Citigroup Global Markets Limited

Pillar 3 Disclosures

2018

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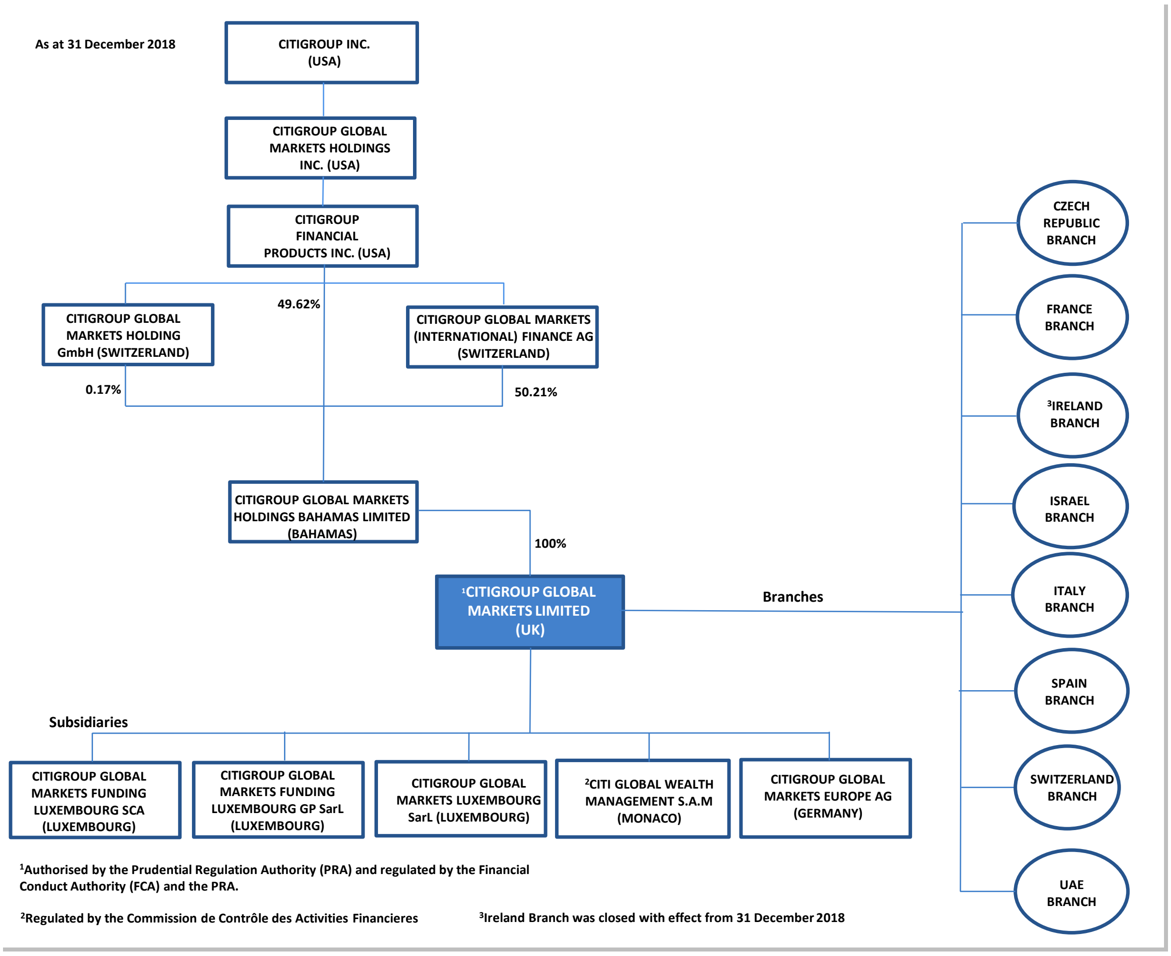
1 Introduction to Citigroup Global Markets Limited

Citigroup Global Markets Limited (CGML) is Citi's primary international broker-dealer. It has a major presence as a dealer, market maker and underwriter in equity and fixed income markets and offers risk-based solutions to producers, consumers and investors in commodity products. CGML also provides advisory services to a wide range of government, institutional and corporate clients. CGML's trading activities encompass cash, exchange traded and over the counter (OTC) derivative markets. Its major counterparties are banks, investment firms, asset managers, insurers and hedge funds. It also has moderate trading exposure to corporate clients.

Figure 1: Extract from UK Organisation Chart as at 31 December 2018



Background

Citigroup Inc. (Citi) is a global diversified financial services organisation whose businesses provide consumers, corporations, governments and institutions with a broad range of financial products and services, including consumer banking and credit, corporate and investment banking, securities brokerage, trade and securities services and wealth management. Citi has approximately 200 million customer accounts and does business in more than 160 countries and jurisdictions.

The mission of Citi is to responsibly provide financial services that enable economic growth and progress as a trusted partner to its clients and to deliver sustainable, growing earnings across all of its businesses while protecting capital and liquidity.

Citi currently operates, for management reporting purposes, via two primary business segments: Citicorp, consisting of Citi's Global Consumer Banking (GCB) and Institutional Clients Group (ICG) businesses; and Citi Holdings, consisting of businesses and portfolios of assets that Citi has determined are not central to its core Citicorp businesses.

Citi Holdings is no longer a separately reported business segment; it is now reported as part of Corporate/other earnings.

Citicorp

Citicorp is a relationship-focused global bank serving businesses and consumers. It includes "core" Citi properties and has a presence in high-growth emerging markets around the world. Citicorp has worldwide deposit-taking capabilities that can be put to work with consumer and institutional customers in a diversified way to produce the highest returns, giving it a unique ability to deliver global capabilities locally and serve local clients globally.

Citicorp's UK business is almost entirely transacted on the books of CGML, Citibank Europe plc (CEP) UK branch and Citibank NA London branch. The last two fall outside the scope of these disclosures.

CGML's business comprises all the main activities falling within the ICG's Markets and Securities Services and Capital Markets Organisation (CMO) and Corporate and Investment Banking within the Banking segments.

There is next to nothing of Citi Holdings business in CGML.

Institutional Clients Group (ICG)

Citi's ICG business comprises the following:

Markets and Securities Services

The main businesses within Markets and Securities Services are as follows

- Commodities
- Credit
- Equities
- Foreign Exchange
- Investor Services
- Rates
- Securitised Markets

Banking

Citi's banking businesses comprise the following

- Capital Markets Origination (CMO)
- Corporate and Investment Banking
- Corporate Portfolio Management
- Private Bank
- Treasury and Trade Solutions (TTS)

These business lines allow Citi to provide corporations, governments, institutions and investors with a broad range of products and services, including investment banking, securities trading, advisory services, foreign exchange, structured products, derivatives and lending.

1.1 Overview of Pillar 3 Disclosures

This document contains the Pillar 3 disclosures, qualitative and quantitative, for CGML, Citi's principal UK operating subsidiary, for 2018. The disclosures are made in accordance with Part 8 of the Capital Requirements Regulation within the Capital Requirements Directive (CRD IV) package. In addition, we have implemented the European Banking Authority (EBA) final guidelines on revised Pillar 3 disclosures (EBA/GL/2016/11), issued in December 2016, which bring into force the disclosure of new quantitative tables to further enhance comparability and consistency across the industry. Where not relevant to the activities of CGML, specific rows and columns have been deleted from templates.

The report is produced and published quarterly, with increased disclosures in the semi-annual and full annual publications. All information deemed as material, proprietary and confidential to CGML has been omitted. The CRD IV package, which came into effect on 1 January 2014 and implements the provisions of the Basel Capital Accord in the EU, mandates a framework of capital adequacy regulation for banks and investment firms incorporating three distinct pillars.

- Pillar 1 prescribes the minimum capital requirements for such firms
- Pillar 2 addresses the associated supervisory review process; and
- Pillar 3 specifies further public disclosure requirements in respect of their capital and risk profile

In accordance with the requirements set out in CRD IV, the focus of the disclosures is on European Economic Area (EEA) parent institutions and firms which are significant subsidiaries of EEA parent institutions.

The disclosures have been published in the Investor Relations section of Citi's website and complement both the group level materials included in the Citigroup Annual Report, and CGML's own 2018 financial statements.

The basis of the disclosures for CGML is on a consolidated basis.

Figure 2 sets out further details of the entities included in the CGML consolidated group.

We are aware of no material practical or legal impediment to the prompt transfer of capital resources or repayment of liabilities among these entities, beyond the normal requirements imposed by company and other legislation.

Figure 2: Subsidiaries of CGML as at 31 December 2018

Subsidiary	Date Established	Description
Citi Global Wealth Management Societe Anonyme Monegasque (SAM) (Monaco)	2007	• Established as a Citi Private Bank advisor, chartered and headquartered in Monaco. Formed as an asset management company to serve family offices and ultra-high net worth individuals resident in Monaco with a full range of global investment products and tailored financial solutions, through the Citi Private Bank • Incorporated to meet regulations that stipulate that only a local onshore registered and authorised legal entity and its local registered employees are permitted to procure clients and/or provide local Monaco resident investment advisory services

		• The entity has no onshore booking, deposit taking or lending capability. Local clients' book into the existing Citi Private Bank booking centres in Citibank NA, Jersey, Citibank NA London, Citibank (Switzerland) and Citibank Europe plc
Citigroup Global Markets Luxembourg SARL	2011	• Established by the Prime Finance business within Investor Services to carry out Securities Lending and Delta One activity • Incorporated in the form of a SarL, or limited liability company • This is currently dormant, but remains open
Citigroup Global Markets Funding Luxembourg SCA and GP SARL	2012	• Established as a Euro Medium Term Note (EMTN) issuance vehicle by the Multi Asset Group for the benefit of CGML • Established due to CGML itself being unable to publicly issue debt as a private limited company • Two Luxembourg entities were incorporated as subsidiaries of CGML – 'SCA' (a form of partnership), the issuance vehicle; and – 'SarL' (a limited company), set up as an unlimited shareholder and manager • The SCA issues the notes but transfers the risks to CGML via fully-funded Total Return Swaps
Citigroup Global Markets Europe AG	2018	• Incorporated due to Great Britain's imminent exit from the European Union, the unrestricted permission to engage in business activities in other European countries will lapse • Established as a Securities Trading Bank expected to have full permission to do business on the European markets and for the relevant target clients in Europe

1.2 Policy and Verification

In accordance with Article 431 (3) of the CRR, CGML's Pillar 3 disclosures is covered under the Citi internal EU Pillar 3 Standard, which outline the principles and minimum standards to be applied when developing a set of Pillar 3 disclosures for legal entities within the EU. The firm has operated within a framework of internal controls and procedures for accessing the appropriateness of this disclosure. The Standard has been updated and approved to comply with increased guidance on Pillar 3 disclosures.

See Appendix 17.5 for a reference to CGMLs' compliance with the CRDIV.

The disclosures within the Pillar 3 document have been reviewed by appropriate senior management within the Finance, Risk and HR functions. The document was then reviewed by the CGML Capital Committee and finally reviewed and approved by the Board.

CGML Capital Committee is primarily responsible for approving, reviewing and challenging decisions taken in respect of Regulatory Capital and Disclosures. Specifically it should cover the following

- Assess all material changes in Citi's organisation, business structure and risk profile as well as external business conditions and determine whether management's current capital adequacy assessment should be updated or revised, and whether the legal vehicles are adequately capitalised
- Review and approve the ICAAP document for the Board to ensure that it continues to accurately reflect the firm's current policies, procedures, risk appetite and capital position, under both normal and stressed conditions
- Approve the Pillar 3 document prior to publication on the external Citigroup website
- Receive updates from the Market, Credit and Operational Risk Regulatory Model Committees and approve any relevant items such as model applications before they are sent to the Regulators
- Receive updates from the CRR Interpretative Office regarding items discussed and decisions agreed
- The quorum for decision-making consists of one of the co-chairs and one representative from UK Controllers and UK CFO / UK Treasury/UK Risk organisation as appropriate to the decision

Transitional Arrangements for the Adoption of IFRS 9

CGML has decided not to apply the transitional arrangements introduced by regulation (EU) 2017/2395 for mitigating the impact of IFRS 9 on own funds and the treatment of certain large exposures. CGML has concluded that the impact of IFRS 9 adoption is immaterial; and therefore the reported own funds, capital and leverage ratios already reflect the full impact of IFRS 9.

This decision reflects the nature of CGML's business and, in particular, the absence of a loan book on its balance sheet.

CGML maintains regulatory capital which is comfortably above the minimum regulatory requirements.

Board's Declaration

We confirm that CGML's Pillar 3 disclosures, to the best of our knowledge, comply with Part Eight of the CRR and have been prepared in compliance with CGML's internal control framework. In addition, we have made every effort to comply with the "EBA's Guidelines on disclosure requirements under Part Eight of Regulation (EU) No 575/2013" dated 14 December 2016, as advised by the EBA under paragraph 2.4 of such Guidelines.

Table 1: KM1 – Key Metrics for CGML as at 31 December 2018

The table below provides an overview of CGML's capital, leverage and liquidity regulatory metrics during the year.

		31-Dec-18	30-Sep-18	30-Jun-18	31-Mar-18
	Available Capital (Amounts)	**$ Million**	**$ Million**	**$ Million**	**$ Million**
1	Common Equity Tier 1 (CET1)	13,959	14,021	13,978	12,829
2	Tier 1	16,259	16,321	16,278	14,629
3	Total Capital	20,859	20,922	20,888	19,339
	Risk-weighted Assets (Amounts)				
4	Total Risk-weighted Assets (RWA)	131,022	144,934	148,319	147,390
	Risk-based Capital Ratios as a Percentage of RWA				
5	Common Equity Tier 1 ratio (%)	10.65%	9.67%	9.42%	8.70%
6	Tier 1 Ratio (%)	12.41%	11.26%	10.98%	9.93%
7	Total Capital Ratio (%)	15.92%	14.44%	14.08%	13.12%
	Additional CET1 Buffer Requirements as a Percentage of RWA				
8	Capital Conservation Buffer Requirement (2.5% from 2019) (%)	1.88%	1.88%	1.88%	1.88%
9	Countercyclical Buffer Requirement (%)	0.42%	0.26%	0.27%	0.06%
10	Bank G-SIB Additional Requirements (%)	0.00%	0.00%	0.00%	0.00%
11	Total of Bank CET1 Specific Buffer Requirements (%) (Row 8 + Row 9+ Row 10)	2.29%	2.14%	2.14%	1.94%
12	CET1 Available after Meeting the Bank's Minimum Capital Requirements (%)	2.07%	1.29%	1.08%	0.57%
	Basel III Leverage Ratio				
13	Total Basel III Leverage Ratio Measure	418,231	483,059	444,203	423,091
14	Basel III Leverage Ratio (%) (Row 2/Row 13)	3.89%	3.38%	3.66%	3.46%
	Liquidity Coverage Ratio				
15	Total HQLA	19,832	18,209	17,601	21,872
16	Total Net Cash Outflow	12,392	10,637	11,586	12,182
17	LCR Ratio (%)	160.04%	171.18%	151.92%	179.54%

2 Risk Management and Governance

2.1 Risk Management Approach

2.1.1 Objective

CGML's objective is to take prudent risks in support of Citi's aggregate strategy to serve as a trusted partner to its clients, consistent with Citi's Mission and Value Proposition and commitment to Responsible Finance, and to ensure that the risks taken are within our risk appetite, are supported by sufficient capital and liquidity, and are identified, understood, quantified, mitigated and communicated, in line with CGML's Risk Appetite Framework.

2.1.2 Risk Appetite Framework

Citi's Risk Appetite Policy establishes a holistic Risk Appetite Framework in order to clearly and consistently communicate the types and levels of risk the firm is willing to take within the context of the firm's articulated business strategy. The Risk Appetite Framework established through the policy integrates many existing processes at Citi. Given the diversified nature of Citi's businesses, Citi's limit framework is business and product specific. Each business is required to develop a Risk Appetite Framework specific to its business strategy, activities and products, and each risk taking or operating material legal entity ('MLE'), such as CGML, is required to develop a Risk Appetite Framework that is specific to the business strategy, activities and products for the legal entity.

The CGML Risk Management Framework documents the risk management model and approach used to ensure robust management of the material risks facing the legal entity and includes CGML's Risk Appetite Framework. CGML's Risk Appetite Framework is divided into four parts, with three components of quantitative risk appetite, and the qualitative risk appetite principles which are principle-based boundaries to guide behaviour.

CGML's risk appetite is set by the CGML Board, and incorporates management judgement regarding prudent risk taking and growth in light of the business environment within which the entity operates and takes into account current capital levels and planned capital actions.

The CGML Risk Appetite Framework is reviewed annually, at a minimum, as part of the Internal Capital Adequacy Assessment Process (ICAAP) update. The primary objective of the ICAAP framework is to ensure that CGML remains sufficiently capitalised in all plausible economic circumstances and has been designed to assess current and forecast capital levels under both normal and stressed operating conditions. The CGML CEO, EMEA CFO, EMEA CRO, CGML CRO or any CGML Board member can request a refresh at any time for any reason, including for any material changes in the risk profile or operating environment.

2.1.2.1 Quantitative Risk Appetite

CGML's Risk Appetite Framework includes both principle-based qualitative boundaries to guide behaviour and quantitative boundaries within which the firm will operate, focusing on ensuring that it has sufficient capital resources in light of the risks to which the entity could be exposed.

The three quantitative risk appetite components are as follows

- CGML ensures that it maintains a sufficient capital excess above and beyond its Pillar 2A, CRD IV and PRA buffer requirements under business as usual conditions in order to accommodate volatility, on both a current and forward looking basis, referred to as the Capital Action Trigger (CAT)
- CGML is also required to maintain a trading stress loss estimate below a certain level, as estimated using Citi's standard Global Systemic Stress Test (GSST) approach for any of the scenarios analysed; and

- CGML also has an Internal Risk Capital Appetite which is a measure of how much risk the Board believes it is prudent to take based on internal measures of capital adequacy, rather than regulatory capital

Note that Internal Risk Capital Appetite is not a target, but a determination of acceptable risk-taking that management may utilise without further Board dialogue, based on the maximum amount of risk considered appropriate given current capital levels, planned capital actions, the business environment, growth expectations and other factors. An ‘excess’ is held to compensate for risk and business aspects not wholly captured in risk capital and to allow for volatility, which is referred to as the ‘minimum required excess’.

CGML’s Internal Risk Capital Appetite is allocated down to key risk types – market risk capital, credit risk capital, operational risk capital and pension risk capital. These allocations are based largely on management judgment and incorporate known forward-looking events and management’s recognition that increases in one risk type can impact another, for example that increased market risk could create increased Counterparty Credit Risk (CCR) and that growth in any area could cause increased operational risk.

The CGML Board of Directors, with input from senior Citi and CGML management, sets overarching expectations and holds management accountable for ensuring that CGML’s risk profile remains within this risk appetite.

2.1.2.2 Qualitative Risk Appetite

The Board of CGML has adopted the Citigroup Risk Appetite Principles outlined below given their global applicability. Given CGML’s critical role in implementing Citi’s strategy, CGML must be aligned with Citigroup’s Risk Appetite Principles, whilst ensuring that the local assurance mechanisms are in place in order to ensure compliance.

With respect to qualitative risk appetite, the activities that Citi engages in must be consistent with Citi’s Mission and Value Proposition and key principles, including Citi’s commitment to Responsible Finance.

Citi’s Mission and Value Proposition is to serve as a trusted partner to our clients by responsibly providing financial services that enable growth and economic progress and requires employees to ensure that their decisions pass three tests

- Are in our clients’ interests
- Create economic value; and
- Are always systemically responsible

Responsible Finance means conduct that is transparent, prudent and dependable, and delivers better outcomes for our clients and society.

Citi engages in activities that involve uncertainty. The foundation of Citi’s Risk Culture is taking intelligent risk with shared responsibility, without forsaking individual accountability

- Taking intelligent risk means we must identify, measure and aggregate risks, and establish risk tolerances based on a full understanding of concentrations and “fat tail” risk. For risks that are difficult to quantify, we monitor metrics that are indicative of a safe and sound risk culture compared to thresholds and trends and rely on professional judgement following a defined framework of assessment
- Shared responsibility means we collectively bear responsibility to consider, seek input on and escalate concerns, and leverage knowledge across and within the ‘three lines of defence’ (described in Section 2.1.3); and
- Individual accountability means we must each adhere to policies and standards, actively manage risk, identify issues, escalate concerns and make fully informed decisions that take into account all risks to Citi

Citi demonstrates a safe and sound risk culture, and assesses and manages risk, such as operational, compliance, strategic, reputational, conduct and legal risks, by:

- Setting an appropriate tone from the top, through Citi's Mission and Value Proposition, the principle of Responsible Finance and Citi's global, business and regional communications strategy, which work together to establish the values expectations for the firm
- Setting appropriate standards, through Citi's Code of Conduct, Leadership Standards and global, business and local policies and procedures, which work together to set the behavioural and other conduct standards for employees of the firm
- Establishing a robust risk management and governance framework including risk policies, risk limits and metrics including early warning triggers where appropriate, concentrations and a defined protocol for reporting, escalating and resolving limit breaches and other risk management issues
- Requiring partnership, open dialogue, escalation and transparency among the three lines of defence, including input by the second line of defence in risk-taking decisions and representation by control functions on senior management committees
- Establishing comprehensive talent management processes, such as Citi's annual talent review process and key talent development programs
- Establishing comprehensive training programs, through risk, compliance and leadership training programs, such as the Chief Country Officer Risk training and Citi's Ethics and Leadership training
- Establishing processes for evaluating accountability, including through Citi's covered employee review process through which employees who are able to take material risks for the firm are independently reviewed by second line of defence control functions; and
- Establishing comprehensive performance management and compensation programs that measure and evaluate performance based on goals achieved balanced against the values, attitudes, competencies and behaviours, including risk behaviours used in achieving such goals; and making compensation and rewards decisions in line with the values and behavioural expectations of the firm

2.1.2.3 Material Risks

CGML's business falls within the Institutional Clients Group (ICG) segment of Citi's operations and is almost entirely wholesale in nature. CGML has a major international presence as a dealer, market maker and underwriter in equity and fixed income securities and offers risk-based solutions to producers, consumers and investors in commodity markets.

CGML also provides advisory services to a wide range of corporate, institutional and government clients. CGML's trading activities encompass cash, exchange traded, over-the-counter (OTC) derivatives and securities financing transactions (SFT). CGML does not originate securitisations or engage in leveraged finance transactions as principal.

CGML's main counterparties, which are also key clients of Citi globally, are large banks, investment banks, investment managers, insurers, hedge funds, public sector and some corporates.

CGML's material risks are market risk, credit risk, funding and liquidity risk, and operational risk. Operational risk includes a number of risk types, including conduct risk, fraud (including unauthorised trading) and technology risk (including cyber risk)

2.1.3 Risk Governance Structure

Risk management must be built on a foundation of ethical culture. Under Citi's Mission And Value Proposition (described in Section 2.1.2.2), which was developed by Citi's senior leadership and distributed throughout the firm, Citi strives to serve as a trusted partner to its clients by responsibly providing financial services that enable growth and economic progress while earning and maintaining the public's trust by constantly adhering to the highest ethical standards.

Additionally, Citi evaluates employees' performance against a series of behavioural expectations set out in Citi's leadership standards, which were designed in part to effectuate Citi's Mission and Value Proposition. Other culture-related efforts in connection with conduct risk, ethics and leadership, escalation and treating customers fairly, also help Citi to execute its Mission and Value Proposition.

Whilst the management of risk is the collective responsibility of all employees, Citi assigns accountability into three lines of defence

- First line of defence: The business owns all of its risks, and is responsible for the management of those risks
- Second line of defence: Citi's control functions (e.g., Risk Management, Finance, Compliance, etc.) establish and monitor standards for the management of risks and effectiveness of controls; and
- Third line of defence: Citi's Internal Audit function independently provides assurance, based on a risk-based audit plan that processes are reliable and that governance and controls are effective

2.1.4 Risk Management Model and Policies

CGML utilises Citi's over-arching Risk Management model and organisation, with its multi-dimensional risk oversight, people, policies, processes and systems in order to ensure robust oversight of entity risks. An explanation of Citi's overall approach to managing risk can be found in the "Managing Global Risk" section in Citi's 31 December 2018 Form 10-K, available on the Citigroup website.

In addition, CGML has developed entity-specific Risk Management and controls to ensure that there is local challenge to risk-taking and that Citi's approach is appropriate for CGML, as documented in the CGML Risk Management Framework.

CGML applies Citi's global Risk Management Framework, tailored as appropriate for the entity, based on the following principles established by the Chief Risk Officer

- A defined risk appetite, aligned with business strategy
- Accountability through a common framework to manage risks
- Risk decisions based on transparent, accurate and rigorous analytics
- A common risk capital model to evaluate risks
- Expertise, stature, authority and independence of risk managers; and
- Risk managers empowered to make decisions and escalate issues.

The (Citi-level) Citi Mark-to-Market Policy is the primary policy governing the approach to the setting of limits, triggers and the monitoring of market risk taken on CGML.

The (ICG-level) ICG Risk Manual is the primary ICG-level policy governing the approach to the taking of credit risk on CGML.

The (Citi-level) Operational Risk Management (ORM) Policy establishes a consistent Operational Risk Management Framework for assessing and communicating operational risk and the overall effectiveness of the internal control environment across Citi. That framework is applied at the CGML level, together with the Key Operational Risks (KORs) that have been identified as being specifically relevant for CGML (described further in Section 2.5.3) as part of the CGML Operational Risk Management Framework.

The (Citi-level) Liquidity Risk Management Policy addresses the key liquidity risks that Citi faces as a firm, which requires CGML to define its liquidity risk appetite and operate a limit and trigger structure in order to ensure compliance.

2.1.5 Risk Management Responsibilities

Citi's Chief Risk Officer reports directly to the Citi CEO. Citi manages risk across three dimensions: businesses, regions and critical products. Citi's Risk Management Framework (as defined in the Citi Risk Appetite Policy) aims to recognise the range of Citi's global business activities by combining corporate oversight with Independent Risk Management functions within each business.

Each of the major business groups has a Business Chief Risk Officer who is the focal point for risk decisions (such as setting risk limits or approving transactions) in the business. The Independent Risk Managers at the business level are responsible for establishing and implementing Risk Management policies and practices within their business, for overseeing the risk in their business, and for responding to the needs and issues of their business. This ensures the active management of the principal risks to Citi.

Regional Chief Risk Officers are accountable for the risks in their geographic area and are the primary risk contact for the regional business heads and local regulators. In addition, Product Chief Risk Officers are accountable for those areas of critical importance to Citi and are accountable for the risks within their specialities across businesses and regions, such as real estate and fundamental credit. The Product Chief Risk Officers serve as a resource to the Chief Risk Officer, as well as enabling the businesses and Regional Chief Risk Officers to focus on the day-to-day management of risks and to respond in a timely manner to business needs.

The Regional Chief Risk Officer for EMEA (EMEA CRO) is the designated Senior Manager for Risk Management under the Senior Managers Regime. The EMEA CRO reports directly to the Global CRO. The EMEA CRO role is formally inclusive of all divisions and aligned with the regional management structure to foster a more integrated approach to cross-divisional risks.

The EMEA CRO together with the CGML CRO is responsible for the risks facing CGML, including market risk, credit risk and operational risk. Liquidity risk is the responsibility of Treasury and Liquidity Risk Management.

As noted above, CGML utilises Citi's over-arching risk management model, policies and organisation, with its multi-dimensional risk oversight, people, processes and systems in order to ensure robust oversight of entity risks.

The CGML CRO is responsible for the day-to-day management of risk on CGML, overseen by the EMEA CRO, along with the risk managers for the different risk types (market risk, liquidity risk, credit risk and operational risk) and product risk managers responsible for the risks within their specialities. Certain risks, such as conduct risk, franchise risk and fraud risk, are shared with other functional areas and Risk Management is responsible for designing the escalation framework, quantification methodologies and identifying emerging trends in these areas.

2.1.6 Governance Forums and Committees

The Board of Directors has overall responsibility for the stewardship of the Company's business and, as a result, is primarily responsible for safeguarding its profitability, financial solvency and assets and for ensuring that it complies with all legal and regulatory requirements, subject to necessary delegations.

Committees of the Board include the CGML Risk Committee, the CGML Audit Committee, the CGML Remuneration Committee, which functions as a committee of the Board regarding the remuneration of the Company's employees and material risk takers, and the Nomination Committee, which functions as a committee of the Board to review and issue recommendations for nominations for the appointment of directors of the company.

There are a number of governance and control committees that escalate issues to the CGML Board, CGML Audit Committee or CGML Risk Committee. Members of CGML management sit on all of these committees.

2.1.6.1 CGML Risk Committee

The CGML Risk Committee is a standing committee of the Board of Directors and operates within its Terms of reference (ToR) approved by the Board. The Committee assists the Board in fulfilling its responsibility with respect to oversight of the risks CGML faces in managing its credit, market, liquidity, operational and certain other risks, and the alignment with CGML's strategy, capital adequacy and the macroeconomic environment. The CGML Risk Committee meets at a minimum quarterly and has membership that includes the non-executive directors as noted in the table below, the CGML CEO, EMEA CRO, EMEA CFO and EMEA General Counsel, with standard attendees including the EMEA CAO, CGML CRO and representatives from the Legal, Risk, Internal Audit, Compliance and Finance functions.

The Directors of CGML receive regular reports on any risk matters that need to be brought to their attention via standing forums. In addition, ad-hoc notifications take place via the CGML CEO or CGML CRO where escalation is required to the Board, depending on materiality, the criteria for assessing which has been previously presented to and approved by the CGML Risk Committee.

Table 2: CGML Risk Committee membership as at 31 December 2018

Name	Membership
Richard Goulding	Chair and UK non-executive director
Cyrus Ardalan	UK non-executive director
Diana Taylor	Citigroup and UK non-executive director
Malcolm Basing	UK non-executive director
James Bardrick	CGML CEO
Colin Church	EMEA CRO
Frank Mannion	EMEA CFO
Stephen Bartlett	EMEA General Counsel

2.1.6.2 CGML Audit Committee

The Audit Committee is a standing committee of the Board of Directors and is governed by the by its ToR as approved by the Board. The effectiveness of CGML's internal control system is reviewed regularly by the Directors and the CGML Audit Committee, which receives reports of assessments undertaken by the Internal Audit function. Certain aspects of the internal control system are also subject to regulatory supervision, the results of which are monitored closely by the directors and senior management. Citi has an established Managers Control Assessment ('MCA') programme to help managers self-assess key operational risks and controls and to identify and address weaknesses in the design and effectiveness of internal controls that mitigate significant operational risks.

The CGML Audit Committee and Directors are also responsible for monitoring the preparation of CGML's financial statements and for reviewing and assessing the independence of the statutory auditor, in particular in the provision by the auditor of additional services to CGML.

The current composition of the Audit Committee is set out below.

Table 3: CGML Audit Committee membership as at 31 December 2018

Name	Membership
Malcolm Basing	Chair and UK non-executive director
Cyrus Ardalan	UK non-executive director

Name	Membership
Diana Taylor	Citigroup and UK non-executive director
Richard Goulding	UK non-executive director

2.1.6.3 CGML Remuneration Committee

The CGML RemCo acts as the remuneration committee of CGML, whereas the Personnel and Compensation Committee (P&C Committee) of the Board of Directors of Citigroup Inc. fulfils the same role for the wider group. The CGML RemCo met 10 times in 2018 and each Director attended at least 75% of all meetings. The CGML RemCo does not engage independent consultants, but Clifford Chance has advised on remuneration matters for 201x.

The current composition of the Audit Committee is set out below.

Table 4: CGML Remuneration Committee membership as at 31 December 2018

Name	Membership
Diana Taylor	Chair and SMF12
Susan Dean	UK non-executive director (until September 2018)
Cyrus Ardalan	UK non-executive director
Richard Goulding	UK non-executive director
Malcolm Basing	UK non-executive director (appointed September 2018)

2.1.6.4 CGML Nomination Committee

The CGML Nomination Committee is a sub-Committee of the Board of Directors of Citigroup Global Markets Limited ("CGML"). The purpose of the CGML Nomination Committee (the "Committee") is to review and issue recommendations for nominations for the appointment of Directors to the Board of CGML taking into account the Companies Act 2006, UK regulatory requirements and any applicable internal regulations of CGML.

The Committee is independent and is only subject to applicable laws and regulations as well as its own charter. The current composition of the Audit Committee is set out below.

Table 5: CGML Nomination Committee membership as at 31 December 2018

Name	Membership
Cyrus Ardalan	Chair and UK non-executive director
Malcolm Basing	UK non-executive director
Diana Taylor	UK non-executive director
Richard Goulding	UK non-executive director

2.1.6.5 UK Business Risk and Control Committee

The UK Business Risk and Control Committee (UKBRCC) holds quarterly discussions with entity management around emerging risks facing Citi's UK entities and provides a forum for escalation and reporting of operational risk events, internal control, legal, compliance, regulatory and other risk issues. Where considered necessary, the UKBRCC further escalates items to the CGML Audit Committee.

2.1.7 Reputational Risk

With respect to reputational risk, a Citi-wide (including an EMEA-based) Business Practices Committee (BPC) composed of regional senior management (including the EMEA CRO) reviews practices involving potentially significant reputational or franchise issues. This committee reviews whether Citi's business practices have been designed and implemented in a way that meets the highest standards of professionalism, integrity and ethical behaviour.

Additional committees, including those noted in Section 2.1.8 below, ensure that product risks are identified, evaluated and determined to be appropriate for Citi and its customers, and incorporate the necessary approvals, controls and accountabilities.

2.1.8 New Products and Services

The New Product Approval Committee (NPAC) is designed to ensure that significant risks, including reputational and franchise risks, in a new ICG product, service or complex transaction are identified and evaluated, determined to be appropriate, properly recorded for risk aggregation purposes, effectively controlled and have accountabilities in place.

Investment Products Risk (IPR) manages the potential significant franchise, operational, regulatory and economic risks related to the manufacture and distribution of investment products purchased by Retail Investors, via global or regional Distribution Product Approval Committees (DPAC).

2.1.9 Risk Management Infrastructure

CGML senior management consider the Risk Management infrastructure as described in this document as being adequate to capture and measure the risks taken as a result of the entity's business profile and strategy.

2.2 Credit Risk Management

Credit risk is the risk that counterparties may be unable or unwilling to make a payment or fulfil contractual obligations. This may be characterised in terms of an actual default or by deterioration in a counterparty's credit quality. The former case may result in an actual and immediate loss, whereas in the latter case, future losses may become more likely.

