Standard Chartered Johannesburg Branch
Pillar 3 Disclosures
31 December 2019

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1 Introduction

1.1 Purpose and basis of preparation

Standard Chartered Bank, Johannesburg Branch (the “Branch” or the “Bank”) is a Branch of Standard Chartered Bank PLC (incorporated in the United Kingdom) (“Group”). The Bank is primarily involved in the provision of wholesale banking services.

This report presents the annual Pillar 3 disclosures of the Branch as at 31 December 2019 and should be read in conjunction with the Group’s Annual Report and Accounts and Pillar 3 disclosures.

The Pillar 3 disclosures comprise detailed information on the underlying drivers of risk-weighted assets (“RWA”), capital, leverage and liquidity ratios as at 31 December 2019 in accordance with Regulation 43 and Section 6(6) of the South African Banks Act 94 of 1990 (as amended) (“the Act”).

1.2 Branch management’s responsibility statement

Branch management is responsible for the preparation and fair presentation of the annual financial statements of the Brach, comprising the statement of financial position at 31 December 2019, and disclosure requirements in respect of Regulation 43 of the Regulations relating to Banks.

The Pillar 3 Disclosures document has been verified internally in accordance with the Branch’s policies on disclosure and its financial reporting and governance processes.

1.3 Highlights

- The Branch’s capital and leverage position is managed within the Branch risk appetite.
- The Branch is sufficiently capitalised with a Common Equity Tier 1 (CET1) ratio of 14.05 per cent, well ahead of the current requirement of 7.9 per cent
- The Branch is not highly leveraged and its leverage ratio of 8.8 per cent is well ahead of the current leverage requirement of 4 per cent
- The Branch continues to manage its balance sheet proactively, with a particular focus on the efficient management of RWA.

1.4 Key metrics for the Branch

The key prudential metrics (KM1) as at 31 December 2019 is disclosed in the Quarterly 31 December 2019 Pillar 3 disclosure. No transitional arrangement with regards implementation of IFRS 9 for the impact of expected credit loss accounting on regulatory capital have been applied.

1.5 Risk management

The management of risk is a key component of the Branch’s business. One of the main risks we incur arises from extending credit to customers through our trading and lending operations. Beyond credit risk, we are also exposed to a range of other risk types such as country, traded, capital and liquidity, operational, reputational, compliance, conduct, information and cyber security and financial crime risks that are inherent in our strategy, product range and geographical coverage.

In the Risk management approach section of the 2019 Annual Report and Accounts we describe our approach and strategy for managing risk. We discuss our risk management practices, monitoring and mitigation, and governance in relation to our main activities and significant risks. The Branch is exposed to 10 key risks:

- Credit risk (refer to section Credit risk on pages 53 to 62 of the 2019 Annual Financial Statements)
- Country risk (refer to section Country risk on page 70 of the 2019 Annual Financial Statements)
- Traded risk (refer to section Traded risk on pages 62 to 64 of the 2019 Annual Financial Statements)
- Capital and liquidity risk (refer to section Capital and liquidity risk on pages 64 to 70 of the 2019 Annual Financial Statements)
- Operational risk (refer to section Operational risk on pages 71 to 72 of the 2019 Annual Financial Statements)
- Reputational risk (refer to section Reputational risk on page 70 to 71 of the 2019 Annual Financial Statements)
- Compliance risk (refer to section Compliance risk on pages 72 to 73 of the 2019 Annual Financial Statements)
- Conduct risk (refer to section Conduct risk on pages 73 to 75 of the 2019 Annual Financial Statements)
- Information and cyber security risk (refer to section Information and cyber security risk on pages 76 to 77 of the 2019 Annual Financial Statements)
- Financial crime risk (refer to section Financial crime risk on pages 75 to 76 of the 2019 Annual Financial Statements)

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Credit Risk

Credit risk is the potential for loss due to the failure of a counterparty to meet its obligations to pay the Group. Credit exposures arise from both the banking and trading books.

Credit risk is managed through a framework that sets out policies and procedures covering the measurement and management of credit risk. The Credit Risk Function, as a second line control function, performs independent challenge, monitoring and oversight of the credit risk management practices of the Business and Functions engaged in or supporting revenue generating activities which constitute the First Line of defence. Risk appetite is defined by the Group and approved by the Board. It is the maximum amount and type of risk that the Group is willing to assume in pursuit of its strategies. Credit exposure limits are approved within a defined credit approval authority framework.

The Group manages its credit exposures following the principle of diversification across products, geographies, client segments and industry sectors.

The Group uses the Advanced Internal Ratings Based (IRB) approach to calculate credit risk capital requirements with the approval of our relevant regulators. This approach builds on the Group's risk management practices and is the result of a continuing investment in data warehouses and risk models.

For portfolios where the Group does not have IRB approval, or where the exposures are permanently exempt from the IRB approach, the Standardised Approach (SA) is used.

Refer to Credit Risk pages 212 to 214 in the 2019 Group Annual Report and Accounts where we describe the main components of credit risk management, including our credit risk profile, credit risk measurement and policies set in line with risk appetite. For the scope and main content of reporting to senior management, refer to page 212 in the 2019 Group Annual Report and Accounts.

Traded Risk

Traded Risk is the potential for loss resulting from activities undertaken by the bank in financial markets. This includes market risk, counterparty credit risk and other risk sub-types.

Market risk is the potential for loss of economic value due to adverse changes in financial market rates or prices. The Group's exposure to market risk arises predominantly from these sources:

- Trading book:
  - The Group provides clients access to financial markets, facilitation of which entails the Group taking moderate market risk positions. All trading teams support client activity; there are no proprietary trading teams. Hence, income earned from market risk-related activities is primarily driven by the volume of client activity rather than risk-taking
- Non-trading book:
  - The Treasury Markets desk is required to hold a liquid assets buffer, much of which is held in high-quality marketable debt securities
  - The Group has capital invested and related income streams denominated in currencies other than US dollars. To the extent that these are not hedged, the Group is subject to structural foreign exchange risk which is reflected in reserves

The primary categories of market risk for the Group are interest rate risk, foreign exchange rate risk and commodity risk.

We use a value at risk (VaR) model for the measurement of the market risk capital requirements for part of the trading book exposures where permission to use such models has been granted by the PRA. Where our market risk exposures are not approved for inclusion in VaR models, the capital requirements are determined using the standard rules set by the regulatory framework.

Counterparty credit risk is the risk that a counterparty defaults before satisfying its obligations under a derivative, a securities financing transaction (SFT) or a similar contract.

Refer to Traded risk 215 to 216 in the 2019 Group Annual Report and Accounts where we describe the main components of traded risk management, including our traded risk profile.

Operational Risk

We define operational risk as the potential for loss resulting from inadequate or failed internal processes, and systems, human error, or from the impact of external events (including legal risk). Non-financial risks are managed through the Control Assessment Standards which are used to determine the design strength and reliability of the Group's processes. The Group aims to control operational risks to ensure that operational losses (financial or reputational), do not cause material damage to the Group's franchise. The Group applies the Standardised Approach for measuring the capital requirements for operational risk. For risk-weighted assets and capital requirements resultant from operational risk, refer to table 20 on page 21 and to pages 239 of the 2019 Group Annual Report and Accounts.

