Annexure 3

SOUTH AFRICAN RESERVE BANK
Prudential Authority

Statement of the need for, expected impact and intended operation of the proposed amendments to the Regulations relating to Banks (Regulations)

Incorporating the revised standardised approach for credit risk, internal ratings-based approaches for credit risk, revised operational risk framework, leverage ratio framework and output floor into the domestic regulatory framework

As initially published in September 2023 based on June 2022 data and revisions made in February 2024 to incorporate data as at June 2023

July 2024

Table of contents

1. Executive summary

The Prudential Authority (PA) proposes incorporating the remaining Basel III post-crisis reforms into the domestic regulatory framework with effect from 1 July 2025. The reforms provide prudent and credible approaches for calculating risk-weighted capital ratios by (i) implementing robust and risk-sensitive standardised approaches for credit risk as well as operational risk, (ii) restricting the use of internal models, and (iii) complementing risk-weighted assets (RWA)[1] with the leverage ratio and the revised output floor. To ensure that any potential unintended consequences are duly considered, the PA conducted quantitative impact studies (QIS). This report summarises the key findings of each framework for the final QIS, as follows:

(a) Revised operational risk framework

On aggregate, based on the June 2023 data, banks conducting business in South Africa are expected to hold additional capital for operational risk under the revised operational risk framework.[2] At a solo level, operational risk capital is expected to increase by 20%. The capital adequacy ratio (CAR) is expected to decrease by 24 basis points from the current levels.

(b) Revised credit risk framework

Based on the June 2023 data, the implementation of the revised credit risk (CR) framework is expected to result in an aggregate capital decrease of 0.59% at a solo level. The five largest banks are expected to report a 0.87% decrease in RWA for CR and, consequently, capital held in respect of the CR exposures. CAR is expected to increase by 4 basis points.

(c) Revised exposure definition of the leverage ratio

The revised exposure definition of the leverage ratio is expected to lead to a increase in the leverage ratio by 10 basis points, from the current levels. The 21 banks that provided leverage ratio data are all above the minimum required leverage ratio of 4%. The lowest leverage ratio recorded on a solo basis is 5%, while the highest is 44%. On a consolidated basis, the nine banks that provided data show the lowest leverage ratio of 5.7% and a high of 20.4%.

(d) Output floor

On a solo basis, from 2026 onwards, two of the five largest banks are expected to hold additional capital as a result of the implementation of the output floor. The additional amount of capital required to be held will range from 1% to 5% of total capital. On a consolidated basis, two banks are expected to be impacted by the output floor framework from 2028 onwards. These banks will be required to hold an additional amount of capital and reserve funds ranging between 2.5% and 6.5% following the implementation of the output floor of 72.5% in 2028.

[1] While RWA is used in this report, it should be understood that the risk weighting process includes off-balance-sheet items, which, per definition are not assets but exposures.
[2] Specified in Draft 2 of the proposed amendments to the Regulations relating to Banks.

2. Introduction

2.1 In addressing the weaknesses identified following the global financial crisis that commenced in 2007, the Basel Committee on Banking Supervision (BCBS) finalised the Basel III post-crisis reforms which are central to addressing the shortcomings of the pre-crisis regulatory framework. The reforms are meant to provide an enhanced regulatory foundation for a more resilient banking system.

2.2 The BCBS reforms are meant to restore confidence in the regulatory capital ratios lost during and after the crisis by providing prudent and credible approaches for calculating risk-weighted capital ratios which will be achieved by (i) implementing robust and risk-sensitive standardised approaches for credit risk as well as operational risk, (ii) restricting the use of internal models, and (iii) complementing RWA with the leverage ratio and the revised output floor.

2.3 The reforms will enable comparability and transparency in RWA calculated by banks, which will enable stakeholders to assess the respective risk profiles of the different banks. As part of the process of finalising the aforementioned reforms, the BCBS conducted a comprehensive QIS on a global scale to assess the impact of implementing these reforms.

2.4 To ensure that the South African legal framework remains current and appropriate, the PA is proposing to incorporate the remaining components of the Basel III post-crisis reforms into the domestic regulatory framework, for implementation with effect from 1 July 2025. The reforms include:

2.4.1 the standardised approach (SA) for operational risk;
2.4.2 the standardised approach (STA) for credit risk;
2.4.3 the internal ratings-based (IRB) approaches for credit risk;
2.4.4 revisions to the definition of the leverage ratio; and
2.4.5 an output floor.

2.5 The above-mentioned frameworks will be implemented through amendments to the Regulations relating to Banks (Regulations).

2.6 In addition to the above-mentioned frameworks, the PA also proposes to incorporate the revised market risk and credit valuation adjustment (CVA) standards into the domestic regulatory framework through prudential standards.

These are also envisaged for implementation from 1 July 2025. The PA compiled a separate impact assessment report on these frameworks but the consolidated impact of all the Basel III post-crisis reforms due for implementation on 1 July 2025 have also been incorporated into this report.

2.7 This report accompanies the proposed draft amended Regulations and seeks to provide the rationale for incorporating the above-mentioned regulatory reforms into the domestic regulatory framework as well as the expected impact and intended operation of the proposed draft amended Regulations.

2.8 As part of the initial consultation process, the PA conducted a QIS and solicited industry inputs through a questionnaire on the frameworks outlined above. The industry inputs received were analysed and incorporated into this report.

3. Background

Revised operational risk framework

3.1 Following a consultative process that identified weaknesses within the current operational risk framework, the BCBS proposed a revised standardised approach for operational risk. The revised framework refines the operational risk proxy indicator by replacing the gross income (GI) measure with a superior indicator called the business indicator (BI). Furthermore, the revised framework improves the calibration of the regulatory coefficients.

3.2 The SA embodies the simplicity, comparability, and risk sensitivity of the advanced approach. The SA integrates the business indicator component (BIC) and bank-specific loss data.

3.3 In December 2017, the BCBS published the revised minimum capital requirements for operational risk[3] which introduced the SA for calculating operational risk capital and replaced all four of the operational risk approaches specified in the Basel II framework.

Revised standardised approach for credit risk

3.4 Following a consultative process that commenced in 2014, the BCBS published the final revised STA framework for credit risk in 2017. The revised STA is meant

[3] https://www.bis.org/bcbs/publ/d424.pdf

to balance risk sensitivity and simplicity as well as to reduce variability in RWA by enhancing the comparability of capital requirements across banks. In addition, the framework seeks to ensure that the revised STA provides an alternative to and complements the IRB approaches.

Revised internal-ratings-based approaches for credit risk

3.5 The BCBS highlighted the shortcomings of the IRB approaches. These include excessive complexity of the IRB approaches and internally modelled IRB capital requirements, which resulted in a lack of comparability and lack of robustness in modelling certain exposures. In addressing these shortcomings, the BCBS revised the IRB approaches for credit risk as part of the post-crisis reforms.

3.6 The revisions included the removal of the use of the advanced IRB (A-IRB) approach on certain asset classes, the implementation of input floors on metrics used to estimate parameters and greater specification on the methods used for parameter estimation.

Leverage ratio: revised exposure definition

3.7 Before and during the global financial crisis that commenced in 2007, banks experienced an excessive build-up of on- and off-balance sheet leverage despite maintaining strong risk-based capital ratios. As the market forced banks to deleverage, asset prices and bank capital declined, which restricted the availability of credit.

3.8 The leverage ratio is defined as the capital measure divided by the exposure measure, expressed as a percentage. The post-crisis reforms introduced a leverage ratio that restricts the build-up of excessive exposures in the banking sector. The leverage ratio is a non-risk-based backstop measure which is a simple measure that strengthens the risk-based requirements.

Revised output floor

3.9 To reduce inconsistency in RWA, improve comparability and maintain a level playing field, the BCBS revised the output floor as part of the post-crisis reforms. The revised output floor limits the extent to which banks can lower their capital requirements under the internal models relative to the standardised approaches.

3.10 The output floor will be phased in to minimise the potential negative impact of the floors. The BCBS phase-in period commenced in 2023 with the initial floor set at 50%, after which it will increase annually by 5% until it reaches 70% and then finally be set at 72.5% in 2028.

3.11 The PA proposes a phase-in period that will commence in 2025 with an initial floor set at 60% in 2025, 65% in 2026, 70% in 2027 and 72.5% in 2028. The output floor will impact banks that use internal models to compute RWA for certain risk areas. The BCBS has done away with the use of internal models in some areas (e.g. operational risk) where the four approaches available in terms of the Basel II framework have been replaced with a revised standardised approach.

4. Statement of the need: context and definition of the policy problem

4.1 Under this section, the frameworks covered in this report are analysed with respect to the context and definition of the challenges they seek to address.

Revised operational risk framework

4.2 *The need for recalibration*: According to the BCBS findings, the current standardised approach is under-calibrated, especially for large and complex banks. To address this weakness, the BCBS replaced the GI with the BI. The BI can capture a bank's exposure to the operational risk inherent in its mix of business activities. The BI also includes risk-sensitive items that are omitted under the GI definition.

4.3 *The need to amend regulatory coefficients*: The BCBS observed that capital needs for operational risk increase in a non-linear manner with the bank size, and therefore warranted amendments to the current regulatory coefficients. To address this, the BCBS has made the BI operational risk requirement more linear across banks of different sizes. The BI component is divided into three buckets, with the marginal coefficient increasing with the size of the BI. The value of the BI is reflective of the size of the bank.

4.4 *The need to include losses as an indicator of exposure to operational risk*: The SA introduces the loss component. Historical losses are used as a risk indicator of potential future operational risk losses and therefore enhance the effectiveness of

the BI as a proxy. Additionally, the loss component enhances the SA risk sensitivity and provides incentives for banks to improve operational risk management.

Revised standardised approach for credit risk

4.5 *The need to enhance risk sensitivity granularity*: To restore the lack of confidence in RWA, the revised STA for credit risk reclassifies some of the exposures to banks, residential real estate exposures and commercial real estate. Different risk weights are applied to the treatment of subordinate debt and equity exposure as opposed to the flat risk weight of the current STA for credit risk. The credit conversion factors determining the amount to be risk-weighted are also made more risk-sensitive. The revised framework provides for granularity in the treatment of retail exposures, corporate exposures as well as rated and unrated exposures.

4.6 *The need to reduce the mechanistic reliance on credit ratings:* The revised STA for credit risk is also intended to reduce banks' reliance on credit rating agencies. The BCBS requires banks to implement robust internal credit risk assessment approaches and develop the capability for internal credit assessment rather than relying solely on credit ratings. In jurisdictions that do not wish or cannot use external credit ratings, banks can develop a more granular non-ratings-based approach.

Revised internal ratings-based approaches for credit risk

4.7 *The need for prudent and robust modelling approaches*: The BCBS removed the use of the A-IRB approach for exposures to corporates with a consolidated annual revenue greater than €500 million. In addition, the A-IRB approach was removed for exposures to banks, exposures to other financial institutions and exposures to equity. The available approaches now include the foundation IRB (F-IRB) approach and the STA. The revisions make it simpler to differentiate between exposures to corporates, banks and other financial institutions and enhance the recognition of the effects of the different collateral types. The removal of the A-IRB approach helps prevent the underestimation of the riskiness of exposure to corporates, banks and other financial institutions.

4.8 *The need to reduce excessive variability in risk parameters*: The revised IRB approaches increase the specification of input floors by introducing probabilities of default (PD) for the F-IRB and A-IRB approaches, and loss-given-default (LGD)

and exposure at default (EAD) for the A-IRB approach. The introduction of these metrics reduces variability in risk parameters and enhances comparability in IRB capital requirements.

4.9 *The need to align credit conversion factors (CCF) under the F-IRB approach with the STA*: The revised IRB framework changes the treatment of off-balance sheet exposures. The scope and method for calculating CCF estimates have been revised to align with the STA.

4.10 During the global financial crisis that commenced in 2007, the BCBS introduced a scaling factor of 1.06 to maintain the aggregate level of minimum capital requirements when calculating RWA for credit risk under the IRB approaches. However, the Basel III post-crisis reforms on the IRB framework and the output floor framework have allowed for the removal of the 1.06 scaling factor when calculating the RWA under the IRB approaches to credit risk.

Leverage ratio: revised exposure definition

4.11 *The need to safeguard against unsustainable levels of leverage*: The calculation of leverage has been reconfigured to ensure that banks maintain sustainable levels of leverage. A leverage ratio buffer has also been introduced to mitigate the externalities created by the global systemically important banks (G-SIBs). This buffer is set at 50% of the G-SIB's risk-based capital buffer. The PA proposes that the minimum leverage ratio for both domestic systemically important banks (D-SIBs) and non-D-SIBs remain unchanged at 4%.

4.12 Furthermore, the PA decided to extend the application of the 50% of the G-SIBs risk-based capital buffer to apply to South Africa's DSIBs, therefore, the DSIBs will be required to hold a leverage buffer equal to 50% of the DSIBs' higher loss absorbency requirement imposed on CET1 capital in addition to the minimum requirement of 4%.

4.13 *The need to enhance consistency and comparability across banks*: To facilitate consistency, the BCBS has specified the disclosure requirements for banks. This introduced additional disclosure items and specified line items that should be included in the disclosure templates to enhance the transparency of the values that are used in calculating the leverage ratio.

Revised output floor

4.14 *The need to improve comparability in RWA*: Calibration of capital requirements by banks using internal models has resulted in substantially lower capital requirements compared to banks using standardised approaches. The excessive variation in RWA for the same exposures created an uneven playing field between SA approach banks and IRB approach banks. The revised output floor limits the inconsistencies in the calculation of RWA by providing a risk-based backstop to limit the extent to which capital requirements can be lowered by banks. In other words, RWAs generated by internal models cannot, in aggregate, fall below the output floor of the RWA computed through the SA.

5. Statement of the expected impact of implementing the proposed reforms

5.1 The PA conducted a QIS and solicited industry inputs through a questionnaire to assess the expected impact of implementing the draft amended Regulations from 1 July 2025. The inputs received from the industry were analysed and incorporated into the report.

5.2 The expected impact, benefits and areas of concern pertaining to the implementation of the revised frameworks under consideration were analysed separately and consolidated to determine the overall expected impact.

Scope and sample of the impact study

5.3 Banks and local branches of foreign banks conducting business in South Africa that provided data within the set time frame were considered for the various components of the study. These included South Africa's five largest banks as measured by assets which accounted for 89% of the total banking sector assets as at June 2023.

Methodology

5.4 The expected impact of the various frameworks was assessed by comparing the changes in metrics such as RWA, the minimum required capital (MRC) as well as the impact on CAR resulting from the implementation of the revised frameworks in South Africa.

5.5 Data received from the industry was categorised and analysed according to the five largest banks, or in some cases D-SIBs, conducting business in South Africa,

as well as branches of foreign banks and other local banks. Where necessary, the analysis was also conducted on a consolidated basis in addition to a solo basis.

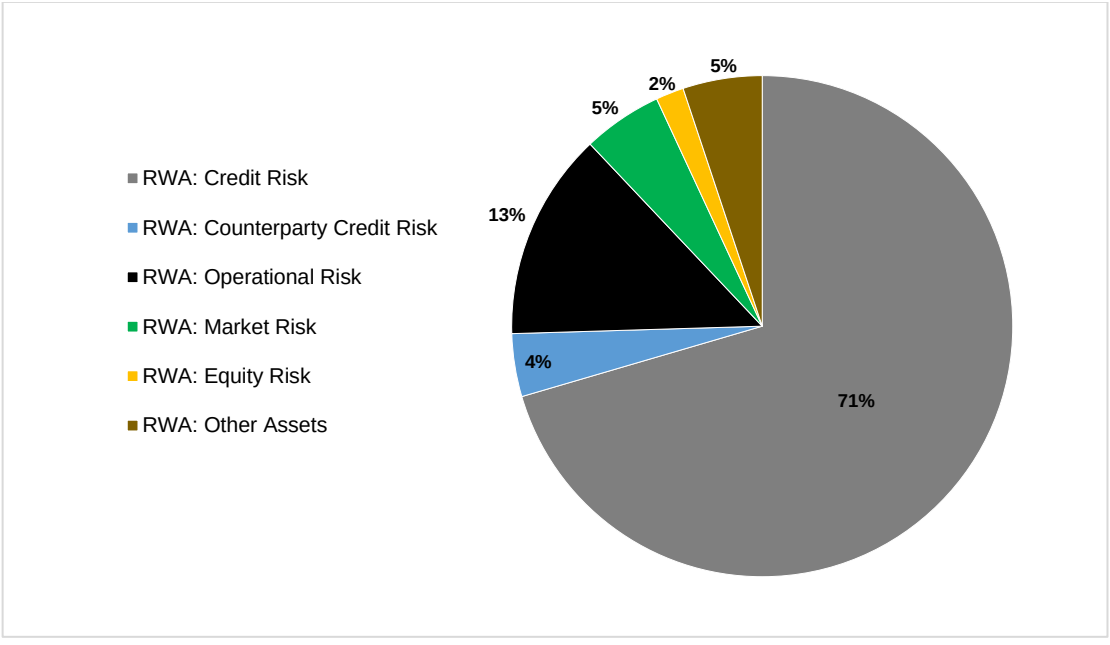
A. Impact of implementing the revised operational risk framework

5.6 The PA proposed recalibrating the operational risk framework to ensure that the framework is fit for the South African context. The recalibration involves implementing appropriate BI buckets and introducing floors on the use of the internal loss multiplier (ILM) and a floor on the overall operational risk capital. The introduction of a floor on capital ensures that there are no undue variabilities in RWA calculations.

5.7 Data from 20 banks were considered for the operational risk framework QIS. Apart from the six D-SIBs, eight branches of foreign banks and six other local banks submitted complete data within the stipulated time frame. These 20 banks account for 98.54% of the total banking sector assets and 97.93% of the total operational risk-weighted assets (OR RWA) as at June 2023.

5.8 OR RWA accounted for 13% of the total banking sector RWA as at June 2023. Credit risk accounted for a significant portion of the total RWA (71%), while counterparty credit risk (CCR), market risk, other assets and equity risk accounted for 4%, 5%, 5%, and 2% of the total RWA respectively (see Figure A1).

Figure A1: Composition of OR RWA relative to other risk types

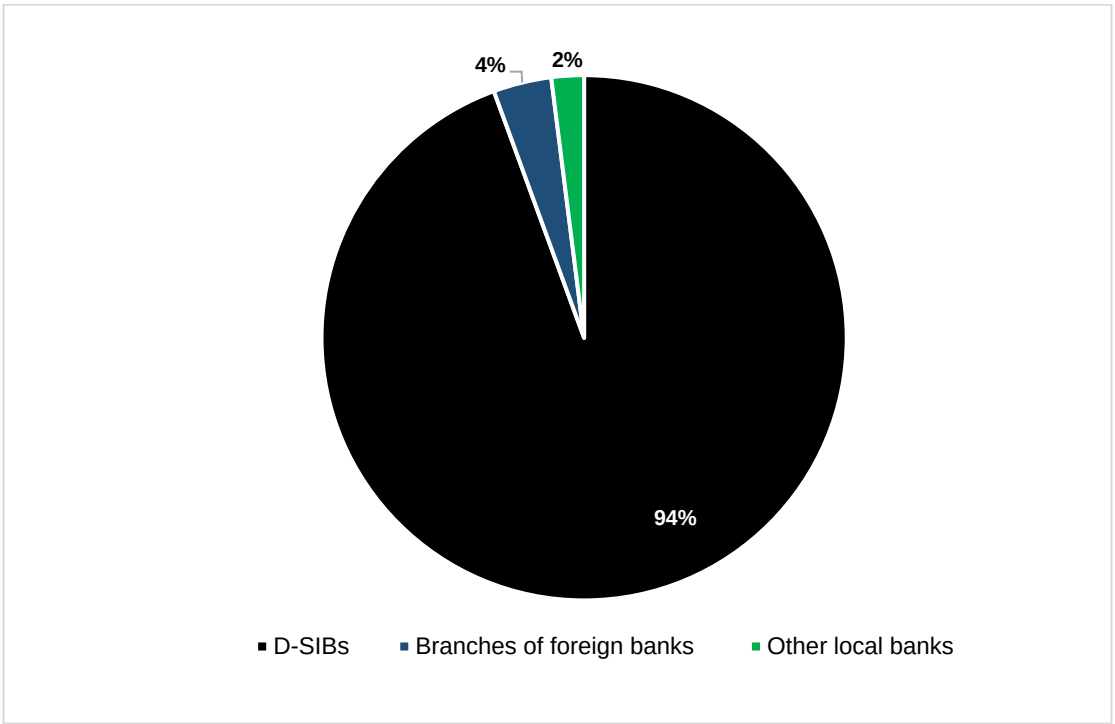


5.9 South Africa's D-SIBs account for 94% of the OR RWA while branches of foreign banks and other local banks account for 4% and 2% respectively (see Figure A2).

5.10 Under the current Basel II operational risk framework, four approaches are available for the measurement of banks' exposure to operational risk and the related capital requirements for operational risk. These are (i) the basic indicator approach (BIA), (ii) the standardised approach (TSA), (iii) the alternative standardised approach (ASA), and (iv) the advanced measurement approach (AMA).

