THE STANDARD BANK OF SOUTH AFRICA

Risk and capital management report 2018

Standard Bank Moving Forward™

Contents

Our reporting suite

We produce a full suite of publications that caters for the diverse needs of our stakeholders.

All our reports and latest financial results presentations, booklets and SENS announcements are available online at **www.standardbank.com/reporting**, together with financial and other definitions, acronyms and abbreviations used.

Annual integrated report

Provides a holistic assessment of the group's ability to create value, in the short, medium and long term.

Key frameworks* applied

- JSE Listings Requirements
- King Code
- The International <IR> Framework of the International Integrated Reporting Council (IIRC)

Assurance

Certain information has been extracted from the group's audited annual financial statements (AFS).

Intended readers: primarily **our providers of financial capital**, being our shareholders, depositors and bondholders, but information relevant to our other stakeholders is also included.

AIR | Read more on page 4.

Reporting to society suite

An account of group's social, economic and environmental impacts and how these contribute to group's sustainability and its ability to achieve its purpose. It includes our environmental, social and governance report.

Key frameworks* applied

- King Code
- CDP (previously Carbon Disclosure Project)
- United Nations Sustainable Development Goals (SDG)
- Equator Principles
- Global Reporting Initiative (as a guide)

Assurance

PricewaterhouseCoopers Inc. has provided assurance on selected information.

Intended readers: clients, employees and society more broadly.

RTS

Governance and remuneration report

A detailed review of group's governance and remuneration practices, including group's remuneration policy and implementation report.

Key frameworks* applied

- Companies Act
- Banks Act
- JSE Listings Requirements
- King Code
- Basel III

Assurance

Certain information has been extracted from group's audited AFS.

Intended readers: shareholders, debt providers and regulators.

GOV REM

References

Refers readers to information elsewhere in this report or in our other reports, which are available online.

*** Definitions:**

- Banks Act – South African Banks Act 94 of 1990
- Basel III – Basel Committee on Banking Supervision's third Basel Accords
- Companies Act – South African Companies Act 71 of 2008
- FTSE – Financial Times Stock Exchange
- IFRS – International Financial Reporting Standards
- JSE – Johannesburg Stock Exchange
- King Code – King IV Report on Corporate Governance for South Africa, also known as King IV™. Copyright and trademarks are owned by the Institute of Directors in Southern Africa NPC and all of its rights are reserved

Annual financial statements

Sets out group's full audited AFS, including the report of the group audit committee.

Key frameworks* applied

- IFRS
- Companies Act
- Banks Act
- JSE Listings Requirements
- King Code

Assurance

Unmodified audit opinion expressed by KPMG Inc. and PricewaterhouseCoopers Inc.

Intended readers: shareholders, debt providers and regulators.

AFS

Risk and capital management report

A detailed view of the management of risks relating to group's operations.

Key frameworks* applied

- Various regulations, including Basel III
- Banks Act
- IFRS
- JSE Listings Requirements
- King Code

Intended readers: shareholders, debt providers and regulators.

RCM

The Standard Bank of South Africa (SBSA) annual report

As group's largest banking subsidiary, SBSA produces its own annual report and audited AFS.

Key frameworks* applied

- Various regulations, including Basel III
- IFRS
- Companies Act
- Banks Act
- JSE Listings Requirements
- King Code

Assurance

Unmodified audit opinion expressed by KPMG Inc. and PricewaterhouseCoopers Inc.

AFS

THIS REPORT

The Standard Bank of South Africa risk and capital management report

A detailed view of the management of risks relating to SBSA group's operations.

Key frameworks* applied

- Various regulations, including Basel III
- IFRS
- Companies Act
- Banks Act
- JSE Listings Requirements
- King Code

RCM

The invitation to the annual general meeting (AGM) and the notice of resolutions to be tabled at the meeting will be sent separately to shareholders and are also available online.

To assist in the reduction of the group's carbon footprint, we urge our stakeholders to make use of our reporting site to view our reporting suite at **www.standardbank.com/reporting** or scan the code to be directed to the page.

About this report

This risk and capital management report covers The Standard Bank of South Africa's (the SBSA group) banking activities and other banking interests. Certain information pertains to the Standard Bank Group (the group) and has been denoted as such.

All amounts are in rand millions unless otherwise stated.

Basel pillar 3 table references (OV1, CR1, etc.) have been included in the table headings.

AFS | Risk-related IFRS disclosure can be found in Annexure C of SBSA's AFS.

Highlights

Despite the technical recession in South Africa (SA), the positive rise in SA's gross domestic product (GDP) of 2.2% in 3Q18 brings a positive outlook of further growth. Some of the challenges which affected SA included an increase in global protectionism, a rapid global asset price decline, as well as the uneasy local social and political environment. However, while not immune from global risks, SA's real GDP growth is expected to expand by 1.3% in 2019, according to a World Bank projection. Corporate investment is expected to increase in 2H19, but much will depend on the rate of policy progress, structural reform and the return of a stable supply of electricity.

The results of our stress tests indicate that the SBSA group is well-capitalised and able to handle the stress-scenarios should they materialise. Moreover, in 2018, SBSA participated in the South African Reserve Bank's (SARB) common stress test to assess the resilience of the SA banking sector. The capital ratios after considering strategic management actions exceeded the minimum capital requirements under the scenarios applied.

The regulatory environment changed substantially with the implementation of the Financial Sector Regulation Act (FSRA). Furthermore, IT stability improved over the year and digital fraud declined through marked efforts. SBSA continued its focus on improving productivity and delivering 'future ready' staff.

10.9%
CET I RATIO[1]
2017: 11.8

0.59%
CLR
2017: 0.77

110.1%
LCR
2017: 99.8

105.9%
NSFR

[1] CET I ratio phased-in excluding unappropriated profits.

Board responsibility

The group's board of directors (the board) has the ultimate responsibility for the oversight of risk.

For the period under review, the **board is satisfied** that:

- the group's risk, compliance, treasury, capital management and group internal audit (GIA) processes **generally operated effectively**
- the group's business activities have been **managed within the board-approved risk appetite**
- the group is adequately funded and **capitalised to support the execution of the group's strategy.**

In the instances where the group incurred losses, breached risk appetite or was fined by its regulators, the board is satisfied that management has taken appropriate remedial action.

Basel pillar 3 disclosure

The group abides by a disclosure policy which incorporates the revised Basel pillar 3 disclosure requirements as set out by the BCBS which includes:

- guiding principles for Basel pillar 3 disclosure
- frequency of reporting
- governance processes
- internal controls and procedures.

The board is satisfied that this report has been prepared in accordance with the requirements of the group disclosure policy and that an appropriate control framework has been applied in the preparation of this report.

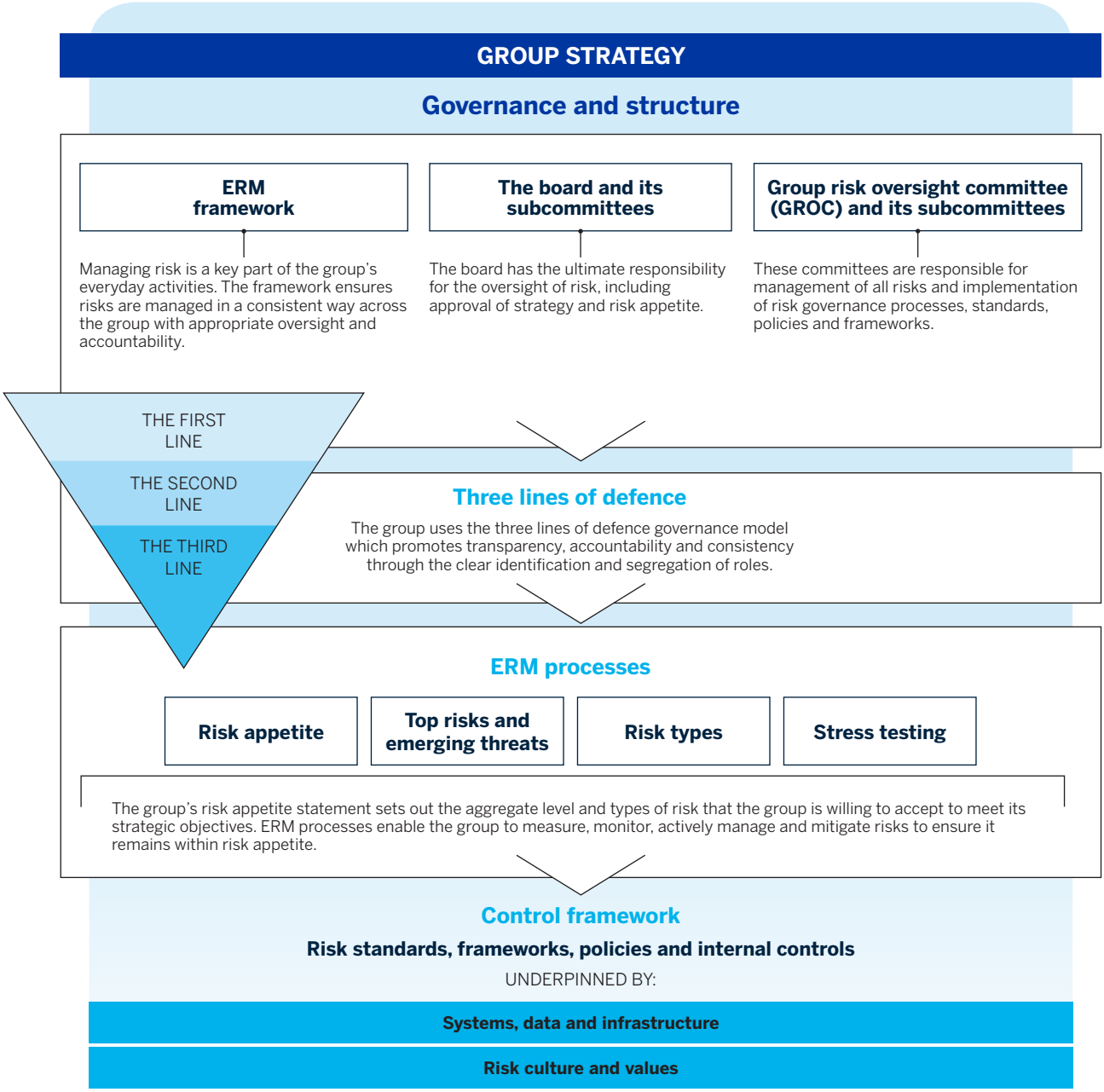
King IV

The board is supportive of the King Code. The group's adherence in relation to the specific practices and disclosure requirements attendant to the principles was assessed and all committee mandates are aligned to the new requirements.

Enterprise risk management

KEY COMPONENTS OF ENTERPRISE RISK MANAGEMENT

The group has an enterprise risk management (ERM) framework which ensures a consistent approach to managing risk with appropriate oversight and accountability, together with a clear risk appetite aligned to the group strategy. A holistic and forward-looking view is taken of the risks being faced, with continual identification and assessment of both current risks and emerging threats.



RISK GOVERNANCE

The group's approach to managing risk and capital is set out in the group's ERM governance framework, which is approved by the group risk and capital management committee (GRCMC).

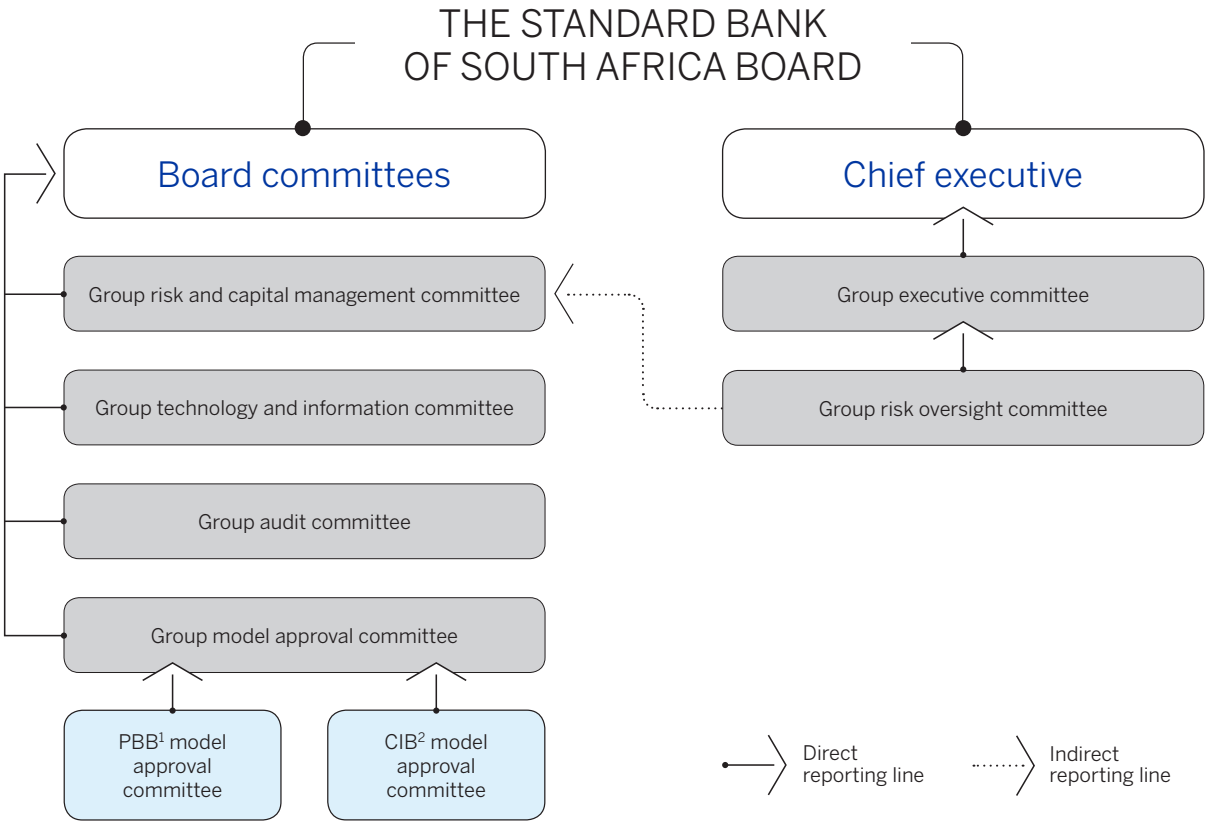
The framework has two components

Governance documents comprise standards, frameworks and policies which set out the requirements for the identification, assessment, measurement, monitoring, managing and reporting of risks and the effective management of capital.

Governance standards and frameworks are approved by the relevant board committee. Group policies are approved by the group executive committee or subcommittee, relevant GROC subcommittee, GROC itself or, where regulations require board approval, by the board or relevant board committee.

Business line and legal entity policies are aligned to these group policies and applied within their governance structures.

Governance committees are in place at both a board and management level. These committees have mandates and delegated authorities that are regularly reviewed.



1 Personal & Business Banking.
2 Corporate & Investment Banking.

The board committees that are responsible for the oversight of the group's ERM comprise the GRCMC, the group audit committee (GAC), the group technology and information committee, and the group model approval committee.

The key roles and responsibilities of these committees, as they relate to ERM, are summarised in the sections that follow.

Board subcommittees

GRCMC

The GRCMC provides an independent objective oversight of risk and capital management in the group. It also reviews and assesses the adequacy and effectiveness of the group ERM governance framework, and the integrity of risk controls and systems. In addition, the GRCMC:

- sets the direction for how risk and capital management should be approached and addressed in the group
- reviews and approves the risk appetite statements for the group's banking activities
- reviews risk management reports and monitors the group's risk profile
- evaluates and agrees the opportunities and associated risks that the organisation should be willing to take.

The chairmen of the board, the GAC, the remuneration committee, the group social and ethics committee, the group model approval committee, and the group technology and information committee are all members of the GRCMC. This common membership supports an integrated view of financial, IT and risk controls and ensures that relevant finance and risk input is considered in determining levels of compensation.

GAC

The GAC has oversight of the group's financial position and makes recommendations to the board on all financial matters, financial risks, internal financial controls and compliance. In relation to ERM, the GAC plays a role in assessing the adequacy and operating effectiveness of the group's internal financial controls. In addition, the GAC:

- monitors and reviews the adequacy and effectiveness of accounting policies, financial and other internal control systems and financial reporting processes
- provides independent oversight of the group's assurance functions, with particular focus on combined assurance arrangements, including external audit, internal audit, compliance, risk and internal financial control functions
- reviews the independence and effectiveness of the group's external audit, internal audit and compliance functions
- assesses the group's compliance with applicable legal, regulatory and accounting standards and policies in the preparation of fairly presented financial statements and external reports, thus providing independent oversight of the integrity thereof.

Membership comprises six independent non-executive directors, which includes the group technology and information, and group remuneration committee chairmen.

To ensure the independence of the second and third lines of defence functions, the chairman of the GAC meets individually with the group chief compliance and data officer (GCCO), the group financial director and the group chief audit officer, without management being present, on a quarterly basis and as required.

Group technology and information committee

The group technology and information committee's purpose is to assist the board in fulfilling its corporate governance responsibilities with respect to technology and information, and reports to the board through its chairman. In line with the King Code and the board briefing on IT governance, as published by the IT Governance Institute, this committee ensures that prudent and reasonable steps are taken with respect to technology and information governance.

The committee has the authority to review and provide guidance on matters related to the group's IT strategy, budget, operations, policies and controls, the group's assessment of risks associated with IT, including disaster recovery, business continuity and IT security, as well as oversight of significant IT investments and expenditure.

The committee oversees the governance of technology and information in a way that supports the organisation in setting and achieving its strategic objectives.

Membership comprises four independent non-executive directors, two non-executive directors, and two executive directors.

Group model approval committee

This committee assists the board in discharging its obligations for model risk as it pertains to the advanced internal rating-based (AIRB) approach for the measurement of the group's exposure to credit risk as envisaged in the regulations of the Banks Act.

It performs functions that may be prescribed by regulation, from time-to-time, including the evaluation of risk evaluation models that may need to be approved by the committee before being used to calculate a regulatory capital charge.

Membership comprises a non-executive director, the chief executives of the group, PBB and CIB, the group financial director and the group chief risk officer (CRO).