Credit risk is one of the most significant risks that Citi faces as an institution. As a result, Citi has a well-established framework in place for managing credit risk across all businesses. This includes a defined risk appetite, credit limits and credit policies. Citi's credit risk management also includes processes and policies with respect to problem recognition, including "watch lists," portfolio review, updated risk ratings and classification triggers. The framework is supplemented by regular stress testing and monitoring of exposures, with monthly and quarterly reporting to senior management and the Board of Directors respectively.

When analysing credit risk, CGML Risk Management manage and monitor the risk from a number of perspectives including obligor and facility ratings, classifications, concentration, stress testing and any associated cost of credit.

Credit risk arises in many of CGML's businesses and as a result of activities including:

- Sales and trading
- Derivatives
- Securities transactions
- Settlement
- When CGML acts as an intermediary on behalf of its clients and other third parties; and
- When acting as underwriter (not on a best-efforts basis) or within a capital raising capacity.

CGML's counterparty credit risk largely arises from its Securities Financing Transaction (SFT) and Over the Counter (OTC) derivative counterparties. It will also arise from clearing and settlement exposure. As CGML's counterparty credit risk is almost entirely margined or secured, with the exception of short-term FX transactions, certain activities in the Commodities business or certain trades approved on a case-by-case basis, CGML generally does not hedge its counterparty exposure, and as such is not exposed to residual risk.

An explanation of Citi's approach to managing credit risk can be found in "Managing Global Risk – Credit Risk" in Citi's 31 December 2018 Form 10-K, available on the Citigroup website.

2.2.1 Corporate Credit Risk

For corporate clients and investment banking activities across the organisation, the credit process is grounded in a series of fundamental policies, including:

- Joint business and independent Risk Management responsibility for managing credit risks
- A single centre of control for each credit relationship, which coordinates credit activities with each client
- Portfolio limits to ensure diversification and in order to maintain risk/capital alignment
- A minimum of two authorised credit officer signatures required on most extensions of credit, one of which must be from a credit officer in Credit Risk Management
- Risk rating standards, applicable to every obligor and facility; and

- Consistent standards for credit origination documentation and remedial management

Wholesale exposures are classifiably-managed (individually rated) and primarily arise as a result of activity in ICG businesses (including Citi Private Bank), as well as Corporate Treasury. Typical financial reporting categories that include wholesale exposures are deposits with banks, debt securities, loans and off-balance sheet commitments such as unused commitments to lend or to extend letters of credit.

Wholesale exposures, which include counterparty credit risk exposures arising from OTC derivative contracts, repo-style transactions and eligible margin loans, consist of exposures such as those to corporates, banks, securities firms, financial institutions, central governments, government agencies, local governments, other public sector entities, income producing real estate, high volatility commercial real estate, high net worth individuals not eligible for retail treatment, and other obligor or counterparty types not included in retail.

Credit risk principles, policies and procedures typically require:

- A comprehensive analysis of the proposed credit exposure or transaction
- Review of external agency ratings (where appropriate); and
- Financial and corporate due diligence, including support, management profile and qualitative factors

The responsible credit officer completes a review of the financial condition of the counterparty to determine the client's business needs and compare that to the risk that Citi might be asked to extend. During consideration of a credit extension, the credit officer will assess ways to mitigate the risk through legal documentation, parental support or collateral.

Once the analysis is completed and the product limits are determined, anti-tying and franchise risk is reviewed, after which the approval process takes place. The total facility amount, including direct, contingent and pre-settlement exposure, is aggregated and the credit officer reviews the approved tables within policy that appoint the appropriate level of authority needed to review and approve the facility. Every extension of credit must be approved by at least two credit officers.

Credit risk analysts conduct daily exception monitoring versus limits and any resulting issues are escalated to credit officers, and to business management as necessary.

2.2.2 Internal Obligor Risk Ratings

2.2.2.1 Risk Parameter Estimates

Citi's wholesale exposures primarily relate to activities in the ICG. As noted in Section 2.1.4, Citi's ICG businesses that incur credit, market, operational and franchise risk are covered by an ICG Risk Management manual (ICG Risk Manual) which sets forth the ICG's core risk principles, policy framework, limits, definitions, rules and standards for identifying, measuring, approving and reporting risk.

Obligors are assigned a risk rating and total facilities are approved and extended to an obligor by following processes in accordance with the ICG Risk Manual.

For Citi's wholesale exposures, internal credit ratings are used in determining approval levels, risk capital and reserves. Each wholesale obligor is assigned an obligor risk rating (ORR) that reflects the one-year probability of default (PD) of the obligor. Each wholesale facility is assigned a facility risk rating (FRR) that reflects the expected loss rate of the facility, the product of the one-year PD and the expected loss given default (LGD) associated with the facility characteristics.

The ORRs are used for longer-term credit assessments for large credit relationships, which form the basis for obligor limits and approval levels. ORRs are established through an integrated framework that combines quantitative and qualitative tools, calibrated and tested across economic cycles, with risk manager expertise of customers, markets and industries. ORRs are generally expected to change in line with material changes in the PD of the obligor. Rating categories are defined consistently across wholesale credit by ranges of PDs and are used to calibrate and objectively test rating models and the final ratings assigned to individual obligors.

Independently validated models and, in limited cases, external agency ratings establish the starting point in the obligor rating process. The use of external agency ratings in establishing an internal rating occurs when agency ratings have been reviewed against internal rating performance and definitions, and is generally limited to ratings of BBB+/Baa1 or higher.

Internal rating models include statistically derived models and expert judgement rating models. The statistical models are developed by an independent analytical team in conjunction with independent Risk Management. The analytical team resides in Credit and Operational Risk Analytics (CORA), which is part of the corporate-level independent risk group. The statistical rating models cover Citi's corporate segment and certain commercial activity within the Consumer business lines and are based on statistically significant financial variables. Expert judgement rating models, developed by independent Risk Management, cover industry or obligor segments where there are limited defaults or data histories, or highly specialised or heterogeneous populations.

To the extent that Risk Management believes the applicable model does not capture all the relevant factors affecting the credit risk of an obligor, discretionary adjustments may be applied to derive the final ORR, within limits defined by policy. For larger obligors, the final ORRs are derived through the use of a scorecard that is designed to capture the key risks for the segment.

The ICG Risk Manual requires an annual comprehensive analysis of each obligor and all proposed credit exposures to that obligor and independent Risk Management periodically reviews exposures across the banking book and trading book portfolios to ensure compliance with various limit and concentration constructs. Quarterly reviews are also conducted of certain high risk exposures.

For UK regulatory capital purposes, CGML does not have an internal ratings based model permission from the PRA.

2.2.3 Credit Risk Measurement

2.2.3.1 Methodology Used to Assign Credit Risk Limits

The process for approving a counterparty's credit risk exposure limit is guided by

- Core credit policies;
- Procedures and standards;
- Experience and judgement of credit risk professionals; and
- The amount of exposure at risk

The process applies to all counterparty credit risk products – OTC derivative contracts, repo-style transactions and eligible margin loans. The process includes the determination of maximum potential exposure after recognition of netting agreements and collateral as appropriate.

While internal ratings are the starting point in establishing credit assessments, a range of factors, such as quality of management and strategy, nature of industry and regulatory environment, among others, are also taken into consideration for obligor limits and approval levels. Exposure to credit risk on derivatives is also impacted by market volatility, which may impair the ability of clients to satisfy their obligations to Citi. Credit risk analysts conduct daily monitoring versus limits and any resulting issues are escalated to credit officers and business management as appropriate. Usage against the credit limits may reflect netting agreements and collateral.

Citi credit limits have several parameters, including a value, the type of risk and the type of product or products that the limit covers. The risk type is the same as in the institution's risk measurement model.

2.2.3.2 Counterparty Credit Risk Exposures

Counterparty credit risk is the risk that the counterparty to a transaction will default before the final settlement of the transaction's cash flows. For OTC derivatives, counterparty credit risk arises from pre-settlement exposures (PSE). For regulatory capital purposes, CGML calculates its exposures under two methods

- The Internal Models Method (IMM); and
- The Current Exposure Method (CEM). CGML's Exchange Traded Derivatives (ETDs) are calculated under CEM

Two conditions are required for Citi to recognise a loss on a contract: firstly the counterparty defaults and, secondly, the contract has a positive market value to the firm. Consequently, risk measurement is a function of three elements

- Potential Future Exposure (PFE); – reflects expected counterparty credit exposure over a specified period of time calculated at some level of confidence
- Probability of Default (PD); – the probability of default of a counterparty over a one year period; and
- Loss Given Default (LGD) the ratio of the loss on an exposure due to the default of a counterparty to the amount outstanding at default

For SFT, counterparty credit risk arises from the positive difference in the exposure value of securities or commodities sold and posted or lent, increased by the appropriate volatility adjustments For regulatory capital purposes, CGML calculates its exposures under the Financial Collateral Comprehensive Method (FCCM). Repo-style transactions consist of repurchase or reverse repurchase transactions and securities borrowing or securities lending transactions, including transactions in which Citi acts as agent for a customer and indemnifies the customer against loss, and are based on securities taken or given as collateral, which are marked-to-market, generally daily. Eligible margin loans are extensions of credit collateralised by liquid and readily marketable debt or equity securities, or gold, which satisfy certain conditions. Credit risk is calculated at least daily (overnight) and at times selectively refreshed intraday to be compared to counterparty limits. When the risk is below the limit, the difference is available at the start of the next day to accept incremental business and risk. When risk has exceeded the limit it is reported to the credit officer for the client whose limit is exceeded and to the senior credit officer in charge of the portfolio of clients to which that client belongs.

Credit exposure is generally expressed as the current mark-to-market, net of margin, reflecting the net value owed to Citi by a given counterparty, plus the potential future exposure calculated using Monte Carlo simulation which estimates the amount that a counterparty may owe over the life of a transaction (or a portfolio of transactions) calculated to a 97.7% degree of statistical confidence for modelled exposure, or via Credit Exposure Factors (CEFs) applied to the notional based on product type and tenor.

The risk associated with these credit exposures is a function of the creditworthiness of the obligor, as well as the terms and conditions of the specific obligation. Citi assesses the risk associated with its credit exposures on a regular basis through its loan loss reserve process, as well as through regular stress testing at the company, business, geography and product levels. In addition, Citi also recognise CVA (see 2.28) in the valuation of its OTC derivatives. These stress testing processes typically estimate potential incremental credit costs that would occur as a result of either downgrades in the credit quality or defaults of the obligors or counterparties.

The process of ensuring that all facilities are properly captured and approved is audited on a regular basis by Fundamental Credit Review (FCR). FCR is an independent credit review function that assesses the effectiveness of credit risk management and the ability to identify, monitor and mitigate current and emerging credit risks across the firm.

Citi uses a global risk reporting system to manage credit exposure to its wholesale obligors and counterparties.

2.2.3.3 Internal Economic Capital

Corporate exposure is included in the firm's economic capital model by aggregating this with other direct and indirect exposures and calculating economic capital based on the perceived credit quality of the obligor.

2.2.4 Risk Concentrations

Concentration risk is the risk associated with having exposure concentrated within a specific client, industry, region or group of obligors that are sensitive to the same economic, financial or business developments. CGML Risk Management analyses risk concentrations on a monthly basis.

To manage concentration of risk within credit risk, Citi has in place a concentration management framework consisting of industry limits, obligor limits and single-name triggers. Independent Risk Management reviews concentration of risk across Citi's regions and businesses to assist in managing this type of risk.

2.2.4.1 Relationship Group

The total facilities amount (TFA) is set by relationship group which is typically the parent company and all its subsidiaries. This aggregation is critical to ensure that credit risk can be managed holistically. Credit lines are established between one client legal entity and one Citi legal entity. The CGML Credit Risk Framework, a component of the CGML Risk Management Framework, sets a level of TFA for the aggregate CGML credit lines above which higher level approval is required. This takes into account the size of CGML relative to Citigroup as a whole, but also recognises the largely collateralised nature of the business carried out on CGML. Where the aggregate amount of facilities made available to the relationship by CGML is in excess of the limits or thresholds, further approval of those aggregate facilities (not the full relationship TFA) must be granted by a Risk SCO who is also a UK Material Risk Taker (MRT).

2.2.4.2 Industry Type

In addition, a set of limits or thresholds have been put in place for CGML to monitor its exposure to industries and to countries. The industry limits are expressed as percentages of the aggregate PSE accounted for by different industry types, e.g. public sector entities, banks, hedge funds. The exposures to these industries are measured monthly and any exceptions are escalated to the CGML Risk Manager for notification to the CGML Risk Committee. The purpose of industry limits on CGML is to serve as an early warning device to alert management to changes in the sectoral composition of the entire CGML counterparty portfolio.

2.2.4.3 Country

CGML's clients are located around the world and are embedded in Citi's global franchise. The purpose of reviewing the country concentrations is to highlight where CGML may have exposures to clients in very low rated countries.

Global Country Risk Management (GCRM) operates a 'Watchlist' system with gradings indicating the riskiness of that country. These gradings align closely with ratings attributed to the countries where Citi does business.

All of the non-Green countries are assigned a limit on aggregate exposure and the current outstandings (measured on a monthly basis).

The country limit or threshold applicable to any specific country is a percentage of CGML's aggregate PSE exposure as determined by the country's Watchlist grading. CGML's exposure to a country, as measured by the aggregate exposure to counterparties domiciled in that country, is tested against these limits on a monthly basis and any exception is notified to the CGML Risk

Manager for notification to the CGML Risk Committee. It should be noted that these limits act as triggers for escalation and review, not as absolute ceilings.

2.2.4.4 Shadow Banking Entities

The EBA defines Shadow Banking Entities as entities that

- Carry out credit intermediation activities, defined as bank-like activities involving maturity transformation, liquidity transformation, leverage, credit risk transfer or similar activities; and
- Are neither within the scope of prudential consolidation nor subject to solo prudential requirements under specified EU legislation (or equivalent third country legal frameworks). Entities referred to in Article 2(5) and Article 9(2) of Directive 2013/36/EU, as well as other entities as defined in the EBA Guidelines, EBA/GL/2015/20 ('excluded undertakings'), are also not to be regarded as shadow banking entities

CGML has set a limit on the aggregate Exposures At Default (EAD) to Shadow Banking Entities at a defined proportion of eligible capital. In the event that the limit is breached, this is reported by the CGML CRO to the CGML Risk Committee, together with an explanation for the breach and a plan to reduce exposure back within the limit.

The framework for the management of Shadow Banking exposure also requires that limits are set at the individual counterparty level. The limit for any counterparty identified as a Shadow Banking Entity is two-fold.

Firstly, it will have been subject to the normal credit review and limit setting processes as set out under the ICG Risk Manual. The limits provided to the entity will have been set taking into account its characteristics, including the nature of its trading activities. These limits are set using the methodologies commensurate with CGML's IMM permissions using PFE metrics, (PSE, Pre-Settlement Exposure) and not EAD, and are monitored under normal ICG procedures.

Additionally, there is an EAD limit expressed as a percentage of eligible capital for intercompany and for third-party exposures, applicable to all the counterparties identified as Shadow Banking Entities. Any counterparty breaching this limit will be subject to a review which: (i) investigates the nature of the trades which have given rise to the exposure; and (ii) further reviews the nature of the counterparty to determine how the entity will come back within the EAD limit and whether risk mitigation is required. The limit has been set at a level which is sufficiently low to be protective to CGML's capital base, but not so low as to result in a number of entities being caught under their normal trading pattern.

In the event that the counterparty limit is breached, and as with an aggregate limit breach, the breach will be reported by the CGML CRO to the CGML Risk Committee together with an explanation for the breach and a plan to reduce exposure back within the limit.

2.2.5 Collateral Management

Collateral management refers to all systems, methods, processes, controls, data collection and Operations and Technology systems that are used to take, manage, value, maintain and realise collateral held for mitigation purposes.

The primary objectives of collateral management at Citi are

- Risk mitigation;
- Operational efficiency in the use of collateral;
- Robust documentation on such collateral;
- A collateral structure that optimises its use;
- Efficiency and accuracy of reporting;

- Liquidity management;
- Capital allocation; and
- Market competitiveness

Collateral reports are prepared monthly for SFT and OTC exposures and are reviewed by the CGML CRO, in particular for changes in the profile or composition of collateral, concentrations and unusual or concerning securities.

CGML undertakes almost exclusively margined business with its counterparties. Netting is generally permitted for both SFTs and OTC derivatives.

The majority of the collateral taken by CGML against OTC derivatives and SFT exposures is in the form of cash or G10 sovereign bonds.

MRNCCD is the new regulation that establishes initial margin and variation margin requirements for non-centrally cleared derivatives entered into after the effective date of the regulation. The rules require two-way initial margin (IM) posting and daily variation margin (VM) exchange for certain types of counterparty and for certain products defined as in scope.

Collateral considered eligible is defined as

- IM: cash, sovereign debt, government-sponsored debt, investment grade debt including corporate bonds, equities, gold, and shares of certain funds with appropriate haircuts
- VM: cash for trades between swap dealers; same types of collateral as IM for trades between swap dealers and financial end users

Occasionally, with appropriate agreement, other forms of collateral may be accepted.

2.2.6 Wrong Way Risk

CGML incurs both general and specific Wrong Way Risk in its business. Wrong Way Risk (WWR) occurs when a movement in a market factor causes Citi’s exposure to a counterparty to increase at the same time as the counterparty’s capacity to meet its obligations is decreasing. Stated differently, WWR occurs when exposure to a counterparty is negatively correlated with the credit quality of the counterparty. There are two main types of WWR

- Specific WWR arises when the exposure to a particular counterparty is positively correlated with the probability of default of the counterparty due to the nature of the transactions with the counterparty; and
- General WWR is less definite than specific WWR and occurs where the credit quality of the counterparty is subject to impairment due to changes in macroeconomic factors. General Wrong-Way risk' arises when the likelihood of default by counterparties is positively correlated with general market risk factors

WWR in a trading exposure arises when there is significant correlation between the underlying asset and the counterparty which, in the event of default, would lead to a significant mark-to-market loss. The interdependence between the counterparty credit exposure and underlying reference asset or collateral for each transaction can exacerbate and magnify the speed at which a portfolio deteriorates. Thus, the goal of Citi’s WWR policy (part of the ICG Risk Manual) is to provide best practices and guidelines for the identification, approval, reporting and mitigation of specific and general WWR.

WWR is monitored at a Company level and includes circulation of a monthly report that identifies CDS-based, OTC or SFT transactions that generate Specific WWR. WWR is mitigated through the use of enforceable netting agreements, margining and offsetting or terminating transactions.

Citi’s WWR policy further mandates ongoing product stress testing to identify potential general WWR using simulated macro-economic scenarios. General WWR reports are reviewed on an ongoing basis by CGML Risk Management in order to determine appropriate management and mitigation.

2.2.7 Credit Rating Downgrade

Adequate liquidity and sources of funding are essential to Citi's businesses. Funding and liquidity risks arise from multiple factors, including a loss of liquidity from derivative transactions due to legally agreed conditions such as rating downgrade triggers.

Downgrade triggers can create a requirement for CGML to reserve additional liquidity in the event of rating agencies downgrades of CGML and can be present in both unsecured and secured derivative agreements. A typical downgrade trigger in unsecured agreements would require CGML to post variation margin on outstanding contract payable amount, or in secured agreements, downgrade triggers may require CGML to post additional initial margin or segregate margin received.

CGML includes the potential impact of a credit rating downgrade in its stress testing and scenario models to quantify the effect on its liquidity position.

As at 31 December 2018, the potential value of the additional collateral pertaining to downgrade thresholds that CGML would need to post with counterparties in the event of a one-notch downgrade of its rating was US$0.10 billion and a three-notch downgrade was US$0.33 billion.

CGML carries out two internal liquidity stress tests on a daily basis

- S2 – Highly Stressed Market Disruption Scenario: In S2 scenario CGML is assumed to be downgraded one notch from current levels; and
- Resolution Liquidity Adequacy Positioning (RLAP) ratio: The RLAP scenario assumes a three-notch downgrade of long-term ratings and a one-notch downgrade of short-term ratings of CGML

In addition to the stress test scenarios, CGML has a robust monitoring and reporting framework to capture the potential liquidity impact of derivative downgrade triggers.

2.2.8 Credit and Funding Valuation Adjustments

Credit Valuation Adjustments (CVA) and Funding Valuation Adjustments (FVA) are applied to certain OTC derivative instruments in which the base valuation generally discounts expected cash flows using the relevant base interest rate curve for the currency of the derivative without specific consideration of the non-performance risk of the counterparty, nor Citi, nor the market term funding premium associated with those derivatives. This particularly impacts OTC derivatives that are not wholly collateralised. As not all counterparties have the same credit risk as that implied by the relevant base curve, a CVA[1] is necessary to incorporate the market view of both counterparty credit risk and Citi's own credit risk in the valuation. FVA reflects a market funding risk premium inherent in the uncollateralised portion of derivative portfolios and in collateralised derivatives where the terms of the agreement do not permit the reuse of the collateral received.

Citi's CVA and FVA methodology is composed of two steps.

- First, the exposure profile for each counterparty is determined using the terms of all individual derivative positions and a Monte Carlo simulation or other quantitative analysis to generate a series of expected cash flows at future points in time. The calculation of this exposure profile considers the effect of credit risk mitigants and sources of funding, including pledged cash or other collateral and any legal right of offset that exists with the counterparty through arrangements such as netting agreements. Individual derivative contracts that are subject to an enforceable master netting agreement with the counterparty are aggregated for this purpose, since it is those aggregate net cash flows that are subject to non-performance risk.

1. Liability-side CVA is sometimes referred to as Derivative DVA.

This process identifies specific, point-in-time future cash flows that are subject to non-performance risk and unsecured funding, rather than using the current recognised net asset or liability as a basis to measure the CVA and FVA

- Second, for CVA, market-based views of default probabilities derived from observed credit spreads in the credit default swap (CDS) market are applied to the expected future cash flows determined in step one. Citi's own-credit CVA is determined using Citi-specific CDS spreads for the relevant tenor. Generally, counterparty CVA is determined using a valuation technique based on CDS indices for each credit rating and tenor, i.e. via a proxy approach. For certain identified netting sets where individual analysis is practicable (e.g. exposures to counterparties with liquid CDSs), counterparty-specific CDS spreads are used. For FVA, market-based views of term liquidity spreads are applied to the expected future funding requirement

The CVA and FVA are designed to incorporate a market view of the credit and funding risk, respectively, inherent in the derivative portfolio. However, most unsecured derivative instruments are negotiated bilateral contracts and are not commonly transferred to third parties. Derivative instruments are normally settled contractually or, if terminated early, are terminated at a value negotiated bilaterally between the counterparties. Thus, the CVA and FVA may not be realised upon a settlement or termination in the normal course of business. In addition, all or a portion of these adjustments may be reversed or otherwise adjusted in future periods in the event of changes in the credit or funding risk associated with the derivative instruments.

2.3 Market Risk Management

The risks associated with financial instruments are a significant component of the overall risk faced by CGML through its activity as a broker-dealer. Market risk is the risk to earnings or capital from adverse changes in market factors. Price risk losses arise from fluctuations in the market value of trading and non-trading positions resulting from changes in interest rates, credit spreads, foreign exchange rates, equity and commodity prices, and in their implied volatilities. Foreign exchange risk is managed as part of the market risk framework. Trading positions are marked to market, with the results reflected in earnings.

CGML's derivative transactions are principally in the interest rate, FX, equity, credit and commodity markets. CGML maintains positions in financial instruments for four principal reasons

- As a result of the sale or assignment of derivative positions to its clients (usually in the over-the-counter market)
- To satisfy its clients' requirements to buy or sell investments
- As a result of underwriting activities; and
- To economically hedge positions on its books created by the business activity noted above

2.3.1 Market Risk Limit Framework

Under the (Citi-level) Citi Mark-to-Market Policy, each business is required to establish, with approval from the Independent Market Risk Management function, a market risk limit framework for identified risk factors. This framework must clearly define approved risk profiles, include permitted product lists (PPL), follow the new product approval process for complex products (NPAC) and remain within the parameters of Citi's overall risk appetite, with the established limits monitored by Market Risk Management.

Responsibility for hedging or otherwise mitigating market risk lies in the first instance with the business originating the risk and the management of this process begins with the employees who work most closely with CGML's customers, products and markets and extends up to the senior executives who manage these businesses with a complementary aggregation up to the country level. Risks taken must be commensurate with the risk appetite of the firm as set by senior management. The Market Risk Management function independently monitors market risks via a comprehensive system of limits and triggers.

For traded product price risk, all traded risk exposures are aggregated in the CitiRisk Market Risk (CRMR) system daily. CRMR is used as the primary system to calculate aggregated market risk measures, including the firm's Value at Risk. Price risk in Citi's trading portfolios is monitored using a series of measures, including but not limited to

- Risk factor sensitivities
- Value at Risk (VaR)
- Stressed VaR
- Volatility and correlation
- Weekly stress testing

For CGML, Market Risk Capital Appetite is captured in CGML's Risk Appetite Framework which sets the level of risk taking the CGML Risk Committee and Board are willing to take. Price risks are measured in accordance with established standards to ensure consistency across businesses and the ability to aggregate risk. Citi's market risk limit framework consists of Tier 1 limits, Tier 2 limits and Tier 3 management triggers. Tier 1 limits are generally the most significant limits for Citi overall, and include limits on trading exposures in certain larger countries. Tier 2 limits are generally set at a product group level or in some cases at a desk, regional or legal entity level (as is the case for CGML). Tier 3 management triggers are desk-level triggers on non-material risk factors.

For CGML, the Framework is supplemented by daily monitoring against CGML's VaR, Tier 2 market risk factor limits and Tier 3 market risk factor management triggers and regular (weekly) stress testing, as well as monthly and quarterly reporting to CGML's senior management and the Board respectively.

2.3.2 Permitted Product Lists (PPL) and Trading Mandates

All Citi Markets businesses, and all Citi businesses undertaking activity which gives rise to mark-to-market (MTM) exposure and/or are considered in-scope of the Volcker Rule, must have one or more Permitted Products List (PPL) to cover all of their activity and have a Trading Mandate. The PPL defines the products that the business is permitted to trade, as well as any restrictions on the trading or booking of each product that have been imposed by the control function covering the business. As part of this process, a CGML PPL is maintained. The Trading Mandate forms part of the documentation required to define how the desk's activity is permissible under the Volcker rule. The Trading Mandate summarises the trading and hedging strategies of the business and cross-refers to the PPL.

Market Risk Management, in consultation with the Business Sponsor, is responsible for approving the Trading Mandate and PPL for each trading desk, establishing the Tier 1 and Tier 2 Limit framework, and validating the Volcker Tier 3 Limit framework proposed by the business.

2.3.3 Market Risk Measurement

2.3.3.1 Value at Risk (VaR), Risk Factor Sensitivity Limits and Stress Loss Limit

CGML's VaR reports are circulated daily for monitoring of: (i) the VaR usage against the overall VaR limit; (ii) the standalone VaR by market risk factor; (iii) the component VaR (CVaR) contribution to total VaR; and (iv), the stressed VaR.

As well as an overall VaR limit, the Company has factor sensitivity limits in place for each market risk factor that are monitored daily. Factor sensitivities are defined as the change in the value of a position for a defined change in a market risk factor (e.g. the change in the value of a Treasury bill for a one basis point change in interest rates). It is the responsibility of each business to seek to ensure that factor sensitivities are calculated and reported for all relevant risks taken within a trading portfolio.

VaR estimates the potential decline in the value of a position or a portfolio under normal market conditions. The firm's VaR methodology incorporates the factor sensitivities of the trading portfolio with the volatilities and correlations of those factors and is expressed as the risk to the firm over a one-day holding period, at a 99% confidence level. Citigroup's VaR is based on the volatilities of and correlations between a multitude of market risk factors, as well as factors that track the specific issuer risk in debt and equity securities. CGML's VaR model is described in more detail in Section 10.

Stress testing is performed on trading portfolios on a regular basis to estimate the impact of extreme market movements. It is performed on both individual trading portfolios, as well as on aggregations of portfolios and businesses. Independent Market Risk Management, in conjunction with the businesses, develops stress scenarios, reviews the output of periodic stress testing exercises and uses the information to make judgements as to the ongoing appropriateness of exposure levels and limits.

Exposure that approaches or exceeds limit or trigger levels is escalated within Market Risk Management and to CGML's Market Risk Manager and the CGML CRO, with necessary actions taken.

Where the Equities business is concerned, an ex-ante stress loss based escalation framework has been put in place to cover all block trades, including accelerated equity offerings, equity underwritings, rights offerings and special situation (event-driven) transactions. Transactions with estimated stress losses above certain levels require escalation to the EMEA Chief Risk Officer, the CGML Chief Executive Officer and to the Board.

2.4 Liquidity Risk Management

CGML defines liquidity risk as the risk that it will not be able to efficiently meet both expected and unexpected current and future cash flow and collateral needs without adversely affecting either daily operations or its financial condition.

CGML's liquidity risk appetite is set by CGML's Liquidity Risk Management Framework. The Framework adopts and adheres to Citigroup's global Liquidity Risk Management Policy ('Policy'). Under the Policy, CGML is defined as an operating Material Legal Entity ('MLE').

As a MLE, CGML is required to maintain sufficient liquidity to meet all maturing obligations within 12 months under the Highly Stressed Market Disruption stress scenario ('S2'). It must also meet the Resolution Liquidity Adequacy & Positioning ('RLAP') ratio stress metric used to measure the short-term (30 days) survival horizon under a severe market disruption stress scenario.

In addition, CGML is also required to comply with all regulatory rules and requirements as determined by the European Commission Delegated Act with regard to the liquidity coverage requirement ('EC Delegated Act') for credit institutions and with PRA Rulebook. Under the EC Delegated Act, CGML is required to maintain a Liquidity Coverage Ratio ('LCR') above 100% on a consolidated all-currency basis.

CGML's overall liquidity adequacy is determined based on both its adherence to the internal liquidity risk appetite as well as conformance with the regulatory CRDIV liquidity regime. As at month-end December 2018, this buffer, as per Capital Requirements Directive IV ('CRDIV') eligibility criteria, equated to US$19.2 billion.

As a result of the analysis conducted during the Internal Liquidity Adequacy Assessment Process ('ILAAP'), the risks identified and assessed, and through the application of tools, limits and policies and liquidity stress tests, Management Body concludes that CGML's liquidity risk management framework is appropriate for ensuring sufficient liquidity resources are in place on a forward-looking basis. This conclusion is based on a quantitative assessment of CGML's liquidity through examination of internal and external stress testing results and is further supported by CGML's overall liquidity risk management framework and governance structure. In addition, Management Body considers the Liquidity Risk Management infrastructure to be adequate to capture and measure the risks taken as a result of the entity's business profile and strategy.

Structure and Organisation of the Liquidity Risk Management Function

Citigroup operates a centralised treasury model, whereby the overall balance sheet is managed by Corporate Treasury. The EMEA Regional Treasurer is supported by the UK Treasurer who is responsible for the UK legal vehicles balance sheets and liquidity profile as well as those of CGML's subsidiaries.

Corporate Treasury Management – London, Budapest and Germany

The UK Treasurer heads the UK Legal Entity Treasury group, which is responsible for managing CGML's liquidity on a day-to-day basis.

The Legal Entity Treasury team is specifically responsible for CGML's daily funding, liquidity risk management including intraday liquidity, liquidity stress testing, and for providing oversight to the Fixed Income and Equity finance desks including setting and monitoring limits.

The Legal Entity Treasury team in London is also responsible for managing the relationship with internal and external stakeholders. Internal stakeholders consist of Citi senior management and Governance committees, the Finance desks and NY Corporate Treasury. External stakeholders comprise auditors, credit rating agencies and regulatory authorities. This team also provides oversight and governance for the teams in Budapest and Mumbai, as explained below, to ensure adherence to the overall liquidity risk management framework.

The Business Treasury team in London is responsible for managing the relationship with the businesses, enhancing balance sheet management and coordination, focusing on the intersection of interest rate risk, transfer pricing, RoA/RoTCE, liquidity, capital allocation, and balance sheet costing.

The Budapest team is an extension of the London Treasury teams reporting to both the EMEA ICG Business Treasurer and the U.K Treasurer. Among the other EMEA-wide Corporate Treasury responsibilities, this team is involved in the review and attestation of CGML's PRA liquidity reporting & internal liquidity reporting, and monitoring & reviewing CGML's CRDIV reporting including the Liquidity Coverage Ratio ('LCR'), Net Stable Funding Ratio ('NSFR'), Asset Encumbrance and Additional Liquidity Monitoring Metrics ('ALMM'). Under a Continuity of Business ('COB') scenario, arrangements are in place for relocation to a contingency site.

Mumbai Finance and Risk Shared Services (FRSS)

EMEA Treasury follows Citigroup's site strategy in employing a central liquidity reporting and production team in Mumbai. CGML internal liquidity reporting is produced by the Broker Dealer Capital Markets Reporting team with Regulatory reporting produced by the PRA and CRDIV team. To improve overall effectiveness and ensure regional consistency of the control environment around production of CRD IV reports, management has decided to migrate the CRD IV reporting process to the Budapest Finance Shared Services Centre, which is an ongoing project expected to be completed by 1Q19.

The team operates from Nirlon Park Knowledge Block on the outskirts of Mumbai, and the Citi Bank Mumbai Head Office in Mumbai serves as the continuity of business ('COB') site.

Three Lines of Defence

The management of risk is a fundamental responsibility of all CGML employees. Consistent with Citigroup, CGML manages its risks through three lines of defence: (i) business management, (ii) independent control functions and (iii) Internal Audit. The three lines of defence collaborate with each other in structured forums and processes to ensure all perspectives are taken into account to collectively lead the entity to outcomes that are in clients' and shareholders' interests, that create economic value, and that are systemically responsible.

- Each of CGML's businesses (the first line of defence), including Corporate Treasury, own and manage the risks inherent in or arising from the business, and is responsible for establishing and operating controls to mitigate key risks, performing manager assessments of the design and effectiveness of internal controls, and promoting a culture of compliance and control.
- CGML's independent control functions (the second line of defence), including Independent Risk Management, Finance, Compliance, Legal, and Human Resources ('HR'), set standards against which the businesses and functions are required to manage and oversee risks, including compliance with applicable laws, regulatory requirements, and policies and standards of ethical conduct. These functions are involved in identifying, measuring, monitoring, or controlling aggregate risks, and are independent from front line units.
- CGML's Internal Audit function (the third line of defence) independently reviews activities of the first two lines of defence, based on a risk-based audit plan and methodology approved by the Audit Committee.

