



# Statement of the need for, expected impact and intended operation of the proposed framework for interest rate risk in the banking book

Incorporating the updated interest rate risk in the banking book standard into the domestic regulatory framework

October 2020

**(DRAFT – FOR CONSULTATION)**

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## List of acronyms

<b>ALM</b>	Asset and Liability Management
<b>BCBS</b>	Basel Committee on Banking Supervision
<b>CHF</b>	Swiss Franc
<b>CNY</b>	Chinese Yuan Renminbi
<b>CSRBB</b>	Credit spread risk in the banking book
<b>EUR</b>	Euro
<b>EVE</b>	Economic value of equity
<b>ICAAP</b>	Internal Capital Adequacy Assessment Process
<b>IMS</b>	Internal measurement system
<b>IRR</b>	Interest rate risk
<b>IRRBB</b>	Interest rate risk in the banking book
<b>JIBAR</b>	Johannesburg Interbank Average Rate
<b>NII</b>	Net interest income
<b>NMD</b>	Non-maturity deposits
<b>PA</b>	Prudential Authority
<b>ROE</b>	Return on equity
<b>ROA</b>	Return on assets
<b>QIS</b>	Quantitative Impact Study
<b>SM</b>	Standardised methodology
<b>SOT</b>	Standard outlier test
<b>UK</b>	United Kingdom
<b>USD</b>	United States Dollar
<b>ZAR</b>	South African Rand

## **1 Introduction**

- 1.1 Interest rate risk in the banking book, commonly referred to as IRRBB is defined by the Basel Committee on Banking Supervision (BCBS) as the current or prospective risk to a bank's capital and earnings, arising from adverse movements in interest rates that affect the bank's banking book position.
- 1.2 In April 2016, the BCBS published the final updated standard on the capital framework for IRRBB which replaced the 2004 Principles for the Management and Supervision of Interest Rate Risk (2004 Principles). IRRBB is part of the Basel capital framework's Pillar 2 (Supervisory Review Process).
- 1.3 The sustained low-interest-rate environment, particularly in the aftermath of the 2008 global financial crisis, raised some concerns on the ability of banks to absorb significant interest rate shocks. Accordingly, the 2004 Principles needed to be updated to reflect changes in the market and supervisory practices since they were first published. The updated IRRBB framework is a revision of both the principles and the methods expected to be used by banks to measure, manage, monitor and control such risks.
- 1.4 The updated framework seeks to address concerns that were identified following the 2008 global financial crisis and seek to promote the safety and soundness of individual financial institutions as well as to improve the overall resilience of the global financial system.
- 1.5 The framework sets out the expectations on the management of IRRBB in terms of identification, measurement, monitoring, control as well as supervision. In addition, the framework contains a proposed standardised methodology (SM) which can be adopted by local authorities to measure the adequacy of capital to support IRRBB.
- 1.6 Pursuant to the BCBS issuing the updated IRRBB framework for implementation by member jurisdictions, in November 2018, the Prudential Authority (PA) issued Guidance Note 6<sup>1</sup> of 2018 (Guidance Note 6) to the industry. The Guidance Note set out the PA's proposed implementation plan of specific outstanding regulatory reforms in South Africa. The proposed implementation dates were set out based on considerations such as industry comments, the complexity of the reforms as well as

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<sup>1</sup> <http://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/8955/G6%20of%202018.pdf>

the progress of other Basel Committee member jurisdictions in implementing the standards. Guidance Note 6 of 2018 was subsequently replaced.

- 1.7 Under the latest Guidance Note 7<sup>2</sup>, issued by the PA in June 2020, the PA proposes to implement the updated IRRBB framework as well as the associated disclosure requirements in South Africa with effect from 1 June 2022.
- 1.8 This Report seeks to articulate the rationale for the proposed framework, the cost and benefits of incorporating the IRRBB framework into the domestic regulatory framework as well as its intended operation.
- 1.9 To gather the necessary qualitative and quantitative information required to assess the expected impact of incorporating the updated IRRBB standard into the domestic regulatory framework, the PA conducted a quantitative impact study (QIS) and also solicited for inputs from the industry through a qualitative questionnaire.
- 1.10 The Report takes into account the industry inputs received.

## **2 Background**

- 2.1 Before 2015, the BCBS had proposed to shift the emphasis of management of IRRBB from Basel Pillar 2 to Pillar 1. Under Pillar 2, banks relied on their internal measures. The proposed Pillar 1 approach meant that banks would have been required to use a standardised approach, designed by the regulator.
- 2.2 In 2015, the BCBS consulted on the updated IRRBB framework and two options for the regulatory treatment of IRRBB was outlined; namely, a standardised Pillar 1 (Minimum Capital Requirements) approach and an enhanced Pillar 2 approach (which also included elements of Pillar 3 – Market Discipline).
- 2.3 The industry's feedback on the feasibility of a Pillar 1 approach to IRRBB was noted and according to the BCBS, in particular, the complexities involved in formulating a standardised measure of IRRBB (which would be both sufficiently accurate and risk-sensitive to allow it to act as a means of setting regulatory capital requirements).

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<sup>2</sup><http://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/10031/Guidance%20Note%207%20of%202020.pdf>

- 2.4 After considering the industry feedback, it was concluded that the nature of IRRBB would be more appropriately captured under Pillar 2 which also resulted in the enhanced principles.
- 2.5 However, the updated IRRBB framework also sets out a Pillar 1 standardised methodology, which either the respective supervisor could mandate a bank to follow, or a bank could choose to adopt.
- 2.6 The BCBS published the final IRRBB framework<sup>3</sup> in April 2016 which replaced the current IRRBB framework.
- 2.7 The internationally agreed implementation date for this framework was 1 January 2018. The PA envisages implementing the updated IRRBB framework with effect from 1 June 2022.

### 3 Salient features of the IRRBB framework

- 3.1 Under the updated IRRBB framework, the BCBS specified 12 principles that set expectations (for both banks and regulators) for the identification, measurement, monitoring, and control of IRRBB as well as the supervision of banks.
- 3.2 The principles cover the management process, market disclosure, internal assessment as well as the supervisory approach to IRRBB. The updated IRRBB Principles are highlighted in table 1.

*Table 1: Updated IRRBB Principles*

Principle		Description
Principles for banks		
Principle 1		IRRBB risk must be specifically identified, measured, monitored and controlled. In addition, banks should monitor and assess credit spread risk in the banking book (CSRBB).
Principle 2		The governing body of each bank is responsible for oversight of the IRRBB management framework, and the bank's risk appetite for IRRBB. Banks must have an adequate IRRBB management framework, involving regular independent reviews and evaluations of the effectiveness of the system.
Principle 3		The banks' risk appetite for IRRBB should be articulated in terms of the risk to both economic value and earnings. Banks must implement policy limits that target maintaining IRRBB exposures consistent with their risk appetite.