5.11 The adoption of ASA is subject to national discretion. The BIA is the simplest of all the methodologies. Under the BIA, the capital requirement is calculated as a percentage of the GI. The AMA is the most advanced approach and requires approval by the PA, subject to banks complying with extensive quantitative and qualitative requirements. The TSA is positioned as an intermediate approach between the BIA and the AMA. The ASA is a variant of the TSA and is suitable for use by banks with high interest margins to calculate their operational risk capital requirements.

Figure A2: Distribution of OR RWA per category of banks



5.12 The 20 banks that were considered for the OR QIS use different approaches for the calculation of the capital requirement for operational risk (see Table A1).

Table A1: Banks under different operational risk approaches

Number of banks using different approaches			
BIA	**TSA**	**ASA**	**AMA**
8	6	2	4

5.13 In the previous QIS exercise conducted, the PA solicited two sets of data from banks. One data set was compiled based on the ZAR buckets proposed by the PA and the other data set assumed the application of the BCBS buckets (see tables A2 and A3 for the ZAR buckets and BCBS buckets converted to the rand equivalent).

Table A2: ZAR buckets

BI ranges and marginal coefficients		
Bucket	**BI range (R billions)**	**BI marginal coefficients**
1	≤4	12%
2	4 < BI ≤ 100	15%
3	>100	18%

Table A3: BCBS buckets

BI ranges and marginal coefficients		
Bucket	**BI range (R billions)**	**BI marginal coefficients**
1	≤17.5	12%
2	17.5 < BI ≤ 525	15%
3	>525	18%

5.14 The current draft amended Regulations assume the revised BI buckets set out in Table A4. The BCBS buckets will not be considered for this analysis.

Table A4: BI buckets

BI ranges and marginal coefficients		
Bucket	**BI range (R billions)**	**BI marginal coefficients**
1	BI ≤ 5	12%
2	5 < BI ≤ 150	15%
3	> 150	18%

5.15 As outlined in Table A5 and depicted in Figure A3, when taking into consideration the BI buckets in the application of the BI marginal coefficients, out of the 20 banks that participated in the study, on a solo basis, 14 banks operate with a portion of

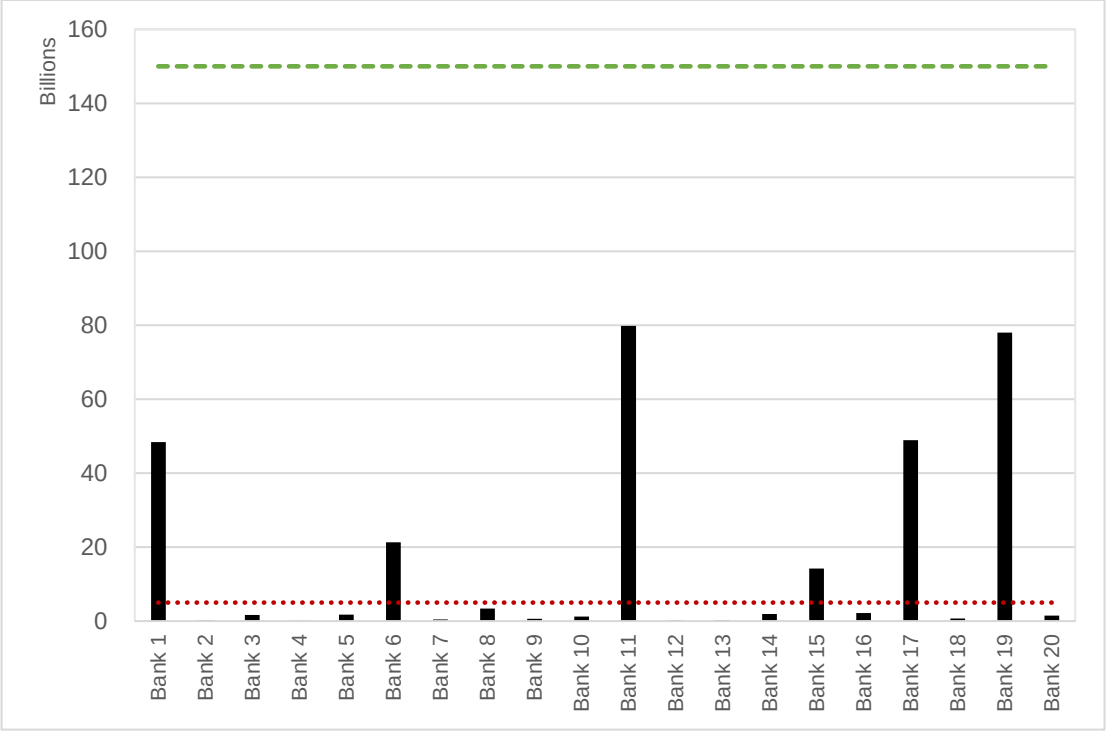
the BI that qualifies under bucket 1 for the computation of their BIC. These are all branches of foreign banks and other local banks.

Table A5: Range of BI for South African banks

Bucket	Number of banks qualifying under revised ZAR bucket	Number of banks qualifying under the BCBS buckets
Bucket 1	14	15
Bucket 2	6	5
Bucket 3	None	None

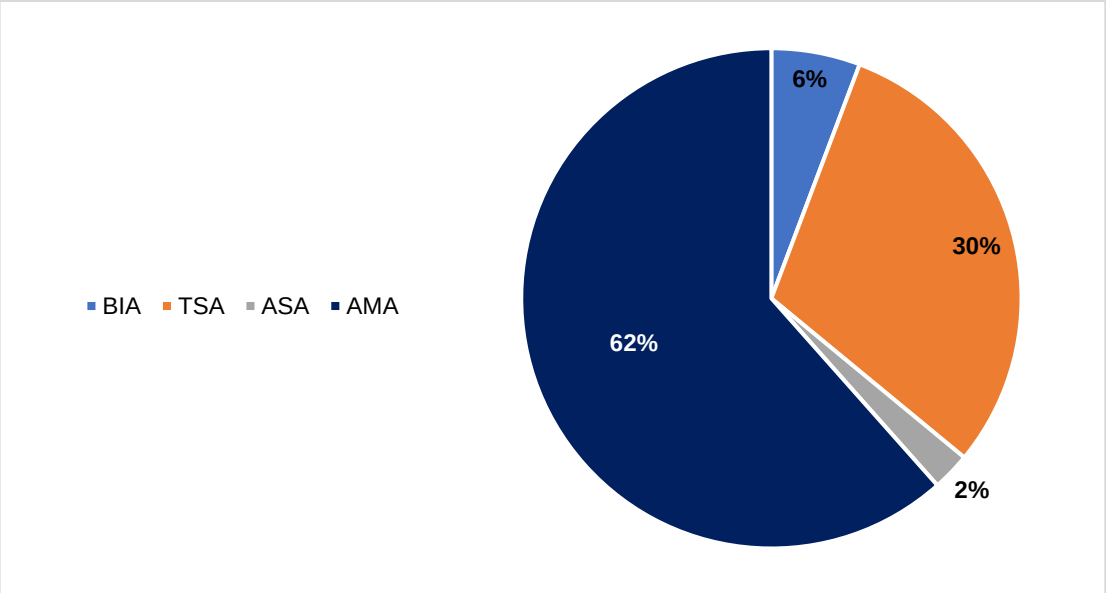
5.16 Under the revised bucket thresholds proposed by the PA, six banks operate with a portion of the BI that qualifies under bucket 2 while none of the banks conducting business in South Africa have a portion of their BI that qualify under bucket 3 (see Figure A3).

Figure A3: Range of BI for South African banks



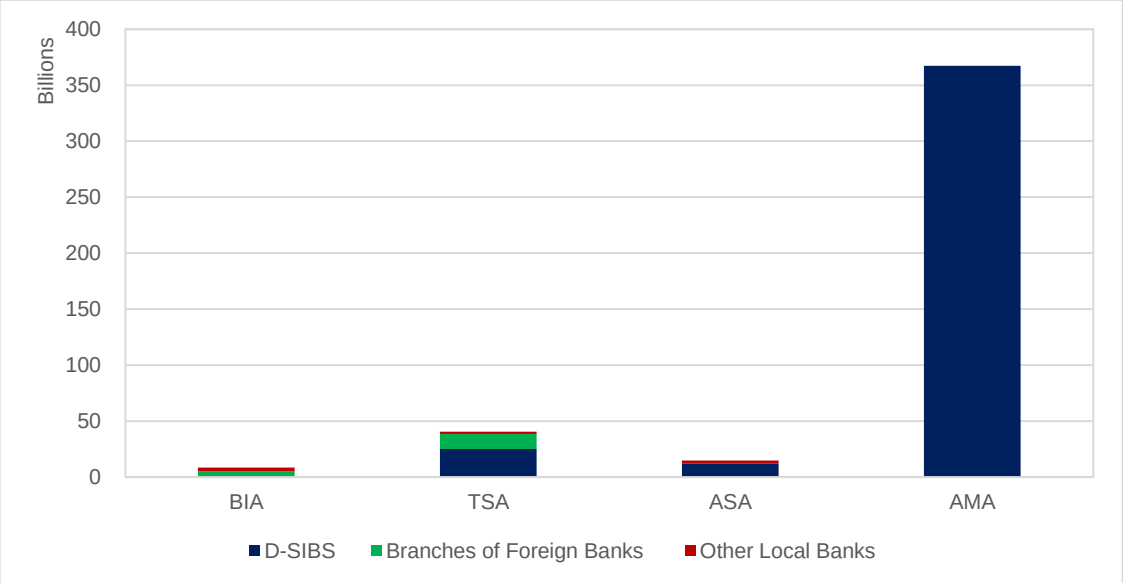
5.17 As shown in Figure A4, based on the data provided by 20 banks on a solo basis, AMA is used to calculate capital for 62% of the OR RWA under the current operational risk framework. This is followed by TSA and BIA which are used to calculate capital in respect of 30% and 6% of the OR RWA respectively. The alternative to the TSA is used to calculate capital for 2% of the total OR RWA.

Figure A4: Distribution of OR RWA under the current capitalisation methods



5.18 Capital calculated through AMA is attributed to the four largest banks. The five largest banks also account for 65% of the OR RWA that is capitalised under SA as well as under the BIA (see Figure A5).

Figure A5: Distribution of OR RWA per category of banks per approach



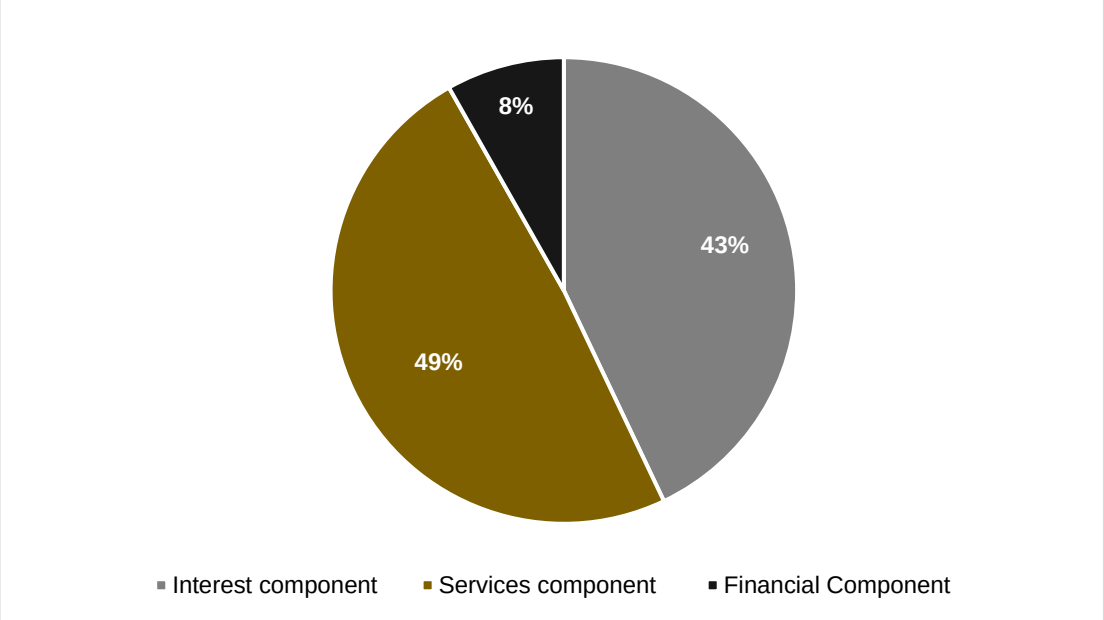
5.19 Branches of foreign banks use BIA and TSA to calculate the required capital for operational risk. None of the branches of foreign banks capitalises for operational risk using ASA or AMA. Only the other local banks calculate their capital for operational risk under the ASA, in addition to BIA and TSA (see Figure A5).

Assessment of the BIC

5.20 Under the Basel III post-crisis reforms, for the new operational risk framework, the operational risk capital requirement is calculated by multiplying BIC with the internal loss multiplier (ILM). The BIC is calculated by multiplying the different components that make BI by the respective marginal coefficients. The ILM is a scaling factor that is based on a bank's average historical losses.

5.21 Under the BI, the services component accounts for 49% of the total aggregate BI. This is followed by the interest component which accounts for 43% and the financial component which accounts for only 8% (see Figure A6).

Figure A6: Split of the BI components under the new SA approach

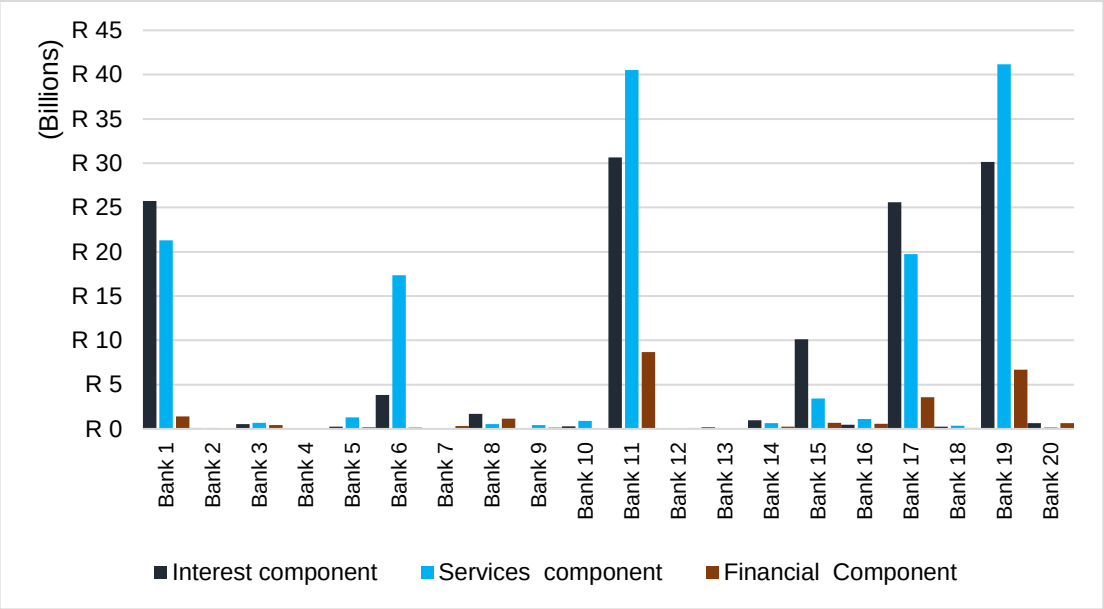


5.22 South Africa's D-SIBs account for a significant portion of the different BI components. As depicted in Figure A7, the interest and services components are dominant across the larger banks.

5.23 Considering the revised BI buckets, 14 banks have average BI marginal coefficients of 12%, while six banks have average BI marginal coefficients ranging between 13.9% and 14.8%.

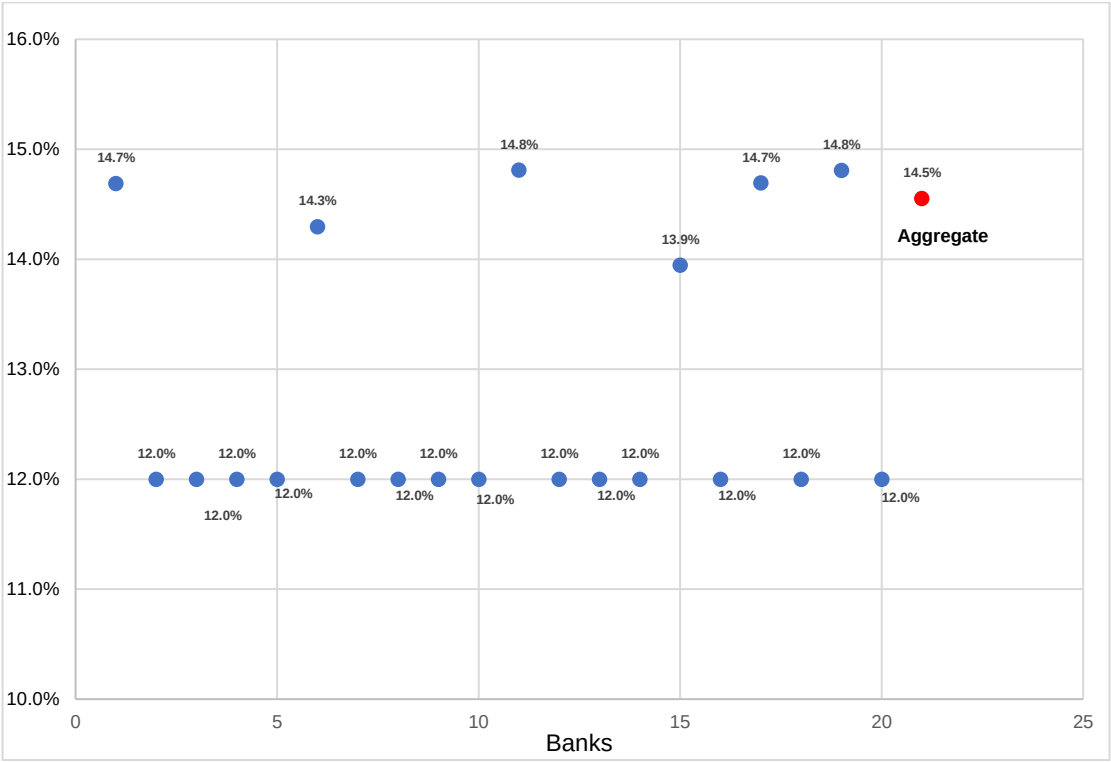
5.24 This also indicates that, on average, six banks have BI marginal coefficients falling under bucket 2, while 14 banks fall under bucket 1 of the revised buckets thresholds.

Figure A7: BI components per bank



5.25 On aggregate, the BI marginal coefficient for all 20 banks is 14.5% (see Figure A8).

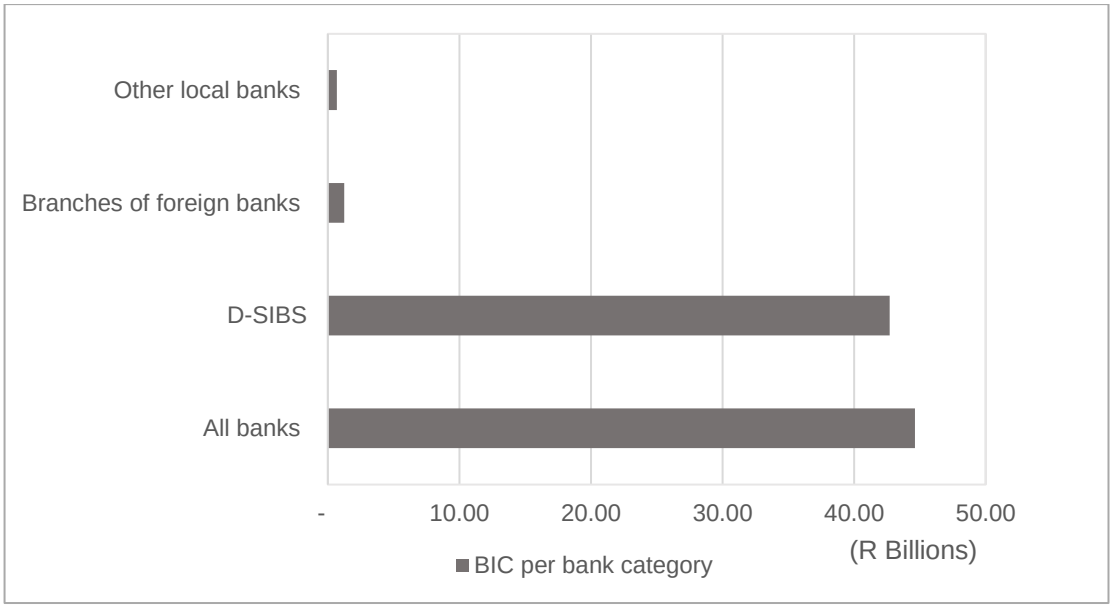
Figure A8: Average BI marginal coefficients per bank



5.26 As shown in Table A4, marginal coefficients increase with the size of the BI. For banks in bucket 1, BIC would be equal to BI multiplied by 12%.

5.27 When considering the categories of banks conducting business in South Africa, D-SIBs contribute 95.7% towards the overall BIC while branches of foreign banks and other local banks collectively contribute 4.3% (see Figure A9).