Strategies and Processes for Monitoring

CGML is required to prepare a detailed plan of its liquidity position which also considers a forecast of future business activities. This plan is called the Funding and Liquidity Plan (FLP) and it addresses strategic liquidity issues and establishes the parameters for identifying, measuring, monitoring and limiting liquidity risk and sets forth key assumptions for liquidity risk management. The FLP is divided into the following component parts

- Contingency Funding Plan (CFP)
- Intra-day Liquidity Risk Management Plan; and
- Balance Sheet Funding and Liquidity Plan

A combination of metric monitoring, triggers, limits and stress testing are utilised to identify and measure liquidity risk arising from various sources. Limits and triggers are used to control risks, whilst stress assumptions are used to calibrate the level of liquidity buffer required for CGML to maintain adequate liquidity under different stress scenarios. To provide for resilience under stress, CGML holds a buffer of liquid assets, which is comprised predominantly of US, EU and UK government bonds. As at month-end December 2018, this buffer, as per Capital Requirements Directive IV ('CRDIV') eligibility criteria, equated to US$19.2 billion.

The liquidity position of CGML is calculated in Citi's strategic liquidity risk systems and reported to senior management on a daily basis and reviewed by the UK Asset and Liability Committee (ALCO) and CGML Board through the CGML Risk Committee. CGML's Risk Committee reviews the Liquidity Risk Management Policy and the Internal Liquidity Adequacy Assessment Process (ILAAP) document and recommends it to CGML Board for final approval. CGML Board also approves the Liquidity Risk Management Framework, the Funding and Liquidity Plan, the Contingency Funding Plan and any relevant CGML-specific liquidity policies.

CGML has maintained adequate liquidity resources throughout the year to meet the minimum requirements set in both internal and external (Regulatory) stress scenarios.

2.5 Operational Risk Management

Operational risk is the risk of loss resulting from inadequate or failed internal processes, systems or human factors, or from external events, and includes reputation and franchise risk associated with business practices or market conduct. It also includes the risk of failing to comply with applicable laws, regulations, ethical standards or Citi policies. Operational Risk does not encompass strategic risk or the risk of loss resulting solely from authorised judgments made with respect to taking credit, market, liquidity or insurance risk.

Operational Risk Management proactively assists the businesses, Operations, Technology and other independent control groups in enhancing the effectiveness of controls and managing operational risks across products, business lines and regions. Furthermore, operational risks are considered as new products and business activities are developed and processes are designed, modified or sourced through alternative means.

The objective is to keep operational risk at appropriate levels relative to the characteristics of Citi's businesses, the markets in which it operates, its capital and liquidity, and the competitive, economic and regulatory environment.

2.5.1 Operational Risk Framework

Citi's (Citi-level) Operational Risk Management (ORM) Policy establishes a consistent Operational Risk Management Framework designed to balance strong corporate oversight with well-defined independent Risk Management, for assessing and communicating operational risk and the overall effectiveness of the internal control environment across Citi. That framework is applied at the CGML level, together with the Key Operational Risks (KORs) that have been identified as being specifically relevant for CGML and are a component of the CGML Risk Management Framework.

To anticipate, mitigate and control operational risk, Citi maintains a system of policies and has established a consistent framework for monitoring, assessing and communicating operational risks and the overall effectiveness of the internal control environment across Citi. As part of this framework, Citi has established a Manager's Control Assessment (MCA) programme which helps managers to self-assess key operational risks and controls and to identify and address weaknesses in the design and effectiveness of internal controls that mitigate significant operational risks.

The ORM Framework establishes a foundation on which the activities of businesses, regions and functions, the resulting operational risks and the associated controls are identified, periodically assessed, subject to corrective action, appropriately documented and communicated. Specifically, the ORM Framework establishes minimum standards for consistent identification, measurement, monitoring, reporting and management of operational risk across Citi.

The process established by the ORM Framework is expected to lead to effective anticipation and mitigation of operational risk and improved operational risk loss experience and includes the following steps:

- Identify and assess Key Operational Risks (KORs)
- Design controls to mitigate identified risks
- Establish Key Risk Indicators (KRIs)
- Implement a process for early problem recognition and timely escalation
- Produce comprehensive operational risk reporting; and
- Ensure that sufficient resources are available to actively improve the operational risk environment and mitigate emerging risks

As new products and business activities are developed, processes are designed, modified or sourced through alternative means and operational risks are considered.

2.5.2 Measurement of Operational Risk

To support advanced capital modelling and management, each business is required to capture relevant operational risk event information. A localised version of the Citi risk capital model for operational risk has been developed and applied against CGML. The PRA has approved this model, including the associated capital allocation, for use as an Advanced Measurement Approach (AMA). It uses a combination of internal and external loss data to support statistical modelling of capital requirement estimates, which are then adjusted to incorporate qualitative aspects of the operational risk and control environment.

To enhance its operational risk management, CGML has implemented a forward looking scenario analysis programme to identify and quantify emerging operational risks, through a systematic process of obtaining opinions from business managers and Risk Management experts to devise reasoned assessments of the likelihood and loss impact of plausible, high severity operational risk losses. This development has been integrated into the operational risk capital assessment for CGML.

In addition, there are various governance forums for escalation and reporting of internal control, compliance, regulatory and risk issues, including operational risk loss events.

2.5.3 Key Operational Risks

Key Operational Risks (KORs) are derived from an evaluation of operational risk exposure on a residual risk basis considering CGML's current business strategy, substantial emerging risks and other relevant factors which include assessment of the four Basel operational risk data elements, i.e. internal losses, external losses, scenario analysis and output from Internal Audit assessments and from self-assessment results from the Manager's Control Assessment (MCA). The identified KORs for CGML include those set out below and are in the process of being incorporated into the Citi-level global operational risk appetite framework. Risks will align to the Citi-wide global risk taxonomy that is being developed for operational and compliance risk.

ORM liaises with Subject Matter Experts (SMEs) aligned to each KOR to define the risk for CGML and to identify appropriate metrics i.e. Key Indicators (KIs) to monitor KOR risk profiles. Given that CGML's business is almost entirely wholesale in nature, Institutional Client's Group (ICG), Segment metrics are leveraged as far as possible.

2.5.3.1 Anti-Money Laundering (AML) and Sanctions Non-Compliance Risk

Local and international AML and Sanctions requirements impact the activities carried out by the Company and its clients. Following the development of Sectoral Sanctions to address the political situation in Ukraine, Citi has developed an enhanced control infrastructure around activities that may be affected by applicable sanctions regimes. Regulatory requirements concerning AML controls continue to focus particularly on customer due diligence and suspicious activity monitoring, and Citi continues to implement enhancements in these areas.

2.5.3.2 Conduct Risk

Citi is exposed to the risk of improper conduct through prohibited and manipulative practices by individual employees, collusive practices across a group of employees within and across market participants, and misconduct that harms customers or the integrity of the markets. Citi's exposure to conduct risk resulted in the issuance of a Citi-wide Conduct Risk Policy which sets out a framework through which Citi manages, minimises and mitigates its significant conduct risks, and describes the responsibilities of each of the three lines of defence for complying with the policy.

2.5.3.3 Cyber Risk

Citi is exposed to cyber/information security risk through hacking of Citi or third-party systems containing Citi's data, and denial of service attacks on Citi and third-party servers.

The cyber security threat landscape is rapidly evolving with increasingly sophisticated attacks for gain (e.g. denial of service, account takeover) on Citi, our clients and third-party applications. Citi's Information Security programme strategy is built on a deep understanding of the threat environment through the work of the Global Information Security (GIS) Cyber Intelligence Centre (CIC). External benchmarks indicate that Citi appears to be well placed to deal with current threats. However, due to the ever-changing evolution of the threat landscape, Citi continues to invest in its identification, prevention and detection capabilities.

2.5.3.4 Geopolitical Risk

Citi is exposed to geopolitical risk resulting in financial impact and /or the inability to continue with business due to geopolitical instability and /or changes in the geopolitical environment (e.g. capital controls, impact of Brexit, Middle East and Russia geopolitical instability) and dealing with the impact of "flight to quality" requiring due diligence in compressed timeframes. In addition geopolitical instability also puts Citi at risk of terrorism-related events. Citi has established a comprehensive programme to meet the organisational change requirements resulting from Brexit and has well established and tested processes in place to mitigate the impact of terrorism related risk events.

2.5.3.5 Internal Fraud (Unauthorised Trading Risk)

The risk of loss due to fraudulent activity such as unauthorised trading (rogue trading), mis-marking or payments fraud is a key risk for CGML. A number of initiatives are ongoing to enhance Citi's fraud prevention framework including rogue trading prevention and detection controls. These include the implementation of consistent Markets-wide controls, designed to identify and prevent unauthorised trading in the Markets business and Corporate Treasury.

2.5.3.6 System Run Away Risk (Low Touch Activity Trading Risk)

Citi is exposed to system run away risk (low touch activity trading risk) is the risk of systemic controls' failure to prevent or limit loss exposure for highly automated transactions. This risk specifically includes elevated risk of breaks in high frequency/algorithmic electronic trading due to failure to keep technological capabilities up-to-date, the ability to respond quickly to operational risk events where increased duration is directly correlated to severity, and where response is compromised by fragmented infrastructure and substandard monitoring capabilities.

Citi has established a risk and control framework for Low Touch Activity and continues to ensure that enhanced controls are implemented to mitigate this risk.

2.5.3.7 Inaccurate Reporting and Data Management

Inaccurate reporting and data management risk is the risk that data may be of an insufficient quality to meet Citi's business, regulatory, financial reporting and customer needs resulting from either the business originator of data being unable to provide accurate, complete and timely records of business transactions and customer activities or from a subsequent processor of that data handling the data in an incorrect manner. The quality management inadequacies could also result in non-compliance with regulatory standards. Citi has identified and implemented a number of control enhancements to ensure that any such risks are identified and mitigated on a timely basis.

2.5.3.8 Model Risk Management

Citi is exposed to model risk through the use of incorrect or inaccurate models (such as failed or non-validated models) and incorrect uses of models (for example using the model beyond its approved use cases). Model risk may result in adverse outcomes including but not limited to financial losses (for instance inaccurate quantification of risks, loosening of lending standards) and regulatory criticism.

2.5.3.9 Third-party Vendor Management including Affiliates

Citi is exposed to third-party risk through inconsistent or inadequate delivery of products or services that support core operational or client-facing processes, misconduct on the part of third parties (e.g., fraud), or failure by third parties to ensure that the contracted products or services are delivered to Citi in a safe and sound manner and in compliance with applicable laws, regulations and Citi policies.

2.5.3.10 Processing Risk

Citi is exposed to risk of untimely, inaccurate or incomplete processes caused by unintentional human error carried out to set up, execute and settle a transaction. Processing Risk applies across Citi's core activities including safeguarding assets, lending, payments and accessing the capital markets, as well as internal activities performed to support the Citi franchise. This includes errors in account set up and reference data, initial transaction capture, transaction maintenance, payments and settlements, physical asset handling and collateral/margin management. It excludes pre and post transaction processing activities such as Know Your Customer (KYC), financial/client/regulatory reporting, risk and P/L production and fraud determination. Processing Risk also excludes risk driven by IT failures which is covered under Technology Risk.

2.6 Stress Testing

2.6.1 Overview

The Citi Chief Risk Officer is responsible for monitoring and controlling major risk exposures and concentrations across Citi. This includes the aggregation of risks within and across businesses, as well as subjecting those risks to alternative stress scenarios in order to assess the potential economic impact they may have on Citi. This aggregation is also performed at a CGML level.

Stress tests are undertaken across Citi and CGML and cover mark-to-market, available-for-sale, and amortised cost portfolios. These firm-wide stress reports seek to measure the potential impact to Citi and CGML and its component businesses, of stresses such as the risk of very large movements in a number of key risk factors (e.g. interest rates, credit spreads), as well as the potential impact of a range of historical and hypothetical forward-looking systemic stress scenarios.

Supplementing the stress testing described above, Risk Management works with input from the businesses and Finance to provide periodic updates to senior management and the CGML Board on significant potential exposures across CGML arising from risk concentrations, financial market participants and other systemic issues. These risk assessments are forward-looking exercises, intended to inform senior management and the Board about the potential economic impacts to CGML that may occur, directly or indirectly, as a result of hypothetical scenarios, based on judgmental analysis from Independent Risk Managers.

The stress testing and risk assessment exercises are a supplement to the standard limit-setting and risk capital exercises, as these processes incorporate events in the marketplace and within CGML that impact the firm's view of the form, magnitude, correlation and timing of identified risks that may arise. In addition to enhancing awareness and understanding of potential exposures within CGML, the results of these processes serve as the starting point for the management of risk and mitigation strategies.

2.6.2 Market Risk

Citi performs stress testing on a regular basis to estimate the impact of extreme market movements. It is performed on individual positions and trading portfolios, as well as in aggregate and inclusive of multiple trading portfolios. Market Risk Management after consultations with the businesses, develops both systemic and specific stress scenarios, reviews the output of periodic stress testing exercises, and uses the information to assess the ongoing appropriateness of exposure levels and limits.

Citi uses two complementary approaches to market risk stress testing across all major risk factors (i.e., equity, foreign exchange, commodity, interest rate and credit spreads):

- Global Systemic Stress Testing (GSST) – top-down systemic stresses; and
- Business Specific Stress Testing (BSST) for the ICG – bottom-up business specific stresses

Systemic stress tests are designed to quantify the potential impact of extreme market movements on a firm-wide basis, and are constructed using both historical periods of market stress and projections of adverse economic scenarios. Business specific stress tests are designed to probe the risks of particular portfolios and market segments, especially those risks that are not fully captured in VaR and systemic stresses.

Both categories of stress testing can be based upon either a range of historical periods of market stress or purely hypothetical future market events.

2.6.3 Credit Risk

The CitiRisk Credit (Product Stress Testing, PST) system provides the ability to apply various stress scenarios to counterparty positions, portfolios and transactions. The stress results and impact of changes on counterparty risk exposure improves understanding of the risk profile of a counterparty and assists in diagnosing their vulnerabilities to specific market events.

The core CCR stress testing scenarios are the Global Systemic Stress Testing (GSST) scenarios, which include the hypothetical and historical scenarios. The Stress Testing and Risk Capital Council is responsible for developing the stress scenarios and for reviewing them annually in order to ensure that they remain appropriate in light of current and anticipated market conditions. Each Credit Risk team can use further scenarios that are relevant for their specific industry and portfolio.

Ad-hoc market event scenarios are developed with input from Market Risk. Market Risk define the market risk factor shocks relevant to the event. These are then translated into PST into the scenarios by Risk Analytics and Technology used to stress the positions. FRI are responsible for the infrastructure and governance of the Product Stress Testing application. Quantitative Risk and Stress Testing (QRS) are responsible for the methodology of the stress impact calculations based on the provided scenarios.

2.6.4 Liquidity Risk

Stress testing is intended to quantify the likely impact of an event on the balance sheet and liquidity position and to identify viable contingent actions that can be utilised in a liquidity event. The internal stress testing scenarios are developed in accordance with the Citi's Liquidity Risk Management Policy. The Citigroup Liquidity Book of Assumptions provides the comprehensive set of assumptions used for the broker dealer vehicles, including CGML.

Scenarios

CGML uses stress testing and scenario analysis to quantify the likely impact to the balance sheet and liquidity position, and to identify viable funding alternatives that can be utilised. These scenarios include

- Potential significant changes in key funding sources
- Market triggers (such as credit rating downgrades)
- Changes to use of funding; and
- Political and economic conditions, including standard and stressed market conditions as well as firm-specific events

Assumptions

Due to the nature of the broker dealer business model and funding profile, this set of assumptions focuses on secured financing and maintaining CGML's core business franchise throughout the period of stress. The assumptions are considered appropriate for CGML given its business activities, scale, complexity and position within the wider group. The stress scenarios include realistic deterioration in secured funding sources and an inability to roll unsecured funding (sourced via its affiliate relationships). The scenarios also include a deterioration in Citigroup's credit ratings.

Stress Testing Assumptions developed are product specific and include consideration for expected behaviour of customers and the firm during stress. Funding and liquidity risks arise from multiple factors, such as the following

- Restriction of wholesale secured and unsecured funding through widening of haircuts, reluctance of counterparties to roll maturing transactions or lack of availability for financing for certain asset classes

- Intraday liquidity risk where correspondent banks and securities settlement agents or depositories withdraw or restrict secured or unsecured intraday credit facilities upon which the Company relies to make payments and settle its transactions
- Cross currency liquidity shortfalls arising from cash flow mismatches within a particular currency
- Potential outflows from off balance sheet activities such as security versus security transactions, letters of credit or committed facilities (e.g. underwriting)
- Loss of liquidity from derivatives transactions due to asymmetric margining terms, legally agreed conditions such as rating downgrade triggers, margin calls due to large market revaluations or clearing house/exchange action, novation of liquidity accretive contracts away from the Company or increased operational diligence of certain counterparties
- Recognition that the Company may continue to provide funding to certain customers to preserve its franchise despite there being no legal obligation to do so; and
- Incremental funding requirements of the Company's Prime Brokerage and Delta One businesses from loss of internal coverage and cross funding, inability to roll repo or increased repo haircuts

Internal Stress Testing

CGML carries out two internal liquidity stress tests on a daily basis to capture above scenarios as well as the assumptions.

As an operating MLE, CGML is required to maintain sufficient liquidity to meet all maturing obligations within 12 months under the Highly Stressed Market Disruption stress scenario ('S2'). It must also meet the Resolution Liquidity Adequacy & Positioning ('RLAP') ratio stress metric used to measure the short-term (30 days) survival horizon under a severe market disruption stress scenario.

External Stress Test

In addition, CGML is also required to comply with all regulatory rules and requirements as determined by the European Commission Delegated Act with regard to the liquidity coverage requirement ('EC Delegated Act') for credit institutions and with PRA Rulebook. Under the EC Delegated Act, CGML is required to maintain a Liquidity Coverage Ratio ('LCR') above 100% on a consolidated all-currency basis.

CGML Liquidity Stress call, comprising Legal Entity Treasury, Independent Risk, Global Liquidity Management and Finance desks is established to review stress test results on a monthly basis which are also shared with the UK ALCO.

2.6.5 Operational Risk

CGML's operational risk scenario analysis programme is planned and executed in accordance with the global ORM Scenario Analysis Standards, an appendix to the ORM policy.

Scenario analysis provides a forward looking view of operational risk that complements historical internal and external data. It is a systematic process to derive assessments for the likelihood and potential loss impact of plausible, high severity and low likelihood operational risk losses, i.e. 'fat-tailed' hypothetical events.

CGML scenarios are ratified by the UK Citi Country Officer and are used to benchmark estimates from CGML's operational risk capital model, under governance provided by the CGML Capital Committee.

Scenario analysis is also used as a tool to strengthen Risk Management controls and to stimulate dialogue and gain greater insights into emerging and existing key risks.

3 Regulatory Framework for Disclosures

The tables presented in this section show an outline of the differences in the basis of consolidation for accounting and regulatory purposes. It provides the breakdown of the carrying amounts reported under the scope of regulatory consolidation to the different risk categories.

3.1 Differences between Accounting and Regulatory Exposure Amounts

Table 6: LI1 – Differences Between Accounting and Regulatory Scopes of Consolidation and the Mapping of Financial Statement Categories with Regulatory Risk Categories

This section enable users to identify the differences between the scope of accounting consolidation and the scope of regulatory consolidation and the allocation of the regulatory scope of consolidation into the different risk frameworks laid out in Part Three of the CRR.

		Carrying Values of Items				
	Carrying Values under Scope of Regulatory Consolidation	Credit Risk Framework	Counterparty Credit Risk Framework	Securiti-sation Framework	Market Risk Framework	Not Subject to Capital Requirements or Subject to Deduction from Capital
31-Dec-18	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**
Assets						
Financial Assets at Amortised Cost: Cash at Bank and in Hand	5,051	2,526	–	–	–	2,525
Financial Assets at Amortised Cost: Collateralised Financing Transactions	82,646	–	82,646	–	82,646	–
Financial Assets at Fair Value through Profit or Loss – Derivatives	157,267	–	157,267	–	157,267	–
Financial Assets at Fair Value through Profit or Loss – Inventory	52,239	–	52,239	–	52,239	–
Financial Assets Designated at Fair Value through Profit or Loss	73,932	–	73,932	–	73,932	–
Financial Assets Classed as Available for Sale	58	58	–	–	–	–
Pension	450	–		–	–	450
Other Assets	33,355	1,166	23,733	60	8,135	261
Total Assets	**404,998**	**3,750**	**389,817**	**60**	**374,219**	**3,236**
Liabilities						
Financial Liabilities at Amortised Cost: Bank Loans and Overdrafts	13	–	–	–	–	13
Financial Liabilities at Amortised Cost: Collateralised Financing Transactions	52,219	–	52,219	–	52,219	–
Financial Liabilities at Fair Value through Profit and Loss – Derivatives	160,729	–	160,729	–	160,729	–
Financial Liabilities at Fair Value through Profit and Loss – Securities Sold but Not Yet Purchased	51,105	–	51,105	–	51,105	–
Financial Liabilities Designated at Fair Value through Profit and Loss	66,999	–	66,999	–	66,999	–
Other Liabilities	46,381	–	34,435	–	9,427	2,519
Subordinated Loans	9,600	–	–	–	–	9,600
Total Liabilities	**387,047**	**–**	**365,455**	**–**	**340,480**	**12,132**

Table 6: LI1 – Differences between Accounting and Regulatory Scopes of Consolidation and the Mapping of Financial Statement Categories with Regulatory Risk Categories (Cont'd)

	Carrying Values of Items					
	Carrying Values under Scope of Regulatory consolidation	Credit Risk Framework	Counterparty Credit Risk Framework	Securiti-sation Framework	Market Risk Framework	Not Subject to Capital Requirements or Subject to Deduction from Capital
31-Dec-17[2]	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Assets						
Financial Assets at Amortised Cost: Cash at Bank and in Hand	2,955	1,001	–	–	–	1,954
Financial Assets at Amortised Cost: Collateralised Financing Transactions	70,909	–	70,909	–	70,909	–
Financial Assets at Fair Value through Profit or Loss – Derivatives	142,270	–	142,270	–	142,270	–
Financial Assets at Fair Value through Profit or Loss – Inventory	56,731	–	56,652	–	56,652	80
Financial Assets Designated at Fair Value through Profit or Loss	64,516	–	64,516	–	64,516	–
Financial Assets Classed as Available for Sale	34	34		–		–
Pension	478	–	–	–	–	478
Other Assets	23,991	1,077	22,795	–	–	190
Total assets	**361,885**	**2,041**	**357,142**	–	**334,347**	**2,701**
Liabilities						
Financial Liabilities at Amortised Cost: Bank Loans and Overdrafts	16,461	–	–	–	–	16,461
Financial Liabilities at Amortised cost: Collateralised Financing Transactions	51,180	–	51,180	–	51,180	–
Financial Liabilities at Fair Value through Profit and Loss – Derivatives	143,870	–	143,870	–	143,870	–
Financial Liabilities at Fair Value through Profit and Loss – Securities Sold but Not Yet Purchased	43,194	–	43,194	–	43,194	–
Financial Liabilities Designated at Fair Value through Profit and Loss	57,000	–	57,000	–	57,000	–
Other Liabilities	30,026	–	25,031	–	3,754	1,241
Subordinated Loans	4,012	–		–	–	4,012
Total Liabilities	**345,742**	–	**320,274**	–	**298,998**	**21,713**

Differences between Accounting and Regulatory Exposure Amounts

CGML is not required to publish consolidated financial statements; therefore, the "Carrying values as reported in published financial statements" is not disclosed.

- Carrying values under scope of regulatory consolidation – the total amount reported in this column do not equal the sum of the columns relating to the regulatory frameworks, as certain line items are subject to more than one regulatory framework. Consequently, assets included in a line item can be subject to credit risk, counterparty credit risk and market risk
- Items subject to credit risk framework – this is based on non-trading book asset

2. LI1 – 2017 table have been restated due to change in reporting taxonomy.

- Item subject to securitisation framework – amount only non-trading books. Trading book securitisation positions are included under market risk framework
- Not subject to capital requirements or subject to capital deduction – these are assets that are deducted from own funds
- Items measured and designated at fair value through profit and loss are trading book items and can be subject to credit risk, counterparty credit risk and market risk

Table 7: LI2 – Main Sources of Differences between Regulatory Exposure Amounts and Carrying Values in Financial Statements

		Items Subject to		
	Total	Credit Risk Framework	Counterparty Credit Risk framework	Securitisation Framework
31/12/2018	$ Million	$ Million	$ Million	$ Million
Assets Carrying Value Amount under the Scope of Regulatory Consolidation (as per Template EU LI1)	**393,622**	**3,750**	**389,812**	**60**
Liabilities Carrying Value Amount under the Regulatory Scope of Consolidation (as per Template EU LI1)	365,455	–	365,455	–
Total Net Amount under the Regulatory Scope of Consolidation	28,166	3,750	24,357	60
Differences Due To Different Netting Rules and Collateral Usage	85,318	454	84,865	–
Exposure Amounts Considered for Regulatory Purposes	**113,485**	**4,204**	**109,222**	**60**
31-Dec-17	$ Million	$ Million	$ Million	$ Million
Assets Carrying Value Amount under the Scope of Regulatory Consolidation (as per Template EU LI1)	**359,183**	**2,041**	**357,142**	**–**
Liabilities Carrying Value Amount under the Regulatory Scope of Consolidation (as per Template EU LI1)	320,274	–	320,274	–
Total Net Amount under the Regulatory Scope of Consolidation	38,909	2,041	36,868	–
Differences Due to Different Netting Rules and Collateral Usage	96,596	509	96,087	–
Exposure Amounts Considered for Regulatory Purposes	**135,506**	**2,551**	**132,955**	**–**

The total column cannot directly reconcile to the carrying value in Table 6 above, as the market risk framework and items not subject to capital requirements or subject to deduction from capital are not reflected in Table 7.

4 Own Funds

Under the PRA's minimum capital standards, CGML is required to maintain a prescribed excess of own funds over its capital resources requirements. Own funds are measured and reported in accordance with the provisions of the Capital Requirements Regulation (CRR).

Regulatory capital comprises the following distinct elements for CGML

- Common Equity Tier 1 capital, which includes ordinary share capital, retained earnings, and capital reserves
- Additional Tier 1 capital
- Tier 2 capital, which includes Long-term Subordinated Loan
- Deductions from capital, which include
  - Intangible assets
  - Certain securitisation and free delivery positions
  - Defined benefit pension assets
  - Prudent valuation adjustments
  - Credit Valuation Adjustments (CVA) for liabilities

This disclosure has been prepared using the format set out in Annex IV of the final 'Implementing technical standards with regard to disclosure of own funds requirements for institutions' (Commission implementing regulation- EU 1423/2013).

This table shows the components of regulatory capital as at 31 December 2018.

Table 8: Own Funds Disclosure Template

Own Funds Disclosure Template		31-Dec-18	31-Dec-17
		$ Million	$ Million
Common Equity Tier 1 (CET1) Capital: Instruments and Reserves			
1	Capital Instruments and the Related Share Premium Accounts	1,500	1,500
2	Retained Earnings[3]	1,563	951
3	Accumulated Other Comprehensive Instruments (and Other Reserves)	12,043	11,053
6	**Common Equity Tier 1 (CET1) Capital before Regulatory Adjustments**	**15,105**	**13,504**
Common Equity Tier 1 (CET1) Capital: Regulatory Adjustments			
7	Additional Value Adjustments	(555)	(487)
8	Intangible Assets (Net of Related Tax Liabilities)	(193)	(179)
15	Defined-Benefit Pension Fund Assets	(330)	(477)
20a	Exposure Amount of the Following Items which Qualify for a RW of 1250%, where the Institution Opts for the Deduction Alternative	(66)	(88)
20c	of which: Securitisation Positions	(51)	(80)
20d	of which: Free Deliveries	(14)	(8)
24	CET1 Capital Elements or Deductions – Other	(2)	(3)
28	**Total Regulatory Adjustments to Common Equity Tier 1 (CET1)**	**(1,146)**	**(1,234)**
29	**Common Equity Tier 1 (CET1) Capital**	**13,959**	**12,270**
Additional Tier 1 (AT1) Capital: Instruments			
30	Capital Instruments and the Related Share Premium Accounts	2,300	1,800
31	of which: Classified as Equity Under Applicable Accounting Standards	2,300	1,800
36	**Additional Tier 1 (AT1) Capital before Regulatory Adjustments**	**2,300**	**1,800**
Additional Tier 1 (AT1) Capital: Regulatory Adjustments			
43	**Total Regulatory Adjustments to Additional Tier 1 (AT1) Capital**	–	–

3. Retained earnings do not include the impact of audited profit for the respective years. Impact of audited profit is shown in table 9 "Balance sheet reconciliation" below.

Own Funds Disclosure Template		31-Dec-18	31-Dec-17
		$ Million	$ Million
44	**Additional Tier 1 (AT1) Capital**	**2,300**	**1,800**
45	**Tier 1 Capital (T1 = CET1 + AT1)**	16,259	14,070
Tier 2 (T2) Capital: Instruments and Provisions			
46	Capital Instruments and the Related Share Premium Accounts	4,600	4,012
51	**Tier 2 (T2) Capital before Regulatory Adjustments**	**4,600**	**4,012**
57	Total Regulatory Adjustments to Tier 2 (T2) Capital	–	–
58	**Tier 2 (T2) Capital**	**4,600**	**4,012**
59	**Total Capital (TC = T1 + T2)**	**20,859**	**18,082**
60	**Total Risk Weighted Assets**	**131,022**	**130,256**
Capital Ratios and Buffers			
61	Common Equity Tier 1 (as a Percentage of Total Risk Exposure Amount)	10.65%	9.42%
62	Tier 1 (as a Percentage of Total Risk Exposure Amount)	12.41%	10.80%
63	Total Capital (as a Percentage of Total Risk Exposure Amount)	15.92%	13.88%
64	Institution Specific Butter Requirement (CET1 Requirement in Accordance with Article 92 (1) (a) Plus Capital Conservation and Countercyclical Buffer Requirements, Plus Systemic Risk Butter, Plus Systemically Important Institution Butter Expressed as a Percentage of Risk Exposure Amount)	6.79%	5.81%
65	of which: Capital Conservation Buffer Requirement	1.88%	1.25%
66	of which: Countercyclical Butter Requirement	0.42%	0.06%
67	of which: Systemic Risk Butter Requirement	0.00%	0.00%
68	Common Equity Tier 1 Available to Meet Buffers (as a Percentage of Risk Exposure Amount)	2.07%	1.74%
Amounts below the Thresholds for Deduction (before Risk Weighting)			
72	Direct and Indirect Holdings of the Capital of Financial Sector Entities where the Institution Does Not have a Significant Investment in those Entities (Amount below 10% Threshold and Net of Eligible Short Positions)	249	433
73	Direct and Indirect Holdings by the Institution of the CET1 Instruments of Financial Sector Entities where the Institution has a Significant Investment in those Entities (amount below 10 % threshold and net of eligible short positions)	–	–
75	Deferred tax assets arising from temporary differences (amount below 10 % Threshold, Net of Related Tax Liability where the Conditions in Article 38 (3) are Met)	227	212

Further details of the main features of CGML's capital instruments can be found in Appendix 17.4.

Table 9: Balance Sheet Reconciliation

This table presents CGML's capital resources as at 31 December 2018. The template is prepared using the format set out in Annex I of the final 'Implementing technical standards with regard to disclosure of own funds requirements for institutions' (Commission implementing regulation- EU 1423/2013).

	31-Dec-18	31-Dec-17
	$ Million	$ Million
Shareholders' Funds as Reported in the Balance Sheet		
Called up Share Capital	1,500	1,500
Other Equity Instruments	2,300	1800
Capital Reserves	10,999	9,999
Retained Earnings and Other Reserves	2,606	2,732
Total Shareholders' Funds as Reported in the Balance Sheet	**17,405**	**16,031**
Common Equity Tier 1 (CET1) Capital: Regulatory Adjustments		
Additional Value Adjustments	(555)	(487)
Intangible Assets (Net of Related Tax Liabilities)	(193)	(179)
Defined-Benefit Pension Fund Assets	(330)	(478)
Exposure Amount of the Following Items which Qualify for a RW of 1250 %, where the Institution Opts for the Deduction Alternative	(66)	(88)
of which: Securitisation Positions	(51)	(80)
of which: Free Deliveries	(14)	(8)
CET1 Capital Elements or Deductions – Other	(2)	(3)
Total Regulatory Deductions	(1,146)	(1,234)
Tier 1 Capital (T1 = CET1 + AT1)[1]	**16,259**	**14,797**
Subordinated Liabilities Qualifying as Tier 2	4,600	4,012
Total Regulatory Own Funds	**20,859**	**18,809**

5 Capital Requirements and Buffers

CGML complies with the CRD IV minimum capital requirements to ensure that sufficient capital is maintained to cover all relevant risks and exposures. For this purpose, the firm calculates capital charges for market risk, counterparty risk and operational risk based upon a number of internal models and standardised approaches, as well as recognising a number of credit risk mitigation techniques.

To assess the adequacy of capital to support current and expected future activities, the firm produces regular capital forecasts for CGML, taking into account both normal business conditions and a variety of stressed scenarios. On at least an annual basis CGML prepares an Internal Capital Adequacy Assessment Process (ICAAP) document, setting out its risk appetite, capital requirements and associated policies and procedures.

The following table set out CGML's Pillar 1 minimum capital requirements and Risk Weighted Assets (RWAs) as at 31 December 2018 and 30 September 2018.

Table 10: OV1 – Overview of RWAs

This table provide an overview of total RWA forming the denominator of the risk-based capital requirements calculated in accordance with Article 92 of the CRR. Further breakdowns of RWAs are presented in subsequent parts of these disclosures.