<sup>3</sup> <https://www.bis.org/bcbs/publ/d368.pdf>

Principle 4	Measurement of IRRBB should be based on outcomes of both economic value and earnings-based measures, arising from a wide and appropriate range of interest rate shock and stress scenarios.
Principle 5	In measuring IRRBB, key behavioural and modelling assumptions should be fully understood, conceptually sound and documented. Such assumptions should be rigorously tested and aligned with the bank's business strategies.
Principle 6	Measurement systems and models used for IRRBB should be based on accurate data, and subject to appropriate documentation, testing and controls to give assurance on the accuracy of calculations. Models used to measure IRRBB should be comprehensive and covered by governance processes for model risk management, including a validation function that is independent of the development process.
Principle 7	Measurement outcomes of IRRBB and hedging strategies should be reported to the governing body or its delegates regularly, at relevant levels of aggregation (by consolidation level and currency).
Principle 8	Information on the level of IRRBB exposure and practices for measuring and controlling IRRBB must be disclosed to the public regularly.
Principle 9	Capital adequacy for IRRBB must be specifically considered as part of the Internal Capital Adequacy Assessment Process (ICAAP) approved by the governing body, in line with the bank's risk appetite on IRRBB.
<b>Principles for supervisors</b>	
Principle 10	Supervisors should, regularly, collect sufficient information from banks to be able to monitor trends in banks' IRRBB exposures, assess the soundness of banks' IRRBB management and identify outlier banks that should be subject to review and/or should be expected to hold additional regulatory capital.
Principle 11	Supervisors should regularly assess banks' IRRBB and the effectiveness of the approaches that banks use to identify, measure, monitor and control IRRBB. Supervisory authorities should employ specialist resources to assist with such assessments. Supervisors should cooperate and share information with relevant supervisors in other jurisdictions regarding the supervision of banks' IRRBB exposures.
Principle 12	Supervisors must publish their criteria for identifying outlier banks. Banks identified as outliers must be considered as potentially having undue IRRBB. When a review of a bank's IRRBB exposure reveals inadequate management or excessive risk relative to capital, earnings or general risk profile, supervisors must require mitigation actions and/or additional capital.

3.3 According to the BCBS, the technical challenges in prescribing standardised methodologies resulted in the inclusion of Principle 5, 8 and 12. The other nine principles were broadly a new representation of the 2004 Principles.

### 3.4 The key enhancements to the 2004 principles include the following:

- Principle 5 sets out the development of shock and stress scenarios to be applied to the measurement of IRRBB including key behavioural and modelling assumptions;
- Updated disclosure requirements under Principle 8 to promote greater consistency, transparency and comparability;
- Inclusion of a standardised framework which supervisors could mandate banks to follow, or a bank could choose to adopt; and
- An enhanced version of the supervisory outlier test (SOT) under Principle 12. The worst-case economic value of equity sensitivity across the six regulatory scenarios divided by Tier 1 capital should not exceed 15%.

## 4 Statement of the need — context and definition of policy problem

4.1 Under this section of the Report, the IRRBB framework is analysed with respect to the context and definition of the challenges sought to be addressed by the framework as follows:

### *The need to incorporate behavioural assumptions in the measurement of IRRBB*

- 4.2 The current gap reporting under the BA330 is done based on the contractual gap and does not capture the volume and rate fluctuations of products that are influenced by behaviour (behavioural gap).
- 4.3 A contractual gap report fails to properly identify sensitivity to interest rates. Failure to properly assess sensitivity interest rate may unintentionally subject banks to ineffective management of the IRRBB.
- 4.4 For some items, the date on which the re-pricing will occur is less certain and therefore assumptions about when these items will in practice re-price are necessary. This, in turn, will depend on the likely behaviour of both the bank (legal discretion in place) and of the customers (legal discretion to re-pay or withdraw). An interest rate gap incorporating such assumptions is the behavioural gap.
- 4.5 IRRBB is a behavioural risk, therefore effective management of IRRBB can be achieved through capturing behaviour in the assessment and measurement of

IRRBB. IRRBB measurement is highly dependent on assumptions about client behaviour.

- 4.6 The updated IRRBB framework seeks to ensure that client behaviour is taken into account in the management of interest rate risk in the banking book.

*The need to splitting ZAR versus Non-ZAR reporting*

- 4.7 Current gap reporting is reported on a combined-currency basis. This means that various bank-specific currency exposures are converted into ZAR for the completion of the BA330 reporting. Currencies are exposed to different interest rates, therefore each currency carries different risk. As a result, the splitting of currency reporting will introduce an effective and transparent measure of risk, in line with some of the key enhancements under the updated IRRBB.

*The need to accurately measure basis risk*

- 4.8 The current re-pricing gap does not account for basis risk; it focuses solely on the date when items will re-price as opposed to how much they might re-price on that date. Therefore currently banks in South Africa do not report on their basis risk exposure.
- 4.9 Some banks are exposed to basis risk. Basis risk derives from the imperfect correlation between the rates to which different instruments are indexed, even if their coupon structure is similar or identical. Should rates not move in sync, then a mismatch would arise.
- 4.10 Basis risk can also stem from the liability side of the balance sheet due to rates on retail customer deposits, typically lower than market rates. Lastly, basis risk can emerge when banks are exposed to a spread between floating rates indexed to different repricing schedules, or the same repricing schedule in different currencies. Inclusion of basis risk into the BA330 will enable the PA to have oversight of the materiality of basis risk banks are exposed to and to ensure that basis risk is adequately measured and managed.

*Need to accurately estimate non-maturity deposits (NMDs)*

- 4.11 Within the banking industry, accurate liabilities or deposit-based expected life modelling is widely considered a prerequisite to sound asset-liability management. Its importance in mitigating interest rate risk is undisputed. However, the techniques



associated are still evolving. Many banks worldwide are funded with non-maturity deposits, and how their average lives are modelled has significant implications when estimating their value and their effectiveness in the management of interest rate risk.

- 4.12 For example, modelling NMDs with too short an average life will subject the bank to increasing interest rate risk exposure. Forecasting the expected remaining life of an NMD presents several challenges for modelling the expected remaining life of an asset such as a mortgage. The key difference is that deposit balance behaviour is not necessarily monotonically decreasing (as is the case with an amortizing loan or mortgage). A savings deposit balance may increase or decrease at any point and its associated fluctuations are a function of multiple factors, including the macroeconomic environment as well as the product/pricing structure relative to both internal and external competition.
- 4.13 The mechanics of modelling NMDs to define the expected average life duration is up to the banks to decide. Under the standardised framework, banks should first separate their NMDs according to the nature of the deposit and depositor. Banks should then identify, each category the core (stable) and non-core (volatile) deposits up to the specified limits.
- 4.14 Finally, banks should determine an appropriate cash flow slotting for each category, following the specified average maturity limits. The current approach is that banks are following various modelling techniques suitable for their balance sheet structure.

*Need to ensure reporting of economic value of equity*

- 4.15 Currently, only the largest five banks are manually submitting the EVE sensitivity monthly. The responses received from the rest of the banks provided details on some of the challenges those banks without EVE frameworks are facing. IRRBB practitioners, use two simplified metrics EVE and net interest income (NII) that cover two different perspectives of this comprehensive valuation approach.
- 4.16 EVE is defined as the present value of assets minus the present value of liabilities. It assumes no ongoing business activity. It does not include cash flows arising from equity, goodwill or fixed assets: it is a simplified gone-concern equity valuation. EVE does not pursue corporate valuation but is only a measurement of the interest rate risk profile. EVE sensitivity is good at capturing interest rate mismatches on the

current position, as it incorporates the full balance sheet. It captures the effects of optionality when cash flows are modelled appropriately.

- 4.17 The implementation of the IRRBB framework will ensure that EVE is extended to all banks. Computation of EVE sensitivity can be achieved following IMS modelling or the standardised methodology modelling.

*Credit spread risk in the banking book (CSRBB)*

- 4.18 The updated IRRBB framework published by the BCBS defines CSRBB as changes in the credit spreads that could amplify the risk already arising from IRRBB.

*The need to ensure that banks are sufficiently capitalised for IRRBB*

- 4.19 IRRBB is considered along with other Pillar 2 risks under the Internal Capital Adequacy Assessment Process (ICAAP). There is no explicit stipulation or expectation as to whether a value or income-sensitivity approach should be used. Currently, the onus has firmly been placed on a bank to propose the level of economic capital required for IRRBB through their ICAAP.