Figure A9: BIC per category of banks



Assessment of ILM

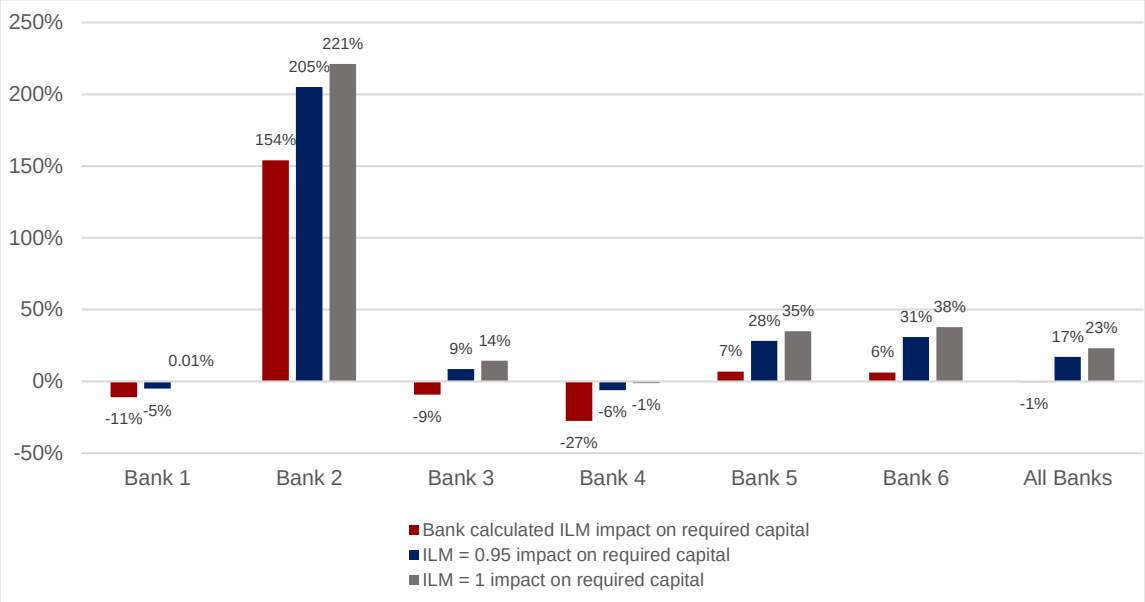
5.28 The application of ILM can either reduce or increase the capital required for operational risk for banks that can apply it. The PA has specified the mechanics of the ILM application in a draft Directive. Banks can apply ILM in their operational risk capital computation if they have a business indicator greater than or equal to R5 billion and 10 years of high-quality loss data.

5.29 There is a significant benefit to using the ILM in the computation of the operational risk capital (see Figure A10). A bank that does not meet the specified criteria must apply an ILM of 1.

5.30 The proposal is for the ILM floor to be phased in over three years, starting at 0.95 in 2025, 0.90 in 2026 and 0.85 in 2027. A bank must apply the maximum ILM between their calculated ILM and the specified ILM floors.

5.31 When compared to current capital levels, D-SIBs receive a greater capital benefit when using their calculated ILM relative to the ILM floor of 0.95. However, with the proposed implementation of the phased-in ILM floor, the benefit of ILM will be reduced.

Figure A10: Effect of ILM on required capital

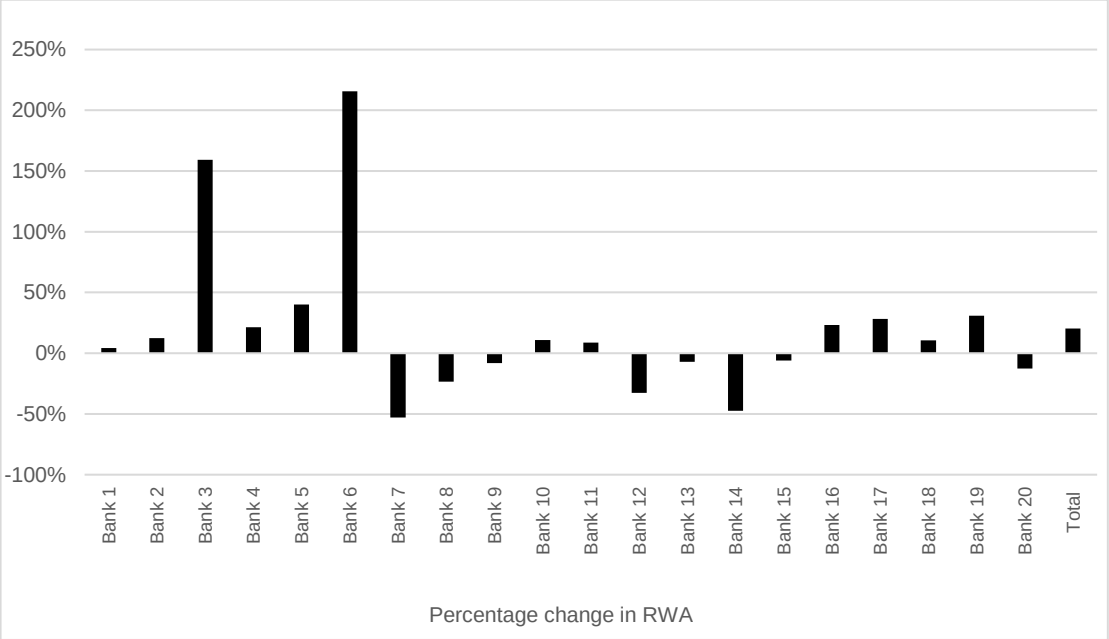


5.32 The application of ILM by the D-SIBs has the effect of reducing the operational risk capital requirement relative to a scenario when ILM is set at 1. The implementation of ILM floors restricts the benefit of ILM.

Assessment of RWA

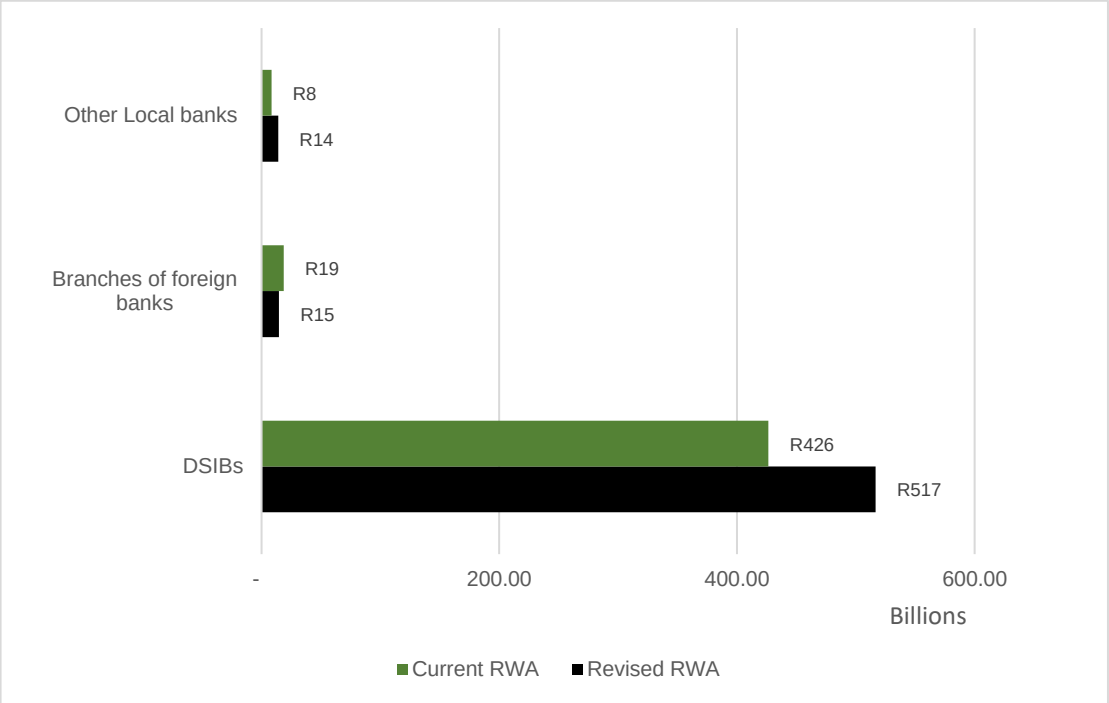
5.33 As previously noted, the PA has proposed revisions to the calculation of operational risk capital to incorporate capital floors based on the percentage of gross operating income averaged over three years.

Figure A11: Changes in OR RWA per bank



5.34 From the application of the revised framework, eight banks expect a capital benefit of between 6% and 53% under the new operational risk framework. On aggregate, OR RWA is expected to increase by 20% (see Figure A11).

Figure A12: Change in OR RWA per category of banks



5.35 Across the different categories of banks, except for branches of foreign banks, other local banks and the D-SIBs expect an increase in OR RWA from the implementation of the revised operational risk framework.

5.36 OR RWA for D-SIBs and other local banks is expected to increase by 21% and 67% respectively, while that of the branches of foreign banks will decrease by 21% (see Figure A12).

5.37 From the data received from banks through the QIS exercise, the PA observed some misalignment with the mappings used to calculate the capital requirements for the revised operational risk framework. In addition to the impact assessment conducted using the data received from banks depicted in figure A11, the PA conducted an additional impact assessment exercise using own data. This exercise also included the application of the proposed floors.

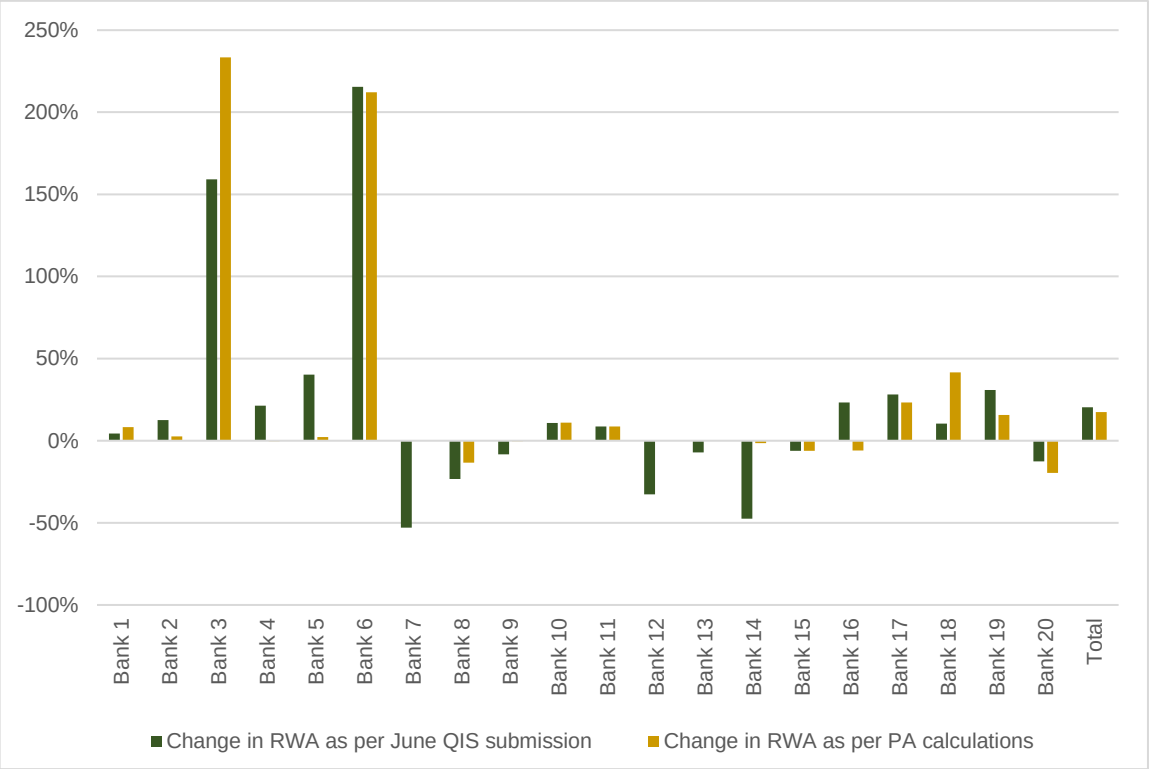
5.38 Banks were made aware of the misalignment observed and provided with an opportunity to resubmit their QIS data which they did. However, there are still some

variations between the data received from banks and the PA's own calculations, particularly regarding smaller banks and branches of foreign banks.

5.39 The expected impact on RWA from the data submitted by banks versus the PA's own calculations is depicted side by side in figure A13. The PA will continue to engage the industry on these discrepancies.

5.40 In addition, the PA is currently engaging with banks who are likely to expect a higher impact from the revised operational risk framework.

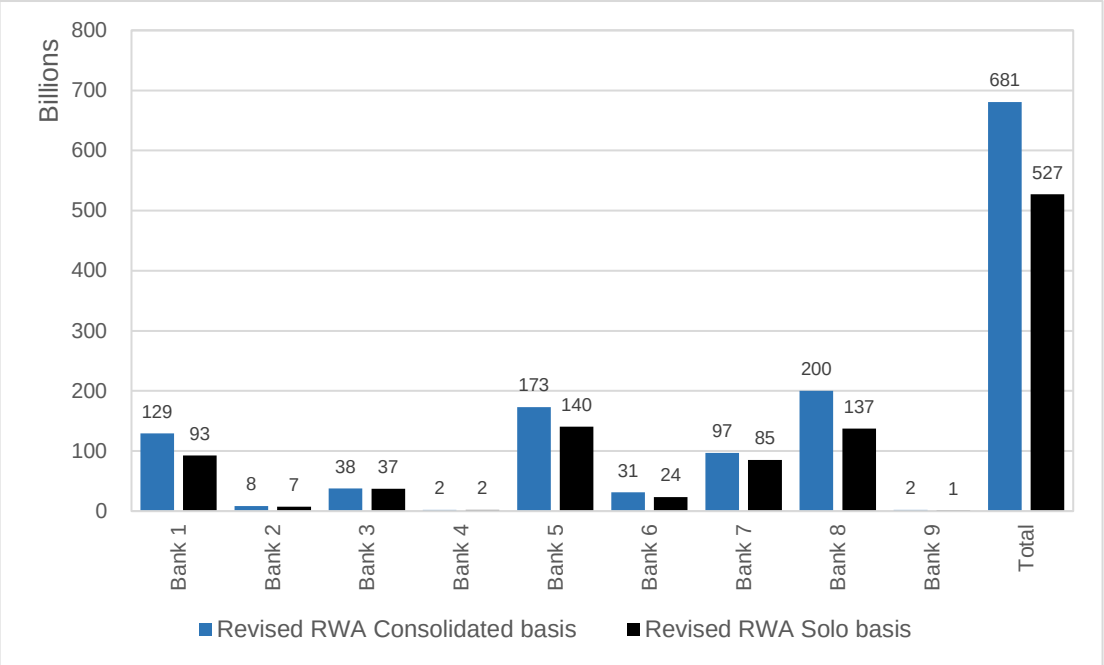
Figure A13: Impact on OR RWA as per PA calculation and QIS data



Assessment of OR RWA on a consolidated basis

5.41 Nine banks submitted data on a consolidated basis. When the impact of the computation of OR RWA is assessed on a consolidated basis, OR RWA under the revised operational risk framework increases by 29% from the solo levels for the nine banks analysed. Seven banks are expected to register an increase in OR RWA ranging between 1% and 69% from a solo basis to a consolidated basis, while OR RWA will remain constant for one bank (see Figure A14).

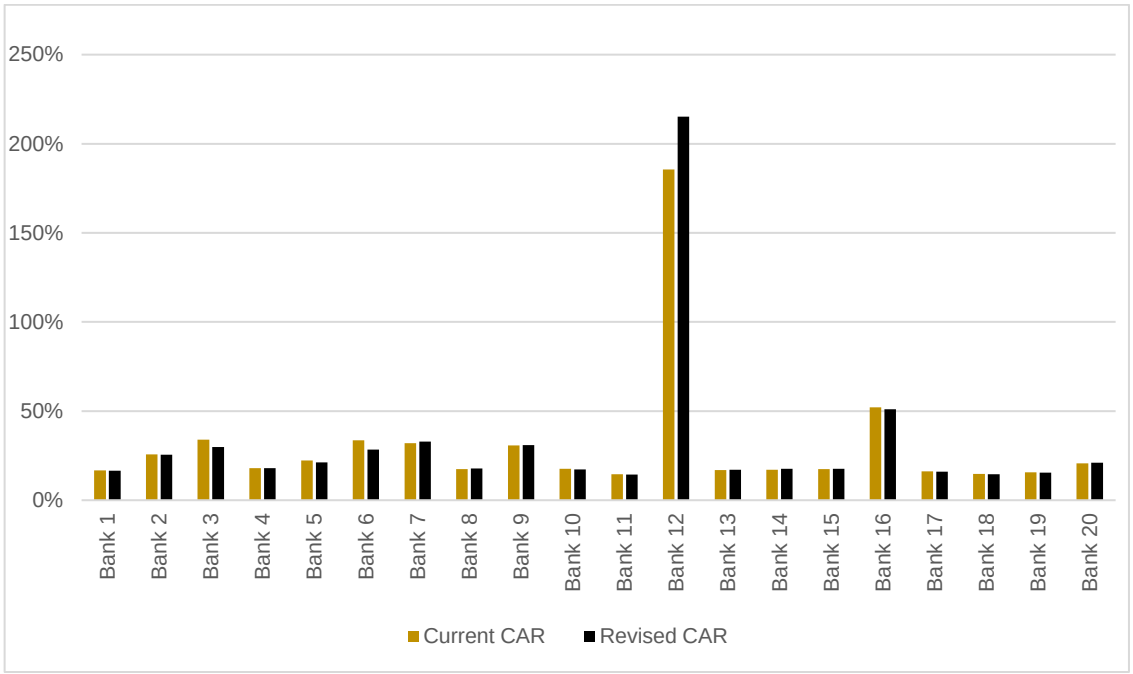
Figure A14: Revised OR RWA: solo versus consolidated basis



Impact on CAR

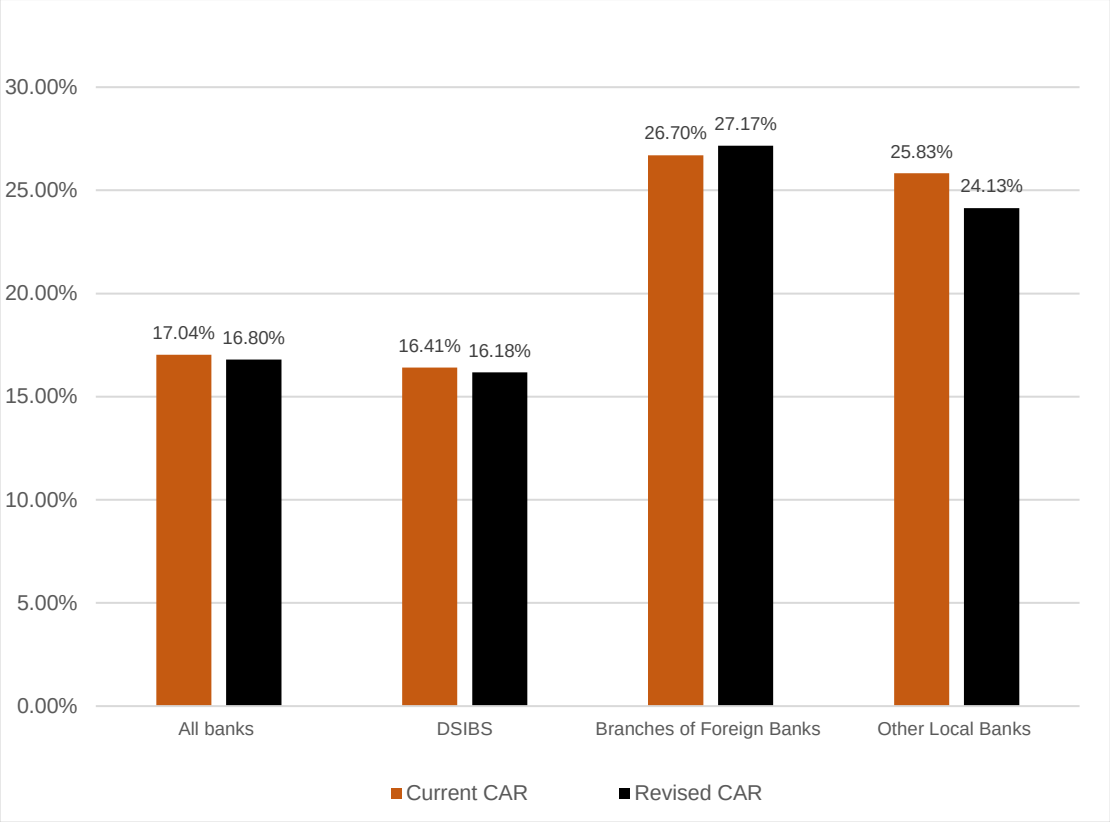
5.42 Under the revised OR framework, for eight of the banks that participated in the study, on a solo basis, CAR increases range between 0.06% and 29.54%. Five of the D-SIBs expect a capital increase. CAR for the remaining twelve banks is expected to decrease by between 0.05% and 5.26% (see Figure A15).