		RWAs	RWAs	Minimum Capital Requirements
		31-Dec-18	30-Sep-18	31-Dec-18
		$ Million	$ Million	$ Million
1	**Credit risk (Excluding CCR)**	**2,735**	**2,856**	**219**
2	Of which the Standardised Approach	2,735	2,856	219
3	Of which the Foundation IRB (FIRB) Approach	–	–	–
4	Of which the Advanced IRB (AIRB) Approach	–	–	–
5	Of which Equity IRB under the Simple Risk-Weighted Approach or the IMA	–	–	–
6	**CCR**	**75,868**	**87,693**	**6,069**
7	Of which Mark to Market	57,077	65,432	5,297
8	Of which Original Exposure	–	–	–
9	Of which the Standardised Approach	–	–	–
10	Of which Internal Model Method (IMM)	9,141	11,311	–
11	Of which Risk Exposure Amount for Contributions to the Default Fund of a CCP	210	220	17
12	Of which CVA	9,440	10,729	755
12	**Settlement Risk**	**105**	**74**	**8**
14	**Securitisation Exposures in the Banking Book (after the Cap)**	**65**	**12**	**5**
15	Of which IRB Approach	–	–	–
16	Of which IRB Supervisory Formula Approach (SFA)	–	–	–
17	Of which Internal Assessment Approach (IAA)	–	–	–
18	Of which Standardised Approach	65	12	5
19	**Market Risk**	**32,985**	**33,599**	**2,639**
20	Of which the Standardised Approach	18,650	19,603	1,492
21	Of which IMA	14,336	13,996	1,147
22	**Large Exposures**	**–**	**1,428**	**–**
23	**Operational Risk**	**19,263**	**19,272**	**1,541**
24	Of which Basic Indicator Approach	–		–
25	Of which Standardised Approach	513	522	41
26	Of which Advanced Measurement Approach	18,750	18,750	1,500
27	Amounts below the Thresholds for Deduction (Subject to 250% Risk Weight)	–	–	–
28	Floor adjustment	–	–	–
29	**Total**	**131,022**	**144,934**	**10,482**

5.1 Capital Buffers

Under CRD IV, CGML is required to hold additional capital buffers.

The countercyclical capital buffer aims to ensure that capital requirements take into account the macro-financial environment. Its primary objective is to protect the banking sector from periods of excess aggregate credit growth. The designated authorities can set the countercyclical capital buffer rates between 0% and 2.5%.

CGML is required to calculate its institution-specific countercyclical buffer rate as a weighted average of the buffer rates that have been announced for each jurisdiction to which the firm has relevant credit exposures. Relevant credit exposures are as follows;

- Credit risk
- Specific risk
- Incremental default and migration risk (IRC)
- Securitisations

The institution-specific countercyclical buffer rate consists of the weighted average of the countercyclical buffer rates that apply in the jurisdictions where the relevant credit exposures of the institutions are located.

The following table sets out CGML's countercyclical buffer requirement for 31 December 2018 and 31 December 2017 in line with Article 440 of the CRR.

Table 11: Geographical Distribution of Countercyclical Capital Buffer

31-Dec-18	General Credit Exposures		Trading Book Exposure		Securitisation Exposure		Own Funds Requirements					
	Exposure Value for SA	Exposure Value IRB	Sum of Long and Short Position of Trading Book	Value of trading Book Exposure for Internal Models	Exposure Value for SA	Exposure Value for IRB	Of which: General Credit Exposures	Of which: Trading Book Exposures	Of which: Securitisation Exposures	Total	Own Funds Requirement Weights	Countercyclical Capital Buffer Rate
Breakdown by Country	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	%	%
Czech Republic	55	–	–	–	–	–	3	–	–	3	0.07%	1.00%
Hong Kong	1,960	–	677	–	–	–	154	54	–	208	5.34%	1.88%
Iceland	–	–	21	–	–	–	–	2	–	2	0.04%	1.25%
Norway	93	–	1	6	–	–	5	–	–	5	0.14%	2.00%
Sweden	655	–	27	43	–	–	52	6	–	58	1.49%	2.00%
UK	13,715	–	1,147	578	–	–	960	138	–	1,098	0.00%	1.00%
All Other Countries	28,247	–	2,925	1,511	–	–	2,168	355	–	2,523	64.75%	0.00%
Total	**44,725**	**–**	**4,798**	**2,138**	**–**	**–**	**3,342**	**555**	**–**	**3,897**	**100.00%**	
Amount of Institution-specific Countercyclical Capital Buffer												
Total Risk Exposure Amount												$131,022
Institution Specific Countercyclical Buffer Rate												0.42%
Institution Specific Countercyclical Buffer Requirement												$545

Table11: Geographical Distribution of Countercyclical Capital Buffer (Cont'd)

31-Dec-17	General Credit Exposures		Trading Book Exposure		Securitisation Exposure		Own Funds Requirements					
	Exposure Value for SA	Exposure Value IRB	Sum of Long and Short Position of Trading Book	Value of Trading Book Exposure for Internal Models	Exposure Value for SA	Exposure Value for IRB	Of which: General Credit Exposures	Of which: TRADING Book Exposures	Of which: Securitisation Exposures	Total	Own funds Requirement Weights	Countercyclical Capital Buffer Rate
Breakdown by Country	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	%	%
Czech Republic	43	–	8	–	–	–	2	1	–	3	0.05%	0.50%
Hong Kong	1,572	–	97	22	–	–	125	9	–	134	2.85%	1.25%
Iceland	–	–	–	–	–	–	–	–	–	–	0.00%	1.00%
Norway	109	–	16	3	–	–	6	1	–	8	0.17%	1.50%
Slovakia	–	–	–	–	–	–	–	–	–	–	0.00%	0.50%
Sweden	530	–	16	115	–	–	42	10	–	53	1.12%	2.00%
All Other Countries	38,956	–	15,264	4,192	–	–	2,959	1,557	–	4,516	95.80%	0.00%
Total	**41,211**	**–**	**15,401**	**4,331**	**–**	**–**	**3,135**	**1,579**	**–**	**4,714**	**100.00%**	
Amount of Institution-Specific Countercyclical Capital Buffer												
Total Risk Exposure Amount												$130,256m
Institution Specific Countercyclical Buffer Rate												0.06%
Institution Specific Countercyclical Buffer Requirement												$80m

CGML is also required to hold a capital conservation buffer. The buffer was first introduced on 1 January 2016 at 0.625% of RWAs. The buffer is scheduled to increase by 0.625% per year until it reaches 2.5% of RWAs on 1 January 2019. The buffer held by CGML as at 31 December 2018 was US$2,457 million and 31 December 2017 was US$1,628 million.

6 Leverage

Leverage risk is the risk that excessive growth in exposure or a decrease in capital will lead to an entity becoming more vulnerable to leverage or contingent leverage that may require unintended corrective measures, including distressed selling of assets which might result in losses or in valuation adjustments to its remaining assets.

In accordance with CRD IV, the leverage ratio for CGML is calculated by dividing fully loaded Tier 1 capital by the total of the entity's on and off-balance sheet exposures.

The leverage ratio is a monitoring tool which will allow competent authorities to assess the risk of excessive leverage in their respective institutions. It aims to constrain the build-up of excess leverage in the banking sector.

The requirement for the calculation and reporting of the leverage ratio has been implemented in the EU for reporting and disclosure purposes, but currently this is not set as a binding requirement. The leverage ratio during this transitional phase is set at a minimum level of 3%.

6.1 Management of Capital and Leverage Risk

CGML's approach to managing the risk of excessive leverage incorporates the following

Daily Capital and Leverage Monitoring

This is conducted for CGML's capital ratios (Common Equity Tier 1 (CET1), Tier 1 and Total Capital Ratios). The excess capital over Pillar 1 and Pillar 2 requirements (including the Individual Capital Guidance and Capital Planning Buffer) and over the internal Capital Action Trigger, are also monitored daily. The latter is an internal trigger set to ensure that the entity holds a sufficient capital excess to permit timely management decisions in case of short-term stresses.

For CGML there are both legal entity capital usage limits and business specific regulatory capital targets. These limits and targets are subject to detailed monitoring and review by both the business and finance subject matter experts, and reported to senior management on a weekly basis.

Balance Sheet and Regulatory Capital Quarterly Reforecasts are performed quarterly of the Pillar 1 requirements and balance sheet for all businesses. These forecasts are owned by the businesses and are vetted by the regional Markets head.

All the above tools are monitored and controlled through the monthly UK ALCO process. The UK ALCO is the primary governance committee for the management of CGML's balance sheet. Amongst the responsibilities of the UK ALCO are the provision of balance sheet oversight of trends and business mix, ensuring prudent legal entity balance sheet management and overseeing the local regulatory requirements related to the balance sheet. The UK ALCO and CGML Board of Directors are also responsible for reviewing CGML's liquidity position on a daily basis.

CGML's Risk Committee reviews and approves the Liquidity Risk Management Framework, the Funding and Liquidity Plan (FLP) on an annual basis.

Stress Testing: On a weekly basis, the trading books of the entities are stress tested for market risk across a range of scenarios. A trigger has been set for the largest loss of the three 1-in-25 year scenarios that are run weekly and potential stress losses above this trigger will be escalated to the entity CEO, CRO and Treasurer.

CGML Capital Committee: The monthly CGML Capital Committee is the primary governance committee for the management of CGML's capital. Responsibilities include approval of the ICAAP and the Pillar 3 document.

The following table sets out CGML's leverage ratio as at 31 December 2018 and 31 December 2017.

Table 12: Summary Reconciliation of Accounting Assets and Leverage Ratio Exposures

This table summarises the total leverage exposure, comprising of the total assets in the statutory financial statement and other regulatory adjustments for leverage purposes.

		31-Dec-18	31-Dec-17
		$ Million	$ Million
1	Total Assets as Per Published Financial Statements	404,907	377,942
4	Adjustments for Derivative Financial Instruments	(6,847)	(22,705)
5	Adjustment for Securities Financing Transactions (SFTS)	36,667	30,593
6	Adjustment for Off-Balance Sheet Items (i.e. Conversion to Credit Equivalent Amounts of Off-Balance Sheet Exposures)	–	–
7	(Adjustment for Exposures Excluded from the Leverage Ratio Total Exposure Measure in Accordance with Article 429(14) of Regulation (EU) No 575/2013)	(16,496)	(526)
8	**Leverage Ratio Total Exposure Measure**	**418,231**	**385,303**

The total assets as per published financial statements for CGML are on a solo basis, CGML does not publish financial statements at the consolidated level.

In accordance with Article 4(2) of the commission implementing regulation (EU) 2016/200, the implementing technical standards concerning the disclosure of the leverage ratio, CGML is not required to complete and publish financial statements at the consolidated level.

Presented on an annual basis.

Table 13: Leverage Ratio Common Disclosure

This table shows the breakdown of the Leverage exposure disclosed in Table 12 – Summary reconciliation of accounting assets and leverage ratio exposures and the leverage ratio.

		31-Dec-18	31-Dec-17
		$ Million	$ Million
	On-Balance Sheet Exposures (Excluding Derivatives and SFTS)		
1	On-Balance Sheet Items (Excluding Derivatives, SFTS and Fiduciary Assets, but Including Collateral)	74,972	93,078
2	(Asset Amounts Deducted in Determining Tier 1 Capital)	(591)	(526)
3	**Total on-Balance Sheet Exposures (Excluding Derivatives, SFTS and Fiduciary Assets)**	**74,381**	**92,552**
	Derivative Exposures		
4	Replacement Cost Associated with *all* Derivatives Transactions (I.e. Net of Eligible Cash Variation Margin)	18,008	22,539
5	Add-on Amounts for PFE Associated with *all* Derivatives Transactions (Mark- to-Market Method)	121,556	102,257
7	(Deductions of Receivables Assets for Cash Variation Margin Provided in Derivatives Transactions)	(10,853)	–
8	(Exempted CCP Leg of Client-Cleared Trade Exposures)	(6,609)	(8,859)
9	Adjusted Effective Notional Amount of Written Credit Derivatives	732,366	581,323
10	(Adjusted Effective Notional Offsets and Add-on Deductions for Written Credit Derivatives)	(704,324)	(570,557)
11	**Total Derivatives Exposures**	**150.144**	**126,704**

		31-Dec-18	31-Dec-17
		$ Million	$ Million
12	**SFT Exposures**		
	Gross SFT Assets (with no Recognition Of Netting), after Adjusting for Sales Accounting Transactions	165,636	135,455
13	(Netted Amounts of Cash Payables and Cash Receivables of Gross SFT Assets)	–	–
14	Counterparty Credit Risk Exposure for SFT Assets	28,070	30,593
16	**Total Securities Financing Transaction Exposures**	**193,706**	**166,048**
	Other Off-Balance Sheet Exposures		
17	Off-Balance Sheet Exposures at Gross Notional Amount	–	–
18	(Adjustments for Conversion to Credit Equivalent Amounts)	–	–
19	**Other Off-Balance Sheet Exposures**	**–**	**–**
	Capital and Total Exposure Measure		
20	**Tier 1 Capital**	16,259	14,070
21	**Leverage Ratio Total Exposure Measure**	418,231	385,303
	Leverage Ratio		
22	**Leverage Ratio**	3.89%	3.65%
	Choice on Transitional Arrangements and Amount of Derecognised Fiduciary Items		
EU-23	Choice on Transitional Arrangements for the Definition of the Capital Measure	Fully phased in	

- CGML leverage ratio increased from 3.65% in December 2017 to 3.89% in December 2018. This is driven primarily by a US$2.2 billion increase in Tier 1 capital, offset by an increase in Derivative & SFT exposures
- Presented on an annual basis

Table 14: Split-up of on Balance Sheet Exposures (Excluding Derivatives, SFTs and Exempted Exposures)

		CRR Leverage Ratio Exposures	
		31-Dec-18	31-Dec-17
		$ Million	$ Million
EU-1	Total on-Balance Sheet Exposures (Excluding Derivatives, SFTS, and Exempted Exposures), of which	74,972	93,078
EU-2	Trading Book Exposures	70,794	91,441
EU-3	Banking Book Exposures, of Which	4,178	1,637
EU-4	Covered Bonds	–	–
EU-5	Exposures Treated as Sovereigns	211	325
EU-6	Exposures to Regional Governments, MDB, International Organisations and PSE Not Treated as Sovereigns	–	–
EU-7	Institutions	17	113
EU-8	Secured by Mortgages of Immovable Properties	–	–
EU-9	Retail Exposures	–	–
EU-10	Corporate	362	29
EU-11	Exposures in Default	–	–
EU-12	Other Exposures (e.g. Equity, Securitisations, and Other Non-credit Obligation Assets)	3,589	1,169

7 Credit Risk and General Information on CRM

7.1 Credit Quality of Assets

Under International Financial Reporting Standards (IFRS), the firm assesses whether there is objective evidence that a financial asset or a portfolio of financial assets is impaired on an ongoing basis (including at each balance sheet date). A financial asset or portfolio of financial assets is impaired and impairment losses are incurred if, and only if, there is objective evidence of impairment as a result of one or more loss events that occurred after the initial recognition of the asset and prior to the balance sheet date ("a loss event") and that loss event has had an impact on the estimated future cash flows of the financial asset or the portfolio that can be reliably estimated.

Objective evidence that a financial asset or a portfolio is impaired includes observable data that comes to the attention of the firm about the following loss events

- Significant financial difficulty of the issuer or obligor
- A breach of contract, such as a default or delinquency in interest or principal payments
- The firm as lender, for economic or legal reasons relating to the borrower's financial difficulty, grants to the borrower a concession that the firm would not otherwise consider
- It becomes probable that the borrower will enter bankruptcy or other financial reorganisation
- The disappearance of an active market for that financial asset because of financial difficulties; and
- Observable data indicating that there is a measurable decrease in the estimated future cash flows from a portfolio of financial assets since the initial recognition of those assets, although the decrease cannot yet be identified with the individual financial assets in the portfolio, including
  - Adverse changes in the payment status of borrowers in the portfolio
  - National or local economic conditions that correlate with defaults on the assets in the portfolio

The firm first assesses whether objective evidence of impairment exists

- Individually, for financial assets that are individually significant; and
- Individually or collectively, for financial assets that are not individually significant

If the firm determines that no objective evidence of impairment exists for an individually assessed financial asset, whether significant or not, it includes the asset in a group of financial assets with similar credit risk characteristics and collectively assesses them for impairment. Assets that are individually assessed for impairment and for which an impairment loss is recognised are not included in a collective assessment of impairment.

Following impairment, interest income is recognised using the original effective interest rate, which is used to discount the future cash flows for the purpose of measuring the impairment loss.

For the purposes of the collective evaluation of impairment, financial assets are grouped on the basis of similar credit risk characteristics by using a grading process that considers obligor type, industry, geographical location, collateral type, past due status and other relevant factors. These characteristics are relevant to the estimation of future cash flows for groups of such assets by being indicative of the likelihood of receiving all amounts due under a facility according to the contractual terms of the assets being evaluated.

Future cash flows in a group of financial assets that are collectively evaluated for impairment are estimated on the basis of the contractual cash flows of the assets in the group and historical loss experience for assets with credit risk characteristics similar to those of the group.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed by adjusting the allowance account. The amount of the reversal is recognised in the income statement.

In the case of equity instruments classified as available for sale, a significant or prolonged decline in the fair value of the security below its cost is also considered in determining whether impairment exists. Where such evidence exists, the cumulative net loss that has been previously recognised directly in equity is removed from equity and recognised in the income statement.

In the case of debt instruments classified as available for sale, impairment is assessed based on the same criteria as for assets held at amortised cost. However, impairment charges are recorded as the entire cumulative net loss that has previously been recognised directly in equity. Reversals of impairment of debt securities are recognised in the income statement. Reversals of impairment of equity shares are not recognised in the income statement. Increases in the fair value of equity shares after impairment are recognised directly in equity.

Wholesale Impairment

Rather than measuring delinquency for a wholesale customer or for a facility to that customer by the number of days past due, impaired wholesale credit exposures are classified as either Substandard or Doubtful

- Substandard – a substandard asset is inadequately protected by the current sound worth and paying capacity of the obligor. Assets so classified must have a well-defined weakness, or weaknesses, that jeopardise the timely repayment of its obligations
- Doubtful – an asset classified as doubtful has all the weaknesses inherent in one classified as substandard with the added characteristic that the weaknesses make collection or liquidation in full, on the basis of currently existing facts, conditions and values, highly questionable and improbable

Retail Impairment

CGML has no retail exposure.

Conclusion

As CGML does not undertake any banking book activity, and its exposures are generated as a result of trading book activity, the following tables in this section have not been completed

- Table 22: CR1-D: Ageing of past-due exposures
- Table 23: CR1-E: Non-performing and forborne exposures
- Table 24: CR2-A: Changes in the stock of general and specific credit risk adjustments; and
- Table 25: CR2-B: Changes in the stock of defaulted and impaired loans and debt securities

The following tables in this section details CGML’s credit risk profile focusing on on-balance sheet and off-balance sheet regulatory exposures.

The risk profile is further analysed into exposure classes, industry, regions, maturities and defaulted exposures.

Table 15: CRB-B – Total and Average Net Amount of Exposures

The table below provide a breakdown of credit risk exposures pre CCF and CRM by exposure class and average over four quarters.

	Net Value of Exposure		Average Net Exposures	
	31-Dec-18	31-Dec-17	31-Dec-18	31-Dec-17
	$ Million	$ Million	$ Million	$ Million
Standardised Approach				
Central Governments or Central Banks	848	204	377	133
Regional Governments or Local Authorities	–	–	–	–
Public Sector Entities	–	–	–	20
Multilateral Development Banks	–	–	–	–
International Organisations	–	–	–	–
Institutions	205	386	445	442
Corporates	1,046	791	926	1,103
Of Which: SMEs	–	–	–	–
Exposures in Default	–	–	–	–
Items Associated with Particularly High Risk	–	–	2	–
Covered Bonds				
Claims on Institutions and Corporates with a Short-term Credit Assessment	1,877	979	1,339	1,893
Collective Investments Undertakings	–	–	–	–
Equity Exposures	59	34	58	33
Other Exposures	229	156	237	145
Total Standardised Approach	**4,263**	**2,551**	**3,383**	**3,768**

Average net exposure values are calculated by aggregating the last four-quarter ends of the year and dividing by four.

Table 16: CRB-C – Geographical Breakdown of Exposures

This table provide a breakdown of credit risk exposures pre CCF and CRM by geographical areas and exposure classes.

31-Dec-18 ($ in Millions)	EU	UK	Belgium	Portugal	Hungary	Rest of EU Countries	Americas	US	APAC	Taiwan	Republic of Korea	Japan	Hong Kong	Australia	Other Countries	EMEA	UAE	Other Countries	LatAm	Bahamas	Other Countries	Total
Standardised Approach																						
Central Governments or Central Banks	**848**	848	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	848
Regional Governments or Local Authorities	**–**	–	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	–
Public Sector Entities	**–**	–	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	–
Multilateral Development Banks	**–**	–	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	–
International Organisations	**–**	–	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	–
Institutions	**114**	105	–	–	–	8	**86**	83	**4**	–	1	1	–	1	1	**–**	–	–	**–**	–	–	205
Corporates	**771**	770	–	–	–	2	**23**	23	**154**	137	3	–	2	–	11	**68**	22	45	**30**	30	–	1,046
Exposures in Default	**–**	–	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	–
Items Associated with Particularly High Risk	**–**	–	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	–
Covered Bonds	**–**	–	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	–
Claims on Institutions and Corporates with a Short-term Credit Assessment	**1,338**	859	325	55	26	73	**179**	179	**296**	–	97	82	48	23	46	**43**	–	43	**20**	–	20	1,877
Collective Investments undertakings	**–**	–	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	–
Equity Exposures	**59**	56	–	–	–	3	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	59
Other Exposures	**229**	229	–	–	–	–	**–**	–	**–**	–	–	–	–	–	–	**–**	–	–	**–**	–	–	229
Total	**3,359**	**2,867**	**325**	**55**	**26**	**86**	**289**	**286**	**454**	**137**	**101**	**82**	**50**	**24**	**58**	**111**	**22**	**88**	**50**	**30**	**20**	**4,263**

Table16: CRB-C – Geographical Breakdown of Exposures (Cont'd)

31-Dec-17 ($ in Millions)	EU	UK	Rest of EU Countries	Americas	US	Canada	APAC	Taiwan	Republic of Korea	Malaysia	Hong Kong	Other Countries	EMEA	Egypt	Russia	Other Countries	LatAm	Bahamas	Other Countries	Total
Standardised Approach																				
Central Governments or Central Banks	204	204	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	204
Regional Governments or Local Authorities	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Public Sector Entities	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Multilateral Development Banks	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
International Organisations	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Institutions	14	2	12	276	248	27	55	–	6	36	–	14	40	–	3	37	1	–	1	386
Corporates	748	748	–	6	6	–	6	–	–	–	–	6	1	–	–	1	30	30	–	791
Exposures in Default	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Items Associated with Particularly High Risk	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Covered Bonds	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Claims on Institutions and Corporates with a Short-term Credit Assessment	470	266	204	239	239	–	200	76	65	–	20	39	68	36	20	12	1	–	1	979
Collective Investments Undertakings	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Equity Exposures	34	34	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	34
Other Exposures	156	156	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	156
Total	**1,627**	**1,411**	**216**	**521**	**493**	**27**	**262**	**76**	**71**	**36**	**21**	**59**	**109**	**36**	**24**	**50**	**32**	**30**	**1**	**2,551**

Credit risk exposure increased by $1,712 million mainly due to the following key geographical areas

- UK increased by $1,456 million due to increase in exposures to Central governments or central banks, Institutions, and Claims on institutions and corporates with short-term credit assessment.
- Rest of EU increased by $276 million due to increase in exposures to claims on institutions and corporates with short-term credit assessment.

Table 17: CRB-D – Concentration of Exposures by Industry

This table provide a breakdown of exposures pre CCF and CRM by industry or counterparty types and exposure classes

31-Dec-18	Electricity, Gas, Steam and air Conditioning Supply	Information and Communication	Financial and Insurance Activities	Real Estate Activities	Professional, Scientific and Technical Activities	Administrative and Support service Activities	Public Administration and Defence, Compulsory Social Security	Other Services	Total
	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Standardised Approach									
Central Governments or Central Banks	–	–	637	–	–	–	211	–	848
Regional Governments or Local Authorities	–	–	–	–	–	–	–	–	–
Public Sector Entities	–	–	–	–	–	–	–	229	228
Multilateral Development Banks	–	–	–	–	–	–	–	–	–
International Organisations	–	–	–	–	–	–	–	–	–
Institutions	–	–	–	–	–	–	–	–	–
Corporates	–	–	306	17	–	–	–	723	1,046
Exposures in Default	–	–	–	–	–	–	–	–	–
Items Associated with Particularly High Risk	–	–	–	–	–	–	–	–	–
Covered Bonds	–	–	–	–	–	–	–	–	–
Claims on Institutions and Corporates with a Short-term Credit Assessment	–	–	1,877	–	–	–	–	–	1,877
Collective Investments Undertakings	–	–	–	–	–	–	–	–	–
Equity Exposures	–	–	4	–	29	–	–	25	59
Other Exposures	–	–	205	–	–	–	–	–	205
Total	–	–	**3,029**	**17**	**29**	–	**211**	**977**	**4,263**

Table17: CRB-D – Concentration of Exposures by Industry (Cont'd)

31-Dec-17	Electricity, Gas, Steam and Air Conditioning Supply	Information and Communication	Financial and Insurance Activities	Real Estate Activities	Professional, Scientific and Technical Activities	Administrative and Support Service Activities	Public Administration and Defence, Compulsory Social Security	Other services	Total
	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Standardised Approach									
Central Governments or Central Banks	–	–	–	–	–	–	204	–	204
Regional Governments or Local Authorities	–	–	–	–	–	–	–	–	–
Public Sector Entities	–	–	–	–	–	–	–	–	–
Multilateral Development Banks	–	–	–	–	–	–	–	–	–
International Organisations	–	–	–	–	–	–	–	–	–
Institutions	–	–	387	–	–	–	–	–	387
Corporates	–	–	117	30	–	–	–	644	791
Exposures in Default	–	–	–	–	–	–	–	–	–
Items Associated with Particularly High Risk	–	–	–	–	–	–	–	–	–
Covered Bonds	–	–	–	–	–	–	–	–	–
Claims on Institutions and Corporates with a Short-term Credit Assessment	–	–	979	–	–	–	–	–	979
Collective Investments Undertakings	–	–	–	–	–	–	–	–	–
Equity Exposures	–	–	7	–	18	–	–	9	34
Other Exposures	–	–	–	–	–	–	–	156	156
Total	–	–	**1,490**	**30**	**18**	–	**204**	**809**	**2,551**

Table 18: CRB-E Maturity of Exposures

The table below provide a breakdown of net exposures pre CCF and CRM by residual maturity and exposure classes.

	Net Exposure Value					
	On Demand	<= 1 year	>1 Year <= 5 Years	>5 Years	No Stated Maturity	Total
31-Dec-18	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**
Standardised Approach						
Central Governments or Central Banks	637	211	–	–	–	848
Regional Governments or Local Authorities	–	–	–	–	–	–
Public Sector Entities	–	–	–	–	–	–
Multilateral Development Banks	–	–	–	–	–	–
International Organisations	–	–	–	–	–	–
Institutions	197	8	–	–	–	205
Corporates	253	793	–	–	–	1,046
Exposures in Default	–	–	–	–	–	–
Items Associated With Particularly High Risk	–	–	–	–	–	–
Covered Bonds	–	–	–	–	–	–
Claims on Institutions and Corporates with a Short-term Credit Assessment	1,877	–	–	–	–	1,877
Collective Investments Undertakings	–	–	–	–	–	–
Equity Exposures	–	–	–	59	–	59
Other Exposures	–	220	–	–	9	229
Total Standardised Approach	**2,964**	**1,231**	**–**	**59**	**9**	**4,263**
31-Dec-17	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**
Standardised Approach						
Central Governments or Central Banks	–	–	204	–	–	204
Regional Governments or Local Authorities	–	–	–	–	–	–
Public Sector Entities	–	–	–	–	–	–
Multilateral Development Banks	–	–	–	–	–	–
International Organisations	–	–	–	–	–	–
Institutions	108	279	–	–	–	386
Corporates	29	761	–	–	–	791
Exposures in Default	–	–	–	–	–	–
Items Associated with Particularly High Risk	–	–	–	–	–	–
Covered Bonds	–	–	–	–	–	–
Claims on Institutions and Corporates with a Short-term Credit Assessment	979	–	–	–	–	979
Collective Investments Undertakings	–	–	–	–	–	–
Equity Exposures	–	34	–	–	–	34
Other Exposures	–	108	41	–	8	156
Total Standardised Approach	**1,116**	**1,182**	**245**	**–**	**8**	**2,551**

Table 19: CR1-A – Credit Quality of Exposures by Exposure Class and Instrument

	Gross Carrying Values of						
	Defaulted Exposures	Non-defaulted Exposures	Specific Credit Risk Adjustment	General Credit Risk Adjustment	Accumulated Write-offs	Credit Risk Adjustment Charges of the Period	Net Values
31-Dec-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Standardised Approach							
Central Governments or Central Banks	–	848	–	–	–	–	848
Regional Governments or Local Authorities	–	–	–	–	–	–	–
Public Sector Entities	–	229	–	–	–	–	229
Multilateral Development Banks	–	–	–	–	–	–	–
International Organisations	–	–	–	–	–	–	–
Institutions	–	–	–	–	–	–	–
Corporates	–	1,046	–	–	–	–	1,046
Of which: SMEs	–	–	–	–	–	–	–
Exposures in Default	–	–	–	–	–	–	–
Exposures Associated with Particularly High Risk	–	–	–	–	–	–	–
Covered Bonds	–	–	–	–	–	–	–
Claims on Institutions and Corporates with a Short-term Credit Assessment	–	1,877	–	–	–	–	1,877
Collective Investments Undertakings	–	–	–	–	–	–	–
Equity Exposures	–	59	–	–	–	–	59
Other Exposures	–	205	–	–	–	–	205
Total Standardised Approach	**–**	**4,263**	–	–	–	–	**4,263**
Of which: Loans	–	2,712	–	–	–	–	2,712
Of which: Debt Securities	–	59	–	–	–	–	59
Of which: Off-Balance-sheet Exposures	–	–	–	–	–	–	–

Table19: CR1-A – Credit Quality of Exposures by Exposure Class and Instrument (Cont'd)

30-Jun-18	Gross Carrying Values of: Defaulted Exposures	Gross Carrying 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
	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Standardised Approach							
Central Governments or Central Banks	–	220	–	–	–	–	220
Regional Governments or Local Authorities	–	–	–	–	–	–	–
Public Sector Entities	–	–	–	–	–	–	–
Multilateral Development Banks	–	–	–	–	–	–	–
International Organisations	–	–	–	–	–	–	–
Institutions	–	665	–	–	–	–	665
Corporates	–	1,008	–	–	–	–	1,008
Of Which: SMEs	–	–	–	–	–	–	–
Exposures in Default	–	–	–	–	–	–	–
Exposures Associated with Particularly High Risk	–	3	–	–	–	–	3
Covered Bonds	–	–	–	–	–	–	–
Claims on Institutions and Corporates with a Short-term Credit Assessment	–	1,240	–	–	–	–	1,240
Collective Investments Undertakings	–	–	–	–	–	–	–
Equity Exposures	–	61	–	–	–	–	61
Other Exposures	–	224	–	–	–	–	224
Total Standardised Approach	**–**	**3,420**	**–**	**–**	**–**	**–**	**3,420**
Of which: Loans	–	1,883	–	–	–	–	1,883
Of which: Debt Securities	–	61	–	–	–	–	61
Of which: Off-Balance-sheet Exposures	–	–	–	–	–	–	–

- Loans represents cash held with counterparties
- Presented on a semi-annual basis

Table 20: CR1-B: Credit Quality of Exposures by Industry or Counterparty Types

The table provide a picture of the credit quality of CGML's on-balance-sheet and off-balance sheet exposures by industry or counterparty types.

	Gross Carrying Values of						
	Defaulted Exposures	Non-defaulted Exposures	Specific Credit Risk Adjustment	General Credit Risk Adjustment	Accumulated Write-offs	Credit Risk Adjustment Charges	Net Values
31-Dec-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Electricity, Gas, Steam And Air Conditioning Supply	–	–	–	–	–	–	–
Information and Communication	–	–	–	–	–	–	–
Financial and Insurance Activities	–	3,029	–	–	–	–	3,029
Real Estate Activities	–	17	–	–	–	–	17
Professional, Scientific and Technical Activities	–	29	–	–	–	–	29
Administrative and Support Service Activities	–	–	–	–	–	–	–
Public Administration and Defence, Compulsory Social Security	–	211	–	–	–	–	211
Other Services	–	977	–	–	–	–	977
Total	**–**	**4,263**	**–**	**–**	**–**	**–**	**4,263**
30-Jun-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Electricity, Gas, Steam And Air Conditioning Supply	–	–	–	–	–	–	–
Information and Communication	–	–	–	–	–	–	–
Financial and Insurance Activities	–	2,180	–	–	–	–	2,180
Real Estate Activities	–	31	–	–	–	–	31
Professional, Scientific and Technical Activities	–	7	–	–	–	–	7
Administrative and Support Service Activities	–	–	–	–	–	–	–
Public Administration and Defence, Compulsory Social Security	–	220	–	–	–	–	220
Other Services	–	982	–	–	–	–	982
Total	**–**	**3,420**	**–**	**–**	**–**	**–**	**3,420**

- We have restated prior period to reflect Financial and insurance activities separately from others services

Table 21: CR1-C – Credit Quality of Exposures by Geography

This table provide a picture of the credit quality of CGML's on-balance-sheet and off-balance-sheet exposures by geography.

	Gross Carrying Values of						
	Defaulted Exposures	Non-defaulted Exposures	Specific Credit Risk Adjustment	General Credit Risk Adjustment	Accumulated Write-offs	Credit Risk Adjustment Charges	Net Values
31-Dec-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
EU	**–**	**3,359**	**–**	**–**	**–**	**–**	**3,359**
UK	–	2,867	–	–	–	–	2,867
Belgium	–	325	–	–	–	–	325
Portugal	–	55	–	–	–	–	55
Hungary	–	26	–	–	–	–	26
Other Countries	–	86	–	–	–	–	86
APAC	**–**	**454**	**–**	**–**	**–**	**–**	**454**
Taiwan	–	137	–	–	–	–	137
South Korea	–	101	–	–	–	–	101
Japan	–	82	–	–	–	–	82
Hong Kong	–	50	–	–	–	–	50
Australia	–	24	–	–	–	–	24
Other Countries	–	58	–	–	–	–	58
Americas	**–**	**289**	**–**	**–**	**–**	**–**	**289**
US	–	286	–	–	–	–	286
Canada	–	4	–	–	–	–	4
EMEA	**–**	**111**	**–**	**–**	**–**	**–**	**111**
United Arab Emirates	–	22	–	–	–	–	22
Nigeria	–	18	–	–	–	–	18
Other Countries	–	70	–	–	–	–	70
LatAm	**–**	**50**	**–**	**–**	**–**	**–**	**50**
Bahamas	–	30	–	–	–	–	30
Other Countries	–	21	–	–	–	–	21
Total	**–**	**4,263**	**–**	**–**	**–**	**–**	**4,263**

Table21: CR1-C – Credit Quality of Exposures by Geography Continued

	Gross Carrying Values of						
	Defaulted Exposures	Non-defaulted Exposures	Specific Credit Risk Adjustment	General Credit Risk Adjustment	Accumulated Write-offs	Credit Risk Adjustment Charges	Net Values
30-Jun-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
EU	**–**	**2,488**	**–**	**–**	**–**	**–**	**2,488**
UK	–	1,783	–	–	–	–	1,783
Germany	–	332	–	–	–	–	332
Belgium	–	278	–	–	–	–	278
Other Countries	–	95	–	–	–	–	95
Americas	**–**	**404**	**–**	**–**	**–**	**–**	**404**
US	–	384	–	–	–	–	384
Other Countries	–	20	–	–	–	–	20
APAC	**–**	**368**	**–**	**–**	**–**	**–**	**368**
Korea, Republic of	–	151	–	–	–	–	151
Taiwan	–	100	–	–	–	–	100
Other Countries	–	117	–	–	–	–	117
EMEA	**–**	**118**	**–**	**–**	**–**	**–**	**118**
Russian Federation	–	30	–	–	–	–	30
South Africa	–	23	–	–	–	–	23
Other Countries	–	65	–	–	–	–	65
LatAm	**–**	**42**	**–**	**–**	**–**	**–**	**42**
Bahama	–	30	–	–	–	–	30
Other Countries	–	12	–	–	–	–	12
Total	**–**	**3,420**	**–**	**–**	**–**	**–**	**3,420**

Table 22: CR1-D: Ageing of Past-due Exposures

There are no values to report for the ageing of past-due exposures, as CGML does not undertake any banking book activity, and its exposures are generated as a result of trading book activity.