## **5 Statement of expected impact—Costs & benefits of implementing the framework**

- 5.1 Under this section of the Report, the impact, benefits and areas of concern for the updated IRRBB framework as well as the proposed BA330 proposals are analysed.

***Scope and sample of the impact study***

- 5.2 A total number of 31 registered banks and local branches of foreign banks out of the 36 operating in South Africa participated in the QIS conducted by the PA. These included South Africa's five largest banks that dominate the banking sector as measured by assets.
- 5.3 The estimates presented are based on the data and information submitted by the 31 banks on a solo basis, as of December 2019, following the instructions that were provided by the PA.
- 5.4 The purpose of the impact study was to allow the PA to assess the impact of the updated IRRBB framework on banks operating in South Africa, with specific reference to:

- (a) Behavioural vs contractual gap reporting;

- (b) Split currency reporting (ZAR vs Non-ZAR);
- (c) Treatment of basis risk;
- (d) Embedded optionality risk;
- (e) Modelling of NMDs; and
- (f) A standardised methodology for measuring EVE.

### ***Methodology***

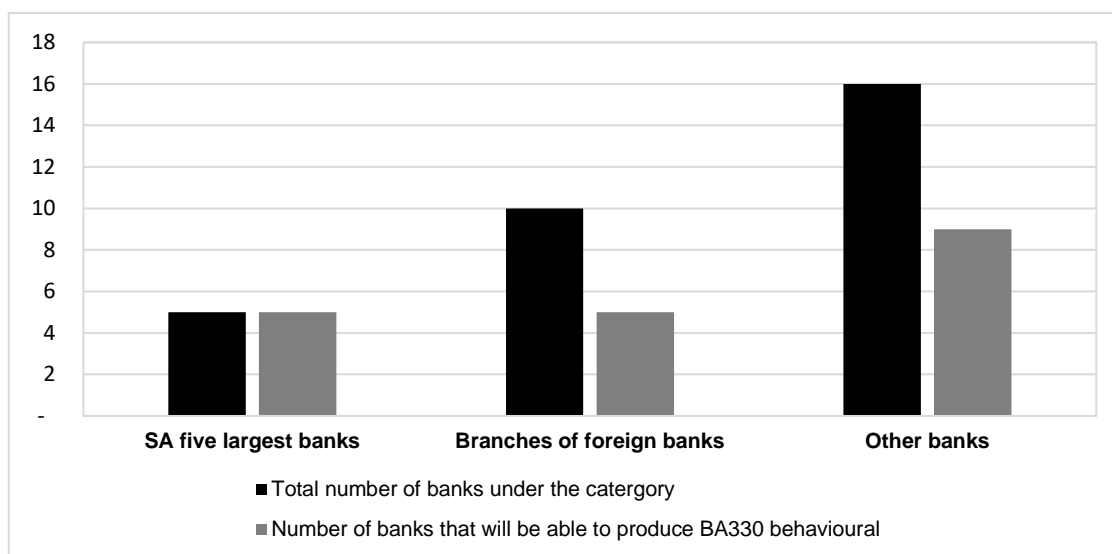
- 5.5 The assessment of the impact was carried out by comparing the changes in the BA330 emanating from the reporting of both contractual and behavioural gaps as well as the splitting of ZAR and Non-ZAR reporting. The materiality of the basis risk, embedded optionality and CSRBB were also assessed. In addition, treatment of modelling NMDs, equity and capital was also assessed.
- 5.6 The data and information received from the industry were categorised and analysed under three categories of banks operating in South Africa, which are; the largest five banks, branches of foreign banks as well as other local banks. In addition to the five largest banks, ten branches of foreign branches and sixteen smaller banks participated in the survey.

### ***Impact of implementing the updated IRRBB in South Africa***

#### ***Changes in BA330 reporting – reporting in both contractual and behavioural***

- 5.7 The industry concurs that the behavioural gap reporting is a more reflective risk management approach. The contractual gap creates a misalignment between the on-balance sheet position (reported contractually) and the respective hedges, transacted against the behavioural characteristics of the on-balance sheet position.
- 5.8 However, the industry highlighted that additional system configuration and system enhancements would be required to cater for behavioural reporting. Out of the 31 banks that submitted data and information to the PA, only two banks, which are among South Africa's five largest banks, submitted behavioural gap data.
- 5.9 In response to a direct question that was posed to the industry, only 50% and 56% of the branches of foreign branches and other banks, respectively indicated that they will be able to report the behavioural gap (see Figure 1).
- 5.10 The rest of the banks will require system configuration and model enhancements in order to report the behavioural gap.

*Figure 1: Reporting of behavioural gap*



5.11 The remainder of the other banks indicated that they had challenges in reporting the behavioural gap as a result of relatively small sizes and customer base, lack of historical data, skills shortage and development of these skills.

5.12 The proposal is for all banks to report the BA330 behavioural gap from 1 June 2022 onwards.

5.13 The benefit of reporting both the contractual and behavioural gaps is that it will enable banks to detect changes in client behaviour adequately in their measurement of IRRBB.

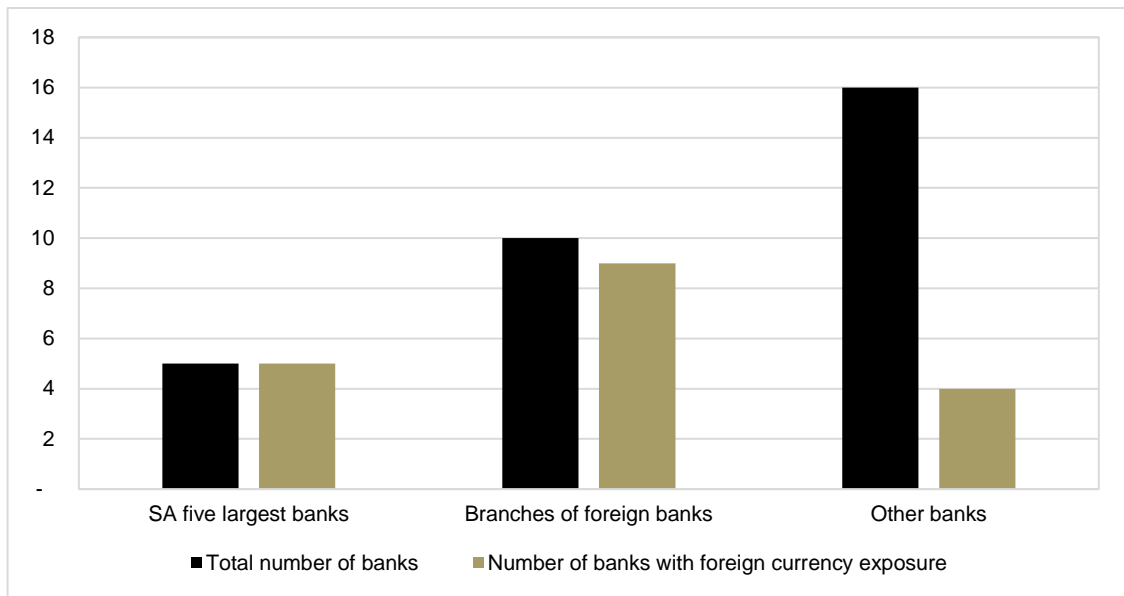
5.14 From the results of the two banks that submitted behavioural gaps, the differences observed between contractual and behavioural does not impact NII sensitivity because of the constant pass-through rates used to calculate NII sensitivity.