This committee is supported by the PBB and CIB model approval subcommittees, with the models being assigned to these three committees for approval based on an assessment of the materiality of each model.

Management committees

GROC is a subcommittee of the group executive committee. It provides group-level oversight of all risk types and assists the GRCMC in fulfilling its mandate. As is the case with the GRCMC, GROC calls for and evaluates in-depth investigations and reports based on its assessment of the group's risk profile and external factors. GROC is chaired by the group CRO.

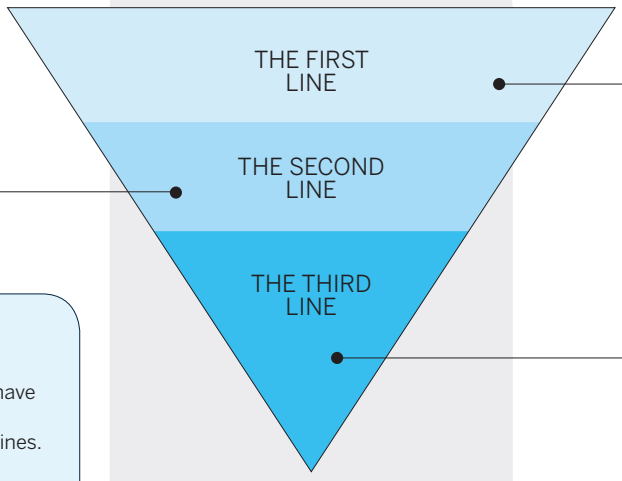
GROC delegates authority to various subcommittees which deal with specific risk types or oversight activities. Material matters are escalated to GROC through reports or feedback from each subcommittee chairman.

CIB credit governance committee
Chaired by: CIB CRO
PBB credit governance committee
Chaired by: PBB CRO
Group asset and liability committee (ALCO)
Chaired by: group financial director
Group compliance committee
Chaired by: GCCO
Group country risk management committee
Chaired by: group CRO
Group equity risk committee (ERC)
Chaired by: CIB CRO
Group internal financial control governance committee
Chaired by: group financial director
Group operational risk committee (GORC)
Chaired by: group head of operational risk management
Group sanctions and client risk review committee
Chaired by: group CRO
Group stress testing and risk appetite committee
Chaired by: group CRO
Group recovery and resolution plan committee
Chaired by: group financial director

THREE LINES OF DEFENCE MODEL

The **FIRST LINE** of defence consists of the management of business lines and legal entities. It is the responsibility of first line management to identify and manage risks. This includes, at an operational level, the day-to-day effective management of risk in accordance with agreed risk policies, appetite and controls. Effective first line management includes:

- the proactive self-identification of issues and risks, including emerging threats
- the design, implementation and ownership of appropriate controls
- the associated operational control remediation
- a strong control culture of effective and transparent risk partnership.



The **SECOND LINE** of defence functions provide independent oversight and assurance. They have resources at the centre and are embedded within the business lines. Central resources provide groupwide oversight of risks, while resources embedded within the business lines support management in ensuring that their specific risks are effectively managed as close to the source as possible. Central and embedded resources jointly oversee risks at a legal entity level.

The second line of defence functions develop, implement and integrate governance standards, frameworks and policies for each material risk type to which the group is exposed. This ensures consistency and an enterprise-wide approach across the group's business lines and legal entities. Compliance with the standards and frameworks is ensured through annual self-assessments by the second line of defence and reviews by GIA.

All **three levels report to the board**, either directly or through the GRCMC and the GAC.

The **THIRD LINE** of defence provides independent and objective assurance to the board and senior management on the effectiveness of the first and second lines of defence. This responsibility lies with GIA.

RISK TYPES

Each risk is defined below. The relevant risk sections include:

- an explanation of the application of the group's ERM governance framework to the specific risk
- the approved regulatory treatment for capital requirements to be held against the specific risk in terms of Basel
- a description of the relevant portfolio characteristics in terms of prescribed disclosure and the group's business model.

Funding and liquidity risk

Liquidity risk is defined as the risk that an entity, although solvent, cannot maintain or generate sufficient cash resources to meet its payment obligations in full as they fall due, or can only do so at materially disadvantageous terms.

Operational risk

The risk of loss suffered as a result of the inadequacy of, or failure in, internal processes, people and/or systems or from external events.

Business risk

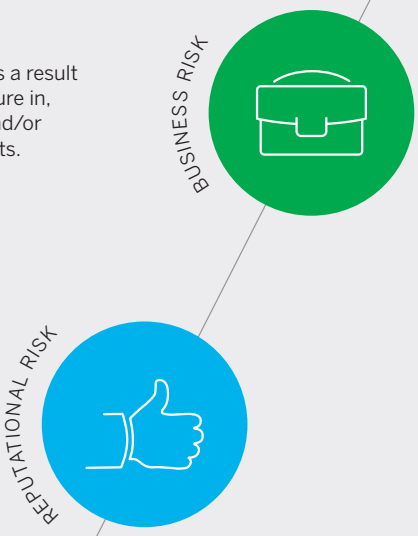
The risk of earnings variability, resulting in operating revenues not covering operating costs after excluding the effects of market risk, credit risk, structural interest rate risk and operational risk.

Market risk

The risk of a change in the market value, actual or effective earnings, or future cash flows of a portfolio of financial instruments, including commodities, caused by adverse movements in market variables such as equity, bond and commodity prices, currency exchange and interest rates, credit spreads, recovery rates, correlations and implied volatilities in all of these variables.

Reputational risk

The risk of potential or actual damage to the group's image which may impair the profitability and/or sustainability of its business.



RISK APPETITE AND STRESS TESTING

Overview

The key to the SBSA group's long-term sustainable growth and profitability lies in ensuring that there is a strong link between its risk appetite and its strategy.

Risk appetite is set, and stress testing activities are undertaken, at a group level, in business units, in risk types and at a legal entity level.

Governance

The primary management level governance committee overseeing risk appetite and stress testing is the group stress testing and risk appetite committee.

The principal governance documents are the risk appetite governance framework and the stress testing governance framework.

Risk appetite

Risk appetite governance framework

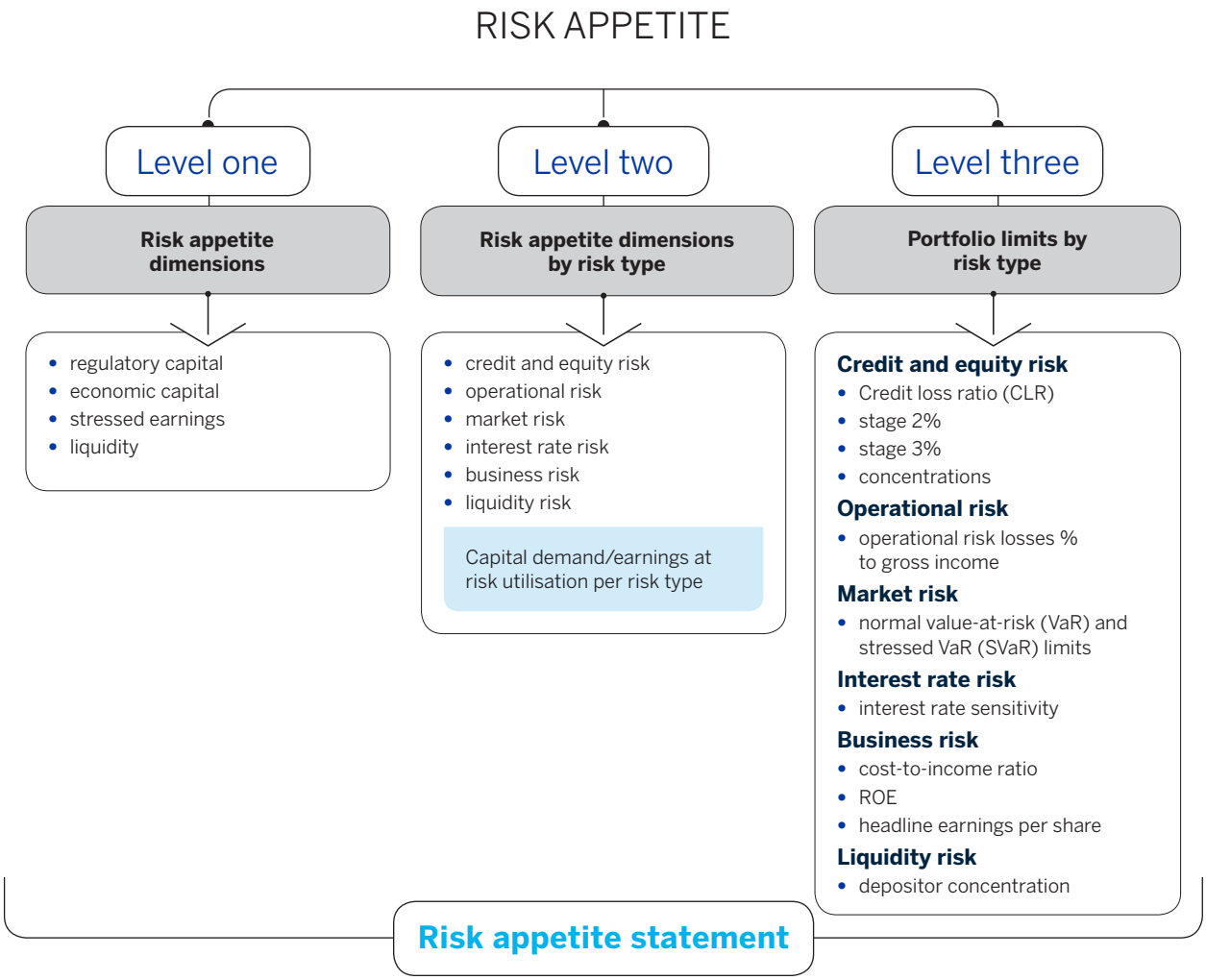
The risk appetite governance framework guides:

- the setting and cascading of risk appetite by group, business line, risk type and legal entity
- measurement and methodology
- governance
- monitoring and reporting of the risk profile
- escalation and resolution.

The SBSA group has adopted the following definitions, where entity refers to a business line or legal entity within the SBSA group, or the group itself:

- **risk appetite:** an expression of the amount or type of risk an entity is willing to take in pursuit of its financial and strategic objectives, reflecting its capacity to sustain losses and continue to meet its obligations as they fall due, under both normal and a range of stress conditions
- **risk appetite trigger:** an early warning trigger set at a level that accounts for the scope and nature of available management actions, and ensures that corrective management action can take effect and prevent a risk tolerance limit breach
- **risk tolerance:** the maximum amount of risk an entity is prepared to tolerate above risk appetite. The metric is referred to as a risk tolerance limit
- **risk capacity**: the maximum amount of risk the entity is able to support within its available financial resources
- **risk appetite statement (RAS):** the documented expression of risk appetite and risk tolerance which have been approved by the entity's relevant governance committee. The RAS is reviewed and revised, if necessary, on an annual basis
- **risk profile:** the risk profile is defined in terms of three dimensions:
  - current or forward risk profile
  - unstressed or stressed risk profile
  - pre- or post-management actions.

The following diagram provides a schematic view of the three levels of risk appetite and the integral role that risk types play in the process of cascading risk appetite from dimensions such as regulatory capital, economic capital, stressed earnings and liquidity to more granular portfolio limits.


RISK APPETITE
Level one
Level two
Level three
Risk appetite dimensions
Risk appetite dimensions by risk type
Portfolio limits by risk type
• regulatory capital
• economic capital
• stressed earnings
• liquidity
• credit and equity risk
• operational risk
• market risk
• interest rate risk
• business risk
• liquidity risk
Capital demand/earnings at risk utilisation per risk type
Credit and equity risk
• Credit loss ratio (CLR)
• stage 2%
• stage 3%
• concentrations
Operational risk
• operational risk losses % to gross income
Market risk
• normal value-at-risk (VaR) and stressed VaR (SVaR) limits
Interest rate risk
• interest rate sensitivity
Business risk
• cost-to-income ratio
• ROE
• headline earnings per share
Liquidity risk
• depositor concentration
Risk appetite statement

Risk appetite statements

Executive management is responsible for recommending the group's RAS, which is then approved by the GRCMC on behalf of the board. In developing the RAS, executive management considers the group's strategy and the desired balance between risk and return. The GRCMC reviews the SBSA group's current risk profile on a quarterly basis and forward risk profile (both stressed and unstressed) at least annually.

Level one risk appetite dimensions can be either quantitative or qualitative.

Quantitative level one risk appetite dimensions relate to available financial resources and earnings volatility. The standardised quantitative dimensions used by the SBSA group, as well as legal entities and business lines, are:

- stressed earnings
- economic capital
- regulatory capital
- liquidity.

The SBSA group's qualitative RAS, set out below, serves as a guide for embedding the risk appetite framework to guide strategic and operational decision-making across the group.

- **Capital position:** The SBSA group aims to have a strong capital adequacy position measured by regulatory and economic capital adequacy ratios. The group manages its capital levels to support business growth, maintain depositor and creditor confidence, create value for shareholders and ensure regulatory compliance. Each banking subsidiary must further comply with regulatory requirements in the countries in which they operate
- **Funding and liquidity management:** The SBSA group's approach to liquidity risk management is governed by prudence and is in accordance with the applicable laws and regulations and takes into account the competitive environment in which each banking subsidiary operates. Each banking subsidiary must manage liquidity risk on a self-sufficient basis
- **Earnings volatility:** The SBSA group aims to have sustainable and well-diversified earning streams in order to minimise earnings volatility through business cycles
- **Reputation:** The SBSA group has no appetite for compromising its legitimacy or for knowingly engaging in any business, activity or relationship which could result in foreseeable reputational risk or damage to the group
- **Conduct:** The SBSA group has no appetite for unfair customer outcomes arising from inappropriate judgement and conduct in the execution of our business activities, or wilful breaches of regulatory requirements. The SBSA group strives to meet customers' expectations for efficient and fair engagements by doing the right business the right way, thereby upholding the trust of its stakeholders.

Level two risk appetite represents the allocation of level one risk appetite to risk types. Specifically, the contribution of individual risk types to earnings volatility and overall capital demand (both economic and regulatory) is controlled through triggers and limits.

Level three consists of key metrics used to monitor the portfolio. Portfolio triggers and limits are required to be broadly congruent with level one and level two triggers and limits. These metrics are regularly monitored at a risk type level and ensure proactive risk management.

Stress testing

Stress testing governance framework

Stress testing is a key management tool within the SBSA group and is used to evaluate the sensitivity of the current and forward risk profile relative to different levels of risk appetite. Stress testing supports a number of business processes, including:

- strategic and financial planning
- the internal capital adequacy assessment process (ICAAP), including capital planning and management, and the setting of capital buffers
- liquidity planning and management
- informing the setting of risk appetite
- identifying and proactively mitigating risks through actions such as reviewing and changing limits, limiting exposures, and hedging
- facilitating the development of risk mitigation or contingency plans, including recovery plans, across a range of stressed conditions
- supporting communication with internal and external stakeholders, including industry-wide stress tests performed by the regulator.

Stress testing is subject to the group's stress testing governance framework which sets out the responsibilities for and approaches to stress testing activities. Broadly aligned and fit-for-purpose stress testing programmes are implemented for the group to ensure appropriate coverage of the different risks.

Stress testing programme

The group's stress testing programme uses one or a combination of stress testing techniques, including scenario analysis, sensitivity analysis and reverse stress testing to perform stress testing for different purposes.

Groupwide macroeconomic stress testing

Macroeconomic stress testing is conducted across all major risk types on an integrated basis for a range of economic scenarios varying in severity from mild to very severe but plausible macroeconomic shocks. The impact, after consideration of mitigating actions, on the SBSA group's income statement, balance sheet and the group's capital demand and supply is measured against the group's risk appetite.

Macroeconomic stress testing is performed, as a minimum, once a year for selected scenarios that are specifically designed by a scenario working group targeting the group's risk profile, geographical presence and strategy.

In 2018 these scenarios included, among others, an increase in global protectionism, a rapid global asset price decline and the unsettled social and political environment in SA. Results indicated that the group is well-capitalised and able to withstand the impact of these scenarios.

SBSA's macroeconomic stress testing results are presented at a board level in order to consider whether the group's risk profile is consistent with the group's risk appetite buffer. Groupwide macroeconomic stress testing results are submitted as part of the annual ICAAP.

Additional stress testing

Groupwide macroeconomic stress testing results are supplemented with additional ad hoc stress testing at the group, legal entity, business line, sector, or risk type level that may be required from time-to-time for risk management or planning purposes. The purpose of this stress testing is to inform management of risks that may not yet form part of routine stress testing or where the focus is on a specific portfolio or business unit. Additional stress testing can take the form of either scenario analysis or sensitivity analysis.

This type of stress testing will be performed and governed at the appropriate group, legal entity, business line, or risk type level.

Supervisory stress tests

From time-to-time, a regulator may call for the group or a legal entity to run a supervisory stress test or common scenario with prescribed assumptions and methodologies. The purpose of these stress test requests could be for the regulator to assess the financial stability of the entire financial sector, or targeted stress tests where the regulator may have a specific concern regarding a specific asset class or other potential stress event.

In 2018 the SA regulator conducted a supervisory stress test intended to assess the resilience of the SA banking sector to a selection of hypothetical, plausible but severe macroeconomic shocks. In line with this process, the SBSA group ran an integrated stress test on its SA banking operations which were found to maintain their minimum required capital adequacy ratios above the average capital requirements under the considered shocks applied.

Business model stress testing

Business model stress testing utilises the reverse stress testing technique to explore vulnerabilities in a particular strategy or business model. The outcome does not necessarily target business or bank failure, but rather seeks to inform what could have a severe impact, given a plausible but in most cases highly improbable event within a given set of circumstances and assumptions.

Stress testing for the recovery plan

As part of the annual review of the group's recovery plan, the group's procedures require the execution of stress tests in order to test the effectiveness of the recovery options proposed in the recovery plan, and to provide guidance on the selection of early warning indicators. The range of scenarios that are considered include both systemic, group-specific and combination events, as well as fast- and slow-moving scenarios.

Risk type stress testing

Risk type stress tests apply to individual risk types. Risk type stress testing could take the form of scenario or sensitivity analysis.

