CRR), which came into effect on January 1, 2014. These regulations 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". Certain provisions of CRD IV are directly applicable in the UK and certain provisions have been implemented in the PRA and FCA Rulebooks.

These quarterly Pillar 3 disclosures set out the qualitative and quantitative elements of Part 8 of the CRR within CRD IV, as supplemented by the PRA and FCA Rulebooks, for which we have determined that more frequent disclosure is appropriate in accordance with the EBA Guidelines under Articles 431(1), 432(2) and 433 of CRR. From March 2018, these quarterly Pillar 3 disclosures have also been prepared in accordance with the European Banking Authority's revised guidelines on disclosure requirements under Part 8 of the CRR published in December 2016 and effective from December 31, 2017.

GSGUK also publishes annual Pillar 3 disclosures. The latest available published annual Pillar 3 disclosures can accessed via the following link:

https://www.goldmansachs.com/disclosures/gsgukl-pillar-3-2017.pdf

The consolidated financial information for GSGUK for the period ended in June 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 UK generally accepted accounting principles (UK GAAP), may not be directly comparable to measures reported in GSGUK's consolidated financial information, 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 Asset Management Global Services Limited
- Goldman Sachs MB Services Limited

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

CRD IV requires material subsidiaries to make certain capital disclosures on an individual or subconsolidated basis. 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 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 I, Item 1 "Financial Statements" and "Risk Management – Liquidity Risk Management" and "Equity Capital Management and Regulatory Capital" in Part 1, Item 2 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's Quarterly Report on Form 10-Q.

## **Definition of Risk-Weighted Assets**

The risk weights that are 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 amounts reflected in our consolidated statements of financial conditions as "Financial instruments owned" and "Financial instruments sold, but not yet purchased" as well as certain other financial assets and financial liabilities, are accounted for at fair value (i.e., marked-to-market), with related gains or losses generally recognised in our consolidated statements 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.

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 and operational risk. Methodologies utilised by our independent control functions to calculate PVA are aligned with, and use the same external data sources as, those used when carrying out price verification of fair value.

For additional information regarding the determination of fair value under accounting principles generally accepted in the United States (US GAAP) and controls over valuation of inventory, see "Note 3. Significant Accounting Policies" and "Note 5. Fair Value Measurements" in Part I "Financial Statements", and "Critical Accounting Policies" in Part I, Item 2 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's Quarterly Report on Form 10-Q.

## Banking Book / Trading Book Classification

In order to determine the appropriate regulatory capital treatment for our exposures, positions must be first classified into either "banking book" or "trading book". Positions are classified as banking book unless they qualify to be classified as trading book.

Banking book positions may be accounted for at amortised cost, fair value or in accordance with the equity method; they are not generally positions arising from client servicing and market making, positions 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<sup>1</sup>. 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 counterparty (e.g., an Over-The-Counter (OTC) derivatives counterparty or a borrower) or an issuer of securities or other instruments we hold.

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 marketmaking 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<sup>1</sup>. 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 the value of our inventory due to changes in market prices. Some trading book positions, such as derivatives, are also subject to counterparty credit risk regulatory capital requirements.

<sup>&</sup>lt;sup>1</sup> As defined in point (85) of Article 4(1) in CRD IV.

## **Capital Framework**

For CRD IV regulatory 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 Tier 2 capital and includes long term qualifying subordinated debt.

Certain components of our regulatory capital are subject to regulatory limits and restrictions under CRD IV. 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 CRD IV, the minimum CET1, Tier 1 capital and Total capital ratios (collectively the Pillar 1 capital requirements) are supplemented by:

- A capital conservation buffer, consisting entirely of capital that qualifies as CET1, began to phase in on January 1, 2016, and will continue to do so in increments of 0.625% per year until it reaches 2.5% of RWAs on January 1, 2019.
- 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 based in jurisdictions which have announced and implemented a countercyclical buffer. As of June 2018, these are the following jurisdictions: Norway, Sweden, Hong Kong, Czech Republic, Iceland, Slovakia, and United Kingdom. The buffer currently increases the minimum CET1 ratio by 0.17%.

Individual capital guidance 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 guidance 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 defined as CET1 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 June 2018.

## **Table 1: Minimum Regulatory Capital Ratios**

	June 2018 Minimum ratio <sup>1, 2</sup>
CET1 ratio	8.0%
Tier 1 capital ratio	9.9%
Total capital ratio	12.6%

- 1. Includes the phase-in of the capital conservation buffer and countercyclical capital buffer described above.
- 2. These minimum ratios also incorporate the Pillar 2A capital guidance received from the PRA (2.52% for Total Capital at June 30, 2018) and could change in the future.

In addition to the Pillar 2A capital guidance, the PRA also defines forward looking capital guidance 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. As the capital conservation buffer phases in, as described above, it will fully or partially replace the PRA buffer.

## **Compliance with Capital Requirements**

As of June 30, 2018, 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 CRD IV as of June 30, 2018, including those for our significant subsidiaries GSI and GSIB.

## **Table 2: Regulatory Capital Ratios**

\$ in millions	As of June 2018				
	GSGUK	GSI	GSIB		
CET1 Capital	\$ 30,255	\$ 25,402	\$ 3,032		
Tier 1 Capital	36,055	31,202	3,032		
Tier 2 Capital	6,503	5,377	826		
Total Capital	\$ 42,558	\$ 36,579	\$ 3,858		
RWAs	\$ 257,641	\$ 242,958	\$ 8,989		
CET1 Ratio	11.7%	10.5%	33.7%		
Tier 1 Capital Ratio	14.0%	12.8%	33.7%		
Total Capital Ratio	16.5%	15.1%	42.9%		

In the table above, the CET1, Tier 1 and Total capital ratios include approximately 42 basis points attributable to GSGUK's unaudited profit, net of foreseeable charges and dividends, for the six month period ended June 2018. CET1, Tier 1, and Total capital ratios for GSI and GSIB include 39 basis points and 84 basis points attributable to GSI's and GSIB's results respectively, for the six months ended June 2018.

## **Capital Structure**

Certain CRD IV rules are subject to final technical standards and clarifications, which will be issued by the European Banking Authority (EBA) and adopted by the European Commission and PRA. All capital, RWAs and estimated ratios are based on current interpretation, expectations and understanding of CRD IV and may evolve as its 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 based on CRD IV, as implemented by the PRA. The capital resources of GSGUK are based on unaudited, consolidated non-statutory financial information and those of GSI and GSIB are based on unaudited statutory financial statements.

## **Table 3: Regulatory Capital Resources**

\$ in millions		As of June 201				
	GSGUK	GSI	GSIB			
Ordinary Share Capital	\$ 2,135	\$ 582	\$ 63			
Share Premium Account Including Reserves	388	4,864	2,094			
Retained Earnings <sup>1</sup>	29,736	21,838	948			
CET1 Capital Before Deductions	\$32,259	\$27,284	\$3,105			
Net Pension Assets	(349)	(349)	-			
CVA and DVA	(107)	(116)	9			
Prudent Valuation Adjustments	(356)	(303)	(6)			
Expected Loss Deduction and Loan Loss Provision	(672)	(645)	(28)			
Other Adjustments <sup>2</sup>	(273)	(222)	(48)			
Intangibles	(247)	(247)	-			
CET1 Capital After Deductions	\$ 30,255	\$ 25,402	\$ 3,032			
Additional Tier 1 capital	5,800	5,800	-			
Tier 1 Capital After Deductions	\$ 36,055	\$ 31,202	\$3,032			
Tier 2 Capital Before Deductions <sup>3</sup>	6,503	5,377	826			
Other Adjustments	-	-	-			
Tier 2 Capital After Deductions	\$ 6,503	\$ 5,377	\$ 826			
Total Capital Resources	\$ 42,588	\$ 36,579	\$ 3,858			

1. Includes unaudited amounts.

- 2. Other Adjustments within CET1 capital of GSI and GSGUK primarily represents regulatory adjustments for foreseeable charges and dividends. Other Adjustments within CET1 capital of GSIB primarily represent a deduction for deferred tax assets.
- 3. Tier 2 Capital represents subordinated debt with an original term to maturity of five years or greater.

## **Risk-Weighted Assets**

CRD IV RWAs are calculated based on measures of credit risk, market risk and operational risk. The table below presents a summary of the RWA components used to calculate GSGUK's, GSI's and GSIB's consolidated regulatory capital ratios.

## Table 4: Overview of RWAs

## GSGUK

\$ in millions

		RWAs		
				Minimum capital
		June 2018	March 2018	requirements
1	Credit risk (excluding CCR)	\$ 33,509	\$ 33,052	\$ 2,681
2	Of which the standardised approach	6,430	6,979	514
4	Of which the advanced IRB (AIRB) approach	24,962	23,929	1,997
5	Of which equity IRB under the simple risk-weighted approach or the IMA	2,117	2,144	169
6	CCR	\$ 113,520	\$ 108,964	\$ 9,082
7	Of which mark to market	8,573	9,880	686
9	Of which the standardised approach	5	13	0
10	Of which internal model method (IMM)	78,392	75,485	6,271
11	Of which risk exposure amount for contributions to the default fund of a CCP	733	743	59
12	Of which CVA VaR	25,817	22,843	2,065
13	Settlement risk	\$ 2,292	\$ 2,189	\$ 183
14	Securitisation exposures in the banking book (after the cap)	\$ 507	\$ 456	\$ 41
15	Of which IRB approach	447	456	36
18	Of which standardised approach	60	-	5
19	Market risk	\$ 92,097	\$ 88,812	\$ 7,368
20	Of which the standardised approach	41,468	39,948	3,317
21	Of which IMA	50,629	48,864	4,050
22	Large exposures	-	-	-
23	Operational risk	\$ 15,716	\$ 15,479	\$ 1,257
24	Of which basic indicator approach	-	-	-
25	Of which standardised approach	15,716	15,479	1,257
29	Total	\$ 257,641	\$ 248,952	\$ 20,611

## GSI

\$ in millions

		RWAs		
				Minimum capital
		June 2018	March 2018	requirements
1	Credit risk (excluding CCR)	\$ 22,006	\$ 21,143	\$ 1,760
2	Of which the standardised approach	2,036	1,953	163
4	Of which the advanced IRB (AIRB) approach	17,853	17,047	1,428
5	Of which equity IRB under the simple risk-weighted approach or the IMA	2,117	2,143	169
6	CCR	\$ 113,032	\$ 108,443	\$ 9,043
7	Of which mark to market	8,402	9,711	672
9	Of which the standardised approach	-	-	-
10	Of which internal model method (IMM)	78,170	75,235	6,254
11	Of which risk exposure amount for contributions to the default fund of a CCP	733	743	59
12	Of which CVA VaR	25,727	22,754	2,058
13	Settlement risk	\$ 2,292	\$ 2,188	\$ 183
14	Securitisation exposures in the banking book (after the cap)	-	-	-
15	Of which IRB approach	-	-	-
19	Market risk	\$ 91,524	\$ 87,606	\$ 7,322
20	Of which the standardised approach	41,267	39,707	3,301
21	Of which IMA	50,257	47,898	4,021
22	Large exposures	-	-	-
23	Operational risk	\$ 14,104	\$ 14,104	\$ 1,128
24	Of which basic indicator approach	-	-	-
25	Of which standardised approach	14,104	14,104	1,128
29	Total	\$ 242,958	\$ 233,485	\$ 19,437

#### GSIB

\$ in millions

		RWAs		
				Minimum capital requirements
		June 2018	March 2018	June 2018
_1	Credit risk (excluding CCR)	\$ 7,116	\$ 7,332	\$ 569
2	Of which the standardised approach	7	450	1
4	Of which the advanced IRB (AIRB) approach	7,109	6,882	569
5	Of which equity IRB under the simple risk-weighted approach or the IMA	0	0	0
6	CCR	\$ 483	\$ 507	\$ 39
7	Of which mark to market	171	169	14
9	Of which the standardised approach	•	-	
10	Of which internal model method (IMM)	222	249	18
11	Of which risk exposure amount for contributions to the default fund of a CCP	•	-	
12	Of which CVA VaR	89	88	7
13	Settlement risk	-	\$ 1	-
14	Securitisation exposures in the banking book (after the cap)	\$ 507	\$ 456	\$ 41
15	Of which IRB approach	447	456	36
18	Of which standardised approach	60	-	5
19	Market risk	\$ 418	\$ 1,024	\$ 33
20	Of which the standardised approach	46	59	4
21	Of which IMA	372	965	30
22	Large exposures	-	-	-
23	Operational risk	\$ 464	\$ 464	\$ 37
24	Of which basic indicator approach	464	464	37
25	Of which standardised approach	-	-	-
29	Total	\$ 8,989	\$ 9,785	\$ 719

GSG UK total capital ratio decreased from 17.0% in March 2018 to 16.5% in June 2018 primarily due to the following movements:

- GSI Credit RWAs as of June 2018 increased by \$5.55 billion compared with March 2018, primarily reflecting an increase in derivatives activity, principally due to increased exposures and higher counterparty credit risk.
- GSI Market RWAs as of June 2018 increased by \$3.92 billion compared with March 2018, primarily reflecting an increase in standardised and modelled market risk as a result of changes in risk exposures.
- GSG UK Operational RWAs as of June 2018 increased by \$0.24 billion compared with March 2018, mainly due to increased average revenues used in the calculation for standardised approach.