	Gross Carrying Values					
	≤30 Days	>30 Days ≤60 Days	>60 Days ≤90 Days	>90 Days ≤180 Days	>180 Days ≤1 Year	>1 Year
31-Dec-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Loans	–	–	–	–	–	–
Debt Securities	–	–	–	–	–	–
Total Exposures	**–**	**–**	**–**	**–**	**–**	**–**

Table 23: CR1-E: Non-performing and Forborne Exposures

There are no values to report for non-performing and forborne exposures, as CGML does not undertake any banking book activity, and its exposures are generated as a result of trading book activity.

	Gross Carrying Amount of Performing and Non-performing Exposures					Accumulated Impairment and Provisions and Negative Fair Value Adjustments Due to Credit Risk		Collaterals and Financial Guarantees Received	
			Of which non-performing			On Performing Exposures	On Non-performing Exposures		
$ Million 31-Dec-18	Of which Performing But Past Due >30Days and <=90 Days	Of which Performing Forborne	Of which Defaulted	Of which Impaired	Of which Forborne	Of which Forborne	Of which Forborne	On Non-performing Exposures	Of which Forborne Exposures
Debt Securities	–	–	–	–	–	–	–	–	–
Loans and Advances	–	–	–	–	–	–	–	–	–
Off-Balance-sheet Exposures	–	–	–	–	–	–	–	–	–

Table 24: CR2-A: Changes in the Stock of General and Specific Credit Risk Adjustments

There are no values to report for the changes in the stock of general and specific credit risk adjustments held against loans and debt securities that are defaulted or impaired, as CGML does not undertake any banking book activity, and its exposures are generated as a result of trading book activity.

	Accumulated Specific Credit Risk Adjustment	Accumulated General Credit Risk Adjustment
31-Dec-18	$ Million	$ Million
Opening Balance	**–**	**–**
Increases Due to Amounts Set Aside for Estimated Loan Losses During the Period	–	–
Decreases Due to Amounts Reversed for Estimated Loan Losses During the Period	–	–
Decreases Due to Amounts Taken Against Accumulated Credit Risk Adjustments	–	–
Transfers Between Credit Risk Adjustments	–	–
Impact of Exchange Rate Differences	–	–
Business Combinations, Including Acquisitions and Disposals of Subsidiaries	–	–
Other Adjustments	–	–

31-Dec-18	Accumulated Specific Credit Risk Adjustment $ Million	Accumulated General Credit Risk Adjustment $ Million
Closing Balance	**–**	**–**
Recoveries on Credit Risk Adjustments Recorded Directly to the Statement of Profit or Loss	–	–
Specific Credit Risk Adjustments Directly Recorded to the Statement of Profit or Loss	–	–

Table 25: CR2-B: Changes in the Stock of Defaulted and Impaired Loans and Debt Securities

There are no values to report for the changes in the institution's stock of defaulted loans and debt securities, as CGML does not undertake any banking book activity and its exposures are generated as a result of trading book activity.

31-Dec-18	Gross Carrying Value Defaulted Exposures $ Million
Opening Balance	**–**
Loans and Debt Securities that have Defaulted or Impaired since the Last Reporting Period	–
Returned to Non-defaulted Status	–
Amounts Written Off	–
Other Changes	–
Closing Balance	**–**

7.1.1 Credit Risk Mitigation

As part of its risk management activities, the firm uses various risk mitigants to hedge portions of the credit risk in its portfolio, in addition to outright asset sales. Credit risk mitigation, including netting, collateral and other techniques, is important to Citi in the effective management of its credit risk exposures.

The utilisation of collateral is of critical importance in the mitigation of risk. In-house legal counsel, in consultation with approved external legal counsel, will determine whether collateral documentation is enforceable and gives the firm the right to liquidate or take possession of collateral in a timely manner in the event of the default, insolvency, bankruptcy or other defined credit event of the obligor.

Collateral Types

The majority of the collateral taken by CGML against OTC derivative exposures is in the form of cash.

In respect of SFTs, the majority of the collateral is in the form of

- Cash
- Long-term and short-term debt securities; or
- Public equity securities

Cash collateral and security collateral in the form of G10 (Group of Ten) government debt securities are generally posted to secure the net open exposure of OTC derivative transactions, at a counterparty level, whereby the receiving party is free to co-mingle or re-hypothecate such collateral in the ordinary course of business.

Non-standard collateral, such as corporate bonds, municipal bonds, U.S. agency securities and mortgage-backed securities, may also be pledged as collateral for OTC derivative transactions. Collateral posted to open and maintain a master netting agreement with a counterparty in the form of cash and securities may from time to time be segregated in an account at a third-party custodian pursuant to a tri-party account control agreement.

Occasionally, with appropriate agreement, other forms of collateral may be accepted.

Policies for Securing, Valuing and Managing Collateral

Citi's policies and procedures cover management and governance of financial assets (including securing and valuing collateral) utilised for the purpose of mitigating the credit risk of OTC derivatives, repo-style transactions and eligible margin loans. Specifically, businesses are required to establish standard eligibility criteria for collateral usage and review processes for approving non-standard collateral. Industry standard legal agreements combined with internal reviews for legal enforceability are used to achieve a perfected security interest in the collateral.

Additionally, Risk Management establishes guidelines on appropriate collateral haircuts related to repo-style transactions and eligible margin loans. A haircut is the percentage of reduction in current market value applicable to each type of collateral and is largely based on liquidity and price volatility of the underlying security. Potential correlations between the exposure and the underlying collateral are reflected through the setting of appropriately greater haircuts.

Derivative Master Netting Agreements

Credit risk from derivatives is mitigated where possible through netting agreements whereby derivative assets and liabilities with the same counterparty can be offset. Citi policy requires all netting arrangements to be legally documented. ISDA (International Swaps and Derivative Association) master agreements are Citi's preferred manner for documenting OTC derivatives.

In-house legal counsel will also approve relevant jurisdictions and counterparty types for netting purposes. Off-balance sheet netting and netting of collateral against the exposure is permitted if legal counsel determine that the firm has these rights.

Netting is generally permitted for the following types of transaction

- Securities Financing Transactions (SFTs)
- Exchange Traded Derivatives (ETDs); and
- Over The Counter (OTC) derivative transactions

The agreements provide the contractual framework within which dealing activities across a full range of OTC products are conducted and contractually bind both parties to apply close-out netting across all outstanding transactions covered by an agreement if either party defaults or other predetermined events occur.

Citi considers the level of legal certainty regarding enforceability of its offsetting rights under master netting agreements and credit support annexes to be an important factor in its risk management process. For example, Citi generally transacts much lower volumes of derivatives under master netting agreements where Citi does not have the requisite level of legal certainty regarding enforceability. For further information on Citi's policies regarding master netting agreements, see the "Derivatives Activities" section (note 22) of Citi's 31 December 2018 Form 10-K, available on the Citigroup website.

Valuation of Collateral

Collateral valuations must be completed daily for SFTs, OTC derivatives and margin lending by the relevant operations units and collateral/margin departments. Collateral haircuts are applied in a number of circumstances, such as where there is a material positive correlation between the credit quality of the counterparty and the value of the collateral, or where there are currency or maturity mismatches. The firm has systems and procedures for requesting and promptly receiving additional collateral for transactions whose terms require maintenance of collateral values at specified thresholds as documented in the respective legal agreements.

Margining Procedures

Daily margin procedures are established for managing margin calls which is considered best practice in order to maintain an appropriate level of collateral coverage reflecting market value fluctuations. Trades are reconciled on a regular basis that is consistent with regulatory and industry best practice guidelines and margin dispute processes are in place. Procedures are established surrounding collateral substitution and collateral re-use/re-hypothecation. Limits and concentration monitoring are utilised to control Citi's collateral concentrations to different types of asset classes.

Additionally, for eligible margin loans, procedures are established to ensure an appropriate level of allowance for credit losses.

Reporting

The firm has procedures in place to ensure that appropriate information is available to support the collateral process and that timely and accurate margin calls feed correctly into the margin applications from upstream systems. Key to the process is a daily credit exposure report as well as reports identifying counterparties that have not met their requirement for additional collateral to satisfy specified initial margin amounts and variation margin thresholds. In addition, there is firm wide risk reporting of counterparty exposures at an individual and an aggregate level.

Collateral Concentrations

Cash and sovereign government bonds are the predominant form of collateral accepted in respect of margined OTC derivative transactions and SFTs at 31 December 2018.

Other Forms of Credit Risk Mitigation

CGML does not generally use credit derivatives to mitigate its counterparty risk exposure, but Citi does use credit derivatives for this purpose when exposure is viewed at a global level, and such hedging is carried out by certain US affiliate companies. CGML does not use eligible credit derivatives as exposure hedges to any exposures currently including IMM positions

Table 26: CR3: CRM Techniques – Overview

This table shows the extent of the use of CRM techniques

	Exposures Unsecured – Carrying Amount	Exposures to be Secured – Carrying Amount	Exposures Secured by Collateral	Exposures Secured by Financial Guarantees	Exposures Secured by Credit Derivatives
31-Dec-18	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**
Total Loans	2,712	–	–	–	–
Total Debt Securities	59	–	–	–	–
Total Exposures	**2,771**	**–**	**–**	**–**	**–**
Of which Defaulted	–	–	–	–	–
30-Jun-18	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**
Total Loans	1,883	–	–	–	–
Total Debt Securities	61	–	–	–	–
Total Exposures	**1,944**	**–**	**–**	**–**	**–**
Of which Defaulted	–	–	–	–	–

- Loans represent cash held with counterparties

- Presented on a semi-annual basis

8 Credit Risk and CRM in the Standard Approach

8.1 Use of External Credit Ratings under the Standardised Approach for Credit Risk

Under the Standardised approach, ratings assigned by External Credit Assessment Institutions (ECAIs) are used in the calculation of RWAs. Credit assessments applied to central governments and central banks, institutions, corporate and equity exposure classes in the trading book and banking book alike, as determined by the PRA in accordance with the requirements of CRD IV.

CGML uses ratings assigned by Standard and Poor's, Moody's and Fitch for credit risk calculations.

Table 27: Credit Quality Assessment Scale

Credit Quality Step	Standard & Poor's	Moody's	Fitch
Credit Quality Step 1	AAA to AA-	Aaa to Aa3	AAA to AA-
Credit Quality Step 2	A+ to A-	A1 to A3	A+ to A-
Credit Quality Step 3	BBB+ to BBB-	Baa1 to Baa3	BBB+ to BBB-
Credit Quality Step 4	BB+ to BB-	Ba1 to Ba3	BB+ to BB-
Credit Quality Step 5	B+ to B-	B1 to B3	B+ to B-
Credit Quality Step 6	CCC+ and below	Caa1 and below	CCC+ and below

Risk weightings are assigned to each exposure depending on its credit quality step and other factors, including exposure class and maturity. Exposures for which no rating is available are treated in a similar way to those under Credit Quality Step 3.

The table below sets out a simplified summary of how credit quality is linked to risk weighting.

Table 28: Simplified Summary of risk Weightings by Credit Quality Step

			Institution (Includes Banks)		
Credit Quality Step	Corporates	Governments and Central Banks	Sovereign Method	>3 Months Maturity	Maturity 3 Months or Less
Step 1	20%	0%	20%	20%	20%
Step 2	50%	20%	50%	50%	20%
Step 3	100%	50%	100%	50%	20%
Step 4	100%	100%	100%	100%	50%
Step 5	150%	100%	100%	100%	50%
Step 6	150%	150%	150%	150%	150%

Table 29: CR4: Standardised Approach – Credit Risk Exposure and CRM Effects

This table shows the effect of CCF and CRM techniques applied on total on-balance sheet and off-balance sheet credit risk exposures, across exposure classes.

	Exposures before CCF and CRM		Exposures post CCF and CRM		RWAs and RWA Density	
	On-balance-sheet Amount	Off-balance-sheet Amount	On-balance-sheet Amount	Off-balance-sheet Amount	RWAs	RWA Density
31-Dec-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Exposure Classes						
Central Governments or Central Banks	848	–	848	–	527	62%
Regional Government or Local Authorities	–	–	–	–	–	0%
Public Sector Entities	–	–	–	–	–	0%
Multilateral Development Banks	–	–	–	–	–	0%
International Organisations	–	–	–	–	–	0%
Institutions	205	–	205	–	99	48%
Corporates	1,046	–	1,046	–	1,045	100%
Exposures in Default	–	–	–	–	–	0%
Exposures Associated with Particularly High Risk	–	–	–	–	–	0%
Covered Bonds	–	–	–	–	–	0%
Institutions and Corporates with a Short-term Credit Assessment	1,877	–	1,877	–	705	38%
Collective Investment Undertakings	–	–	–	–	–	0%
Equity	59	–	59	–	59	100%
Other Items	228	–	228	–	300	131%
Total	**4,263**	–	**4,263**	–	**2,735**	**64%**

Table 29: CR4: Standardised Approach – Credit Risk Exposure and CRM Effects (Cont'd)

30-Jun-18	Exposures before CCF and CRM		Exposures post CCF and CRM		RWAs and RWA Density	
	On-balance-sheet Amount	Off-balance-sheet Amount	On-balance-sheet Amount	Off-balance-sheet Amount	RWAs	RWA Density
	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Exposure Classes						
Central Governments or Central Banks	220	–	220	–	549	250%
Regional Government or Local Authorities	–	–	–	–	–	0%
Public Sector Entities	–	–	–	–	–	0%
Multilateral Development Banks	–	–	–	–	–	0%
International Organisations	–	–	–	–	–	0%
Institutions	665	–	665	–	245	37%
Corporates	1,008	–	1,008	–	1,007	100%
Exposures in Default	–	–	–	–	–	0%
Exposures Associated with Particularly High Risk	3	–	3	–	4	150%
Covered Bonds	–	–	–	–	–	0%
Institutions and Corporates with a Short-term Credit Assessment	1,240	–	1,240	–	467	38%
Collective Investment Undertakings	–	–	–	–	–	0%
Equity	61	–	61	–	61	100%
Other Items	223	–	223	–	235	105%
Total	**3,420**	–	**3,420**	–	**2,568**	**75%**

- RWA density is expressed as total risk-weighted exposures divided by exposures post-CCF and post-CRM
- Presented on a semi-annual basis

Table 30: CR5: Standardised Approach – Risk Weighted

This table provides the breakdown of exposures under the standardised approach by asset class and risk weight.

31-Dec-18 $ Million	Risk Weight																	
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deducted	Total	Of which Unrated
Exposure Classes																		
Central Governments or Central Banks	637	–	–	–	–	–	–	–	–	–	–	211	–	–	–	–	848	211
Regional Government or Local Authorities	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Public Sector Entities	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Multilateral Development Banks	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
International Organisations	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Institutions	–	–	–	–	19	–	181	–	–	4	–	–	–	–	–	–	205	20
Corporates	–	–	–	–	–	–	3	–	–	1,043	–	–	–	–	–	–	1,046	1,011
Exposures in Default	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Exposures Associated With Particularly High Risk	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Covered Bonds	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Institutions and Corporates with a Short-term Credit Assessment	–	–	–	–	796	–	1,070	–	–	11	–	–	–	–	–	–	1,877	166
Collective Investment Undertakings	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Equity	–	–	–	–	–	–	–	–	–	59	–	–	–	–	–	–	59	59
Other Items	–	–	–	–	–	–	–	–	–	180	–	48	–	–	–	–	228	228
Total	**637**	**–**	**–**	**–**	**815**	**–**	**1,253**	**–**	**–**	**1,299**	**–**	**259**	**–**	**–**	**–**	**–**	**4,263**	**1,695**

Table 30: CR5: Standardised Approach – Risk Weighted (Cont'd)

30-Jun-18 $ Million	Risk Weight 0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deducted	Total	Of which Unrated
Exposure Classes																		
Central Governments or Central Banks	–	–	–	–	–	–	–	–	–	–	–	220	–	–	–	–	220	220
Regional Government or Local Authorities	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Public Sector Entities	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Multilateral Development Banks	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
International Organisations	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Institutions	–	–	–	–	306	–	351	–	–	–	–	–	–	–	–	–	665	314
Corporates	–	–	–	–	–	–	3	–	–	1,005	–	–	–	–	–	–	1,008	1,002
Exposures in Default	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Exposures Associated With Particularly High Risk	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3
Covered Bonds	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Institutions and Corporates with a Short-term Credit Assessment	–	–	–	–	539	–	683	–	–	18	–	–	–	–	–	–	1,240	–
Collective Investment Undertakings	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Equity	–	–	–	–	–	–	–	–	–	61	–	–	–	–	–	–	61	61
Other Items	–	–	–	–	–	–	–	–	–	217	–	7	–	–	–	–	223	223
Total	**–**	**–**	**–**	**–**	**845**	**–**	**1,037**	**–**	**–**	**1,309**	**–**	**227**	**–**	**–**	**–**	**–**	**3,420**	**1,823**

9 Counterparty Credit Risk

For UK regulatory reporting purposes, CGML uses the standardised approach to determine counterparty credit risk capital requirements, based on External Credit Assessment Institution (ECAI) ratings for calculating Risk Weighted Assets (RWAs). The measures of Exposure at Default (EAD) used to determine these requirements are described below.

For OTC derivatives, CGML uses two approaches: IMM and CEM (as mentioned in Section 2.2). For IMM, the firm uses a constant covariance Monte Carlo simulation of potential future exposure to determine an expected positive exposure (EPE) measure as an input to Citi's EAD calculation. The model is calibrated with historical volatilities subject to a set of independent internal validation and statistical back-testing standards. The model utilises a standard supervisory alpha multiplication factor of 1.4. For those positions which fall outside of the scope of the firm's IMM model permission, CGML uses the CEM approach. This method assigns to each transaction a regulatory stipulated exposure based on the mark-to-market value and a measure of potential future exposure which is a percentage of notional driven by residual maturity and the type of contract, i.e. interest rate, equities etc.

Netting agreements and margin collateral may be recognised as credit risk mitigants provided they meet certain eligibility criteria as described below.

For SFTs, CGML applies a supervisory volatility adjustment under the financial collateral comprehensive method for calculating its EAD. The calculation equals exposure less collateral after applying regulatory haircuts for security volatility adjustments and any applicable currency mis-matches. The EAD is then used to calculate RWAs using the standardised approach.

Table 31: CCR1: Analysis of CCR Exposure by Approach

This table provide a comprehensive view of the methods used by CGML to calculate CCR regulatory requirements and the main parameters used within each method.

		Notional	Replacement Cost/Current Market Value	Potential Future Credit Exposure	EEPE	Multiplier	EAD Post CRM	RWAs
	31-Dec-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
1	Mark to Market		11,440	24,503			24,926	17,061
2	Original Exposure		–	–			–	–
3	Standardised Approach		–	–			–	–
4	IMM (for Derivatives)				19,872	1.4	14,194	9,082
5	Of which Securities Financing Transactions				–	–	–	–
6	Of which Derivative and Long Settlement Transactions				19,872	1.4	14,194	9,082
7	Of which from Contractual Cross-product Netting				–	–	–	–
8	Financial Collateral Simple Method (for SFTs)						–	–
9	Financial Collateral Comprehensive Method (for SFTs)						52,548	39,390
10	VaR for SFTs						–	–
11	**Total**							**65,533**

Table 31: CCR1: Analysis of CCR Exposure by Approach (Cont'd)

30-Jun-18		Notional $ Million	Replacement Cost/Current Market Value $ Million	Potential Future Credit Exposure $ Million	EEPE $ Million	Multiplier $ Million	EAD Post CRM $ Million	RWAs $ Million
1	Mark to Market		10,927	36,749			33,200	23,275
2	Original Exposure		–	–			–	–
3	Standardised Approach		–	–			–	–
4	IMM (for Derivatives)				21,903	1.4	15,645	9,836
5	Of which Securities Financing Transactions				–	–	–	–
6	Of which Derivative and Long Settlement Transactions				21,903	1.4	15,645	9,836
7	Of which from Contractual Cross-product Netting				–	–	–	–
8	Financial Collateral Simple Method (for SFTs)						–	–
9	Financial Collateral Comprehensive Method (for SFTs)						55,008	43,599
10	VaR for SFTs						–	–
11	**Total**							**76,710**

- Presented on a semi-annual basis
- This excludes CVA charges or exposures cleared through a CCP

Table 32: CCR2 – Credit Valuation Adjustment (CVA) Capital Charge

31-Dec-18		Exposure Value $ Million	RWAs $ Million
1	Total Portfolios Subject to the Advanced Method	9,369	3,184
2	(i) VaR Component (Including the 3× Multiplier)		1,137
3	(ii) SVaR Component (Including the 3× Multiplier)		2,047
4	All Portfolios Subject to the Standardised Method	14,065	6,256
5	**Total Subject to the CVA Capital Charge**	**23,434**	**9,440**

30-Jun-18		$ Million	$ Million
1	Total Portfolios Subject to the Advanced Method	12,084	2,515
2	(i) VaR Component (Including the 3× Multiplier)		877
3	(ii) SVaR Component (Including the 3× Multiplier)		1,638
4	All Portfolios Subject to the Standardised Method	20,660	7,923
5	**Total Subject to the CVA Capital Charge**	**32,744**	**10,438**

Table 33: CCR8 – Exposures to CCPs

This table provide a comprehensive picture of the institution's exposures to CCPs. In particular, the template includes all types of exposures (due to operations, margins, and contributions to default funds) and related capital requirements.

	31-Dec-18		30-Jun-18	
	EAD Post CRM $ Million	RWAs $ Million	EAD post CRM $ Million	RWAs $ Million
Exposures to QCCPs (Total)		**895**		**812**
Exposures for Trades at QCCPs (Excluding Initial Margin and Default Fund Contributions); of which	15,078	636	16,298	572
(i) OTC Derivatives	4,479	153	5,458	183
(ii) Exchange-traded Derivatives	7,427	394	8,069	249
(iii) SFTs	3,172	89	2,771	140
(iv) Netting Sets where Cross-product Netting has been Approved	–	–	–	–
Segregated Initial Margin	–		–	
Non-segregated Initial Margin	2,475	49	2,053	41
Prefunded Default Fund Contributions	670	210	623	198
Alternative Calculation of Own Funds Requirements for Exposures		–		–

- In line with the EBA 'extension of the transitional period related to exposures to CCPs (No 648/2012)' an Implementing Regulation was published in December 2018 allowing firms to treat exposures to yet-to-be-recognised CCPs as QCCP exposures for an additional six months until 15 June 2019
- Presented on a semi-annual basis

Table 34: CCR3: Standardised Approach – CCR Exposures by Regulatory Portfolio and Risk

This table provides a breakdown of Counterparty Credit Risk exposures and risk-weighted by portfolio (type of counterparties) and by risk weight (riskiness attributed according to the standardised approach).

		Risk Weight									
		0%	2%	4%	20%	50%	100%	150%	Others	Total	Of which Unrated
31-Dec-18	Exposure Classes	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
1	Central Governments or Central Banks	6,415	–	–	878	1	10,030	–	–	17,324	12,502
2	Regional Government or Local Authorities	82	–	–	588	–	7	–	–	677	–
3	Public Sector Entities	–	–	–	152	–	1,074	–	–	1,226	974
4	Multilateral Development Banks	–	–	–	–	–	–	–	–	–	–
5	International Organisations	–	–	–	–	–	–	–	–	–	–
6	Institutions	–	11,018	5,265	6,618	25,706	510	–	–	49,117	11,281
7	Corporates	–	–	–	540	1,760	35,481	203	–	37,984	33,912
8	Retail	–	–	–	–	–	–	–	–	–	–
9	Institutions and Corporates with a Short-term Credit assessment	–	–	–	293	963	208	370	–	1,834	–
10	Other items	–	–	–	–	–	–	1,058	–	1,058	138
11	**Total**	6,497	**11,018**	**5,265**	**9,069**	**28,430**	**47,311**	**1,632**	–	**109,221**	**58,807**

Table 34: CCR3: Standardised Approach – CCR Exposures by Regulatory Portfolio and Risk (Cont'd)

30-Jun-18	Exposure Classes	Risk Weight 0% $ Million	2% $ Million	4% $ Million	20% $ Million	50% $ Million	100% $ Million	150% $ Million	Others $ Million	Total $ Million	Of which Unrated $ Million
1	Central Governments or Central Banks	4,619	–	–	985	1	12,410	–	–	18,015	12,802
2	Regional Government or Local Authorities	–	–	–	566	–	11	4	–	581	4
3	Public Sector Entities	–	–	–	212	–	787	–	–	1,000	742
4	Multilateral Development Banks	–	–	–	–	–	–	–	–	–	–
5	International Organisations	–	–	–	–	–	–	–	–	–	–
6	Institutions	–	13,707	4,110	6,815	28,818	487	1,384	–	55,321	11,092
7	Corporates	–	–	–	480	1,796	40,313	904	–	43,493	39,551
8	Retail	–	–	–	–	–	–	–	–	–	–
9	Institutions and Corporates with a Short-term Credit assessment	–	–	–	207	3,053	99	436	–	3,794	–
10	Other items	–	–	–	–	–	–	–	–	–	–
11	**Total**	**4,619**	**13,707**	**4,110**	**9,266**	**33,667**	**54,107**	**2,727**	–	**122,204**	**64,192**

Table 35: CCR7– RWA Flow Statements of CCR Exposures under the IMM

This table presents a flow statement explaining changes in the CCR RWAs determined under the IMM for Counterparty Credit Risk (derivatives and SFTs) in accordance with Part 3, Title II and Chapter 6 of the CRR.

		31-Dec-18	
		RWA Amounts $ Million	Capital Requirements $ Million
1	**RWAs as at the End of the Previous Reporting Period**	**11,311**	**905**
2	Asset Size	(2,165)	(173)
3	Credit Quality of Counterparties	–	–
4	Model Updates (IMM Only)	–	–
5	Methodology and Policy (IMM Only)	–	–
6	Acquisitions and Disposals	–	–
7	Foreign Exchange Movements	–	–
8	Other	–	–
9	**RWAs as at the End of the Current Reporting Period**	**9,146**	**732**

Table 36: CCR5: A – Impact of Netting and Collateral Held on Exposure Values

The table provides an overview of the impact of netting and collateral held on exposures for SFT and derivatives, including exposures arising from transactions cleared through a CCP.

31-Dec-18		Gross Positive Fair Value or Net Carrying Amount $ Million	Netting Benefits $ Million	Netted Current Credit Exposure $ Million	Collateral Held $ Million	Net Credit Exposure $ Million
1	Derivatives	362,613	295,249	67,363	32,004	35,360
2	SFTs	417,432	–	417,432	390,563	41,294
3	Non-eligible collateral under the CRR				69,608	
4	**Total**	**780,045**	**295,249**	**484,795**	**492,175**	**76,653**

30-Jun-18		$ Million	$ Million	$ Million	$ Million	$ Million
1	Derivatives	391,886	297,371	94,515	35,973	58,542
2	SFTs	389,675		389,675	357,315	32,360
3	Non-eligible collateral under the CRR				73,108	
4	**Total**	**781,561**	**297,371**	**484,190**	**466,395**	**90,902**

- Collateral held includes collateral not eligible for CRM or that would have no impact on the netted current credit exposure in the application of Chapter 4 and Chapter 6 of Part Two, Title III of the CRR
- Presented on a semi-annual basis
- Prior period have been restated due to change in reporting taxonomy

Table 37: CCR5-B – Composition of Collateral for Exposures to CCR

This table shows the breakdown of all types of posted or received by CGML to support or reduce Counterparty Credit Risk exposures related to derivative transactions or to SFTs, including transactions cleared through a CCP.

	Collateral Used in Derivative Transactions				Collateral Used in SFTs	
	Fair value of Collateral Received		Fair Value of Posted Collateral		Fair Value of Collateral Received	Fair Value of Posted Collateral
	Segregated	Unsegregated	Segregated	Unsegregated		
31-Dec-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Cash	–	19,149	–	19,766	11,890	10,920
Sovereign Debt	1,102	5,715	–	2,278	252,484	265,304
Corporate Bond	208	3,639	–	5,628	28,990	33,524
Equities	79	–	–	–	66,326	68,728
Other	–	2,110	–	109	30,872	37,216
Total	**1,390**	**30,614**	**–**	**27,781**	**390,563**	**415,692**
30-Jun-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Cash	–	24,193	–	20,728	12,637	10,645
Sovereign Debt	1,190	9,239	–	5,121	223,005	203,437
Corporate Bond	160	124	–	55	29,454	31,934
Equities	153	–	–	–	69,095	69,000
Other	–	914	–	325	23,123	35,066
Total	**1,503**	**34,470**	**–**	**26,230**	**357,315**	**350,082**

- Presented on a semi-annual basis
- Prior period have been restated due to change in reporting taxonomy

Table 38: CCR6: Credit Derivatives Exposures

The table below illustrate the extent of CGML's exposures to credit derivative transactions broken down between derivatives bought or sold.

	Credit Derivative Hedges		Other Credit Derivatives	
	Protection Bought	Protection Sold	Protection Bought	Protection Sold
31-Dec-18	**$ Million**	**$ Million**	**$ Million**	**$ Million**
Notionals				
Single-name Credit Default Swaps	678	403	268,556	266,163
Index Credit Default Swaps	959	806	428,532	429,024
Total Return Swaps	–	–	487	395
Credit Options	–	–	41,781	41,724
Other Credit Derivatives	–	–	1,562	3,020
Total Notionals	**1,637**	**1,209**	**740,918**	**740,326**
Fair Values				
Positive Fair Value (Asset)	*13*	–	*3,861*	*9,665*
Negative Fair Value (Liability)	–	*(20)*	*(9,586)*	*(4,043)*
30-Jun-18	**$ Million**	**$ Million**	**$ Million**	**$ Million**
Notionals				
Single-name Credit Default Swaps	768	439	257,246	257,566
Index Credit Default Swaps	865	754	378,390	376,728
Total Return Swaps			291	138
Credit Options			14,720	14,603
Other Credit Derivatives			7,683	8,840
Total Notionals	**1,634**	**1,192**	**658,329**	**657,874**
Fair Values				
Positive Fair Value (Asset)	*18*	–	*2,328*	*12,822*
Negative Fair Value (Liability)	–	*(26)*	*(12,832)*	*(2,278)*

- Notional value of other credit derivatives decreased by $83 million to $741 million for protection bought and $83 million to $740 million for protection sold primarily driven by maturity of trades
- Presented on a semi-annual basis

10 Market Risk

IMA Approach

CGML uses a Value at Risk (VaR) model to calculate market risk capital requirements for the majority of its trading portfolio under an IMA permission granted by the PRA. The permission covers general market risk and issuer specific risk for a number of Fixed Income, Equities and Commodities businesses. In addition to VaR based capital requirements, CGML is required to set aside capital in respect of Stressed VaR (SVaR) and the Incremental Risk Charge (IRC).

Non-proprietary details of the scope of CGML's IMA permission are available in the Financial Services Register on the FCA website.

10.1 VaR Model

The VaR model is designed to capture potential market losses at a 99% confidence level over a one day holding period. The capital requirement is based on the VaR with a ten day holding period. CGML uses a one day VaR for internal management purposes. The key components of the VaR model are the variance/covariance matrix of market variables and the sensitivity of Citi's trading portfolio to those variables. The variance/covariance matrix is calibrated using three years of market data, with some volatility adjusted up to capture fat tail effects at a 99% confidence level over a one day period, and others adjusted up to capture short-term spikes in volatility. Market variations simulated from the matrix by a Monte Carlo methodology are applied to the set of factor sensitivities to generate a forecast distribution of one day profit and loss, from which the VaR can be computed. The factor sensitivities are designed to capture all material market risks on each trading asset, both linear and non-linear in nature. Risk exposure feeds, comprising factor sensitivities, are fed from each trading unit at the end of the day and stored in the system.

The risk factor covariance matrix used in VaR calculation is updated on monthly basis. Additionally, to reflect the current market condition, volatility of major market factors is updated on a weekly basis through scaling factors. The covariance matrix for SVaR is reviewed on a quarterly basis to ascertain whether the underlying stress period warrants a revision.

Revaluation grids are used for nonlinear positions. Ten day VaR/SVaR numbers are calculated directly from ten day volatility estimates. Production and reporting takes place on a daily basis and for any requested sub-portfolio or market factor.

The covariance matrix used for VaR calculation is calibrated using risk factor time series data from three year of recent history, except for commodities, where 18 months of historical data is used. A mixed approach (of relative and absolute returns) is used in the VaR and SVaR models when simulating movements in risk factors.The volatility model is a Hybrid EWMA (H-EWMA) approach using the maximum of the three year fat tail scaled (FTS) volatility and the exponential weighted moving average (EWMA) volatility estimation over an effective window of one month. In this way, both long and short (recent) historical windows are considered in this combined approach in order to achieve prudent volatility estimation.

The accuracy of the VaR model is assessed through daily back-testing performed by VaR Operations with oversight from Market Risk Management. The backtesting results for CGML's in-scope businesses, both in aggregate and at individual business level, are reported quarterly to the PRA.

10.2 Stressed VaR

Stressed VaR (SVaR) estimates the potential decline in the value of a position or a portfolio under stressed market conditions. The firm's SVaR methodology incorporates the factor sensitivities of the trading portfolio with the volatilities and correlations of those factors under stressed conditions and is expressed as the risk to the firm over a one-day holding period, at a 99% confidence level.