RISK CULTURE

The SBSA group leverages the three lines of defence model to build and maintain a strong risk culture, where resilience is a priority for the effective management of risk across the group. Focus is placed on multiple drivers to enhance risk culture, with emphasis on doing the right business the right way. Employees are empowered to act with confidence, drive meaningful behavioural changes and place the customer at the centre of everything they do, through the embedding of the group's values and ethics policies, compliance training and whistle-blowing programmes.

REPORTING

The SBSA group's risk appetite, risk profile and risk exposures are reported on a regular basis to the board and senior management through various governance committees. Risk management reports originate in the business units and are then escalated through the formalised governance structure, shown on page 9, as mandated, based on materiality. A group risk management report is tabled at both board and senior management risk committees. These include the group executive committee, GROC and the GRCMC.

Reports to board committees comply with the group's internal risk reporting standards, which are set out in the group's risk data aggregation and risk reporting policy.

Capital management

OVERVIEW AND OBJECTIVES

The group's capital management function is designed to ensure that regulatory requirements are met at all times and that the SBSA group and its principal subsidiaries are capitalised in line with the SBSA group's risk appetite and target ratios, both of which are approved by the board.

It further aims to facilitate the allocation and use of capital, such that it generates a return that appropriately compensates shareholders for the risks incurred. Capital adequacy is actively managed and forms a key component of the SBSA group's budget and forecasting process. The capital plan is tested under a range of stress scenarios as part of the group's annual ICAAP and recovery plan.

The capital management function is governed primarily by management level subcommittees that oversee the risks associated with capital management, namely group ALCO and one of its subcommittees, the group capital management committee. The principal governance documents are the capital management governance framework and the model risk governance framework.

The table below provides an overview of a banking group's key prudential metrics.

KM1: KEY METRICS

		2018
	Available capital[1] (Rm)	
1	Common Equity Tier I (CET I)	73 264
1a	Fully loaded expected credit loss (ECL) accounting model	71 184
2	Tier I	76 768
2a	Fully loaded ECL accounting model Tier I	74 688
3	Total capital	92 942
3a	Fully loaded ECL accounting model total capital	92 816
	Risk-weighted assets (RWA) (Rm)	
4	Total RWA	669 386
	Risk-based capital ratios as a percentage of RWA[2]	
5	CET I ratio (%)	10.9
5a	Fully loaded ECL accounting model CET I (%)	10.6
6	Tier I ratio (%)	11.5
6a	Fully loaded ECL accounting model Tier I ratio (%)	11.2
7	Total capital ratio (%)	13.9
7a	Fully loaded ECL accounting model total capital ratio (%)	13.9
	Additional CET I buffer requirements as a percentage of RWA	
8	Capital conservation buffer requirement (2.5% from 2019) (%)	1.9
9	Countercyclical buffer requirement (%)	0.0167
10	Bank (global systemically important bank) G-SIB and/or domestic systemically important banks (D-SIB) additional requirements (%)[3]	
11	Total of bank CET I specific buffer requirements (%) (row 8 + row 9 + row 10)	1.9
12	CET I available after meeting the bank's minimum capital requirements (%)	2.7
	Basel III leverage ratio	
13	Total Basel III leverage ratio exposure measure (Rm)	1 490 617
14	Basel III leverage ratio (%) (row 2/row 13)	5.2
14a	Fully loaded ECL accounting model Basel III leverage ratio (%) (row 2a/row 13)	5.0
	Liquidity coverage ratio (LCR)	
15	Total high-quality liquid assets (HQLA) (Rm)	179 115
16	Total net cash outflow (Rm)	162 638
17	LCR ratio (%)	110.1
	Net stable funding ratio (NSFR)	
18	Total available stable funding (ASF) (Rm)	761 063
19	Total required stable funding (RSF) (Rm)	718 441
20	NSFR ratio (%)	105.9

1 On 1 January 2018 the group adopted IFRS 9 – Financial Instruments. For more information on the IFRS 9 transition adjustment, please refer to the group's IFRS 9 Transition Report which is available on the group's Investor Relations website. In terms of the SARB Directive 5/2017, the group elected the three-year transition period. All metrics are presented on the basis of applying this transition period with the exception of those metrics referred to as 'fully loaded'.

2 Excludes unappropriated profit.

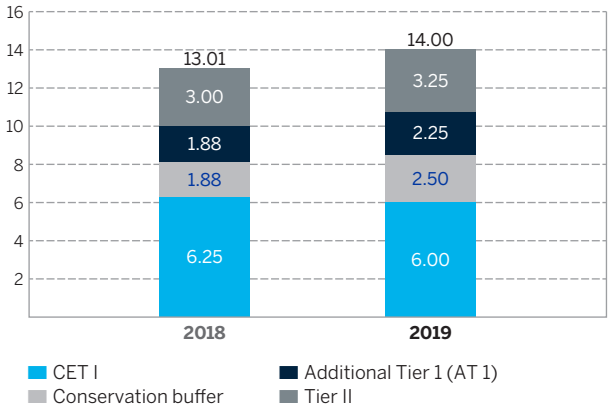
3 Bank-specific confidential requirement.

REGULATORY UPDATE

The SARB adopted the Basel III framework introduced by the BCBS from 1 January 2013. The group has complied with the minimum requirements from that date. The Basel III capital adequacy requirements are subject to phase-in rules with full implementation from 1 January 2019.

The graph below reflects the Basel III capital requirements and phase-in periods applicable to SA.

South African minimum capital requirements[1]
SARB ratios (capital as a % of RWA) effective 1 January each year



1 Graph excludes CCyB and confidential bank-specific pillar 2b capital requirement, but includes maximum potential D-SIB requirement which is also bank-specific and therefore, confidential.

RCM Annexure A of the SBG risk and capital management report provides a summary of the regulatory and legislative developments that impact the group.

The impact of the IFRS 9 implementation on 1 January 2018 was a decrease in the CET I ratio of 60 basis points (bps) as at the date of the initial application which represented the fully-loaded IFRS 9 transition impact. The impact on SBSA group's CET I ratio after taking into account the Prudential Authority's three-year phase-in provision was a decrease of 10bps. Given SBSA group's strong capital adequacy position, the group was able to absorb the CET I capital impact.

IFRS 9 had a small impact on SBSA group's total capital adequacy due to the add-back to Tier II capital that is permitted for provisions that exceed the regulatory expected loss. The volatility that arises from the add-back due to the adoption of IFRS 9 is carefully monitored on an ongoing basis. The Basel III post-crisis reform proposals and the potential requirements for loss absorbing and recapitalisation capacity of systemically important banks may impact capital levels going forward. The implementation date of the more significant Basel III post-crisis reform proposals is 1 January 2022 with transitional arrangements for the phasing-in of an aggregate output floor from 1 January 2022 to 1 January 2027. The Basel III post-crisis reform proposals provide for areas of national discretion and the group will, through relevant industry bodies, engage the Prudential Authority on the SA implementation of the proposals.

REGULATORY CAPITAL

The SBSA group manages its capital levels to support business growth, maintain depositor and creditor confidence, create value for shareholders and ensure regulatory compliance.

The main regulatory requirements to be complied with are those specified in the Banks Act and related regulations, which are aligned with Basel III.

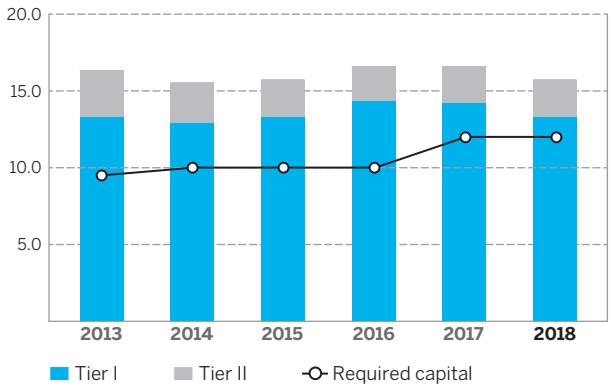
Regulatory capital adequacy is measured through the following three risk-based ratios:

- **CET I:** ordinary share capital, share premium, retained earnings, other reserves and qualifying non-controlling interest less impairments divided by total RWA
- **Tier I:** CET I and other qualifying non-controlling interest plus perpetual, non-cumulative instruments with either contractual or statutory principal loss absorption features that comply with the Basel III rules divided by total RWA. Perpetual non-cumulative preference shares that comply with Basel I and Basel II rules are included in Tier I capital but are currently subject to regulatory phase-out requirements over a ten-year period, which commenced on 1 January 2013
- **total capital adequacy:** Tier I plus other items such as general credit impairments and subordinated debt with either contractual or statutory principal loss absorption features that comply with the Basel III rules divided by total RWA. Subordinated debt that complies with Basel I and Basel II rules is included in total capital but is currently subject to regulatory phase-out requirements, over a ten-year period, which commenced on 1 January 2013.

The ratios are measured against internal targets and regulatory minimum requirements.

The following graph discloses the SBSA group's total capital adequacy and the components thereof and indicates that the SBSA group's capital is well above the required level of capital.

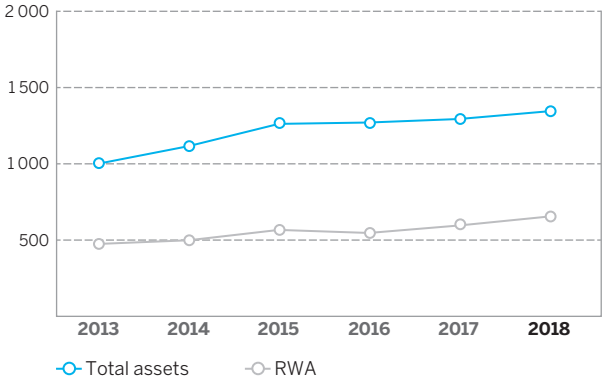
Capital adequacy (%)



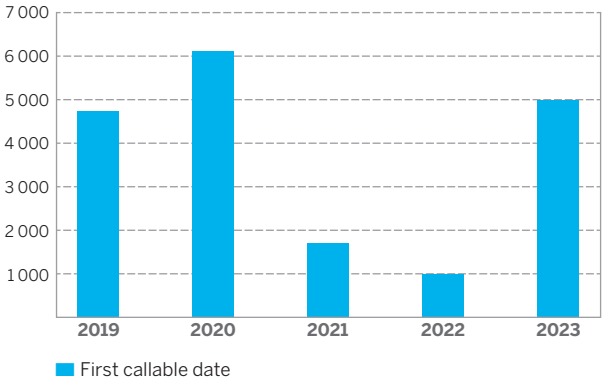
RWA are calculated in terms of the Banks Act and related regulations, which are aligned with Basel III.

The SBSA group's CET I capital, including unappropriated profits, was R85.2 billion as at 31 December 2018 (2017: R82.9 billion). The SBSA group's Tier I capital, including unappropriated profits, was R88.7 billion as at 31 December 2018 (2017: R86.4 billion) and total capital, including unappropriated profits was R104.9 billion as at 31 December 2018 (2017: R101.6 billion).

RWA history (Rbn)



Maturity profile of the group's qualifying Tier II instruments (Rm)



QUALIFYING CAPITAL, EXCLUDING UNAPPROPRIATED PROFITS

	2018 Rm	2017 Rm
IFRS ordinary shareholders' equity	**44 448**	43 698
Retained earnings	**52 321**	56 294
Other reserves	**881**	799
Less: regulatory adjustments	**(12 420)**	(17 929)
Goodwill	**(42)**	(42)
Other intangible assets	**(14 337)**	(15 346)
Shortfall of credit provisions to expected future losses[1]		(2 084)
Deferred tax assets	**(11)**	(14)
Other adjustments including IFRS 9 phase-in	**1 970**	(443)
Less: regulatory exclusions	**(11 966)**	(11 010)
CET I capital	**73 264**	71 852
Qualifying other equity instruments	**3 504**	3 544
Tier I capital	**76 768**	75 396
Qualifying Tier II subordinated debt	**18 580**	17 080
General allowance for credit impairments	**781**	461
Less: regulatory adjustments – investment in Tier II instruments in other banks	**(3 187)**	(2 341)
Tier II capital	**16 174**	15 200
Total regulatory capital	**92 942**	90 596
Total capital requirement	**74 654**	65 608
Total RWA	**669 386**	610 314

1 For reporting periods up to 31 December 2017, the group deducted from available capital the shortfall of IAS 39 credit provisions to regulatory expected loss. Given that the IFRS 9 impairment provisions are greater than the regulatory expected losses, this adjustment is no longer required.

OV1: BASEL RWA AND ASSOCIATED CAPITAL REQUIREMENTS

	RWA		Minimum capital requirements[1]
	2018	2017	2018
Credit risk (excluding counterparty credit risk (CCR))	**481 951**	440 518	**53 749**
Of which: standardised approach[2]	**39 602**	20 388	**4 417**
Of which: internal rating-based (IRB) approach	**442 349**	420 130	**49 332**
CCR	**24 370**	22 267	**2 718**
Of which: standardised approach for CCR	**1 902**	1 334	**212**
Of which: IRB approach	**22 468**	20 933	**2 506**
Equity positions in banking book under market-based approach	**1 125**	3 572	**125**
Securitisation exposures in banking book	**658**	747	**74**
Of which: IRB approach	**465**	567	**52**
Of which: IRB supervisory formula approach	**193**	180	**22**
Market risk	**50 720**	41 943	**5 657**
Of which: standardised approach	**36 886**	29 139	**4 114**
Of which: internal model approach (IMA)	**13 834**	12 804	**1 543**
Operational risk	**97 563**	93 283	**10 881**
Of which: standardised approach	**26 610**	26 431	**2 968**
Of which: advanced measurement approach (AMA)	**70 953**	66 852	**7 913**
Amounts below the thresholds for deduction (subject to 250% risk weight)	**12 999**	7 984	**1 450**
Total	**669 386**	610 314	**74 654**

1 Measured at 11.1% (2017: 10.8%) in line with Basel III transitional requirements and excludes any bank-specific capital requirements. There is currently no requirement for the countercyclical buffer add-on in SA. The impact on the group's countercyclical buffer requirement from other jurisdictions in which the group operates is insignificant (buffer requirement of 0.0167%).

2 Portfolios on the standardised approach relate to the portfolios for which application to adopt the internal model approach has not been submitted, or for which an application has been submitted but approval has not been granted.

CAPITAL ADEQUACY RATIOS (PHASED-IN)[1]

	2018 SARB minimum regulatory requirement[2] %	Internal target ratios[3] %	Including unappropriated profits		Excluding unappropriated profits	
			2018 %	2017 %	2018 %	2017 %
Total capital adequacy ratio	11.1	15.0 – 16.0	**15.7**	16.6	**13.9**	14.8
Tier I capital adequacy ratio	8.9	12.0 – 13.0	**13.3**	14.2	**11.5**	12.4
CET I capital adequacy ratio	7.4	11.0 – 12.5	**12.7**	13.6	**10.9**	11.8

1 Capital adequacy ratios based on the SARB IFRS 9 phased-in approach.
2 Excludes confidential bank-specific add-ons.
3 Including unappropriated profits.

CAPITAL ADEQUACY RATIOS (FULLY LOADED)[1]

	2018 SARB minimum regulatory requirement[2] %	Internal target ratios[3] %	Including unappropriated profits		Excluding unappropriated profits	
			2018 %	2017 %	2018 %	2017 %
Total capital adequacy ratio	11.1	15.0 – 16.0	**15.7**	16.6	**13.9**	14.8
Tier I capital adequacy ratio	8.9	12.0 – 13.0	**12.9**	14.2	**11.2**	12.4
CET I capital adequacy ratio	7.4	11.0 – 12.5	**12.4**	13.6	**10.6**	11.8

1 Capital ratios based on the inclusion of the full IFRS 9 transition impact.
2 Excluding confidential bank specific requirements.
3 Including unappropriated profit.

The SARB adopted the leverage framework that was issued by the BCBS in January 2014. The minimum leverage ratio has been set at 4% by the SARB.

The non-risk-based leverage measure is designed to complement the Basel III risk-based capital framework.

LR1: SUMMARY COMPARISON OF ACCOUNTING ASSETS VS. LEVERAGE RATIO EXPOSURE MEASURE

	2018 Rm	2017 Rm
Total consolidated assets as per published financial statements	**1 360 262**	1 308 800
Adjustment for derivative financial instruments	**8 021**	(31 271)
Adjustments for securities financing transactions (SFTs) (repos and similar securities lending)	**360**	794
Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet)	**99 487**	83 302
Other adjustments	**22 487**	13 685
Leverage ratio exposure	**1 490 617**	1 375 310

LR2: LEVERAGE RATIO COMMON DISCLOSURE TABLE

	2018 Rm	2017 Rm
On-balance sheet exposures (excluding derivatives and SFT)	**1 261 804**	1 194 936
On-balance sheet exposures (excluding derivatives and SFT, but including collateral)	**1 274 224**	1 210 767
Less: asset amounts deducted in determining Basel III Tier I capital	**(12 420)**	(15 831)
Derivatives exposures	**58 492**	42 281
Replacement cost associated with all derivatives transactions (where applicable net of eligible cash variation margin and/or with bilateral netting)	**8 637**	9 995
Add-on amounts for potential future exposure (PFE) associated with all derivatives transactions	**48 928**	25 546
Less: deductions of receivables assets for cash variation margin provided in derivatives transactions	**(6 580)**	(12 550)
Less: exempted central counterparty (CCP) leg of client-cleared trade exposures	**(17 254)**	(3 426)
Adjusted effective notional amount of written credit derivatives	**24 761**	22 716
SFT exposures	**70 834**	54 791
Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	**70 474**	53 997
Less: netted amounts of cash payables and cash receivables of gross SFT assets		
CCR exposure for SFT assets	**360**	794
Agent transaction exposures		
Other off-balance sheet exposures	**99 487**	83 302
Off-balance sheet exposure at gross notional amount	**297 327**	276 442
Less: adjustments for conversion to credit equivalent amounts	**(197 840)**	(193 140)
Capital and total exposures		
Tier I capital[1]	**76 768**	75 396
Total exposures	**1 490 617**	1 375 310
Leverage ratio		
Basel III leverage ratio	**5.2**	5.5
Basel III leverage ratio (including unappropriated profits)	**5.9**	6.3

[1] Excludes unappropriated profits.

