



Discussion Paper

Implementation of the Basel II Capital Framework

5. Interest rate risk in the banking book

30 March 2006

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Introduction

The Basel II Capital Framework (Basel II Framework) states that interest rate risk in the banking book (also described as 'non-traded interest rate risk') is potentially a significant risk which merits support from capital. The Basel II Framework also states that where supervisors consider that there is sufficient homogeneity within the banking industry regarding the nature and methods for monitoring and measuring this risk, a mandatory minimum capital requirement could be established.

APRA has previously announced that it will require those authorised deposit-taking institutions (ADIs) which use the Internal Ratings-based (IRB) approach to credit risk and an Advanced Measurement Approach (AMA) to operational risk to hold specific regulatory capital against non-traded interest rate risk. This discussion paper confirms that decision and introduces the relevant draft prudential standard, *APS 117 Capital Adequacy: Interest Rate Risk in the Banking Book* (APS 117).

APRA expects that the vast majority of Australian banks, building societies and credit unions will use the standardised approaches to determine their regulatory capital charges for credit and operational risks under Basel II. APS 117 will not apply to institutions using the standardised approaches; however, some general requirements for the management of non-traded interest rate risk will be included in the risk management prudential standard that will be released by APRA later this year. APRA also intends to introduce a standard quarterly report for non-traded interest rate risk for all ADIs, whether they use the sophisticated or the standardised Basel II approaches (refer Appendix 1). In the case of ADIs using the standardised approaches, APRA will monitor each ADI's exposure to non-traded interest rate risk and will, as at present, take this assessment into account when determining the overall regulatory capital requirement. In particular, ADIs that are identified from the returns as 'outliers' will be expected to maintain a minimum capital ratio that reflects their non-traded interest rate risk.

APRA's capital adequacy framework for non-traded interest rate risk is in line with its new approach to

prudential guidance. The framework consists of a prudential standard and a separate prudential practice guide, which provides non-binding guidance on meeting certain requirements in the new standard and on prudent practices in managing and measuring non-traded interest rate risk.

All references to ADIs in the remainder of this discussion paper relate to those ADIs to which APS 117 will apply.

Prudential standard

APS 117 sets out the requirement for ADIs to hold regulatory capital against non-traded interest rate risk and the risk management practices that must be in place. The standard requires an ADI to seek approval from APRA to use its internal non-traded interest rate risk measurement model for determining the regulatory capital requirement for non-traded interest rate risk.

Other main requirements of the draft standard are:

- an ADI must have in place a framework to measure, manage and monitor non-traded interest rate risk that is commensurate with the nature, scale and complexity of the ADI's operations;
- for the purpose of APRA's proposed prudential framework, non-traded interest rate risk has four components: repricing risk, yield curve risk, optionality risk and basis risk. These components must all be covered by the ADI's model; and
- the capital requirement for non-traded interest rate risk must be based on a 99 per cent confidence level and one-year holding period.

The draft APS 117 is available on APRA's web site at www.apra.gov.au. Written submissions on the draft standard should be forwarded by 30 June 2006 to:

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Policy issues surrounding APS 117

Economic value and earnings-based perspectives

The draft prudential standard requires ADIs to use both economic value and earnings perspectives for managing and monitoring their non-traded interest rate risk. The regulatory capital requirement, however, is based principally upon an economic value perspective¹ using a Value at Risk (VaR) approach. This approach is more closely aligned with APRA's prudential objectives, which focus on solvency, rather than the stability of an ADI's earnings which is generally a concern of shareholders. The approach is also consistent with that taken for traded market risk and, by using a single measure, avoids the confusion that could arise from a more complex metric based on a hybrid of economic value and earnings approaches.

Holding period and confidence level

Under APS 117, the regulatory capital requirement for non-traded interest rate risk must be based on a 99 per cent confidence level and one-year holding period.

In general, there is a trade-off between holding periods and confidence intervals used in VaR assessments; longer holding periods and higher confidence levels usually generate higher capital requirements and shorter holding periods and lower confidence levels usually generate lower requirements. In particular, a longer holding period (compared with traded market risk) is considered appropriate for the regulatory capital requirement for non-traded interest rate risk given the longer-term nature of the instruments involved. The quantitative parameters included in APS 117 are consistent with the Basel Committee on Banking Supervision's July 2004 document *Principles for the Management and Supervision of Interest Rate Risk*.

Capital basis

The capital requirement for non-traded interest rate risk under APS 117 is based on the sensitivity of the economic value of an ADI's Tier 1 capital to non-traded interest rate risk. This approach has a strong solvency focus which is closely aligned with APRA's prudential objectives. In addition, by its nature, Tier 1 capital is somewhat similar to an ADI's net asset position. This approach can therefore be considered to be broadly equivalent to the measurement of the interest rate sensitivity of net assets, which is an intuitive measure of risk.