1.6 Comparison of accounting balance sheet and exposure at default

The Regulatory exposure classes are based on different criteria from accounting asset types and are therefore not comparable on a line by line basis. The following tables show in two steps how the accounting values in the regulatory balance sheet link to regulatory Exposure at Default ("EAD"). Regulatory capital reconciles to the balance sheet as per Table 1 below as required in CC2 disclosure table.

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Table 1: Differences between accounting and regulatory scopes of consolidation and the mapping of financial statement categories with regulatory risk categories (LI1)

	2019 ZAR'millions						
	Carrying values as reported in published financial statements	Carrying values under the scope of regulatory consoli-dation	Subject to credit risk framework	Subject to counter-party credit risk framework	Subject to securitisation framework	Subject to market risk framework	Not subject to capital requirements or subject to deduction from capital
Assets							
Cash and balances at central banks	4,385	4,385	4,385	-	-	-	-
Derivative financial instruments	2,049	-	-	2,049	-	2,049	-
Loans and advances net of impairment	15,199	15,199	-	3,993	-	-	-
Investment securities	12,408	12,408	12,408	-	-	-	-
Other assets	1,485	1,485	1,136	-	-	-	349
Total assets	35,523	35,523	22,314	6,042	-	2,049	349
Liabilities							
Deposits	27,676	27,676	-	-	-	-	27,676
Derivative financial instruments	2,007	2,007	-	2,007	-	2,007	-
Other liabilities	1,265	1,265	-	-	-	-	1,265
Total liabilities	30,949	30,949	-	2,007	-	2,007	28,941

Table 2: Main sources of differences between regulatory exposure amounts and carrying values in financial statements (LI2)

	2019 ZAR'millions		
	Subject to Credit risk framework	Subject to CCR framework	Subject to Securitisation framework
Total assets amount under regulatory scope of consolidation (LI1)	35,523	6,042	-
differences due to modelling and standardised CCFs for credit risk and other differences	4,751	(660)	-
Other	-	-	-
Regulatory exposure at default pre credit risk mitigation	40,274	5,382	-

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2 Capital

2.1 Capital management

The Risk management approach section of the 2019 Annual Report and Accounts sets out our approach to capital management (refer to section Capital and liquidity risk on pages 64 to 70 of the 2019 Annual Financial Statements)

2.2 Capital resources

All capital instruments included in the capital base meet the requirements set out in the CRR for their respective tier of capital.

For regulatory purposes, capital is categorised into two tiers, depending on the degree of permanence and loss-absorbency exhibited. These are Tier 1 and Tier 2 capital. The regulatory capital reconciles to the Annual Report and Accounts

2.3 Leverage ratio

The Branch is currently subject to a minimum leverage ratio of 4 per cent. The Branch's current leverage ratio of 8.8 per cent is well above the current minimum requirement. The quantitative disclosure for 31 December 2019 **LR1** Summary comparison of accounting assets compared to leverage ratio exposure and **LR2** Leverage ratio common disclosure template are included in the Quarterly Pillar 3 report for 31 December 2019.

2.4 Capital requirements

Pillar 1 and Pillar 2A CET1 requirements and the Combined Buffer requirement together represent the Branch's Maximum Distributable Amount threshold. The Branch will be subject to restrictions on discretionary distributions if the CET1 ratio falls below this threshold. The Branch expects to continue to operate with a prudent management buffer above this threshold.

The tables that presents the Branch's RWA and capital requirements (calculated as 11.5 per cent of RWA) is included in the Quarterly Pillar 3 report for 31 December 2019. The table that shows the significant drivers of credit risk, IRB RWA movements (excluding counterparty credit risk and standardised credit risk) from 1 January 2019 to 31 December 2019 is included in the Quarterly Pillar 3 report for 31 December 2019.

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Table 3: Composition of regulatory capital (CC1)

	2019 ZAR'million
Common Equity Tier 1 (CET1) capital: instruments and reserves	
Capital instruments and the related share premium accounts	4,054
Of which: Share premium accounts	-
Retained earnings	482
Accumulated other comprehensive income (and other reserves)	41
Non-controlling interests (amount allowed in consolidated CET1)	-
Independently reviewed interim and year-end profits/(loss)	450
Foreseeable dividends net of scrip	-
Common Equity Tier 1 capital before regulatory adjustments	**4,128**
Common Equity Tier 1 capital: regulatory adjustments	
Additional value adjustments	-
Intangible assets	(350)
Deferred tax assets that rely on future profitability	-
Fair value reserves related to gains or losses on cash flow hedges	-
Negative amounts resulting from the calculation of expected loss amounts	-
Gains or losses on liabilities at fair value resulting from changes in own credit	-
Defined-benefit pension fund assets	-
Fair value gains and losses from own credit risk related to derivative liabilities	-
Exposure amounts which could qualify for risk weight of 1250%	-
Of which: securitisation positions	-
Of which: free deliveries	-
Total regulatory adjustments to Common Equity Tier 1 capital	**(350)**
Common Equity Tier 1 capital	**3,778**
Additional Tier 1 (AT1) capital: instruments	
Capital Instruments and the related share premium accounts	-
Of which: classified as equity under applicable accounting standards	-
Of which: classified as liabilities under applicable accounting standards	-
Additional Tier 1 (AT1) capital before regulatory adjustments	-
Additional Tier 1 capital: regulatory adjustments	
Direct and indirect holdings by an institution of own Additional Tier 1 (AT1) instruments and subordinated loans	-
Total regulatory adjustments to Additional Tier 1 capital	-
Additional Tier 1 capital	**-**
Tier 1 capital (T1 = CET1 + AT1)	**3,778**
Tier 2 (T2) capital: instruments and provisions	
Capital instruments and the related share premium accounts	-
Qualifying items and the related share premium accounts subject to phase out from T2	-
Qualifying own funds instruments included in consolidated T2 issued by subsidiaries and held by third parties	-