Figure A15: Impact on CAR



5.43 On aggregate, as depicted in Figure A16, for the 20 banks considered, CAR is expected to decrease by 24 basis points in the computation of the operational risk capital.

Figure A16: Impact on CAR per category of banks



5.44 For the D-SIBs and other local banks, CAR is expected to decline by 23 basis points and 169 basis points respectively, while branches of foreign banks will experience an increase in CAR of 47 basis points (see Figure A16).

5.45 On aggregate, banks conducting business in South Africa are expected to hold more capital from the current levels from the implementation of the revised operational risk capital framework.

5.46 The quantum of the required capital at a consolidated level will be 29% higher than at the solo level.

B. Impact of implementing the revised credit risk framework

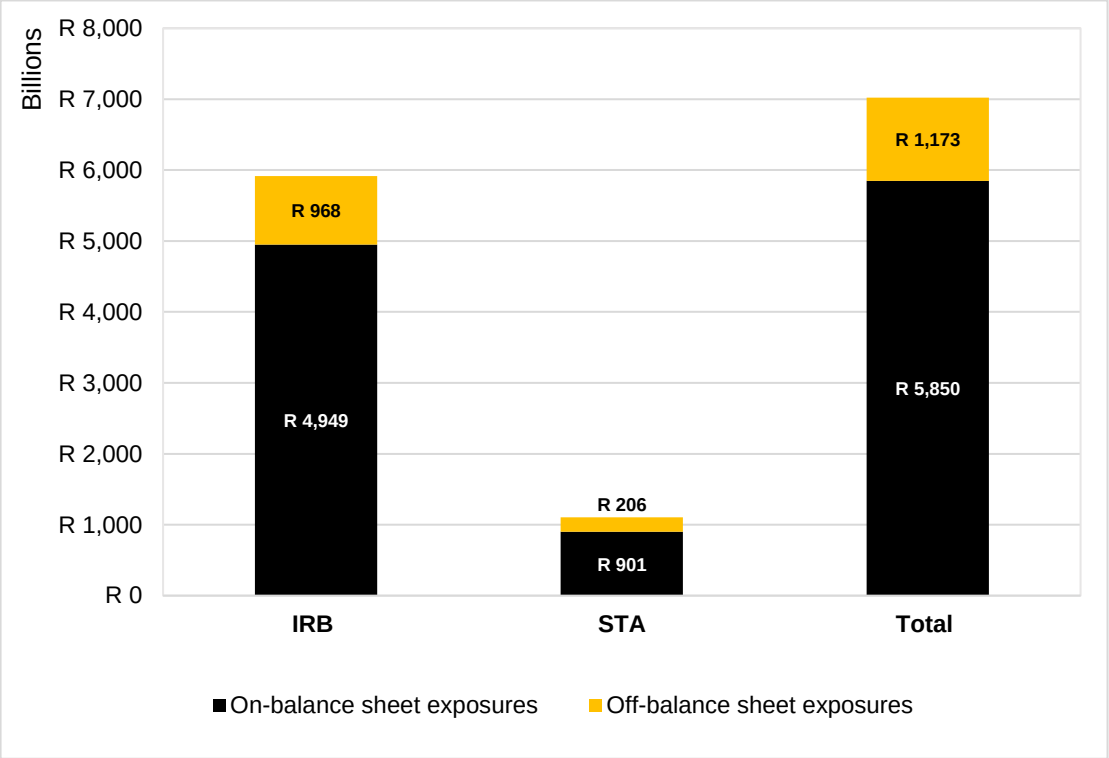
5.47 Twenty-four banks conducting business in South Africa participated in the revised credit risk frameworks QIS. These included South Africa's five largest banks as

measured by assets. In addition, 10 branches of foreign banks and 9 other local banks participated in the study.

5.48 The banks that submitted data for the QIS account for 98.17% of the total credit risk-weighted assets as at June 2023 (CR RWA). When compared to the other types of risks affecting banks, credit risk is the largest financial risk and accounts for 71% of the total banking sector RWA.

Analysis of CR exposures

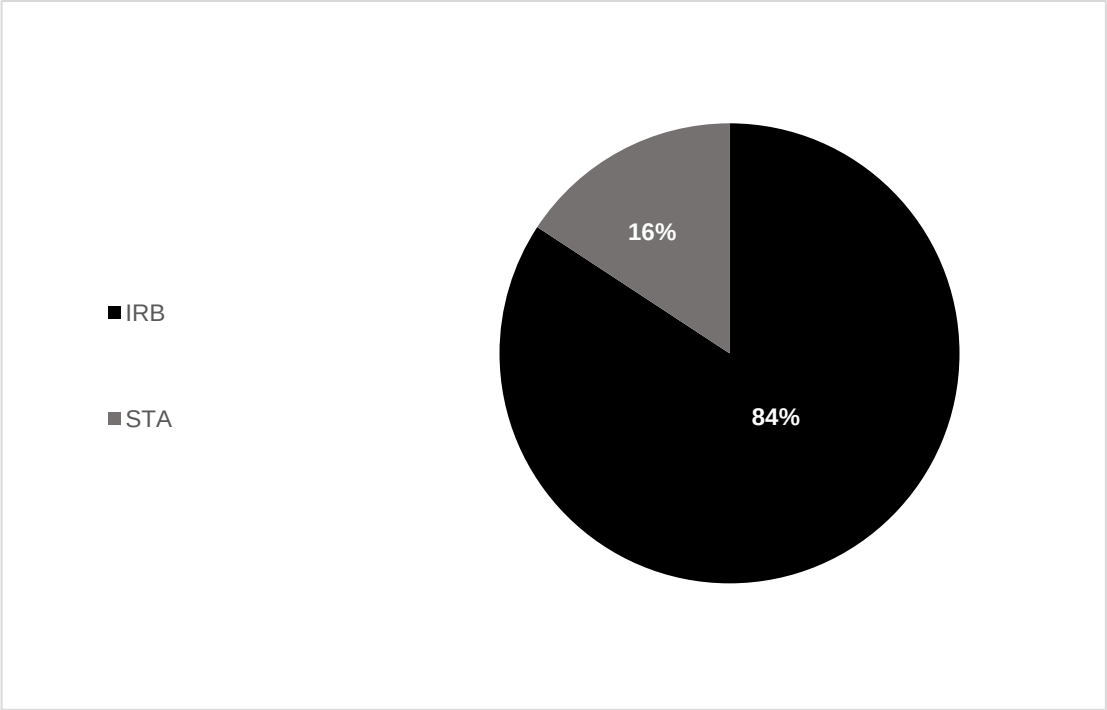
Figure B1: Exposures split by credit risk approach



5.49 As depicted in Figure B1, the total exposures covered by the QIS for the 24 banks that submitted data amounted to R7 trillion on a solo basis. On-balance sheet exposures account for a significant portion (83%) of the total exposures relative to off-balance sheet exposures, which account for 17%.

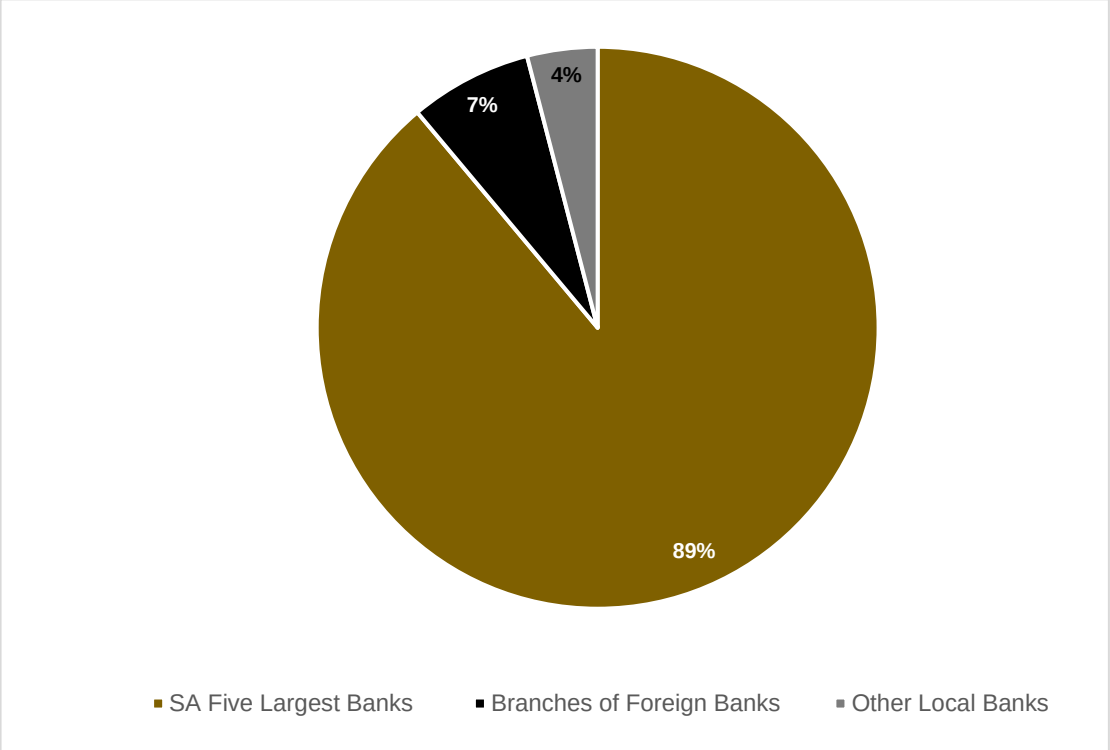
5.50 There are two broad approaches to calculating RWAs for credit risk. These are the STA and the IRB approaches. For the 24 banks that participated in the study, 84% of CR exposure is calculated in terms of the IRB approach, while 16% is calculated in terms of the STA (see Figure B2).

Figure B2: Exposures split by credit risk approach



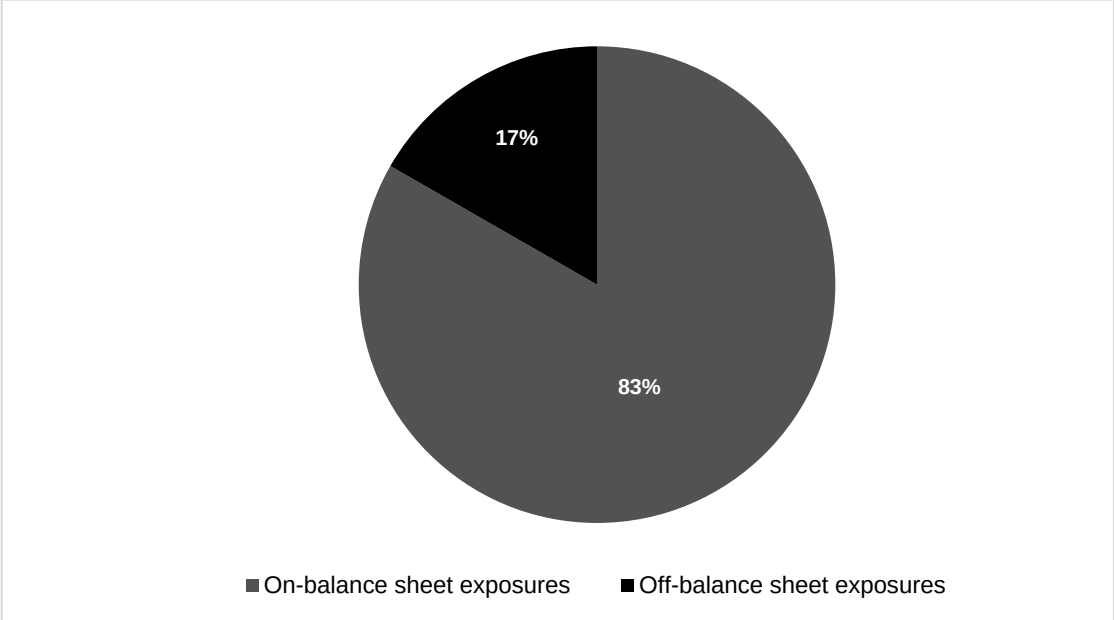
5.51 All the five largest banks use the IRB approach to calculate CR RWA for the majority of their CR exposures. All branches of foreign banks as well as other local banks use the STA approach to calculate CR RWA.

Figure B3: Exposures split by category of banks



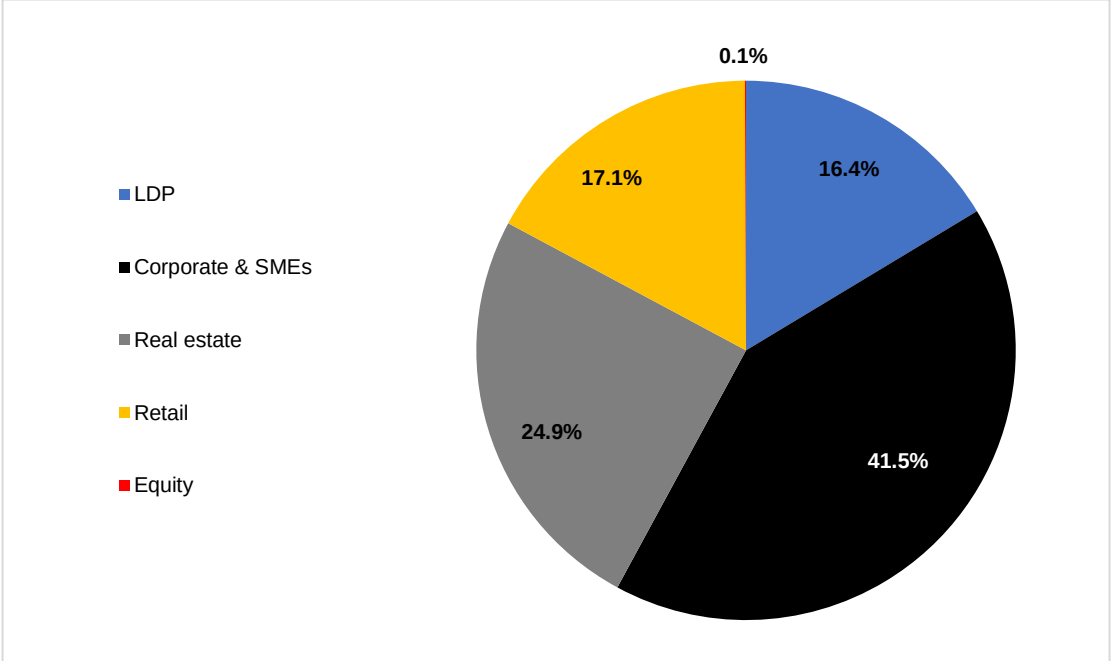
5.52 When the distribution of CR exposures is analysed according to the different categories of banks conducting business in South Africa, the five largest banks account for 89% of the total exposures. Branches of foreign banks and other local banks account for 7% and 4% respectively (see Figure B3).

Figure B4: On-balance sheet versus off-balance sheet exposures



5.53 For the 24 banks, 83% of the CR exposures are on-balance sheet, while 17% of the exposures are off-balance sheet (see Figure B4).

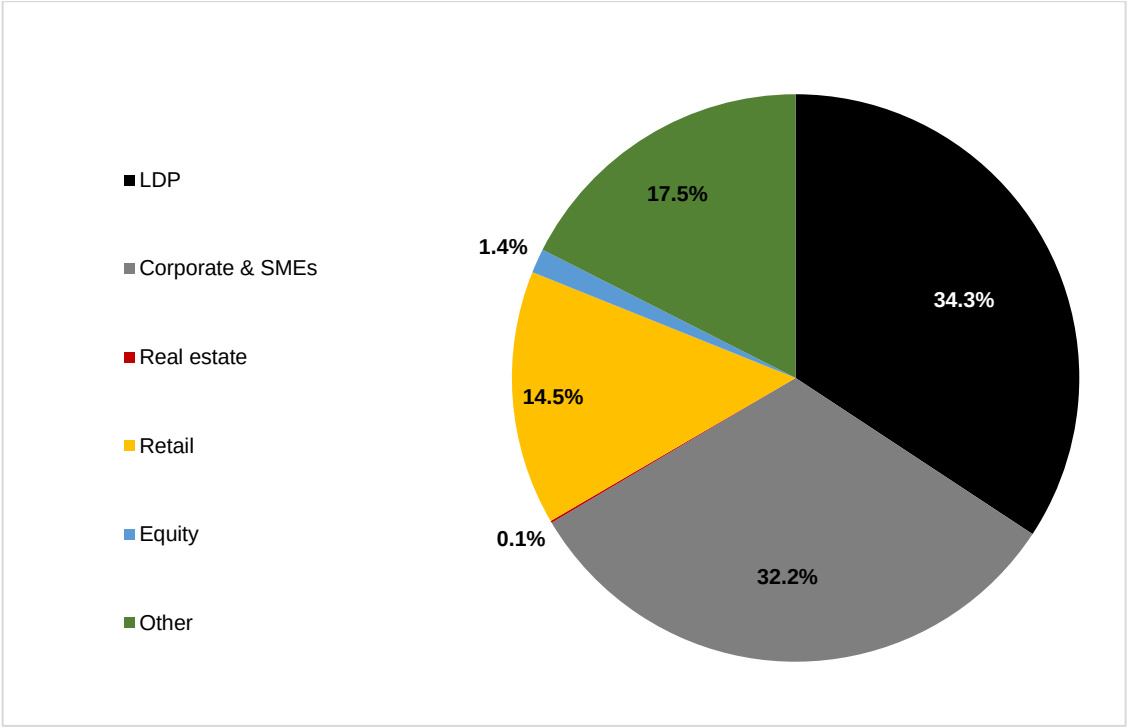
Figure B5: Exposures by asset classes under the IRB approach



5.54 Based on the split of CR exposures across the different asset classes under the IRB approaches, corporates, specialised lending, and small and medium-sized enterprises (SME) account for 41.5% of the total exposures. This is followed by real estate exposure which accounts for 24.9% and retail exposure which accounts for 17.1%. Low default portfolios[4] (LDP) and equity exposures account for 16.4% and 0.1% respectively (see Figure B5).

5.55 Under the STA approach, corporates and SMEs account for 32.2% of the total CR exposures, while LDP accounts for 34.3%. Other exposures, retail exposures and real estate exposures account for 17.5%,14.5% and 0.1% respectively. Equity exposures account for only 1.4% (see Figure B6).

Figure B6: Exposures by asset classes under STA

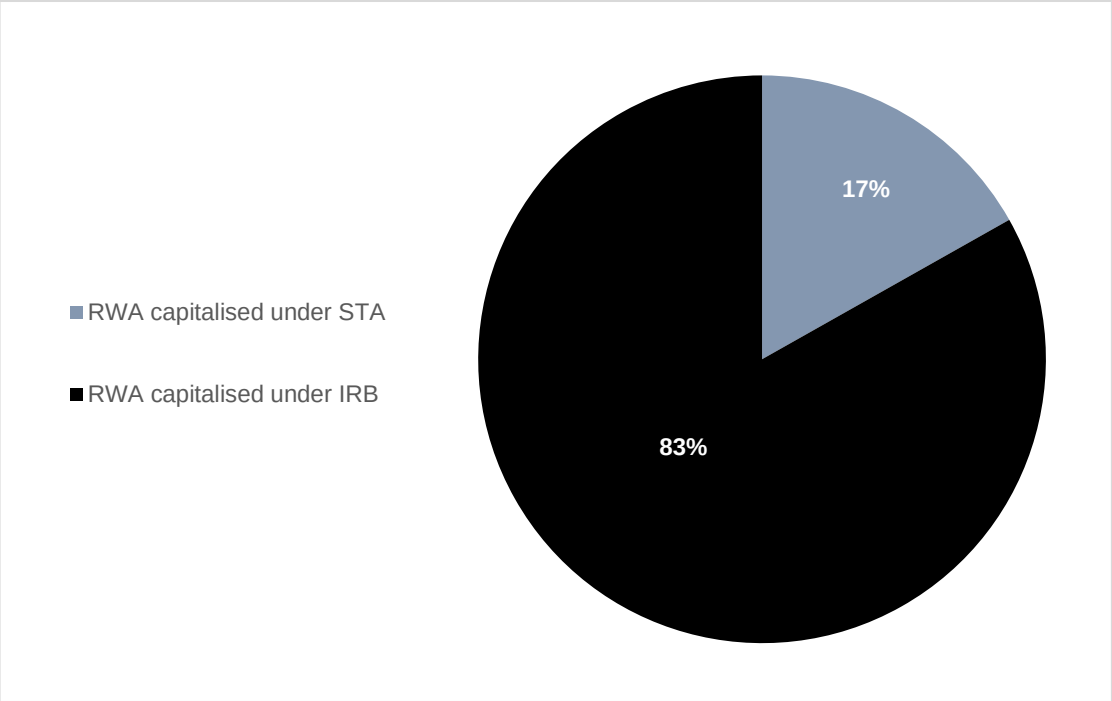


Analysis of RWA

5.56 Consistent with the split with regard to the total CR exposures, 83% of total CR RWA is attributable to the IRB approaches, while 17% is attributable to the STA approach (see Figure B7).