Embedded gains and losses

APS 117 requires ADIs to consider the effect of embedded gains and losses² on the future performance of the ADI but does not require the inclusion of this assessment in the determination of regulatory capital for non-traded interest rate risk.

Ideally, embedded gains and losses should be included in the regulatory capital requirement for non-traded interest rate risk as they have the potential to flow through to future (accrual) values by providing either a drag (in the case of an embedded loss) or a boost (in the case of an embedded gain) to net interest income. In the event of liquidation, embedded gains or losses would be crystallised through the sale of the relevant instruments at market values.

The approach taken in APS 117 is, however, consistent with the Basel Committee's July 2004 principles document and the current approach of ADIs to accruals-based financial accounting.

¹ The components of the capital requirement for basis risk and, in some cases, optionality risk will mostly be based on analysis of earnings impacts. However the usually larger components of repricing and yield curve risk are required to be assessed with an economic value approach.

² Embedded loss is the book value of the banking book minus the economic value of the banking book. If the loss is negative there is an embedded gain.

Pillar 3 disclosure of the regulatory capital requirement for non-traded interest rate risk

For the purpose of ADIs' capital adequacy assessment, APS 117 treats the mandatory capital charge for non-traded interest rate risk in the same manner as the mandatory capital charges for credit risk, operational risk and traded market risk (in other words, treating regulatory capital for non-traded interest rate risk in the same manner as other (Basel II) Pillar 1 risks).³

The term 'Pillar' is not used within APRA's prudential standards. Reference to the terms 'Pillar 1' and 'Pillar 2' becomes relevant in the context of the Basel II Pillar 3 requirements, which deal with market discipline. In this respect, in order to ensure international consistency in Pillar 3 disclosure requirements, APRA will allow the mandatory capital charge for non-traded interest rate risk to be separately disclosed from the regulatory capital charges for credit, operational and traded market risks.

³ The capital charge for non-traded interest rate risk will be converted to a risk-weighted asset equivalent (in the same manner as the capital charge for operational and traded market risks) and will be included in the denominator of the ADI's capital adequacy ratio.

Appendix 1 – Overview of the reporting regime for non-traded interest rate risk

As part of its implementation of the Basel II Framework in Australia, APRA intends to implement a common reporting form for non-traded interest rate risk that will apply to all ADIs. The form will generally measure an ADI's exposure to repricing risk. For those ADIs using the standardised approaches to credit and operational risks, it will form the basis of determining 'outlier' institutions that will be required to maintain a minimum capital ratio that reflects their non-traded interest rate risk.

ADIs will be required to express their banking book items as a series of expected future notional principal cash flows, derived using the repricing assumptions detailed in APS 117.

Separate maturity ladders must be used for each material currency in which an ADI has a non-traded interest rate risk exposure.⁴ Exposures in currencies that are not material may be grouped into a single maturity ladder.

To derive a maturity ladder, notional principal cash flows will be required to be grouped into a series of time bands according to the occurrence of each expected cash flow. The time bands are set out in Table 1.

For each maturity ladder an ADI will be required to calculate its non-traded interest rate risk exposure as follows:

- (a) add the notional principal cash flows in each time band. This will result in a single positive or negative net notional principal cash flow amount for each time band;
- (b) to estimate the sensitivity of the positions in the different time bands to an assumed change in interest rates, multiply the net notional principal cash flow for each time band by the relevant weighting factor detailed in the table above; and
- (c) add the resulting weighted positions from sub-paragraph (b) above to determine the net (positive or negative) weighted position of the banking book for each maturity ladder.

An ADI's total non-traded interest rate risk exposure will be the absolute value of the sum of the net weighted positions as calculated in sub-paragraph (c) above for each maturity ladder.

Table 1 Time bands for notional principal cash flows

Time band	Middle of time band	Proxy of modified duration (years)	Weighting factor ⁵ (%)
<1 month	0.5 months	0.04	0.08
1-3 months	2.0 months	0.16	0.32
3-6 months	4.5 months	0.36	0.72
6-12 months	9.0 months	0.71	1.43
1-2 years	1.5 years	1.38	2.77
2-3 years	2.5 years	2.25	4.49
3-4 years	3.5 years	3.07	6.14
4-5 years	4.5 years	3.85	7.71
5-7 years	6.0 years	5.08	10.15
7-10 years	8.5 years	6.63	13.26
10-15 years	12.5 years	8.92	17.84
15-20 years	17.5 years	11.21	22.43
>20 years	22.5 years	13.01	26.03

⁴ A material currency will be defined as a currency for which the total book value of an ADI's banking book items in that currency is more than five per cent of the total book value of all banking book items.

⁵ These factors are based on an assumed parallel shift of 200 basis points and on a five per cent coupon bond yielding five per cent with maturity in the middle of each time band.



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