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Tier 2 capital before regulatory adjustments	**-**
Tier 2 capital: regulatory adjustments	
Direct and indirect holdings by an institution of own Tier 2 instruments and subordinated loans	-
Reciprocal cross-holdings in Tier 2 instruments and other TLAC liabilities	-
Investments in the capital and other TLAC liabilities of banking, financial and insurance entities that are outside the scope of regulatory consolidation, where the bank does not own more than 10% of the issued common share capital of the entity (amount above 10% threshold)	-
Investments in the other TLAC liabilities of banking, financial and insurance entities that are outside the scope of regulatory consolidation and where the bank does not own more than 10% of the issued common share capital of the entity: amount previously designated for the 5% threshold but that no longer meets the conditions (for G-SIBs only)	-
Significant investments in the capital and other TLAC liabilities of banking, financial and insurance entities that are outside the scope of regulatory consolidation (net of eligible short positions)	-
Total regulatory adjustments to Tier 2 capital	**-**
Tier 2 capital (T2)	**-**
Total capital (TC = T1 + T2)	**3,778**
Total risk-weighted assets	**26,883**
Capital ratios and buffers	
Common Equity Tier 1 capital	**14.05%**
Tier 1 capital	**14.05%**
Total capital	**14.05%**
Institution specific buffer requirement (CET1 requirement in accordance with article 92 (1) (a) plus capital conservation and countercyclical buffer requirement, plus systematic risk buffer, plus systematically important intuition buffer expressed as a percentage of risk exposure amount.)	**2.50%**
Of which: capital conservation buffer requirement	2.50%
Of which: countercyclical buffer requirement	-
Of which systematic risk buffer requirement	-
Of which: Global systematically important institution (G-SII) or Other Systematically important institution (O-SII) buffer	-
Common Equity Tier 1 available to meet buffers (as percentage of risk exposure amount)	**6.17%**
Amounts below the thresholds for deduction (before risk weighting)	
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)	-
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)	-
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)	-
Applicable caps on the inclusion of provisions in Tier 2	
Provisions eligible for inclusion in Tier 2 in respect of exposures subject to standardised approach (prior to application of cap)	-
Cap on inclusion of provisions in Tier 2 under standardised approach	-
Provisions eligible for inclusion in Tier 2 in respect of exposures subject to internal ratings-based approach (prior to application of cap)	-
Cap for inclusion of provisions in Tier 2 under internal ratings-based approach	-
Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2018 and 1 Jan 2022)	-
Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	-
Current cap on AT1 instruments subject to phase-out arrangements	-
Amount excluded from AT1 due to cap (excess after redemptions and maturities)	-
Current cap on T2 instruments subject to phase-out arrangements	-
Amount excluded from T2 due to cap (excess after redemptions and maturities)	-

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3 Credit risk

3.1 Approach

Our approach to credit risk can be found in the Risk management approach section in the 2019 Annual Report and Accounts on Credit risk is the potential for loss due to the failure of a counterparty to meet its obligations to pay the Group. Credit exposures arise from both the banking and trading books.

Credit risk is managed through a framework that sets out policies and procedures covering the measurement and management of credit risk. The Credit Risk Function, as a second line control function, performs independent challenge, monitoring and oversight of the credit risk management practices of the Business and Functions engaged in or supporting revenue generating activities which constitute the First Line of defence.

Risk appetite is defined by the Group and approved by the Board. It is the maximum amount and type of risk that the Group is willing to assume in pursuit of its strategies. Credit exposure limits are approved within a defined credit approval authority framework.

The Group manages its credit exposures following the principle of diversification across products, geographies, client segments and industry sectors. The Branch uses the Advanced Internal Ratings Based (IRB) approach to calculate credit risk capital requirements with the approval of our regulator. This approach builds on the Group's risk management practices and is the result of a continuing investment in data warehouses and risk models.
Refer to Credit Risk (pages 53 to 62) in the 2019 Annual Financial Statements where we describe the main components of credit risk management, including our credit risk profile, credit risk measurement and policies set in line with risk appetite.

Internal Ratings Based Approach (IRB) to credit risk

The Branch uses the Advanced IRB approach to measure credit risk for its portfolios. This allows the Branch to use internal estimates of Probability of Default (PD), Loss Given Default (LGD), and EAD to determine an asset risk-weighting.

PD is the likelihood that an obligor will default on an obligation within the next 12 months. Banks utilising the IRB approach must assign an internal PD to all borrowers.

EAD is the expected amount of exposure to a particular facility at the point of default; it is modelled based on historical experience to determine the amount that is expected to be further drawn down from the undrawn portion of a facility.

LGD is the percentage of EAD that a lender expects to lose in the event of obligor default.

EAD and LGD are measured based on expectation in economic downturn periods, if these are more conservative than the long-run average. All assets under the IRB approach have internal PD, LGD and EAD models developed to support the credit decision making process. RWA under the IRB approach is determined by regulatory specified formulae dependent on the estimates of residual maturity, PD, LGD and EAD. The development, use and governance of Corporate and Institutional Banking (CIB), Commercial Banking (CB) and Retail Banking models under the IRB approach are covered in more detail below.

Internal Ratings Based models
Model Governance
All IRB models are developed by Enterprise Risk Analytics (ERA). Both new and existing models, as well as changes to the existing models, are subject to independent validation by Group Model Validation (GMV) and are reviewed and approved by the Credit Model Assessment Committee (CMAC) and the Model Risk Committee (MRC) based on materiality. ERA and GMV are separate departments within Group Risk. The Model Risk and Stress Testing Oversight team (MRO) was established in 2018 to provide independent oversight of model risk management.

The performance of existing IRB models, including actual against predicted metrics, is monitored regularly by ERA and reported to CMAC on a quarterly basis. MRO independently reviews model performance monitoring results based on applicable standards. In addition, existing models are subject to annual independent validation by GMV. The CMAC sets out internal standards for model development, validation and performance monitoring. The Board Risk Committee is updated on the status and performance of IRB models on an annual basis. Rating overrides are tracked, and threshold breaches are escalated to the relevant risk management committees, and model issues are tracked at CMAC. An annual self-assessment of IRB models' regulatory compliance is carried out as part of the Senior Management Function attestation. Group Internal Audit is responsible for carrying out independent audit reviews of IRB models' development, validation, approval and monitoring.

Probability of Default
PDs are estimated based on one of three industry standard approaches, namely the good-bad approach where a sufficient number of internal defaults is available, the shadow-bond approach where there are no sufficient internal defaults but there are external ratings for a large number of obligors, or the constrained expert judgement approach where neither internal defaults nor external ratings are available. In CIB and CB, the largest portfolios are rated based on the shadow bond approach (Sovereigns, Banks, Large Corporates) or the good-bad approach (Mid Corporates). Central governments and central banks are rated using the Sovereign model. Non-bank financial institutions are rated using one of six constrained expert judgement models depending on their line of business, with the largest being Funds, Finance & Leasing, and Broker Dealers. Corporate clients are differentiated by their annual sales turnover and rated using one of

the corporate models, unless they are commodity traders (for which a separate model has been developed) or are classified under specialised lending.

Excluding the Sovereign model, the CIB and CB IRB PD models are subject to the 0.03 per cent regulatory floor. Within CIB and CB, each client is assigned a credit grade and exposures to each client or client group are aggregated consistently with the regulatory Large Exposures requirements. CIB and CB PD models are calibrated following a through-the-cycle rating philosophy based on historical data that includes a full economic cycle.
Estimates of PD are computed as of 1 January 2019 and are compared with default observations through 31 December 2019.

Our historical default experience for institutions, central governments or central banks is minimal, so the predicted PD reflects a particularly low number of defaults. We experienced no defaults for government or the central bank during 2019. The actual default rates for institutions and corporate exposures in 2019 remained below IRB model predictions as at the beginning of 2019, based on the arithmetic average PD by obligors. PD models for retail clients under each asset class are developed based on a combination of product and geography following the good-bad approach.

The same PD modelling approach is taken for the Retail Home Loan portfolio. The approach is based on using the country and product specific application scores for new to bank clients and behaviour scores for existing clients. The scorecards are built using demographic information, financial information, observed client performance data (for behaviour scores), and where available, credit bureau data. Statistical techniques are used to develop a relationship between this information and the probability of default. The scorecards are used to make credit decisions. In addition, the PD models are segmented by delinquency status. All retail client PD models are built and validated using internal default data and are subject to the 0.03 per cent regulatory floor. The actual default rates for the 'Residential mortgages', 'Qualifying revolving retail' and 'Other retail' asset classes remained below the model predictions, based on the arithmetic average PD by obligors, but actual default rates were above model predictions for the 'Retail SME' asset class.