RECONCILIATION WITH ANNUAL FINANCIAL STATEMENTS

	2018 Rm	2017 Rm	
Total consolidated assets per AFS	**1 360 262**	1 308 800	LR1
Derivative assets as per the balance sheet	**(50 471)**	(73 553)	
Security financing transactions per the balance sheet	**(70 474)**	(53 996)	
Total consolidated assets per AFS (excluding derivative and SFT assets)	**1 239 317**	1 181 251	
Gross-up for cash management schemes	**34 907**	29 516	
Total on-balance sheet items	**1 274 224**	1 210 767	LR2

ECONOMIC CAPITAL

Economic capital adequacy is the internal basis for measuring and reporting all quantifiable risks on a consistent risk-adjusted basis. The group assesses its economic capital adequacy by measuring its risk profile under both normal and stressed conditions.

The ICAAP considers the qualitative capital management processes within the group and includes the group's governance, risk management, capital management and financial planning standards and frameworks. Furthermore, the quantitative internal assessments of the group's business models are used to assess capital requirements to be held against all risks that the group is or may become exposed to, in order to meet current and future needs, as well as to assess the group's resilience under stressed conditions.

ECONOMIC CAPITAL BY RISK TYPE

	2018 Rm	2017 Rm
Credit risk	**53 174**	45 597
Equity risk	**2 867**	2 710
Market risk	**975**	1 150
Operational risk	**7 030**	6 728
Business risk	**2 455**	2 860
Interest rate risk in the banking book	**1 134**	1 380
Economic capital requirement	**67 635**	60 425
Available financial resources	**104 021**	101 177
Economic capital coverage ratio (times)	**1.54**	1.67

The economic capital requirement of R67.6 billion as at 31 December 2018 (2017: R60.4 billion) is the internal assessment of the amount of capital that is required to support the SBSA group's economic risk profile. For statistically quantifiable potential losses arising from risk types, economic capital reflects the worst-case loss commensurate with a confidence level of 99.92%.

Available financial resources refer to capital supply as defined by the group for economic capital purposes and includes capital and reserve funds after adjusting for certain non-qualifying items.

RISK-ADJUSTED PERFORMANCE MEASUREMENT

Risk-adjusted performance measurement (RAPM) maximises shareholder value by optimally managing financial resources within the board-approved risk appetite. Capital is centrally monitored and allocated, based on usage and performance in a manner that enhances overall group economic profit and ROE. Business units are held accountable for achieving their RAPM targets. RAPM is calculated on both regulatory and economic capital measures.

Credit risk

APPROACH TO MANAGING AND MEASURING CREDIT RISK

SBSA group's credit risk is a function of its business model and arises from wholesale and retail loans and advances, underwriting and guarantee commitments, as well as from the CCR arising from derivative and securities financing contracts entered into with customers and trading counterparties. To the extent that equity risk is held on the banking book, it is also managed under the credit risk governance framework, except in so far as approval authority rests with the ERC.

The management of credit risk is aligned to the group's three lines of defence framework.

Credit risk is managed through:

- maintaining a culture of responsible lending and a robust risk policy and control framework
- identifying, assessing and measuring credit risk across the group, from an individual facility level through to an aggregate portfolio level
- defining, implementing and continually re-evaluating risk appetite under actual and stressed conditions
- monitoring the group's credit risk exposure relative to approved limits
- ensuring that there is expert scrutiny and approval of credit risk and its mitigation independently of the business functions.

A credit portfolio limit framework has been defined to monitor and control the credit risk profile within the group's approved risk appetite. All primary lending credit limits are set and exposures measured on the basis of risk weighting in order to best estimate exposure at default (EAD).

Pre-settlement CCR inherent in trading book exposures is measured on a PFE basis, modelled at a defined level of confidence using approved methodologies and models, and controlled within explicit approved limits for the counterparties concerned.

GOVERNANCE

Credit risk is governed in accordance with the group credit risk governance standard and the model risk governance framework.

The group credit risk governance standard establishes and defines the principles under which the SBSA group is prepared to assume credit risk and the overall framework for the consistent and unified governance, identification, measurement, management and reporting of credit risk in the group. The standard is supported by underlying policies and procedures within the business units.

SBSA group's credit governance process relies on both individual responsibility and collective oversight, supported by comprehensive and independent reporting. This approach balances strong corporate oversight at SBSA group level, with participation by the senior executives of the SBSA group and its business units in all significant risk matters.

Credit risk is managed through the CIB and PBB credit governance committees, the group ERC (all subcommittees of GROC) and the intragroup exposure committee (a subcommittee of group ALCO). These governance committees are key components of the credit risk management framework. They have clearly defined mandates and delegated authorities, which are reviewed regularly. Their mandates include responsibility for credit concentration risk decision-making and delegation thereof within defined parameters, to credit officers and subcommittees embedded in SBSA.

Key aspects of rating systems and credit risk models are approved by the PBB, CIB and group model approval committees, all of which are mandated by the board as designated committees. Regular model validation and reporting to these committees is undertaken by the independent central validation function.

APPROVED REGULATORY CAPITAL APPROACHES

The group has approval from the SARB to adopt the AIRB approach for most credit portfolios in SBSA. SBSA group has adopted the standardised approach for some of its less material subsidiaries and portfolios. The group has approval from the SARB to adopt either the market-based or the probability of default (PD)/loss given default (LGD) approaches for material equity portfolios, with the latter applied to equity held on the banking book.

Standardised approach

The calculation of regulatory capital is based on a risk weighting and the net counterparty exposures after recognising a limited set of qualifying collateral. The risk weighting is based on the exposure characteristics and, in the case of corporate, bank and sovereign exposures, the external agency credit rating of the counterparty.

For bank and certain corporate asset class credit exposures on the standardised approach the group makes use of the ratings of two regulatory-approved external credit assessment institutions, Fitch and Moody's.

With respect to mainly sovereign credit exposures subject to the standardised approach reference is also made to the export credit ratings issued by the Organisation for Economic Co-operation and Development (OECD). The group applies issuer ratings to calculate risk weights and will only apply an issuer-specific rating in the event that it invests in a particular issue that has an issue-specific assessment.

Regulatory capital for the credit risk arising on the owner-occupied sub-portfolio of the commercial property finance portfolio in SA was calculated on the standardised approach.

The credit rating scale on page 28 is used for the alignment with the group's master rating scale. In the case of obligors for which there are no credit ratings available, exposures are classified as unrated for determining regulatory capital requirements.

Internal ratings-based approach

Under the IRB regulatory capital approaches, the calculation of regulatory capital is based on an estimate of EAD and a risk weighting. The risk weighting is based on asset class, and estimates of PD, LGD, and maturity. Under the AIRB approach all the parameters need to be estimated internally, while only PD is estimated internally under the foundation IRB approach. EAD, LGD and maturity are regulatory-prescribed under the foundation IRB approach.

Model development is governed by a group model risk governance framework, which applies to all models used in the assessment of credit risk, including but not limited to models used for the IRB approaches. Credit risk model development is conducted within the independent risk function, while validation is independently undertaken by a quantitative analytics function.

All IRB models are managed under model development and validation policies that set out the requirements for model governance structures and processes, and the technical framework within which model performance and

appropriateness is maintained. The models are developed using internal historical default and recovery data. In low-default portfolios, internal data is supplemented with external benchmarks and studies. Models are subjected to validation to demonstrate the reliability of the model's output.

Model validation takes place when a model is first designed and annually thereafter, when there are material changes to the model or when rating systems are replaced or enhanced. Models are thus assessed frequently to ensure ongoing appropriateness as business environments and strategic objectives change and are recalibrated annually using the most recent internal data. Any changes to models or to model outputs are controlled through access rights and are subject to approval at the relevant business unit or group governance committee.

Ongoing overall SA supervisory approval of the approach taken by the group to model its exposure to credit risk on the IRB approach, as well as for all credit risk models used for regulatory capital purposes, is obtained primarily by way of an annual self-assessment. The assessment addresses all aspects of model design, the rating structure and criteria for ratings, the assessment horizon, integrity of the rating process, governance around rating overrides, maintenance of data, stress tests for capital adequacy, integrity of estimates used and validation of the models.

The technical aspects of model usage, development, monitoring and validation are reviewed by a technical committee. The outcomes of model technical discussions are reported to the relevant model approval committee.

GIA is responsible, within its regular audits, for expressing an opinion on the extent of compliance with the model risk governance framework and for reviewing model inputs.

IRB risk components

Probability of default

PD is calculated using actual historical default rates, and in the case of retail exposures calibrated to a specific behaviour scorecard using a monotonic calibration technique that ensures a clear ranking of risk by mapping higher scores to lower PDs and vice versa. The estimates are adjusted to the long-run average default rate (through-the-cycle) to cater for potential downturn economic conditions.

The group uses a 25-point master rating scale to quantify the credit risk for each borrower (corporate asset classes) or facility (specialised lending and retail asset classes), as illustrated in the table below. Ratings are mapped to PDs by means of calibration formulae that use historical default rates and other data from the applicable portfolio.

The group distinguishes between through-the-cycle PDs and point-in-time PDs, and utilises both measures in decision-making, managing credit risk exposures and measuring impairments against credit exposures.

The table below describes the internally defined relationship between the group master rating scale, generally accepted defined investment grades, the group's credit quality definitions and external rating scales.

Group master rating scale	GRADING	CREDIT QUALITY	MOODY'S INVESTORS SERVICES	STANDARD & POOR'S	FITCH[1]
1 – 4	Investment grade	Normal monitoring	Aaa, Aa1, Aa2, Aa3	AAA, AA+, AA, AA-	AAA, AA+, AA, AA-
5 – 7			A1, A2, A3	A+, A, A-	A+, A, A-
8 – 12			Baa1, Baa2, Baa3	BBB+, BBB, BBB-	BBB+, BBB, BBB-
13 – 20	Sub-investment grade		Ba1, Ba2, Ba3, B1, B2, B3	BB+, BB, BB-,B+, B, B-	BB+, BB, BB-,B+, B, B-
21 – 25		Close monitoring	Caa1, Caa2, Caa3	CCC+, CCC, CCC-	CCC+, CCC, CCC-
Default	Default	Default	C	D	D

[1] During 2015, Fitch withdrew the FSB registration of their SA subsidiary. Their grades are retained in this table to cater for exposures that still reference Fitch.

Loss given default

The LGD is the amount of a counterparty's obligation to the group that is not expected to be recovered after default and is expressed as a percentage of the EAD. LGD measures are a function of customer type, product type, seniority of loan, country of risk and level of collateralisation.

LGD is calculated using the workout method (discounted cash flows). Forecasting is performed for accounts that are still in default at the end of the outcome period. LGDs are estimated based on historical recovery data per category of LGD. A downturn LGD is used in the estimation of the capital charge and reflects the anticipated recovery rates in a downturn period.

Exposure at default

EAD captures the potential impact of changes in exposure values, for example:

- potential drawdowns against unutilised facilities
- missed payments
- repayments of capital
- potential changes in CCR positions due to changes in market prices.

By using historical data, it is possible to estimate an account's average utilisation of limits, recognising that the exposure value at point of default may differ to that at the balance sheet date given the aforementioned reasons.

Expected loss

The IRB expected loss (EL) provides a measure of the value of the through-the-cycle credit losses that may reasonably be expected to occur over a 12-month period in the portfolio.

To the extent that IFRS provisions may be insufficient to cover the EL in the credit portfolio, the difference is deducted from qualifying capital (referred to as 'shortfall of credit provisions to EL in the group's qualifying capital reconciliation). In its most basic form the EL can be calculated as the product of PD, EAD and LGD.

Credit conversion factors

The group applies a regulatory-approved credit conversion factors (CCF) to convert undrawn limits and other non-derivative off-balance sheet exposures to an equivalent EAD. The CCF is used to estimate the EAD for non-defaulted accounts. A downturn adjustment is made to cater for potential downturn economic conditions.

Use of internal estimates

The group's credit risk rating systems and processes differentiate and quantify credit risk across counterparties and asset classes. Internal risk parameters are used extensively in risk management and business processes, including:

- setting risk appetite
- setting concentration and counterparty limits
- credit approval and monitoring
- pricing transactions
- determining portfolio impairment provisions
- calculating economic capital.

KEY PORTFOLIO MODELS

The group makes use of the following key models for its credit risk regulatory capital purposes:

- credit rating models for corporate exposures, with distinctions made between SA, and small and medium enterprises (SME)
- for the CIB portfolio, distinct credit rating models are used for exposures to banks, sovereigns, local government, brokers, hedge funds, pension funds, asset managers, long- and short-term insurers, property finance (both developer and investor cash flow) and project finance respectively
- in the retail and personal lending segments, behavioural scorecard models are used for the retail cheque portfolio, retail SME, card, personal loans, home loans, retail and corporate SMEs, vehicle and asset finance, Blue Banner securitisation vehicle RC1 Proprietary Limited, pension-backed lending, Diners Club S.A. card and access loans.

PD, EAD and LGD modelling are integral to all of the models and portfolios detailed above.

Portfolios

Corporate, sovereign and bank portfolios

Corporate entities include large companies, as well as SMEs that are managed on a relationship basis or have a combined exposure to the group of more than R12 million. Corporate exposures also include specialised lending (project, object and commodity finance, as well as income-producing real estate), public sector entities and derivative trading counterparties.

Sovereign and bank borrowers include sovereign government entities, central banks, local and provincial government entities, bank and non-bank financial institutions.

The creditworthiness of corporate (excluding specialised lending), sovereign and bank exposures is assessed based on a detailed individual assessment of the financial strength of the borrower. This quantitative analysis, together with expert judgement and external rating agency ratings, leads to an assignment of an internal rating to the entity.

Specialised lending's creditworthiness is assessed on a transactional level, rather than on the financial strength of the borrower, in so far as the group relies only on repayment from the cash flows generated by the underlying assets financed.

Retail portfolio

Retail mortgage exposures relate to mortgage loans to individuals and are a combination of both drawn and undrawn EADs.

Qualifying retail revolving exposure (QRRE) relates to current accounts, credit cards and revolving personal loans and products, and includes both drawn and undrawn exposures.

Retail other covers other branch lending and vehicle finance for retail, personal, and SME portfolios. Bank lending includes both drawn and undrawn exposures, while vehicle and asset finance only has drawn exposures.

Internally developed behavioural scorecards are used to measure the anticipated performance for each account.

Mapping of the behaviour score to a PD is performed for each portfolio using a statistical calibration of portfolio-specific historical default experience.

The behavioural scorecard PDs are used to determine the portfolio distribution on the master rating scale. Separate LGD models are used for each product portfolio and are based on historical recovery data. EAD is measured as a percentage of the credit facility limit and is based on historical averages. EAD is estimated per portfolio and per portfolio-specific segment, using internal historical data on limit utilisation.

Equity portfolio

Equity risk held in the banking book is substantively controlled in accordance with the credit risk governance standard, except in so far as it is approved and overseen under the mandate of the ERC rather than under the normal credit risk delegated authority structures.

CONCENTRATION RISK

Concentration risk is the risk of loss arising from an excessive concentration of exposure to a single counterparty, an industry, a product, a geography, maturity, or collateral. SBSA group's credit risk portfolio is well-diversified. SBSA group's management approach relies on the reporting of concentration risk along key dimensions, the setting of portfolio limits and stress testing.

CREDIT RISK MITIGATION

Wherever warranted, the SBSA group will attempt to mitigate credit risk, including CCR, to any counterparty, transaction, sector, or geographic region, so as to achieve the optimal balance between risk, cost, capital utilisation and reward. Risk mitigation may include the use of collateral, the imposition of financial or behavioural covenants, the acceptance of guarantees from parents or third parties, the recognition of parental support, and the distribution of risk.

Collateral, parental guarantees, credit derivatives and on- and off-balance sheet netting are widely used to mitigate credit risk. CRM policies and procedures ensure that risk mitigation techniques are acceptable, used consistently, valued appropriately and regularly, and meet the risk requirements of operational management for legal, practical and timely enforcement. Detailed processes and procedures are in place to guide each type of mitigation used.

In the case of collateral where the group has an unassailable legal title, the group's policy requires collateral to meet certain criteria for recognition in LGD modelling, including:

- being readily marketable and liquid
- being legally perfected and enforceable
- having a low valuation volatility
- being readily realisable at minimum expense
- having no material correlation to the obligor credit quality
- having an active secondary market for resale.

The main types of collateral obtained by the group for its banking book exposures include:

- mortgage bonds over residential, commercial and industrial properties
- cession of book debts
- pledge and cession of financial assets
- bonds over plant and equipment
- the underlying movable assets financed under leases and instalment sales.

Reverse repurchase agreements and commodity leases to customers are collateralised by the underlying assets.

Guarantees and related legal contracts are often required, particularly in support of credit extension to groups of companies and weaker obligors. Guarantors include banks, parent companies, shareholders and associated obligors. Creditworthiness is established for the guarantor as for other obligor credit approvals.

For trading and derivatives transactions where collateral support is considered necessary, the group typically uses recognised and enforceable international swaps and derivatives association (ISDA) agreements, with a credit support annexure.

Netting agreements, such as collateral under the credit support annexure of an ISDA agreement, are obtained only where the group firstly has a legally enforceable right to offset credit risk by way of such an agreement, and secondly where the group has the intention of utilising such agreement to settle on a net basis.

Other credit protection terms may be stipulated, such as limitations on the amount of unsecured credit exposure acceptable, collateralisation if the mark-to-market credit exposure exceeds acceptable limits, and termination of the contract if certain credit events occur, for example, downgrade of the counterparty's public credit rating.

Wrong-way risk arises in transactions where the likelihood of default (the PD) by a counterparty and the size of credit exposure (as measured by EAD) to that counterparty tend to increase at the same time. This risk is managed both at an individual counterparty level and at an aggregate portfolio level by limiting exposure to such transactions, taking adverse correlation into account in the measurement and mitigation of credit exposure and increasing oversight and approval levels. The group has no appetite for wrong-way risk arising where the correlation between EAD and PD is due to a legal, economic, strategic or similar relationship (specific wrong-way risk). General wrong-way risk, which arises when the EAD and PD for the counterparty is correlated due to macro factors, is closely managed within existing risk frameworks.

