



Response to Submissions

Implementation of the Basel II Capital Framework

2. Advanced approaches to credit risk, operational risk and interest rate risk in the banking book

13 June 2007

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Preamble

This paper discusses APRA's response to submissions on its proposals for the use of the advanced approaches under the Basel II Capital Framework by authorised deposit-taking institutions (ADIs). The paper addresses:

- credit risk (first release of the draft *Prudential Standard APS 113 Capital Adequacy: Internal Ratings-based Approach to Credit Risk* (APS 113) in July 2005);
- operational risk (second release of the draft *Prudential Standard APS 115 Capital Adequacy: Advanced Measurement Approaches to Operational Risk* (APS 115) in October 2006); and
- interest rate risk in the banking book (first release of the draft *Prudential Standard APS 117 Capital Adequacy: Interest Rate Risk in the Banking Book* (APS 117) in March 2006).

Final drafts of APS 113, APS 115 and APS 117, together with their respective prudential practice guides, have been released with this paper. These refine APRA's proposals and incorporate a number of amendments suggested in the consultation process.

The Basel II prudential standards will be finalised in late 2007 for implementation on 1 January 2008.

Written submissions on the final draft standards should be forwarded by 27 July 2007 to:

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Important

Submissions will be treated as public unless clearly marked as confidential and the confidential information contained in the submission is identified.

Submissions may be the subject of a request for access made under the *Freedom of Information Act 1982* (FOIA). APRA will determine such requests, if any, in accordance with the provisions of the FOIA.

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Chapter 1 – Internal ratings-based approach to credit risk

Review of submissions

APRA received five submissions on the first draft of *Prudential Standard APS 113 Capital Adequacy: Internal Ratings-based Approach to Credit Risk* (APS 113). This chapter examines the main issues raised and APRA's response in each area. It also addresses issues raised through other channels.

Size thresholds

The issues

There are several size thresholds within the Basel II Framework that are expressed in Euros. APRA proposed to convert these thresholds to Australian dollars on a (fixed) 1:1 basis.

Comments received

No submissions were received arguing against the general appropriateness of the 1:1 basis for conversion.

Clarification was sought about the application of the thresholds in the case of an ADI that has operations in overseas jurisdictions where different (in particular, larger) thresholds might have been set by the relevant host regulators. It was suggested that a more competitively neutral and computationally simpler approach would be to permit the ADI to use host-country rather than Australian thresholds for its overseas subsidiary operations when calculating the group's consolidated capital requirements.

APRA's prudential approach

All institutions with international operations need to deal with a myriad of complications arising out of fluctuating exchange rates. APRA is not convinced that the additional computational effort involved in this instance is exceptional and, on its own, sufficient to justify not applying its proposed thresholds on a consolidated basis.

At this time, APRA is also unconvinced as to the materiality of the impact on an ADI's competitiveness arising out of any likely increase in regulatory capital that might result from differences in host-country thresholds, especially given that regulatory capital is only one of many factors influencing an ADI's competitive position.

That said, in general the thresholds are quantitative boundaries that only affect the calculation of the amount of regulatory capital necessary for a given exposure. The exception to this general statement is the threshold separating SME exposures that are classified as belonging to the retail asset class or the corporate asset class. Where an SME exposure falls outside the retail asset class, not only will the regulatory capital requirement for a given PD/LGD assignment be higher (as it shifts to the corporate risk-weight function) but the ADI will be required to meet different (i.e. corporate) risk management and operational requirements. If APRA were to retain its proposed 1:1 basis for conversion for the retail SME threshold across all jurisdictions, this would not only affect the calculation of regulatory capital for such exposures but also the way such exposures are expected to be managed by the ADI. In this case, APRA accepts that additional costs and other limitations may impact materially on an ADI's competitive position (though the concern is more one for the future given existing market practices in relevant jurisdictions).

The second release of APS 113 therefore permits ADIs, for the purpose of calculating consolidated (Level 2) regulatory capital, to use the retail SME thresholds set by the host regulators of their foreign subsidiaries.

Exposure at default estimates under the foundation IRB (FIRB) approach

The issues

Under the Basel II Framework, the credit conversion factor (CCF) for commitments, note issuance facilities and revolving underwriting facilities within the FIRB approach is 75 per cent.¹ APRA proposed a 100 per cent CCF for such commitments and facilities. This was based on initial data presented by potential IRB applicants for their small and middle market customers.

Comments received

Several comments were received by APRA on this issue. Relevant discussions were also undertaken with IRB applicants.

¹ For off-balance sheet exposures, exposure at default is calculated as the notional amount (or undrawn amount) of the exposure multiplied by a CCF.

APRA's prudential approach

Subsequent to the first release of APS 113, ADIs have provided APRA with additional data on CCFs. Such data support the continuation of a 100 per cent CCF for small and middle market customers. Data remain scarce in the large corporate (wholesale) segment but provide some support for a lower CCF for commitments to corporate obligors that have access to debt securities markets – the latter providing a way of distinguishing obligors for which a lower CCF should apply. Level playing field considerations also point to a lower CCF as the ADIs' global competitors will most likely be operating with a 75 per cent (or possibly lower) CCF for their wholesale clients.

The second release of APS 113 therefore sets a 75 per cent CCF under the FIRB approach for commitments provided to obligors that have access to debt securities markets. A 100 per cent CCF remains in place for other commitments.

Small business exposures in the retail asset class

The issues

APRA proposed that the total exposure of an ADI consolidated banking group to a small-business obligor or group of connected obligors must be less than \$1 million in order for such exposures to be included in the retail asset class.

