



**AUSTRALIAN BANKERS'
ASSOCIATION INC.**

Strong banks – strong Australia

Australian Bankers' Association response to the BCBS Consultative Document: Interest rate risk in the banking book

11 September 2015





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Executive Summary

The Australian Bankers' Association (**ABA**) welcomes the opportunity to respond to the Basel Committee on Banking Supervision (**Committee**) Consultative Document (**CD**) *Interest rate risk in the banking book (IRRBB)*. The ABA hopes that our perspective as a jurisdiction with an existing and well-established IRRBB capital framework can add constructively to the Committee's deliberations.

ABA notes that the comments provided in this response have not yet had sufficient time to take full consideration of the results of the quantitative impact study (**QIS**) currently in progress. ABA would like to emphasise to the Committee the importance of using robust impact analysis to appropriately inform the calibration process.

The key responses are summarised below and discussed in further detail in the body of this document.

- The ABA views the proposed more standardised Pillar 1 methodology outlined in the CD as being insufficiently risk sensitive to provide both an accurate and an appropriate measure of banks' IRRBB exposure because it would not adequately capture differences in products, markets and customer behaviours across banks and geographies. The ABA views the standardised Pillar 1 option as a retrograde step compared to the current advanced IRRBB capital framework applied in Australia (Section 3).
- The ABA supports an IRRBB measurement methodology based on a flexible, risk-sensitive, principles-based measurement approach similar to the current Australian approach, which allows advanced accredited banks to apply advanced internal models to IRRBB, subject to regulatory approval. The ABA proposes a two-tiered approach to provide an appropriate balance of simplicity and risk sensitivity, where larger, more complex banks may apply a more advanced internal measurement approach, while less complex banks may apply a simpler, more standardised approach (Section 4).
- The ABA proposes that comparability in IRRBB measures is better achieved through a global principles-based framework that allows for appropriate internal modelling of banks' individual IRRBB profiles with local regulatory approval, and which is consistently applied across jurisdictions, than a standardised measure (Section 5).
- The ABA recommends the Committee take time to consider the treatment of the investment term of equity, in light of the developments in capital structures and planning since the global financial crisis, including capital buffers, non-viability triggers, and recovery and resolution planning. ABA holds that these developments have substantially increased the loss-absorbing capacity of banks, protecting a certain 'minimum' level of equity that may be invested at a bank's desired investment term. The remaining portion of equity should be made available to absorb losses as required over the shorter term. This proposal addresses the concerns associated with the investment term of equity while allowing recognition of the actual risk management practice of banks (Section 6).
- The ABA's view on non-maturity deposits (**NMDs**), is that the proposed stability caps and pass-through floors are excessively conservative and are not sufficiently sensitive to specific product characteristics. The ABA proposes that internal modelling should be permitted to estimate NMD quantities and tenors without the imposition of fixed caps and floors, with local regulatory approval. As an alternative (if internal modelling was not permitted), ABA propose that an additional category of 'non-interest bearing' NMDs should be included for defined zero percent (or near-zero percent) NMDs (Section 7).
- The ABA also finds that the shock parameters prescribed by the Committee, which appear to have been weighted more heavily by low rate currency histories, result in significantly overstated shocks when applied to jurisdictions such as Australia that have relatively higher rates. The ABA recommends that environment-specific histories should be used to calibrate shock sizes (Section 8).



- Other key issues related to the standardised Pillar 1 methodology include:
 - The exclusion of embedded gains and losses from the IRRBB measure (Section 9)
 - Defining an appropriate holding period for IRRBB, to be considered jointly with the desired confidence level (Section 10)
 - Including earnings variability as a driver of capital in addition to economic value loss (Section 11); and
 - The prescriptive treatment of basis risk, embedded optionality risk and currency aggregation (Section 12).
- With respect to the proposed Pillar 2 approach, the ABA does not agree with using the standardised measure for external disclosure and regulatory benchmarking because such measures would lead to misrepresentations of banks' true IRRBB exposure that may mislead the market, while becoming a de-facto minimum capital requirement adopted by the market (Section 13).
- The ABA proposes that credit spread risk in the banking book should be treated as a separate risk class within the Pillar 2 framework, with appropriate recognition of the potential double-count with other risk classes including credit risk and liquid asset buffers (Section 14).
- The ABA also advocates consistency in the treatment of the trading book and banking book boundary between the fundamental review of the trading book (**FRTB**) and the IRRBB proposals. The ABA supports a boundary treatment based on trading intent per the IRRBB proposals rather than a presumption-based treatment per the FRTB, which gives a prominent role to the accounting treatment (Section 15).