## Credit Risk Management

## Overview

Credit risk represents the potential for loss due to the default or deterioration in credit quality of a counterparty (e.g. an OTC derivatives counterparty or a borrower) or an issuer of securities or other instruments 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 receivables from brokers, dealers, clearing organisations, customers and counterparties.

Credit Risk Management, 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. The Risk Governance Committee reviews 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 Management, consistent with other inventory positions. 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 Management.

## **Credit Risk Management Process**

Effective management of credit risk requires accurate and timely information, a high level of communication and knowledge of customers, countries, industries and products. The firm's process for managing credit risk includes:

- Approving transactions and setting and communicating credit exposure limits;
- Monitoring compliance with established credit exposure limits;
- Assessing the likelihood that a counterparty will default on its payment obligations;
- Measuring current and potential credit exposure and losses resulting from counterparty default;
- Reporting of credit exposures to senior management, the firm's Board and regulators;
- Using credit risk mitigants, including collateral and hedging; and

• Communicating and collaborating with other independent risk oversight and control functions.

As part of the risk assessment process, Credit Risk Management 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 within Credit Risk Management, 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, such as delinquency status, collateral values, credit scores and other risk factors.

The firm's global credit risk management systems capture credit exposure to individual counterparties and on an aggregate basis to counterparties and their subsidiaries (economic groups). These systems also provide management with comprehensive information on the firm's aggregate credit risk by product, internal credit rating, industry, country and region.

## **Credit Risk Measures and Limits**

The firm measures credit risk based on the potential loss in an 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. We use credit limits at various levels (counterparty, economic group, industry, country) to control the size of the company's credit exposures. 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 tolerance and are designed to allow for regular monitoring, review, escalation and management of credit risk concentrations.

For GS Group, the Risk Committee of the Board and the Risk Governance Committee (through delegated authority from GS Group's Firmwide Enterprise Risk Committee) approve credit risk limits at GS Group, business and product levels. 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 Credit Committee and GSIB chief credit officer respectively. Credit Risk Management sets credit limits for individual counterparties, economic groups, industries and countries. 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 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 10. Collateralized Agreements and Financings" in Part I, Item 1 "Financial Statements" and "Credit Risk Management" in Part I, Item 2 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's Quarterly Report on Form 10-Q.

## Credit Risk and Counterparty Credit Risk RWAs

Credit RWAs are calculated based upon 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, sovereigns or government entities (other than securitisation or equity exposures). GSGUK has regulatory permission from the PRA to compute risk weights in accordance with the Advanced Internal Ratings Based (AIRB) approach which utilises internal assessments of each counterparty's creditworthiness. 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. The exposure classes under the standardised approach include corporates, private equity and real estate

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).** 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 CRD IV.

For the measurement of 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 data using the most recent 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 nondeclining positive credit exposure over the EE simulation. EAD is calculated by multiplying the EEPE by a standard regulatory alpha 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 half year ended June 30, 2018 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 Advanced IRB 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, where: • 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 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, the LGD is determined using recognised vendor models, and, where applicable and enforceable, the LGD parameter incorporates the benefit of security status.
- 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 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.

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 June 30, 2018.

## Table 5: Analysis of CCR exposure by approach GSGUK

\$ in	millions						As of	June 2018
		Notional	Replacement cost/current market value	Potential future credit exposure	EEPE	Multiplier	EAD post CRM	RWAs
1	Mark to market	-	\$ 6,824	\$ 8,071	-	-	\$ 10,102	\$ 8,570
3	Standardised approach	-	\$ 5	-	-	1	\$ 5	\$ 5
4	IMM (for derivatives and SFTs)	-	-	-	\$ 82,658	1.40	\$ 115,720	\$ 78,116
5	Of which securities financing transactions	-	-	-	27,164	1.40	38,029	13,727
6	Of which derivatives and long settlement transactions	-	-	-	55,494	1.40	77,691	64,389
11	Total	-	-	-	-	-	-	\$ 86,691

#### GSI

#### \$ in millions

		Notional	Replacement cost/current market value	Potential future credit exposure	EEPE	Multiplier	EAD post CRM	RWAs
1	Mark to market	-	\$ 6,712	\$ 8,068	-	-	\$ 9,987	\$ 8,399
3	Standardised approach	-	-	-	-	-	-	-
4	IMM (for derivatives and SFTs)	-	-	-	\$ 82,524	1.40	\$ 115,533	\$ 77,894
5	Of which securities financing transactions	-	-	-	27,164	1.40	38,029	13,727
6	Of which derivatives and long settlement transactions	-	-	-	55,360	1.40	77,504	64,167
11	Total	-	-		-	-	-	\$ 86,293

#### GSIB

\$ in millions

As of June 2018

		Notional	Replacement cost/current market value	Potential future credit exposure	EEPE	Multiplier	EAD post CRM	RWAs
1	Mark to market	-	\$ 112	\$ 2	-	-	\$ 115	\$ 172
3	Standardised approach	-	-	-	-	-	-	-
4	IMM (for derivatives and SFTs)	-	-	-	\$ 134	1.40	\$ 187	\$ 222
5	Of which securities financing transactions	-	-	-	-	-	-	-
6	Of which derivatives and long settlement transactions	-	-	-	134	1.40	187	222
11	Total	-	-	-	-	-	-	\$394

The following table presents GSGUK, GSI and GSIB's EAD after credit risk mitigation and RWAs on exposures to CCPs as of June 30, 2018.

## Table 6: Exposures to CCPs

## ¢ in milliono

\$ in n	nillions					As of J	lune 2018
		E	AD post CR	M		RWAs	
		GSGUK	GSI	GSIB	GSGUK	GSI	GSIB
1	Exposures to QCCPs (total)				\$ 953	\$ 953	-
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	3,570	3,570	-	72	72	-
3	(i) OTC derivatives	938	938	-	19	19	-
4	(ii) Exchange-traded derivatives	2,136	2,136	-	43	43	-
5	(iii) SFTs	496	496	-	10	10	-
6	(iv) Netting sets where cross-product netting has been approved	-	-	-	-	-	-
7	Segregated initial margin	-	-	-			
8	Non-segregated initial margin	7,419	7,419	-	148	148	-
9	Prefunded default fund contributions	733	733	-	683	683	-
10	Alternative calculation of own funds requirements for exposures				50	50	-
11	Exposures to non-QCCPs (total)				-	-	-
12	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which	-	-	-	-	-	-
13	(i) OTC derivatives	-	-	-	-	-	-
14	(ii) Exchange-traded derivatives	-	-	-	-	-	-
15	(iii) SFTs	-	-	-	-	-	-
16	(iv) Netting sets where cross-product netting has been approved	-	-	-	-	-	-
17	Segregated initial margin	-	-	-			
18	Non-segregated initial margin	-	-	-	-	-	-
19	Prefunded default fund contributions	-	-	-	-	-	-
20	Unfunded default fund contributions	-	-	-	-	-	-

The following table presents GSGUK, GSI and GSIB's exposures subject to CVA capital charges and corresponding RWAs as of June 30, 2018.

## Table 7: CVA VaR capital charge

\$ i	n millions					As of	June 2018	
		Exposure value			RWAs			
		GSGUK	GSI	GSIB	GSGUK	GSI	GSIB	
1	Total portfolios subject to the advanced method	\$ 70,249	\$ 69,979	\$ 271	\$ 25,817	\$ 25,727	\$ 89	
2	<ul><li>(i) VaR component (including the 3× multiplier)</li></ul>	-	-	-	4,771	4,740	30	
3	(ii) SVaR component (including the 3x multiplier)	-	-	-	21,046	20,987	59	
5	Total subject to the CVA capital charge	\$ 70,249	\$ 69,979	\$ 271	\$ 25,817	\$ 25,727	\$ 89	

The following table presents a quarterly flow statement of the RWAs and Capital requirements under the IMM for GSGUK, GSI and GSIB as of June 30, 2018.

## Table 8: RWA flow statements of CCR exposures under the IMM

\$ i	\$ in millions As of June 2018									
		RWA amounts			Capital requirements					
		GSGUK	GSI	GSIB	GSGUK	GSI	GSIB			
1	RWAs as at the end of the previous reporting period (March 2018)	\$ 75,485	\$ 75,235	\$ 249	\$ 6,039	\$ 6,019	\$ 20			
2	Asset size	4,604	4,629	(24)	368	370	(1)			
3	Credit quality of counterparties	219	219	0	18	18	0			
7	Foreign exchange movements	(2,209)	(2,202)	(7)	(177)	(176)	(1)			
8	Other	294	289	4	23	23	0			
9	RWAs as at the end of the current reporting period	\$ 78,392	\$ 78,170	\$ 222	\$ 6,271	\$ 6,254	\$ 18			

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 June 30, 2018.

\$ i	\$ in millions As of June 201									
		RWA amounts			Capital requirements					
		GSGUK GSI GSIB GSGUK GSI				GSI	GSIB			
1	RWAs as at the end of the previous reporting period (March 2018)	\$ 23,929	\$ 17,047	\$ 6,882	\$ 1,915	\$ 1,364	\$ 551			
2	Asset size	739	384	355	59	31	28			
3	Credit quality of counterparties	872	954	(82)	69	76	(7)			
7	Foreign exchange movements	(751)	(422)	(329)	(60)	(34)	(26)			
8	Other	173	(110)	283	14	(9)	23			
9	RWAs as at the end of the current reporting period	\$ 24,962	\$ 17,853	\$ 7,109	\$ 1,997	\$ 1,428	\$ 569			

Table 9: RWA flow statements of credit risk exposures under the IRB approach

## **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 nondefaulting 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 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 Management 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 an independent control function within the Operations Division. This function is responsible for reviewing exposure calculations, making margin calls with relevant counterparties, and ensuring subsequent settlement of collateral movements. We monitor the fair value of the collateral on a daily basis to ensure that our credit exposures are appropriately collateralised.

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 I, Item 1 "Financial Statements" in the firm's Quarterly Report on Form 10-Q. See "Note 10. Collateralized Agreements and Financings" in Part I, Item 1 "Financial Statements" in the firm's Quarterly Report on Form 10-Q 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. 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 June 30, 2018.