Loss Given Default
The CIB and CB LGD model is a parameter based model reflecting the Bank's recovery and workout process, which takes into account risk drivers such as portfolio segment, product, credit grade of the obligor and collateral attached to the exposure. The model is calibrated based on downturn experience, if that is more conservative than the long-run experience. Regulatory floors are applied to unsecured LGD for sovereign and financial institutions exposures, and to fully secured facilities (except if secured by cash). This is in accordance with the PRA's low-default framework which states that where there are insufficient defaults to estimate a parameter at granular level an LGD floor must be applied.

The calculation of realised versus predicted LGD is affected by the fact that it may take a number of years for the workout process to be completed. As such, an observed recovery value cannot be assigned to the majority of the 2019 defaults, making it meaningless to compare realised versus predicted outcomes in a manner similar to that for PD and EAD.

To address this for corporate and institutions we have adopted an approach based on a four-year rolling period of predicted and realised LGD, which for the current reporting year includes 2016 to 2019 defaults that have completed their workout process as at the end of 2019. This approach compares the four-year rolling predicted LGD, providing the predicted outcome of these resolved defaults one year prior to default, against the realised LGD for the same set of defaults. These two figures are fully comparable, thereby providing a meaningful assessment of the LGD model's performance.

Under this approach, realised LGD values for corporates are lower than the predicted. This is explained by the regulatory guidance to calibrate LGD models to downturn conditions. There were no defaults in the previous four years for central governments and central banks. LGD for institutions reflects one completed workout during the four-year rolling period for which actual loss was significantly below predicted loss.

LGDs for retail portfolios follow two approaches:
(i) LGDs for unsecured products are based on historical loss experience of defaults during a downturn; these are portfolio specific LGD estimates segmented by default status (including restructuring)
(ii) LGDs for secured products are parameter based estimates mainly driven by how the default is resolved (cure, sale or charge off).
Key LGD parameters are differentiated by segments such as loan-to-value, property type and default status. These parameters are calibrated based on the portfolio's downturn experience.

Retail LGD model development considers defaults from a cohort and the actual recoveries up to the end of the workout window which is typically two to three years. For retail asset classes, the observed LGD from the December 2016 cohort (existing defaults and those defaulted in the next 12 months) was calculated based on actual recoveries observed from January 2017 until December 2019. This is compared to the predicted outcome of the same set of defaults.

Under this approach, realised LGD values for all retail asset classes are lower than predicted, primarily due to the regulatory guidance to calibrate LGD models to downturn conditions. This is most evident in the mortgage portfolios, where predicted LGD values include a significant assumed reduction in property values.

Exposure at Default
EAD takes into consideration the potential drawdown of a commitment as an obligor moves towards default by estimating the Credit Conversion Factor (CCF) of undrawn commitments.

EAD for corporate and institutional clients is determined on a global basis, while the commercial and retail EAD is dependent on the combination of country and product. The corporate and institutional EAD model has adopted the momentum approach to estimate the CCF, with the type of facility and the level of utilisation being key drivers of CCF. The model is calibrated based on the Bank's internal downturn experience and floored at 0 per cent.
EAD for term products is set at the outstanding balance plus any undrawn portion Retail client EAD models are built and validated using internal default data. The comparison of realised versus predicted EAD is summarised in the ratio of EAD of assets that defaulted in 2019 to the outstanding amount at time of default. The ratios for all models are larger than one, indicating that the predicted EAD is higher than the realised outstanding amount at default. This is explained by the regulatory guidance to assign conservatism to the CCF of certain exposure types and to calibrate the models to downturn conditions, as well as by the impact of management action leading to a reduction in actual exposure prior to default.
The Group has a strong monitoring and governance framework in place to identify and mitigate model performance issues. While most models are conservative and over predict PD, LGD and EAD, in cases where the models under predict, a post model adjustment may be taken to ensure adequate capitalisation, in addition to having a remediation plan in place. The estimates provided in the tables are before the application of any conservative adjustment.

Exposure values
The following tables detail the EAD (including counterparty risk) before the effect of collateral but after the effect of substitution, broken down by industry.
For credit risk exposures, EAD is based on the current outstanding exposure and accrued interest and fees, which are recognised in the balance sheet in accordance with IFRS, and a proportion of the undrawn component of the facility. The amount of the undrawn facility included is dependent on the product type and for IRB exposure classes this amount is modelled internally.

Table 4: Credit quality of exposures by exposure class and instruments (CR1)

	2019			
	Carrying value of			
	Defaulted exposures	Non-defaulted exposures	Allowances /Impairments	Net values
	ZAR'million	ZAR'million	ZAR'million	ZAR'million
Loans	74	22,357	200	22,231
Debt securities	-	9,761	-	9,761
Off-balance sheet exposures	-	9,005	-	9,005
Total	74	41,123	200	40,997

Table 5: Changes in the stock of general and specific credit risk adjustments (CR2)

	2019
	Gross carrying value of defaulted exposures
	ZAR'million
Opening balance	601
Loans and debt securities that have defaulted or impaired since the last reporting period	389
Returned to non-defaulted status	-
Amounts written off	-
Other changes	(468)
Closing balance	522

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Table 6: Exposure at default by geography (CRB-A)

	2019		
	Exposure ZAR'million	RWA ZAR'million	Capital ZAR'million
South Africa	32,396	19,743	2,270
Other African countries	606	377	43
Europe	6,948	1,267	146
Asia	133	27	3
North America	154	71	8
South America	-	-	-
Other	38	2	0
As at 31 Dec	40,274	21,487	2,471

Table 7: Exposure at default by industry (CRB-B)

	2019		
	Exposure ZAR'million	RWA ZAR'million	Capital ZAR'million
Agriculture, hunting, forestry and fishing	278	120	14
Mining and quarrying	1,366	213	24
Manufacturing	3,640	3,508	403
Electricity, gas and water supply	809	1,248	144
Construction	800	223	26
Wholesale and retail trade, repair of specified items, hotels and restaurants	-	-	-
Transport, storage and communication	808	413	47
Financial intermediation and insurance	21,949	10,190	1,172
Real estate	304	321	37
Business services	-	-	-
Community, social and personal services	-	-	-
Private households	-	-	-
Other	10,319	5,251	604
As at 31 Dec 2019	40,274	21,487	2,471

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Table 8: Exposure at default by maturity (CRB-C)

	2019			
	Less than 1 year ZAR'million	Between 1 to 5 years ZAR'million	Over 5 years ZAR'million	Total ZAR'million
Corporate	13,181	2,571	865	16,616
Public sector entities	-	-	-	-
Sovereign	9,185	673		9,857
Banks	9,017	4,229	554	13,800
As at 31 Dec 2019	31,382	7,472	1,420	40,274

3.2 Credit risk mitigation

Our approach to credit risk mitigation can be found in the Risk management approach section of the 2019 Annual Financial Statements on page 55.