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Key issues

1. Background – current IRRBB treatment in Australia

The Australian Prudential Regulation Authority (**APRA**) applies a Pillar 1 capital requirement for IRRBB to banks with advanced accreditation for credit risk and operational risk, effective since 1 January 2008¹. The capital requirement is measured using advanced internal modelling in accordance with APRA-defined general principles for IRRBB measurement and management, supported by robust governance and model validation processes.

The APRA principles provide a certain level of flexibility within which banks may measure their IRRBB exposure, subject to certain modelling requirements and parameters. The capital treatment is principally driven by a ‘soundness standard’ given by a defined confidence level and holding period (where models/assumptions are reviewed independently as well as being approved by APRA as part of the accreditation process).

While the developments in banks’ capital planning and risk management frameworks since the global financial crisis (**GFC**) present an opportunity to review certain aspects of the APRA principles, the current framework continues to represent a well-defined and well-established basis for the measurement and management of IRRBB.

Attachment 1 presents an overview of the APRA IRRBB measurement principles and modelling considerations.

2. Context

The following points raised in relation to specific modelling methodologies are based on the current proposals as per the CD i.e. prior to the completion of the QIS. It is difficult to comment on a number of components of the proposals without results from the QIS. Following the completion of the QIS, the ABA proposes that the Committee should consider a further consultation and QIS to allow banks to provide additional comments on the impact of the proposals.

3. BCBS proposed Pillar 1 capital treatment

In comparison with the current internal model-based IRRBB framework applied in Australia, the ABA is opposed to the proposed standardised Pillar 1 treatment with constraints on modelling because it is not sufficiently risk-sensitive or comparable given significant differences in product offerings and market characteristics across banks and jurisdictions. A more standardised measurement approach may have adverse consequences for banks’ IRRBB risk measurement and management.

If a Pillar 1 approach is selected, the ABA would advocate a principles-based measurement approach, similar to the current Australian approach defined in Australian Prudential Standard 117, which allows a certain level of flexibility for internal modelling of IRRBB in line with each bank’s risk exposure and management practices, subject to regulatory approval. The internal modelling approach should be coupled with an optional more simplified model for less complex institutions, as outlined in Section 4).

4. Balancing simplicity and risk sensitivity through a two-tiered modelling approach

While the current Pillar 1 proposal provides standardised parameters for certain modelling aspects in recognition of smaller banks that may not have the capacity to apply internal modelling, the proposal none-the-less involves a degree of complexity for these smaller banks; e.g. the requirement to calculate economic value and earnings-based measures, as well as optionality and basis risk measures.

¹ Australian Prudential Standard (APS) 117 ‘Capital Adequacy: interest rate risk in the banking book (Advanced ADIs), January 2013



On the other hand, the specified globally standardised/constrained parameters are not sufficiently risk sensitive for larger banks that require the flexibility to apply internal estimates to IRRBB measurement given the unique characteristics of their products, balance sheet structures and customer behaviours.

The ABA proposes that these concerns may be addressed by applying a two-tiered modelling approach to IRRBB, similar to the approaches applied to other risk classes including credit risk, market risk and operational risk.

The two-tiered approach would involve:

- i) An advanced internal modelling-based framework that may be adopted by larger/ more complex banks with the requirement and capacity to develop internal models and have advanced accreditation for other risk classes, subject to independent validation and regulatory approval. At a minimum, banks should be permitted to apply internal modelling to key parameters, with approval from local regulators.
- ii) A simpler, more standardised approach that may be applied by smaller/less complex banks, which includes the option of modelling a limited number of key parameters or alternatively relying upon a standardised set.

The ABA submit that this approach would help to strike a more appropriate balance between simplicity where appropriate, and risk sensitivity in order to provide a complete and comparable measure of IRRBB.