5.15 The NII sensitivity is lower in the contractual gap under a 200 basis points parallel shock as the contractual profile of the fixed-rate items is longer. This reduces the natural level of sensitivity on the balance sheet, the impact increases over time as the change in the cumulative gap increases. Therefore the contractual NII sensitivity displays an understated impact level of sensitivity.

#### *BA330 splitting of ZAR reporting and Non-ZAR reporting*

5.16 Out of the 31 banks that participated in the survey, 18 banks have foreign currency exposures (see Figure 2).

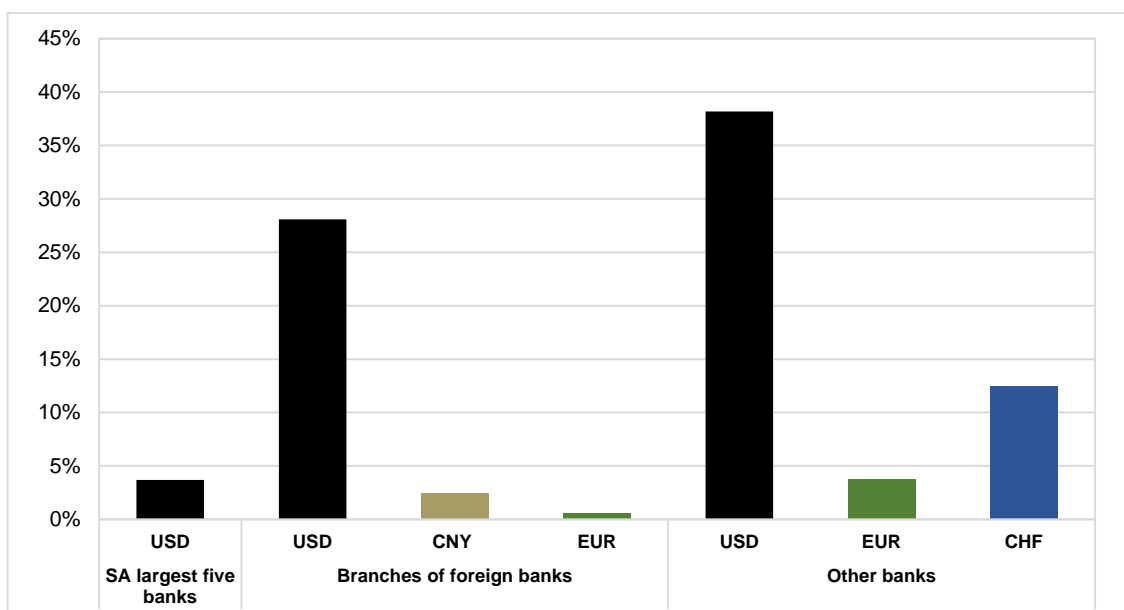
*Figure 2: Number of banks with foreign exposures  $\geq 5\%$  of total liabilities*



5.17 The majority of the industry welcomes the proposal of split currency reporting although additional system configuration will be required to set up the reporting.

5.18 The current BA330 reporting on a combined currency is proposed to remain while an additional BA330 ZAR specific reporting is proposed for all banks, however, the proposal is that the BA330 Non-ZAR reporting can be reported in line with the Basel threshold of greater or equal to 5% of the total assets or liabilities in line with the materiality threshold. The QIS evidenced the dominating currency being USD, therefore USD reporting will be provided for in the revised BA330.

*Figure 3: Foreign currency balances as a percentage of total liabilities*



5.19 South Africa's five largest banks have 4% of their total liabilities in foreign currency, and specifically the United States Dollar (USD). Branches of foreign banks have combined USD, CNY and EUR exposures amounting to 28%, 3% and 1% of the total liabilities. Other smaller banks registered combined USD, EUR and CHF exposures amounting to 38%, 4% and 13% of the total liabilities (see Figure 3).

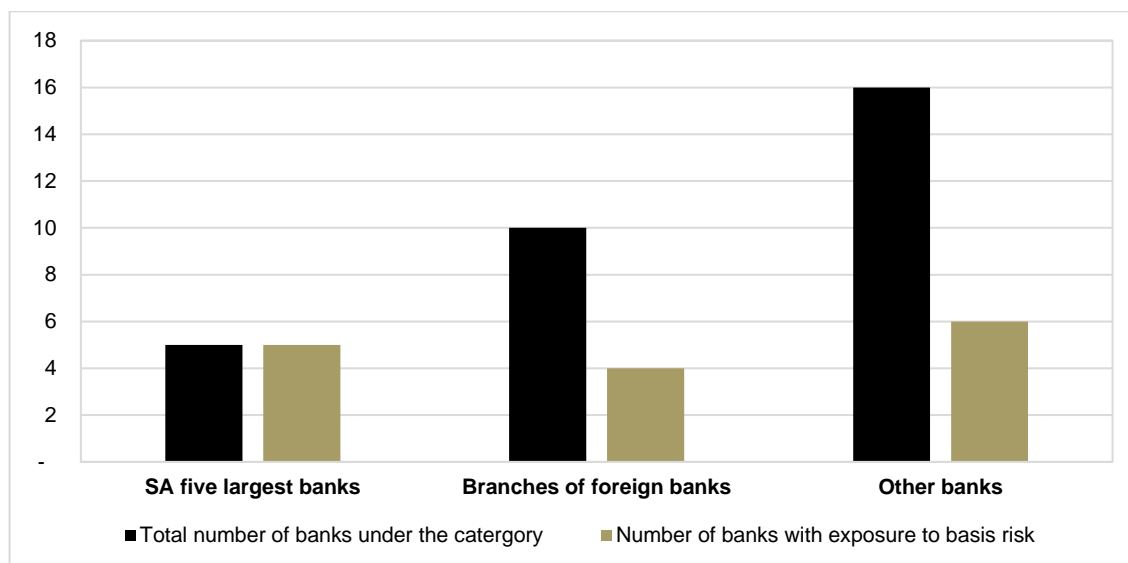
5.20 South African ZAR and foreign currency exposures have different interest rate environments and have a low correlation between them. The interest rate environment and volatility of foreign currency products (mainly in developed market currencies) are different from those of emerging markets, react differently to shocks and have different risk characteristics.

5.21 Split currency reporting will assist in understanding the drivers on earnings and EVE exposures on a more granular level. It will also give an indication of the exchange rate risk banks are carrying.

#### *Findings concerning the basis risk*

5.22 Out of the 31 banks that participated in the survey, 15 banks have basis risk exposure. All the five largest banks reported basis risk exposure as well as four branches of foreign banks and six other smaller banks operating in South Africa (see Figure 4).

*Figure 4: Number of banks with basis risk exposure*



5.23 The typical gap report assumes that all positions within a particular time bucket mature and reprice simultaneously, ignoring potential basis risks within the gaps.