## Table 10: CRM techniques

## GSGUK

\$ i.	n millions					As of June 2018
		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	\$ 9,107	\$ 3,871	\$ 3,049	\$ 5	\$ 817
2	Total debt securities	2,098	-	-	-	-
3	Total exposures	\$ 11,205	\$ 3,871	\$ 3,049	\$ 5	\$ 817
4	Of which defaulted	288	-	-	-	-

## GSI

\$ in millions

		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	\$ 1,630	-	-	-	-
2	Total debt securities	892	-	-	-	-
3	Total exposures	\$ 2,522	-	-	-	-
4	Of which defaulted	288	-	-	-	-

## GSIB

\$	in millions					As of June 2018
		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	\$ 7,408	\$ 3,871	\$ 3,049	\$ 5	\$ 817
2	Total debt securities	643	-	-	-	-
3	Total exposures	\$ 8,051	\$ 3,871	\$ 3,049	\$ 5	\$ 817
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 11: IRB approach - Effect on the RWAs of credit derivatives used as CRM techniques

\$ in	millions					As	of June 2018
		Pre-Credit Derivatives RWAs				Actual RWAs	
1		GSGUK	GSI	GSIB	GSGUK	GSI	GSIB
2	Exposures under AIRB						
3	Central governments and central banks	\$ 2,453	\$ 2,230	\$ 223	\$ 2,453	\$ 2,230	\$ 223
4	Institutions	5,759	5,665	94	5,832	5,665	167
7	Corporates – Other	20,351	9,885	10,466	16,602	9,885	6,718
13	Equity IRB	2,117	2,117	0	2,117	2,117	0
14	Other Non-Credit obligation assets	74	73	1	75	73	1
15	Total	\$ 30,754	\$ 19,970	\$ 10,784	\$ 27,079	\$ 19,970	\$ 7,109

#### **Credit Derivatives**

We enter into credit derivative transactions primarily to facilitate client activity and to manage the credit risk associated with market-making, including to hedge counterparty exposures arising from OTC derivatives (intermediation activities).

We also use credit derivatives to hedge counterparty exposure associated with investing and lending activities. 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 derivative hedges is less than the notional loan exposure to the obligor, 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 I, Item 1 "Financial Statements" in the firm's Quarterly Report on Form 10-Q.

For information regarding credit risk concentrations, see "Note 26. Credit Concentrations" in Part I, Item 1 "Financial Statements" in the firm's Quarterly Report on Form 10-Q.

The following table presents GSGUK, GSI and GSIB exposure to credit derivatives based on notional and fair values as of June 30, 2018.

#### Table 12: Credit derivatives exposures

\$ in millions								As of Ju	ne 2018
			Credit deriva	ative hedges					
	Protection bought Protection sold								
	GSGUK	GSI	GSIB	GSGUK	GSI	GSIB	GSGUK	GSI	GSIB
Notionals									
Index Credit Default Swaps	\$286,687	\$286,570	\$117	\$286,450	\$286,333	\$117	\$0	\$0	\$0
Total Return swaps	3,502	3,502	-	321	321	-	-	-	-
Other Credit Default Swaps	350,211	348,582	1,629	337,583	336,530	1,053	-	-	-
Other Credit Derivatives	-	-	-	-	-	-	193,847	193,407	439
Total notionals	\$640,400	\$638,654	\$1,746	\$624,354	\$623,184	\$1,170	\$193,847	\$193,407	\$439
Fair values									
Positive fair value (asset)	\$9,604	\$9,593	\$11	\$12,435	\$12,404	\$31	\$5,705	\$5,700	\$5
Negative fair value (liability)	\$13,251	\$13,202	\$49	\$7,959	\$7,881	\$78	\$3,593	\$3,523	\$70

## Wrong-way Risk

We seek to minimise exposures where there is an adverse correlation between the credit quality of our counterparty and the exposure to the same counterparty, 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 wrongway 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 monitor and control specific and general wrongway 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 market-based credit spreads and from the EE of OTC derivatives with those counterparties. We calculate RWAs for CVA primarily using the Advanced CVA approach set out in CRD IV, which permits the use of regulator approved VaR models. Consistent with our Regulatory VaR calculation (see "Market Risk Management" for further details), the CVA RWAs are calculated at a 99% confidence level over a 10day 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 from simulated changes to our counterparties' credit spreads. It reflects eligible CVA hedges (as defined in CRD IV), 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 excluded 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 CRD IV. 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). CRD IV includes a transitional rule which allows all CCPs applying for authorisation or recognition under EMIR to be treated as QCCPs. The European Commission has adopted an implementing act that extended the transitional phase to December 15, 2018. Such exposures arise from OTC derivatives, exchange-traded derivatives, securities financing transactions and long settlement transactions and are required to be risk weighted at either 2% or 4% based on the specified criteria.

## **Retail Exposures**

As of June 30, 2018, we did not have any 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).

## **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 plus a percentage of the notional amount of off-balance-sheet exposures, 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 longerterm 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 through funds that the firm raises and manages. Equity exposures held in GSGUK's banking book are included in the Credit RWAs within row 5 of Table 4 and were not material as of June 30, 2018.

# 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.

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 and loans on non-accrual status, and allowance for losses on loans and lending commitments, see "Note 9. Loans Receivable" in Part I, Item 1 "Financial Statements" in the firm's Quarterly Report on Form 10-Q.

## Market Risk Management

Market risk is the risk of loss in the value of inventory, as well as certain other financial assets and financial liabilities, 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 Management, 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. The firm monitors and controls risks through strong firmwide oversight and independent control and support functions across global businesses.

Managers in revenue-producing units and Market Risk Management discuss market information, positions and estimated risk and 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 manages market risk by diversifying exposures, controlling position sizes and establishing economic hedges in related securities or derivatives. This process includes:

- Accurate and timely exposure information incorporating multiple risk metrics;
- A dynamic limit setting framework; and
- Constant communication among revenue-producing units, risk managers and senior management.

Market Risk Management 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 I, Item 2 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's Quarterly Report on Form 10-Q.

## 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, or they are based on internal models which are subject to various qualitative and quantitative parameters. The CRD IV 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. As our permission applies to GSI and GSIB individually, we calculate model-based requirements for each of those entities separately and sum those to calculate GSGUK's requirements. RWAs for market risk are calculated based on measures of exposure which include 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 CRD IV, are used to compute RWAs 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.

## **Regulatory VaR**

VaR is the potential loss in value of inventory positions, as well as certain other financial assets and financial liabilities, due to adverse market movements over a defined time horizon with a specified confidence level. The VaR model captures risks including 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.

For both risk management purposes (positions subject to VaR limits) and regulatory capital calculations we use a single VaR model. However, 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 approximately 70,000 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. 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 CRD IV 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 13 presents our period end, maximum, minimum and average daily GSGUK, GSI and GSIB 99% 10-day Regulatory VaR over the first and second quarter of 2018.

## Stressed VaR

SVaR is the potential loss in value of inventory positions, as well as certain other financial assets and financial liabilities, 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 12month 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 13 presents our period end, maximum, minimum and average weekly GSGUK, GSI and GSIB 99% 10-day SVaR over the first and second quarter of 2018.

## **Incremental Risk**

Incremental risk is the potential loss in value of nonsecuritised inventory positions due to the default or credit migration of issuers of financial instruments over a oneyear time horizon. As required by the CRD IV 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. Our average liquidity horizon as of June 30, 2018 was 3.3 months.

Table 13 presents our period end, maximum, minimum and average of the weekly GSGUK, GSI and GSIB Incremental Risk measure over the first and second quarter of 2018.

## **Comprehensive Risk**

Comprehensive risk is the potential loss in value, due to price risk and defaults, within our 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 twoway market exists, or hedges of these positions (which are typically not securitisation positions).

As required under the CRD IV 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 June 2018, we had credit correlation positions, subject

to the Comprehensive Risk Measure, with a fair value under US GAAP of \$24 million in net assets and \$194 million in net liabilities and under UK GAAP of \$333 million in net assets and \$357 million in net liabilities.

Table 13 presents the period end, maximum, minimum and average of the GSGUK, GSI and GSIB Comprehensive Risk Measure over the first and second quarter of 2018.

## Table 13: IMA values for trading portfolios

\$ in millior	าร	A	s of Jun	e 2018
	-	GSGUK	GSI	GSIB
VaR (10 d	ay 99%)			
1	Maximum value	197	184	53
2	Average value	147	142	6
3	Minimum value	123	122	1
4	Period end	151	150	1
SVaR (10	day 99%)			
5	Maximum value	834	721	120
6	Average value	474	446	29
7	Minimum value	325	290	2
8	Period end	460	458	2
IRC (99.99	%)			
9	Maximum value	1,648	1,565	157
10	Average value	1,023	967	56
11	Minimum value	820	743	17
12	Period end	984	965	19
Comprehe	ensive risk capital charge	(99.9%)		
13	Maximum value	202	202	-
14	Average value	168	168	-
15	Minimum value	118	118	-
16	Period end	188	188	-

## Table 14: Market risk under the IMA

The table below presents the capital requirements and RWA under the IMA for Market Risk as of June 30, 2018.

#### \$ in millions

			RWAs		Capital	Requirem	ents
_	<u> </u>	GSGUK	GSI	GSIB	GSGUK	GSI	GSIB
1	VaR (higher of values a and b)	\$ 5,230	\$ 5,183	\$ 47	\$ 418	\$ 415	\$4
(a)	Previous day's VaR (Article 365(1) of the CRR (VaRt-1))				151	150	1
(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				418	415	4
2	SVaR (higher of values a and b)	\$ 15,826	\$ 15,739	\$88	\$ 1,266	\$ 1,259	\$7
(a)	Latest SVaR (Article 365(2) of the CRR (SVaRt-1))				460	458	2
(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)				1,266	1,259	7
3	IRC (higher of values a and b)	\$ 12,308	\$ 12,070	\$ 237	\$ 984	\$ 965	\$ 19
(a)	Most recent IRC value (incremental default and migration risks calculated in accordance with Article 370 and Article 371 of the CRR)				984	965	19
(b)	Average of the IRC number over the preceding 12 weeks				933	915	18
4	Comprehensive risk measure (higher of values a, b and c)	\$2,345	\$2,345	-	\$188	\$188	-
(a)	Most recent risk number for the correlation trading portfolio (Article 377 of the CRR)				188	188	-
(b)	Average of the risk number for the correlation trading portfolio over the preceding 12 weeks				173	173	-
(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)				60	60	-
5	Other	\$14,920	\$14,920	-	\$1,194	\$1,194	-
6	Total	\$50,629	\$50,257	\$372	\$4,050	\$4,021	\$30

## Table 15: RWA flow statements of market risk exposures under the IMA

#### GSGUK

\$ in millions

		VaR	SVaR	IRC	Comprehensive risk measure	Other	Total RWAs	Total capital requirements
1	RWAs at previous quarter end	\$ 5,581	\$ 16,974	\$ 12,825	\$ 2,295	\$ 11,187	\$ 48,862	\$ 3,909
1a	Regulatory adjustment	(3,675)	(12,385)	(2,225)	0	<b>(</b> 5,012)	(23,297)	(1,864)
1b	RWAs at the previous quarter-end	\$ 1,906	\$ 4,589	\$ 10,600	\$ 2,295	\$ 6,175	\$ 25,565	\$ 2,045
2	Movement in risk levels	(44)	1,016	1,673	50	2,488	5,184	415
3	Model updates/changes	25	145	35	0	0	205	16
8a	RWAs at the end of the reporting period	\$ 1,887	\$ 5,750	\$ 12,308	\$ 2,345	\$ 8,663	\$ 30,953	\$ 2,476
8b	Regulatory adjustment	3,343	10,076	0	0	6,257	19,676	1,574
8	RWAs at the end of the reporting period	\$ 5,230	\$ 15,826	\$ 12,308	\$ 2,345	\$ 14,920	\$ 50,629	\$ 4,050