5. Fostering comparability in IRRBB measures

While a standardised measure may give the appearance of comparability because it applies standard parameters and shock assumptions, it would obscure the true IRRBB exposure of an individual bank that applies a board-approved IRRBB risk management and measurement framework that is specific to its balance sheet, market environment and risk appetite, in accordance with local regulatory approval. In addition, a standardised measure may create adverse incentives to optimise capital and constrain the true comparability of capital across jurisdictions.

In contrast, the ABA proposes that a measurement approach that is based on a set of globally consistent principles allowing for appropriate recognition of differences in the nature of IRRBB across products, banks and markets provides a more suitable basis to generate comparable IRRBB measures. This is rather than standardised measures and parameters per the current BCBS proposal. The use of internal estimates in itself would not be an issue against comparability, provided the estimates are in accordance with sound well-defined modelling principles and risk management frameworks. Supporting qualitative disclosures can be used to enable more effective comparison of banks within a given jurisdiction and across jurisdictions.

To further support international comparability, the ABA advocates a consistent implementation of the IRRBB proposals across jurisdictions. Currently, Australia and New Zealand apply an explicit Pillar 1 capital charge to IRRBB, which places banks in these jurisdictions at a relative disadvantage in terms of capital requirements and market perceptions of capital strength compared to other jurisdictions that apply a Pillar 2 approach.

6. Investment term of equity

The specification to apply an effective investment term of zero to equity poses a significant constraint to representing banks' actual IRRBB risk profiles, given banks typically invest equity at a 'safe harbour' investment horizon (e.g. 3 or 5 years) to support earnings stability. The chosen equity investment term is driven by banks' relative risk appetite for economic value impacts versus earnings volatility, given that it is not possible to minimise both measures simultaneously.



Proposal

The ABA proposes that the treatment of the investment term of equity should be reassessed to appropriately recognise the fundamental changes to banks' capital structures and loss absorbing capacity since the global financial crisis.

The introduction of capital buffers (regulatory and management), non-viability triggers, recovery planning and the actual or anticipated introduction of operational resolution regimes following the GFC have resulted in a significant increase in banks' loss-absorbing capacity. This increase in loss absorption has the effect of 'creating' additional equity in significant loss scenarios. The Basel III capital framework is in effect designed to protect a certain 'minimum' level of equity that is expected to remain 'stable' in the face of significant losses. This view is in accordance with the Basel Committee's definition of 'going concern' capital within the Basel III framework²

ABA propose that this 'stable' portion of capital may be invested to a bank's desired investment term of equity and recognised as such in IRRBB measurement. The 'stable' portion may be defined by a threshold such as the board's risk appetite on capital, which specifies a minimum level of capital below which the board has no appetite to operate. The risk of having to write down this portion of equity, and hence potentially face secondary interest rate losses as a result of unwinding the associated asset or hedge positions, is arguably extremely remote.

The remaining portion of equity that is expected to be written down in a loss scenario should be available as required and hence invested at a term that matches the potential loss horizon (e.g. consistent with the bank's stress-testing outcomes). For banks that spread their investment evenly over the term, a portion of the investment would naturally mature on a rolling basis, reducing (or even removing) the need to unwind the investment in case a loss eventuates. Any shortfall in 'maturing' equity over the stress time horizon is the portion that would result in IRRBB risk.

Alternatively, banks may use stress-testing to explicitly quantify the potential secondary interest rate loss that may eventuate if a term equity investment is required to be unwound, and include this loss in their capital assessment.

Constraints may be applied to the term of the equity investment such that it cannot exceed the average duration of a bank's assets.

Consequences of the current proposal's zero term assumption

The difference between banks' actual equity investment horizons and a fixed lower regulatory assumption is likely to be a significant driver of capital requirements. APS 117 allows an effective equity investment term of 12 months that aligns with the 'soundness standard' holding period of 12 months. While this treatment is longer than a pure 'at call' assumption, it is nevertheless a core driver of Australian banks' capital requirements relative to banks' actual longer-term equity investment terms.

This difference in equity investment horizon assumption can create adverse incentives to place longer-dated liability positions in the banking book as this reduces capital and/or invest equity over a shorter horizon, which is likely to result in less stable earnings.

Enabling banks to apply their defined investment term to equity in accordance with the board-defined risk appetite for earnings volatility (supported by strong risk management frameworks), and having this duration appropriately recognised in IRRBB measurement, are critical to the effective management and measurement of IRRBB and earnings volatility. ABA hold that the regulatory measure of IRRBB should allow flexibility for banks to apply an internal approach to the investment term of equity, similar to our recommended approach for NMDs, with agreement from local regulators.