Citi's Monte Carlo VaR/SVaR model incorporates a full covariance matrix. The volatilities and correlations are built from thousands of market factors with actual time series from the last three years for VaR and a one-year stress period for SVaR. Proxy rules exist for market factors that do not have a sufficiently long time series or where the relevant data are inappropriate for matrix construction (e.g. due to gaps, unreliable sources, or too short a history). Aggregation of VaR/SVaR components by market factors or portfolios is fully integrated into the model.

CGML bases the stress period selection on a broad set of market factors that represent all assets held by CGML. The market factor selection is based on the materiality of risk sensitivities (delta, vega, etc.). A common stress period is selected as the covariance matrix calibrated from this period maximises VaR for CGML's portfolio, which is in line with the PRA supervisory statement SS13/13.

The stressed period selection is reviewed by Market Risk Management, Market Risk Analytics and the IMA Control Committee at least on a quarterly basis, and is reported to PRA quarterly.

10.3 Incremental Risk Charge

The Incremental Risk Charge (IRC) is a measure of potential losses due to default and credit migration risk over a one-year time horizon at a one-tailed, 99.9% confidence level under the assumption of constant positions.

A Monte Carlo in-house 6-factor copula model is used for the correlations between issuers. The correlation depends mainly on the risk rating, region and industry sector of the issuer, and thus provides a richer correlation structure than what has been observed with 1-factor copula models.

The model is calibrated annually to the public data of over 20,000 companies maintained within Citi's databases and has been the subject of independent model validation. The migration and default of each issuer are modelled consistently by a single normal random variable which is mapped to the inverse normal cumulative distribution of the transition matrix to determine whether a migration or a default happens. The transition matrix is based on publicly available data from rating agencies. The scope of the issuers that are used for the calibration of the model encompasses the full spectrum of relevant trading products. The model accepts as inputs the jump-to-default amounts and the spread sensitivities from every debt issuer with interest rate exposure in Citi's systems. Recovery rates are also simulated with their parameters properly calibrated to market data.

In addition, for the businesses within the scope of its IMA permission, CGML holds capital buffers in respect of certain risks not fully captured by its VaR/SVaR/IRC models.

A fixed one-year liquidity horizon is used consistently across all positions. The approach also includes positions that have maturities less than one year, and for such positions the time of default is determined and the P&L effect is estimated accordingly.

The IRC model, which is used to calculate the incremental risk capital over a one-year time horizon at a one–tail 99.9% confidence level, is consistent with the regulatory requirements and meets the required soundness standard. The model validation and internal governance framework is in place to monitor the model's performance on an on-going basis to ensure that it continues to meet the required soundness standard.

The IRC model has been validated to provide an independent assessment of technical and functional soundness. The validation includes the testing performed on the underlying data and the mathematical framework by the model developer as well as on additional independent testing designed by the model validator. The model parameters are calibrated on the long-term averages of through-the-cycle data, taking into account the period of significant market stress.

Backtesting is not feasible as the IRC model captures the default losses at a very high confidence level (99.9%), which is in line with regulatory observations. However, the accuracy and internal consistency of data and parameters used for the IRC internal models and modelling processes have been independently validated to ensure the technical and functional soundness of the model.

10.4 Stress Testing

As noted in Section 2.6.2, Citi performs stress testing on a regular basis to estimate the impact of extreme market movements. It is performed on individual positions and trading portfolios, as well as in aggregate and inclusive of multiple trading portfolios. Market Risk Management after consultations with the businesses, develops both systemic and specific stress scenarios, reviews the output of periodic stress testing exercises, and uses the information to assess the ongoing appropriateness of exposure levels and limits.

Citi uses two complementary approaches to market risk stress testing across all major risk factors (i.e., equity, foreign exchange, commodity, interest rate and credit spreads). These are applied to valuation models to analyse the impact on valuation portfolios under stress

- Global Systemic Stress Testing (GSST) – top-down systemic stresses; and
- Business Specific Stress Testing (BSST) for the ICG – bottom-up business specific stresses

Systemic stress tests are designed to quantify the potential impact of extreme market movements on a firm-wide basis, and are constructed using both historical periods of market stress and projections of adverse economic scenarios. Business specific stress tests are designed to probe the risks of particular portfolios and market segments, especially those risks that are not fully captured in VaR and systemic stresses.

10.5 Risks Not in VaR (RNIV)

To the extent that a material risk is not adequately captured in the VaR model, CGML derives and documents RNIVs as add-ons to appropriately buffer the risks

The RNIV capital add-on is calculated as follows

- VaR type RNIV – The VaR based add-on (VaR RNIV) is calculated as the standalone VaR equivalent, scaled to a 10 day holding period. A stressed VaR type RNIV (SVaR RNIV) is also calculated with the stressed period identified corresponding to the one used for stressed VaR
- Stressed RNIV – For RNIVs that are based on stress tests (Stressed RNIVs) CGML calibrates shocks to at least the same confidence level as would be the case were the risk to be included in the VaR framework

RNIVs and SRNIVs are calculated by market risk managers and the identification, quantification and reporting of existing RNIVs, as well as potentially new risks, is monitored by the Quantitative Risk and Stress (QRS) function on a monthly basis.

Table 39: MR2-A – Market Risk Under the IMA

This table display the components of the own funds requirements under the IMA for market risk.

		31-Dec-18		30-Jun-18	
		RWAs $ Million	Capital Requirements $ Million	RWAs $ Million	Capital Requirements $ Million
1	**VaR (higher of values a and b)**	**4,040**	**323**	**4,228**	**338**
(a)	Previous Day's VaR (Article 365(1) of the CRR (VaRt-1))		100		185
(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		323		338
2	SVaR (Higher of Values a and b)	7,563	605	8,242	659
(a)	Latest SVaR (Article 365(2) of the CRR (SVaRt-1))		189		529
(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)		605		659
3	IRC (Higher of Values a and b)	2,733	219	3,989	319
(a)	Most Recent IRC Value (Incremental Default and Migration Risks Calculated in Accordance with Article 370 and Article 371 of the CRR)		196		222
(b)	Average of the IRC Number over the Preceding 12 Weeks		219		319
4	Comprehensive Risk Measure (Higher of Values a, b and c)	–	–	–	–
(a)	Most Recent Risk Number for the Correlation Trading Portfolio (Article 377 of the CRR)		–		–
(b)	Average of the Risk Number for the Correlation Trading Portfolio Over the Preceding 12 Weeks		–		–
(c)	8% of the Own Funds Requirement in the Standardised Approach on the Most Recent Risk Number for the Correlation Trading Portfolio (Article 338(4) of the CRR)		–		–
5	Other				
6	**Total**	**14,336**	**1,147**	**16,460**	**1,317**

- Over the period, CGMLs total IMA capital requirements decreased $2.1 billion primarily driven by a reduction in IRC
- Presented on a semi-annual basis

Table 40: MR2-B – RWA Flow Statements of Market Risk Exposures under the IMA

The table presents a flow statement explaining variations in the market RWAs.

		VaR $ Million	SVaR $ Million	IRC $ Million	Comprehensive Risk Measure $ Million	Other $ Million	Total RWAs $ Million	Total Capital Requirements $ Million
1	**RWAs at 30 September 2018**	**3,710**	**7,079**	**3,206**	**–**	**–**	**13,996**	**1,120**
1a	*Regulatory Adjustment*	(1,009)	(741)	–	–	–	(1,750)	(140)
1b	*RWAs at the Previous Quarter-end (End of the Day)*	2,701	6,339	3,206	–	–	12,246	980
2	Movement in Risk Levels	106	(210)	(399)	–	–	(502)	(40)
3	Model Updates/Changes	(159)	(16)	(353)	–	–	(528)	(42)
4	Methodology and Policy	–	–	–	–	–	–	–
5	Acquisitions and Disposals	–	–	–	–	–	–	–
6	Foreign Exchange Movements	–	–	–	–	–	–	–
7	Other	–	–	–	–	–	–	–
8a	*RWAs at the End of the Reporting Period (End of the Day)*	2,647	6,113	2,455	–	–	11,215	897
8b	*Regulatory Adjustment*	1,392	1,450	278	–	–	3,120	250
8	**RWAs at 31 December 2018**	**4,040**	**7,563**	**2,733**	**–**	**–**	**14,336**	**1,147**

Table 40: MR2-B – RWA Flow Statements of Market Risk Exposures under the IMA (Cont'd)

		VaR $ Million	SVaR $ Million	IRC $ Million	Comprehensive Risk Measure $ Million	Other $ Million	Total RWAs $ Million	Total Capital Requirements $ Million
1	**RWAs at 30 June 2018**	**4,228**	**8,242**	**3,989**	**–**	**–**	**16,460**	**1,317**
1a	*Regulatory Adjustment*	(1,920)	(1,634)	(1,209)	–	–	(4,762)	(381)
1b	*RWAs at the Previous Quarter-end (End of the Day)*	2,309	6,609	2,780	–	–	11,698	936
2	Movement in Risk Levels	365	(318)	426	–	–	473	38
3	Model Updates/Changes	27	48		–	–	75	6
4	Methodology and Policy	–	–	–	–	–	–	–
5	Acquisitions and Disposals	–	–	–	–	–	–	–
6	Foreign Exchange Movements	–	–	–	–	–	–	–
7	Other	–	–	–	–	–	–	–
8a	*RWAs at the End of the Reporting Period (End of the Day)*	2,701	6.339	3,206	–	–	12,246	980
8b	*Regulatory Adjustment*	1,009	741	–	–	–	1,750	140
8	**RWAs at 30 September 2018**	**3,710**	**7,079**	**3,206**	**–**	**–**	**13,996**	**1,120**

- Assuming QoQ – Over the period, the primary driver of capital was due to movement in risk levels, particularly a reduction in the 60-day average VaR and sVaR measures
- Presented on a quarterly basis

Table 41: MR3 – IMA Values for Trading Portfolios

This table displays the values (maximum, minimum, average at the end of the reporting period) resulting from the different types of models approved to be used for computing the regulatory capital charge at the group level, before any additional capital charge is applied on the value in accordance with Article 365 in Part Three, Title V, Chapter 5 of the CRR.

	31 December 2018	31 December 2017
	$ Million	$ Million
VaR (10 Day 99%)		
Maximum Value	151	91
Average Value	55	48
Minimum Value	31	30
Period End	44	46
SVaR (10 Day 99%)		
Maximum Value	203	268
Average Value	69	88
Minimum Value	6	7
Period End	40	69
IRC (99.9%)		
Maximum Value	336	482
Average Value	306	248
Minimum Value	255	149
Period End	324	324
Comprehensive Risk Capital Charge (99.9%)		
Maximum Value	–	–
Average Value	–	–
Minimum Value	–	–
Period End	–	–

- There was a small increase in average 10-day 99% VaR and 99.9% IRC in 2018 compared to 2017
- Over the period, IRC and SVaR increased due to increased risk levels in positions. The positive convexity in the portfolio has contributed to a reduction in 10-day 99% SVaR

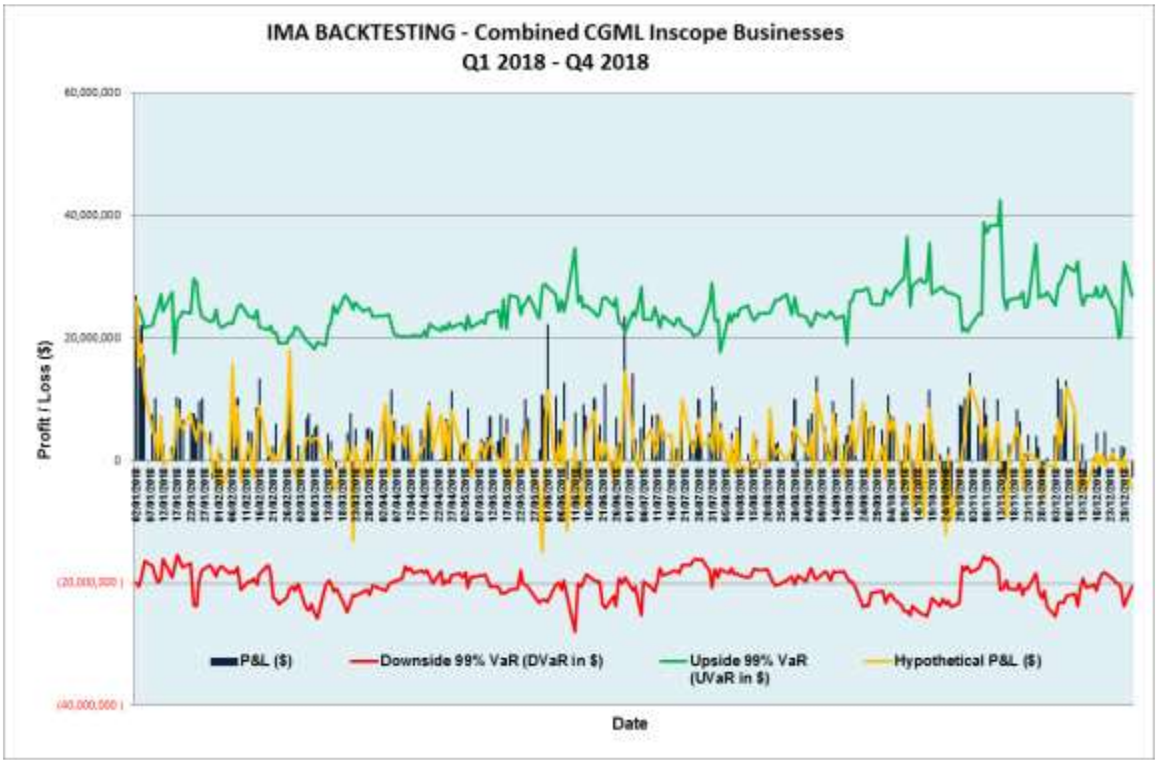
Backtesting is the comparison of VaR to actual profit and loss results and is conducted on a daily basis, at both legal vehicle and business levels. In line with regulatory requirements, Citi performs hypothetical backtesting against hypothetical profit and loss results (the daily profit or loss that would arise from a constant trading portfolio) at both levels in order to ensure that the business VaR models meet supervisory standards for the measurement of regulatory capital. Under normal and stable market conditions, Citi would expect the number of days where trading losses exceed its VaR to be no more than two or three occasions per year. Periods of unstable market conditions could increase the number of these exceptions.

The graphs below illustrate a comparison of the daily end-of-day VaR measure with the one-day change in the portfolio's value by the end of the subsequent business day (hypothetical P&L) for each day in the past 4 quarters.

Table 42: MR4 – Comparison of VaR Estimates with Gains/Losses

The table presents a comparison of the results of estimates from the regulatory VaR model approved with both hypothetical and actual trading outcomes, in order to highlight the frequency and the extent of the backtesting exceptions and to give an analysis of the main outliers in backtested results.

There were no downside backtesting exceptions for IMA in-scope business on CGML as a whole through the year 2018.



Note that the downside VaR in the figures is taken as the 100th worst loss out of 10,000 simulated daily P&Ls (1st percentile) from Citi's Monte Carlo VaR model. The upside VaR is taken to be the 100th best profit out of the 10,000 simulations (99th percentile). Hypothetical P&L represents market moves, excluding all trading P&L, fees, financing and accruals.

Total revenues of the trading business consist of:

1. Customer revenue, which includes spreads from customer flow activity and gains on positions; and

2. Net interest income

CGML maintains the necessary systems, controls and documentation to demonstrate appropriate standards in respect of valuation, reporting and valuation adjustments.

Valuation Methodologies

The valuation methodology for CGML is in line with relevant accounting requirements.

Independent Price Verification ("IPV")

The Valuation Control Group ("VCG"), a group within Product Control which is independent from the Front Office, verify the market prices and model inputs that are used in the valuation process for securities and derivatives required to be measured at fair value. Formal reviews are conducted and where required, adjustments are made to the valuations in the books and records.

Fair value positions are classified within the three level fair value hierarchy (Level 1, 2 or 3) based on observability of inputs used to measure fair value. The levelled fair value inventory is disclosed in the Financial Statements.

VCG calculate a prudent valuation in line with the EBA's final regulatory technical standards. A CET1 capital deduction is taken where the prudent valuation differs to the fair valuation.

Valuation Adjustments or Reserves

Valuation Adjustments ("VAs") are calculated and the fair value is adjusted in order to account for a number of factors that impact the fair value estimates.

10.6 Standardised Approach

Although CGML uses the standardised approach to calculate regulatory capital requirements for only a small proportion of the trading portfolio, nonetheless, this generates a larger number in terms of RWAs and capital that the firm needs to be hold against these assets.

Table 43: MR1 – Market Risk under the Standardised Approach

The table display the components of own funds requirements under the standardised approach for market risk.

		31-Dec-18		31-Dec-17	
		RWAs $ Million	Capital Requirements $ Million	RWAs $ Million	Capital Requirements $ Million
	Outright Products				
1	Interest Rate Risk (General and Specific)	8,718	697	8887	711
2	Equity Risk (General and Specific)	5,714	457	10603	848
3	Foreign Exchange Risk	2,311	185	1851	148
4	Commodity Risk	1,056	85	1000	80
	Options				
5	Simplified Approach	–	–	–	–
6	Delta-plus Method	30	2	–	–
7	Scenario Approach	616	49	558	45
8	Securitisation (Specific Risk)	204	16	150	12
9	**Total**	**18,650**	**1,492**	**23,050**	**1,844**

- Decrease in standardised market risk RWA was primarily driven by a $4.9 billion decrease in Equity risk due to reduced positions in CIUs and US and Japanese equities
- Presented on an annual basis

11 Liquidity Risk

11.1 LCR Disclosure

Concentration of Funding and Liquidity Sources

CGML's funding strategy is centred on maintaining a funding profile that is diversified by structure, tenor and currency. CGML closely monitors and manages the tenor of funding sources to ensure it can meet liquidity needs under different stress scenarios and different time horizons.

CGML's primary funding sources include (i) repurchase agreements (ii) short and long-term unsecured debt (primarily senior and subordinated debt) mainly issued by CGML'S Intermediary holding company, structured notes and (iii) stockholders' equity.

CGML as an operating MLE is required to calculate the concentration exposures at a minimum on a monthly basis. Triggers must be established and approved by the Independent Risk, UK ALCO, and Citi Global Liquidity Management for each of the concentration exposures. The UK ALCO must review the concentration triggers and any breaches to the triggers. Interim and permanent changes in concentration triggers for the CGML must be approved by the UK ALCO, the UK Treasurer or equivalent, Independent Risk Manager or equivalent, and Global Liquidity Management.

Derivative Exposures and Potential Collateral Calls

In the ordinary course of business, CGML enters into various types of derivative transactions, including bilateral transactions that are over-the-counter (OTC) and transactions settled via exchanges with central counterparties. CGML enters into derivatives contracts covering interest rate, foreign currency, commodity, equity and other market/credit risks for the purpose of trading and acting as a market maker or to hedge CGML's own risk profile.

Derivative contracts are highly leveraged financial products and therefore may require additional liquidity support in a stressed environment. Such requirements are typically in the form of additional margin/collateral requirements that counterparties may ask CGML to post as per the terms of the contract. The nature of additional margin/collateral requirements depend upon the nature of stress (i.e. idiosyncratic vs. market-wide).

During the life span of a derivatives transaction, Citi may be required to post initial margin or variation margin. The requirement to post margin can negatively impact Citi's funding and liquidity. In addition, ratings downgrades by the Rating Agencies may also have a negative impact on CGML's funding and liquidity due to reduced funding capacity and/or the need to post additional cash or securities collateral to counterparties.

CGML maintains liquidity reserves to counter potential liquidity outflows from derivatives activities under various stress scenarios.

Currency Mismatch in the LCR

Cross-currency liquidity risk arises when there is a mismatch between the currency of assets and the currency of liabilities (e.g. local currency assets are funded by foreign currency liabilities). FX markets may be constrained in a crisis meaning that conversion from one currency to another cannot be guaranteed. This risk is common for international banks due to their cross border operations and multi-currency approach to business.

CGML manages its cross-currency risk through short and long-term strategies using FX swaps, multi-currency long-term funding and adjustment of the currency asset/liability mix. Material currencies are monitored through the establishment of FX capacity limits as well as material currency stress testing.

The LCR Delegated Act is calculated, reported and monitored on a consolidated basis and in significant currencies, EUR, GBP and USD. Majority of CGML's liquidity is held in USD, which can be readily converted to other currencies in the event of stress. To minimize liquidity mismatches, including currency mismatches in the LCR Delegated Act, CGML seeks to fund assets in the same currency and, at the same time, monitors the potential risk from foreign currency mismatches. To the extent mismatches arise, CGML employs currency limits framework to assess foreign currency capacity to meet funding needs and the ability to convert currencies to provide liquidity buffer under stress conditions. The framework incorporates currency matching of projected cash flows through applying discounts and size and tenor restrictions to determine the foreign currency capacity required to cover USD shortfalls as well as shortfalls in significant currencies under various volatility and stress scenarios. If the offset capacity is not sufficient to cover currency shortfalls, appropriate actions are taken to reduce the mismatch. The capacity and assumptions are determined by Citi's Independent Risk function.

The Degree of Centralisation of Liquidity Management and Interaction Between the Group's Units

CGML is part of a multi-entity and branch organisation that operates in multiple jurisdictions. Intragroup liquidity risk arises when there are significant exposures (from lending/borrowing or similar activities) to or from group companies and one or both sides fail to meet their obligations in a stressed environment. CGML's exposure to intercompany borrowing and lending activity is controlled via internal liquidity metrics and regulatory limits.

Day-to-day funding fluctuations are managed through USD unsecured intercompany loans, typically in the overnight tenor from Citicorp LLC. To the extent that CGML utilises daily resources from other Citigroup affiliates, it is assumed for stress testing purposes that these funds will not be available during a stress. As such, liquidity reserves are held against daily funding dependencies.

Table 44: LCR Disclosure

Liquidity Coverage Ratio

		Total Unweighted Value $ Million				Total Weighted Value $ Million			
		Mar-18	Jun-18	Sep-18	Dec-18	Mar-18	Jun-18	Sep-18	Dec-18
Number of Data Points Used in the Calculation of Averages		12	12	12	12	12	12	12	12
High-Quality Liquid Assets									
1	Total High-quality Liquid Assets (HQLA)					20,538	21,095	21,387	21,235
Cash-Outflows									
2	Retail Deposits and Deposits from Small Business Customers, of which	–	–	–	–	–	–	–	–
3	Stable Deposits	–	–	–	–	–	–	–	–
4	Less Stable Deposits	–	–	–	–	–	–	–	–
5	Unsecured Wholesale Funding	2,784	2,545	2,470	2,642	2,784	2,545	2,470	2,642
6	Operational Deposits (All Counterparties) and Deposits in Networks of Cooperative Banks	–	–	–	–	–	–	–	–
7	Non-operational Deposits (All Counterparties)	2,784	2,545	2,470	2,642	2,784	2,545	2,470	2,642
8	Unsecured Debt	–	–	–	–	–	–	–	–
9	Secured Wholesale Funding					29,200	30,404	31,348	31,590
10	Additional Requirements	7,461	6,929	6,823	6,565	6,547	6,321	5,770	5,434
11	Outflows Related to Derivative Exposures and Other Collateral Requirements	7,384	7,165	6,727	6,455	6,488	6,265	5,705	5,363
12	Outflows Related to Loss of Funding on Debt Products	–	–	–	–	–	–	–	–
13	Credit and Liquidity Facilities	77	74	95	110	59	56	65	70
14	Other Contractual Funding Obligations	1,641	3,108	4,076	4,736	1,337	2,763	3,708	4,372
15	Other Contingent Funding Obligations	994	1,133	1,236	1,221	497	567	618	610
16	**Total Cash Outflows**					**40,365**	**42,600**	**43,914**	**44,648**
Cash-Inflows									
17	Secured Lending (e.g. Reverse Repos)	152,256	155,851	158,493	166,394	24,241	28,639	29,846	30,631
18	Inflows from Fully Performing Exposures	1,819	1,592	1,619	1,733	1,819	1,854	1,881	1,996
19	Other Cash Inflows	2,671	4,341	5,233	5,887	2,671	5,070	5,962	6,617
EU-19a	(Difference Between Total Weighted Inflows and Total Weighted Outflows Arising from Transactions in Third Countries where There are Transfer Restrictions or which are Denominated in Non-convertible Currencies)					–	–	–	–
EU-19b	(Excess Inflows from a Related Specialised Credit Institution)					–	–	–	–
20	**Total Cash Inflows**	**156,746**	**161,783**	**165,345**	**174,015**	**28,730**	**35,563**	**37,689**	**39,244**
EU-20a	*Fully Exempt Inflows*	46	46	46	46	–	–	–	–
EU-20b	*Inflows Subject to 90% Cap*	46	46	46	46	–	–	–	–
EU-20c	*Inflows Subject to 75% Cap*	105,196	111,413	113,745	117,647	28,730	36,185	38,311	39,866
						Total Adjusted Value			
21	**Liquidity Buffer**					**20,538**	**21,095**	**21,387**	**21,235**
22	**Total Net Cash Outflows**					**12,336**	**11,981**	**11,713**	**11,322**
23	**Liquidity Coverage Ratio (%)**					**166%**	**176%**	**183%**	**188%**

Table 44: LCR Disclosure (Cont'd)

Liquidity Coverage Ratio

		Total Unweighted Value $ Million				Total Weighted Value $ Million			
Quarter Ending		Mar-17	Jun-17	Sep-17	Dec-17	Mar-17	Jun-17	Sep-17	Dec-17
Number of Data Points Used in the Calculation of Averages		12	12	12	12	12	12	12	12
High-Quality Liquid Assets									
1	Total High-quality Liquid Assets (HQLA)					18,562	18,772	19,144	19,832
Cash-Outflows									
2	Retail Deposits and Deposits from Small Business Customers, of which	–	–	–	–	–	–	–	–
3	Stable Deposits	–	–	–	–	–	–	–	–
4	Less Stable Deposits	–	–	–	–	–	–	–	–
5	Unsecured Wholesale Funding	3,312	3,602	3,496	3,130	3,312	3,602	3,496	3,130
6	Operational Deposits (All Counterparties) and Deposits in Networks of Cooperative Banks	–	–	–	–	–	–	–	–
7	Non-operational Deposits (All Counterparties)	3,312	3,602	3,496	3,130	3,312	3,602	3,496	3,130
8	Unsecured Debt	–	–	–	–	–	–	–	–
9	Secured Wholesale Funding					24,848	25,164	26,307	27,700
10	Additional Requirements	3,122	7,820	6,302	7,126	2,712	4,024	5,440	6,182
11	Outflows Related to Derivative Exposures and Other Collateral Requirements	2,895	4,427	6,153	7,062	2,500	3,789	5,304	6,131
12	Outflows Related to Loss of Funding on Debt Products	–	–	–	–	–	–	–	–
13	Credit and Liquidity Facilities	77	74	95	110	59	56	65	70
14	Other Contractual Funding Obligations	1,641	3,108	4,076	4,736	1,337	2,763	3,708	4,372
15	Other Contingent Funding Obligations	994	1,133	1,236	1,221	497	567	618	610
16	**Total Cash Outflows**					**31,135**	**33,098**	**35,580**	**37,632**
Cash-Inflows									
17	Secured Lending (e.g. Reverse Repos)	126,189	134,001	142,847	147,847	18,846	18,616	19,983	21,681
18	Inflows from Fully Performing Exposures	1,340	1,946	2,307	2,181	1,340	1,946	2,307	2,181
19	Other Cash Inflows	682	904	1,341	1,378	682	904	1,341	1,378
EU-19a	(Difference Between Total Weighted Inflows and Total Weighted Outflows Arising from Transactions in Third Countries where There are Transfer Restrictions or which are Denominated in Non-convertible Currencies)					–	–	–	–
EU-19b	(Excess Inflows from a Related Specialised Credit Institution)					–	–	–	–
20	**Total Cash Inflows**	**128,212**	**136,850**	**146,495**	**151,406**	**20,869**	**21,466**	**23,631**	**25,240**
EU-20a	*Fully Exempt Inflows*	–	–	–	–	–	–	–	–
EU-20b	*Inflows Subject to 90% Cap*	–	–	–	–	–	–	–	–
EU-20c	*Inflows Subject to 75% Cap*	82,753	87,012	94,014	98,835	20,869	21,466	23,631	25,240
						Total Adjusted Value			
21	**Liquidity Buffer**					**18,562**	**18,772**	**19,144**	**19,832**
22	**Total Net Cash Outflows**					**10,266**	**11,632**	**11,949**	**12,392**
23	**Liquidity Coverage Ratio (%)**					**180.81%**	**161.38%**	**160.21%**	**160.04%**

12 Securitisation Activity

CGML’s securitisation activities fall within the ICG business segment. Within ICG, securitisation activity is conducted within Global Securitised Products (GSP-CMO) and Global Spread Products (GSP-Markets).

12.1 Global Securitised Products

This group within the ICG structures and underwrites securitisations of financial assets primarily for financial institutions across EMEA. The desk originates and distributes (both via bank loan syndication and capital markets) secured risk based mainly on tranching and rating of that risk.

12.2 Global Spread Products

The EMEA Global Spread Products' (GSP-Markets) business model is primarily comprised of two types of activity, market making in asset backed securities (ABS) and in real estate and mortgage loan/portfolio financing, with a consequent exit through a loan sale or securitisation. GSP-Markets' ABS trading desk uses CGML to book market risk. The Commercial Real Estate and Residential Real Estate desks have no exposure on CGML although CGML will act as an underwriter and arranger of commercial or residential mortgage backed securities (CMBS, RMBS) issuances. GSP-Markets is further divided into the following business lines:

12.2.1 ABS Trading

The ABS desk actively trades new issuances, existing ABS, RMBS and CMBS securities. Trading activities on ABS, RMBS and CMBS are carried out on CGML.

12.2.2 Commercial Real Estate

The Commercial Real Estate (CRE) team is focused on financing of commercial real estate backed projects, non-performing loan portfolio financing, acquisition of performing/re-performing commercial real estate portfolios.

The primary exit strategy includes the issuance of commercial mortgage backed securities (CMBS) which can be arranged and distributed through CGML. The loan financing itself only takes place on Citi's bank chain vehicles.

12.2.3 Residential Real Estate

The Residential Real Estate team primarily finances acquisitions of performing and re-performing residential mortgage portfolios, as well as financing of warehouse loans for residential mortgage businesses. The primary exit strategy includes issuance of RMBS which can be arranged and distributed through CGML. The loan financing itself only takes place on Citi's bank chain vehicles.

The Residential Real Estate team originates, structures and distributes RMBS from CGML and works with the following ratings agencies for the rating of issuances

- Standard and Poor's – ABS exchange service and Ratings Direct (general); rating of Conduit Programmes; preliminary ratings assessments (at loan stage) and final determinations or assessments at the time of a capital markets issuance
- Moody's – Real estate related break-ups; rating of Conduit Programmes; preliminary ratings assessments (at loan stage) and final determinations or assessments at the time of a capital markets issuance
- Fitch – Real estate related break-ups and general surveillance; rating of Conduit Programmes; preliminary ratings assessments (at loan stage) and final determinations or assessments at the time of a capital markets issuance

12.3 Accounting Policies for Securitisation Activity in the Trading Book (IFRS)

Any securitisation positions (such as Asset Backed Securities or Mortgage Backed Securities) purchased as part of a trading strategy are accounted for at fair value through earnings.

Securitisation Exposures in the Trading Book

The following tables set out the aggregate amount of securitisation positions held in the trading book by CGML as at 31 December 2018 and 31 December 2017.

Table 45: Aggregate Amount of Trading Book Securitisation Positions Held

	31-Dec-18 $ Million	31-Dec-17 $ Million
On Balance Sheet	439	408
Off Balance Sheet	2	6
Total	**441**	**414**

Table 46: Capital Treatment Applied to CGML's Trading Book Securitisation Positions

Risk Weighting	On Balance Sheet		Off Balance Sheet	
	Exposure	Capital Requirement	Exposure	Capital Requirement
31-Dec-18	$ Million	$ Million	$ Million	$ Million
At 20%	360	3	–	–
At 50%	45	5	2	–
At 100%	24	1	–	–
At 350%	5	2	–	–
Deducted from Capital	5	–	–	–
Total	**439**	**16**	**2**	–
31-Dec-17	$ Million	$ Million	$ Million	$ Million
At 20%	178	3	–	–
At 50%	131	6	6	–
At 100%	15	1	–	–
At 350%	7	2	–	–
Deducted from Capital	77	–	–	–
Total	**408**	**12**	**6**	**–**

Table 47: Trading Book Securitisation Exposures by Exposure Type

	Traditional			Synthetic		
	Original Value	Deductions	Risk Weighted	Original Value	Deductions	Risk Weighted
31-Dec-18	$ Million	$ Million	$ Million	$ Million	$ Million	$ Million
Residential Mortgages	340	–	340	2	–	–
Credit Card Receivables	44	4	40	–	–	–
Loans to Corporates or SMEs	29	–	29	–	–	–
Commercial Mortgages	27	1	25	–	–	–
Total	**439**	**5**	**434**	**2**	**–**	**–**

Citi has a well-established risk management framework for securitisations. The ICG trading book securitisation business is subject to the ICG policy "Rules Governing Market Risk", part of the ICG Risk Manual.

Credit Risk Managers are responsible for

- Determining the ICG's risk appetite for securitisation transactions
- Approving extensions of credit and ensuring data capture associated with those extensions of credit is accurate
- Monitoring and managing credit extensions to be within Citi's risk appetite and limits; and
- Working with the respective businesses in the allocation of credit to optimise returns

Market Risk Managers are responsible for

- Ensuring that securitisation transactions, booked in the trading book, are consistent with the businesses' mandate and represent an adequate risk/reward balance
- Approving securitisation transactions that are booked in the trading book and ensuring data capture associated with those securitisation transactions is accurate; and
- Ongoing monitoring of market risk associated with securitisation transactions that are booked in the trading book

The business operates under an approved permitted products list which applies at the desk level. All major generic sources of risk and stress losses are covered by the desk's limit structures, with granularity within these limit structures further enhanced through product-types, country risk and ratings requirements. Concentration limits may also exist by obligor name, depending on the business.

Stress testing is completed in various formats, including weekly stress tests via Citi's Global Systemic Stress Testing (GSST) 'top-down' systemic stresses, monthly risk reports and annual exercises. In addition, Risk Management performs ad hoc stress tests when considered necessary.

For those risks not fully captured in VaR or the linear stresses, a Business Specific Stress Test (BSST) is developed and produced in conjunction with the linear stresses. The BSSTs are reviewed at least quarterly to ensure relevance and completeness.