#### GSI

\$ in millions

		VaR	SVaR	IRC	Comprehensive risk measure	Other	Total RWAs	Total capital requirements
1	RWAs at previous quarter end	\$ 5,428	\$ 16,388	\$ 12,600	\$ 2,295	\$ 11,187	\$ 47,898	\$ 3,832
1a	Regulatory adjustment	(3,573)	(11,999)	(2,225)	0	(5,012)	(22,810)	(1,825)
1b	RWAs at the previous quarter-end	\$ 1,855	\$ 4,389	\$ 10,375	\$ 2,295	\$ 6,175	\$ 25,088	\$ 2,007
2	Movement in risk levels	(6)	1,191	1,658	50	2,488	5,382	431
3	Model updates/changes	25	145	37	0	0	207	17
8a	RWAs at the end of the reporting period	\$ 1,874	\$ 5,725	\$ 12,070	\$ 2,345	\$ 8,663	\$ 30,677	\$ 2,455
8b	Regulatory adjustment	3,309	10,014	0	0	6,257	19,580	1,566
8	RWAs at the end of the reporting period	\$ 5,183	\$ 15,739	\$ 12,070	\$ 2,345	\$ 14,920	\$ 50,257	\$ 4,021

#### GSIB

\$ in millions

		VaR	SVaR	IRC	Comprehensive risk measure	Other	Total RWAs	Total capital requirements
1	RWAs at previous quarter end	\$ 153	\$ 587	\$ 225	0	\$0	\$ 965	\$ 77
1a	Regulatory adjustment	(102)	(387)	0	0	0	(489)	(39)
1b	RWAs at the previous quarter-end	\$ 51	\$ 200	\$ 225	0	0	\$ 476	\$ 38
2	Movement in risk levels	(38)	(175)	14	0	0	(199)	(16)
3	Model updates/changes	0	0	(2)	0	0	(2)	0
8a	RWAs at the end of the reporting period	\$ 13	\$ 25	\$ 237	0	\$ 0	\$ 275	\$ 22
8b	Regulatory adjustment	34	63	0	0	0	97	8
8	RWAs at the end of the reporting period	\$ 47	\$ 88	\$ 237	0	\$ 0	\$ 372	\$ 30

#### **Model Review and Validation**

The models discussed above, which are used to determine Regulatory VaR, SVaR, Incremental risk and Comprehensive risk, are subject to independent review and validation by Model Risk Management. These models are regularly reviewed and enhanced in order to incorporate changes in the composition of positions included in market risk measures, as well as variations in market conditions. Prior to implementing significant changes to our assumptions and/or models, Model Risk Management performs model validations.

As of June 2018

As of June 2018

## **Regulatory VaR Backtesting Results**

As required by the CRD IV 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 CRD IV 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 by their nature are more likely than not to be positive. 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 trading net revenues. See "Risk Management ----Market Risk Management" in Part I, Item 2 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's Quarterly Report on Form 10-Q.

GSI hypothetical losses observed on a single day exceeded our 99% one-day Regulatory VaR on one occasion during the four quarters preceding 30<sup>th</sup> June 2018. Our actual losses observed on a single day exceeded our 99% one-day Regulatory VaR on one occasion during the same period. There was no change in the VaR multiplier used to calculate Market Risk RWAs. GSIB hypothetical losses observed on a single day exceeded our 99% one-day Regulatory VaR on one occasion during the four quarters preceding 29<sup>th</sup> June 2018. Our actual losses observed on a single day did not exceed our 99% one-day Regulatory VaR during the same period. There was no change in the VaR multiplier used to calculate Market Risk RWAs. The exceedances in GSI and GSIB were driven by large single day losses across asset classes in Q1 2018. The losses were largely driven by news around European countries and US-China trade war concerns. 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 tables below present our 99% one-day Regulatory VaR and hypothetical and actual PnL during the previous 12 months.

## Table 16: Comparison of VaR estimates with gains/losses









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

		excesses				
	Multiplier	Hypothetical	Actual			
2018 Backtesting						
GSI	3.00	1	0			
GSIB	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. We use stress testing to examine risks of specific portfolios as well as the potential impact of significant risk exposures across GSI and GSIB. We use a variety of stress testing techniques to calculate the potential loss from a wide range of market moves on our portfolios, including sensitivity analysis, scenario analysis and firmwide stress tests.

For a detailed description of the firm's stress testing

practices, see "Risk Management – Market Risk Management – Market Risk Management Process – Stress Testing" in Part I, Item 2 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's Quarterly Report on Form 10-Q.

The table below presents the components of own funds requirements under the standardised approach as June 30, 2018.

## Table 17: Market risk under the standardised approach

\$ in millions As of June 2018					3			
			RWAs		Capital Requirements			
		GSGUK	GSI	GSIB	GSGUK	GSI	GSIB	
	Outright products							
1	Interest rate risk (general and specific)	\$ 21,975	\$ 21,975	-	\$ 1,758	\$ 1,758	-	
2	Equity risk (general and specific)	4,872	4,872	-	390	390	-	
3	Foreign exchange risk	4,711	4,549	46	377	364	4	
4	Commodity risk	596	557	-	48	45	-	
4a	Collective investment undertakings	3,186	3,186	-	254	254	-	
	Options							
5	Simplified approach	402	402	-	32	32	-	
8	Securitisation (specific risk)	5,726	5,726	-	458	458	-	
9	Total	\$ 41,468	\$ 41,267	\$ 46	\$ 3,317	\$ 3,301	\$4	

## **Operational Risk Management**

## Overview

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

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.

Operational Risk Management is a risk management function independent of our revenue-producing units, reports to the firm's chief risk officer, and is responsible for developing and implementing policies, methodologies and a formalised framework for operational risk management with the goal of maintaining our exposure to operational risk at levels that are within our risk appetite.

## **Operational Risk Management Process**

Managing operational risk requires timely and accurate information as well as a strong control culture. The firm seeks to manage its operational risk through:

- Training, supervision and development of people;
- Active participation of senior management in identifying and mitigating key operational risks;

- Independent control and support functions that monitor operational risk on a daily basis, and implementation of extensive policies and procedures, and controls designed to prevent the occurrence of operational risk events;
- Proactive communication between revenue-producing units and independent control and support functions; and
- A network of systems to facilitate the collection of data used to analyse and assess operational risk exposure.

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, revenue-producing units and independent control and support functions are responsible for risk identification and risk management on a day-to-day basis, including escalating operational risks to senior 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 operational risk management framework consists of risk identification and assessment, risk measurement and risk monitoring and reporting.

## **Risk Identification and Assessment**

The core of the firm's operational risk management framework is risk identification and assessment. The firm has a comprehensive data collection process, including firmwide policies and procedures, for operational risk events.

The firm has established policies that require our first and second lines of defense 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.

In addition, the firmwide systems capture internal operational risk event data, key metrics such as transaction volumes, and statistical information such as performance trends. The firm use an internally developed operational risk management application to aggregate and organise this information. One of our key risk identification and assessment tools is an operational risk and control selfassessment 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 over a twelvemonth time horizon 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 but not limited to:

- Evaluations of the complexity of our business activities
- The dregree of automation in our processes
- New activity information
- The legal and regulatory environment
- 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 ultimately are used in the determination of the appropriate level of operational risk capital to hold.

## **Risk Monitoring and Reporting**

The firm evaluates changes in the operational risk profile of businesses, including changes in business mix or jurisdictions in which the firm operates, by monitoring the factors noted above. The firm has both preventive and detective internal controls, which are designed to reduce the frequency and severity of operational risk losses and the probability of operational risk events. The firm monitors the results of assessments and independent internal audits of these internal controls.

Periodic operational risk reports are provided to senior management, the GSI and GSIB Risk Committees and our Boards of Directors. In addition, we have established thresholds to monitor the impact of an operational risk event, including single loss events and cumulative losses over a twelve-month period, as well as escalation protocols. If incidents breach escalation thresholds, respective operational risk reports are provided to senior management and the GSI and GSIB Board Risk Committees

## **Capital Requirements**

The consolidated operational risk capital requirements for GSGUK are currently calculated under the Standardised Approach in accordance with CRD IV. GSI also follows this method. GSIB applies the Basic Indicator Approach in accordance with CRD IV.

### **Table 18: Operational Risk Capital Requirement**

\$ in millions		As of June 2018		
	GSGUK	GSI	GSIB	
Standardised Approach	\$ 1,257	\$ 1,128	-	
Basic Indicator Approach	-	-	\$ 37	

## **Interest Rate Sensitivity**

## Interest Rate Risk in the Trading Book

Our exposure to interest rate risk in our trading book arises mostly from inventory held to support client market-making activities. This inventory is 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 I, Item 2 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's Quarterly Report on Form 10-Q.

## Interest Rate Risk in the Banking Book

Our exposure to interest rate risk in our banking book activities arises from differences in interest earned or paid as interest rates change, due to the reset characteristics of our assets and liabilities. Apart from our fixed-rate debt, a significant portion of both our assets and liabilities reset frequently in relation to interest rates, therefore limiting our exposure to interest rate risk. Consequently, our banking book activities have immaterial exposure to movements in interest rates.

For further information regarding asset-liability management, see "Risk Management – Liquidity Risk Management" in Part I, Item 2 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the firm's Quarterly on Form 10-Q.

## Liquidity Coverage Ratio

### Overview

GSGUK and its major subsidiaries are subject to the liquidity requirements as set out in the European Commission Delegated Regulation 2015/61 (Liquidity Coverage Ratio (LCR) Delegated Act) and other applicable guidelines as set by the PRA.

EBA guidelines on LCR disclosure (EBA/GL/2017/01) require firms to disclose, on an annual basis, the average monthly LCR for the trailing twelve months, as well as quantitative and qualitative information on certain components of a firm's LCR. The annual disclosure is part of GSGUK's annual Pillar 3 disclosures and can be found on the firm's website.

The EBA guidelines also require firms to disclose information more frequently on certain components of a firm's LCR that are prone to rapid changes.

The table below presents a breakdown of LCR for GSGUK and its significant subsidiaries, GSI and GSIB, for the twelve months ended June 2018.

#### Table 19: Liquidity Coverage Ratio

\$ in millions Twelve Months Ended June 2018						
	Average Weighted					
	GSGUK	GSI	GSIB			
Number of data points used in the calculation of averages	12	12	12			
Liquidity Buffer	\$73,741	\$64,424	\$9,317			
Total Net Cash Outflows	35,512	32,677	5,607			
Liquidity Coverage Ratio (%) <sup>1</sup>	209%	198%	167%			

 The ratios reported in this row are calculated as the average of the monthly LCRs for the trailing twelve months and may not equal the calculation of the ratios using component amounts reported in the rows 'Liquidity Buffer' and 'Total Net Cash Outflows.'

## 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 November 2016, the European Commission proposed amendments 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. Any required minimum leverage ratio is expected to become effective for the company no earlier than January 1, 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 20: Leverage Ratio

\$ in millions	As of June 2018					
	GSGUK	GSI	GSIB			
Tier 1 Capital	\$ 36,055	\$ 31,202	\$ 3,032			
Leverage Ratio Exposure	\$ 846,207	\$ 816,621	\$ 26,647			
Leverage Ratio	4.3%	3.8%	11.4%			

## Factors impacting the Leverage Ratio

The GSGUK leverage ratio increased from 4.1% in March 2018 to 4.3% in June 2018 primarily due to a decrease in the firm's on and off balance sheet leverage exposures.

## 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. The GSI and GSIB ALCOs are delegated specific responsibility by the GSI and GSIB Risk Committees 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 GSGUK, GSI and GSIB. Leverage ratio monitoring thresholds have been established for GSI and GSIB and are 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 Controllers, Corporate Treasury and other managers from independent control and support functions.

# Equity Capital Management and Regulatory Capital

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.

## **Equity Capital Management**

We determine the appropriate amount and composition of our equity capital by considering multiple factors including our 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, the business environment and conditions in the financial markets.