Attachment 2 presents further detail of this proposal.

² Paragraph 49, '[Basel III: A global regulatory framework for more resilient banks and banking systems](#)' Basel Committee on Banking Supervision, June 2011.



7. Non-maturity deposits (NMDs) - Time series approach

The prescriptive caps on NMD modelling terms, which do not take into account the customer and behavioural differences between banks and products, appear to be unnecessarily restrictive (detailed impacts to be assessed). A simple split of core/non-core may not be suitable for all NMD types.

While underestimating deposit tenor when modelling for bank liquidity is conservative, doing the same for IRRBB is not. Incorrectly modelling the tenor of NMDs by over- or under-estimating may give rise to interest rate risks and can lead to mismanagement of risk and net interest margin (**NIM**) volatility.

The ABA propose that a principles-based approach should be applied to modelling the applicable quantities and tenors of NMDs, where banks have the flexibility to develop internal models of NMD maturity that appropriately reflect the particular product and customer behavioural characteristics of their portfolio, with regulatory approval.

In particular, the proposed pass-through floors would not be applicable to certain NMD products in Australia that carry defined interest rates of zero or near-zero that are not repriced over the rate cycle, and consequently do not have a rate sensitive component. The stability of these deposits would be more appropriately measured through internal models that capture customer behavioural characteristics rather than through a fixed cap.

If the Committee is not open to an internal modelling approach, ABA propose that an additional class of deposits, 'non-interest bearing', is added to the NMD classification outlined on page 21 of the CD. Consequently there would be three sub-categories to NMDs: 'Stable', 'Non-stable' and 'non-interest bearing'. This category would not be subject to a pass-through floor.

The non-interest-bearing category will capture all deposits with no specified maturity date, a zero or near-zero (no more than a few basis points) interest rate, and proven rate insensitivity. The Committee could consider requiring the incorporation of rate insensitivity into the terms and conditions of the product so that there can be no expectation that the rate on these products will increase if market rates increase.

The ABA believes that the addition of this category will more accurately reflect the characteristics of the portfolio, allowing for more appropriate interest rate risk management. ABA also hold that incorporating the non-interest bearing characteristic into the terms and conditions will allay any concerns that the Committee may have with regard to the true rate sensitivity of the product.

8. Use of defined scenarios to drive capital

Under the Pillar 1 proposal, minimum capital requirements are based on the outcomes of six interest rate scenarios, where defined global shock parameters are applied to local interest rates. The approach currently applied under the advanced Australian method is more comprehensive, where capital is measured according to a defined 'soundness standard' of 99 per cent and a 1-year holding period assumption, which provides broader coverage of possible scenarios and more accurately captures diversification impacts. The ABA recognises that some bank products and markets may not be adequately modelled in this framework, which further highlights the need for a flexible and non-standardised approach that can provide a more complete measure of IRRBB based on the risk sensitivity of a bank's particular IRRBB profile.

While applying a global shock parameter to local rates may be more flexible than a defined shock size such as 200bps, the size of the shock and hence the level of capital may vary significantly across jurisdictions depending on the starting level of interest rates.