Table 9: Credit risk mitigation techniques – overview (CR3)

	2019						
	Exposures unsecured: carrying amount ZAR'million	Exposures secured by collateral ZAR'million	Exposures secured by collateral of which: secured amount ZAR'million	Exposures secured by financial guarantees ZAR'million	Exposures secured by financial guarantees: secured amount ZAR'million	Exposures secured by credit derivatives ZAR'million	Exposures secured by credit derivatives: secured amount ZAR'million
Loans	22,431	-	-	-	-	-	-
Debt securities	9,761	-	-	-	-	-	-
Total	32,192	0	0	-	-	-	-
Of which defaulted	2,244	-	-	-	-	-	-

Table 10: IRB – Backtesting of probability of default central governments or central (PD) (CR9)

		2019						
				Number of obligors				
PD Range %	External Rating equivalent (S&P)	Weighted average PD (prior year) %	Arithmetic average PD by obligors (prior year) %	31 December 2018	31 December 2019	Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate %
		0.22	0.22	1	1	-	-	-
0.00 to <0.15	AAA to BBB-			-	-			
0.15 to <0.25	BBB,BBB-			1	-			
0.25 to <0.50	BBB-,BB+, BB			-	1			
0.50 to <0.75	BB+,BB			-	-			
0.75 to <2.50	BB,BB-,B+,B			-	-			
2.50 to <10.00	B,B-,CCC, C			-	-			
10.00 to <100.00	CCC, C			-	-			
100.00 (default)	D			-	-			

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Table 10: IRB – Backtesting of probability of default institutions (PD) (CR9)

		2019						
				Number of obligors				
PD Range %	External Rating equivalent (S&P)	Weighted average PD (prior year) %	Arithmetic average PD by obligors (prior year) %	31 December 2018	31 December 2019	Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate %
		0.15	0.13	32	36	-	-	-
0.00 to <0.15	AAA to BBB-			14	12			
0.15 to <0.25	BBB,BBB-			6	9			
0.25 to <0.50	BBB-,BB+, BB			2	1			
0.50 to <0.75	BB+,BB			1	7			
0.75 to <2.50	BB,BB-,B+,B			5	4			
2.50 to <10.00	B,B-,CCC, C			2	2			
10.00 to <100.00	CCC, C			2	-			
100.00 (default)	D			-	-			

Table 10: IRB – Backtesting of probability of default corporates (PD) (CR9)

		2019						
				Number of obligors				
PD Range %	External Rating equivalent (S&P)	Weighted average PD (prior year) %	Arithmetic average PD by obligors (prior year) %	31 December 2018	31 December 2019	Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate %
		8.26	9.8	176	160	10	6	8.2
0.00 to <0.15	AAA to BBB-			36	33			
0.15 to <0.25	BBB,BBB-			41	15			
0.25 to <0.50	BBB-,BB+, BB			30	54			
0.50 to <0.75	BB+,BB			6	8			
0.75 to <2.50	BB,BB-,B+,B			12	13			
2.50 to <10.00	B,B-,CCC, C			4	3			
10.00 to <100.00	CCC, C			34	27			
100.00 (default)	D			10	6			

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3.3 Risk grade profile

Exposures by internal credit grading

For CIB and CB IRB portfolios an alphanumeric credit risk-grading system is used. The grading is based on the Group's internal estimate of probability of default over a one-year horizon, with customers or portfolios assessed against a range of quantitative and qualitative factors. The numeric grades run from 1 to 14 and some of the grades are further sub-classified. Numerically lower credit grades are indicative of a lower likelihood of default. Credit grades 1 to 12 are assigned to performing customers and credit grades 13 and 14 are assigned to non-performing or defaulted customers. The Group's credit grades in CIB and CB are not intended to replicate external credit grades, and ratings assigned by external credit assessment institutions (ECAI) are not used in determining internal credit grades. Nonetheless, as the factors used to grade a borrower may be similar, a borrower rated poorly by an ECAI is typically expected to be assigned a weak internal credit grade.

IRB models cover a substantial majority of the Group's exposures and are used extensively in assessing risks at customer and portfolio level, setting strategy and optimising the Group's risk-return decisions. The Group makes use of internal risk estimates of PD, LGD and EAD in the areas of:

- Credit Approval and Decision – In CIB and CB, the level of authority required for the sanctioning of credit requests and the decision made is based on a combination of PD, LGD and EAD of the obligor with reference to the nominal exposure.
- Pricing – In CIB and CB, a pre-deal pricing calculator, which takes into consideration PD, LGD and EAD in the calculation of expected loss and risk-weighted assets, is used for the proposed transactions to ensure appropriate returns.
- Limit Setting – In CIB and CB, single name concentration limits are determined by PD, LGD and EAD. The limits operate on a sliding scale to ensure that the Group does not have an excessive concentration of low credit quality assets.

The table below demonstrates the internal ratings and the approximate relation to external credit ratings.

Table 11: Internal default grade probabilities and mapping to external ratings

Credit Grade	PD range (%)	S & P Ratings, Sovereigns and institutions	S & P Ratings, Corporates
1A	0.000 - 0.015	AAA,AA+	AAA/AA+
1B	0.016 - 0.025	AA	AA
2A	0.026 - 0.035	AA-	AA-
2B	0.036 - 0.045	AA-/A+	A+
3A	0.046 - 0.060	A+	A
3B	0.061 - 0.083	A/A-	A-
4A	0.084 -0.110	BBB+	BBB+
4B	0.111 - 0.170	BBB	BBB
5A	0.171 - 0.300	BBB-	BBB-
5B	0.301 - 0.425	BB+	BB+
6A	0.426 - 0.585	BB	BB
6B	0.586 - 0.770	BB/BB-	BB/BB-
7A	0.771 - 1.020	BB-	BB-
7B	1.021 - 1.350	BB-	BB-/B+
8A	1.351 - 1.750	BB-/B+	B+
8B	1.751 - 2.350	B+	B+/B
9A	2.351 - 3.050	B+/B	B
9B	3.051 - 4.000	B	B/B-
10A	4.001 - 5.300	B/B-	B-
10B	5.301 - 7.000	B-	B-/CCC
11A/B/C	7.001 - 15.750	B-/CCC/C	B-/CCC
12A/B/C	15.751 - 99.999	CCC/C	CCC/C
13	100	N/A	N/A
14	100	N/A	N/A
Unrated		N/A	N/A

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Table 12: IRB credit risk exposure by internal PD grade for central governments or central (CR6)

PD range	Original on-balance sheet exposure	Off-balance sheet exposure pre CCF	Average CCF	EAD post CRM and post CCF	Average PD[1]	Number of obligors[2]	Average LGD[1]	Average maturity[1]	RWA	RWA density[1]	Expected loss
%	ZARmillion	ZARmillion	%	ZARmillion	%	thousands	%	years	ZARmillion	%	ZARmillion
0.00 to <0.15	-	-	-	-	-	-	-	-	-	-	-
0.15 to <0.25	-	-	-	-	-	-	-	-	-	-	-
0.25 to <0.50	9,857	-	-	9,857	0.39	1.00	0.45	0.71	4,956	0.50	17
0.50 to <0.75	-	-	-	-	-	-	-	-	-	-	-
0.75 to <2.50	-	-	-	-	-	-	-	-	-	-	-
2.50 to <10.00	-	-	-	-	-	-	-	-	-	-	-
10.00 to <100.00	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-
Total	9,857	-	-	9,857	0.39	1.00	0.45	0.71	4,956	0.50	17