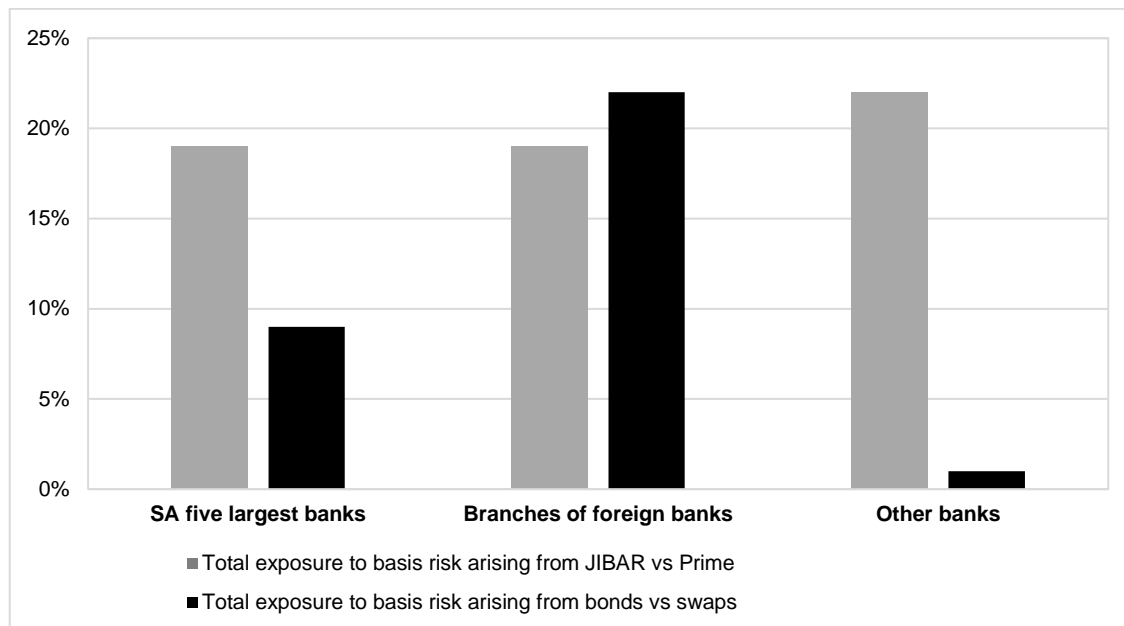
Under principle 3 of the updated IRRBB standards, *“banks with significant exposures to gap risk, basis risk or positions with explicit or embedded options should establish risk tolerances appropriate for these risk”*.

5.24 Basis risk is a real risk that banks are exposed to and banks are in favour of reporting basis risk as part of their statutory submissions and do not foresee any challenges in reporting basis risk.

5.25 The proposal is for basis risk to be incorporated under the BA330 return. All banks exposed to basis risk will be required to report it and the rest of the banks with no basis risk exposure will have an option to leave the respective line items blank.

5.26 Figure 5 demonstrates the impact of basis risk arising from JIBAR vs Prime and Bonds vs swaps on the minimum required capital and reserve funds. The Figure depicts associated materiality across the industry, relative to capital. Ultimately as basis risk becomes material, the great impact would be attributable to each bank’s capital and reserve funds.

*Figure 5: Exposure to basis risk relative to the minimum required capital and reserves, arising from JIBAR vs Prime and Bonds vs swaps*



5.27 Across all the banks, the majority of the basis risk arises mainly from JIBAR vs Prime ranging between 19% to an upper bound of 22%. Followed by Bonds vs Swaps, ranging between 1% to an upper bound of 22%.

*Prepayment risk/Embedded option risk*

- 5.28 Prepayment risk only applies to the fixed-rate book as per the IRRBB standardised framework. Paragraph 117 of the updated IRRBB framework states that *“The standardised framework is applied to fixed-rate loans subject to prepayments and term deposits subject to early redemption risk”*.
- 5.29 Prepayment on variable rate products is negligible because commercial margins are already stripped out therefore there is minimal impact on NII. The early redemption charge covers the cost of unwinding the hedge in place on fixed-rate products.
- 5.30 Out of the 31 banks that responded to the survey, only four banks modelled prepayment behaviour. The remainder of the banks would require system enhancements and configuration in order to model prepayment risk that is embedded in the respective banking book products.
- 5.31 From the responses received, it can be concluded that the majority of the industry’s asset book is variable rate linked (see Table 2). The QIS aimed to assess the materiality of fixed and variable rate exposure from the industry’s asset types.

*Table 2: Materiality of fixed versus variable exposure by asset types on prepayments*

Asset type	SA five largest banks	Branches of foreign banks	Other banks
Total mortgage book	3% - fixed 97% - variable	0% - fixed 100% - variable	0% - fixed 100% - variable
Total personal loans	45% - fixed 55% - variable	0% - fixed 100% - variable	Not estimated
Total VAF	17% - fixed 83% - variable	0% - fixed 100% - variable	0% - fixed 100% - variable
Credit cards/overdraft	0% - fixed 100% - variable	0% - fixed 100% - variable	0% - fixed 100% - variable
Term loans	8% - fixed 92% - variable	23% - fixed 77% - variable	0% - fixed 100% - variable

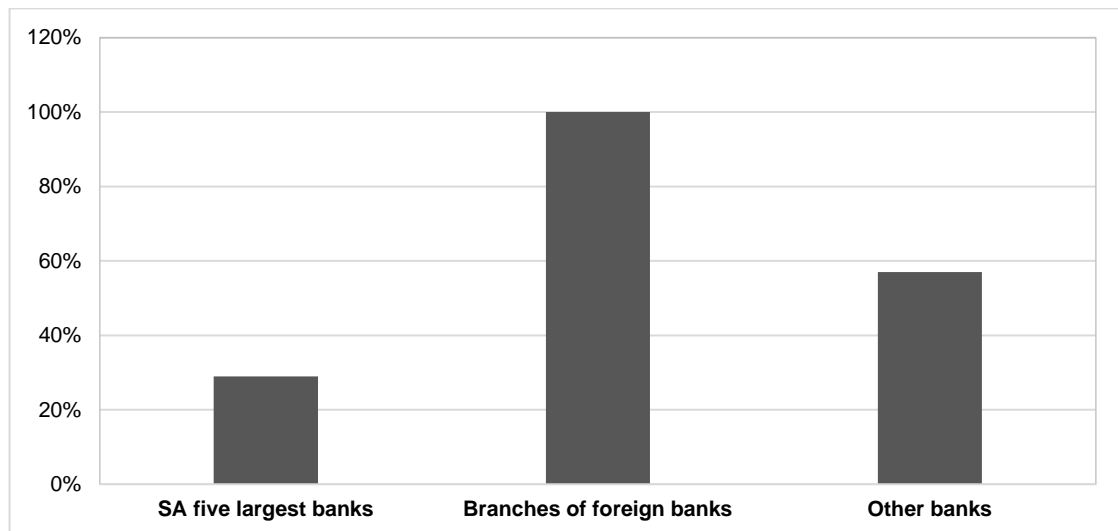
- 5.32 The IRRBB standards regard prepayment risk to apply to the fixed-rate book. Therefore it is not applicable for the industry to assess prepayment on the variable rate book as a result, prepayment risk has a minimal impact from an interest rate risk perspective.
- 5.33 The ALM strategy around prepayment risk arising from fixed and variable rate book in terms of the impact on a bank’s return-on-equity (ROE), return-on-assets (ROA) and NII will be monitored through the supervisory review processes.