Our capital planning and stress testing process incorporates internally designed stress tests and those required under the PRA's Internal Capital Adequacy Assessment Process (ICAAP). It is also designed to identify and measure material risks associated with business activities, including market risk, credit risk, operational risk and other risks. Our goal is to hold sufficient capital to ensure that 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

In addition, as part of the company's comprehensive capital management policy, a contingency capital plan is maintained that provides a framework for analysing and responding to a perceived or actual capital deficiency, including but not limited to, identification of drivers of a capital deficiency, as well as mitigants and potential actions. It outlines the appropriate communication procedures to follow during a crisis period, including internal dissemination of information as well as timely communication with external stakeholders.

# Cautionary Note on Forward-Looking Statements

We have included or incorporated by reference in these disclosures, and from time to time our management may make, statements that may constitute "forward-looking statements." Forward-looking statements are not historical facts, 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 condition.

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 under "Risk Factors" in Part I, Item 1A in the firm's 2017 Form 10-K.

## Glossary

- Advanced Internal Ratings-Based (AIRB). The AIRB approach of CRD IV 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 comprises a modelled measure which is calculated at a 99.9% confidence level over a one-year time horizon plus a surcharge 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 under 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 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 inventory 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 under CRD IV rules 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, as well as certain other financial assets and financial liabilities, due to changes in market conditions.
- **Operational Risk.** The risk of loss resulting from inadequate or failed internal processes, people and 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 CRD IV 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.

- **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 inventory positions, as well as certain other financial assets and financial 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.
- Value-at-Risk (VaR). The potential loss in value of inventory positions, as well as certain other financial assets and financial liabilities, 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: Credit Risk Tables

The following tables provide a further breakdown on GSGUK, GSI, and GSIB's counterparty and credit risk exposures

## Table 21: Credit quality of exposures by exposure class and instrument

#### GSGUK

\$ in I	nillions						As of	June 2018
		Gross carryi Defaulted exposures	ng values of 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	-	\$ 32,468	-	-	-	-	\$ 32,468
2	Institutions	-	8,778	-	-	-	-	8,778
3	Corporates	-	28,390	48	-	-	48	28,342
14	Equity	-	619	-	-	-	-	619
14 a	Securitisation positions	-	672	-	-	-	-	672
14 b	Non-credit obligation assets	-	75	-	-	-	-	75
15	Total IRB approach	-	\$ 71,002	\$ 48	-	-	\$ 48	\$ 70,954
16	Central governments or central banks	-	18	-	-	-	-	18
21	Institutions	-	866	-	-	-	-	866
22	Corporates	-	1,659	-	-	-	-	1,659
28	Exposures in default	288	-	-	-	-	-	288
29	Items associated with particularly high risk	-	1,952	-	-	-	-	1,952
33	Equity exposures	-	139	-	-	-	-	139
34	Other exposures	-	697	-	-	-	-	697
35	Total standardised approach	\$ 288	\$ 5,331	-	-	-	-	\$ 5,619
36	Total	\$ 288	\$ 76,333	\$ 48	-	-	\$ 48	\$ 76,573
37	Of which: Loans	33	6,619	40	-	-	40	6,612
38	Of which: Debt securities	255	1,843	-	-	-	-	2,098
39	Of which: Off- balance-sheet exposures	-	7,280	8	-	-	8	7,272

## GSI

\$ in millions

		Gross carryi	ng values of				Credit risk	
		Defaulted	Non-	Specific	General		adjustment	
		exposures	defaulted	credit risk	credit risk	Accumulated	charges of	Net
			exposures	adjustment	adjustment	write-offs	the period	values
1	Central governments or central banks	-	\$ 29,526	-	-	-	-	\$ 29,526
2	Institutions	-	8,552	-	-	-	-	8,552
3	Corporates	-	16,261	-	-	-	-	16,261
14	Equity	-	619	-	-	-	-	619
14a	Securitisation positions	-	-	-	-	-	-	-
14b	Non-credit obligation assets	-	74	-	-	-	-	74
15	Total IRB approach	-	\$ 55,032	-	-	-	-	\$ 55,032
16	Central governments or central banks	-	-	-	-	-	-	-
21	Institutions	-	-	-	-	-	-	-
22	Corporates	-	902	-	-	-	-	902
28	Exposures in default	288	-	-	-	-	-	288
29	Items associated with particularly high							
	risk	-	-	-	-	-	-	-
33	Equity exposures	-	-	-	-	-	-	-
34	Other exposures	-	300	-	-	-	-	300
35	Total standardised approach	\$ 288	\$ 1,202	-	-	-	-	\$ 1,490
36	Total	\$ 288	\$ 56,234	-	-	-	-	\$ 56,522
37	Of which: Loans	33	1,597	-	-	-	-	1,630
38	Of which: Debt securities	255	637	-	-	-	-	892
39	Of which: Off- balance-sheet	_	_	_	_	_	_	-
	exposures	-	-	-	-	-	-	-

## GSIB

\$ in millions

		Gross carryi	ng values of				Credit risk	
		Defaulted	Non-	Specific	General		adjustment	
		exposures	defaulted	credit risk	credit risk	Accumulated	charges of	Net
			exposures	adjustment	adjustment	write-offs	the period	values
1	Central governments or central banks	-	\$ 2,943	-	-	-	-	\$ 2,943
2	Institutions	-	225	-	-	-	-	225
3	Corporates	-	12,129	48	-	-	48	12,081
14	Equity	-	0	-	-	-	-	0
14	Securitisation positions	_	672	_	_	_	_	672
а		-	072	-	-		-	072
14	Non-credit obligation assets	_	1	_		_	_	1
b		-	1	-	-	-	-	I
15	Total IRB approach	-	\$ 15,970	\$ 48	-	-	\$ 48	\$ 15,922
16	Central governments or central banks	-	-	-	-	-	-	-
21	Institutions	-	-	-	-	-	-	-
22	Corporates	-	7	-	-	-	-	7
28	Exposures in default	-	-	-	-	-	-	-
29	Items associated with particularly high	_	_	_	_	_	_	_
	risk	-	-	-	-	-	-	-
33	Equity exposures	-	-	-	-	-	-	-
34	Other exposures	-	-	-	-	-	-	-
35	Total standardised approach	-	\$7	-	-	-	-	\$7
36	Total	-	\$ 15,977	\$ 48	-	-	\$ 48	\$ 15,929
37	Of which: Loans	-	4,954	40	-	-	40	4,914
38	Of which: Debt securities	-	643	-	-	-	-	643
39	Of which: Off- balance-sheet	-	7,280	8	-	-	8	7,272
	exposures		,	-			-	•

<sup>1</sup>The defaulted exposures quantified in the tables above include positions where the obligor defaulted prior to our purchase of the position.

## Table 22: Credit quality of exposures by industry or counterparty types

## GSGUK

\$ in	millions							As of June 2018
		Gross carr	ying values of				Credit risk	
							adjustment	
		Defaulted	Non-defaulted	Specific credit	General credit	Accumulated	charges of the	
		exposures	exposures	risk adjustment	risk adjustment	write-offs	period	Net values
1	Sovereigns	-	\$ 32,476	-	-	-	-	\$ 32,476
4	Other Financials	43	24,561	14	-	-	14	24,590
3	Banks	122	7,975	-	-	-	-	8,097
5	CCPs and Exchanges	-	2,379	-	-	-	-	2,379
2	Services and other Industries	117	4,802	16	-	-	16	4,903
6	Manufacturing	6	997	5	-	-	5	998
7	Transport, Utilities & Storage	-	1,675	7	-	-	7	1,668
8	Retail / Wholesale trade	-	507	6	-	-	6	501
9	Real Estate	-	961	0	-	-	0	961
10	Total	\$ 288	\$ 76,333	\$ 48	-	-	\$ 48	\$ 76,573

GSI \$ in millions

As of June 2018

As of June 2018

ψΠ	1111110113							
		Gross carr	ying values of				Credit risk	
				-			adjustment	
		Defaulted	Non-defaulted	Specific credit	General credit	Accumulated	charges of the	
		exposures	exposures	risk adjustment	risk adjustment	write-offs	period	Net values
1	Sovereigns	-	\$ 29,527	-	-	-	-	\$ 29,527
4	Other Financials	43	15,468	-	-	-	-	15,511
3	Banks	122	6,966	-	-	-	-	7,088
5	CCPs and Exchanges	-	2,379	-	-	-	-	2,379
2	Services and other Industries	117	1,799	-	-	-	-	1,916
6	Manufacturing	6	18	-	-	-	-	24
7	Transport, Utilities & Storage	-	76	-	-	-	-	76
8	Retail / Wholesale trade	-	0	-	-	-	-	0
9	Real Estate	-	1	-	-	-	-	1
10	Total	\$ 288	\$ 56,234	-	-	-	-	\$ 56,522

#### GSIB \$ in millions

γm	minons							
		Gross carr	ying values of	-			Credit risk	
		Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustment	General credit risk adjustment	Accumulated write-offs	charges of the period	Net values
1	Sovereigns	-	\$ 2,943	-	-	-	•	\$ 2,943
4	Other Financials	-	6,650	14	-	-	14	6,636
3	Banks	-	219	-	-	-	-	219
5	CCPs and Exchanges	-	1	-	-	-	-	1
2	Services and other Industries	-	2,384	16	-	-	16	2,368
6	Manufacturing	-	886	5	-	-	5	881
7	Transport, Utilities & Storage	-	1,489	7	-	-	7	1,482
8	Retail / Wholesale trade	-	458	6	-	-	6	452
9	Real Estate	-	947	0	-	-	0	947
10	Total	-	\$ 15,977	\$ 48	-	•	\$ 48	\$ 15,929

## Table 23: Credit quality of exposures by geography

## **GSGUK** \$ in millions

\$ ir	n millions							As of June 2018
		Gross carry	ng values of				Credit risk	
		Defeatived	Non defeation	0	<b>O</b>	<b>A</b> = =	adjustment	
		Defaulted	Non-defaulted	Specific credit	General credit	Accumulated	charges of the	
		exposures	exposures	risk adjustment	risk adjustment	write-offs	period	Net values
1	EMEA	\$ 250	\$ 64,163	\$ 46	-	-	\$ 46	\$ 64,367
2	Germany	-	26,323	2	-	-	2	26,321
3	United Kingdom	77	24,410	8	-	-	8	24,479
4	Other Countries	173	13,430	36	-	-	36	13,567
5	Asia	\$ 5	\$ 2,481	\$0	-	-	\$ 0	\$ 2,486
6	Singapore	-	560	0	-	-	0	560
7	Other Countries	5	1,921	0	-	-	0	1,926
8	Americas	\$ 33	\$ 9,687	\$ 2	-	-	\$ 2	\$ 9,718
9	United States	30	5,977	0	-	-	0	6,007
10	Other Countries	3	3,710	2	•	-	2	3,711
11	Other Geographical areas	-	\$ 2	-	•	-	•	\$ 2
12	Total	\$ 288	\$ 76,333	\$ 48	-	-	\$ 48	\$ 76,573

GSI \$ in millic

\$ ir	millions							As of June 2018
		Gross carry	ng values of				Credit risk	
				<b>.</b>	<b>.</b>		adjustment	
		Defaulted	Non-defaulted	Specific credit	General credit	Accumulated	charges of the	
		exposures	exposures	risk adjustment	risk adjustment	write-offs	period	Net values
1	EMEA	\$ 250	\$ 49,471	-	-	-	-	\$ 49,721
2	Germany	-	25,227	-	-	-	-	25,227
3	United Kingdom	77	20,606	-	-	-	-	20,683
4	Other Countries	173	3,638	-	-	-		3,811
5	Asia	\$ 5	\$ 2,280	-	-	-	-	\$ 2,285
6	Singapore	-	452	-	-	-	-	452
7	Other Countries	5	1,828	-	-	-	-	1,833
8	Americas	\$ 33	\$ 4,482	-	-	-	-	\$ 4,515
9	United States	30	3,699	-	-	-	-	3,729
10	Other Countries	3	783	-	-	-	-	786
11	Other Geographical areas	-	\$1	-	-	-	-	\$ 1
12	Total	\$ 288	\$ 56,234	-	-	-	-	\$ 56,522

#### GSIB

\$ in	millions							As of June 2018
		Gross carryin	g values of				Credit risk	
							adjustment	
		Defaulted	Non-defaulted	Specific credit	General credit	Accumulated	charges of the	
		exposures	exposures	risk adjustment	risk adjustment	write-offs	period	Net values
1	EMEA	-	\$ 11,458	\$ 46	-		\$ 46	\$ 11,412
2	Germany	-	1,055	2	-	-	2	1,053
3	United Kingdom	-	1,960	8	-	•	8	1,952
4	Other Countries	-	8,443	36	-	-	36	8,407
5	Asia	-	\$ 132	\$ 0	-	-	\$ 0	\$ 132
6	Singapore	-	44	0	-	•	0	44
7	Other Countries	-	88	0	-	-	0	88
8	Americas	-	\$ 4,387	\$ 2	-	-	\$ 2	\$ 4,385
9	United States	-	2,237	0	-	•	0	2,237
10	Other Countries	-	2,150	2	-	-	2	2,148
11	Other Geographical areas	-	\$ 0	-	-	-	-	\$ 0
12	Total	-	\$ 15,977	\$ 48	-	-	\$ 48	\$ 15,929

Table 24: IRB (Equity exposures subject to the simple risk-weighted approach)<sup>1,2</sup>

## GSGUK

\$ in millions						As of June 2018								
	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	\$ 218	-	290%	\$ 218	\$ 632	\$ 50								
Other Equity Exposures	\$ 401	-	370%	\$ 401	\$ 1,485	\$ 119								
Total	\$ 619	-	0%	\$ 619	\$ 2,117	\$ 169								

1. GSG UK exposure is comprised of entirely exposures from GSI. GSIB does not have equities exposures under the simple risk-weighted approach.