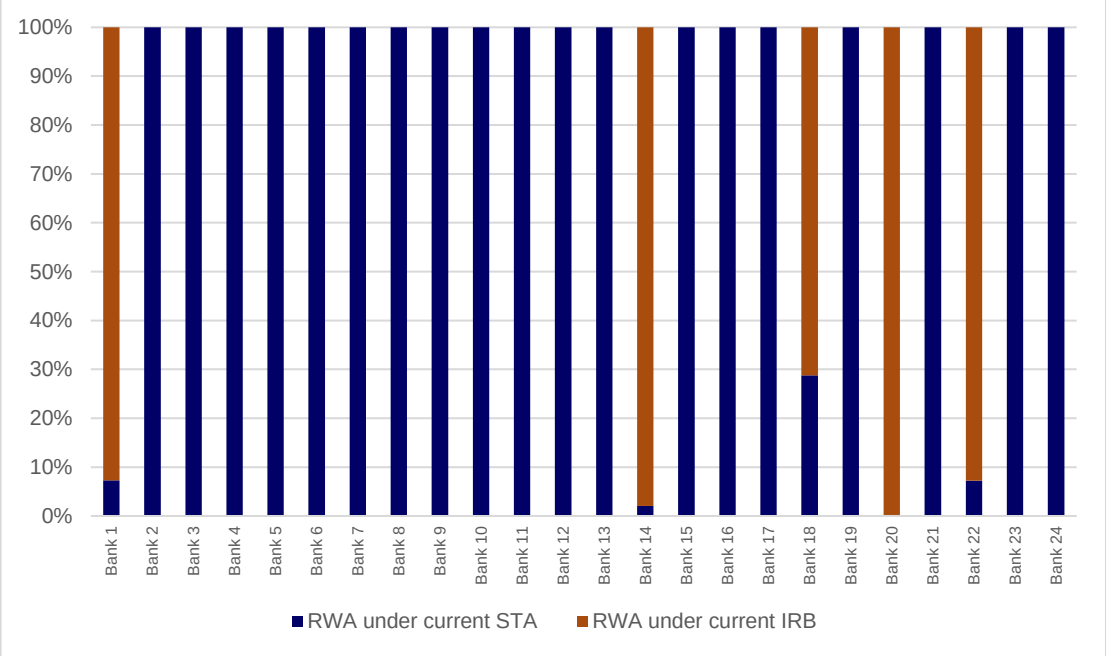
[4] Sovereigns, banks and securities firms

Figure B7: CR RWA split by approach for capitalisation



5.57 Again, 83% of the CR RWA under the IRB approaches is attributed to the five largest banks (see Figure B8).

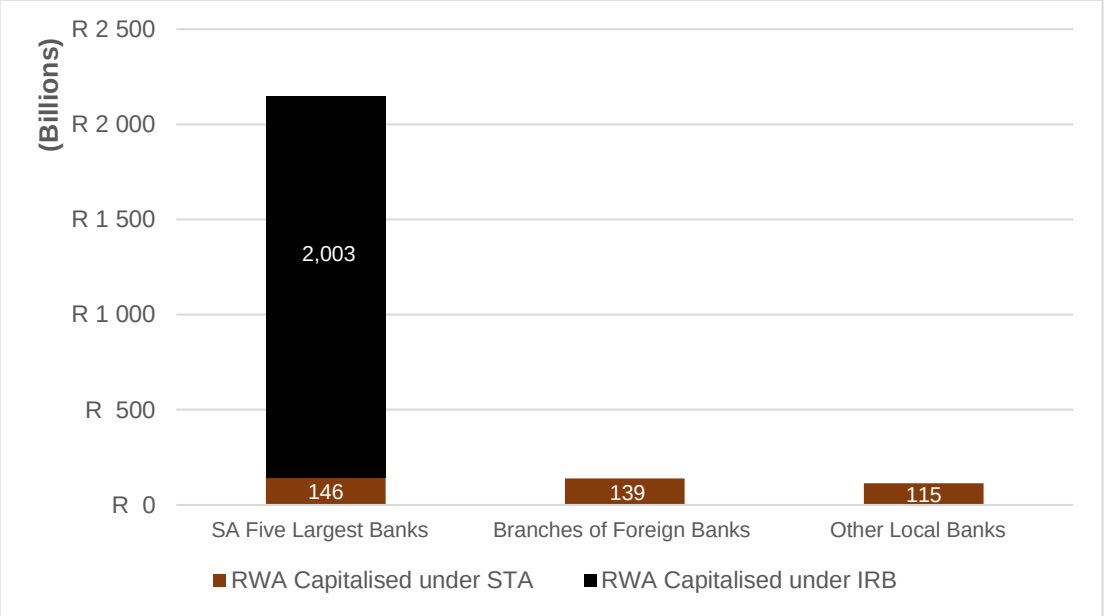
Figure B8: Credit risk approach per bank



5.58 Out of the banks that participated in the credit risk QIS, CR RWA amounting to R2.1 trillion is attributable to the five largest banks, while branches of foreign banks

and other local banks account for R139 billion and R115 billion of the total CR RWA respectively (see Figure B9).

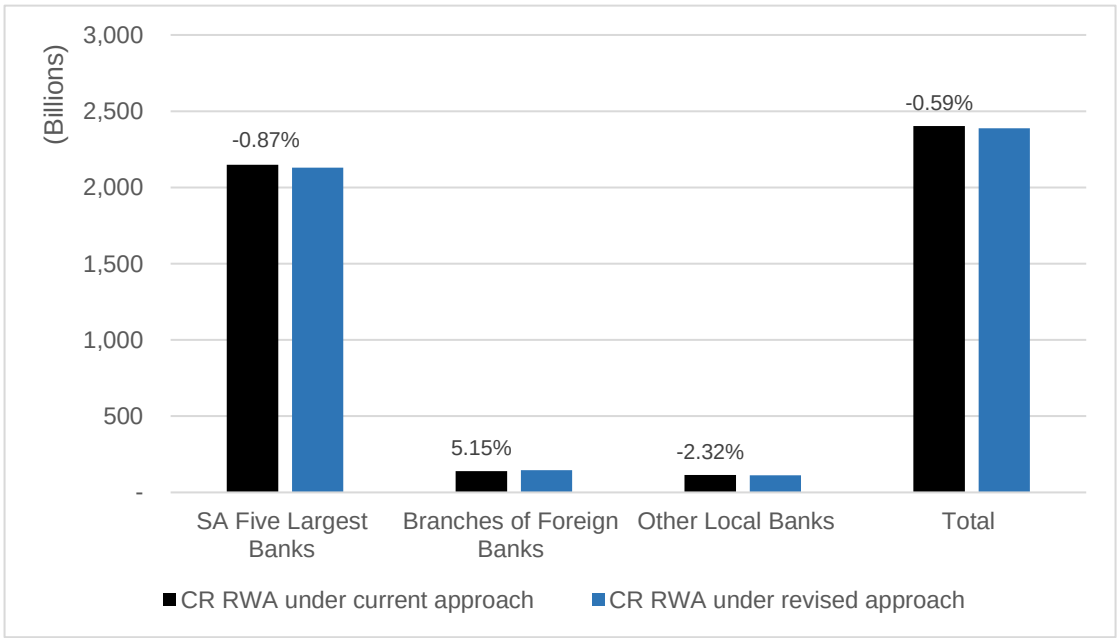
Figure B9: Total CR RWA per category of banks



Analysis of the expected impact

5.59 From the study, it is expected that the implementation of the revised credit risk framework will result in an aggregate decrease in RWA of 59 basis points from the current levels (see Figure B10).

Figure B10: Change in CR RWA



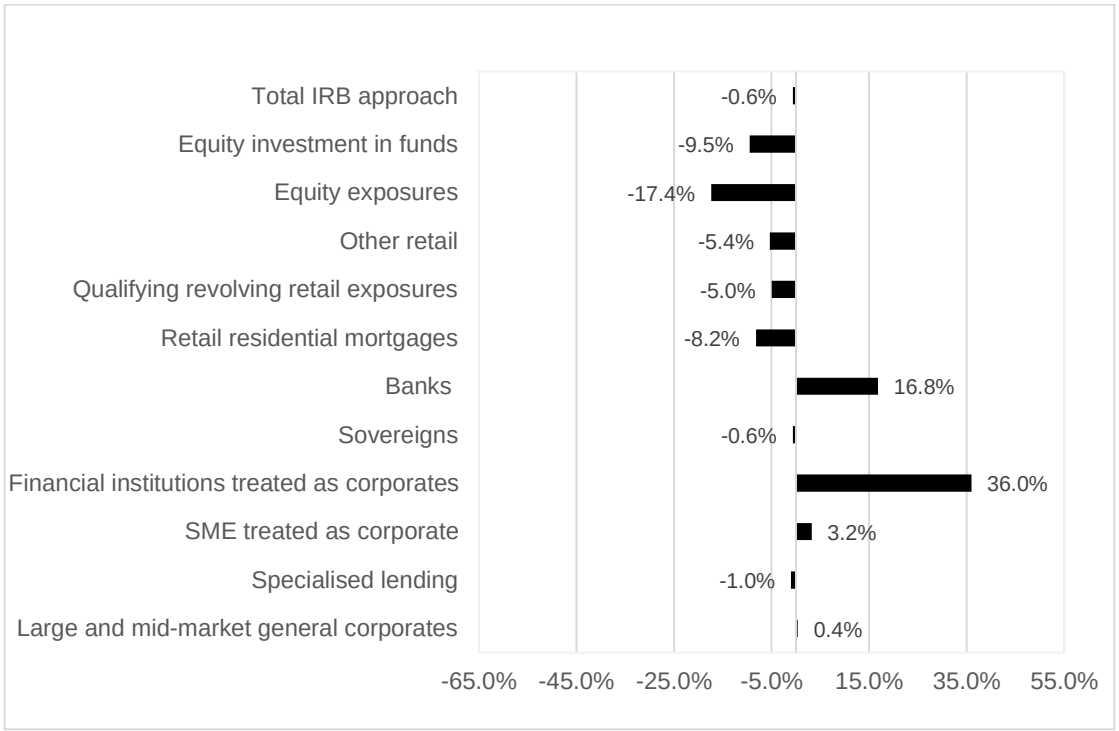
5.60 The five largest banks, which account for 88% of the total CR exposures, are expected to report a marginal decrease in CR RWA of 87 basis points and, consequently, capital held in respect of the credit risk exposures.

5.61 Branches of foreign banks are expected to register an increase in CR RWA of 5.15%. Other local banks will see a decrease in CR RWA amounting to 2.32%, and consequently, the minimum required capital is expected to decrease by 2.32%.

5.62 Given that the five largest banks account for a significant portion of the total CR exposures and RWA, the 0.87% decrease in the amount of required capital has a substantial impact on the overall impact of implementing the revised credit risk framework.

5.63 Equity investment in funds, equity exposures, other retail assets, revolving retail exposures and retail residential mortgages account for 49% of the total assets. These are expected to experience a reduction in CR RWA, as depicted in Figure B11. CR RWAs associated with exposures to banks and corporates (including SMEs) are expected to increase. The increase in CR RWA associated with these asset classes contributes to a 60 basis point reduction in the overall CR RWA for CR exposures attributable to the IRB approach.

Figure B11: Percentage change in CR RWA under IRB per asset class

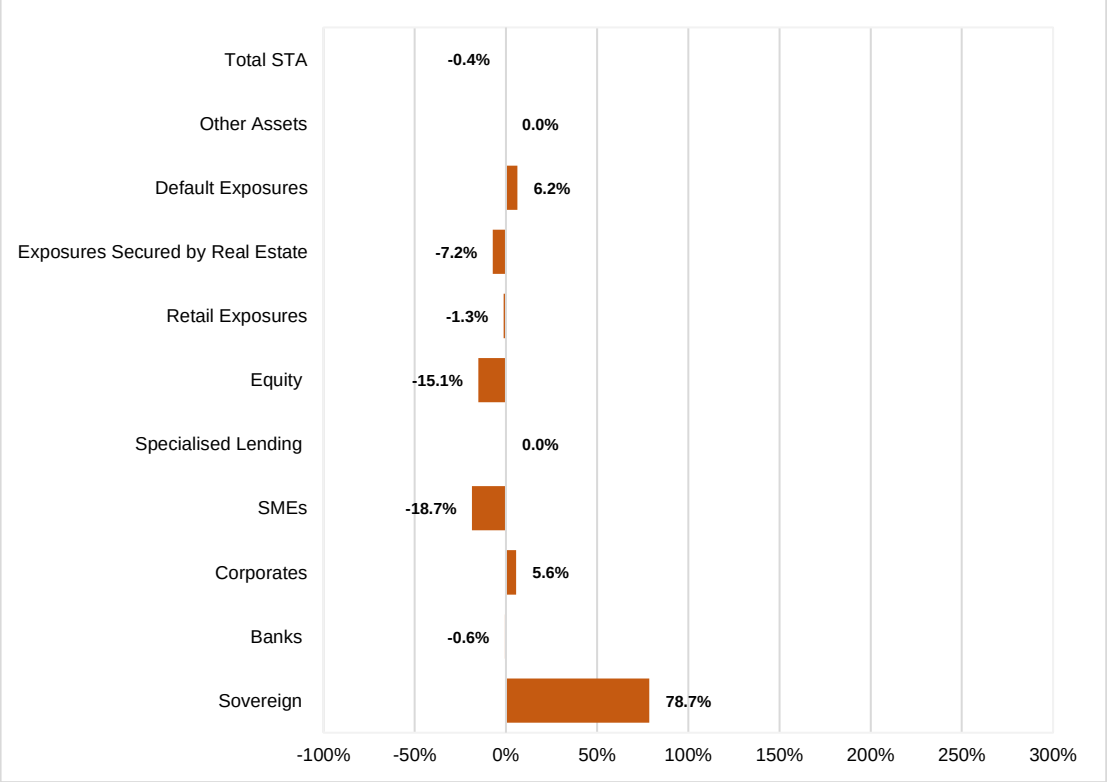


5.64 The main drivers of this decrease in CR RWA for other local banks are illustrated in Figure B12. This figure shows a decrease in CR RWA for retail exposures, banks, SMEs, equity as well as exposures secured by real estate. These assets account for 61% of the total assets under the STA approach. The revised STA for credit risk reclassifies some of the exposures to banks, residential real estate exposures and commercial real estate.

5.65 CR RWA for the branches of foreign banks will increase by 5.15%. Similar to the smaller local banks, branches of foreign banks use the STA to calculate capital for credit risk exposures.

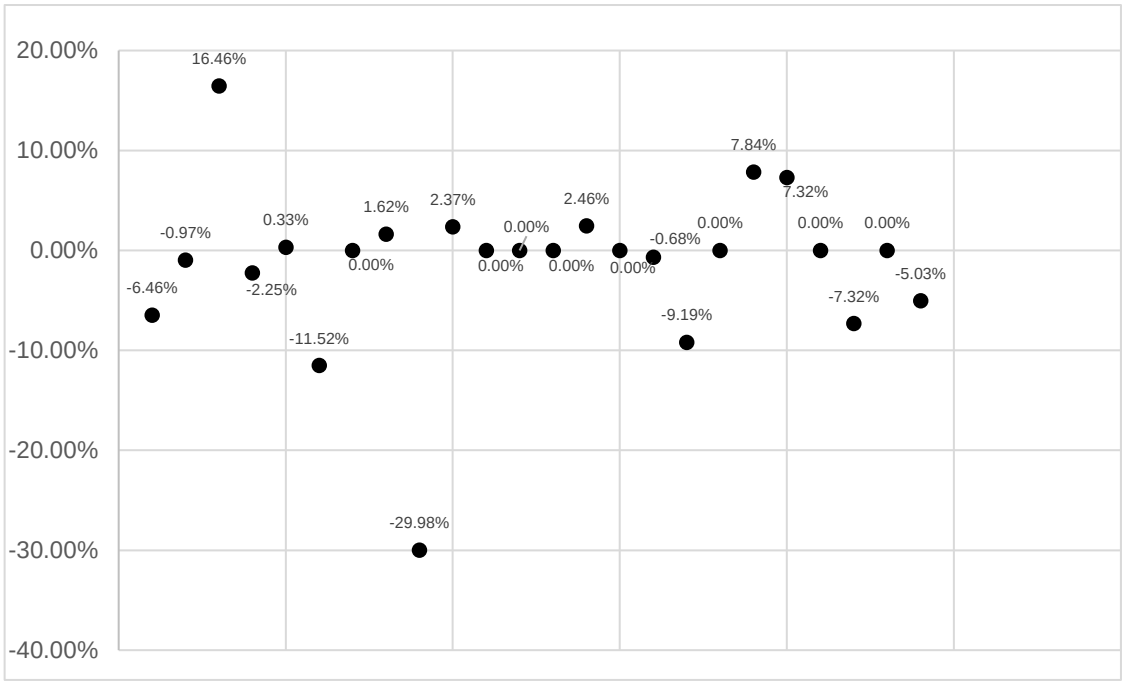
5.66 Overall, CR RWA under the STA will increase by 40 basis points from the current levels (see Figure B12).

Figure B12: Percentage change in CR RWA under STA per asset class



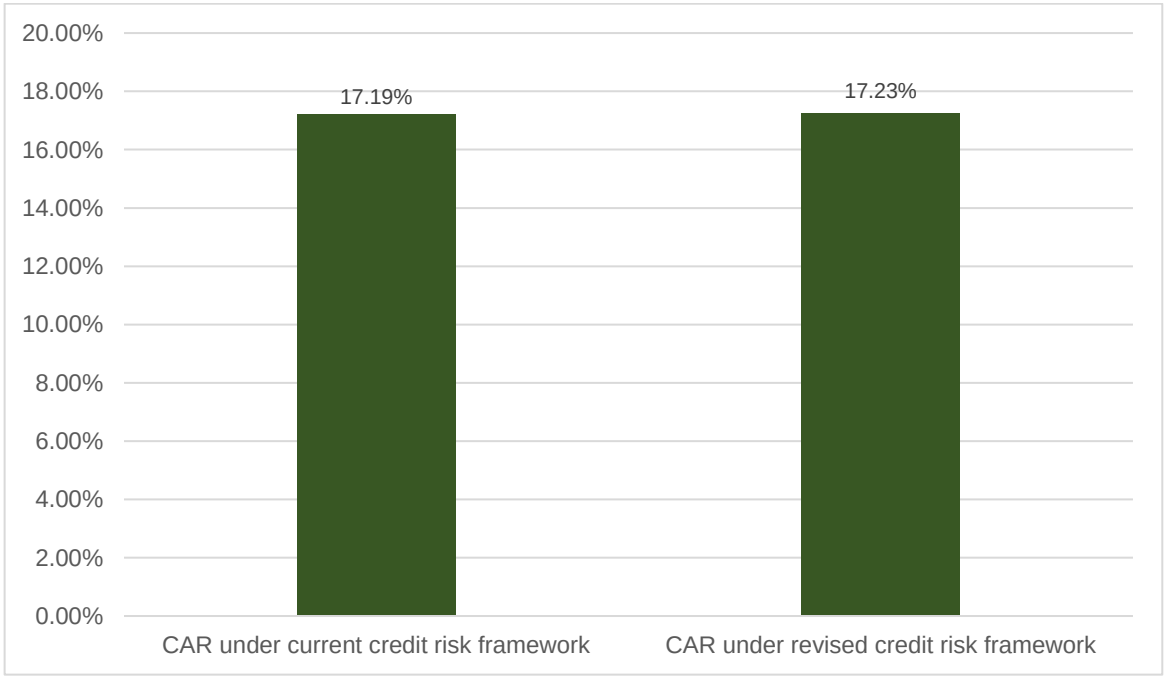
5.67 Individual banks will be impacted differently by the revised credit risk framework. On the one hand, 9 out of the 24 banks that participated in the study expect to record a decline in CR RWA, ranging between -0.97% and -29.98% (see Figure B13).

Figure B13: Percentage change in CR RWA per bank



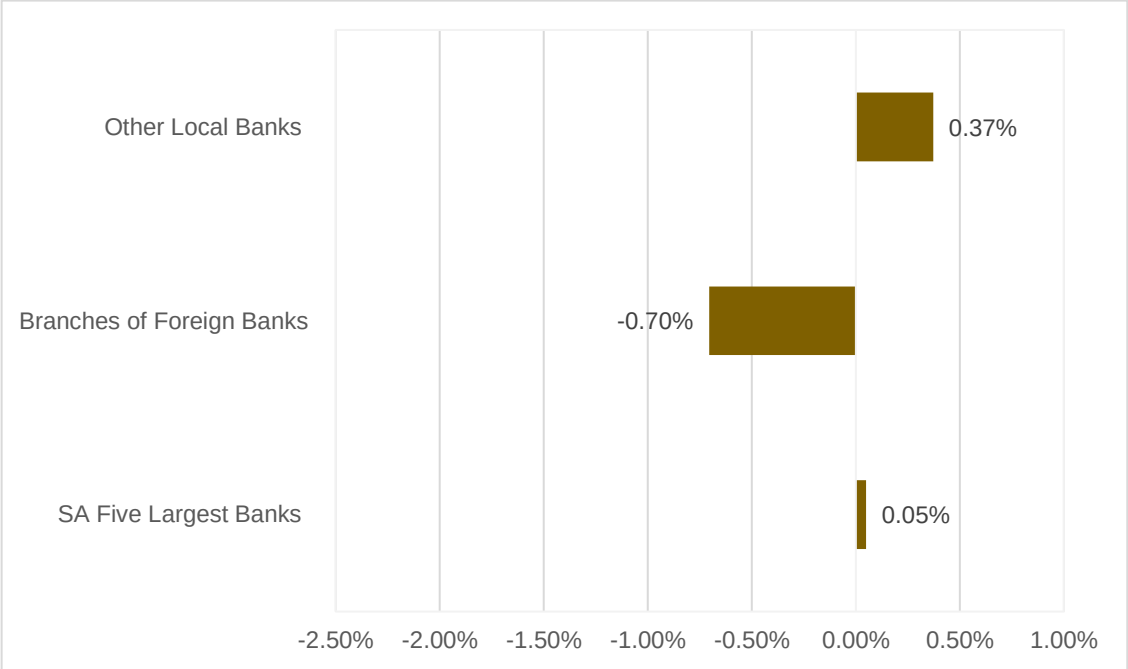
5.68 When combined, the five largest banks anticipate a marginal increase in CR RWA. On the other hand, it is expected that seven banks will see an increase in CR RWA, ranging between 0.33% and 16.46%. These banks are either branches of foreign banks or other local banks. For the other eight banks, the implementation of the revised credit risk framework would be neutral to their CR RWA (see Figure B13).