Securitisation Exposures in the Banking Book

The following tables set out the aggregate amount of securitisation positions held in the banking book by CGML as at 31 December 2018 and 31 December 2017.

Table 48: Aggregate Amount of Banking Book Securitisation Positions Held

	31-Dec-18 $ Million	31-Dec-17 $ Million
On Balance Sheet	106	–
Off Balance Sheet	–	–
Total	**106**	**–**

Table 49: Capital Treatment Applied to CGML's Banking Book Securitisation Positions

Risk Weighting	On Balance Sheet		Off Balance Sheet	
	Exposure	Capital Requirement	Exposure	Capital Requirement
31-Dec-18	**$ Million**	**$ Million**	**$ Million**	**$ Million**
At 20%	16	–	–	–
At 50%	1	1	–	–
At 100%	15	1	–	–
At 350%	13	3	–	–
Deducted from Capital	46	–	–	–
Total	**106**	**5**	–	–
31-Dec-17	**$ Million**	**$ Million**	**$ Million**	**$ Million**
At 20%	–	–	–	–
At 50%	–	–	–	–
At 100%	–	–	–	–
At 350%	–	–	–	–
Deducted from Capital	–	–	–	–
Total	**–**	**–**	**–**	**–**

Table 50: Banking Book Securitisation Exposures by Exposure Type

	Traditional			Synthetic		
	Original Value	Deductions	Risk Weighted	Original Value	Deductions	Risk Weighted
31-Dec-18	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**	**$ Million**
Residential Mortgages	45	11	34	–	–	–
Credit Card Receivables	–	–	–	–	–	–
Loans to Corporates or SMEs	2	–	2	–	–	–
Commercial Mortgages	59	35	24	–	–	–
Total	**106**	**46**	**60**	**–**	**–**	**–**

13 2018 Remuneration Statement

Citi's Compensation Philosophy

Employee compensation is a critical tool in the successful execution of Citi's corporate goals.

As long-term value, creation requires balancing strategic goals, so does developing compensation programs that incentivise balanced behaviours.

The Compensation Philosophy describes Citi's approach to balancing the five primary objectives that Citi's compensation programs and structures are designed to achieve and is available online at: http://www.citigroup.com/citi/investor/corporate_governance.html.

The Compensation Philosophy also sets out Citi's commitment to managing risk, and management has received clear direction from the Personnel and Compensation Committee (P&C Committee)[4] to use discretion in awarding incentive compensation consistently with risk mitigation principles.

Citi's Compensation Philosophy applies to all of its foreign subsidiaries and branches, save where exceptions are required by local law.

There were no significant changes introduced to Citi's Compensation Philosophy in 2018

Remuneration Governance

Global Remuneration Committee

The Personnel and Compensation Committee (P&C Committee) of the Board of Directors of Citigroup Inc., oversees Citi's global remuneration policies and practices. It annually reviews the compensation structures for members of senior management and other highly compensated or regulated individuals. The P&C Committee, with the assistance of the Chief Risk Officer, also reviews the design and structure of compensation programs relevant to all employees in the context of risk management.

The P&C Committee's terms of reference are documented in the P&C Committee Charter, which establishes the scope and mandate of the P&C Committee's responsibilities and the general principles governing the remuneration policy of the firm globally. The Charter (updated for 2018) is available online at: http://www.citigroup.com/citi/investor/data/percompcharter.pdf?ieNocache=157.

The P&C Committee members are all independent non-executive directors, selected and appointed on account of their background and experience in business and their capability to fulfil their responsibilities as P&C Committee members. For the performance year 2018, the P&C Committee members were Duncan P. Hennes (Chairman), Diana L. Taylor, Gary M. Reiner, Michael E. O'Neill, and Lew W. (Jay) Jacobs, IV (beginning June 2018). Biographies and details around the compensation paid to P&C Committee members are available in the 2018 Proxy Statement. The P&C Committee met 13 times in 2018 and each Director attended at least 75% of all meetings.

The P&C Committee is supported by Human Resources and Citi's control functions, including Independent Risk and Legal.

The P&C Committee also draws on considerable experience of the other non-executive directors of the Board of Citigroup Inc. It is also empowered to draw upon internal and external expertise and advice as it determines appropriate and in its sole discretion and Citi pays the fees of any such external advisors. The Committee appointed Frederic W Cook & Co ("Cook & Co") for 2018 to provide the Committee with independent advice on Citi's compensation programs for senior management. Cook & Co reports solely to the Committee and the Committee has sole authority to retain, terminate, and approve the fees of Cook & Co. Cook & Co does no other work for Citi and the appointment of an independent adviser is reviewed annually by the P&C Committee.

4. The Personnel and Compensation Committee (P&C Committee) of the Board of Directors of Citigroup Inc.

The P&C Committee meets regularly with Citi's Chief Risk Officer (CRO), other senior risk officers and other members of senior management to discuss and evaluate risk and Citi's compensation programs, thereby further integrating Citi's independent risk function into compensation governance and oversight. The CRO reviews the key terms of Citi's overall compensation framework, to help ensure that consistent with Citi's Compensation Philosophy, compensation is aligned with long-term performance in a manner that does not encourage imprudent risk-taking.

CGML Remuneration Committee

In 2016 Citi established the Citigroup Global Markets Limited ("CGML") Remuneration Committee ("CGML RemCo") with the following objectives

To be responsible for the preparation of decisions by CGML regarding remuneration of CGML employees and CGML Material Risk Takers, including decisions which have implications for the risk and risk management of CGML and which are to be taken by the Board of Directors

In taking those decisions, to ensure compliance by CGML with its obligations under the PRA and FCA Remuneration Codes and the EBA Guidelines, and to take into account, where appropriate, relevant guidance and the long-term interests of shareholders, investors and other stakeholders in CGML and the public interest.

The CGML RemCo's remit within its Terms of Reference includes the following

To review and approve remuneration awards to material risk takers of CGML

To review the achievement of performance targets and recommendations for ex post risk adjustment, including the application of malus and clawback arrangements for CGML (as appropriate);

To review the mechanisms and systems adopted to ensure that the remuneration system applicable to CGML properly takes into account all types of risks, liquidity and capital levels and that the overall remuneration policy is consistent with and promotes sound and effective risk management and is in line with business strategy, objectives, corporate culture and values and the long-term interest of Citigroup including CGML

To support the Board of Directors of CGML in overseeing the remuneration policies, practices and processes and compliance with the remuneration policy;

To provide support and advice to the Board of Directors of CGML on the remuneration policy applicable to CGML and to ensure that the remuneration policy is up to date and, if necessary, make proposals for changes where appropriate;

To review scenarios to test how remuneration policies and practices applicable to CGML react to external and internal events, and back-test the criteria used for determining remuneration awards and ex ante risk adjustment based on the actual risk outcomes;

To review the appointment of any external remuneration consultants that may be engaged by the Board of Directors of CGML;

To ensure the adequacy of information provided to CGML's shareholder(s) in respect of remuneration policies and practices, in particular on any proposal to increase the maximum level of the ratio between fixed and variable remuneration.

- The CGML RemCo acts as the remuneration committee of CGML, whereas the P&C Committee fulfils the same role for the wider group. For the 2018 performance year, the CGML RemCo comprises of Non-Executive Directors: Diana Taylor (Chair and SMF12), Cyrus Ardalan, Richard Goulding, Susan Dean (until September 2018), and Malcolm Basing (appointed in September 2018), all of whom also served on the CGML Risk Committee during 2018. The CGML RemCo met 10 times in 2018 and each Director attended at least 75% of all meetings. The CGML RemCo does not engage independent consultants, but Clifford Chance has advised on remuneration matters for 2018

Material Risk Takers

In accordance with the PRA and FCA Codes, Citi maintains a record of its Material Risk Takers, which comprises the categories of staff whose professional activities are determined as having a material impact on the firm's risk profile. For the 2018 performance year, Material Risk Takers were identified principally using Citi's understanding of the criteria for identifying staff as set out in Commission Delegated Regulation (EU) No 604/2014. There have been no material changes for this year.

Design and Structure of Remuneration

Fixed Remuneration – Salary, Role-based Allowances ("RBAs") and Benefits

Citi's fixed remuneration is set to appropriately attract, retain and motivate employees, in line with market practices, and is benchmarked against market data by role. Fixed remuneration primarily reflects an employee's professional experience and organisational responsibilities as set out in the employee's job description and terms of employment, and includes the following elements:

- Salary
- Standard Citi benefits including pension
- Role Based Allowances (RBA) for a limited number of roles

All of these elements are classified as fixed remuneration on the basis of the EBA Guidelines (including that they are permanent and do not depend on performance).

Pension and other non-cash benefits are offered to employees as part of an overall reward package. CGML aims to provide pension and other benefits across all units/business groups, which are competitive against the external market.

RBAs have been assigned to a limited number of roles to reflect organisational responsibilities. Whether a particular role is eligible for an RBA is subject to the approval of the relevant RemCo (i.e. for CGML employees, the CGML RemCo). The rationale for granting an RBA is clearly articulated by reference to eligibility criteria, including specific details on the duties and responsibilities of the role.

Variable Compensation (Discretionary Incentive and Retention Award Plan)

Discretionary Incentive and Retention Award Plan (DIRAP) is Citi's main discretionary variable compensation plan[5] and applies globally. It is designed to incentivise, reward and retain employees based on their current and prospective performance and contribution. Citi operates a fully flexible remuneration policy, including the possibility to pay zero variable remuneration.

Awards made under the DIRAP are typically awarded in the form of cash and/or Citi stock. Cash awarded for the 2018 performance year to Material Risk Takers under DIRAP is included in the "Remuneration awarded to CGML MRTs for 2018 performance year" table [REM 1].

Citi operates a mandatory deferral policy, where total annual variable compensation of an individual awarded under DIRAP exceeds globally set thresholds. For Material Risk Takers in CGML, 2018 variable compensation subject to deferral was awarded in the form of Citi stock and deferred cash. Citi believes that awarding deferred stock and deferred cash are effective means of aligning employee interests with those of stockholders and other stakeholders.

5. MRTs are eligible for a supplemental cash award. Also, selected group of individuals in the Markets business of ICG globally received a portion of the incentive for the 2018 performance year in the form of an additional deferral. These have been included in the "Remuneration awarded to CGML MRTs for 2018 performance year" table [REM 1].

Deferred Equity Awards

The Capital Accumulation Program (CAP) is the main programme under which Citi may make awards of deferred Citi stock to selected employees. Deferred stock awards are subject to the terms of the CAP plan.

Deferred equity awarded under CAP to Material Risk Takers for the 2018 performance year is included in the “Remuneration awarded to CGML MRTs for 2018 performance year” table [REM 1]. Prior years unvested CAP awards are included in the “MRT Deferred remuneration” table [REM 3].

In line with the EBA Guidelines, Citi has discontinued payment of dividends on deferred equity.

Short-term Equity Awards

A portion of 2018 deferred remuneration was awarded to Material Risk Takers in the form of a deferred cash award. Deferred cash awarded for the 2018 performance year to Material Risk Takers is outlined in the “Remuneration awarded to CGML MRTs for 2018 performance year” table [REM 1].

Similarly to dividends on deferred equity, Citi has discontinued payment of interest on deferred cash awards in line with the EBA Guidelines.

Deferred Cash Awards

A portion of 2018 deferred remuneration was awarded to Material Risk Takers in the form of a deferred cash award. Deferred cash awarded for the 2018 performance year to Material Risk Takers is outlined in the “Remuneration awarded to CGML MRTs for 2018 performance year” table [REM 1].

Similarly to dividends on deferred equity, Citi has discontinued payment of interest on deferred cash awards in line with the EBA Guidelines.

Deferrals and Retention Periods

Citi operates a standard or “default” deferral policy period of four years for non-Material Risk Takers, which it considers captures the duration of most risks in a proportionate manner.

Material Risk Takers are subject to deferral rates of 40% to 100% of total variable compensation, which is delivered in the form of deferred stock and deferred cash. These awards vest over at least three years and are subject to a further six- to twelve-months retention period.

Deferred Awards vest over five years for Risk Manager Material Risk Takers (identified by reference to particular qualitative criteria in Commission Delegated Regulation (EU) No 604/2014) and over 7 years for Senior Managers.

The remaining portion of variable compensation is split equally between immediate cash and immediately vesting stock (EUSTA), which is subject to a twelve-months retention period.

Material Risk Takers who fall within de-minimis thresholds are subject to Citi’s mandatory deferrals.

Malus and Clawback

Deferred remuneration awarded to Material Risk Takers is subject to pre-vesting adjustment ("malus"), including in the circumstances envisaged by the PRA and FCA Remuneration Codes. Since January 2015, Citi’s award documentation also provides that Citi can require the vested portion of awards made to MRTs to be repaid or otherwise recover an amount corresponding to some or all of awards received for up to 7 years from the date of the award for affected employees; and additionally reflects the potential to extend clawback for the Senior Managers under the UK Individual Accountability Regime, for a period of up to 10 years from the date of award.

Clawback provisions apply if an MRT was responsible for, or participated in, (1) conduct that resulted in significant losses to Citigroup or (2) Citigroup or the business unit has a material failure of risk management.

Performance Based Vesting Condition

The entire deferral for MRTs is subject to Performance Based Vesting (PBV) conditions as an additional ex-post adjustment mechanism. This structure further balances for risk and aligns the actual payout to employees with business performance.

Deferred equity awards made to Material Risk Takers are subject to a formulaic performance based vesting condition that may result in the cancellation of all or part of unvested amounts in the event of losses in their relevant business. The trigger for application of a payout reduction is the emergence of pre-tax losses in the "reference business" for the calendar year ending immediately prior to the vesting date of a given tranche of deferred equity.

Deferred cash awards made to Material Risk Takers are subject to discretionary performance based vesting, which may result in cancellation of unvested awards where an employee has significant responsibility for a material adverse outcome, such as events which lead to serious financial or reputational harm to Citi.

Other Remuneration Policies

Guarantees, Buyouts and Retention Payments

Citi has guidelines in place with respect to guarantees that apply to all employees across the EMEA region, including employees of all PRA and FCA regulated entities. Citi's guidelines on guarantees provide that guaranteed incentive awards for employees can only be made in exceptional circumstances, in the context of recruitment and by reference to the first year of service and provided the legal entity has a sound and strong capital base.

As part of the governance framework, HR regularly monitors the number of guarantees that are awarded by the business to new hires and the award of guarantees for MRTs require CGML RemCo review and approval. The "Guaranteed bonus, sign-on and severance payments made to MRTs in 2018" table [REM 2] includes 2018 guaranteed awards made to Material Risk Taker hires.

Awards which buy out equity or similar instruments which are forfeited as a result of resigning employment with another employer and joining Citi EMEA are generally permitted but must not be more generous in either amount or terms than that provided by the former employer. These awards are included in "MRT Deferred remuneration" table [REM 3].

Retention awards can only generally be made in exceptional circumstances, for example, during major restructuring, during a merger process; or where a business is winding down, such that particular staff need to be retained on business grounds.

Severance

Severance payments are subject to appropriate governance and approvals. Citi's severance payment guidelines are in line with the EBA Guidelines, and provide that severance:

- Should not provide for a disproportionate reward but should represent appropriate compensation for early termination of employment
- Should not reward failure, misconduct or be paid where immediate termination of the employment contract is permitted
- Are not paid to employees transferring between legal entities, unless required by law

The "Guaranteed bonus, sign-on and severance payments made to MRTs in 2018" table [REM 2] includes severance payments made to Material Risk Takers, whose employment terminated in 2018.

Ratio of Fixed to Variable Remuneration

Citi seeks to balance the components of reward between fixed and variable, and between short-term and long-term components. For relevant employees, an annual review of the balance between fixed and variable compensation takes place and, where required, adjustments are made to the fixed element of pay to ensure that an appropriate balance of fixed versus variable continues to be maintained on an ongoing basis. The aggregate of fixed remuneration paid to Material Risk Takers for 2018 is set out in the "Remuneration awarded to CGML MRTs for 2018 performance year" table [REM 1].

Following the introduction of CRD IV, CGML obtains formal shareholder approval to apply a fixed to variable ratio of up to 1:2 for Material Risk Takers in all relevant business areas annually, with the most recent approval being granted in November 2018 for the 2018 performance year. Approval of the ratio was sought from P&C Committee, which is the Board Committee of the ultimate parent company.

Stockholding Requirements

Awards to certain members of senior management are subject to a stock ownership commitment. In addition, executives' interests remain aligned with those of shareholders even after termination of employment, where stock will continue to vest over time after termination. Vesting of deferred awards does not accelerate upon termination of employment except in the case of death.

Personal Hedging

Employees subject to the PRA and FCA Remuneration Codes are prohibited from engaging in personal hedging strategies or taking out remuneration or liability related contracts of insurance that undermine or may undermine any risk alignment effects of their remuneration arrangements.

In addition, Citi's Corporate Personal Trading Policy and Standards prohibits "Covered Employees" (separately defined for this purpose) and related persons from hedging in any manner (other than currency hedges) unvested restricted stock or deferred stock awarded under CAP or restricted shares, or otherwise having a financial interest in having Citi securities decline in value.

Link Between Pay and Performance

Bonus pool decisions are based on many factors including, but not limited to

- Year over year business performance
- Performance compared with plan for the current year
- Performance against key risks (including conduct risk, operational risk) and controls objectives
- Performance relative to peers

Citi's programmes incorporate both ex-ante and ex-post features to adjust for risk and current and future performance. There is a process for risk-adjusting the annual discretionary incentive and retention compensation pools from which annual incentive and retention awards are made.

Citi has enhanced its performance evaluation process to formally integrate opinions of personnel from the independent control functions in the performance evaluations of Material Risk Takers. Further details of Citi's individual performance evaluation process is set out below.

As noted above, deferred awards made to Material Risk Takers also include a PBV feature and malus and clawback provisions which may result in cancellation of unvested and vested awards.

At least 50% of deferred awards are made in the form of Citi common stock and are therefore inherently performance-based. Citi has trading policies that limit hedging strategies that might otherwise undermine the risk alignment effects of their remuneration arrangements.

Individual Performance

One of Citi's key compensation principles is to "promote meritocracy by recognising employee contributions".

The performance assessment of Material Risk Takers is based on individually tailored goals (the "What" element), and an assessment against Citi's Leadership Standards (the "How"element)

Leadership Standard Statements	Definitions
Develops Our People	• Builds talent and teams for Citi by creating a culture of meritocracy and transparency, and celebrating excellence, initiative and courage • Inspires and empowers the team to work collaboratively to achieve superior results • Creates an environment where people hold themselves to the highest ethical standards • Models personal growth and consistently provides coaching and feedback in support of ongoing development and retention • Attracts great talent, builds a diverse talent pipeline, and recognizes, rewards, promotes based on performance
Drives Value for Clients	• Enables economic value and positive social impact for clients, companies, governments, and communities • Puts clients first by anticipating, understanding, and exceeding their expectations and needs • Acts as a trusted partner to clients by delivering superior advice, products and services • Brings the best of Citi and knowledge of global issues and market trends to create value and good will with clients • Drives innovation, competitive differentiation and speed to market by actively learning from others
Works as a Partner	• Works collaboratively across the firm and encourages others to achieve the best results for Citi and our clients • Exemplifies global leadership by embracing unique perspectives from across Citi to achieve the best solutions • Challenges self and colleagues to higher levels of performance by actively listening and engaging in constructive dialogue • Treats people with respect and assumes the intentions of others are based on common goals and shared purpose
Champions Progress	• Champions a culture of high standards, pushes for progress, embraces change and challenges the status quo in support of Citi's vision and global strategy • Communicates a vision that is forward looking and responsive to changes in the environment • Inspires enthusiasm and mobilizes resources for productive and innovative change • Exhibits confidence and agility in challenging times • Sets a positive tone when implementing Citi-wide change initiatives
Lives Our Values	• Ensures systemically responsible outcomes while driving performance and balancing short and long-term risks • Sets the standard for the highest integrity in every decision • Leads by example; willing to make difficult choices in support of Citi and our stakeholders • Makes Citi better for all by putting the clients' and Citi's interests ahead of individual or team interests • Has the courage to always do what's right and the humility to learn from mistakes
Delivers Results	• Sets high standards and achieves performance objectives by creating a clear path toward ethical and sustainable results • Translates Citi's strategy into effective business plans while proactively overcoming obstacles • Prioritises and provides a clear line of sight to the most critical work • Sets goals and measures progress to ensure the organization is focused on ethics, execution, and results • Expects self and team to consistently meet/exceed expectations

Citi conducts an annual independent review process pursuant to which the control functions (Compliance, Finance, Independent Risk, Internal Audit and Legal) provide an evaluation of risk behaviours of Material Risk Takers. The risk behaviour rating from the independent review process is included in the performance evaluation system to inform the performance review conducted by the individual's manager. The performance evaluation system includes formal risk goals for all Material Risk Takers as well as a formal manager-provided risk rating.

Whilst the appraisal system reflects performance in the current year, any compliance or risk related breach in a previous performance period that is discovered in the current performance period may be taken into account when determining the individual's rating. For Material Risk Takers material errors which occur in a previous performance period but are discovered in the current performance period may result in an adjustment of unvested deferred compensation and/or current year end variable compensation.

Remuneration of Control Function Employees

In terms of remuneration for employees in control functions, whilst remuneration levels are influenced by Citi's overall performance, individual compensation is determined within the function and pay decisions are based on assessments against measurable goals and targets which are set by each function. Compensation of Control Function employees is regularly benchmarked against external market data.

Citi maintains the independence of key control functions (e.g. Compliance and Risk) to minimise any scope for potential conflicts of interests. Accordingly, there should be no conflict of interest on account of any business' potential to influence individual awards in the control function. Citi ensures performance management and compensation decisions for function personnel are directed by function management, and not the business unit.

Table 51: Remuneration Awarded to CGML MRTs for 2018 Performance Year

			All Other MRTs		
GBP Millions[1]	Management Body[2]	Senior Management[3]	Investment Banking	Independent Control Functions	All Other[4]
Number of Employees[5]	8	5	507	6	15
Total Fixed Remuneration[6]	**8.4**	**6.2**	**228.8**	**1.7**	**8.2**
Total Variable Remuneration[7]	**6.3**	**5.8**	**242.5**	**0.7**	**10.2**
Of which: Cash-Based	2.9	2.7	117.3	0.5	4.9
Of which: Deferred	2.3	2.1	82.1	0.1	3.8
Of which: Shares or Other Share-linked Instruments[8]	3.4	3.1	125.2	0.2	5.4
Of which: Deferred	2.8	2.5	90.7	0.1	4.5
Of which: Other Forms	–	–	–	–	–
Of which: Deferred	–	–	–	–	–
Total Remuneration	**14.8**	**12.0**	**471.3**	**2.5**	**18.4**

Additional Notes

1. All non-GBP awards are converted using the European Commission exchange rate for financial programming and the budget for December 2018.
2. Management Body as defined under articles 3(1) and 3(2) of the EBA regulatory technical standard on criteria to identify categories of staff whose professional activities have a material impact on an institution's risk profile under Article 94(2) of Directive 2013/36/EU.
3. Senior Management as defined under article 3(3) of the EBA regulatory technical standard on criteria to identify categories of staff whose professional activities have a material impact on an institution's risk profile under Article 94(2) of Directive 2013/36/EU.
4. All Other category includes all other employees who cannot be mapped into one of the other categories e.g. Operations and Technology, Retail Banking and Corporate Functions.
5. Number of employees reflects CGML MRTs as at 31st December 2018.
6. Fixed remuneration includes salary, role based allowance and the value of pension and benefits.
7. Variable remuneration awarded in respect of 2018 performance year. In accordance with the shareholder approval obtained in 2018, variable component of remuneration of an MRT for any one year can be set up to a maximum of 200% of the fixed remuneration.
8. Share-based awards are made in Citi shares and represent value at grant.

Table 52: Guaranteed Bonus, Sign-on and Severance Payments Made to MRTs in 2018

GBP Millions[1]	Guaranteed Bonuses		Sign-on Awards		Severance Payments[2]	
	Number of Employees	Total Amount	Number of Employees	Total Amount	Number of Employees	Total Amount[3]
Management Body	–	–	–	–	–	–
Senior Management	–	–	–	–	–	–
Other MRTs	**1**	**2.2**	**–**	**–**	**16**	**2.1**
Investment Banking	1	2.2	–	–	15	1.8
Independent Control Functions	–	–	–	–	1	0.2
All Other	–	–	–	–	–	–

Additional Notes
1. All non-GBP awards are converted using the European Commission exchange rate for financial programming and the budget for December 2018.
2. Severance payments allocated to MRTs terminated during 2018, which include redundancy payments and statutory severance. None of these severance payments were included in the ratio of variable to fixed remuneration for 2018 performance year in line with the EBA Guidelines (paragraph 154 (a) – (c)).
3. The highest severance in 2018 was a redundancy payment made to a UK based employee for the amount of GBP 225,000.

Table 53: MRT Deferred Remuneration

GBP Millions[1]	Outstanding Deferred and Retained Remuneration as at December 31, 2018[2], of which: Unvested	Vested[3]	Of which: Total Amount of Outstanding Deferred and Retained Remuneration Exposed to Ex-post Explicit and/or Implicit Adjustment	Total Amount of Amendment During the Year Due to Ex-post Explicit Adjustments	Total Amount of Amendment During the Year Due to Ex-post Implicit Adjustments	Total Amount of Deferred Remuneration Paid Out in the Financial Year[5]	Total Amount of Deferred Remuneration Awarded in the Financial Year[6]
Management Body	**11.6**	**–**	**11.6**	**–**	**–**	**6.5**	**5.2**
Of which: Cash-Based	5.8	–	5.8	–	–	1.6	2.5
Of which: Shares or Other Share-linked Instruments	5.8	–	5.8	–	–	4.9	2.8
Of which: Other Forms	–	–	–	–	–	–	–
Senior Management	**7.5**	**–**	**7.5**	**–**	**–**	**3.9**	**2.4**
Of which: Cash-Based	3.8	–	3.8	–	–	1.3	0.2
Of which: Shares or Other Share-linked Instruments[4]	3.7	–	3.7	–	–	2.6	2.2
Of which: Other Forms	–	–	–	–	–	–	–
All Other MRTs	**323.8**	**1.7**	**325.5**	**–**	**–**	**175.0**	**191.2**
Investment Banking	**309.7**	**1.6**	**311.3**	**–**	**–**	**171.7**	**183.2**
Of which: Cash-Based	153.8	–	153.8	–	–	57.6	79.4
Of which: Shares or Other Share-linked Instruments	155.9	1.6	157.5	–	–	114.1	103.8
Of which: Other Forms	–	–	–	–	–	–	–
Independent Control Functions	**0.4**	**–**	**0.4**	**–**	**–**	**0.3**	**0.2**
Of which: Cash-Based	0.2	–	0.2	–	–	0.0	0.1
Of which: Shares or Other Share-linked Instruments	0.3	–	0.3	–	–	0.3	0.1
Of which: Other Forms	–	–	–	–	–	–	–
All Other	**13.7**	**0.0**	**13.7**	**–**	**–**	**3.0**	**7.8**
Of which: Cash-Based	6.8	–	6.8	–	–	2.5	3.5
Of which: Shares or Other Share-linked Instruments	6.9	0.0	6.9	–	–	0.5	4.4
Of which: Other Forms	–	–	–	–	–	–	–

Additional Notes
1. Value of all non-GBP cash and share awards are converted using the European Commission exchange rate for financial programming and the budget for December 2018.
2. Value of outstanding share awards is calculated using Citi closing share price as at 31 December 2018.
3. Total outstanding deferred remuneration that has vested but is under restriction as at 31 December 2018. Value of shares has been calculated as of vest date.
4. Includes both shares and any stock units granted.
5. Shares are considered paid when vested. Average of the opening and closing price on the vesting date is used to calculate the value of an award at vest.
6. Value of share-based awards made in 2018 represents value at grant

Table 54: 2018 Remuneration Banding for Annual Compensation of Individuals Earning at Least €1 Million[1]

Total Remuneration (in €)[1]	Number of Individuals
1,000,000–1,500,000	88
1,500,000–2,000,000	22
2,000,000–2,500,000	15
2,500,000–3,000,000	11
3,000,000–3,500,000	10
3,500,000–4,000,000	6
4,000,000–4,500,000	1
4,500,000–5,000,000	2
5,000,000–6,000,000	4
6,000,000–7,000,000	3
7,000,000–8,000,000	2
8,000,000–9,000,000	2
9,000,000–10,000,000	–
Greater than 10,000,000	1
Total	**167**

Additional Notes
1. All non-EUR awards are converted using the European Commission exchange rate for financial programming and the budget for December 2018.

14 Business Conduct

14.1 Conduct Risk Management

Citi has a commitment as well as an obligation to identify, assess, and mitigate conduct risks associated with its businesses and functions. Citi has a Conduct Risk Policy (the “Policy”) to further the objectives of its enterprise-wide Conduct Risk Program (the “Program”), which was established in 2014 to enhance Citi’s culture of compliance and control through the management, minimization and mitigation of Citi’s conduct risks. Citi has developed a Conduct Risk Appetite Statement that sets forth the tolerable level of conduct risk that Citi’s senior management is prepared to take while pursuing the firm’s strategic goals consistent with Citi’s Mission and Value Proposition and the Leadership Standards with the ultimate goal of delivering better outcomes for our clients and society. Citi’s overall conduct risk appetite is “low” and is integrated into Citi business and legal entity risk appetite frameworks in accordance with the Citi Risk Appetite Policy.

The Program is overseen by the Ethics and Culture Committee of the Citigroup Inc.’s Board of Directors. Additionally, the Conduct Risk Steering Committee, which is comprised of representatives from Citi’s major businesses and global functions, is set to provide governance and strategic direction for the Program; oversee the development, review, and discussion of conduct risk-related reports and metrics; and review selected risks, behaviors, and outcomes to identify ways to enhance Citi’s culture.

Each business and function is also responsible for monitoring and reporting its significant conduct risks, issues and related trends to senior management and the appropriate governance forums. Such forums may include the Country Coordinating Committees, Business Risk Compliance and Control Committees, and/or the Business Practices Committees. Finally, the Program reports at least annually to the Ethics and Culture Committee of the Citigroup Inc. Board of Directors.

The Policy lays out the minimum requirements of the Program for each business and function as well as related roles and responsibilities across the three lines of defense. Each of Citi’s businesses (first line of defense) owns and manages the risks inherent in or arising from the business, including conduct risk, and is responsible for managing, minimising and mitigating those risks. The business – in partnership with in-business risk management – is responsible for identifying current and emerging significant conduct risks and managing those risks, in part through the implementation of mitigating controls to reduce the likelihood of harm to customers, clients, or the integrity of the markets, and thereby the integrity of the firm.

The second line of defense – comprised of Independent Compliance Risk Management, Finance, Human Resources, Legal, Risk, including Operational Risk Management, and other functions, as appropriate – takes a risk-based approach to assess, advise on, monitor and test current and emerging significant conduct risks across products, businesses, functions, countries, and regions and works to enhance the effectiveness of controls.

Internal Audit (third line of defense) provides independent risk-based assurance over the Program and Policy, based upon a risk-based audit plan and audit methodology as approved by the Citigroup Inc. Board of Directors.

All three lines of defense are also responsible for escalating significant current and emerging conduct risks, including to relevant governance or management committees or forums, consistent with the requirements of the Citi Escalation Policy and Citi Code of Conduct.

14.2 Conflict of Interest Policy

Citi's Code of Conduct (the "Code") sets forth expectations with regards to avoiding actual or perceived Conflicts of Interest. The Code highlights some of the most common potential conflicts of interest and provides guidance on how to manage, mitigate and wherever possible, avoid the conflict.

Citi's Employment of Relatives Policy establishes minimum standards regarding the employment of immediate family members and other relatives of Citi employees throughout every phase of the employment relationship, such as recruiting, hiring, and internal transfers, unless those standards would conflict with applicable law in any country. This is in conjunction with the Anti-Bribery and Policy and the Global Anti-Bribery Hiring Procedures.

The Code sets expectations as to personal and related-party business dealings. There are additional responsibilities for Senior Leaders. Directors and senior executives of the Citigroup Inc. legal entity must follow all additional rules regarding pre-approvals of business transactions, as included in the Citi Policy on Related Party Transactions. Additionally, certain executives must adhere to disclosure requirements and limitations on lending relationships with Citi, as included in the Insider Lending Policy.

There are mandatory requirements through Citi's Gifts and Entertainment Standard, Citi outside Directorships and Business Interests Policy, Personal Trading Policy for Citi Access Persons, the Employee Personal Trading and Investment Policy for Citi Brokerage and Advisory Persons, the Client Conflicts of Interest Management Policy, the Citi Anti-Tying Policy, the Bank Affiliate Transactions Policy and the Global Consumer Fairness Policy.

The firm has in place systems and controls concerning Information Barriers which are designed to shield potentially material non-public information received by workers engaged in lending, investment banking or merchant banking activities (private-side information) from those workers who trade or advise on trading in securities based on publicly available information or who engage in investment management activities (public-side activities). We also use information barriers to address potential and actual conflicts of interest among business activities. Citi has established various information barriers and deal-team procedures within businesses engaging in certain private-side activities to prevent confidential information from being shared with individuals who are not authorized to know such information.

14.3 Internal Alerts and Reporting of Breaches

Citi's Code sets forth expectations of professional behaviour and key regulatory requirements and policies, including the obligation of employees to raise concerns when they reasonably suspect or become aware of violations of law or regulation, or breaches of internal policies or the Code. In addition, Citi's Escalation Policy explains what to escalate, when to escalate and to whom to escalate. It includes roles and responsibilities for the identification, reporting, investigation and resolution of these concerns, and for oversight of escalation requirements and processes.

- Employees are encouraged to raise concerns to their managers in the first instance, but employees may also raise concerns to any of the following
  - The appointed person under any applicable local disclosure procedure
  - Human Resources, employee, or labour relations representative
  - Internal legal counsel
  - Compliance Officer
  - Citi Security and Investigative Services (CSIS)
  - The Citi Ethics Office

The Citi Ethics Office, based in New York, is responsible for administering Citi's global Ethics Hotline, which is comprised of five communication channels (telephone, email, web, fax, and mail) that employees across Citi and other third-parties can use to raise concerns. Reports to the Ethics Hotline can be made anonymously unless prohibited by applicable law or regulation. All contacts to the Citi Ethics Office and related investigations are treated as confidentially as possible, consistent with the need to investigate the matter, and pursuant to local law and regulation.

Citi prohibits any form of retaliatory action against individuals who raise concerns or questions in good faith regarding ethics, discrimination, or harassment matters; report suspected violations of other applicable laws, regulations, or policies; or participate in a subsequent investigation of such concerns. Employees who engage in retaliation against a colleague because he or she has raised a concern or question in good faith or for participating in an investigation may be subject to disciplinary action, up to and including termination of employment.