To manage actual or potential portfolio risk concentrations in areas of higher credit risk and credit portfolio growth, the group implements hedging and other strategies from time-to-time. This is done at individual counterparty, sub-portfolio and portfolio levels through the use of syndication, distribution and sale of assets, asset and portfolio limit management, credit derivatives and credit protection.

COUNTERPARTY CREDIT RISK

SBSA group is exposed to CCR through movements in the fair value of securities financing and derivatives contracts. The risk amounts reflect the aggregate replacement costs that would be incurred by the SBSA group in the event of counterparties defaulting on their obligations.

The SBSA group's exposure to CCR is affected by the nature of the trades, the creditworthiness of the counterparty, and underlying netting and collateral arrangements. CCR is measured in PFE terms and recognised on a net basis where netting agreements are in place and are legally enforceable, or otherwise on a gross basis. Exposures are generally marked-to-market daily. Cash or near cash collateral is posted where contractually provided for.

Demand for economic capital, as a risk appetite dimension, is allocated to risk types (including CCR) in accordance with the group risk appetite governance framework and serves as the basis for the setting of internal CCR appetite limits against which aggregate risk type exposure can be measured.

CCR, reflecting both pre-settlement and settlement risk, is subjected to explicit credit limits which are formulated and approved for each counterparty and economic group, with specific reference to its credit rating and other credit exposures to that counterparty.

In the event of a rating downgrade, the collateral that the group would have to provide is dependent on a number of variables, including the netting of existing positions and a reduction in the threshold above which collateral would have to be posted with counterparties to cover the group's negative mark-to-market. With respect to additional collateral that the group may be required to lodge with trading counterparties in the event of a rating downgrade, refer to page 45.

For trades that are not subject to margining requirements, the replacement cost is the loss that would occur if a counterparty were to default and its transactions closed immediately.

For margined trades, it is the loss that would occur if a counterparty were to default at the current or future date, assuming that the close-out and replacement of transactions occur instantaneously. However, the close-out of a trade upon a counterparty default may not be instantaneous. The replacement cost under the current exposure method is determined by marking contracts to market.

PFE is any potential increase in exposure between the present and up to the end of the margin period of risk. The PFE for the current exposure method is determined by applying a prescribed add-on factor to the underlying notional amount to determine the PFE over the life of the contract.

Effective expected positive exposure is the weighted average over time of the effective expected exposure over the first year, or, if all the contracts in the netting set mature before one year, over the time period of the longest-maturity contract in the netting set where the weights are the proportion that an individual expected exposure represents of the entire time interval.

SECURITISATION

Securitisation is a transaction whereby the credit risk associated with an exposure, or pool of exposures, is tranched and passed on to investors, typically through loan notes, and where payments to investors through the loan notes in the transaction are dependent upon the performance of the exposure or pool of exposures.

A traditional securitisation involves the transfer of the exposures being securitised to a structured entity (SE) which issues securities. In a synthetic securitisation, the tranching is achieved by the use of credit derivatives and the underlying exposures are not removed from the balance sheet.

The group uses SEs to securitise customer loans and advances that it has originated to diversify its sources of funding for asset origination, for capital efficiency purposes and to reduce risk. In addition, the group plays a secondary role as an investor in certain third-party securitisation note issuances (SEs established by third-parties).

The following SEs have been established by the group. As at the end of the 2018 financial year, the group is in the process of winding down all of these SEs and has, pursuant to all required regulatory consents, been repurchasing these entities' performing assets. None of the SEs have any notes outstanding.

- Blue Granite Investments No. 1 (RF)[1] Limited (BG 1)
- Blue Granite Investments No. 2 (RF) Limited (BG 2)
- Blue Granite Investments No. 3 (RF) Limited (BG 3)
- Blue Granite Investments No. 4 (RF) Limited (BG 4)
- Siyakha Fund (RF) Limited (Siyakha)
- Blue Titanium Conduit (RF) Limited (BTC).

[1] Ring-fenced.

Securitisation achieves the following objectives for investors and third-party issuers:

- facilitating non-banks' access to asset classes traditionally only available to banks
- diversification of investment asset base
- potential yield pick-up for investors or a reduction in funding costs for issuers (disintermediation of the banking sector).

Securitisation achieves the following objectives for the group:

- securitisation is used to raise funding and transfer risk out of the banking system
- the group has originated a number of securitisations of its own home loan assets. All of these transactions were aimed at diversifying the bank's funding base beyond the group's normal wholesale deposit base
- the group has always retained the subordinated loans and consequently transactions have not resulted in a reduction of the RWA associated with the securitised loans
- securitisation transactions arranged for third-parties, allow the bank to earn arranging fees, as well as ancillary fee income from providing banking, back-up servicing, interest rate swaps and liquidity facilities
- since 2014, the group also makes use of securitisation structures to provide collateral for the SARB committed liquidity facility aimed at meeting the new LCR requirements. In these transactions the notes issued by the SE, as well as the subordinated loan are retained by SBSA.

To date, the group has applied the standardised approach, the ratings-based approach and the standard formula approach, where relevant, in the calculation of RWA.

For local securitisations in SA, Moody's Investor Services and/or Global Ratings Company act as rating agencies.

The transfer of assets by the group to an SE may give rise to the full or partial derecognition of the financial assets concerned.

Only in the event that derecognition is achieved are sales and any resultant gains or losses on disposals recognised in the financial statements. Where the SEs are consolidated at group level, such gains or losses are eliminated.

Compliance risk

APPROACH TO MANAGING COMPLIANCE RISK

General approach

The compliance function is mandated by the GAC to operate independently of business as a second line of defence function, in terms of the requirements of the Banks Act and regulations.

The management of compliance risk is standardised across the group. It is premised on internationally accepted principles for financial service providers, as well as supervisory and client expectations.

Compliance risk management is a core risk management activity overseen by the GCCO. The GCCO has unrestricted access to the chairman of the GAC and is a standing attendee at GAC meetings. The head of group financial crime compliance (incorporating money laundering and terrorist financing control, anti-bribery and corruption (ABC) and sanctions control) is a standing attendee of the GAC, reporting on the status of financial crime compliance in the bank.

The GCCO has a reporting line to the chief executive and is a member of various group management committees, including the group executive committee, GROC, and the group social and ethics committee.

A comprehensive risk management reporting and escalation procedure requires compliance executives to report on the status of compliance risk management in the group to the GCCO, who escalates significant matters to relevant management and board committees. These matters include key regulatory interaction, legislative developments, and significant compliance initiatives and current and developing compliance risks and exposures. The group has no tolerance for knowingly breaching regulatory requirements. Group compliance gives biannual input to the group remuneration committee in consideration of reward allocations.

Focus on the group's technological capability, including coverage and surveillance capability in all jurisdictions, is key to supporting both regulatory requirements, and supervisory and client expectations. To this end, there is a constant emphasis on ensuring that systems are fit-for-purpose, and digitisation is a key focus area of the compliance risk management response. To support transition to an effective data and technology-driven function, compliance is progressing with using artificial intelligence (AI), predictive analytics, machine learning and process automation to enhance personalised client journeys and simplifying the client experience, in support of a multinational client franchise. The focus on compulsory compliance training continues, with the rollout of an agile digitised system that enables staff in all our operations to complete their training on any smart device. Consequence management is applied for non-completion of compulsory compliance training.

The monitoring of compliance with laws, rules and regulations has been standardised across the group, using a methodology that is aligned with a combined assurance model.

The group privacy office resides within group compliance and manages compliance with the applicable data protection legislation. The group privacy officer, together with jurisdictional privacy officers, manages the group's data privacy programme.

Board members, executive management and employees are made aware of their regulatory and legislative responsibilities through advice provided by group compliance, reporting, formal training, awareness sessions or face-to-face training. This has included bespoke training to regulators in various jurisdictions.

Approach to managing conduct risk

The process of embedding good conduct is underpinned by the group's code of ethics and values. The group holds itself and its stakeholders to high ethical standards and will continue to focus on doing the right business the right way, by balancing sustainable returns for our stakeholders with fair client outcomes and good business practices.

Approach to managing money laundering and terrorist financing

The framework and structures for managing the group's money laundering and terrorist financing risk are designed and maintained to ensure compliance with Financial Action Task Force recommendations. The SA Financial Intelligence Centre Act has been amended to incorporate a risk-based approach to compliance in relation to the anti-money laundering/combating the financing of terrorism (AML/CFT) regulatory framework. This includes the requirement for developing, documenting, maintaining and implementing a risk management and compliance programme that must demonstrate the group's ability to effectively apply a risk-based approach.

An implementation programme with an impact analysis that will ensure that the group continues to be aligned with all regulatory requirements is in progress.

Approach to managing sanctions

The group sanctions and client risk review committee, supported by the group sanctions desk, is responsible for providing advice and decisions on sanctions-related matters in a fluid sanctions environment.

Approach to managing anti-bribery and corruption

ABC risk within the group is managed in accordance with the OECD guidance for multinational enterprises. Oversight of ABC is provided by the bribery and corruption review committee.

Specialised training was developed for areas that are perceived as being more susceptible to bribery and corruption risk. An ABC risk assessment for the group was completed during 2018 and presented to the group social and ethics committee.

Approach to managing health, safety and environmental risk

Any risks to the health and safety of employees and stakeholders resulting from hazards in the workplace and/or potential exposure to occupational illness, as well as the group's exposure to the risk of impacting directly on the environment through business, are managed by the health, safety, and environmental risk management team and are supported by executive management accountability structures.

GOVERNANCE

The primary management level governance committee overseeing compliance risk is the group compliance committee. Compliance is also represented on, and submits reports to, various group management and independent board committees, including the SA exco committee and business unit governance committees, all of which facilitate awareness of compliance risk-related matters. The principal governance document is the group compliance risk governance standard, supported by the compliance risk management framework, which underpins accountability and control frameworks.

Country risk

APPROACH TO MANAGING COUNTRY RISK

All countries to which the SBSA group is exposed are reviewed at least annually. Internal rating models are employed to determine ratings for jurisdiction, sovereign and transfer and convertibility risk. In determining the ratings, extensive use is made of the group's network of operations, country visits and external information sources. These ratings are also a key input into the group's credit rating models.

The model inputs are continuously updated to reflect economic and political changes in countries. The model outputs are internal risk grades that are calibrated to a jurisdiction risk grade from aaa to d, as well as sovereign risk grade, and transfer and convertibility risk grade (SB) from SB01 to SB25. Countries with sovereign/jurisdiction risk ratings weaker than SB07/a, referred to as medium- and high-risk countries, are subject to more detailed analysis and monitoring.

Country risk is mitigated through a number of methods, including:

- political and commercial risk insurance
- co-financing with multilateral institutions
- structures to mitigate transfer and convertibility risk such as collection, collateral and margining deposits outside the jurisdiction in question.

GOVERNANCE

The primary management level governance committee overseeing this risk type is the group country risk management committee.

The principal governance document is the country risk governance standard.

APPROVED REGULATORY CAPITAL APPROACHES

There are no regulatory capital requirements for country risk.

Country risk is, however, incorporated into regulatory capital for credit in the IRB approaches through the jurisdiction risk and transfer and convertibility risk ratings' impact on credit grades.

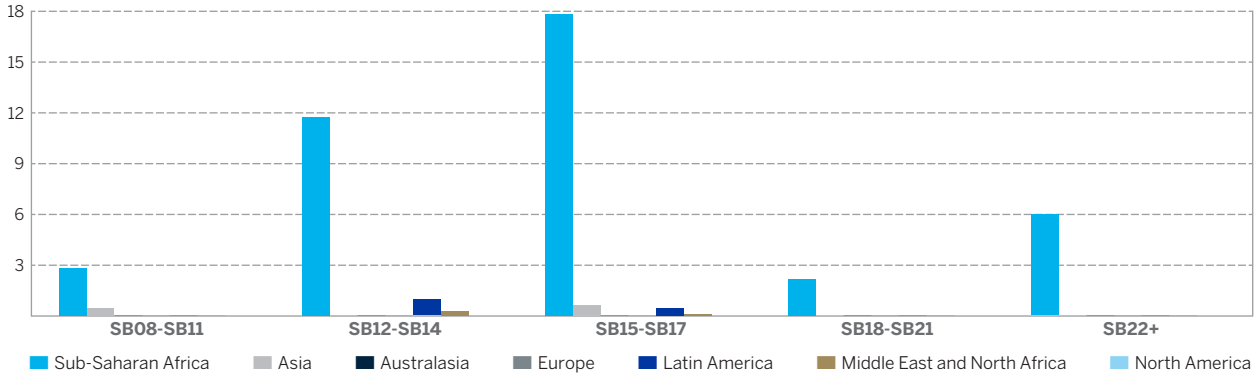
COUNTRY RISK PORTFOLIO CHARACTERISTICS AND METRICS

The distribution of cross-border country risk exposures is weighted towards European, Asian and North American low-risk countries, as well as sub-Saharan African medium- and high-risk countries.

COUNTRY RISK EXPOSURE BY REGION AND RISK GRADE

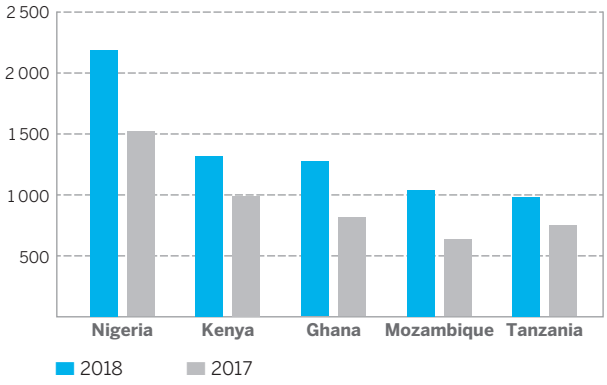
Risk grade	Sub-Saharan Africa %	Asia %	Australasia %	Europe %	Latin America %	Middle East and North Africa %	North America %
2018							
SB01-SB07	**2.86**	**27.35**	**0.73**	**19.69**		**2.64**	**3.44**
SB08-SB11	**2.82**	**0.42**					
SB12-SB14	**11.74**				**0.94**	**0.26**	
SB15-SB17	**17.83**	**0.59**			**0.43**	**0.09**	
SB18-SB21	**2.15**						
SB22+	**5.97**						
2017							
SB01-SB07	0.71	26.54	1.19	22.88		2.03	3.16
SB08-SB11	5.52	0.69			0.20		
SB12-SB14	9.7				0.92	0.22	
SB15-SB17	20.12						
SB18-SB21	1.16	0.42					
SB22+	4.54						

Medium- and high-risk country exposure by region (%)

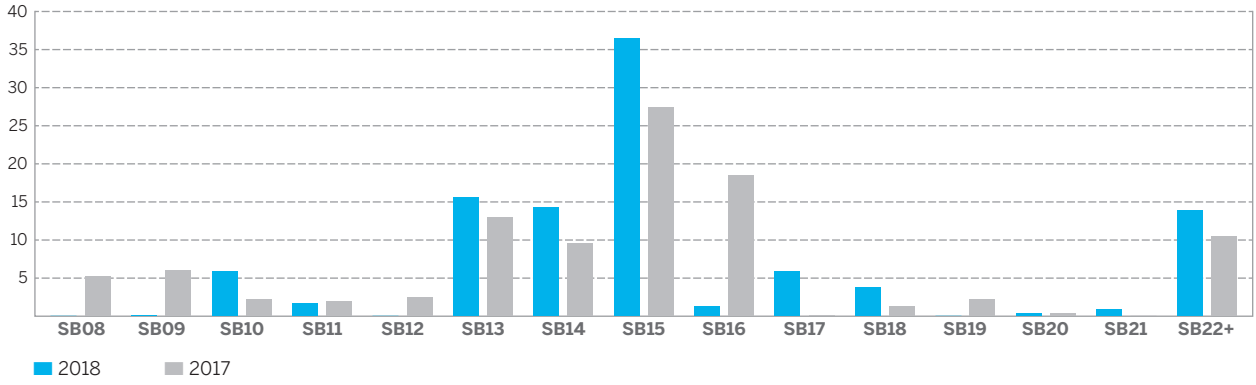


The exposures to the top five medium- and high-risk countries are in line with the group's growth strategy, which is focused on Africa.

Top five medium- and high-risk country EAD (USDm)



Medium- and high-risk country EAD concentration by country ceiling (%)



Funding and liquidity risk

APPROACH TO MANAGING LIQUIDITY RISK

The nature of SBSA group's banking and trading activities gives rise to continuous exposure to liquidity risk. Liquidity risk may arise where counterparties, who provide the SBSA group with short-term funding, withdraw or do not roll over that funding, or in a case where liquid assets become illiquid as a result of a generalised disruption in the asset markets.

SBSA group manages liquidity in accordance with applicable regulations and within the group's risk appetite governance framework. The group's liquidity risk management governance framework supports the measurement and management of liquidity, in all geographies across both the corporate and retail sectors to ensure that payment obligations can be met by the group's legal entities under both normal and stressed conditions and that regulatory minimum requirements are met at all times. This is achieved through a combination of maintaining adequate liquidity buffers, to ensure that cash flow requirements can be met, and ensuring that the group's balance sheet is structurally sound and supportive of the group's strategy. Liquidity risk is managed on a consistent basis across the group's banking subsidiaries, allowing for local requirements. Liquidity risk management ensures that the SBSA group has the appropriate amount, diversification and tenor of funding and liquidity to support its asset base at all times.

SBSA group manages liquidity risk as three interrelated pillars, which are aligned to the Basel III liquidity requirements.