Figure B14: Overall change in CAR



5.69 As observed in Figure B14, for the 24 banks that participated in the study, CAR is expected to increase marginally by 4 basis points following the implementation of the revised credit risk frameworks. The five largest banks, which account for a significant portion of the total CR exposures, have a significant weight to the overall impact on CAR, as they expect a marginal decrease in CR RWA of 87 basis points.

Figure B15: Change in CAR per category of banks

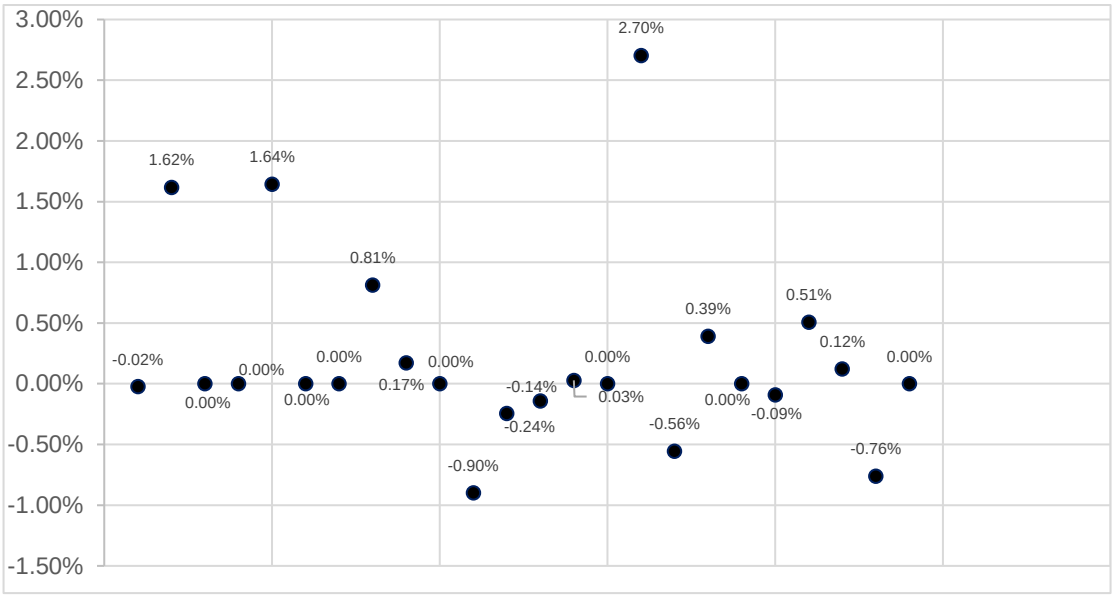


5.70 The five largest banks expect a marginal increase in CAR of 5 basis points from the implementation of the revised credit risk frameworks. Other local banks also expect an increase in CAR of 37 basis points. In contrast, branches of foreign banks expect a decrease in CAR of 70 basis points (see Figure B15).

5.71 Banks conducting business in South Africa are sufficiently capitalised despite the marginal decrease observed in CAR for branches of foreign banks. The implementation of the revised credit framework will not have a material impact on the overall capital levels of banks in South Africa.

5.72 At an individual bank level, it is expected that there will be a reduction in CAR for 7 banks, ranging between 0.1% and 0.9%. Nine banks that participated in the study are expected to record an increase in CAR, ranging between 0.1% and 2.7%. Data received from 8 banks indicate that the implementation of the revised credit risk framework would be neutral to their CAR (see Figure B16).

Figure B16: Change in CAR per bank

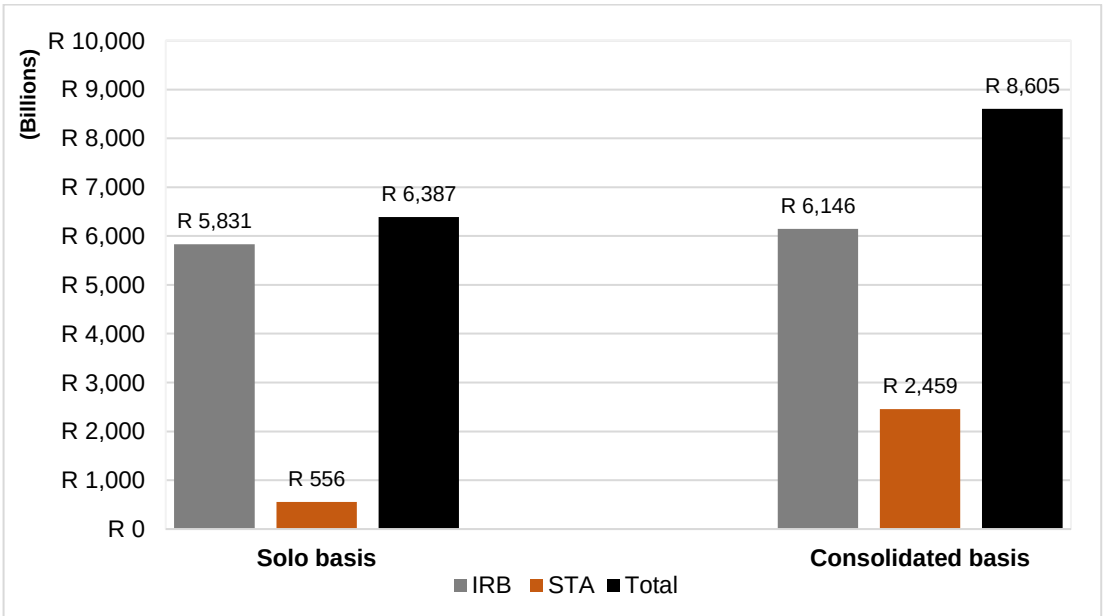


Assessment of credit risk framework on a consolidated basis

5.73 On aggregate, total CR exposures for the eight banks that provided data on both a solo and consolidated basis increased by 26% on a consolidated basis compared to the solo levels (see Figure B17).

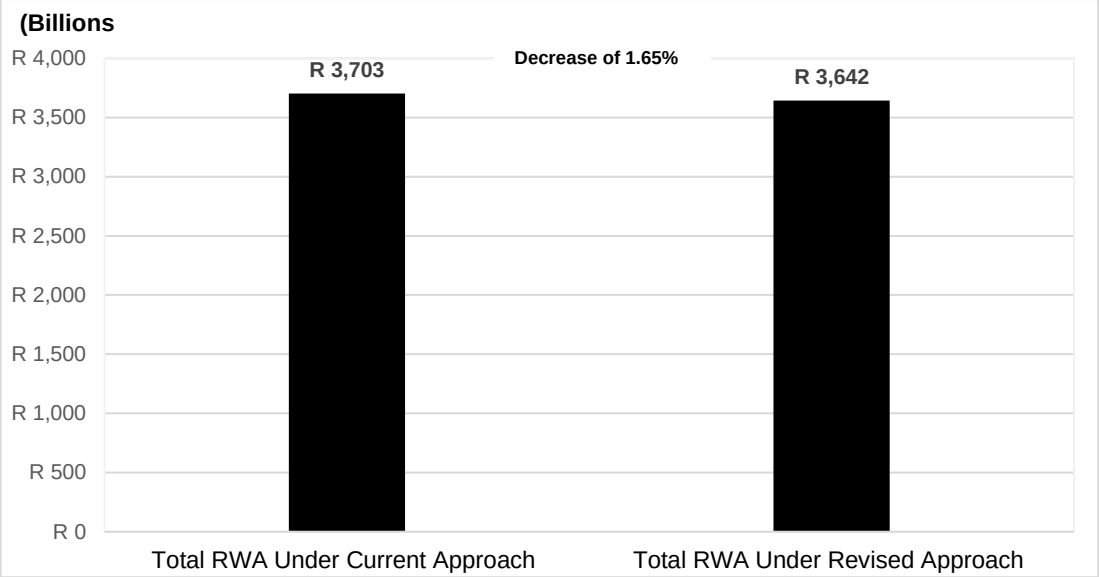
5.74 On a consolidated basis, total exposures under the STA increase by 342% while total CR exposures under IRB increase by only 5.39%. The increase in the exposures under the STA could be attributed to the African operations.

Figure B17: Total exposures: solo versus consolidated basis



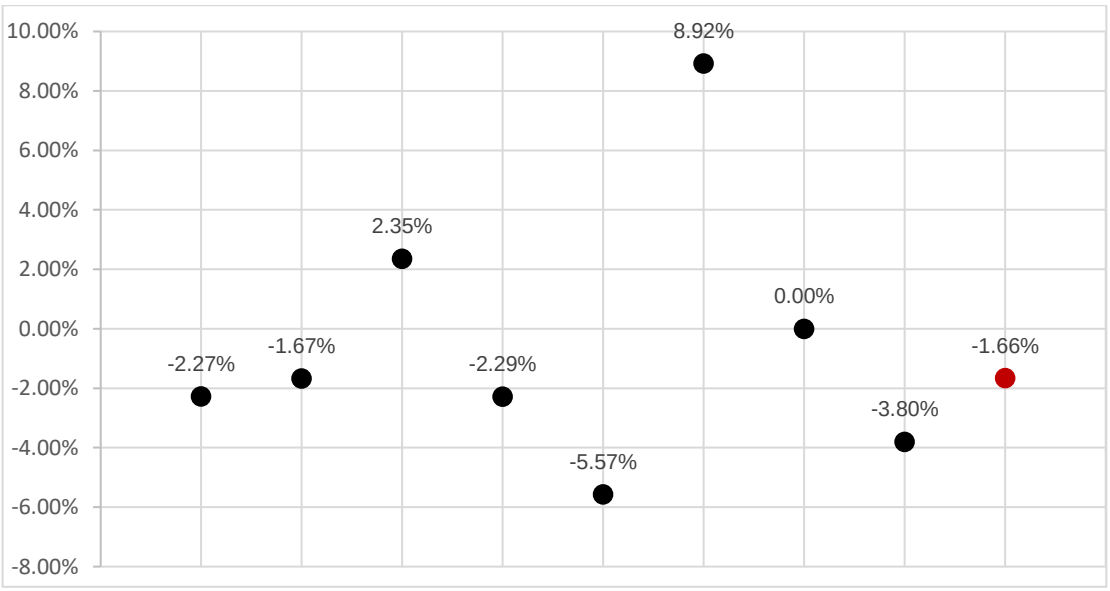
5.75 On aggregate, as depicted in Figure B18, for the eight banks that provided data on both a solo and consolidated basis, CR RWA is expected to decrease by 1.65% on a consolidated basis.

Figure B18: Change in CR RWA on a consolidated basis



5.76 The eight banks are impacted differently by the revised credit risk framework on a consolidated basis. When all eight banks are combined, it is observed that there will be a decrease in CR RWA on a consolidated basis, ranging from 1.66% to 5.57% (see Figure B19). However, for the same banks on a solo basis, CR RWA increases by 0.49%.

Figure B19: Change in CR RWA under a consolidated basis

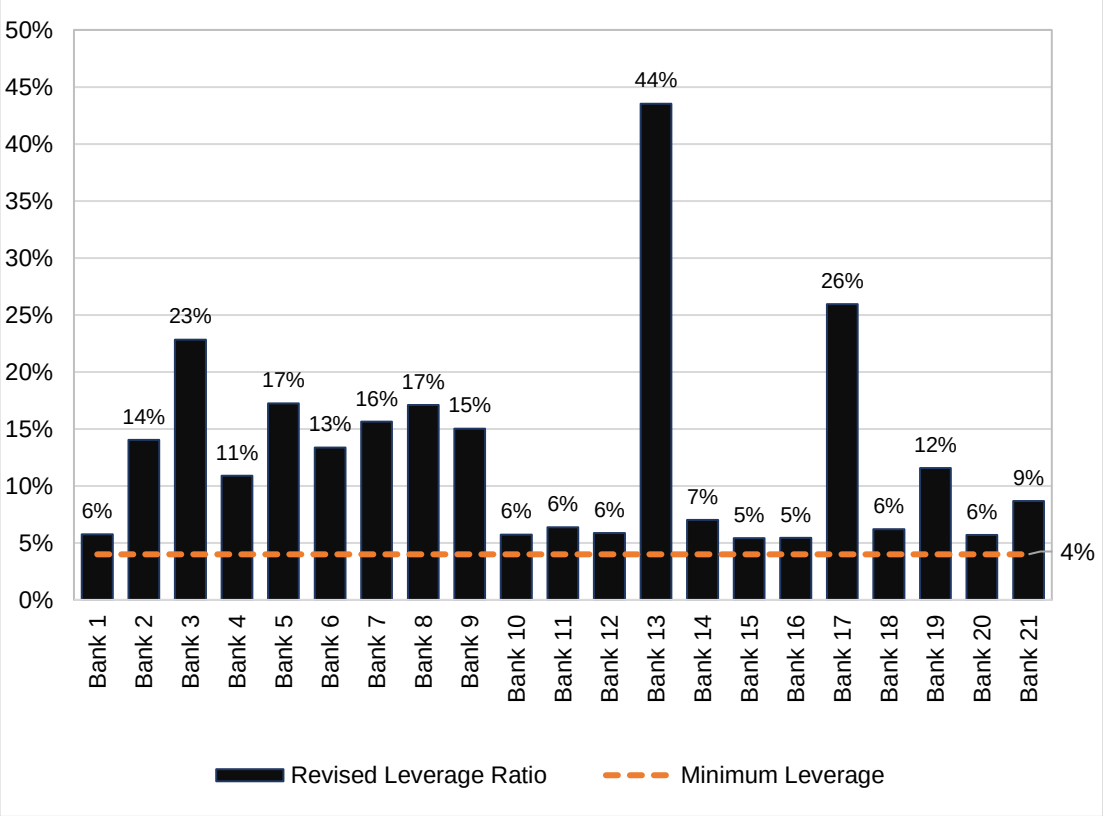


5.77 On a consolidated basis, six of the eight banks will experience a reduction in CR RWA. On a solo basis, three of the eight banks will experience an increase in CR RWA. However, on a consolidated basis, the aggregate CR RWA declines by 1.66% and increases by 0.49% on a solo basis for the eight banks (see Figure B20).

C. Impact of implementing the leverage ratio: revised exposure definition

5.78 In terms of the current Regulations, leverage is required to be not less than 4%. A leverage ratio acts as a non-risk-based backstop to the risk-based capital rules and limits any excessive build-up in leverage in the banking system.

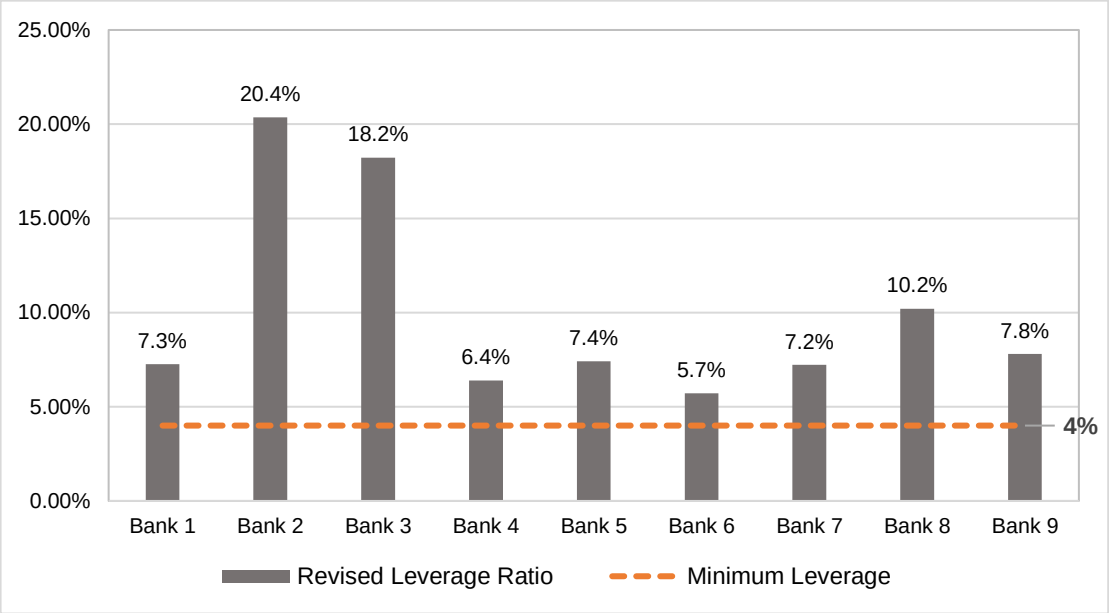
Figure C1: Leverage ratio post revised leverage ratio framework (solo)



5.79 Twenty-one banks provided data on the expected impact of the revised definition of exposure of the leverage ratio framework.

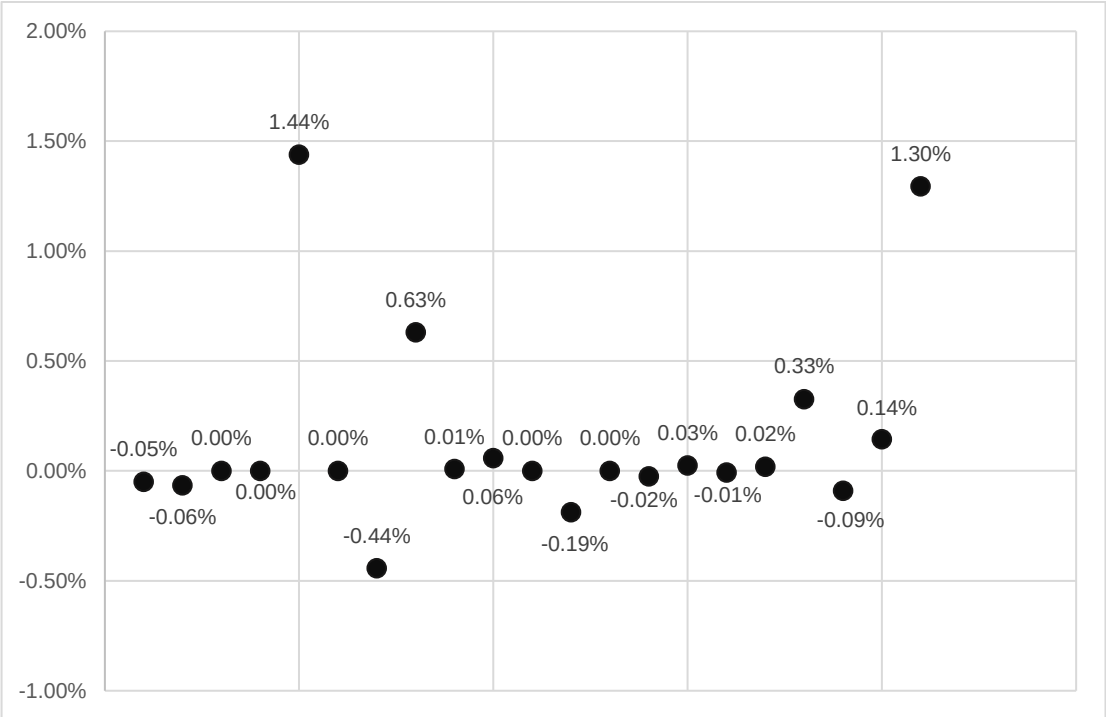
5.80 As depicted in Figure C1, the 21 banks that provided leverage data are all above the minimum required leverage ratio of 4%. The lowest leverage recorded on a solo basis is 5%, while the highest is 44%.

Figure C2: Leverage ratio post revised leverage ratio framework (consolidated)



5.81 On a consolidated basis, for the nine banks that provided data, the lowest leverage ratio is 5.7% and the highest is 20.4% (see Figure C2). The leverage ratio for all the nine banks is above the 4% prudential minimum requirement.