### *Treatment of NMDs*

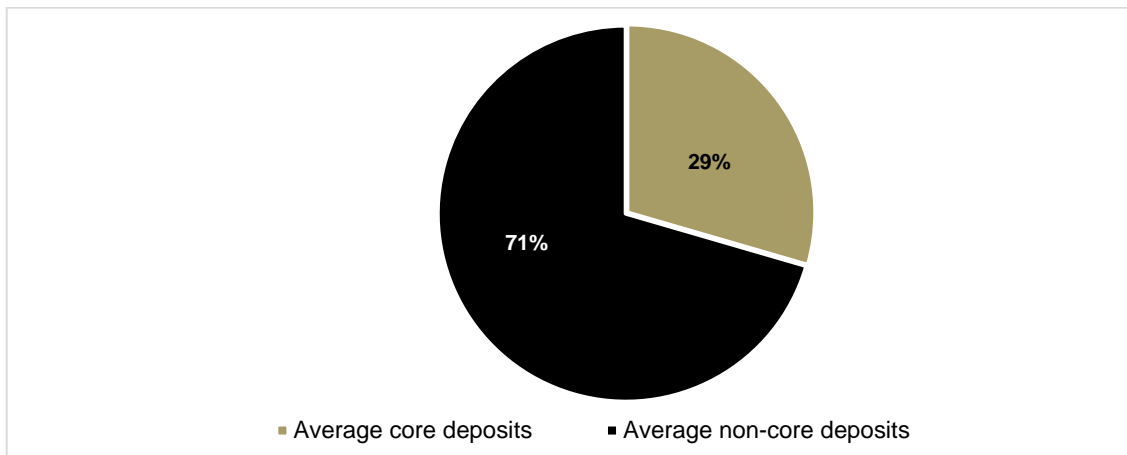
- 5.34 Many banks are funded with NMDs and how their average lives are modelled has significant implications when estimating their value and their effectiveness in the management of interest rate risk. From the responses, NMDs for the five largest banks accounted for 29%, branches of foreign banks 100% while the other smaller banks accounted for 57% (see Figure 6).

*Figure 6: Total NMDs as a percentage of total deposits*

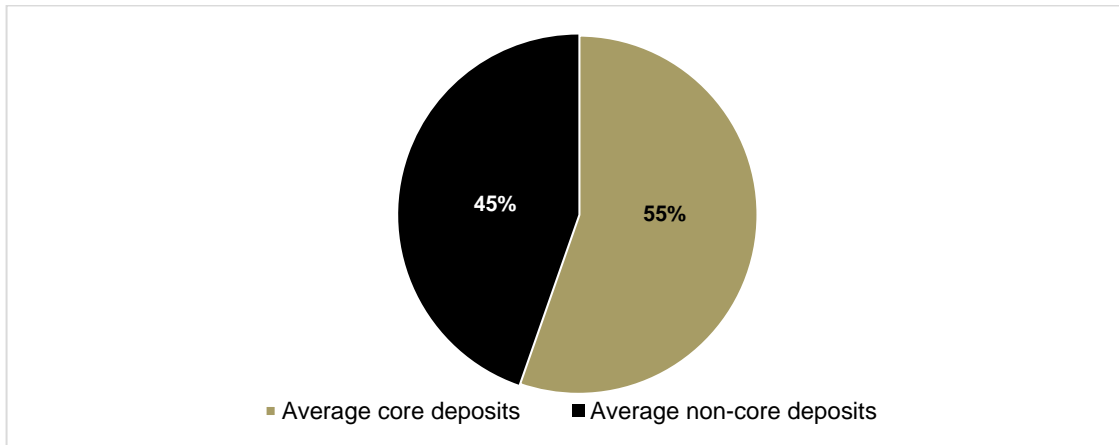


- 5.35 Under the standardised IRRBB framework, banks should distinguish between stable and non-stable parts of each NMD category using observed volume changes over the past 10 years. The stable NMD portion is the portion that is found to remain undrawn with a high degree of likelihood. The non-stable NMD portion is the portion that is volatile and has a high likelihood of withdrawal.
- 5.36 Core deposits are a proportion of stable NMDs which are unlikely to reprice even under significant changes on the interest rate environment. An “appropriate” cash flow slotting procedure should be determined for each category of core deposits, up to the maximum average maturity per category. The remainder constitutes non-core NMDs, these should be considered as overnight deposits and placed into the shortest/overnight time bucket.
- 5.37 The current treatment of the industry’s NMDs varies across the industry due to the nature of each bank’s banking book products and associated challenges with standardising the modelling of NMDs. Average core versus non-core deposits for the five largest banks, branches of foreign banks and other smaller banks are 29%, 45% and 8% respectively (see Figures 7 to 9)

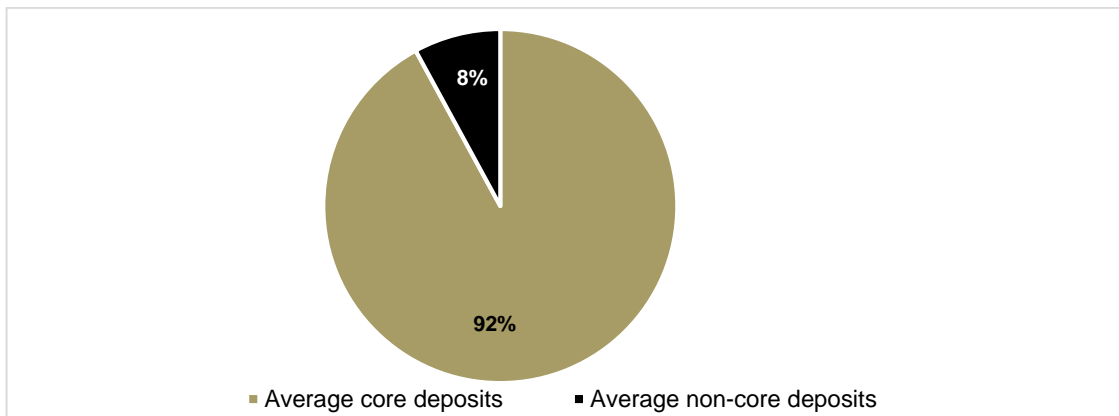
*Figure 7: Core versus non-core deposits for the five largest banks*



*Figure 8: Core versus non-core deposits for branches of foreign banks*



*Figure 9: Core versus non-core deposits for the other smaller banks*



5.38 The proposal is for non-core deposits to be considered as overnight deposits and placed into the shortest/overnight time bucket. The profiling of core deposits can be at the discretion of the banks however the maximum average maturity per category should be as outlined under the updated IRRBB framework, as follows:

Category	Cap on the proportion of core deposits (%)	Cap on the average maturity of core deposits (years)
Retail/Transactional	90	5
Retail/Non-transactional	70	4.5
Wholesale	50	4

- 5.39 In making behavioural assumptions about accounts without specific repricing dates for interest rate risk management, institutions should not exclusively rely on statistical or quantitative methods to determine the behavioural repricing dates and the cash flow profile of NMDs.
- 5.40 Further, the determination of appropriate modelling assumptions for NMDs may require the collaboration of different experts within an institution (e.g. risk management and risk control department, sales and treasury).
- 5.41 The majority of the industry assigned maximum average maturity per category as outlined in the updated IRRBB standard for core deposits.
- 5.42 Challenges highlighted were as a result of not having the required systems in place, lack of data history to observe trends and associated costs with the system in modelling core and non-core deposits.
- 5.43 Through the on-going asset and liability management (ALM) thematic reviews, the rationale behind each banks NMD profiling will be analysed through robust discussions with each bank. This will enable the PA to understand the associated risk with, for example, whether modelling NMDs with too short an average life subjects a bank to increasing interest rate risk exposure or not.
- 5.44 The models used for modelling NMDs will be subjected to independent annual model validation and have the reports shared with the PA when required.