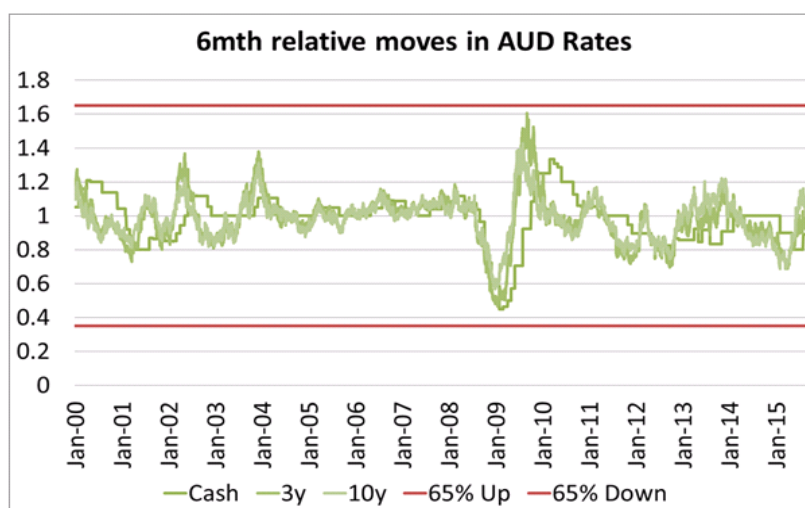
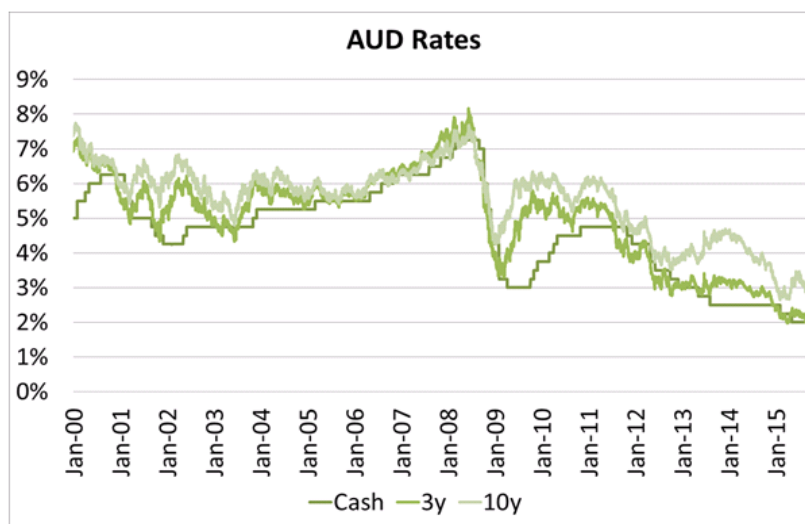
The approach to interest rate shock scenario generation appears to overstate the potential for rate moves in higher interest rate currencies.

The AUD rate environment is a good example of this. The calibration for 1st and 99th percentile six-month parallel moves in rates presumably considers the low rate USD, EUR, JPY, GBP, CHF etc. environments – where a 25bp move in a central bank target rate has represented a much larger proportional move in the overall market than an equivalent 25bps move in AUD.



Looking at a history of AUD rates from 2000-2015, the 1st and 99th percentile six-month moves show about a 42% parallel shock as appropriate in short tenors down to a 30 per cent move in long tenors. By applying a 65 per cent move based off calibration to low rate currencies the risk is roughly 50-100 per cent overstated.

The graphs below show the historical levels and volatility of Australian interest rates, and demonstrate the size of the shock implied by the 65 per cent parameter specified for the parallel up and down shocks.



To overcome this weakness it is proposed that environment specific histories be used to calibrate the shock sizes. Sizing relative shocks for higher rate currencies based on the historical observation of low rate currencies is inappropriate. Shocks in rates currently above 1 per cent should be based on historical volatility in rates that were above 1 per cent. This will have no impact in low rate currencies where the floored shock would already be in force.



9. Embedded gains and losses

The ABA proposes that measures of IRRBB should be assessed using internal modelling approaches, with embedded gains and losses included in the final calculation to provide a complete measure of IRRBB exposure. The economic value of assets and liabilities due to changes in interest rates are a real impact on the bank, and are routinely considered in valuation, thus they should be considered when assessing capital adequacy for IRRBB. This is a conceptually sound approach. Excluding embedded gains and losses from the IRRBB framework might encourage banks to take accounting actions to recognise gains.

In the current Australian framework, embedded gains/losses are measured as the difference between the book value and economic value of the balance sheet, which results in an embedded gain if negative and an embedded loss if positive.

10. Holding period

The holding period is a representation of the time necessary to 'unwind' the IRRBB risk position, taking into account both the time to make a management decision and the time required to eliminate the risk position through the use of on-balance sheet and off-balance-sheet financial instruments. The risk horizon would differ depending on each bank's portfolio, investment strategy and management delegations, but in practice would not be longer than 3 months.

The holding period selected should consider confidence levels in final calibration - it is not meaningful to consider one without the other.