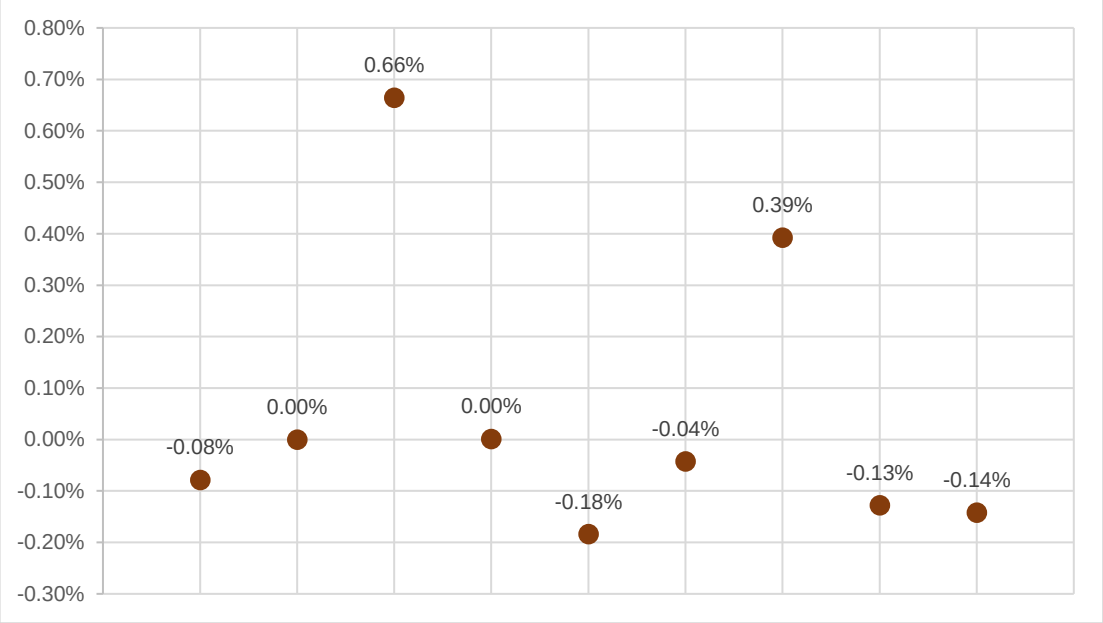
Figure C3: Impact of revised exposure definition of the leverage ratio (solo)



5.82 The application of the revised exposure definition of the leverage ratio framework will result in a marginal reduction in the leverage ratio for seven banks, ranging between 1 basis points and 44 basis points on a solo basis. For five banks, there is no change in the leverage ratio. The remaining nine banks recorded an increase in the leverage ratio, ranging between 1 basis point and 144 basis points (see Figure C3).

5.83 On a consolidated basis, five banks recorded a decrease in the leverage ratio, ranging between 4 basis points and 18 basis points. Two banks recorded an increase in the leverage ratio, ranging between 39 basis points and 66 basis points. Two banks recorded no change in the leverage ratio. The application of the revised exposure definition of the leverage ratio framework does not have any material effect on the leverage ratio for banks conducting business in South Africa (see Figure C4).

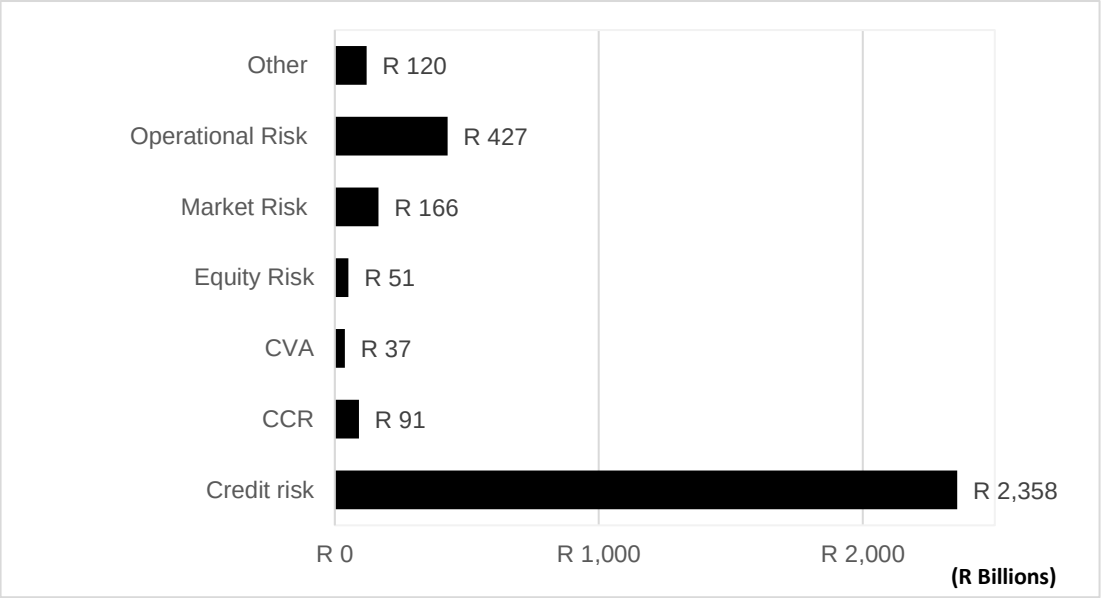
Figure C4: Impact of revised exposure definition of the leverage ratio (consolidated)



D. Impact of implementing output floors

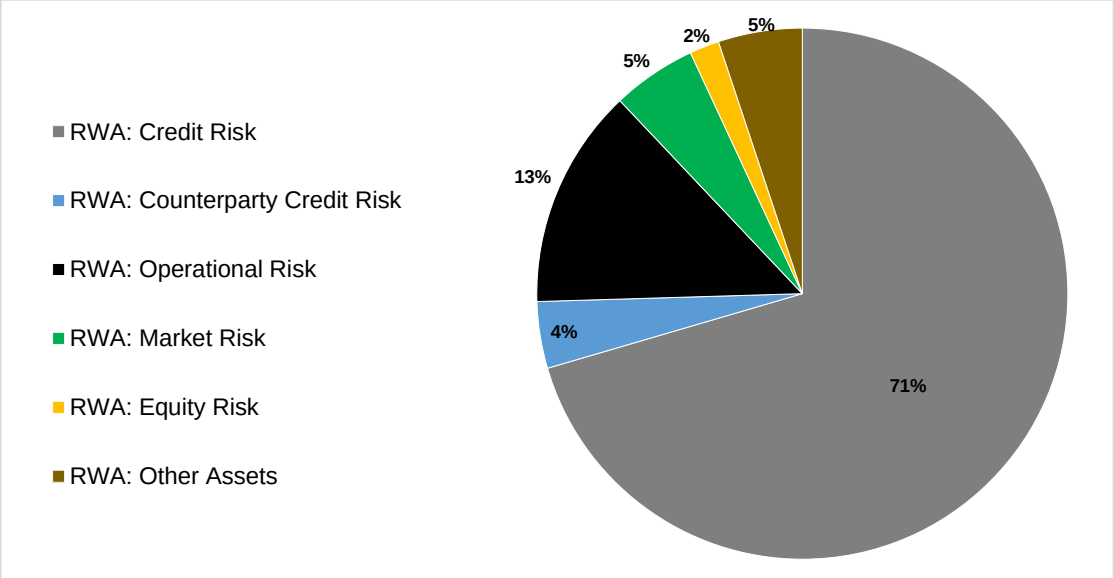
5.84 Seventeen banks submitted data for the output floor impact assessment. These banks accounted for 96.80% of the total RWA as at June 2023. The 17 banks include South Africa's five largest banks as measured by assets.

Figure D1: Total RWA per risk type



5.85 CR RWA accounts for 71% of the total RWA of banks that participated in the study, followed by operational risk at 13%. Market risk and other assets, each account for 5% of the total RWA (see Figures D1 and D2).

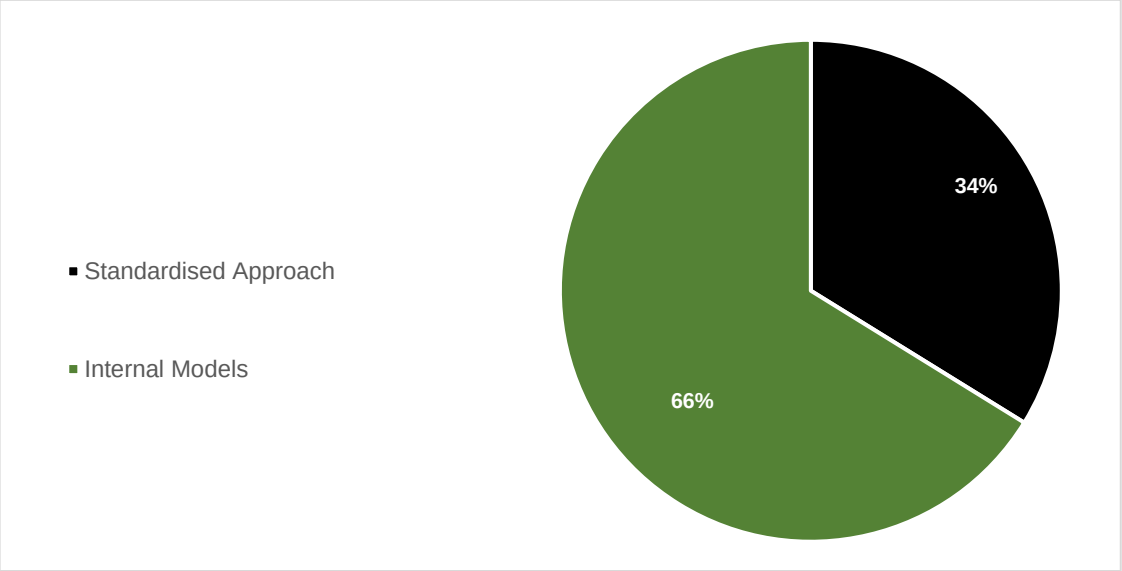
Figure D2: Percentage of RWA per risk type



5.86 On aggregate, 66% of the total RWA is calculated in terms of internal models, while 34% is calculated in terms of the standardised approaches (see Figure D3). The impact of the output floor will be influenced by the extent to which banks use internal models versus standardised approaches. The output floor framework

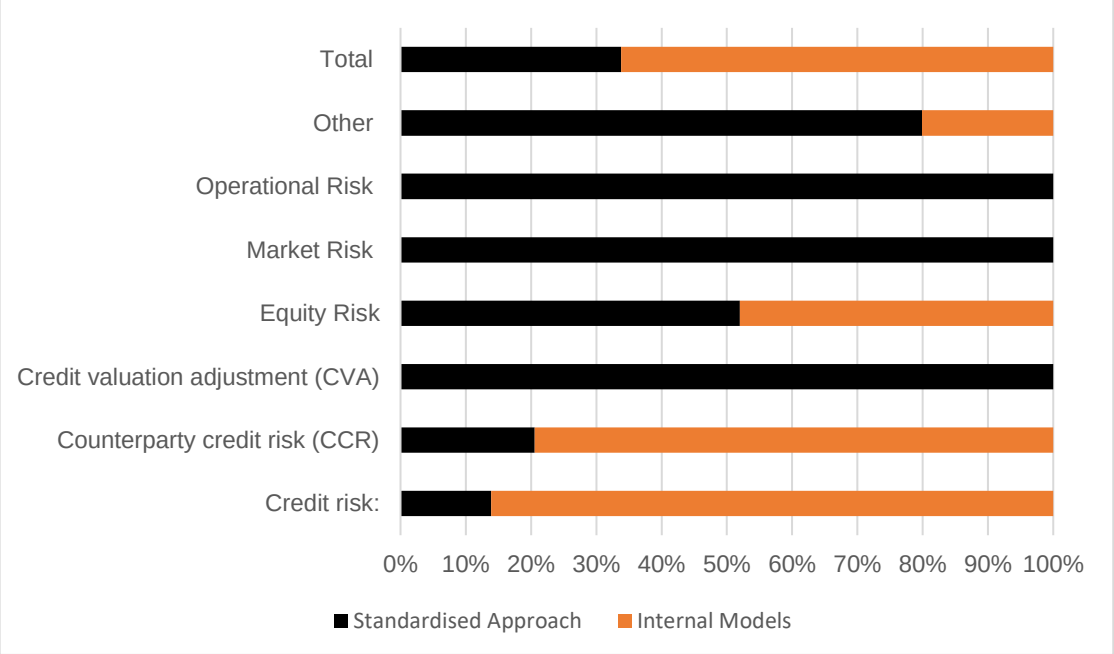
seeks to limit the amount of capital benefit a bank can obtain from the use of internal models, relative to using the standardised approaches.

Figure D3: RWA per approach



5.87 The BCBS has introduced limitations on the use of internal models by banks for the calculation of regulatory capital. Banks that do not use internal models will not be impacted by the output floors. The same is true for certain frameworks where the BCBS has done away with the use of the internal models to improve the reliability and comparability of RWA across banks and across jurisdictions.

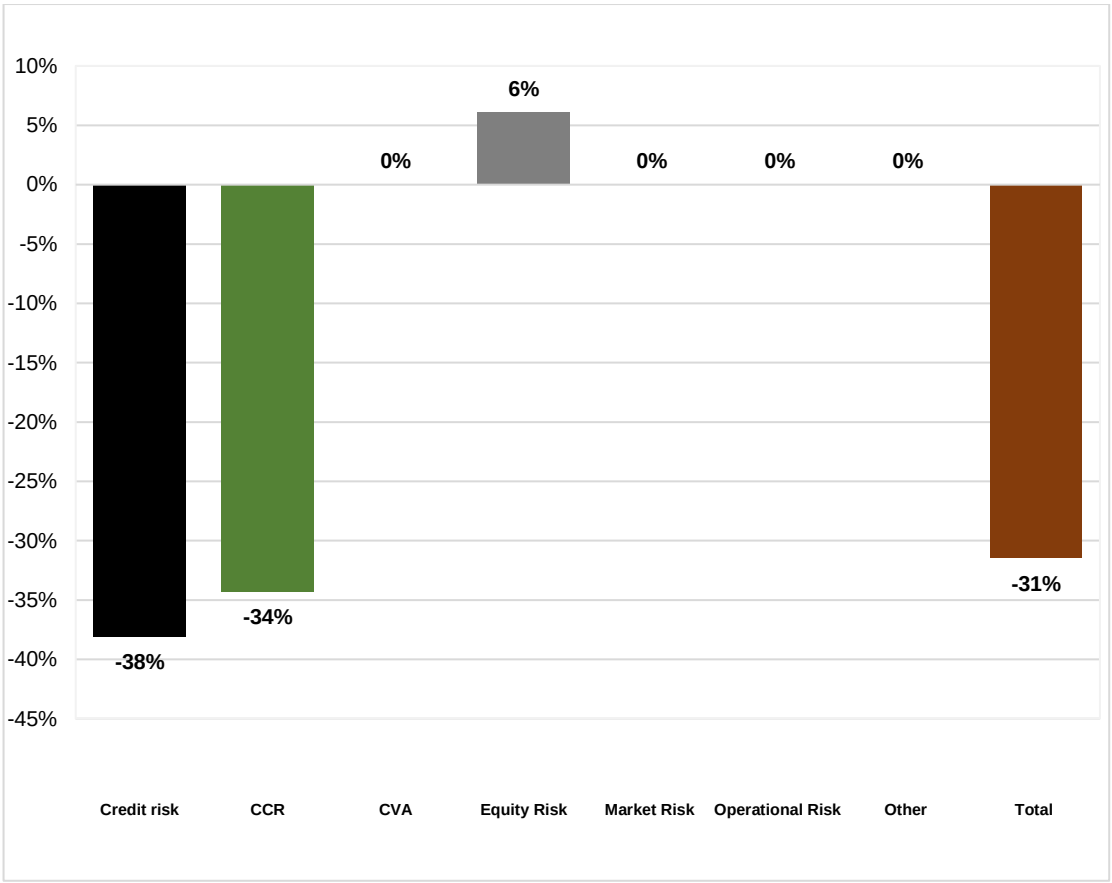
Figure D4: RWA per approach and risk type



5.88 Regarding the credit risk framework, 86% of total CR RWA is calculated in terms of the IRB approaches, while 16% is calculated in terms of the STA. MR RWA calculated in terms of the STA accounts for 100%. MR RWA, OR RWA as well as CVA RWA are all 100% calculated in terms of the standardised approaches (see Figure D4).

5.89 Internal models provide a more risk-sensitive measurement than the standardised approaches. However, incentives exist to minimise risk weights when internal models are used inappropriately to set minimum capital requirements. Figure D5 depicts the impact of internal models on RWA. Without the use of models, RWA for the 17 banks that were analysed would have been 31% higher under the revised frameworks. The benefit of using models is that it reduces RWA by 31%, consequently reducing the required amount of capital and reserve funds.

Figure D5: Impact of models on RWA (solo basis)

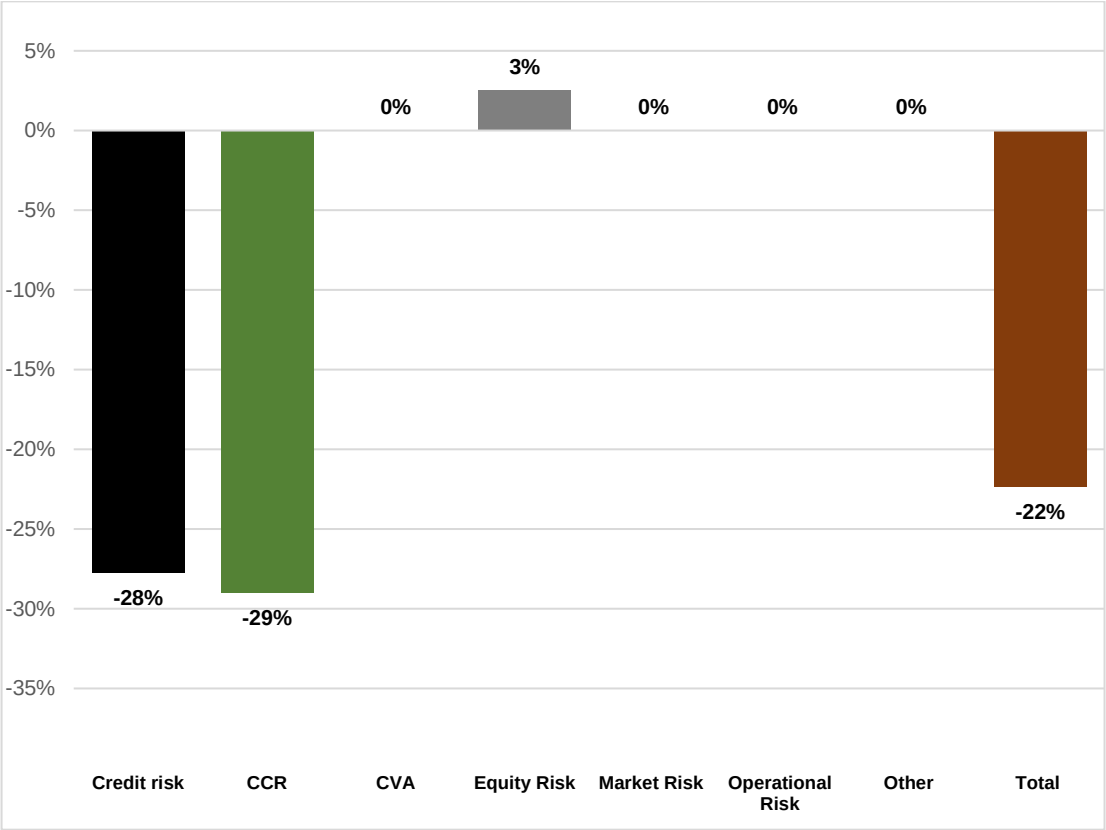


5.90 On a solo basis, CR RWA and CCR RWA will be reduced by 38% and 34% respectively from the use of internal models under the revised frameworks. Equity

risk RWA is 6% higher under the revised frameworks. This could be attributed to the fact that 52% of the equity risk RWA will be calculated from internal models.

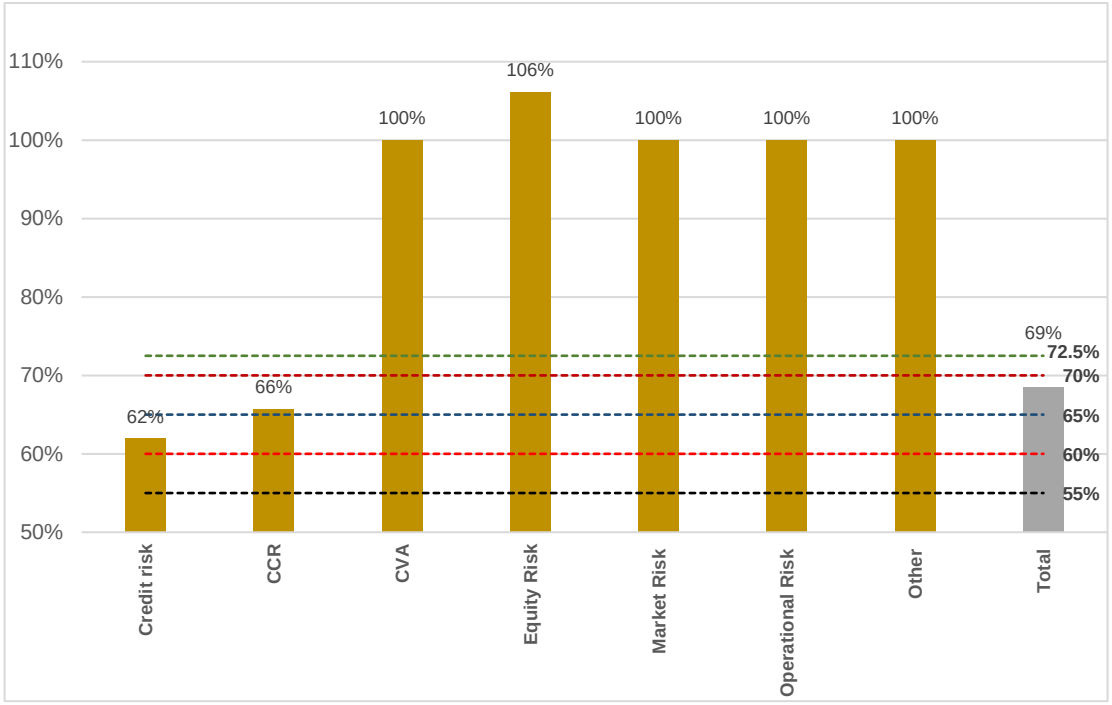
5.91 On a consolidated basis, CR RWA and CCR RWA will be reduced by 28% and 29% respectively from the use of internal models under the revised frameworks. Equity risk RWA will see an increase of 3%. In summary, there is an aggregate benefit to using internal models as it reduces the overall RWA by 22% on a consolidated basis for the seven banks that provided data on a consolidated basis (see Figure D6).