#### *Treatment of equity*

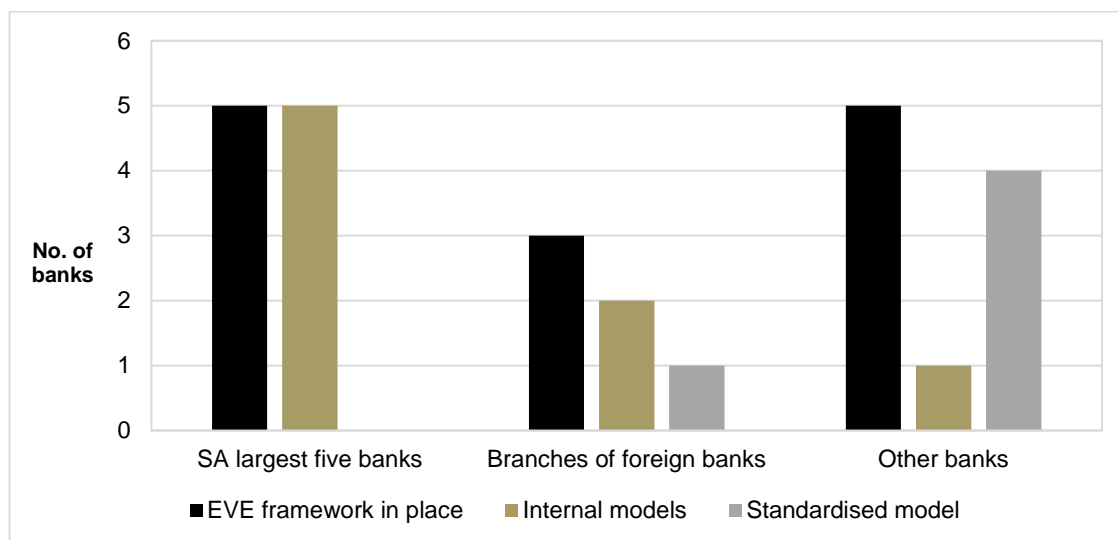
- 5.45 Currently, only two banks are computing EVE with a separate earnings-adjusted model that uses assumptions about the investment term of equity. The EVE by definition requires the exclusion of equity and BCBS makes that very clear.

#### *Economic value of equity framework*

- 5.46 There are two complementary methods of measuring the potential impact of IRRBB earnings-based measures and value-based approach.

5.47 From the 31 banks that participated in the survey, 13 banks have EVE frameworks in place. Eight banks are computing EVE sensitivity following IMS methodology and five banks compute EVE sensitivity according to the SM guidelines (see Figure 10).

*Figure 10: Methodologies of measuring IRRBB impact*



5.48 The earnings measure traditionally received the most attention. The concept of economic value to the entire balance sheet of a bank is challenging because the banking book is made up of assets and liabilities that are accounted for- as held to maturity, for which there may not be observable market prices.

5.49 The largest five banks are currently computing EVE sensitivity based on existing or adjusted cash flows that are revalued in line with the six BCBS prescribed shocks and stress scenarios. However, the rest of the other banks are computing EVE sensitivity as per the current Regulation 30 on interest-rate risk-directives, definitions and interpretations for completion of monthly return concerning interest-rate risk.

5.50 Some of the banks' IMS are already aligned to the standard methodology principles and others are purely on IMS. Some foreign branches and the other small local banks will have to conduct a comprehensive overhaul of their models in order to comply with the revised IRRBB measures.

5.51 The proposal is for all banks to have an EVE framework in place by 1 June 2022. The industry can follow either IMS or SM in computing EVE sensitivity. Furthermore, EVE sensitivity will be required to be computed in both contractual and behavioural terms.

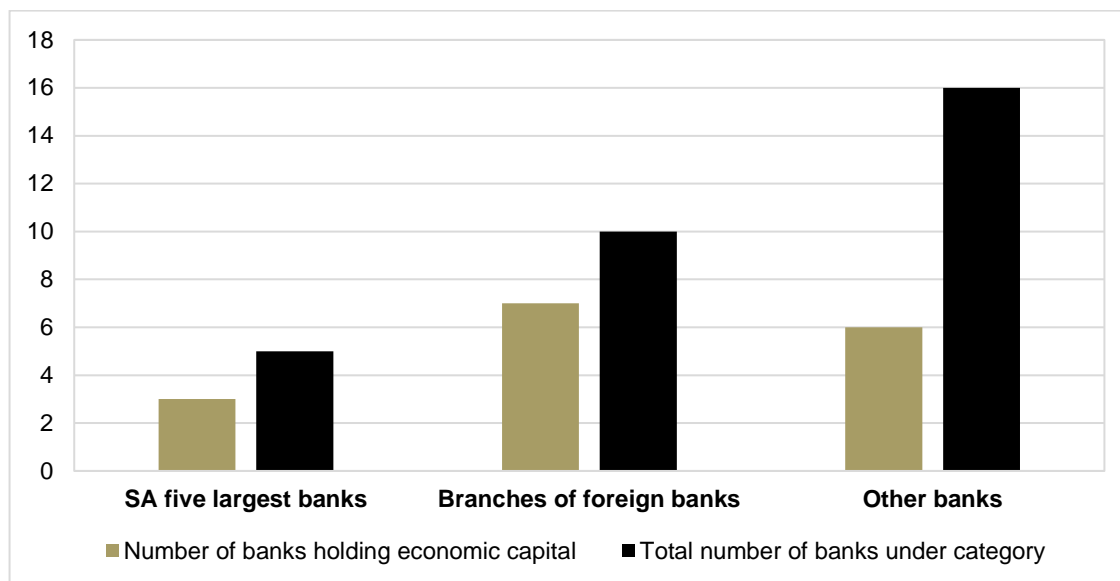
- 5.52 Challenges emanating from this part of the updated IRRBB framework will be handled by the PA on a case by case basis.

### *Capital*

- 5.53 Principle 9 under the updated IRRBB standards states that capital adequacy for IRRBB must be specifically considered as part of the Internal Capital Adequacy Assessment Process (ICAAP) approved by the governing body, in line with the bank's risk appetite on IRRBB.
- 5.54 Banks are responsible for evaluating the level of capital that they should hold, and for ensuring that this is sufficient to cover IRRBB and its related risks. The contribution of IRRBB to the overall internal capital assessment should be based on the bank's IMS outputs, taking into account of key assumptions and risk limits.
- 5.55 The Pillar 2 capital charge for IRRBB is not prescriptive. It is essentially left to individual banks to propose an appropriate metric and to agree to these bilaterally and without public disclosure with their regulator. The rationale is, while a bank may lose money from mismatched risk in its banking book, it will only impact capital resources gradually and may be offset by future net income flows which should also be taken into account.
- 5.56 Given the variety of possible future scenarios, a simple "one size fits all" prescriptive approach is not necessarily appropriate. The only real quantitative requirement is the SOT.
- 5.57 The SOT is simply to alert supervisors to possible problems and a degree of cross-bank comparison. It should not be relied upon by the bank either for internal risk management or for determining an appropriate quantum of capital. The results of the SOT are not disclosed publicly.
- 5.58 The interest rate risk in the banking book is not subject to regulatory capital. However, the capital requirement for IRRBB is considered as part of some banks ICAAP process through assigning economic capital.
- 5.59 From the 31 banks that participated in the survey 16 have allocated economic capital for IRRBB (see Figure 11). A further focus will be placed on the economic capital process followed by the industry through the annual ICAAP process. This will enable