Table 13: IRB credit risk exposure by internal PD grade for institutions (CR6)

PD range	Original on-balance sheet exposure	Off-balance sheet exposure pre CCF	Average CCF	EAD post CRM and post CCF	Average PD[1]	Number of obligors[2]	Average LGD[1]	Average maturity[1]	RWA	RWA density[1]	Expected loss
%	ZARmillion	ZARmillion	%	ZARmillion	%	ZARmillion	%	years	ZARmillion	%	ZARmillion
0.00 to <0.15	6,461	374	99	6,834	0.0%	12	47%	0.89	26	0%	0
0.15 to <0.25	119	-	-	119	0.2%	1	45%	0.75	52	43%	0
0.25 to <0.50	5,165	870	100	6,035	0.5%	9	31%	0.36	3,630	60%	11
0.50 to <0.75	22	-	-	22	0.7%	1	27%	0.16	2	8%	0
0.75 to <2.50	142	49	100	190	1.3%	7	32%	0.50	105	55%	1
2.50 to <10.00	0	37	100	38	5.3%	4	15%	0.91	13	36%	0
10.00 to <100.00	-	8	100	8	19.7%	2	24%	0.00	6	76%	0
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-
Total	11,908	1,338	99	13,246	0.18%	36	42%	0.71	3,834	29%	12

Table 14: IRB credit risk exposure by internal PD grade for Corporates (CR6)

PD range	Original on-balance sheet exposure	Off-balance sheet exposure pre CCF	Average CCF	EAD post CRM and post CCF	Average PD[1]	Number of obligors[2]	Average LGD[1]	Average maturity[1]	RWA	RWA density[1]	Expected loss
%	ZARmillion	ZARmillion	%	ZARmillion	%	thousands	%	years	ZARmillion	%	ZARmillion
0.00 to <0.15	1,590	1,020	91	2,610	32.31%	33	16%	2.69	778	30%	1
0.15 to <0.25	340	48	55	389	0.22%	15	32%	2.78	166	43%	0
0.25 to <0.50	6,169	4,464	9	10,713	0.41%	54	26%	1.24	4,332	40%	16
0.50 to <0.75	(0)	500	63	416	0.67%	8	24%	1.84	145	35%	1
0.75 to <2.50	727	180	57	907	26.40%	13	1%	0.36	809	89%	6
2.50 to <10.00	57	86	100	143	43.27%	4	2%	0.29	125	87%	2
10.00 to <100.00	539	599	73	1,386	47.42%	23	52%	0.69	3,014	217%	109
100.00 (default)	(1)	745	16	616	100%	10	30%	0.53	3,689	599%	139
Total	9,421	7,641	37	17,179	21%	160	25%	1.23	13,057	0.76	274

3.4 Credit risk mitigation

Our approach to credit risk mitigation can be found in the Risk management approach section of the 2019 Annual Financial Statements on page 55. No CRM was recognised during the period thus **CCR5** composition of collateral for CCR exposure and Credit risk mitigation techniques **CR3** has not been disclosed.

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4 Traded risk

4.1 Market risk

Interest rate risk from non-trading book portfolios is transferred to local Treasury Markets desks under the supervision of Asset and Liability Committees. Treasury Markets deals in the market in approved financial instruments in order to manage the net interest rate risk, subject to approved Value at Risk (VaR) and risk limits.
The primary categories of market risk for the Branch are:

- Interest rate risk: arising from changes in yield curves, credit spreads and implied volatilities on interest rate options
- Foreign exchange rate risk: arising from changes in exchange rates and implied volatilities on foreign exchange options

Trading book
The Trading book contains positions held with trading intent or hedges for such positions. The Traded Risk Framework sets out the Branch's standard systematic approach to risk managing market risk. The Trading Book Policy Statement identifies the policies and procedures determining the positions included in the Trading book and their risk management and valuation. All trading book desks are subject to market risk limits. Traded Risk Management, an independent risk control function, monitors the limits and reports daily to senior management.

Valuation framework
Valuation of financial assets and liabilities held at fair value is subject to an independent review by Valuation Control within the Finance function. For those financial assets and liabilities whose fair value is determined by reference to externally quoted prices or market observable pricing inputs or to a valuation model, an assessment is made by Valuation Control against external market data and consensus services. Valuation Control also ensures adherence to the valuation adjustment policies to incorporate bid/ask spreads, model risk and other reserves, and, where appropriate, to mark all positions in accordance with prevailing accounting and regulatory guidelines. The Valuation and Benchmarks Committee (VBC), a sub-committee of the Corporate, Commercial and Institutional Banking Risk Committee, provides oversight and governance of all financial markets valuation adjustments and price testing policies and reviews the results of the valuation control process on a monthly basis. In addition, the VBC also provides governance over the Group's benchmark rates review process.

Management VaR
Management VaR is one of the tools used by management to monitor the total market risk within the trading and banking books.

Stressed VaR
Stressed VaR uses a one-year historical observation period from a stressed period relevant to the trading book portfolio. Stressed VaR uses a one-year historical observation period (260 business days). Stress shocks are typically, but not exclusively, based on market stresses observed within the last ten years overlaid by management judgment.

Stress testing
Group-wide stress testing is performed to measure the potential loss on a portfolio of financial positions due to low probability market events or risk to the Group posed by a breakdown of risk model assumptions. Stress testing supplements the use of VaR as the primary measure of risk. The roles and responsibilities of the various business functions are set out in the Traded Risk Stress Testing standard.

Table 15: Market risk under standardised approach (MR1)

	2019	
	Risk Weighted Assets ZARmillion	Regulatory capital requirement ZARmillion
Outright products		
Interest rate risk	2	0
Equity risk	-	-
Foreign exchange risk	5	1
Commodity risk	-	-
Options		
Simplified approach	-	-
Delta-plus method	-	-
Scenario approach	-	-
Securitisation (specific risk)	-	-
Total	7	1

4.2 Counterparty credit risk

Counterparty credit risk (CCR) is the risk that a counterparty in a foreign exchange, interest rate, commodity, equity or credit derivative or repo contract defaults prior to the maturity date of the contract, and that the Group at the time has a claim on the counterparty.
CCR arises predominantly in the trading book, but also arises in the non-trading book when hedging with external counterparties is required.
CCR is managed within the overall credit risk appetite for corporate and financial institutions. CCR limits are set for individual counterparties, including central clearing counterparties, and for specific portfolios.
Individual limits are calibrated to the credit grade and business model of the counterparties, and are set on Potential Future Exposure (PFE). Portfolio limits are set to contain concentration risk across multiple dimensions, and are set on PFE or other equivalent measures.
The Branch reduces its credit exposures to counterparties by entering into contractual netting agreements which result in a single amount owed by or to the counterparty. The amount is calculated by netting the Mark-To-Market (MTM) owed by the counterparty to the Branch and the MTM owed by the Branch to the counterparty on the transactions covered by the netting agreement

Wrong-way risk
Wrong-way risk occurs when an exposure increase is coupled with a decrease in the credit quality of the obligor. Specifically, as the MTM on a derivative or repo contract increases in favour of the Branch, the driver of this MTM change also reduces the ability of the counterparty to meet its payment, margin call or collateral posting requirements.
Wrong-way risk mostly arises from FX transactions and financing transactions. The Branch employs various policies and procedures to ensure that wrong-way risk exposures are recognised upfront, monitored, and where required, contained by limits on country, tenor, collateral type and counterparty.