LIQUIDITY MANAGEMENT CATEGORIES

TACTICAL (SHORT-TERM) LIQUIDITY RISK MANAGEMENT	STRUCTURAL (LONG-TERM) LIQUIDITY RISK MANAGEMENT	CONTINGENCY LIQUIDITY RISK MANAGEMENT
• manage intra-day liquidity positions	• ensure a structurally sound balance sheet	• monitor and manage early warning liquidity indicators
• monitor interbank and repo shortage levels	• identify and manage structural liquidity mismatches	• establish and maintain contingency funding plans
• monitor daily cash flow requirements	• determine and apply behavioural profiling	• undertake regular liquidity stress testing and scenario analysis
• manage short-term cash flows	• manage long-term cash flows	• convene liquidity crisis management committees, if needed
• manage daily foreign currency liquidity	• preserve a diversified funding base	• set liquidity buffer levels in accordance with anticipated stress events
• set deposit rates in accordance with structural and contingent liquidity requirements as informed by ALCO.	• inform term funding requirements • assess foreign currency liquidity exposures • establish liquidity risk appetite • ensure appropriate transfer pricing of liquidity costs • ensure compliance with Basel III NSFR.	• advise on the diversification of liquidity buffer portfolios • ensure compliance with Basel III LCR.

The funding and liquidity risk disclosure is based on Basel III principles, including behavioural profiling methods and assumptions, as well as phasing-in requirements where applicable.

The LCR is a metric introduced by the BCBS to measure a bank's ability to manage a sustained outflow of customer funds in an acute stress event over a 30-day period. The ratio is calculated by taking the group's HQLA and dividing it by net cash outflows. The minimum regulatory LCR requirement for 2018 was 90%, increasing by a further 10% on 1 January 2019 to reach the full 100% requirement.

SBSA excluding foreign branches, exceeded the 90% minimum phase-in requirement for 2018 with a ratio of 110.1% (2017: 99.8%).

The NSFR metric is designed to ensure that term assets are sufficiently funded by stable sources, such as capital, term borrowings or other stable funds. SBSA group successfully managed the balance sheet structure and maintained NSFR compliance for 2018 in excess of the 100% regulatory, as well as specified risk appetite requirements.

GOVERNANCE

The primary governance committee overseeing liquidity risk is group ALCO.

The principal governance documents are the liquidity risk governance standard and model risk governance framework.

LIQUIDITY CHARACTERISTICS AND METRICS

OVERVIEW OF FUNDING AND LIQUIDITY METRICS

	2018	2017
Total contingent liquidity (Rbn)	**252.5**	212.9
Eligible Basel III LCR HQLA (Rbn)	**208.6**	172.3
Managed liquidity (Rbn)	**43.9**	40.6
Total contingent liquidity as a % of funding-related liabilities (%)	**22.4**	20.3
Single depositor (%)	**2.7**	2.0
Top 10 depositors (%)	**10.3**	9.3
Basel III LCR (quarterly average %)	**110.1**	99.8
Minimum regulatory LCR requirement (%)	**90.0**	80.0
Basel III NSFR (%)[1]	**105.9**	
Minimum regulatory NSFR requirement (%)[1]	**100.0**	

[1] Only effective 1 January 2018.

Contingency liquidity risk management

Contingency funding plans

Contingency funding plans are designed to protect stakeholder interests and maintain market confidence in the event of a liquidity crisis. The plans incorporate an early warning indicator process supported by clear crisis response strategies. Early warning indicators cover bank-specific and systemic crises and are monitored according to assigned frequencies and tolerance levels.

Crisis response strategies are formulated for the relevant crisis management structures and address internal and external communications and escalation processes, liquidity generation management actions and operations, and heightened and supplementary information requirements to address the crisis event. The updating of the contingency funding plan, while considering budget forecasting, continues to be a focus area for the bank.

The group, in line with the SARB's requirements, updates and submits its recovery and resolution plans to the SARB on an annual basis. The group's recovery plan incorporates the contingent liquidity funding plan in addition to the focus given to capital planning and business continuity planning.

Liquidity stress testing and scenario analysis

Stress testing and scenario analysis are based on hypothetical and historical events. These are conducted on the group's funding profiles and liquidity positions. The crisis impact is typically measured over a 30 calendar-day period as this is considered the most crucial time horizon for a liquidity event. This measurement period is also consistent with the Basel III LCR requirements.

Anticipated on- and off-balance sheet cash flows are subjected to a variety of bank-specific and systemic stresses and scenarios to evaluate the impact of unlikely but plausible events on liquidity positions. The results are assessed against the liquidity buffer and contingency funding plans to provide assurance as to the group's ability to maintain sufficient liquidity under adverse conditions.

Internal stress testing metrics are supplemented with the regulatory Basel III LCR in monitoring the group's ability to survive severe stress scenarios.

The Basel III LCR analysis that follows represents an aggregation of the relevant individual net cash outflows and HQLA portfolios. These results reflect the simple average of 92 days of daily observations over the quarter ended 31 December 2018 and 31 December 2017 for SBSA and excludes foreign branches.

LIQ1: LIQUIDITY COVERAGE RATIO

	2018[1]		2017[1]	
	Total unweighted[2] value (average) Rm	**Total weighted[3] value (average) Rm**	Total unweighted[2] value (average) Rm	Total weighted[3] value (average) Rm
HQLA				
Total HQLA		**179 115**		157 699
Retail deposits and deposits from small business customers, of which:	**228 130**	**22 813**	260 794	21 304
Stable deposits				
Less-stable deposits	**228 130**	**22 813**	260 794	21 304
Unsecured wholesale funding, of which:	**440 233**	**232 659**	421 487	225 422
Operational deposits (all counterparties) and deposits in networks of cooperative banks	**159 234**	**39 809**	165 317	41 329
Non-operational deposits (all counterparties)	**280 956**	**192 807**	256 076	183 999
Unsecured debt	**43**	**43**	94	94
Secured wholesale funding		**110**		2
Additional requirements	**60 833**	**22 972**	102 938	23 718
Outflows related to derivative exposures and other collateral requirements	**11 841**	**11 841**	11 645	11 637
Outflows related to loss of funding on debt products	**4 658**	**4 658**	3 012	3 012
Credit and liquidity facilities	**44 334**	**6 473**	88 281	9 069
Other contractual funding obligations	**5 848**	**5 848**	2 272	2 272
Other contingent funding obligations	**264 174**	**12 233**	241 620	10 764
Cash outflows		**296 635**		283 482
Secured lending	**31 467**	**16 659**	22 799	15 349
Inflows from fully performing exposures	**124 129**	**106 987**	116 691	96 220
Other cash inflows	**16 632**	**10 351**	20 362	13 956
Cash inflows		**133 997**		125 525

	Total adjusted value[4] Rm	Total adjusted value[4] Rm
Total HQLA	**179 115**	157 699
Total net cash outflows	**162 638**	157 957
LCR (%)	**110.1**	99.8

1 Simple average of 92 days of daily observations over the quarter ended 31 December 2018 and 31 December 2017 respectively for SBSA excluding foreign branches.
2 Unweighted value represents the outstanding balances maturing or callable within 30 days (for inflows and outflows).
3 Total weighted value is calculated after the application of respective haircuts (for HQLA) or inflow and outflow rates (for inflows and outflows).
4 Adjusted value calculated after the application of both (i) haircuts and inflow and outflow rates; and (ii) any applicable caps (i.e. cap on level 2B and level 2 assets for HQLA and cap on inflows).

SBSA seeks to exceed the minimum LCR requirement with a sufficient buffer to allow for funding flow volatility as determined by its internal liquidity risk appetite. A buffer is maintained above the minimum regulatory requirement to cater for balance sheet and market volatility.

Total contingent liquidity

Portfolios of marketable and liquid instruments to meet regulatory and internal stress testing requirements are maintained as protection against unforeseen disruptions in cash flows. These portfolios are managed within ALCO-defined limits on the basis of diversification and liquidity.

The following table provides a breakdown of SBSA group's liquid and marketable instruments as at 31 December 2018 and 31 December 2017. Eligible Basel III LCR HQLA are defined according to the BCBS January 2013 LCR and liquidity risk monitoring tools framework. Managed liquidity represents unencumbered marketable instruments other than eligible Basel III LCR HQLA (excluding trading assets) which would be able to provide sources of liquidity in a stress scenario.

TOTAL CONTINGENT LIQUIDITY

	2018 Rbn	2017 Rbn
Eligible LCR HQLA comprising:	**208.6**	172.3
Notes and coins	**10.4**	12.6
Balances with central banks	**24.1**	23.3
Government bonds and bills	**130.1**	91.3
Other eligible assets	**44.0**	45.1
Managed liquidity	**43.9**	40.6
Total contingent liquidity	**252.5**	212.9
Total contingent liquidity as a % of funding-related liabilities (%)	**22.4**	20.3

Liquid assets held remain adequate to meet all internal stress testing and regulatory requirements.

Structural liquidity requirements

Net stable funding ratio

The Basel III NSFR became effective on 1 January 2018 with the objective to promote funding stability and resilience in the banking sector by requiring banks to maintain a stable funding profile in relation to the composition of its assets and off-balance sheet activities. The available stable funding is defined as the portion of capital and liabilities expected to be reliable over the one-year time horizon considered by the NSFR. The amount of required stable funding is a function of the liquidity characteristics and residual maturities of the various assets (including off-balance sheet exposures) held by the bank. By ensuring that banks do not embark on excessive maturity transformation that is not sustainable, the NSFR is intended to reduce the likelihood that disruptions to a bank's funding sources would erode its liquidity position, increase its risk of failure and potentially lead to broader systemic risk.

The following table reflects SBSA excluding foreign branches, assets, liabilities and off-balance sheet items as at 31 December 2018 and 30 September 2018.

LIQ2: NET STABLE FUNDING RATIO

2018	Unweighted value by residual maturity				Weighted value Rm
	No maturity Rm	<6 months Rm	6 months to <1 year Rm	≥1 year Rm	
ASF item					
Capital:	85 799	269	4 758	16 906	105 178
Regulatory capital	85 799			15 663	101 462
Other capital instruments		269	4 758	1 243	3 716
Retail deposits and deposits from small business customers:	94 847	165 567	7 050	9 322	250 040
Stable deposits					
Less-stable deposits	94 847	165 567	7 050	9 322	250 040
Wholesale funding:	194 451	437 450	66 791	138 318	397 728
Operational deposits	131 264	30 952			81 108
Other wholesale funding	63 187	406 498	66 791	138 318	316 620
Liabilities with matching interdependent assets					
Other liabilities:	27 442	4 194		8 117	8 117
NSFR derivative liabilities			7 270		
All other liabilities and equity not included in the above categories	27 442	4 194		8 117	8 117
Total ASF					761 063
RSF item					
Total NSFR HQLA					21 307
Deposits held at other financial institutions for operational purposes					
Performing loans and securities:	11 569	241 801	64 232	669 212	629 048
Performing loans to financial institutions secured by level 1 HQLA		20 953		1 989	4 084
Performing loans to financial institutions secured by non-level 1 HQLA and unsecured performing loans to financial institutions		134 843	13 687	34 402	61 472
Performing loans to non-financial corporate clients, loans to retail and small business customers, and loans to sovereigns, central banks and PSEs, of which:		69 314	37 734	321 367	326 686
With a risk weight of less than or equal to 35% under the Basel II standardised approach for credit risk					
Performing residential mortgages, of which:		5 910	4 950	277 042	188 402
With a risk weight of less than or equal to 35% under the Basel II standardised approach for credit risk		5 601	4 692	262 570	175 817
Securities that are not in default and do not qualify as HQLA, including exchange-traded equities	11 569	10 781	7 861	34 412	48 404
Assets with matching interdependent liabilities					
Other assets:	49 552	1 096		991	55 113
Physical traded commodities, including gold	3				3
Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs			3 024		2 571
NSFR derivative assets			7 870		600
NSFR derivative liabilities before deduction of variation margin posted			12 696		1 270
All other assets not included in the above categories	49 549	1 096		991	50 669
Off-balance sheet items			302 116		12 973
Total RSF					718 441
NSFR (%)					105.9

3Q18[1]	Unweighted value by residual maturity				Weighted value Rm
	No maturity Rm	<6 months Rm	6 months to <1 year Rm	≥1 year Rm	
ASF item					
Capital:	86 428	296	2 002	17 585	105 117
Regulatory capital	86 428			13 597	100 025
Other capital instruments		296	2 002	3 988	5 092
Retail deposits and deposits from small business customers:	91 929	161 057	7 321	8 762	243 038
Stable deposits					
Less-stable deposits	91 929	161 057	7 321	8 762	243 038
Wholesale funding:	197 534	374 004	78 860	139 127	400 399
Operational deposits	129 835	29 737			79 786
Other wholesale funding	67 699	344 267	78 860	139 127	320 613
Liabilities with matching interdependent assets					
Other liabilities:	32 511	5 696		4 042	4 042
NSFR derivative liabilities			8 708		
All other liabilities and equity not included in the above categories	32 511	5 696		4 042	4 042
Total ASF					752 596
RSF item					
Total NSFR HQLA					20 632
Deposits held at other financial institutions for operational purposes					
Performing loans and securities:	12 207	208 396	58 820	653 326	611 349
Performing loans to financial institutions secured by level 1 HQLA		7 760	201	1 186	2 063
Performing loans to financial institutions secured by non-level 1 HQLA and unsecured performing loans to financial institutions		107 096	9 503	30 215	51 031
Performing loans to non-financial corporate clients, loans to retail and small business customers, and loans to sovereigns, central banks and PSEs, of which:		76 403	36 136	320 743	328 901
With a risk weight of less than or equal to 35% under the Basel II standardised approach for credit risk					
Performing residential mortgages, of which:		6 089	4 932	274 383	186 651
With a risk weight of less than or equal to 35% under the Basel II standardised approach for credit risk		5 779	4 681	260 424	174 506
Securities that are not in default and do not qualify as HQLA, including exchange-traded equities	12 207	11 048	8 048	26 799	42 703
Assets with matching interdependent liabilities					
Other assets:	45 077	5 392		991	51 563
Physical traded commodities, including gold	3				3
Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs			4 271		3 630
NSFR derivative assets			8 749		41
NSFR derivative liabilities before deduction of variation margin posted			16 297		1 630
All other assets not included in the above categories	45 074	5 392		991	46 259
Off-balance sheet items			282 583		11 798
Total RSF					695 342
NSFR (%)					108.2

[1] In line with Basel pillar 3 requirements, the comparative period shown for LIQ2 is 3Q18.

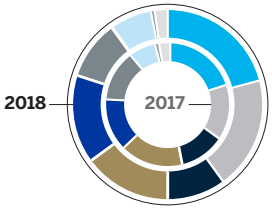
SBSA excluding foreign branches, maintained NSFR compliance in excess of the 100% regulatory requirement and operates above risk appetite and management internal buffer requirements.

Funding activities

Funding markets are evaluated on an ongoing basis to ensure appropriate SBSA group funding strategies are executed depending on the market, competitive and regulatory environment. SBSA group employs a diversified funding strategy, sourcing liquidity in both the domestic and offshore markets, and incorporates a coordinated approach to accessing loan and debt capital markets across the group.

Primary funding sources are in the form of deposits across a spectrum of retail and wholesale clients, as well as loan and debt capital markets. Total funding-related liabilities increased from R1 048 billion as at 31 December 2017 to R1 126 billion as at 31 December 2018.

Funding diversification by product (%)



	2018	2017
Call deposits	21	20
Term deposits	19	15
Current accounts	10	12
Cash management deposits	15	16
Deposits from banks and central banks	15	13
Negotiable certificates of deposits	10	13
Senior and subordinated debt	7	7
Savings account	1	1
Other	2	3

FUNDING-RELATED LIABILITIES COMPOSITION[1]

	2018 Rbn	2017 Rbn
Corporate funding	258	247
Retail deposits[2]	252	239
Institutional funding	299	290
Interbank funding	145	110
Government and parastatals	72	62
Senior debt	55	55
Term loan funding	26	28
Subordinated debt issued	19	17
Total funding-related liabilities	**1 126**	1 048

1 Composition aligned to Basel III liquidity classifications.
2 Comprises individual and small business customers.

Concentration risk limits are used within SBSA group to ensure that funding diversification is maintained across products, sectors, geographic regions and counterparties.

DEPOSITOR CONCENTRATION

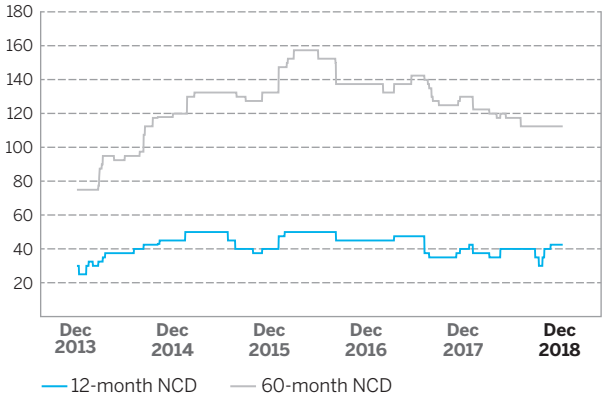
	2018 %	2017 %
Single depositor (limit 10%)	2.7	2.0
Top ten depositors (limit 20%)	10.3	9.3

A component of the SBSA group's funding strategy is to ensure that sufficient contractual term funding is raised in support of term lending and to ensure adherence to the structural mismatch tolerance limits and appetite guidelines.

The SBSA group successfully increased longer-term funding in excess of 12 months, raising R24.4 billion through a combination of negotiable certificates of deposits (NCD), senior debt and syndicated loans. The group issued R5.0 billion of Basel III compliant Tier II notes in 2018, the proceeds of which have been invested in SBSA on the same terms and conditions as those applicable to the Tier II notes in SBG.

The graph below is a representation of the market cost of liquidity, which is measured as the spread paid on NCDs relative to the prevailing reference rate. The graph is based on actively issued money market instruments by banks, namely 12-and 60-month NCDs. The cost of liquidity reduced by 22.5 bps in the 60-month tenor, driven by tighter clearing spreads recorded in the NCD and senior debt market. This was driven by continued limited supply of high-quality corporate credit issuance into capital markets. The cost of liquidity in money markets measured by the 12-month NCD recorded an increase of 7.5 bps over the 12-month period.

SBSA 12- and 60-month liquidity spread (bps)



SBSA GROUP'S CREDIT RATINGS

SBSA group's ability to access funding at cost-effective levels is dependent on maintaining or improving the borrowing entity's credit rating.

The following table provides a summary of the major credit ratings for the SBSA group as at 31 December 2018.