2. GSG UK and GSI do not have private equity exposures which are risk weighted at 190%.

## Table 25: IRB approach - Credit risk exposures by exposure class and PD range

### GSGUK

\$ in millions

\$ in millions												A	s of June 2018
	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
Sovereign					-					· · · · · · · · · · · · · · · · · · ·			
	0.00 to <0.15	\$ 32,447	-	0.00%	\$ 32,447	0.00013	12	0.8088	1.0000	\$ 2,366	7%	\$3	
	0.15 to <0.25	0	-	0.00%	0	0.00179	3	0.7604	1.0000	0	50%	0	
	0.25 to <0.50	0	-	0.00%	0	0.00260	1	0.7629	1.0000	0	64%	0	
	0.50 to <0.75	0	-	0.00%	0	0.00670	1	0.7461	1.0000	0	107%	0	
	0.75 to <2.50	0	-	0.00%	0	0.02370	1	0.8380	1.0000	0	200%	0	
	2.50 to <10.00	0	-	0.00%	0	0.06472	4	0.7491	1.0000	1	257%	0	
	10.00 to <100.00	21	-	0.00%	21	0.23780	2	0.7629	1.0000	86	415%	4	
	100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
	Subtotal	\$ 32,468	-	0.00%	\$ 32,468	0.00028	24	0.8088	1.0000	\$ 2,453	8%	\$7	-
Institutions													
	0.00 to <0.15	\$ 6,823	\$ 24	87.57%	\$ 7,034	0.00052	557	0.7187	1.0509	\$ 1,876	27%	\$3	
	0.15 to <0.25	360	84	79.60%	427	0.00172	121	0.7736	1.2301	303	71%	0	
	0.25 to <0.50	73	-	0.00%	73	0.00260	27	0.6980	1.0000	56	78%	0	
	0.50 to <0.75	329	-	0.00%	329	0.00615	55	0.7997	1.0000	468	142%	2	
	0.75 to <2.50	292	-	0.00%	292	0.01783	142	0.7596	1.5393	634	217%	4	
	2.50 to <10.00	78	-	0.00%	78	0.09757	16	0.7909	1.0000	252	324%	6	
	10.00 to <100.00	667	-	0.00%	667	0.23780	65	0.4861	4.3635	2,243	336%	77	
	100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
	Subtotal	\$ 8,622	\$ 108	76.91%	\$ 8,900	0.02000	983	0.7087	1.3210	\$ 5,832	66%	\$ 92	
Corporates													
	0.00 to <0.15	\$ 4,498	\$ 3,322	75.07%	\$ 6,204	0.00049	316	0.6749	2.1933	\$ 2,142	35%	\$3	
	0.15 to <0.25	634	1,244	76.23%	1,878	0.00174	528	0.6583	2.3856	1,235	66%	2	
	0.25 to <0.50	134	404	75.01%	727	0.00260	38	0.8014	2.0412	638	88%	2	
	0.50 to <0.75	1,058	707	75.08%	1,582	0.00365	107	0.7948	2.4034	2,452	155%	8	
	0.75 to <2.50	800	1.129	75.02%	1.874	0.01027	114	0.6937	2.7329	4,304	230%	28	
	2.50 to <10.00	993	339	75.07%	1,247	0.07897	100	0.7394	3.3840	4,203	337%	65	
	10.00 to <100.00	339	17	78.60%	355	0.23780	273	0.7867	1.1785	1,628	460%	66	
	100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
	Subtotal	\$ 8,456	\$ 7,162	71.84%	\$ 13,867	0.01653	1,476	0.7042	8.8162	\$ 16,602	120%	\$ 174	
	Total (all portfolios)	\$ 49,546	\$ 7,270	71.91%	\$ 55,235	0.00649	2,483	0.7735	2.3897	\$ 24,887	45%	\$ 273	

## GSI

\$ in millions

	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
Sovereign													
	0.00 to <0.15	\$ 29,505	-	0.00%	\$ 29,505	0.00013	6	0.8088	1.0000	\$ 2,143	7%	\$3	
	0.15 to <0.25	0	-	0.00%	0	0.00170	1	0.7461	1.0000	0	47%	0	
	0.25 to <0.50	-	-	-	-	-	-	-	-	-	-	-	
	0.50 to <0.75	0	-	0.00%	0	0.00670	1	0.7461	1.0000	0	107%	0	
	0.75 to <2.50	0	-	0.00%	0	0.02370	1	0.8380	1.0000	0	200%	0	
	2.50 to <10.00	0	-	0.00%	0	0.06472	4	0.7491	1.0000	1	257%	0	
	10.00 to <100.00	21	-	0.00%	21	0.23780	2	0.7629	1.0000	86	415%	4	
	100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
	Subtotal	\$ 29,526	-	0.00%	\$ 29,526	0.00030	15	0.8088	1.0000	\$ 2,230	8%	\$ 7	
Institutions													
	0.00 to <0.15	\$ 6,756	-	0.00%	\$ 6,756	0.00052	466	0.7237	1.0000	\$ 1,772	26%	\$ 3	
	0.15 to <0.25	359	-	0.00%	359	0.00173	107	0.7871	1.0000	243	68%	0	
	0.25 to <0.50	73	-	0.00%	73	0.00260	26	0.6980	1.0000	57	78%	0	
	0.50 to <0.75	329	-	0.00%	329	0.00615	53	0.7997	1.0000	468	142%	2	
	0.75 to <2.50	290	-	0.00%	290	0.01785	137	0.7597	1.5429	630	217%	4	
	2.50 to <10.00	78	-	0.00%	78	0.09757	16	0.7909	1.0000	252	324%	6	
	10.00 to <100.00	667	-	0.00%	667	0.23780	60	0.4861	4.3636	2,243	336%	77	
	100.00 (Default)		-	-	-	-	-	-	-	-	-	-	
	Subtotal	\$ 8,552	-	0.00%	\$ 8,552	0.02078	865	0.7124	1.2807	\$ 5,665	66%	\$ 92	
Corporates													
	0.00 to <0.15	\$ 4,378	-	0.00%	\$ 4,378	0.00045	126	0.7169	1.5459	\$ 1,257	29%	\$ 1	
	0.15 to <0.25	444	-	0.00%	844	0.00171	36	0.6283	1.8102	469	56%	1	
	0.25 to <0.50	1	-	0.00%	420	0.00260	18	0.9089	1.6670	395	94%	1	
	0.50 to <0.75	272	-	0.00%	818	0.00663	40	0.9104	1.7410	1,387	170%	5	
	0.75 to <2.50	87	-	0.00%	1,323	0.02267	77	0.7009	2.5723	3,173	240%	21	
	2.50 to <10.00	279	-	0.00%	496	0.07462	27	0.8435	1.8311	1,793	362%	32	
	10.00 to <100.00	303	-	0.00%	303	0.23780	173	0.7966	0.9678	1,411	466%	57	
	100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
	Subtotal	\$ 5,764	-	0.00%	\$ 8,582	0.01734	497	0.7437	12.1354	\$ 9,885	115%	\$ 118	
	Total (all portfolios)	\$ 43,842	-	0.00%	\$ 46,660	0.00653	1,377	0.7814	2.5188	\$ 17,780	38%	\$ 217	

### GSIB

\$ in millions												A	s of June 2018
	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
Sovereign													
	0.00 to <0.15	\$ 2,942	-	0.00%	\$ 2,942	0.00014	6	0.8087	1.0000	\$ 223	8%	\$0	
	0.15 to <0.25	0	-	0.00%	0	0.00180	2	0.7629	1.0000	0	50%	0	
	0.25 to <0.50	0	-	0.00%	0	0.00260	1	0.7629	1.0000	0	64%	0	
	0.50 to <0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to <2.50	-	-	-	-	-	-	-	-	-	-	-	
	2.50 to <10.00	-	-	-	-	-	-	-	-	-	-	-	
	10.00 to <100.00	-	-	-	-	-	-	-	-	-	-	-	
	100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
	Subtotal	\$ 2,942	-	0.00%	\$ 2,942	0.00014	9	0.8087	1.0000	\$ 223	8%	\$0	-
Institutions													
	0.00 to <0.15	\$ 67	\$ 24	87.57%	\$ 278	0.00059	91	0.5959	2.2872	\$ 103	37%	\$0	
	0.15 to <0.25	1	84	79.60%	68	0.00170	14	0.7019	2.4510	60	89%	0	
	0.25 to <0.50	0	-	0.00%	0	0.00260	1	0.7790	1.0000	0	87%	0	
	0.50 to <0.75	0	-	0.00%	0	0.00600	2	0.7965	1.0000	0	140%	0	
	0.75 to <2.50	2	-	0.00%	2	0.01560	5	0.7521	1.0000	4	195%	0	
	2.50 to <10.00	-	-	-	-	-	-	-	-	-	-	-	
	10.00 to <100.00	0	-	0.00%	0	0.23780	5	0.7746	1.0000	0	474%	0	
	100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
	Subtotal	\$ 70	\$ 108	76.91%	\$ 348	0.00090	118	0.6174	2.3118	\$ 167	48%	\$0	-
Corporates													
	0.00 to <0.15	\$ 120	\$ 3,322	75.07%	\$ 1,826	0.00059	190	0.5741	3.7451	\$ 885	48%	\$1	
	0.15 to <0.25	190	1,244	76.23%	1,033	0.00176	492	0.6829	2.8559	765	74%	1	
	0.25 to <0.50	132	404	75.01%	307	0.00260	20	0.6543	2.5530	244	80%	1	
	0.50 to <0.75	786	707	75.08%	764	0.00634	67	0.6712	3.1123	1,065	139%	3	
	0.75 to <2.50	713	1,129	75.02%	551	0.01972	37	0.6766	3.1188	1,131	205%	7	
	2.50 to <10.00	714	339	75.07%	752	0.06477	73	0.6707	4.4077	2,410	321%	33	
	10.00 to <100.00	36	17	78.60%	52	0.23780	100	0.7287	2.4202	218	422%	10	
	100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	
	Subtotal	\$ 2,691	\$ 7,162	71.84%	\$ 5,285	0.01520	979	0.6400	3.4266	\$ 6,718	127%	\$ 56	\$ 48
	Total (all portfolios)	\$ 5,703	\$ 7,270	75.20%	\$ 8,575	0.00725	1,106	0.7267	2.1610	\$ 7,108	83%	\$ 56	\$ 48