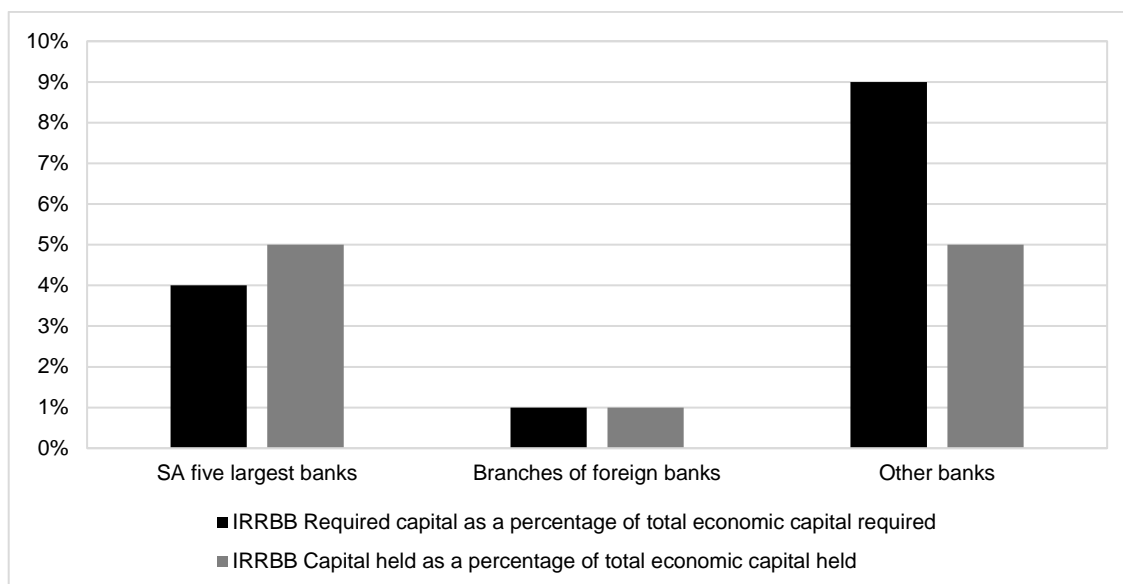
the PA to use the ICAAP process as a methodology to assess internal capital requirements for IRRBB.

*Figure 11: Number of banks holding economic capital*



5.60 The largest five banks hold 5% of economic capital against the required capital of 4%. The branches of foreign banks hold 1% of economic capital against the required capital of 1%. Other banks hold 5% of economic capital against the required capital of 9% (see Figure 12).

*Figure 12: Economic capital required versus what is held*

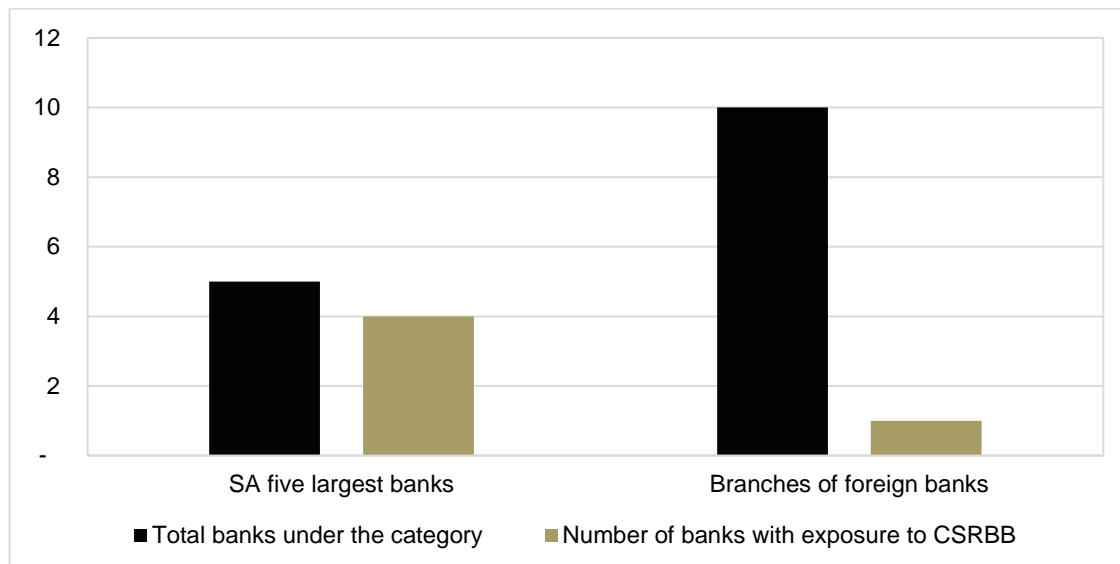


### *Credit spread risk in the banking book*

5.61 BCBS 2016 IRRBB standards are silent on how CSRBB should be monitored and assessed. The standard only defines CSRBB as a related risk that banks need to

monitor and assess in their interest rate risk management framework. CSRBB refers to any kind of asset/liability spread risk of credit-risk instruments that is not explained by IRRBB and by the expected credit/jump to default risk.

*Figure 13: Number of banks with exposure to CSRBB*



5.62 CSRBB describes the impact of the value of a bank's assets should the credit quality of another party deteriorate. Changes in credit spreads could amplify the risk already arising from IRRBB. Effects of downgrades and default are important sources of risk at times of economic crisis. Default rates can be volatile, especially for lower rating bonds or during periods of crisis. If cash flows are simply discounted with a risk-free-like interest rate curve, the economic value of the assets in the balance sheet may be overestimated.

5.63 The materiality of CSRBB varies according to the different categories of the banks. The proposal is that further treatment on CSRBB can be absorbed from international practice.

#### *Overall IRRBB implementation costs*

5.64 The implementation of the updated IRRBB framework in South Africa will result in some additional costs and administrative requirements associated with system configurations, model enhancements as well as additional reporting.

5.65 From the information that was received from the industry, on average, it is expected that the implementation of the updated IRRBB will lead to an increase in the annual operating costs by 0.03%, 0.0001% and 0.05% in respect of the largest five banks, branches of foreign banks and other smaller banks respectively (see Table 3).

*Table 3: Implementation costs as a percentage of total annual operating expenses*

Category of banks	Cost Classification	
	Once-off costs as a percentage of total annual operating costs	Recurring costs as a percentage of total annual operating costs
<b>SA five largest banks</b>	0.05%	0.03%
<b>Branches of foreign banks</b>	0.001%	0.0001%
<b>Other smaller banks</b>	0.26%	0.05%

5.66 Once-off costs associated with system configurations, model enhancements, etc. will require an average investment amounting to 0.05%, 0.001% and 0.26% of the total annual operating expenses for the largest five banks, branches of foreign banks and other smaller banks respectively.

5.67 Despite the additional costs to the banks operating expenses that will be incurred, the PA assesses that the additional costs and administrative requirements will be outweighed by the additional benefits to the regulation and supervision of IRRBB through the enhanced process of its identification, measurement, monitoring, control as well as supervision. All this will ensure that banks are sufficiently capitalised for their respective exposures to interest rate risk in the banking book, which will contribute in promoting the safety and soundness of individual financial institutions as well as to improve the overall resilience of the local and the global financial systems.

## **6 Statement of intended operation — Implementation and evaluation**

6.1 The IRRBB framework applies to all banks operating in South Africa and the framework will be incorporated into the domestic regulatory framework through amendments to the Regulations relating to Banks.

6.2 The envisaged commencement date for the IRRBB framework is 1 June 2022.

6.3 The QIS undertaken by the PA was aimed at assessing the impact of the proposed regulatory reforms and to understand the impact of the proposed framework before it is implemented on South African banks.

6.4 Following the implementation of the IRRBB framework, the PA will monitor, assess and evaluate the effect of the proposed reforms continuously as part of its regulatory and supervisory responsibilities to mitigate any unintended consequences of implementing the framework.



## **7 Conclusion**

This Report covers the need for, expected impact and intended operation of the proposed IRRBB framework and takes into account all the responses that were received through the QIS as well as the questionnaire. Following the public consultation process, the PA will make the necessary changes to the proposed amended Regulations as well as this Report, taking into account all submissions received.