Nothing in the Code or Escalation Policy prohibits or restricts members of staff from raising a concern to any government, regulatory, or self-regulatory agency at any stage.

15 Business Continuity Management

15.1 Governance

In line with the requirements of the EBA Guidelines on internal governance under Directive 2013/36/EU (EBA/GL/2017/11), the following section provides an overview of CGML's Business Continuity Management Framework.

Citi's Continuity of Business (CoB) Policy and Standards require all Citi businesses, including those businesses under GCML, to implement a CoB Program that includes; Assessment processes, Crisis Management Plans, Recovery Planning, Testing, Maintenance, Independent Review, Monitoring and Reporting, as well as Training and Awareness.

The Citi Business Continuity Management organisation is responsible for developing and managing the enterprise-wide CoB policy, standards, tools and guidance. The organisation reports to management on a monthly basis and provides annual reporting of the effectiveness of and business compliance with this policy to the Audit Committees of Citigroup Inc. and Citibank, NA

The CoB Policy (section 2.1) requires each business to define a structure of CoB Entities, or business units, for purposes of CoB documentation and testing.

As stated in the CoB Policy, "Citi's CoB program facilitates the recovery of critical elements to: (i) Minimise the effects of business disruptions, (ii) Ensure the continuity of service and support for its customers, and (iii) Maintain its resilience and viability before, during, and after an adverse event (e.g., natural or manmade disaster, technological failure)".

The following scenarios are considered as part of the CoB planning process and must be documented in the Business Recovery plan ; Denial of Access (loss of premises), Denial of Service (loss of technology) and unavailability of staff (inclusive of external third parties).

As defined in the CoB Standards, additional analysis and assessment is performed for all in-scope locations through Threat and Vulnerability Analysis and Proximity Risk Assessments. External third parties' resilience and recovery capabilities must also be assessed.

15.2 Contingency and Business Continuity Planning

Testing

Business and technology testing must verify that processes can be recovered in line with the business's continuity objectives, as defined by the Business Impact Analysis (BIA) process. Testing scenarios through Denial of Access (DoA), Denial of Service (DoS) and the unavailability of services provided by external third-parties ensure recovery strategies are in place. Business recovery teams, crisis management teams, infrastructure teams and application teams must participate in CoB testing, as appropriate. Detailed requirements for testing are defined in the CoB Testing Standards.

Maintenance

CoB documentation, including policy, standards, as well as recovery and crisis management plans are reviewed and approved at least annually, and refreshed more frequently as needed. The specific maintenance triggers for the CoB documentation are listed in the Standards. In addition, call trees are refreshed at least semi-annually.

15.3 Recovery Planning

Business units and technology organisations must document and maintain plans for recovery of their processes in the event of a business interruption or technology service disruption.

Business Recovery Plans (BRPs) are prioritised based on their Criticality Ratings, which are determined by the Criticality Rating of the highest rated process listed in the BIA. BRPs must be executable within the Recovery Time Objective (RTO) defined in the BIA.

Each CoB Entity must create and maintain a BRP specific to that CoB Entity. The BRPs must document recovery strategies to mitigate the effects of disruptions including DoS, DoA, and unavailability of staff (inclusive of external third parties).

The CoB Standards prescribes that the BIA must “define risk thresholds... and reflect local regulatory requirements as well as liquidity issues”. The BIA must also “identify interdependencies between processes and the required resources to ensure acceptable levels of operation.”

15.4 Documentation and Training

Citi's Business Continuity Planning tool – COB Trac – is the common repository used across the firm and by CGML for the documentation of CoB Plans and, by virtue of being an online application, CoB Trac is readily accessible by users in the case of a contingency.

- Citi's CoB Testing Standards defines the minimum testing required for business, application and technology recovery strategies. The resulting CoB testing programme ensures plans are regularly tested
- Citi Business Continuity Management makes available a set of core business continuity training activities and classes. All businesses must use the Corporate Training Program as a basis for providing CoB training for their staff
- All Business Recovery Coordinators (BRCs) entitled in CoB Trac must complete a minimum of one pre-approved training activity per year

16 Other Risks

16.1 Non-trading Book Equity Exposures

CGML has a small number of equity investments which are held outside the trading book. This category includes investments in clearing houses, exchanges and other strategic investments which are required to be held for membership, access or relationship purposes, and which are otherwise not traded. They are carried on the balance sheet at fair value where this is readily determinable. Where this is not the case, the investment is carried at cost. The market price is deemed to be the fair value for exchange traded equities.

Table 55: Non-trading Book Equity Exposures

	31-Dec-18 $ Million	31-Dec-17 $ Million
Investments Held at Fair Value	55	31
Investments Held at Cost	3	3
Total	**58**	**34**

16.2 Interest Rate Risk in the Non-Trading Book

One of Citi's primary business functions is providing financial products that meet the needs of its customers. Loans and deposits are tailored to the customer's requirements with regard to tenor, index and rate type. Net Interest Revenue (NIR) is the difference between the yield earned on the non-trading book portfolio assets (including customer loans) and the rate paid on the liabilities (including customer deposits or borrowings). The NIR is affected by changes in the level of interest rates.

Interest Rate Risk Governance

The risks in Citi's non-traded portfolios are estimated using a common set of standards that define, measure, limit and report the market risk. Each business is required to establish, with approval from independent Market Risk Management, a market risk limit framework that clearly defines approved risk profiles and is within the parameters of Citi's overall risk appetite. In all cases, the businesses are ultimately responsible for the market risks they take and for remaining within their defined limits. These limits are monitored by independent Market Risk Management and country and business ALCOs.

CGML's business is almost entirely trading book in nature and therefore does not give rise to any material accrual interest rate risk.

17 Appendices

17.1 Appendix 1: UK Senior Management and Board Disclosures

The following senior management disclosures are made in accordance with CRR.

Recruitment and Diversity Policy for the CGML Board of Directors

Board Composition, Role and Effectiveness

The selection criteria for the Non-Executive Directors of CGML are designed to ensure their independence and the provision of robust challenge to their executive counterparts.

CGML has a combination of Non-Executive Directors who are either:

UK based and independent from any of Citi's businesses;

On the parent company's Board (in order to provide direct linkage between the main and subsidiary boards), but who are independent within the standards applicable to the parent board; or

All new Non-Executive Directors receive training on the senior manager regime and Companies Act responsibilities, as well as Citi familiarisation for independent Non-Executive Directors.

The selection process for Non-Executive Directors is rigorous and consists of several interviews. The interviewers include the CEO of the relevant legal entity, the EMEA Chief Administrative Officer and the EMEA Chief Legal Officer. All Board appointments are required to be formally recommended by the CGML Nominations Committee and approved by the CGML Board, followed by an application to the PRA and FCA ("UK Regulators") for regulatory approval.

The recruitment process aims to select Non-Executive Directors with significant financial regulatory and industry expertise. This expertise is outlined in further detail in the biographical summaries later in this appendix.

In order to meet the UK Regulators expectations for legal entity focus, Citi also appoints a Chief Executive Officer (CEO) for CGML.

All new Executive Directors of CGML are subject to but not limited to, the firm's interview selection criteria process pursuant to the firm's Leadership, Ethics and Culture, Competency and Technical Interview Guidelines standards. As with Non-Executive Directors of CGML, Executive Directors of CGML are subject to background screening pursuant to the FCA and PRA Fitness and proprietary requirements.

Executive Directors of CGML benefit from the firm's mandatory training requirements including Leadership training programs. All Directors of CGML received induction training on the UK Accountability Regime.

There are no foreseeable changes anticipated to the composition of the management body.

Distinction Between the Roles of Executive and Non-executive Directors

A fundamental distinction is drawn between the roles of Executive and Non-Executive Directors. Non-Executive Directors do not have any business line responsibility, but have oversight responsibilities consistent with the approach recommended in the Combined Code on Corporate Governance and the UK Regulators' Senior Managers Regime. The Non-Executive Directors chair the board, set the agendas for those Committee meetings and determine any follow up actions. The Non-Executive Directors are also not limited in their oversight to specific business operations.

The resources used by the Non-Executive Directors in their role of challenging the business include

Full and unhindered access to the business, which involves the receipt of detailed presentations given by business or control functions;

Administrative support in the form of an assistant for the Chair and office facilities on the executive floor of Citigroup's London offices in Canary Wharf for UK-based Non-Executive Directors; and

Technical training in the form of Board tutorials. These regular tutorials cover a wide range of subjects including but not limited to capital and liquidity requirements, client money and assets regulations, anti-money laundering rules, regulation relating to anti-bribery and corruption, and recovery and resolution planning.

Diversity

The Board of Directors of Citigroup Global Markets Limited (Board) is committed to identifying and appointing the best qualified people to serve on the Board and to ensuring that the Board is comprised of individuals whose backgrounds reflect the diversity represented by our employees, customers and stakeholders. Effective December 2017 the CGML Diversity with the Management Body Policy was published and made publicly available through Citi's UK page as follows:

http://www.citigroup.com/citi/about/countrypresence/united-kingdom.html

Table 56: Directorships held by Citigroup Global Markets Limited Board of Directors as of 31 December 2018

Name	Total Number of Directorships
Cyrus Ardalan	5
Malcolm Basing	9
Diana Taylor	6
Richard Goulding	6
James (Jim) Cowles	1
Peter McCarthy	4
James Bardrick	8
Leo Arduini	4
Total	**34**

Table 57: Membership held by Citigroup Global Markets Limited Board of Directors as of 31 December 2018

Name	Gender	Role	Duration of Board Membership
Cyrus Ardalan	Male	Non-Executive Director – Chair	1 yrs 4 mths
Malcolm Basing	Male	Non-Executive Director	6 mths
Diana Taylor	Female	Independent Non-Executive Director	8 yrs 11 mths
Richard Goulding	Male	Non-Executive Director	2 yrs 7 mths
James Cowles	Male	Executive Director	9 yrs 9 mths
Peter McCarthy	Male	Executive Director	6 yrs 7 mths
James Bardrick	Male	Executive Director – Chief Executive Officer	5 yrs 3 mths
Leo Arduini	Male	Executive Director	2 yrs 9 mths

Non-executive Directors of CGML

Cyrus Ardalan (Chair)

Cyrus Ardalan has worked in senior roles and has extensive financial services and regulatory experience extending over 40 years in the industry in both an executive and non-executive capacity.

Cyrus was appointed as Chair of CGML in 2017. In addition to his role at Citi, Cyrus is a Chairman of the Board for Oaknorth bank from 2015 to present. Cyrus is also a board member for the charity organisation International Finance Facility for Immunisation from 2012 to present and Independent Portfolio Management from 2017 to present. Previous board memberships include Dubai International Financial Centre from 2004-2009 and from 2011 to 2015 Cyrus was Chairman of the Board within the International Capital Markets Association.

Malcolm Basing

Malcolm Basing joined Citi in 2018 as Chair of the CGML Audit Committee.

Malcolm basing has extensive industry knowledge spanning 40 years in which he has had experience in both Executive and Non-Executive roles.

In addition to his role in Citi, Malcolm holds directorships which includes BASFAM Limited, RMBI Pension Trust Limited, Catrock LLP and The Royal College of Psychiatrists and also has charity appointments which includes Isaac Newton University Lodge Benevolent Fund and Westerham Hall Management Committee (Charity).

Previous experience includes Independent Non-Executive Director and Chair, Audit Committee of Merrill Lynch International along with Chief Operating Officer, Americas for UBS AG.

Diana Taylor

Diana Taylor has been an independent director of Citigroup Inc. since July 2009. As well as being Vice Chair of Solera Capital LLC, Diana holds directorships at both Brookfield Asset Management and Sotheby's.

From 2007 to 2014 Diana was managing director of Wolfensohn Fund Management L.P. Prior to this 2003 to 2007, she served as Superintendent of Banks of New York State Banking Department, where she also oversaw the regulation of the mortgage industry, and money service businesses. Diana served as Governor Pataki's Deputy Secretary for Finance and Housing between 1996 and 1999. Other previous roles included several years in the energy business, first as Vice President of KeySpan Energy and then as Chief Financial Officer at the Long Island Power Authority. She was a founding partner and president of M.R. Beal & Company.

Diana started her career as an investment banker with Smith Barney, followed by roles with Lehman Brothers and Donaldson Lufkin & Jenrette.

Richard Goulding

Richard Goulding joined Citi as a non-executive director in 2016 as Chair of CGML Risk Committee.

In addition to his role at Citi, Richard is also a member of the Board of Zopa Limited, the UK-based finch group, and its subsidiary Zopa Financial Services Limited, where he Chairs the Board Risk Committee and is a member of the Audit, Remuneration and Nomination Committees.

Richard is also principal of RFG Consulting Ltd, which provides advisory services in risk and financial management, including two fintech start-ups.

Previous experience includes Group Chief Risk Officer and Director at Standard Chartered Bank London and Singapore from 2002-2015. In this role Richard was responsible for managing Credit, Market and Operational Risk across the Group.

Executive Directors of CGML

James (Jim) Cowles

Jim Cowles was named Citi's Chief Executive Officer for Europe, Middle East & Africa (EMEA) in January 2013. Prior to assuming his current position, he was Chief Operating Officer for EMEA and Head of Western Europe at Citi. He has also served as Head of Markets for Citi in EMEA, Global Head of Equities and Global Head of Equity Capital Markets.

Jim joined Smith Barney in 1979. Other previous roles have included: Head of Equities (EMEA), Deputy Head of Investment Banking, Head of Real Estate Investment Banking and Commercial Mortgage Trading, Head of Debt Capital Markets and Head of Direct Investments.

Peter McCarthy

Peter McCarthy was appointed Citi's Chief Administrative Officer ("CAO) for EMEA in February 2012. Peter has over 40 years' experience working in the financial services sector, 32 years have been at Citi. He has had various management roles at Citi including CAO of Citi's Markets business in EMEA. Together with his Operating Committee partners Peter has responsibility for franchise governance across EMEA, which includes membership of senior governance forums, extensive interaction with the Regional CCO community. Peter is also the Regional Coordinator for the Citibank NA Management Committee.

Prior to joining Citi, Peter spent 6 years working in the European Financial Control division of Merrill Lynch.

James Bardrick (Director and Chief Executive Officer of CGML)

James Bardrick is Citi's Country Officer for the UK and is Chief Executive of Citigroup Global Market Limited.

James is a Business Senior Credit Officer and has been with the firm for 32 years. During this time he has developed a broad experience of global client relationship management and coverage as well as providing strategic and transaction advice through many advisory, equity and debt financing transactions. James is a member of TheCityUK and FICC Markets Standards Board Advisory Councils and is a Board member of UK Finance and is a non-executive Practitioner Member of the Banking Standards Board. He also sits on the Bank of England PRA Practitioner Panel.

Prior to joining Citi, James worked as an engineer and in marketing for GKN PLC and for Tomkins PLC.

Leo Arduini

Leo Arduini is EMEA Head of Markets & Securities Services from April 2014. Leo has 27 years' experience spanning a variety of trading, coverage, sales and management roles in different jurisdictions. Leo was appointed Citi Country Officer and Head of Markets for Italy in January 2010 and in March 2012 he became Head of Investor Sales, EMEA Markets, with responsibility for the sales coverage and distribution of Citi's global market product platform to Investor Clients across the EMEA region. He took on his current position as EMEA Head of Markets and Securities Services in March 2014. Prior to joining Citi, Leo has collaborated with Bocconi University and was Associate at Borsa Italiana (Italian Stock Exchange). He has also held positions in Fixed Income trading at San Paolo Finance (Now Banca Intesa Group), as a Board Member of MTS, as Head of Sales and Distribution at Caboto (Banca Intesa Group) and at Banca Monte Paschi Siena as General Manager of Finance and Global Markets.

17.2 Appendix 2: Unencumbered Asset

Overview

Asset encumbrance refers to the pledging or use of an asset as a means to secure, collateralise or credit-enhance any on-balance-sheet or off-balance-sheet transaction from which it cannot be freely withdrawn. The majority of our encumbrance is driven by secured financing activities, which include transactions in repo, facilitation of short positions (customer and firm), collateral swaps and derivatives trading related margin requirements. Asset encumbrance is an integral part of CGML's liquidity, funding and collateral management process.

CGML's asset encumbrance disclosure provides supervisory authorities and investors with the necessary information on the level of asset encumbrance of the firm enabling to compare the reliance on secured funding and the degree of structural subordination of unsecured creditors and depositors across institutions. In addition, it allows regulators and investors to assess the firm's ability to handle liquidity stressed scenarios (when switching to secured sources of funding would be required). Asset encumbrance reporting is based on the UK GAAP balance sheet as at 31 December 2018. This disclosure is being made in accordance with the format required by EBA Guidelines EBA/GL/2014/03 on the disclosure of encumbered and unencumbered assets. CGML discloses asset encumbrance on a solo entity level, although the scope of liquidity requirements application is done for both solo and consolidated basis, the consolidated basis asset encumbrance disclosure would not be materially different.

Table 58: Encumbered and Unencumbered Asset 2018

31-Dec-18		Carrying Amount of Encumbered Assets $ Million	Carrying Amount of Encumbered Assets: Of which Notionally Eligible EHQLA and HQLA $ Million	Fair Value of Encumbered Assets[1] $ Million	Fair Value of Encumbered Assets[1]: Of which Notionally Eligible EHQLA and HQLA $ Million	Carrying Amount of Unencumbered Assets $ Million	Carrying Amount of Unencumbered Assets: Of which EHQLA and HQLA $ Million	Fair Value of Unencumbered Assets[1] $ Million	Fair Value of Unencumbered Assets[1]: Of which EHQLA and HQLA $ Million
010	**Assets of the Reporting Institution**	**68,924**	**–**			**326,066**	**–**		
030	Equity Instruments	15,023	–			4,737	–		
040	Debt Securities	35,749	–	35,749	–	2,088	–	2,088	–
050	of which: Covered Bonds	1,286	–	1,286	–	41	–	41	–
060	of which: Asset-Backed Securities	139	–	139	–	305	–	305	–
070	of which: Issued by General Governments	29,419	–	29,419	–	–	–	–	–
080	of which: Issued by Financial Corporations	2,819	–	2,819	–	1,110	–	1,110	–
090	of which: Issued by Non-financial Corporations	2,086	–	2,086	–	631	–	631	–
120	Other Assets[2]	18,151				319,241	–		

1. [ ].
2. [ ].

Table 58: Encumbered and Unencumbered Asset (cont'd)

31-Dec-17		Carrying amount of Encumbered Assets $ Million	Of which Notionally Eligible EHQLA and HQLA $ Million	Fair Value of Encumbered Assets[1] $ Million	Of which Notionally Eligible EHQLA and HQLA $ Million	Carrying Amount of Unencumbered Assets $ Million	Of which EHQLA and HQLA $ Million	Fair Value of Unencumbered Assets[1] $ Million	Of which EHQLA and HQLA $ Million
010	**Assets of the Reporting Institution**	**66,957**	**–**			**286,492**	**–**		
030	Equity Instruments	13,266	–			4,781	–		
040	Debt Securities	29,237	–	29,237	–	1,876	–	1,876	–
050	of which: Covered Bonds	–	–	–	–	–	–	–	–
060	of which: Asset-Backed Securities	84	–	84	–	88	–	88	–
070	of which: Issued by General Governments	25,154	–	25,154	–	570	–	570	–
080	of which: Issued by Financial Corporations	2,461	–	2,461	–	798	–	798	–
090	of which: Issued by Non-financial Corporations	1,538	–	1,538	–	420	–	420	–
120	Other Assets[2]	24,453				279,835	–		

1. [ ].
2. [ ].

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

Table 59: Collateral Received

Collateral Received

31-Dec-18		Fair Value of Encumbered Collateral Received or Own Debt Securities Issued ($ Million)	Of which Notionally Eligible EHQLA and HQLA ($ Million)	Unencumbered: Fair Value of Collateral Received or Own debt Securities Issued Available for Encumbrance ($ Million)	Of which EHQLA and HQLA ($ Million)
130	**Collateral Received by the Reporting Institution**	**237,460**	**–**	**47,203**	–
140	Loans on Demand	–	–	–	–
150	Equity Instruments	50,406	–	4,483	–
160	Debt Securities	186,911	–	28,050	–
170	Of which: Covered Bonds	2,036	–	772	–
180	Of which: Asset-backed Securities	6,894	–	589	–
190	Of which: Issued by General Governments	160,447	–	24,891	–
200	Of which: Issued by Financial Corporations	8,778	–	1,134	–
210	Of which: Issued by Non-financial Corporations	9,011	–	536	–
220	Loans and Advances Other than Loans on Demand[1]	–	–	14,588	–
230	Other Collateral Received	143	–	82	–
231	Of which	–	–	–	–
240	**Own Debt Securities Issued Other than Own Covered Bonds or Asset-backed Securities**	**–**	**–**	**–**	**–**
241	**Own Covered Bonds and Asset-backed Securities Issued and Not Yet Pledged**			**–**	**–**
250	**Total Assets, Collateral Received and Own Debt Securities Issued**	**306,383**	**–**		

1. [ ].

Table 59: Collateral Received (cont'd)

Collateral Received

31-Dec-17		Fair Value of Encumbered Collateral Received or Own Debt Securities Issued		Unencumbered: Fair Value of Collateral Received or Own debt Securities Issued Available for Encumbrance	
		$ Million	Of which Notionally Eligible EHQLA and HQLA $ Million	$ Million	Of which EHQLA and HQLA $ Million
130	**Collateral Received by the Reporting Institution**	**216,491**	**–**	**33,853**	–
140	Loans on Demand	–	–	–	–
150	Equity Instruments	44,347	–	4,443	–
160	Debt Securities	170,917	–	28,931	–
170	Of which: Covered Bonds	–	–	–	–
180	Of which: Asset-backed Securities	1,882	–	462	–
190	Of which: Issued by General Governments	151,965	–	24,699	–
200	Of which: Issued by Financial Corporations	7,101	–	1,521	–
210	Of which: Issued by Non-financial Corporations	6,713	–	831	–
220	Loans and Advances Other than Loans on Demand[1]	–	–	–	–
230	Other Collateral Received	1,228	–	479	–
231	Of which	–	–	–	–
240	**Own Debt Securities Issued Other than Own Covered Bonds or Asset-backed Securities**	**–**	**–**	**–**	**–**
241	**Own Covered Bonds and Asset-backed Securities Issued and Not Yet Pledged**			**–**	**–**
250	**Total Assets, Collateral Received and Own Debt Securities Issued**	**283,447**	**–**		

1. [ ].

Table 60: Sources of Encumbrance

Template C – Sources of Encumbrance

31-Dec-18		Matching Liabilities, Contingent Liabilities or Securities Lent $ Million	Assets, Collateral Received and Own Debt Securities Issued Other than Covered Bonds and ABSs Encumbered $ Million
010	Carrying Amount of Selected Financial Liabilities	433,201	311,530
011	Of which: Derivatives	165,082	27,348
012	Of which: Repurchase Agreements	124,897	137,926
013	Of which: Fair Value of Securities Borrowed with Non-cash Collateral	95,610	97,842
014	Of which: Other	47,613	48,414

Table 60: Sources of Encumbrance (cont'd)

Template C – Sources of Encumbrance

31-Dec-17		Matching Liabilities, Contingent Liabilities or Securities Lent $ Million	Assets, Collateral Received and Own Debt Securities Issued Other than Covered Bonds and ABSs Encumbered $ Million
010	Carrying Amount of Selected Financial Liabilities	382,790	290,326
011	Of which: Derivatives	152,324	29,587
012	Of which: Repurchase Agreements	104,187	123,165
013	Of which: Fair Value of Securities Borrowed with Non-cash Collateral	83,194	92,876
014	Of which: Other	43,086	44,698

17.3 Appendix 3: Scope of Consolidation (Entity by Entity)

Table 61: LI3: Outline of the Differences in the Scopes of Consolidation (Entity by Entity)

		Method of Regulatory Consolidation				
Name of the Entity	Method of Accounting Consolidation	Full Consolidation	Proportional Consolidation	Neither Consolidated Nor Deducted	Deducted	Description of the Entity
Citigroup Global Markets Limited (CGML)	Full consolidation	✗				Investment Firm
Citigroup Global Markets Europe AG	Full consolidation	✗				Investment Firm
Citi Global Wealth Management Societe Anonyme Monegasque (SAM) (Monaco)	Deducted from own funds				✗	Investment Firm
Citigroup Global Markets Luxembourg SARL	Deducted from own funds				✗	Investment Firm
Citigroup Global Markets Funding Luxembourg SCA	Full consolidation	✗				Investment Firm
Citigroup Global Markets Funding Luxembourg GP SARL	Deducted from own funds				✗	Investment Firm

17.4 Appendix 4: Capital Instruments Main Features Template

The template is prepared using the format set out in Annex II of the final 'Implementing technical standards with regard to disclosure of own funds requirements for institutions' (Commission implementing regulation – EU 1423/2013).

	Capital Instruments Main Features Template	CET1	AT1	Tier 2	Tier 2	Tier 2	Tier 2
1	Issuer	Citigroup Global Markets Limited	Citigroup Global Markets Limited	Citigroup Global Markets Limited	Citigroup Global Markets Limited	Citigroup Global Markets Limited	Citigroup Global Markets Limited
2	Unique Identifier (e.g. CUSIP, ISIN or BLOOMBERG Identifier for Private Placement)	Private Placement	Private Placement	Private placement	Private placement	Private placement	Private placement
3	Governing Law(s) of the Instrument	English Law	English Law	English Law	English Law	English Law	English Law
Regulatory Treatment							
4	Transitional CRR Rules	CET1	AT1	T2	T2	T2	T2
5	Post-transitional CRR Rules	CET1	AT1	T2	T2	T2	T2
6	Eligible at Solo/(sub-)Consolidated/ Solo and (sub-)Consolidated	Solo and consolidated	Solo and consolidated	Solo and consolidated	Solo and consolidated	Solo and consolidated	Solo and consolidated
7	Instrument Type (Types to be Specified by Each Jurisdiction)	Ordinary shares	Perpetual Notes	Subordinated Loans	Subordinated Loans	Subordinated Loans	Subordinated Loans
8	Amount Recognised in Regulatory Capital (Currency in Million, as of Most Recent Reporting Date)	US$1,500m	US$2,300	US$600m	US$2,000m	US$1,000m	US$1,000m
9	Nominal Amount of Instrument	US$1.00	US$2,300	US$600m	US$2,000m	US$1,000m	US$1,000m
9a	Issue Price	US$1.00	US$2,300	US$600m	US$2,000m	US$1,000m	US$1,000m
9b	Redemption Price	US$1,500m	US$2,300	US$600m	US$2,000m	US$1,000m	US$1,000m
10	Accounting Classification	Shareholder's equity	Liability – Fair value option	Liability – Amortised cost	Liability – Amortised cost	Liability – Amortised cost	Liability – Amortised cost
11	Original Date of Issuance	21/12/1995	20/06/2017	21/12/2018	21/12/2018	21/12/2018	21/12/2018
12	Perpetual or Dated	Perpetual	Perpetual	Dated	Dated	Dated	Dated
13	Original Maturity Date	no maturity	no maturity	27/10/2028	29/09/2027	24/01/2039	25/07/2028
14	Issuer Call Subject to Prior Supervisory Approval	No	No	No	No	No	No
15	Optional Call Date, Contingent Call Dates and Redemption Amount	NA	NA	NA	NA	NA	NA
16	Subsequent Call Dates, if Applicable	NA	NA	NA	NA	NA	NA
Coupons/Dividends							
17	Fixed or Floating Dividend/Coupon	Floating	Floating	Floating	Floating	Floating	Floating
18	Coupon Rate and Related Index	Discretionary	7.30%	4.95% 3mth Euribor + Sub fee + Tax Handling	4.99% 3mth Euribor + Sub fee + Tax Handling	5.25% Fed Funds + WC1 + Sub Fee + Tax handling	4.97% Fed Funds + WC1 + Sub Fee + Tax handling
19	Existence of a Dividend Stopper	No	No	No	No	No	No
20a	Fully Discretionary, Partially Discretionary or Mandatory (in Terms of Timing)	Fully discretionary	Fully discretionary	Mandatory	Mandatory	Mandatory	Mandatory
20b	Fully Discretionary, Partially Discretionary or Mandatory (in Terms of Amount)	Fully discretionary	Fully discretionary	Mandatory	Mandatory	Mandatory	Mandatory
21	Existence of Step Up or Other Incentive to Redeem	No	No	No	No	No	No
22	Noncumulative or Cumulative	Non-cumulative	Non-cumulative	NA	NA	NA	NA
23	Convertible or Non-convertible	Non-convertible	Non-convertible	Non-convertible	Non-convertible	Non-convertible	Non-convertible
24	If Convertible, Conversion Trigger(s)	NA	NA	NA	NA	NA	NA
25	If Convertible, Fully or Partially	NA	NA	NA	NA	NA	NA
26	If Convertible, Conversion Rate	NA	NA	NA	NA	NA	NA
27	If Convertible, Mandatory or Optional Conversion	NA	NA	NA	NA	NA	NA
28	If Convertible, Specify Instrument Type Convertible into	NA	NA	NA	NA	NA	NA
29	If Convertible, Specify Issuer of Instrument it Converts into	NA	NA	NA	NA	NA	NA
30	Write-down Features	No	No	Converted into equity	Converted into equity	Converted into equity	Converted into equity
31	If Write-down, Write-down Trigger(s)	NA	NA	Bank of England, Own Fund Instrument written off, and Any resolution entity in Citi is under resolution.	Bank of England, Own Fund Instrument written off, and Any resolution entity in Citi is under resolution.	Bank of England, Own Fund Instrument written off, and Any resolution entity in Citi is under resolution.	Bank of England, Own Fund Instrument written off, and Any resolution entity in Citi is under resolution.

Capital Instruments Main Features Template		CET1	AT1	Tier 2	Tier 2	Tier 2	Tier 2
32	If Write-down Full or Partial	NA	NA	Full	Full	Full	Full
33	If Write-down Permanent or Temporary	NA	NA	Permanent	Permanent	Permanent	Permanent
34	If Temporary Write-down, Description of Write-up Mechanism	NA	NA	NA	NA	NA	NA
35	Position in Subordination Hierarchy in Liquidation (Specify Instrument Type Senior to Instrument)	As common equity, immediately subordinate to the instruments in the following three columns.	Notes constitute direct, unsecured and subordinated obligations of the Issuer	Immediately subordinate to senior unsecured obligations of the issuer	Immediately subordinate to senior unsecured obligations of the issuer	Immediately subordinate to senior unsecured obligations of the issuer	Immediately subordinate to senior unsecured obligations of the issuer
36	Non-compliant Transitioned Features	No	No	No	No	No	No
37	If yes, Specify Non-compliant Features	NA	NA	NA	NA	NA	NA

18 Glossary

Table 62: Glossary

ABS	Asset Backed Securities
ALCO	Asset and Liability Committee
AMA	Advanced Measurement Approach
BPC	Business Practices Committee
BRCC	Business Risk and Control Committee
BSST	Business Specific Stress Test
CAP	Capital Accumulation Programme
CAT	Capital Action Trigger
CCP	Central Counterparty Clearing House
CCyB	Countercyclical buffer
CDS	Credit Default Swap
CEM	Current Exposure Method
CEO	Chief Executive Officer
CEP	Citigroup Europe PLC
CET 1	Common Equity Tier 1
CFO	Chief Finance Officer
CFP	Contingency Funding Plan
CGML	Citigroup Global Markets Limited
CIC	Cyber Intelligence Centre
CMO	Capital Markets Origination
CORA	Credit and Operational Risk Analytics
CRD	Capital Requirements Directive
CRE	Commercial Real Estate
CRMR	Citi Risk Market Risk
CRO	Chief Risk Officer
CSA	Credit Support Annex
CVA	Credit Valuation Adjustment
DIRAP	Discretionary Incentive and Retention Award Plan
DPAC	Distribution Product Approval Committee
EAD	Exposure at Default
EBA	European Banking Authority
ECAI	External Credit Assessment Institution
EEA	European Economic Area
EMEA	Europe, Middle East and Africa
EPE	Expected Positive Exposure
ETDs	Exchange Traded Derivatives
EU	European Union
EUSTA	EU Short-term Award
FCA	Financial Conduct Authority
FLP	Funding and Liquidity Plan
FRR	Facility Risk Rating
FVA	Funding Valuation Adjustments
FX	Foreign Exchange
G10	Group of Ten (refers to the countries that have agreed to participate in the General Arrangements to Borrow (GAB))
GAAP	Generally Accepted Accounting Principles
GCB	Global Consumer Banking
GIS	Global Information Security
GSM	Global Securitised Markets
GSP	Global Securitised Products
GSST	Global Systemic Stress Test
IAS	International Accounting Standard
ICAAP	Internal Capital Adequacy Assessment Process

ICG	Institutional Clients Group
IFRS	International Financial Reporting Standards
ILG	Individual Liquidity Guidance
IM	Initial Margin
IMA	Internal Model Approach
IMM	Internal Models Method
IPB	International Personal Bank
IPR	Investments Products Risk
IRC	Incremental Risk Charge
IRE	Interest Rate Exposure
ISDA	International Swaps and Derivatives Association
KBRCC	UK Business Risk and Control Committee
KEPSP	Key Employee Profit Sharing Plan
KOR	Key Operational Risks
KRI	Key Risk Indicators
LCR	Liquidity Coverage Ratio
LGD	Loss Given Default
LIBOR	London Interbank Offered Rate
MCA	Manager's Control Assessment
MLE	Material Legal Entity
MPAC	Manufacturing Product Approval Committee
MRT	Material Risk Takers
NIR	Net Interest Revenue
NPAC	New Product Approval Committee
NRI	Non-Resident Indian
NSFR	Net Stable Funding Ratio
OCI	Other Comprehensive Income
OIS	Overnight Indexed Swap
ORM	Operational Risk Management
ORR	Obligor Risk Rating
OTC	Over The Counter
P&C	Personnel and Compensation
PBV	Performance Based Vesting
PD	Probability of Default
PRA	Prudential Regulation Authority
PRR	Position Risk Requirement
PSE	Pre-Settlement Exposures
PSU	Performance Share Units
RBA	Role-Based Allowances
RemCo	Remuneration Committee
RLAP	Resolution Liquidity Adequacy Positioning
RMBS	Residential Mortgage Backed Securities
RWA	Risk Weighted Assets
SFT	Securities Financing Transaction
SVaR	Stressed Value at Risk
TFA	Total Facilities Amount
TTS	Treasury and Trade Solutions
VaR	Value at Risk
VM	Variation Margin
WWR	Wrong Way Risk