Long-term	Fitch
SBSA foreign currency issuer default rating	BB+
SA sovereign foreign currency issuer default rating	BB+
Long-term	**Moody's**
SBSA foreign currency deposit rating	Baa3
SA sovereign foreign currency rating	Baa3

Credit ratings for SBSA are dependent on multiple factors, including the SA sovereign rating, capital adequacy levels, quality of earnings, credit exposure, the credit risk governance framework and funding diversification. These parameters and their possible impact on the borrowing entity's credit rating are monitored closely and incorporated into the group's liquidity risk management and contingency planning considerations.

SBSA group continues to monitor the implications of further SA sovereign credit rating agency downgrades for both local and foreign currency which could still have a significant impact on the group's access to, and cost of, foreign currency liquidity sources.

A rating downgrade would reduce the thresholds above which collateral must be posted with counterparties to cover the group's negative mark-to-market on derivative contracts. These are managed within the liquidity management pillar. The potential cumulative impact on additional collateral requirements is contained in the table that follows.

1, 2 AND 3 NOTCH RATING DOWNGRADES

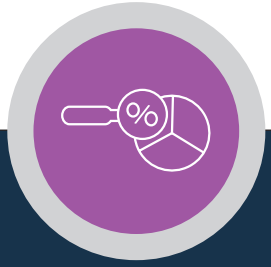
	2018 Rm	2017 Rm
Impact on the group's liquidity of a collateral call linked to downgrading by		
1 notch	**72**	430
2 notch	**72**	430
3 notch	**72**	430

CONDUITS

The group provides a standby liquidity facility to Thekwini Warehouse Conduit.

This facility, which totalled R2.4 billion in 2018 (2017: R4.9 billion), has not been drawn on.

The liquidity risk associated with this facility is managed in accordance with SBSA group's overall liquidity position and represents less than 2% of the group's total liquidity (2017: 2%). The liquidity facility is included in the SBSA group's balance, sheet as well as in liquidity risk stress testing.



Market risk

APPROVED REGULATORY CAPITAL APPROACHES

SBSA has approval from the SARB to adopt the IMA for most asset classes and across most market variables with the balance on the standardised model.

For material equity portfolios, SBSA has approval from the SARB to adopt either the market-based or PD/LGD approach.

There are no regulatory capital requirements for interest rate risk in the banking book (IRRBB), structural foreign exchange exposures or own equity-linked transactions. The group does not apply the incremental risk charge or comprehensive risk capital charge approach.

GOVERNANCE

The governance management level committee overseeing market risk is group ALCO.

The principal governance documents are the market risk governance standard and the model risk governance framework. SBSA group's key market risks are:

- trading book market risk
- IRRBB*
- equity risk in the banking book*
- foreign currency risk*
- own equity-linked transactions*
- post-employment obligation risk.

AFS | * Refer to Annexure C of the group's AFS for these disclosures.

TRADING BOOK MARKET RISK

Definition

Trading book market risk is represented by financial instruments, including commodities, held in the trading book, arising out of normal global markets' trading activity.

Approach to managing market risk in the trading book

The group's policy is that all trading activities are undertaken within the group's global markets' operations.

The market risk functions are independent of the group's trading operations and are accountable to SBSA ALCO. SBSA ALCO has a reporting line into group ALCO, a subcommittee of GROC.

All VaR and SVaR limits require prior approval from the respective entity ALCOs. The market risk functions have the authority to set these limits at a lower level.

Exposures and excesses are monitored and reported daily. Where breaches in VaR or SVaR limits occur, actions are taken by market risk functions to bring exposures back in line with approved market risk appetite, with such breaches being reported to management and SBSA ALCO.

Measurement

The techniques used to measure and control trading book market risk and trading volatility include VaR and SVaR, stop-loss triggers, stress tests, backtesting and specific business unit and product controls.

VaR and SVaR

SBSA group uses the historical VaR and SVaR approach to quantify market risk under normal and stressed conditions.

For risk management purposes VaR is based on 251 days of unweighted recent historical data updated at least monthly, a holding period of one day and a confidence level of 95%. The historical VaR results are calculated in four steps:

- calculate 250 daily market price movements based on 251 days' historical data. Absolute movements are used for interest rates and volatility movements; relative for spot, equities, credit spreads, and commodity prices
- calculate hypothetical daily profit or loss for each day using these daily market price movements
- aggregate all hypothetical profits or losses for day one across all positions, giving daily hypothetical profit or loss, and then repeat for all other days
- VaR is the 95th percentile selected from the 250 days of daily hypothetical total profit or loss.

Daily losses exceeding the VaR are likely to occur, on average, 13 times in every 250 days.

SVaR uses a similar methodology to VaR, but is based on an 251-day period of financial stress which is reviewed quarterly and assumes a ten-day holding period and a worst case loss. The ten-day period is based on the average expected time to reduce positions. The period of stress for SBSA is currently the 2008/2009 financial crises while, for other markets, more recent stress periods are used.

Where the SBSA group has received internal model approval, the market risk regulatory capital requirement is based on VaR and SVaR, both of which use a confidence level of 99% and a ten-day holding period.

Limitations of historical VaR are acknowledged globally and include:

- the use of historical data as a proxy for estimating future events may not encompass all potential events, particularly those which are extreme in nature
- the use of a one-day holding period assumes that all positions can be liquidated or the risk offset in one day. This will usually not fully reflect the market risk arising at times of severe illiquidity, when a one-day holding period may be insufficient to liquidate or hedge all positions fully
- the use of a 95% confidence level, by definition, does not take into account losses that might occur beyond this level of confidence.

VaR is calculated on the basis of exposures outstanding at the close of business and, therefore, does not necessarily reflect intra-day exposures. VaR is unlikely to reflect loss potential on exposures that only arise under significant market movements.

Trading book issuer risk

Equity and credit issuer risk is assumed in the trading book by virtue of normal trading activity, and is managed according to the group's market risk governance standard. These exposures arise from, among others, trading in equities, debt securities issued by corporate and government entities, as well as trading credit derivative transactions with other banks and corporate clients.

The credit spread and equity issuer risk is incorporated into the daily price movements used to compute VaR and SVaR mentioned above for issuer risk and transactions that incorporate material counterparty value adjustments and debit value adjustments.

The VaR models used for credit spread and equity issuer risk are only intended to capture the risk presented by historical day-to-day market movements, and, therefore, do not take into account instantaneous or jump to default risk. Issuer risk is incorporated in the standardised approach interest rate risk charge for SBSA. Excluding local currency government debt held in SBSA, the largest issuer exposure was R16.4 billion (2017: R17.1 billion).

Stop-loss triggers

Stop-loss triggers are used to protect the profitability of the trading desk and are monitored by market risk on a daily basis. The triggers constrain cumulative or daily trading losses through acting as a prompt to review or close-out positions.

Stress tests

Stress testing provides an indication of the potential losses that could occur under extreme but plausible market conditions, including where longer holding periods may be required to exit positions. Stress tests comprise individual market risk factor testing, combinations of market factors per trading desk and combinations of trading desks using a range of historical, hypothetical and Monte Carlo simulations. Daily losses experienced during the period under review did not exceed the maximum tolerable losses as represented by the group's stress scenario limits.

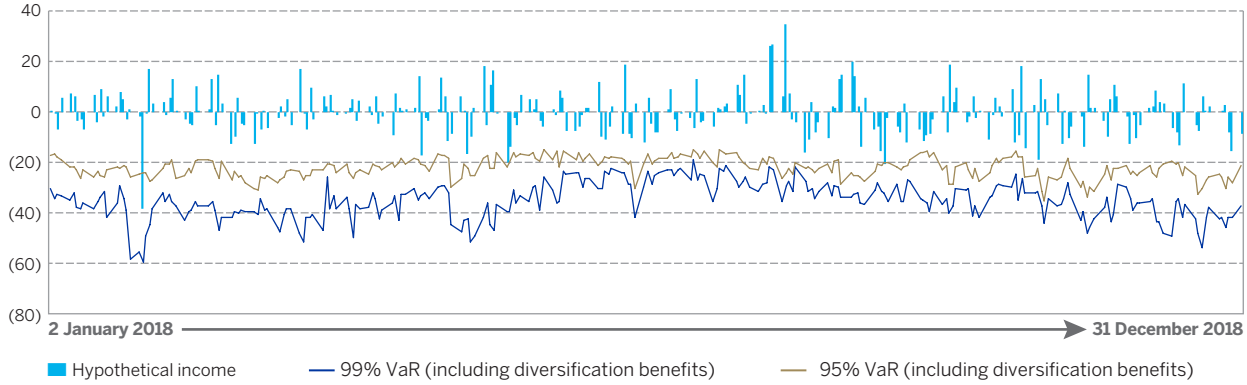
Backtesting

The group backtests its VaR models to verify the predictive ability of the VaR calculations and ensure the appropriateness of the models within the inherent limitations of VaR.

Backtesting compares the daily hypothetical profits and losses under the one-day buy and hold assumption to the prior day's calculated VaR. In addition, VaR is tested by changing various model parameters, such as confidence intervals and observation periods to test the effectiveness of hedges and risk-mitigation instruments. The results of the SBSA group's backtesting for 2018 is shown in the graph below.

Regulators categorise a VaR model as green, amber or red and assign regulatory capital multipliers based on this categorisation. A green model is consistent with a satisfactory VaR model and is achieved for models that have four or less backtesting exceptions in a 12-month period at 99% VaR. All of the group's approved models were assigned a green status for the period under review (2017: green). Two exceptions occurred in 2018 (2017: seven) for 95% VaR and no exceptions (2017: none) for 99% VaR.

MR4: Backtesting – comparison of VaR and hypothetical income of trading units (Rm)



Specific business unit and product controls

Other market risk limits and controls specific to individual business units include permissible instruments, concentration of exposures, gap limits, maximum tenor, stop-loss triggers, price validation and balance sheet substantiation.

Trading book portfolio characteristics

VaR for the period under review

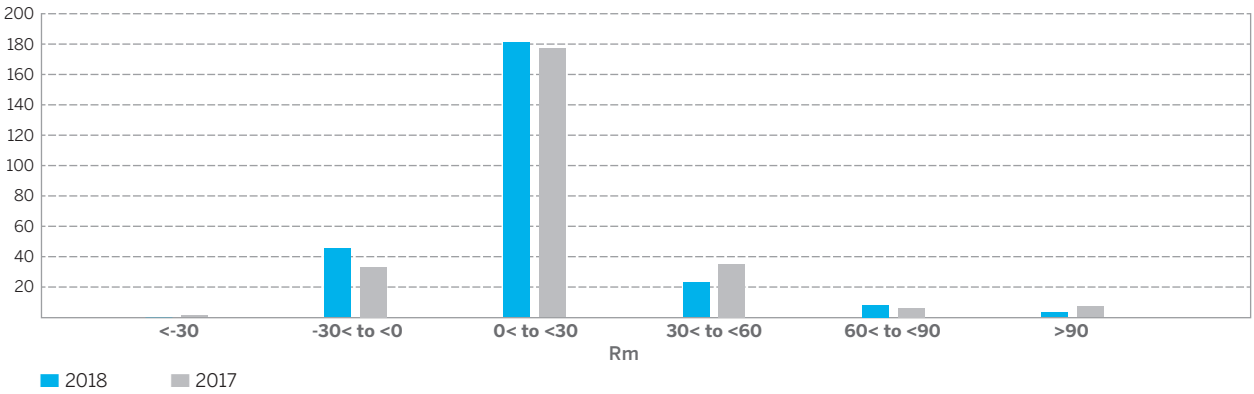
Trading book market risk exposures arise mainly from residual exposures from client transactions and limited trading for the group's own account. In general, the group's trading desks have run slightly lower levels of market risk throughout 2018 when compared to 2017 aggregate normal VaR and SVaR.

Analysis of trading profit

The graph that follows shows the distribution of daily trading income for the period ended 31 December 2018 for portfolios with material VaR limits. It captures trading volatility and shows the number of days in which SBSA group's trading-related revenues fell within particular ranges for portfolios with material VaR limits. The distribution is skewed favourably to the profit side.

For the period under review, trading profit was positive for 214 out of 259 days (2017: 225 out of 259 days) on an aggregated global basis.

Distribution of daily trading income (frequency of days)



POST-EMPLOYMENT OBLIGATION RISK

The group operates both defined contribution plans and defined benefit plans, with the majority of its employees participating in defined contribution plans. The group's defined benefit pension and healthcare provider schemes for past and certain current employees create post-employment obligations. Post-employment obligation risk arises from the requirement to contribute as an employer to an under-funded defined benefit plan.

The group mitigates these risks through independent asset managers and independent asset and liability management advisors for material funds. Potential residual risks which may impact the group are managed within the group asset and liability management process.

AFS | Refer to note 41 in the SBSA AFS for more detail on the SBSA group's post-employment obligation risk.

Operational risk

APPROACH TO MANAGING OPERATIONAL RISK

Operational risk exists in the natural course of business activity. The group's operational risk governance framework sets minimum standards for operational risk management adopted across the group. The purpose of operational risk management is not to eliminate all risks, which is not viable, but rather to enable management to weigh the payoff between risk and reward. The framework also ensures that adequate and consistent governance is in place, guiding management to avoid unacceptable risks such as:

- breaking the law
- damaging the group's reputation
- disrupting services to customers
- willful conduct failures
- inappropriate market conduct
- knowingly breaching regulatory requirements
- causing environmental or social impacts.

SBSA group's approach to managing operational risk is to adopt fit-for-purpose operational risk practices that assist line management in understanding their residual risk and managing their risk profile within risk appetite. The management of operational risk primarily resides in first line, supported by second line with dedicated centres of excellence. The group operational risk management function forms part of the second line of defence and is an independent area, reporting to the group CRO.

Operational risk subtypes are managed and overseen by specialist functions. These subtypes include:

Information risk is the risk of accidental or intentional unauthorised use, access, modification, disclosure, dissemination or destruction of information resources, which may compromise the confidentiality, integrity and availability of information and potentially harm the business.

Fraud risk is the unlawful and intentional misrepresentation with the aim of unlawful gain, which causes actual prejudice or which is potentially prejudicial to another.

Cyber risk may lead to financial loss or disruption, destruction, unauthorised or erroneous use of information systems.

Tax risk is the possibility of suffering unexpected loss, financial or otherwise, as a result of the application of tax systems, whether in legislative systems, rulings or practices, applicable to the entire spectrum of taxes and other fiscal imposts to which the group is subject.

Legal risk is the exposure to adverse consequences arising from non-compliance with legal or statutory responsibilities and/or legal rights not being binding or enforceable.

Model risk occurs when a financial model has potential weaknesses or performs inadequately in the measurement, pricing and management of risk. Weaknesses include incorrect assumptions, incomplete information, inaccurate implementation, limited model understanding, inappropriate use or inappropriate methodologies leading to incorrect conclusions by the user.

Environmental and social risk

Environmental risk is the threat of adverse effects on the natural environment through emissions, waste and resource depletion, and includes the threat to assets as a result of environmental impacts, such as extreme weather events. **Social risk** consists of risks to people, their livelihoods, health and welfare, socioeconomic development, social cohesion and the inability to adapt to changing circumstances.

Business disruption risk arises from critical system failures and/or business process failures impacting services to and/or provided by the group to its stakeholders.

People risk refers to the negative impacts associated with difficulties attracting and retaining skilled and committed people and failure to enable people to grow and remain relevant in a rapidly evolving world of work.

Technology risk is associated with the use, ownership, operation, involvement, influence and adoption of technology within the group. It consists of technology-related events and conditions that could potentially impact the business including technology changes, updates or alterations. A key consideration within technology risk is the group's effective use of technology to achieve business objectives and be competitive.

Third-party risk is introduced due to ineffective management of third-party relationships. The use of third parties reduces management's direct control of activities and may introduce new or increase existing risks, specifically, operational, compliance, reputation, strategic, and credit risks.

The following risk types are part of the extended operational risk taxonomy and are considered for capital allocation in the ICAAP process:

- compliance risk
- physical assets risk
- accounting and financial risk.

GOVERNANCE

The primary management level governance committee overseeing operational risk is the GORC which is a subcommittee of GROC. The primary governance document is the integrated operational risk governance framework.

Operational risk subtypes report to various governance committees and have governance documents applicable to each risk subtype.

APPROVED REGULATORY CAPITAL APPROACH

SBSA group has approval from the SARB to use the AMA. In 2017, the BCBS released the final regulations for the new standardised approach (NSA) to be used for the calculation of operational risk regulatory capital, which is due to take effect from 1 January 2022. The group consults regularly with the banking industry and local regulator to ensure consistent and accurate implementation of the NSA.

SBSA will maintain its current approved regulatory capital approach until the transition date for the NSA. Furthermore, alternative capital approaches, including calculation and allocation methodologies, to be used in a post-AMA regime will be explored. The NSA paper makes provisions for banks to apply to country regulators to remove losses that distort their data when calculating capital.

OPERATIONAL RISK SUBTYPES

Cyber risk

Cyber risk continues to be recognised as one of the most important risks to the group and its clients. Focus on developing capabilities that can reduce attacks and raise the cost to attackers continued throughout the year. The group continued to make strides in implementing its cyber-resilience strategy. The escalation in the scale and sophistication of cyber-attacks is amplified by the growing digitisation of businesses and the complexity of running ageing systems. The group is cognisant of the mounting risk posed by cyber-attacks and significant investments have been made to enhance security capabilities and accelerate strategic directives. Financial services remain the most targeted sector from a cyber-threat perspective and, consistent with this trend, a number of attempts were successfully mitigated without any impact to the group's operations or customers. Many of these incidents were prevented as a direct result of the cyber-defence capabilities implemented over the last few years. It remains a challenge to implement frictionless controls to reduce the impact of cyber-crime and this will continue to be a focus in 2019.

The SBSA group has implemented additional security controls across all platforms and systems, including more robust customer registration processes and customer and staff authentication, real-time customer account monitoring at a transactional level and enhanced privileged user management controls. Cyber-readiness is increasingly focused towards strengthening people and process capability in addition to technology investment.

Information risk

The group strengthened information risk management in 2018, with delivery of a simplified information risk strategy and policy landscape, dedicated support teams and a hybrid of digital and traditional tool sets. Further enhancement of information management, implementation of controls and policy implementation will remain a focus area for 2019.