Figure D6: Impact of models on RWA (consolidated basis)



5.92 As depicted in Figure D7, at an aggregate level, assuming that there are no fundamental changes in the composition of the banks' balance sheets, the output floor framework is not expected to have material adverse effects on the South African banks in the first two years following its implementation.

Figure D7: RWA by internal models as a % of RWA by SA (solo basis)



5.93 When the output floor framework is implemented in January 2025, RWAs generated by internal models cannot, in the aggregate, fall below 60% of the RWA amount computed by the standardised approaches. This limits the benefit banks can gain from using internal models. Once the phasing-in of the output floors is completed in 2028, the benefit of using internal models will be limited to 27.5%, as an output floor of 72.5% will apply.

5.94 In the case of the 17 banks that were analysed, the implementation of output floors is expected to start affecting the South African banks from 2026 onwards. In 2026, CR RWA calculated with internal models as a percentage of CR RWA computed using standardised approaches will fall short of the 65% output threshold by 3%. In 2027, the gap is expected to widen to 8%, and 10.5% in 2028. This means that CR RWA will increase as a result of the implementation of the output floors. From the findings, output floors are likely to negatively impact South African banks in 2027 and 2028 as banks will be required to hold a significant amount of additional capital, particularly in relation to credit risk and counterparty credit risk.

5.95 In 2026, CCR RWA generated through the use of internal models will be 66% of the CR RWA computed using the STA. This will be 1% above the minimum output floor of 65% in 2026 and there will be no need for banks to hold any additional

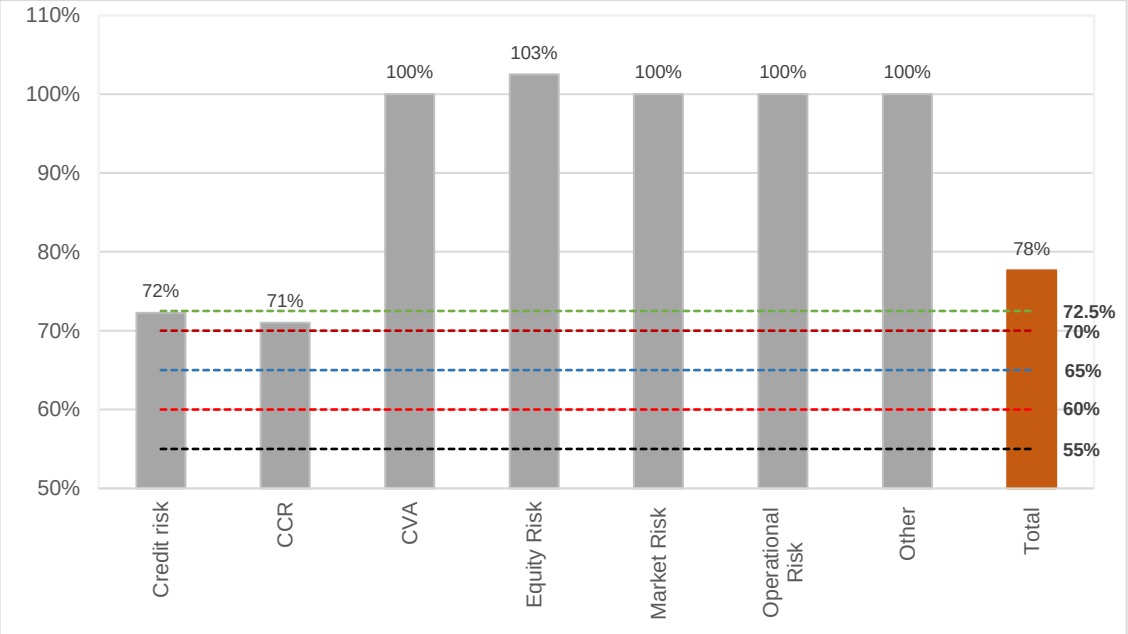
capital for counterparty credit risk. However, in 2027, banks will be required to hold an additional 4% in capital related to counterparty credit risk flowing from the implementation of the 70% output floor and 6.2% additional capital in 2028, assuming that the banks' balance sheets are held constant.

5.96 The 4% additional capital translates to about R12 billion CR capital and 2.18% of the total MRC as at June 2023.

5.97 On aggregate, for all the risk types, the RWA amount generated by the use of internal models on a solo basis will be 69% of the RWA amount computed in terms of the standardised approaches. This is below the 70% and 72.5% output floor threshold that banks are expected to comply with in 2027 and 2028 respectively. In this case, there will be a requirement for banks, on an aggregate basis, to hold additional capital to limit the benefit of the use of internal models beyond the output floor.

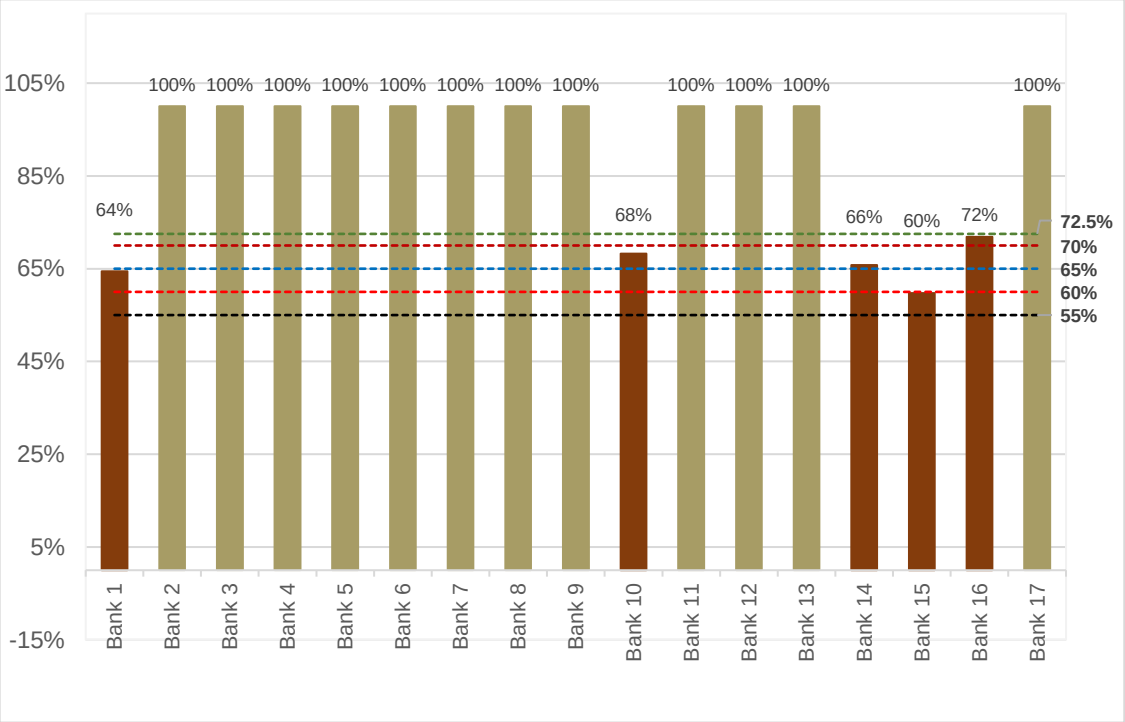
5.98 The picture is slightly different on a consolidated basis. Aggregate RWA generated by the use of internal models will be 78% of the RWA computed in terms of the standardised approaches. This is above the 60% threshold that will come into effect in 2025, all the way to the 72.5% output floor threshold to be implemented in 2028 (see Figure D8). On aggregate, on a consolidated basis, banks will not be required to hold additional capital flowing from the implementation of the output floor.

Figure D8: RWA by internal models as a percentage of RWA by standardised approaches (consolidated)



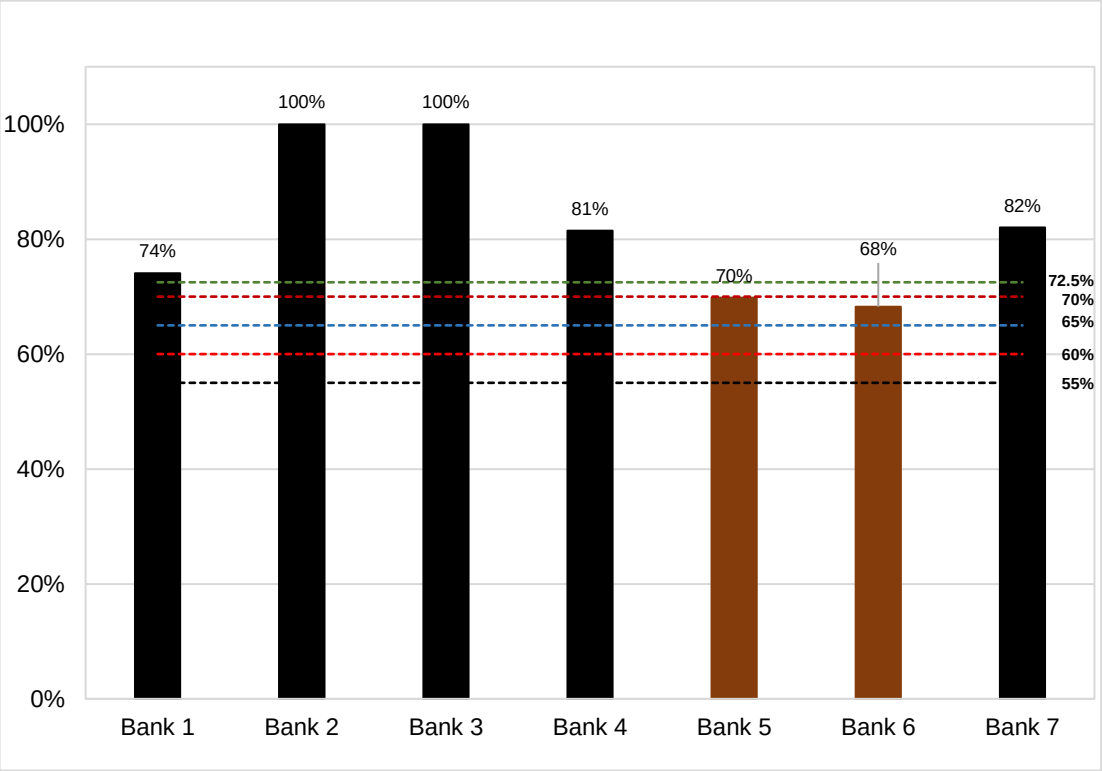
5.99 On a bank-by-bank solo basis, from 2025, potentially one bank will be impacted by the implementation of output floors and might be expected to hold additional capital. Other banks will be affected from 2026 onwards. In 2028, assuming there are no fundamental changes in the composition of the banks' balance sheets, South Africa's five largest banks will potentially be expected to hold additional capital ranging from 0.5% to 12.5% (see Figure D9).

Figure D9: RWA with internal models as a % of RWA computed by standardised approaches (solo basis)



5.100 Looking at the individual banks that submitted data on a consolidated basis, only two banks expect to be impacted by the output floor framework from 2028 onwards. These banks will be required to hold additional capital of between 2.5% and 4.5% from the implementation of the output floor of 72.5% in 2028 (see Figure D10). The other three banks have RWA calculated by models as a percentage of RWA calculated by standardised approaches above the minimum output floor threshold, and they will not be required to hold additional capital. The remaining two banks do not use internal models; hence, the output floor framework will be neutral to their RWA.

Figure D10: RWA by internal models as a % of RWA by standardised approaches (consolidated basis)



5.101 The operational risk framework and the CVA framework are output floor-neutral since their respective approaches for calculating RWA are standardised approaches in terms of the revised framework.

5.102 Globally, it is anticipated that large international banks will be constrained by the output floor given the reliance on internally modelled capital requirements.

E. Combined impact, including market risk and CVA frameworks

Summary of the combined impact

5.103 Table E1 provides a summary of the cumulative impact of the Basel III post-crisis reforms to be implemented in South Africa on 1 July 2025.

5.104 The combined impact covers the impact of the CR, OR and output floor as well as the revised definition of leverage ratio. In addition, the combined impact also incorporates the market risk (MR) and credit valuation adjustment (CVA) frameworks.

5.105 The impact of the MR and CVA are covered in greater detail in a separate report accompanying the relevant draft prudential standards.

5.106 The combined impact is measured on the 14 banks that participated in the QIS across all the areas of the Basel III post-crisis reforms. The 14 banks account for 96% of the total banking RWA as at June 2023. This is a significant sample size.

5.107 As depicted in Table E1, on aggregate, RWA and consequently MRC for the South African banking sector is expected to increase by 2.68% following the implementation of all the Basel III post-crisis reforms envisaged to be implemented in South Africa with effect from 1 July 2025. This translates to about R6 billion in additional capital.

5.108 MR RWA for the 14 banks is expected to increase by 1.24%, while OR RWA and CVA RWA are expected to increase by 19.80% and 7.92% respectively. CR RWA is expected to decrease by 0.59%.

5.109 Assessing the combined impact of the Basel III post-crisis reforms on individual banks, two banks (one local bank and one branch of a foreign bank) seem to be adversely impacted.

5.110 The two banks expect an increase of between 25% and 31% in RWA following the implementation of the Basel III post-crisis reforms. For one of the banks, the biggest driver for the expected significant increase in RWA is the OR framework, while for the other bank, it is the MR framework. One small local bank expects a reduction in RWA of 25%.

5.111 The change in CAR ranges from an increase of 7.30% to a decrease of 44.94%. Two banks that are expected to register a significant increase in CAR are sufficiently capitalised, with CAR ranging above 30%. The additional capital requirement will be absorbed within the current capitalisation levels.

Table E1: Aggregate impact of the Basel III post-crisis reforms

Bank	MR ∆ in RWA	OR ∆ in RWA	CR ∆ in RWA	CVA ∆ in RWA	TOTAL ∆ in RWA	CAR ∆ in CAR
Bank 1	-7.29%	4.37%	0.33%	4.57%	0.57%	0.05%
Bank 2	-6.77%	30.89%	-2.25%	-16.01%	1.73%	0.12%
Bank 3	-19.00%	28.20%	1.62%	5.24%	4.47%	0.31%
Bank 4	13.14%	8.65%	-0.68%	-1.78%	1.85%	0.10%
Bank 5	82.09%	-6.06%	-5.03%	88.32%	-0.98%	-0.09%
Bank 6	8.86%	-23.35%	16.46%	-22.35%	8.80%	0.74%
Bank 7	0.00%	-8.25%	2.46%	-48.43%	-11.06%	-3.19%
Bank 8	17.95%	-32.60%	0.00%	6.03%	-18.17%	-44.94%
Bank 9	91.46%	23.34%	0.00%	52.38%	25.36%	7.30%
Bank 10	22.57%	-12.64%	7.84%	-44.22%	0.94%	0.13%
Bank 11	0.00%	-52.87%	0.00%	-83.97%	-4.67%	-1.14%
Bank 12	-0.02%	12.52%	-9.19%	-0.74%	-7.34%	-1.40%
Bank 13	0.00%	-7.17%	-29.98%	0.00%	-25.88%	-2.88%
Bank 14	0.00%	215.55%	-0.97%	-5.94%	31.04%	5.15%
∆ in **RWA**	**1.24%**	**19.80%**	**-0.59%**	**7.92%**	**2.68%**	**0.21%**

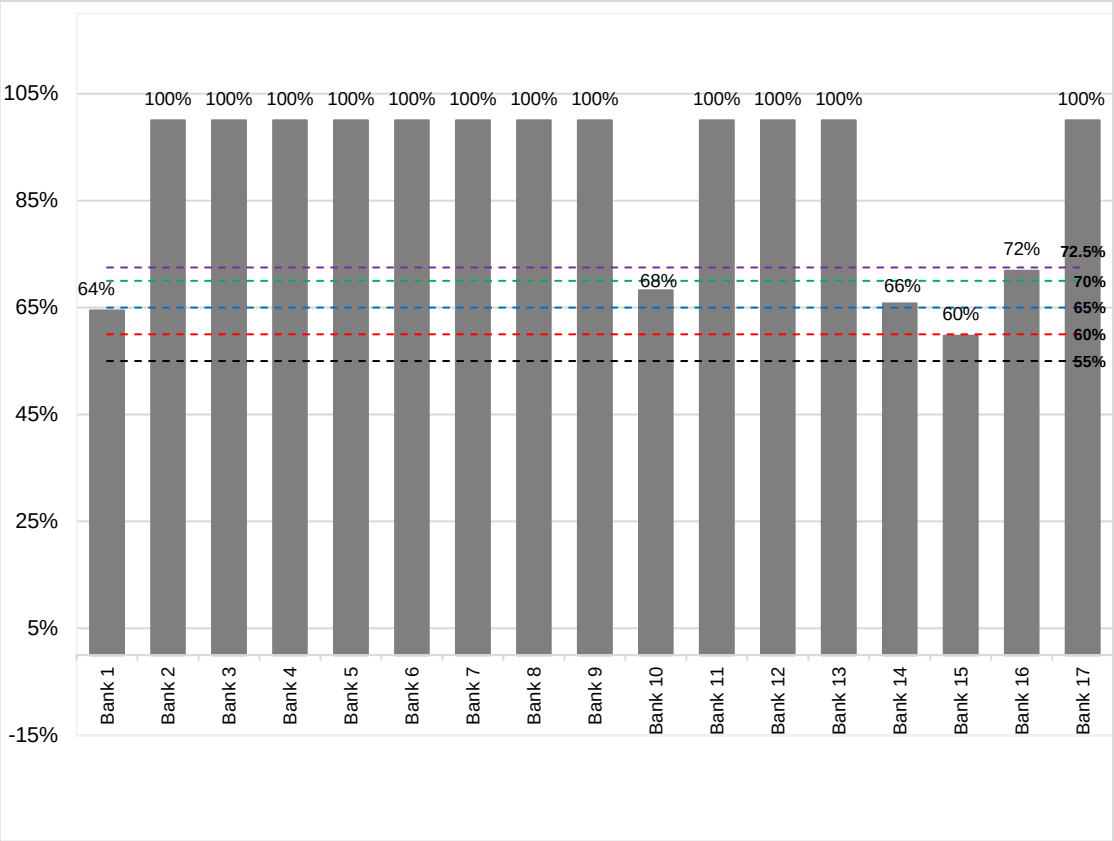
Summary of output floor impact

5.112 For the 17 banks that participated in the output floor QIS, RWA computed from the application of internal models as a percentage of RWA computed from standardised methods accounted for 66% of the total RWA amount.

5.113 Assuming no change to the current banks' balance sheets, when the output floor increases to 65% in 2026, approximately two banks are expected to be impacted.

5.114 On aggregate, all of the five largest banks will be impacted and expected to hold additional capital as the output floor increases to 72.5% from 2028 onwards. The additional capital requirement is expected to range between 0.5% and 12.5% (see Figure E2).

Figure E2: Impact of the output floor



6. Statement of intended operation: implementation and evaluation

6.1 The Basel frameworks covered in this report, including the revised market risk and CVA frameworks, are due to be implemented in South Africa through proposed amendments to the Regulations as well as prudential standards. These instruments apply to all banks conducting business in South Africa. The envisaged commencement date for the aforementioned frameworks in South Africa is 1 July 2025.

6.2 The QIS undertaken by the PA was aimed at assessing the impact of the proposed regulatory reforms and understanding the impact of the reforms before they are implemented in South Africa.

6.3 As the frameworks are implemented in South Africa, the PA will continuously monitor, assess and evaluate the effects of the proposed reforms as part of its regulatory and supervisory responsibilities to mitigate any unintended consequences of implementing the respective amended frameworks.

7. Conclusion

7.1 This report takes into account all the responses that were received from the QIS. The analysis and findings of the QIS do not take into account any behavioural responses to the regulatory frameworks by banks, such as changes in capital and portfolio composition, strategy as well as other management actions. The report covers the expected impact of implementing the proposed revised frameworks issued by the BCBS in South Africa.