Stress testing
Stress testing is an integral part of CCR management, complementing PFE or other portfolio limits. Single and multi-factor scenarios are regularly applied to the CCR portfolio to identify and quantify exposures that could become a concern for the Group.
The stressed exposures are monitored monthly at regional and global counterparty credit risk exposure forums. The relevance and severity of the stress scenarios are periodically reviewed with cross functional stakeholders.

Exposure value calculation
Exposure calculation used for risk management is based on PFE. The PFE is mostly calculated from simulation models, and from PFE add-ons for the non-simulated products. Derivatives exposures are calculated using the Mark-to-Market Method. Individual transactions are measured using the sum of current replacement cost and potential future credit exposure, and the benefit of master netting agreements is applied using the Net-Gross Ratio.

Exposure for repurchase transactions and securities lending or borrowing transactions is calculated using the Financial Collateral Comprehensive Method. Supervisory volatility adjustments are applied to both collateral and exposure legs and the benefit of master netting agreements is taken into consideration.

The Branch has credit policies and procedures setting out the criteria for collateral to be recognised as a credit risk mitigant, including requirements concerning legal certainty, priority, concentration, correlation, liquidity and valuation parameters such as frequency of review and independence. The Branch seeks to negotiate Credit Support Annexes (CSA) with counterparties when collateral is deemed a necessary or desirable mitigant to the exposure. The credit terms of a CSA are specific to each legal document and determined by the credit risk approval unit responsible for the counterparty. The nature of the collateral is specified in the legal document and is typically cash or highly liquid securities.
The MTM of all trades captured under CSAs is calculated daily. Additional collateral will be called from the counterparty if total uncollateralised MTM exposure exceeds the threshold and minimum transfer amount specified in the CSA. Additional collateral may be required from the counterparty to provide an extra buffer to the daily variation margin process.
The Group also has policies and procedures in place setting out the criteria for guarantees to be recognised as a credit risk mitigant.
Where guarantees meet regulatory criteria, the Group treats the exposure as guarantor risk from counterparty credit risk capital standpoint.

Credit valuation adjustments
CVA measures potential MTM loss associated with the deterioration in the creditworthiness of the counterparty. The branch applies standardised approach to calculate CVA capital charge on over-the counter derivative contracts.

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Table 16: Analysis of counterparty credit risk (CCR) exposure by approach (CCR1)

	2019					
	Replacement cost/current market value ZAR'million	Potential future exposure ZAR'million	EEPE ZAR'million	Multiplier ZAR'million	EAD post CRM ZAR'million	RWA ZAR'million
SA-CCR	-	-		-	-	-
IMM (for derivatives and SFTs)			-	-	3,993	2,244
Financial collateral simple method (for SFTs)					-	-
Comprehensive Approach for credit risk mitigation (for SFTs)					-	-
VaR for SFTs					-	-
Total						2,244

Table 17: Credit valuation adjustment (CVA) capital charge (CCR2)

	2019	
	Exposure Value	RWA
	R'000	R'000
Total portfolios subject to the Advanced Method	-	-
(i) VaR component (including the 3x multiplier)	-	-
(ii) Stressed VaR component (including the 3x multiplier)	-	-
All portfolios subject to the Standardised Method	1,358	1,390
Total subject to the CVA capital charge	1,358	1,390

Table 18: IRB - CCR exposures by PD scale for central governments or central banks (CCR4)

	2019						
PD scale	EAD post-CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
%	Zar'million	%		%	years	ZAR'million	%
0.00 to <0.15	-	-	-	-	-	-	-
0.15 to <0.25	-	-	-	-	-	-	-
0.25 to <0.50	68	39%	1	45%	0.21	33	48%
0.50 to <0.75	-	-	-	-	-	-	-
0.75 to <2.50	-	-	-	-	-	-	-
2.50 to <10.00	-	-	-	-	-	-	-
10.00 to <100.00	-	-	-	-	-	-	-
100.00 (Default)	-	-	-	-	-	-	-
Total	68	39%	1	45%	0.21	33	48%

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Table 19: IRB - CCR exposures by PD scale for institutions (CCR4)

	2019						
PD scale	EAD post-CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
%	Zar'million	%		%	years	ZAR'million	%
0.00 to <0.15	2,078	81%	3	45%	0.41	447	22%
0.15 to <0.25	-	-	-	-	-	-	-
0.25 to <0.50	-	-	-	-	-	-	-
0.50 to <0.75	48	51%	1	30%	0.28	12	25%
0.75 to <2.50	626	135%	2	36%	0.08	2	0%
2.50 to <10.00	-	-	-	-	-	-	-
10.00 to <100.00	-	-	-	-	-	-	-
100.00 (Default)	-	-	-	-	-	-	-
Total	2,753	42%	6	50%	0.53	461	17%

Table 20: IRB - CCR exposures by PD scale for corporates (CCR4)

PD scale	EAD post-CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density
%	Zar'million	%		%	years	ZAR'million	%
0.00 to <0.15	123	8%	13	50%	0.30	382	310%
0.15 to <0.25	89	22%	5	59%	0.65	44	49%
0.25 to <0.50	672	45%	14	53%	1.37	622	93%
0.50 to <0.75	56	67%	3	42%	0.56	48	85%
0.75 to <2.50	139	9%	16	54%	0.43	429	309%
2.50 to <10.00	-	-	-	-	-	-	-
10.00 to <100.00		-	-	-	-	-	-
100.00 (Default)	9	100%	1	44%	1.16	46	516%
Sub-total	1,088	142%	52	50%	0.53	1,571	144%

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5 Interest rate risk in the banking book

The Group defines Interest Rate Risk in the Banking Book ('IRRBB') as the potential for loss of future earnings or economic value following adverse movements in interest rates, which arises from a mismatch in the re-pricing profile of assets, liabilities, and off-balance sheet items in the banking book. This risk is incorporated in the Capital and Liquidity Risk Type Framework, as a risk sub-type of Capital and Liquidity Risk.

The Board delegates the management of IRRBB to the Group Asset & Liability Committee (GALCO), which in turn mandates the Country ALCOs and the Group's Operational Balance Sheet Committee (OBSC) to monitor IRRBB as per the risk type framework.

IRRBB is managed at a country level by the Country ALCO, chaired by the Country CEO, and is independently monitored by Treasury Risk.