The group continues to focus on the identification and classification of information assets, as part of a broader information risk management focus within the enterprise data committee's programme. Demand for further support and advisory services continues to grow.

The group continues to consider and act where industry and global incidents impact clients. The group endeavours to keep clients safe following such breaches, by understanding the extent to which the client is impacted and where applicable, taking preventative action to avoid future losses.

Fraud risk

The group upgraded its fraud risk management model enabling operational efficiencies and significantly improving the customer experience during a fraud incident. This resulted in a reduction in telephone interactions from 19 to one, a reduction in back office processes from 14 hand-offs to managing incidents at the first point of customer contact and a decrease in customer fraud claims turnaround times.

Card fraud remains a significant contributor to overall gross fraud losses. The use of cards as a payment mechanism for goods and services remains the preferred method of payment. Suppliers continue to migrate their sales platforms digitally which further exposes sensitive card data on these digital platforms. This migration coupled with the increase in card data breaches effectively results in higher card fraud losses. The group continues to invest in card fraud prevention and detection capabilities.

As the group migrates its content digitally, more features such as on-boarding, value transactions and payments are channeled through the group's internet banking and application platforms, and more customers favour these channels. Customers are vulnerable to phishing attacks, whereby criminals fraudulently access their banking information. Investment continues in anti-phishing and device profiling capabilities to frustrate fraudsters. The group has partnered with world-class anti-phishing experts to identify and shut down phishing sites masquerading as Standard Bank.

Impersonation fraud remains a significant contributor to application fraud. Fraudsters continue to fabricate supporting documents like employment, salary and identity documents to originate new accounts and credit facilities. The group is investing in enhanced customer authentication capabilities such as fingerprint biometrics and the ability to obtain supporting documents digitally versus paper-based submission, with the expectation that this will significantly reduce this type of fraud.

The group has zero tolerance for employee misconduct and independently investigates such allegations. Employees are also provided with ongoing awareness and training and with appropriate tools such as FraudStop and Whistleblowing hotline, for escalating and reporting misconduct anonymously.

Technology risk

In 2018 stability continued to improve with a significant decline in the volume of priority one incidents across the group. There was, however, one incident of system instability in SA which caused significant inconvenience to clients and reputational damage to the group. The reduction in incidents can be attributed to the continued focus on resilience. While the group has achieved marked improvement in system stability, this has been matched by heightened customer expectations of 'always on' systems.

To support delivery of the group's 2020 objectives, group IT launched the quantum shift strategy in 2018, and implemented associated changes to its operating model. The strategy prioritises client needs, and supports the journey to become a digital and agile organisation. The technology risk profile for the group is likely to continue facing pressure due to changes in business circumstances and the need to respond thereto. Interventions have been initiated to address the associated uncertainties, including tactical risk mitigations and quarterly strategy implementation reviews.

The cloud computing journey gained substantial momentum in 2018. Cloud computing will be central to the group's IT infrastructure going forward. Risks associated with migration to the cloud are being carefully managed however, the group regards cloud computing as a significant opportunity in addressing technology risk.

Model risk

Model risk is mitigated through the principles of fit-for-purpose governance, and maintaining a pool of skilled and experienced technical specialists and robust model-related processes. It is governed by the model risk governance framework, which defines model risk, the scope of models, documentation needs, model-materiality considerations, high-level model development requirements, validation requirements, usage and monitoring requirements, governance and approval processes, and the roles and responsibilities across the three lines of defence.

An annual self-assessment is completed to indicate compliance with the principles outlined in the framework.

Tax risk

The group's approach to managing tax risk is governed by the GAC through the tax risk control framework, which includes the tax strategy and governance standard, supported by policies dealing with specific aspects of tax risk such as transfer pricing, indirect taxes, withholding taxes and remuneration-related taxes. In 2018, the value added tax (VAT) rate change from 14% to 15% in SA was successfully implemented without resulting in additional tax risk.

Legal risk

The group has processes and controls in place to identify, manage and mitigate its legal risks. Generally, legal risk is managed in the first instance by lawyers in the group company concerned with oversight, coordination and training provided/facilitated by the group's legal teams. In matters where legal risk is considered material at a group level, the legal resources of the group are actively involved to assist the local legal teams in managing legal risk.

Initiatives in 2018 included implementing an electronic litigation management system to assist with oversight and management of litigation risk.

Environmental and social risk

The group is exposed to credit, operational, legal and reputational risk due to environmental and social impacts associated with lending activities. During 2019, enhanced environmental and social risk management procedures will be implemented in Business Banking and Wealth, inclusive of online environmental and social risk awareness training for targeted teams. A climate change and water strategy is being developed. Adoption of the group environmental and social risk standard and policy by all regions will be sought.

Business disruption risk

The group aims to be 'always on and always secure' to its customers. Disruptions to the business are managed through the group's business resilience (BR) capability. BR is a process that identifies potential operational disruptions and provides a basis of planning for the mitigation of the negative impact from such disruptions. In addition, it promotes operational resilience and ensures an effective response that safeguards the interests of both the group and its stakeholders. The group's BR governance standard encompasses emergency response preparedness and crisis management capabilities to manage the business through a crisis to full recovery. The group's BR capabilities are evaluated by testing business continuity plans and conducting crisis simulations.

BR maturity across the group has improved, as demonstrated by the quantity and quality of BR exercises and tests performed in 2018. There were no material business disruption breaches or exposures experienced in 2018. IT incidents experienced during the year were resolved as part of the business as usual IT incident management process, without invoking IT disaster recovery. Incidents were managed in line with crisis management plans.

Emphasis in 2019 is on improving the capability to anticipate and respond to disruptive incidents in a more integrated and agile manner. The traditional BR discipline and practices will be bolstered with more predictive and agile enablers. Priorities include the finalisation and implementation of the new BR governance standard and policy throughout the group, improving use of the business continuity management tool, and exercising and testing emergency management response.

Third-party risk

Third-party risk continues to evolve in importance, due to reliance on third-parties to provide services critical to the group's operations. Third-party relationships may increase the group's exposure to operational risk because the group may not have direct control of the activity performed by the third-party. Failure to manage these third-party risks can expose an institution to regulatory sanction, financial loss, litigation and reputational damage, and may impair the group's ability to deliver to its customers.

The risk is governed by the third-party risk framework, approved during 2018. This framework is underpinned by the implementation of a fit-for-purpose operating model, which is aligned to the organisation's risk culture and considers appropriate levels of accountability and responsibility across the group.

People risk

People risk is tracked and monitored through employee engagements. In 2018 a range of reward and recognition initiatives were introduced to support customer centricity, retaining top talent and ensuring sustainable long-term performance. The introduction of a new performance management philosophy and approach that drives regular line manager coaching supporting personal improvement, growth and business contribution, enabled employees to have full control of their organisational relevance.

2018 continued to provide employees with access to online/micro learning platforms and digital libraries to ensure fit-for-purpose learning anytime, anywhere and on any device. This also enabled teams to deliver on client promises and meet regulatory requirements. The group demonstrated commitment to transformation and diversity more broadly, with promotions and external appointments at top management levels. Representation of black, and specifically African talent, in leadership pipelines continues to improve.

2019 will see continued focus on targeted recruitment strategies to attract the best skills in the market. This coupled with ongoing talent engagements to support retention and development initiatives will ensure the group retains people market share. Focus on youth development and employment, including graduate and learnership programmes will be progressed. The deployment of fit-for-purpose talent management programmes to ensure succession depth and accelerate the development of top talent in line with the diversity and inclusion agenda will be enhanced. The desired investment in an advanced analytics capability to enable managers and human capital to utilise predictive insights about our people and specific employee segments will enable a forward-looking and informed decision-making process.

Business risk

Business risk includes strategic risk. Strategic risk is the risk that the SBSA group's future business plans and strategies may be inadequate to prevent financial loss or protect the group's competitive position and shareholder returns. SBSA group's business plans and strategies are discussed and approved by executive management and the board and, where appropriate, subjected to stress tests.

Business risk is usually caused by the following:

- inflexible cost structures
- market-driven pressures, such as decreased demand, increased competition or cost increases
- group-specific causes, such as a poor choice of strategy, reputational damage or the decision to absorb costs or losses to preserve reputation.

SBSA group mitigates business risk in a number of ways, including:

- performing extensive due diligence during the investment appraisal process, in particular for new acquisitions and joint ventures
- detailed analysis of the business case for, and financial, operational and reputational risks associated with, disposals
- the application of new product processes per business line through which the risks and mitigating controls for new and amended products and services are evaluated
- stakeholder management to ensure favourable outcomes from external factors beyond the group's control
- monitoring the profitability of product lines and customer segments
- maintaining tight control over the group's cost base, including the management of its cost-to-income ratio, which allows for early intervention and management action to reduce costs
- being alert and responsive to changes in market forces
- a strong focus in the budgeting process on achieving headline earnings growth while containing cost growth; and building contingency plans into the budget that allow for costs to be significantly reduced in the event that expected revenues do not materialise
- increasing the ratio of variable costs to fixed costs which creates flexibility to reduce costs during an economic downturn
- stress testing techniques applied to assess the resilience of the group's planned earnings under macroeconomic downturn conditions.

The primary governance committee for overseeing this risk is group ALCO.

Reputational risk

Reputation is defined as what stakeholders say and think about the SBSA group, including its staff, customers and clients, investors, counterparties, regulators, policymakers, and society at large. Analysts, journalists, academics and opinion leaders also determine the group's reputation. SBSA group's reputation can be harmed from an actual or perceived failure to fulfil the expectations of stakeholders due to a specific incident or from repeated breaches of trust.

Reputational harm can adversely affect the group's ability to maintain existing business, generate new business relationships, access capital, enter new markets, and secure regulatory licences and approvals.

Safeguarding and proactively managing the group's reputation is of paramount importance. There is growing awareness of reputational risks arising from compliance breaches, social and environmental considerations, as well as from ethical considerations linked to countries, clients and sectors.

SBSA group is increasingly managing reputational risk from a tactical and reactive perspective, as well as from a strategic and proactive perspective. In respect to crisis response, the group's crisis management processes are designed to minimise the reputational impact of such events or developments. Crisis management teams are in place both at executive and business line level. This includes ensuring that the SBSA group's perspective is fairly represented in the media. In addition, more attention is being paid to leveraging opportunities to proactively bolster the group's reputation among influential stakeholders through programmes, including stakeholder engagement, advocacy, sponsorships, and corporate social initiatives.

The principal governance document is the reputational risk governance standard and the group's qualitative RAS includes a statement on reputation.

The group's code of ethics is an important reference point for all staff. The group ethics officer and group chief executive are the formal custodians of the code of ethics.

Annexure

ANNEXURE A – REGULATORY CAPITAL

CC1: COMPOSITION OF REGULATORY CAPITAL[1]

	2018 Basel III Rm	2017 Basel III Rm
CET I capital	**73 264**	71 852
Instruments and reserves		
CET I capital before regulatory adjustments	**85 684**	89 781
Directly issued qualifying common share capital plus related stock surplus	**44 448**	43 698
Retained earnings	**40 355**	45 284
Accumulated other comprehensive income (and other reserves)	**881**	799
Directly issued capital subject to phase-out from CET I (only applicable to non-joint stock companies)		
Public sector capital injections grandfathered until 1 January 2018		
Common share capital issued by subsidiaries and held by third parties (amount allowed in group CET I)		
Regulatory adjustments		
Less: total regulatory adjustments to CET I	**(12 420)**	(17 929)
Prudential valuation adjustments	**2 019**	(51)
Goodwill (net of related tax liability)	**(42)**	(42)
Other intangibles other than mortgage-servicing rights (net of related tax liability)	**(14 337)**	(15 346)
Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability)	**(11)**	(14)
Cash-flow hedge reserve	**99**	(177)
Shortfall of provisions to expected losses		(2 084)
Securitisation gain on sale		
Gains and losses due to changes in own credit risk on fair valued liabilities	**(54)**	1
Defined-benefit pension fund net assets	**(94)**	(216)
Investments in own shares (if not already netted of paid-in capital on reported balance sheet)		
Reciprocal cross-holdings in common equity		
Investments in the capital of banking, financial and insurance entities that are outside the scope of regulatory consolidation, net of eligible short positions, where the bank does not own more than 10% of the issued share capital (amount above 10% threshold)		
Significant investments in the common stock of banking, financial and insurance entities that are outside the scope of regulatory consolidation, net of eligible short positions (amount above 10% threshold)		
Mortgage servicing rights (amount above 10% threshold)		
Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability)		
Amount exceeding the 15% threshold, relating to:		
Significant investments in the common stock of financials		
Mortgage servicing rights		
Deferred tax assets arising from temporary differences		
National-specific regulatory adjustments		
Regulatory adjustments applied to CET I in respect of amounts subject to pre-Basel III treatment		
Regulatory adjustments applied to CET I due to insufficient AT 1 and Tier II to cover deductions		

	2018 Basel III Rm	2017 Basel III Rm
AT 1 capital		
Instruments		
AT 1 capital before regulatory adjustments	**3 544**	3 544
Directly issued qualifying AT 1 instruments plus related stock surplus, classified as:	**3 544**	3 544
Equity under applicable accounting standards	**3 544**	3 544
Liabilities under applicable accounting standards		
Directly issued capital instruments subject to phase-out from AT 1		
AT 1 instruments (and CET I instruments not included in common share capital) issued by subsidiaries and held by third-parties (amount allowed in group AT 1), including:		
Instruments issued by subsidiaries subject to phase-out		
Regulatory adjustments		
Total regulatory adjustments to a AT 1 capital	**(40)**	
Investments in own AT 1 instruments	**(40)**	
Reciprocal cross-holdings in AT 1 instruments		
Investments in the capital of banking, financial and insurance entities that are outside the scope of regulatory consolidation, net of eligible short positions, where the bank does not own more than 10% of the issued share capital (amount above 10% threshold)		
Significant investments in the common stock of banking, financial and insurance entities that are outside the scope of regulatory consolidation, net of eligible short positions (amount above 10% threshold)		
National-specific regulatory adjustments:		
Regulatory adjustments applied to CET I in respect of amounts subject to pre-Basel III treatment		
Regulatory adjustments applied to AT 1 due to insufficient AT 1 due to insufficient Tier II to cover deductions		
Tier I capital	**76 768**	75 396

	2018 Basel III Rm	2017 Basel III Rm
Capital and provisions		
Tier II capital before regulatory adjustments	**19 361**	17 541
Directly issued qualifying Tier II instruments plus related stock surplus	**18 580**	17 080
Directly issued capital instruments subject to phase-out from Tier II	**6 000**	9 500
Tier II instruments (and CET I and AT 1 instruments not included in common share capital and AT 1 instruments) issued by subsidiaries and held by third parties (amount allowed in group Tier II), including:		
Instruments issued by subsidiaries subject to phase-out		
Provisions	**781**	461
Regulatory adjustments		
Total regulatory adjustments to Tier II capital	**(3 187)**	(2 341)
Investments in own Tier II instruments		
Reciprocal cross-holdings in Tier II instruments		
Investments in the capital of banking, financial and insurance entities that are outside the scope of regulatory consolidation, net of eligible short positions, where the bank does not own more than 10% of the issued share capital (amount above 10% threshold)	**(3 187)**	(2 341)
Significant investments in the capital of banking, financial and insurance entities that are outside the scope of regulatory consolidation (net of eligible short positions)		
National-specific regulatory adjustments		
Regulatory adjustments applied to Tier II in respect of amounts subject to pre-Basel III treatment		
Tier II capital	**16 174**	15 200
Total capital	**92 942**	90 596
Total RWA	**669 386**	610 314
RWA in respect of amounts subject to pre-Basel III treatment		
Capital ratios and buffers		
CET I (as a % of RWA)	**10.9**	11.8
Tier I (as a % of RWA)	**11.5**	12.4
Total capital (as a % of RWA)	**13.9**	14.8
Institution-specific buffer requirement (minimum CET I requirement plus capital conservation buffer plus countercyclical buffer requirements plus G-SIB buffer requirement, expressed as a % of RWA)	**7.4**	7.3
Capital conservation buffer requirement (%)		
Bank-specific countercyclical buffer requirement (%)		
G-SIB buffer requirement (%)		
CET I available to meet buffers (as a % of RWA)	**3.6**	4.5

	2018 Basel III Rm	2017 Basel III Rm
National minima (if different from Basel III)		
National CET I minimum ratio (if different from Basel III minimum) – excluding individual capital requirement (ICR) and D-SIB (%)	**7.4**	7.3
National Tier I minimum ratio (if different from Basel III minimum) – excluding ICR and D-SIB	**8.9**	8.5
National total capital minimum ratio (if different from Basel III minimum) – excluding ICR and D-SIB	**11.1**	10.8
Amounts below the threshold for deductions (before risk weighting)		
Non-significant investments in the capital of other financials	**292**	155
Significant investments in the common stock of financials	**444**	555
Mortgage servicing rights (net of related tax liability)		
Deferred tax assets arising from temporary differences (net of related tax liability)	**4 756**	2 639
Applicable caps on the on the inclusion of provisions in Tier II		
Provisions eligible for inclusion in Tier II in respect of exposures subject to standardised approach (prior to application of cap)	**519**	461
Cap on inclusion of provisions in Tier II under standardised approach	**288**	461
Provisions eligible for inclusion in Tier II in respect of exposures subject to internal ratings-based approach (prior to application of cap)	**2 446**	
Cap for inclusion of provisions in Tier II under internal ratings-based approach	**493**	
Capital instruments subject to phase-out arrangements (only applicable between 1 January 2018 and 1 January 2022)		
Current cap on CET I instruments subject to phase-out arrangements		
Amount excluded from CET I due to cap (excess over cap after redemptions and maturities)		
Current cap on AT 1 instruments subject to phase-out arrangements		
Amount excluded from AT 1 due to cap (excess over cap after redemptions and maturities)		
Current cap on Tier II instruments subject to phase-out arrangements		
Amount excluded from Tier II due to cap (excess over cap after redemptions and maturities)		

[1] Disclosure based on prescribed SARB template. All blank line items are not applicable as at 31 December 2018.

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