11. Economic value and earnings-based measures

While banks typically use both economic and earnings-based measures of IRRBB in their internal risk management frameworks, the ABA proposes that actual interest rate loss risk rather than earnings volatility should be the core driver of IRRBB capital requirements. Capital adequacy is not primarily related to reported earnings; it is the bank's asset and liability values that contribute to solvency. While earnings may contribute to capital adequacy over time, the risk of lower earnings is not an immediate concern for solvency.

In particular, just as the embedded gain or loss in the balance sheet should be considered when assessing the risks to economic value, the base case earnings forecast should be considered when assessing risks to net interest income, stress tests and resolution planning. The inclusion of base case earnings forecasts in assessing capital requirements is best avoided by assessing capital requirements purely on risk to economic value.

12. Basis risk, optionality and currency aggregation

The ABA proposes that:

- It is very difficult to be prescriptive on basis risk, as there are many factors that influence this risk.
- Embedded optionality should be included in internal modelling, consistent with each interest rate scenario, rather than included as a separate add-on.
- The approach to diversification across currencies is overly conservative. The assumption is effectively that every currency's interest rates move in unison with the up/down or flatten/steepen scenarios – this is simply unrealistic and can both overstate and understate the risk.



13. BCBS proposed Pillar 2 framework including disclosure

ABA generally supports the enhanced principles on IRRBB presented under Pillar 2, which we believe would provide a stronger baseline for IRRBB measurement and management regardless of the final minimum capital treatment (Pillar 1 or Pillar 2).

However, the use of 'standardised' measures for supervisory review and disclosure under Pillar 2 may have the adverse impact of creating a de-facto minimum capital requirement based on measures that are not sufficiently risk sensitive. As such, if a Pillar 2 approach is adopted, ABA recommend that standardised Pillar 1 measures should not form part of the market disclosure requirement, given that a standardised measure would not adequately capture the idiosyncratic aspects of a specific bank's or market's portfolios, resulting in an significant misrepresentation of banks' true IRRBB exposure that may mislead the market and become a de-facto minimum capital requirement.

ABA also recommend that capital requirements under Pillar 1 or Pillar 2 should allow appropriately risk-sensitive internal modelling based on sound measurement principles, subject to supervisory approval.

14. Credit spread risk in the banking book as part of the proposed Pillar 2 approach

The risk due to credit spreads is most clear in traded securities often held as high quality liquid assets. Capital held for traded securities and capital held for identical instruments in the banking book should certainly be similar.

The appropriate treatment for held to maturity items such as customer loans and deposits and the bank's own wholesale funding is less clear – credit capital overlaps heavily with credit spread risk in the banking book (**CSRBB**) here, and recognising profits on funding as the bank's own credit worsens is certainly controversial.

The ABA supports a Pillar 2 approach, where CSRBB is treated as a separate risk category from IRRBB and included as part of banks' comprehensive internal stress-testing processes rather than subject to a prescriptive capital charge, given the substantial overlap with credit risk and liquid asset buffers.

15. Internal risk transfers/trading book boundary

For consistency, the definition of the trading and banking boundary should be aligned between that proposed in FRTB and IRRBB. The current FRTB proposal (July 2015 QIS instructions) relies heavily on presumptions, with a prominent role given to accounting treatment (para 15). In contrast, the IRRBB CD points out that accounting treatment alone should not drive boundary outcomes (page 9, BCBS CD IRRBB, June 2015).

A boundary test based on trading intent, as outlined in the IRRBB CD is preferable, as it reflects the current management and governance frameworks of the two books.