## Table 26: Standardised approach – Credit risk exposure and CRM effects

## GSGUK

\$ in	millions						As of June 2018
		Exposures before	e CCF and CRM	Exposures post	CCF and CRM	RWAs and F	WA density
	Exposure classes	On-balance-sheet	Off-balance-sheet	On-balance-sheet	Off-balance-sheet		RWA
		amount	amount	amount	amount	RWAs	density
1	Central governments or central banks	\$ 18	-	\$ 18	-	\$ 18	96%
6	Institutions	866	-	866	-	173	20%
7	Corporates	1,659	-	1,659	-	1,658	100%
10	Exposures in default	288	-	288	-	432	150%
11	Higher-risk categories	1,952	-	1,952	-	2,928	150%
15	Equity	139	-	139	-	139	100%
16	Other items	697	-	697	-	1,082	155%
17	Total	\$ 5,619	-	\$ 5,619	-	\$ 6,430	114%

## GSI

\$ in millions

As of June 2018 Exposures before CCF and CRM Exposures post CCF and CRM RWAs and RWA density Exposure classes RWA **On-balance-sheet** Off-balance-sheet **On-balance-sheet** Off-balance-sheet amount RWAs density amount amount amount Central governments or central banks 1 0% -----6 Institutions --0% ---7 Corporates 902 902 --902 100% Exposures in default 10 288 -288 432 150% -11 Higher-risk categories 0% -----15 Equity -----0% 16 Other items 300 300 702 234% --17 Total \$ 1,490 \$ 1,490 --\$ 2,036 137%

#### GSIB ¢ :... ....

\$ in	millions					As	of June 2018
		Exposures befor	e CCF and CRM	Exposures pos	t CCF and CRM	RWAs and F	RWA density
	Exposure classes						RWA
		On-balance-sheet amount	Off-balance-sheet amount	On-balance-sheet amount	Off-balance-sheet amount	RWAs	density
1	Central governments or central banks	-	-	-	-	-	0%
6	Institutions	-	-	-	-	-	0%
7	Corporates	7	-	7	-	7	100%
10	Exposures in default	-	-	-	-	-	0%
11	Higher-risk categories	-	-	-	-	-	0%
15	Equity	-	-	-	-	-	0%
16	Other items	-	-	-	-	-	0%
17	Total	\$ 7	-	\$ 7	-	\$7	100%

## Table 27: Standardised approach

## GSGUK

\$ in millions

-									
	Exposure classes	0%	20%	50%	100%	150%	250%	Total	Of which unrated
1	Central governments or central banks	\$1	-	-	\$ 17	-	-	\$ 18	\$ 18
6	Institutions	-	866	-	-	-	-	866	99
7	Corporates	-	0	2	1,657	-	-	1,659	1,652
10	Exposures in default	-	-	-	-	288	-	288	288
11	Higher-risk categories	-	-	-	-	1,952	-	1,952	1,952
15	Equity	-	-	-	139	-	-	139	139
16	Other items	-	1	31	397	-	268	697	664
17	Total	\$1	\$ 867	\$ 33	\$ 2,210	\$ 2,240	\$ 268	\$ 5,619	\$ 4,812

#### GSI

\$ in millions

-									
	Exposure classes	0%	20%	50%	100%	150%	250%	Total	Of which unrated
1	Central governments or central banks	-	-	-	-	-	-	-	-
6	Institutions	-	-	-	-	-	-	-	-
7	Corporates	-	-	-	902	-	-	902	902
10	Exposures in default	-	-	-	-	288	-	288	288
11	Higher-risk categories	-	-	-	-	-	-	-	-
15	Equity	-	-	-	-	-	-	-	-
16	Other items	-	-	-	32	-	268	300	300
17	Total	-	-	-	\$ 934	\$ 288	\$ 268	\$ 1,490	\$ 1,490

## GSIB

\$ in	millions								As of June 2018
				Risk w	eight				
	Exposure classes	0%	20%	50%	100%	150%	250%	Total	Of which unrated
1	Central governments or central banks	-	-	-	-	-	-	-	-
5	International organisations	-	-	-	-	-	-	-	-
6	Institutions	-	-	-	-	-	-	-	-
7	Corporates	-	-	-	7	-	-	7	7
10	Exposures in default	-	-	-	-	-	-	-	-
11	Higher-risk categories	-	-	-	-	-	-	-	-
15	Equity	-	-	-	-	-	-	-	-
16	Other items	-	-	-	-	-	-	-	-
17	Total	-	-	-	\$7	-	-	\$7	\$7

As of June 2018

## Appendix II: Counterparty Credit Risk Tables

## Table 28: IRB approach - CCR exposures by portfolio and PD scale

## GSGUK

.

\$ in millions								As of June 2018
				Number of		Average		
	PD Scale	EAD post CRM	Average PD	Obligors	Average LGD	Maturity	RWAs	RWA density
Sovereign								
	0.00 to <0.15	\$ 11,700	0.00028	157	0.7646	2.62	\$ 3,925	34%
	0.15 to <0.25	5,810	0.00178	17	0.7636	3.82	5,536	95%
	0.25 to <0.50	23	0.00260	15	0.7996	0.75	14	64%
	0.50 to <0.75	16	0.00659	10	0.7648	4.31	30	181%
	0.75 to <2.50	0	0.02370	3	0.7662	1.00	1	183%
	2.50 to <10.00	5	0.06347	11	0.7535	1.02	13	257%
	10.00 to <100.00	-	-	-	-	-	-	0%
	100.00 (Default)	-	-	-	-	-	-	0%
	Subtotal	\$ 17,554	0.00081	213	0.7669	3.02	\$ 9,519	54%
Institutions								
	0.00 to <0.15	\$ 43,472	0.00054	5,113	0.7483	1.68	\$ 16,223	37%
	0.15 to <0.25	12,668	0.00174	2,844	0.7447	2.09	10,931	86%
	0.25 to <0.50	2,584	0.00260	839	0.7796	1.03	2,179	84%
	0.50 to <0.75	3,932	0.00645	980	0.7583	2.17	6,625	168%
	0.75 to <2.50	3,130	0.01693	2,507	0.6589	1.91	5,676	181%
	2.50 to <10.00	1,190	0.09294	119	0.8096	0.31	3,709	312%
	10.00 to <100.00	221	0.23780	528	0.7956	0.40	1,045	473%
	100.00 (Default)	5	0.99900	4	0.8003	2.99	0	1%
	Subtotal	\$ 67,202	0.00487	12,934	0.7465	1.74	\$ 46,388	69%
Corporates								
	0.00 to <0.15	\$ 25,910	0.00046	2,990	0.7529	1.95	\$ 9,207	36%
	0.15 to <0.25	7,571	0.00173	946	0.7808	2.62	7,064	93%
	0.25 to <0.50	1,625	0.00260	511	0.7566	1.69	1,396	86%
	0.50 to <0.75	2,265	0.00633	1,057	0.7629	1.72	3,238	143%
	0.75 to <2.50	2,344	0.01749	2,085	0.7461	2.44	4,995	212%
	2.50 to <10.00	810	0.07513	607	0.7659	1.79	2,503	309%
	10.00 to <100.00	541	0.23780	1,600	0.7549	2.05	2,376	440%
	100.00 (Default)	-	-	-	-	-	-	0%
	Subtotal	\$ 41,066	0.00667	9,796	0.7586	2.08	\$ 30,779	75%
	Total (all portfolios)	\$ 125,822	0.00489	22,943	0.7530	1.60	\$ 86,686	69%

## GSI

\$ in millions

				Number of		Average		
	PD Scale	EAD post CRM	Average PD	Obligors	Average LGD	Maturity	RWAs	RWA density
Sovereign								
	0.00 to <0.15	\$ 11,700	0.00028	157	0.7646	2.62	\$ 3,925	34%
	0.15 to <0.25	5,810	0.00178	17	0.7636	3.82	5,536	95%
	0.25 to <0.50	23	0.00260	15	0.7996	0.75	14	64%
	0.50 to <0.75	16	0.00659	10	0.7648	4.31	30	181%
	0.75 to <2.50	0	0.02370	3	0.7662	1.00	1	183%
	2.50 to <10.00	5	0.06347	11	0.7535	1.02	14	257%
	10.00 to <100.00	-	-	-		-	-	0%
	100.00 (Default)	-	-	-	-	-	-	0%
	Subtotal	\$ 17,554	0.00081	213	0.7669	1.60	\$ 9,520	54%
Institutions								
	0.00 to <0.15	\$ 43,417	0.00054	5,103	0.7483	1.68	\$ 16,198	37%
	0.15 to <0.25	12,622	0.00174	2,838	0.7445	2.09	10,886	86%
	0.25 to <0.50	2,584	0.00260	839	0.7796	1.03	2,179	84%
	0.50 to <0.75	3,931	0.00645	978	0.7583	2.17	6,622	168%
	0.75 to <2.50	3,124	0.01694	2,503	0.6587	1.91	5,663	181%
	2.50 to <10.00	1,190	0.09294	119	0.8096	0.31	3,709	312%
	10.00 to <100.00	220	0.23780	527	0.7957	0.40	1,043	474%
	100.00 (Default)	5	0.99900	4	0.8003	2.99	0	1%
	Subtotal	\$ 67,093	0.00445	12,911	0.7464	1.74	\$ 46,300	69%
Corporates								
	0.00 to <0.15	\$ 25,863	0.00046	2,986	0.7530	1.94	\$ 9,176	35%
	0.15 to <0.25	7,461	0.00173	940	0.7804	2.59	6,895	92%
	0.25 to <0.50	1,625	0.00260	510	0.7566	1.69	1,396	86%
	0.50 to <0.75	2,265	0.00633	1,056	0.7629	1.72	3,238	143%
	0.75 to <2.50	2,312	0.01741	2,082	0.7462	2.42	4,904	212%
	2.50 to <10.00	808	0.07517	603	0.7657	1.79	2,497	309%
	10.00 to <100.00	539	0.23780	1,598	0.7548	2.06	2,367	440%
	100.00 (Default)	-	-	-	-	-	-	0%
	Subtotal	\$ 40,873	0.00666	9,775	0.7586	2.06	\$ 30,473	75%
	Total (all portfolios)	\$ 125,520	0.00466	22,899	0.7529	1.60	\$ 86,293	69%

#### GSIB

\$ in millions

Number of Average PD Scale EAD post CRM Obligors Maturity RWAs RWA density Average PD Average LGD 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% ------0% 2.50 to <10.00 ------10.00 to <100.00 0% ------100.00 (Default) 0% ------Subtotal ------0% Institutions 0.00 to <0.15 \$ 55 0.00059 10 0.7715 2.05 \$ 25 45% 0.15 to <0.25 46 0.00180 6 0.8043 2.23 45 99% 0% 0.25 to <0.50 ------2 2 0.50 to <0.75 1 0.00670 0.7993 1.00 148% 6 1.95 13 213% 0.75 to <2.50 0.01560 4 0.7567 2.50 to <10.00 ------0% 10.00 to <100.00 0.23780 426% 1 1 0.7827 1.00 3 100.00 (Default) ---0% -\$ 109 0.26249 23 0.7995 1.66 \$88 80% Subtotal Corporates \$ 47 0.7183 \$ 31 0.00 to <0.15 0.00054 4 5.07 66% 0.00180 0.8041 0.15 to <0.25 110 6 4.83 169 153% 0.25 to <0.50 0 0.00260 1 0.8064 1.00 0 90% 0 0.00600 0.8108 0.50 to <0.75 1 1.00 0 110% 0.75 to <2.50 31 0.02370 3 0.7409 3.65 91 291% 0.8385 2.50 to <10.00 2 0.06027 4 1.05 6 281% 10.00 to <100.00 3 0.23780 2 0.7791 1.17 9 447% 100.00 (Default) 0% ------Subtotal \$193 0.00825 21 0.7731 4.62 \$ 306 159% Total (all portfolios) \$ 302 0.10034 44 0.7826 1.09 \$ 394 130%