Interest rate risk from non-trading book portfolios is transferred to local Treasury Markets desks under the supervision of Country ALCO. Treasury Markets deals in the market in approved financial instruments in order to manage the net interest rate risk, subject to approved Value at Risk (VaR) and risk limits.
The primary categories of market risk for the Branch are:

- Interest rate risk: arising from changes in yield curves, credit spreads and implied volatilities on interest rate options
- Foreign exchange rate risk: arising from changes in exchange rates and implied volatilities on foreign exchange options

Trading book
The Trading book contains positions held with trading intent or hedges for such positions. The Traded Risk Framework sets out the Branch's standard systematic approach to risk managing market risk. The Trading Book Policy Statement identifies the policies and procedures determining the positions included in the Trading book and their risk management and valuation. All trading book desks are subject to market risk limits. Traded Risk Management, an independent risk control function, monitors the limits and reports daily to senior management.

Valuation framework
Valuation of financial assets and liabilities held at fair value is subject to an independent review by Valuation Control within the Finance function. For those financial assets and liabilities whose fair value is determined by reference to externally quoted prices or market observable pricing inputs or to a valuation model, an assessment is made by Valuation Control against external market data and consensus services. Valuation Control also ensures adherence to the valuation adjustment policies to incorporate bid/ask spreads, model risk and other reserves, and, where appropriate, to mark all positions in accordance with prevailing accounting and regulatory guidelines. The Valuation and Benchmarks Committee (VBC), a sub-committee of the Corporate, Commercial and Institutional Banking Risk Committee, provides oversight and governance of all financial markets valuation adjustments and price testing policies and reviews the results of the valuation control process on a monthly basis. In addition, the VBC also provides governance over the Group's benchmark rates review process.

Management VaR
Management VaR is one of the tools used by management to monitor the total market risk within the trading and banking books.

Stressed VaR
Stressed VaR uses a one-year historical observation period from a stressed period relevant to the trading book portfolio. *Stressed VaR uses a one-year historical observation period (260 business days). Stress shocks are typically, but not exclusively, based on market stresses observed within the last ten years overlaid by management judgment.*

Stress testing
Group-wide stress testing is performed to measure the potential loss on a portfolio of financial positions due to low probability market events or risk to the Group posed by a breakdown of risk model assumptions. Stress testing supplements the use of VaR as the primary measure of risk. The roles and responsibilities of the various business functions are set out in the Traded Risk Stress Testing standard.

More details on NII sensitivity can be found in the 2019 Group Annual Reports and Accounts on page 204.

Table 21: Exposures to interest rate risk in the Banking Book

	2019
	ZARmillion
Exposure to interest rate risk in the Banking Book	
NII sensitivity1	
2% instantaneous increase in interest rates	8
2% instantaneous decline in interest rates	(8)
EVE sensitivity2	
2% instantaneous increase in interest rates	418
2% instantaneous decline in interest rates	(418)

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6 Operational Risk

We define operational risk as the potential for loss resulting from inadequate or failed internal processes, and systems, human error, or from the impact of external events (including legal risk). Non-financial risks are managed through the Control Assessment Standards which are used to determine the design strength and reliability of the Group's processes. The Group aims to control operational risks to ensure that operational losses (financial or reputational), do not cause material damage to the Group's franchise. The Group and the Branch applies the Standardised Approach for measuring the capital requirements for operational risk. For risk-weighted assets and capital requirements resultant from operational risk, refer to table 20 on page 21 and to pages 239 of the 2019 Group Annual Report and Accounts.

Table 22: Operational Risk RWA

	2019	
	ZAR'millions	
	RWA's	Capital Required
At 31 December	2,886	331

6 Liquidity Risk

Liquidity Risk as the risk that we may not have sufficient stable or diverse sources of funding to meet our obligations.

The Branch should maintain a strong capital position including the maintenance of management buffers sufficient to support its strategic aims and hold an adequate buffer of high-quality liquid assets to survive extreme but plausible liquidity stress scenarios for at least 90 days without recourse to extraordinary central bank support

The Treasurer is responsible for developing a Risk Type Framework for Capital and Liquidity Risk and for complying with regulatory requirements at a Group level. In country, the Treasurer is supported by Treasury and Finance in implementing the Capital and Liquidity Risk Type Framework. The Branch Capital and Liquidity RTF CA is owned by the CFO who together with the Liquidity Risk Function form the second line of defence, provide independent challenge and oversight of the first line risk management activities relating to Liquidity Risk.

The Group develops policies to address material Liquidity risks. Metrics are set against Liquidity and Funding Risk to maintain the Branch's risk profile within its Risk Appetite. Risk Appetite metrics are established in the form of limits and management action triggers. We implement various business-as-usual and stress risk metrics and monitor these against limits and management action triggers. This ensures that the Branch maintains an adequate and well-diversified liquidity buffer as well as a stable funding base, and that it meets its liquidity and funding regulatory requirements.

The Net Stable Funding Ratio (NSFR) **LIQ2** and Liquidity Coverage Ratio **LIQ1** as at 31 December 2019 is included in the Quarterly 31 December 2019 Pillar 3 disclosure.

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7 Remuneration

The Remuneration Committee has oversight of all reward policies for Standard Chartered employees. It is responsible for setting the principles and governance framework for all compensation decisions.

The Bank's remuneration is directly linked to the Standard Chartered PLC design and operation structure and frequency of review.

Table 23: Remuneration awarded during the financial year (REM1)

			a	b
	Remuneration amount ZAR'million		Senior management	Other material risk-takers
1	Fixed remuneration	Number of employees #	12	4
2		Total fixed remuneration (3 + 5 + 7)	**38**	**27**
3		Of which: cash-based	38	22
4		Of which: deferred	-	-
5		Of which: shares or other share-linked instruments	-	-
6		Of which: deferred	-	-
7		Of which: other forms	-	-
8		Of which: deferred	-	-
9	Variable remuneration	Number of employees#	12	3
10		Total variable remuneration (11 + 13 + 15)	**21**	**22**
11		Of which: cash-based	17	11
12		Of which: deferred	2	5
13		Of which: shares or other share-linked instruments	4	11
14		Of which: deferred	2	5
15		Of which: other forms	-	-
16		Of which: deferred	-	-
17	Total remuneration (2 + 10)		**59**	**49**

Standard Chartered Johannesburg Branch

Pillar 3 Disclosures

Table 24: Remuneration awarded during the financial year (REM2)

Special payments	Guaranteed bonuses		Sign-on awards		Severance payments	
	Number of employees	Total amount ZAR'million	Number of employees	Total amount ZAR'million	Number of employees	Total amount ZAR'million
Senior management	-	-	-	-	1	0.58
Other material risk-takers	-	-	-	-	-	-

Table 25: Remuneration awarded during the financial year (REM3)

	a	b	c	d	e
	USD'million				
Deferred and retained remuneration	Total amount of outstanding deferred remuneration	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
Senior management	-	-	-	-	-
Cash	192	-	-	-	82
Shares (value)	-	-	-	-	-
Cash-linked instruments	-	-	-	-	-
Other	-	-	-	-	-
Other material risk-takers	-	-	-	-	-
Cash	545	-	-	-	242
Shares	-	-	-	-	-
Cash-linked instruments	-	-	-	-	-
Other	-	-	-	-	-
Total	737	-	-	-	324