Attachment 1 – Overview of the Australian IRRBB capital framework

Component	Australian prudential standard requirements	Modelling considerations
1. Scope	Banks applying advanced methodologies for credit and operational risks are required to hold regulatory capital for IRRBB, based on an internal model approach or 'partial' approach (combining an internal and alternative regulator-approved approach).	
2. General approach	Banks must monitor their risk profile in terms of earnings at risk and economic value sensitivity. The internal model must be applied across all material business activities.	
3. Soundness standard	A bank must be able to demonstrate that its IRRBB capital requirement, as determined by its internal model, meets the soundness standard based on a 99 per cent confidence interval and a 1-year holding period.	Subject to the soundness standard, banks have the flexibility to develop a measurement system commensurate with the nature and complexity of their activities.
4. Yield curve risk	Model must measure the potential change in the EV of the banking book, as a consequence of changes in interest rates consistent with the soundness standard (point 3). Based on VaR techniques on a static balance sheet	For most purposes, repricing risk and yield curve risk can be grouped together and, except where specifically required, need not be disaggregated for measurement purposes.
5. Repricing risk		
6. Basis risk	No particular methodology is prescribed for basis and optionality risks. A bank's model for basis risk must explain the historical variation of margins between product interest rates and the implied cost of funds. A bank's internal model for optionality risk must accurately capture the unique risks associated with optionality, including the non-linear price characteristics of implicit option positions.	Some banks apply earnings-based approaches to measure basis risk. Banks may apply to the regulator to exclude basis risk components if they can provide evidence that they are not material or show that variability is a result of business decisions not inappropriate cost of funds.
7. Optionality risk	The regulator may approve the exclusion of basis and /or optionality risk if the bank is able to demonstrate that their impacts are not significant relative to repricing and yield curve risks (subject to regular review).	



Component	Australian prudential standard requirements	Modelling considerations
8. EV methodology	EV of each banking book item is calculated as the NPV at the beginning of the holding period, of expected future notional principal and interest cash flows. Notional cash flows should be discounted using the actual and simulated wholesale market interest rates as appropriate. EV is the sum of the EV of all banking book items. [See paragraph 13-16 of APS117]	The projections of cash flows can be based on the actual duration of balance sheet items and do not necessarily have to be approximated with fixed intervals such as used for gap reporting.
9. Investment term of equity	Within the EV approach, banks are allowed to recognise an investment term of equity of 12 months. This impact is achieved by incorporating an earnings offset, which is an adjustment for the impact of interest rate changes on economic value-based earnings during the holding period. The earnings offset equals the EV as at the beginning of the holding period, of a notional 12-month, equally weighted, monthly moving average of fixed (received) for floating (paid) interest rate swaps. The total principal amount covered by the swaps is equal to the sum of the book value of all banking book items.	The difference between the regulatory assumption of 12 months and banks' actual equity investment terms (e.g. 3 or 5 years) is the largest driver of IRRBB capital.
10. NMDs	Banking book items with no or low associated interest flows, such as at-call non-interest bearing deposits and low-interest transaction accounts may be assumed to have a repricing term that is either zero or a longer period that reflects the lack of sensitivity of the customer rate (if any) to wholesale market rates.	Banks can develop internal methodologies to model NMDs, subject to regulatory approval. Banks would generally be expected to provide analysis to support the use of a non-zero term.
11. Variability versus loss risk	The VaR measure used for yield curve risk and repricing risk captures the impact of interest rate variability, which may not necessarily give rise to a loss. However, the inclusion of embedded gains and losses adjusts the variability measure into a real loss measure. The embedded gain or loss is measured as the total book value of a banking book item less the total economic value of that item (resulting in an embedded loss if positive and gain if negative).	
12. Assumptions	A bank must clearly document model assumptions, including: - Behaviour of customers - Prepayment rates on fixed-rate loans - Volatility of prepayment rates - Relationship between prepayment rates and interest rates - Customer product rates and implied cost of funds	



Component	Australian prudential standard requirements	Modelling considerations
13. Diversification	A bank may incorporate diversification benefits if it can demonstrate that its correlation estimates are appropriate and take into account the uncertainty surrounding any such estimates.	
14. Static versus dynamic modelling	A bank may incorporate diversification benefits if it can demonstrate that its correlation estimates are appropriate and take into account the uncertainty surrounding any such estimates	
15. Confidence level	99 per cent	
16. Holding period	1-year holding period	The regulatory guidance permits the 1-year horizon to be derived by scaling up interest rate changes or VaR measured over a shorter horizon.
17. Embedded gains/losses	A bank's IRRBB measurement system must take into account the impact that past interest rate movements may have on its future earnings. In particular, the bank must include embedded gains or losses in banking book items that are not accounted for on a marked-to-market basis. The total book value of a banking book item less the total economic value of that item is the item's embedded loss (if positive) or embedded gain (if negative).	
18. Interest rate data	Interest rates used and modelled must include at least one yield curve in each material currency. Immaterial currencies may be combined into one or more groups and modelled using a single yield curve for each group.	The most common approach used in Australia has been the historical sampling approach (but may also use variance-covariance or monte carlo). Options to overcome issues of autocorrelation from overlapping periods are provided in APG117 page 7.
19. Data history	The observation period must be at least 6 years, except where the ADI provides evidence that the use of a shorter observation period would provide a more appropriate distribution of future interest rates. Correlation assumptions must be recognised and included in the internal model.	
20. Stress scenarios	A bank must have in place a comprehensive and rigorous programme of stress testing, including consideration of a breakdown in key modelling assumptions such as repricing assumptions and scenarios based on sudden changes in the level of interest rates and changes in the slope and shape of the yield curve	