## Table 29: Impact of netting and collateral held on exposure values<sup>1</sup>

## GSGUK

\$ in millions					As of June 2018
	Gross positive fair value or		Netted current credit		
	net carrying amount	Netting benefits	exposure	Collateral held	Net credit exposure <sup>2</sup>
1 Derivatives	\$566,033	\$499,239	\$66,794	\$102,901	\$36,791
2 SFTs	307,089	72,121	234,968	454,743	20,159
4 Total	\$873,122	\$571,360	\$301,762	\$557,644	\$56,950
GSI					
\$ in millions					As of June 2018
	Gross positive fair value or		Netted current credit		
	net carrying amount	Netting benefits	exposure	Collateral held	Net credit exposure <sup>2</sup>
1 Derivatives	\$566,486	\$499,407	\$67,079	\$102,957	\$36,595
2 SFTs	295,943	72,121	223,823	443,952	20,159
4 Total	\$862,429	\$571,528	\$290,902	\$546,909	\$56,754
GSIB					
\$ in millions					As of June 2018
	Gross positive fair value or		Netted current credit		

			Netted current creat		
	net carrying amo	Int Netting benefits	exposure	Collateral held	Net credit exposure <sup>2</sup>
1	Derivatives \$	25 \$200	\$325	\$352	\$192
2	SFTs 28,	49 -	28,349	31,008	-
4	Total \$28,	74 \$200	\$28,674	\$31,360	\$192

<sup>1</sup>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 30: Composition of collateral for exposures to CCR<sup>1</sup>

## GSGUK

\$ in millions						As of June 2018	
		Collateral used in derivation	ative transactions		Collateral us	ed in SFTs	
	Fair value of collateral received Fair value of posted collateral			Fair value of collateral	Fair value of posted		
	Segregated	Unsegregated	Segregated	Unsegregated	received	collateral	
Sovereign	\$ 3,699	\$ 22,535	\$ 5,517	\$ 15,154	\$ 290,359	\$ 233,547	
Equities	514	4,835	-	-	138,516	127,235	
Corporate Bonds	24	1,661	-	75	13,645	8,876	
Cash	-	66,991	-	61,009	-	-	
Other	-	2,642	-	1	12,223	13,396	
Total	\$ 4,237	\$ 98,664	\$ 5,517	\$ 76,239	\$ 454,743	\$ 383,054	

## GSI

\$ in millions						As of June 2018	
		Collateral used in deriv	ative transactions		Collateral used in SFTs		
	Fair value of collateral received Fair value of posted collateral				Fair value of collateral	Fair value of posted	
	Segregated	Unsegregated	Segregated	egregated Unsegregated		collateral	
Sovereign	\$ 3,699	\$ 22,375	\$ 5,506	\$ 15,154	\$ 288,416	\$ 244,131	
Equities	514	4,776	-	-	134,568	129,594	
Corporate Bonds	24	1,650	-	75	9,076	12,793	
Cash	-	67,277	-	60,401	-	0	
Other	-	2,642	-	1	11,892	14,038	
Total	\$ 4,237	\$ 98,720	\$ 5,506	\$ 75,631	\$ 443,952	\$ 400,556	

## GSIB

\$ in millions						As of June 2018	
		Collateral used in de	Collateral us	Collateral used in SFTs			
	Fair value of collateral received Fair value of posted collateral			osted collateral	Fair value of collateral	Fair value of posted	
	Segregated	Unsegregated	Segregated	Unsegregated	received	collateral	
Sovereign	-	\$ 160	\$ 11	-	\$15,170	\$ 2,642	
Equities	-	58	-	-	6,307	-	
Corporate Bonds	-	11	-	-	8,486	-	
Cash	-	123	-	608	-	-	
Other	-	-	-	-	1,045	71	
Total	-	\$ 352	\$ 11	\$ 608	\$ 31,008	\$ 2,713	

<sup>1</sup>In addition, as of 30<sup>th</sup> June 2018, GSI had received \$18.2bn of collateral on derivative transactions that the firm cleared on behalf of clients as agent.

## Appendix III: Past Due Exposures, Impaired Exposures and Impairment Provisions Tables

## Table 31: Aging of past-due exposures

\$	in millions							As of June 2018		
			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	-	-	-	-		-	\$ 42		
2	Debt securities	18	-	-	-		-	235		
3	GSGUK Total exposures	\$ 18	-	-	-		-	\$ 277		
1	Loans	-	-	-	-		-	42		
2	Debt securities	18	-	-	-		-	235		
3	GSI Total exposures	\$ 18	-	-	-		-	\$ 277		
1	Loans	-	-	-	-		-	-		
2	Debt securities	-	-	-	-		-	-		
3	GSIB Total exposures	-	-	-	-		-	-		

## Table 32: Non-performing and forborne exposures

\$ in m	illions												As	of June 2018	
		Gr	Gross carrying amount of performing and non-performing exposures					ires	Accumulated impairment and provisions and negative fair value adjustments due to credit risk			t and ir value t risk	Collaterals and financial guarantees received		
			Of which performing but past	Of which		Of which non-performing		On perfo exposure	On performing exposures		On performing exposures		ing es	On non-	Of which
			due > 30 days and <= 90 days	performing forborne		Of which defaulted	Of which impaired	Of which forborne		Of which forborne		Of which forborne	performing exposures	forborne exposures	
	GSGUK								1						
010	Debt securities	\$ 2,098	-	-	\$ 255	\$ 255	-	-	-	-	-	-	-	-	
020	Loans and advances	\$ 6,652	-	-	\$ 53	\$ 33	\$ 20	-	\$ 35	-	\$5	-	-	-	
030	Off-balance-sheet exposures	\$ 7,280	-	-	-	-	-	-	\$8	-	-	-	-	-	
	GSI														
010	Debt securities	892	-	-	255	255	-	-	-	-	-	-	-	-	
020	Loans and advances	1,630	-	-	33	33	-	-	-	-	-	-	-	-	
030	Off-balance-sheet exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	
	GSIB														
010	Debt securities	643	-	-	-	-	-	-	-	-	-	-	-	-	
020	Loans and advances	4,954	-	-	20	-	20	-	35	-	5	-	-	-	
030	Off-balance-sheet exposures	7,280	-	-	-	-	-	-	8	-	-	-	-	-	

## Table 33: Changes in the stock of general and specific credit risk adjustments<sup>1</sup>

\$ in	millions	As of June 2018					
		Accumulated spec	ific credit risk adjustment	Accumulated genera	ll credit risk adjustment		
		GSGUK	GSIB	GSGUK	GSIB		
1	Opening balance	\$ 27	\$ 27	-	-		
2	Increases due to amounts set aside for estimated loan losses during the period	6	6	-	-		
3	Decreases due to amounts reversed for estimated loan losses during the period	(1)	(1)	-	-		
4	Decreases due to amounts taken against accumulated credit risk adjustments	-	-	-	-		
5	Transfers between credit risk adjustments	-	-	-	-		
6	Impact of exchange rate differences	1	1	-	-		
7	Business combinations, including acquisitions and disposals of subsidiaries	-	-	-	-		
8	Position and valuation changes	15	15	-	-		
9	Closing balance	\$ 48	\$ 48	-	-		
10	Recoveries on credit risk adjustments recorded directly to the statement of profit or loss	-	-	-	-		
11	Specific credit risk adjustments directly recorded to the statement of profit or loss	-	-	-	-		

<sup>1</sup>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 34: Changes in the stock of defaulted and impaired loans and debt securities<sup>1</sup>

\$ in millions			As of June 2018	
	Gross	Gross carrying value defaulted exposures		
	GSGUK	GSI	GSIB	
1 Opening balance as of 31 <sup>st</sup> December 2017	\$ 200	\$ 180	\$ 20	
5 Other changes	88	108	(20)	
6 Closing balance	\$ 288	\$ 288	-	

<sup>1</sup>There were no defaulted or impaired loans and debt securities written off or returned to non-defaulted status during the period.

## Appendix IV: Index of Tables to EBA Templates

Table	EBA Template	Full name	Page
N/A	Template 1 <sup>1</sup>	EU LI1 - Differences between accounting and regulatory scopes of consolidation and the mapping of financial statement categories with regulatory risk categories	N/A
N/A	Template 2 <sup>1</sup>	EU L12 - Main sources of differences between regulatory exposure amounts and carrying values in financial statements	N/A
N/A	Template 3 <sup>1</sup>	EU L13 - Outline of the differences in the scopes of consolidation (entity by entity)	N/A
4	Template 4	EU OV1 - Overview of RWAs	8
24	Template 5 <sup>2</sup>	EU CR10 - IRB (specialised lending and equities)	35
N/A	Template 6 <sup>3</sup>	EU INS1 - Non-deducted participations in insurance undertakings	N/A
N/A	Template 7 <sup>1</sup>	EU CRB-B - Total and average net amount of exposures	N/A
N/A	Template 8 <sup>1</sup>	EU CRB-C - Geographical breakdown of exposures	N/A
N/A	Template 9 <sup>1</sup>	EU CRB-D - Concentration of exposures by industry or counterparty types	N/A
N/A	Template 10 <sup>1</sup>	EU CRB-E - Maturity of exposures	N/A
21	Template 11	EU CR1-A - Credit quality of exposures by exposure class and instrument	31
22	Template 12	EU CR1-B - Credit quality of exposures by industry or counterparty types	33
23	Template 13	EU CR1-C - Credit quality of exposures by geography	34
31	Template 14	EU CR1-D - Ageing of past-due exposures	46
32	Template 15	EU CR1-E - Non-performing and forborne exposures	46
33	Template 16	EU CR2-A - Changes in the stock of general and specific credit risk adjustments	47
34	Template 17	EU CR2-B Changes in the stock of defaulted and impaired loans and debt securities	47
10	Template 18	EU CR3 - CRM techniques - Overview	15
26	Template 19	EU CR4 - Standardised approach - Credit risk exposure and CRM effects	39
27	Template 20	EU CR5 - Standardised approach	40
25	Template 21	EU CR6 - IRB approach - Credit risk exposures by exposure class and PD range	36
11	Template 22	EU CR7 - IRB approach - Effect on the RWAs of credit derivatives used as CRM techniques	15
9	Template 23	EU CR8 - RWA flow statements of credit risk exposures under the IRB approach	14
N/A	Template 24 <sup>1</sup>	EU CR89 - IRB approach – Backtesting of PD per exposure class	N/A
5	Template 25	EU CCR1 - Analysis of CCR exposure by approach	12
7	Template 26	EU CCR2 - CVA VaR capital charge	13
6	Template 27	EU CCR8 - Exposures to CCPs	13
N/A	Template 28 <sup>4</sup>	EU CCR3 - Standardised approach - CCR exposures by regulatory portfolio and risk	N/A
28	Template 29	EU CCR4 - IRB approach - CCR exposures by portfolio and PD scale	41
8	Template 30	EU CCR7 - RWA flow statements of CCR exposures under the IMM	13
29	Template 31	EU CCR5-A - Impact of netting and collateral held on exposure values	44
30	Template 32	EU CCR5-B - Composition of collateral for exposures to CCR	45
12	Template 33	EU CCR6 - Credit derivatives exposures	16
17	Template 34	EU MR1 - Market risk under the standardised approach	23
14	Template 35	EU MR2-A - Market Risk under the IMA	20
15	Template 36	EU MR2-B- RWA flow statements of market risk exposures under the IMA	21
13	Template 37	EU MR3 - IMA values for trading portfolios	20
16	Template 38	EU MR4 - Comparison of VaR estimates with gains/losses	32

- 1. Template 1, 2 3, 7, 8, 9, 10 and 24 have not been disclosed as they are required annually. Please refer to the Q4 2017 disclosures.
- 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 does not have 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.