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Standardised parameters

- 1-year holding period
- 99 per cent confidence level
- 12-month investment horizon for equity



Attachment 2 – Proposed treatment of the investment term of equity

As discussed in Section 6 of the main document, banks typically invest equity at a longer term horizon (e.g. 3 or 5 years) to support stability of earnings, in accordance with the board's risk appetite for earnings volatility. This investment term is reflected in the bank's internal management of IRRBB and is subject to regular monitoring and defined governance processes.

While equity has no natural duration, the specification to apply an effective term of zero to equity in the Pillar 1 proposal implies that the full amount of equity is required to be available at all times to absorb unexpected losses. The underlying assumption is that a longer term investment would result in secondary interest rate losses if the position and associated hedges are required to be unwound in a severe loss scenario.

However, we propose that fundamental changes to banks' capital structures and planning activities since the global financial crisis provide significant additional loss-absorbing capacity and act as safeguards against the need to access the full amount of equity on an overnight basis. Key developments include capital buffers (regulatory and management), recovery and resolution planning, and changes to capital instrument structures such as non-viability triggers within hybrid instruments and upcoming total loss absorbing capacity provisions.

These developments support a 'tiered' view of equity investment horizons:

- A 'stable' level of equity that is largely protected from the need to access it overnight as a result of the above developments: this level of capital may be safely invested at a bank's chosen term for stability of earnings reasonably without the risk of having to unwind the position; and
- A shorter-term portion of capital that is expected to be required to absorb unexpected losses: this level of capital could be required to be invested over a shorter term consistent with the horizon of stress-testing, or require additional IRRBB capital to absorb the potential secondary loss associated with having to unwind the position (if it was invested for a longer term).

The shorter-term component of capital may be quantified through stress-testing and/or through the board's risk appetite on capital, e.g. where a board specifies that it has no appetite for capital to go below a defined quartile of the capital conservation buffer. Banks would typically undertake expense management and recapitalisation actions well before this level of capital is reached.

For banks that typically spread their equity investment evenly over their desired term, a portion of this investment would naturally mature within the stress loss horizon and be available to absorb losses without a need to unwind the investment. A secondary interest rate loss would only occur if the size of the loss exceeds the maturing portion of equity.



Attachment 3 – Consequences of applying fixed interest rate shock parameters

The approach to interest rate shock scenario generation appears to overstate the potential for rate moves in higher interest rate currencies.

While assessing relative moves (as in a log-normal model) for shock generation makes good sense for foreign exchange markets (where this is fair in the sense that either currency in a pair could be the base currency) the same is not true for interest rate markets. Interest rate markets are perhaps better served by viewing rate moves as absolute basis point amounts (as in a normal model), no doubt this has already seen much debate.

The Committee appears to have considered at least one weakness of a log-normal model in ensuring low interest rate markets have shocks floored. Without a floor, a pure log-normal model effectively rules out the potential for negative interest rates, which have indeed been seen across several markets in recent times. The problem however, is that the calibration of the shock sizes does not seem to have considered that the low rates in the historical period have then overstated the potential size of relative moves in higher interest rate markets.

The AUD rate environment is a good example of this. The calibration for 1st and 99th percentile six-month parallel moves in rates presumably considers the low rate USD, EUR, JPY, GBP, CHF etc. environments – where a 25bp move in a central bank target rate has represented a much larger proportional move in the overall market than an equivalent 25bps move in AUD.

Looking at a history of AUD rates from 2000-2015, the 1st and 99th percentile six-month moves show about a 42 per cent parallel shock as appropriate in short tenors down to a 30 per cent move in long tenors. By applying a 65 per cent move based off calibration to low rate currencies the risk is roughly 50-100 per cent overstated.