Comments received

Clarification was sought about APRA's intent in this area. Submissions stated that the inclusion of non-SME retail lending (e.g. non-business related residential mortgage loans to business owners) in the \$1 million threshold would push retail exposures onto the corporate IRB risk-weight curve and would require such exposures to comply with the relevant (corporate) risk management requirements. This outcome would be contradictory to the way those exposures are managed by ADIs. In addition, it was suggested that APRA should include more guidance as to what the term 'connected obligors' would mean in practice.

APRA's prudential response

APRA agrees with the comments made about the inclusion of non-SME retail lending in the \$1 million retail threshold. Consistent with APRA's original intention, the second release of APS 113 states that the total **business-related exposure** of an ADI consolidated banking group to a small-business obligor or group of connected obligors must be less than \$1 million in order for such exposures to be included in the retail asset class.

As to the meaning of the term 'connected obligors', APS 113 requires an ADI to have policies that identify such connected obligors and APG 113 includes examples of criteria that could be considered for this purpose. APRA considers this guidance should be sufficient to deal with ADIs' concerns in this area.

Recognition of other collateral under the FIRB approach

The issues

In the first release of APS 113, APRA did not exercise its discretion to recognise other collateral under the FIRB approach.²

Comments received

Some submissions argued that this proposal would have potential competitive effects and reduce the capital incentives of moving from the standardised approach to credit risk to the FIRB approach.

APRA's prudential approach

For their own modelling and risk management purposes, ADIs in Australia recognise a considerable range of physical assets as collateral including plant, fittings and machinery, motor vehicles, inventories, aircraft, agricultural crops and livestock and non-specialised engineering machinery. However, with few exceptions, they generally either do not hold significant charges over other types of physical collateral or do not assign significant value to them. APRA therefore remains of the view that the exercise of this discretion would not have a large impact on the regulatory capital charge for FIRB ADIs, since the

² In general, the FIRB approach recognises eligible financial collateral and receivables in addition to residential and commercial real estate.

assigned LGD would only reduce from 45 per cent for senior unsecured exposures to 40 per cent for those exposures collateralised by recognised forms of physical collateral.

Treatment of leases

The issues

In the first release of APS 113, APRA proposed to treat leases, other than those that expose an ADI to residual value risk, as unsecured exposures under both the foundation and advanced IRB approaches.

Comments received

Several submissions noted that this proposal was a departure from the Basel II Framework, which allows leases to be treated as collateralised exposures, and added that it could give rise to distortions in business decisions due to the different treatment of collateral between secured lending and leasing activities.

APRA's prudential approach

APRA's proposal was generally consistent with the FIRB approach, since APRA did not recognise other (FIRB) collateral that would most likely secure leasing transactions. However, it was not consistent with the general application of the advanced IRB (AIRB) approach under which an ADI must estimate and validate its own loss given default estimates for secured exposures.

The second release of APS 113 has been amended to allow leasing transactions, other than those that expose an ADI to residual value risk, to be treated as collateralised exposures.³

Definition of default: alignment with APS 220

The issues

Under the IRB approach to credit risk, there is a reference definition of default and an ADI must record actual defaults on exposures and determine credit risk estimates using that reference definition. The reference definition has two legs: the first relates to an obligor's unlikelihood to pay its credit obligations and the second relates specifically to the extent of an

obligor's delinquency. In the initial draft of APS 113, the second leg of the definition was that the obligor is past due more than 90 days on any material credit obligation to the ADI consolidated banking group. The terminology used in APS 113 was consistent with that in the Basel II Framework.

Comments received

Submissions raised the question of how APRA would operationalise the 'material' criterion in the second leg and how the overall definition of default related to APRA's definition of impairment in *Prudential Standard APS 220 Asset Quality* (APS 220).

APRA's prudential approach

APRA agrees that the definitions of default and impairment for regulatory capital purposes should be consistent. The second release of APS 113 has been amended to simply cross reference the definition of default with that of impairment in APS 220. However, one additional indicator of an obligor's unlikelihood to pay its credit obligations is specifically retained in APS 113, since it is not relevant to APS 220 – this is where an ADI sells a credit obligation at a material, credit-related economic loss.

More generally, a range of issues relating to how ADIs identify, record and report delinquency, default and impaired asset information have arisen out of APRA's discussions with ADIs regarding IRB approval as well as other investigations into the reporting of impaired assets. After Basel II implementation, APRA's intention is to seek greater harmonisation of ADI practices in this area. Future changes to relevant regulatory definitions or guidance, including in relation to materiality issues, are likely to be through changes to APS 220 or associated prudential practice guides.

Definition of default: re-aging

The issues

The initial release of APS 113 included additional criteria regarding the re-aging, and hence reclassification to non-default status, of defaulted exposures. APRA proposed that, unless otherwise agreed with APRA, an ADI's re-aging policy should, at a minimum, only allow for the re-aging of a facility

³ In APS 113, leases that expose an ADI to residual value risk are treated in a similar manner to other leases in that the discounted lease payment stream (i.e. the lease receivable amount) must be risk-weighted according to the PD and LGD the ADI assigns to the lessee; however, the residual value of the leased asset must be risk-weighted at 100 per cent.

when all amounts in arrears, inclusive of accrued interest and penalties, have been repaid or the outstanding balance has been reduced to, or below, the advised limit. In the case of a restructured item, re-aging could not occur until the restructured item has operated in accordance with non-concessional terms and conditions for a period of at least six months.

Comments received

Several comments were received relating to technical aspects of APRA's proposal.

APRA's prudential approach

APRA's proposal was aimed at resolving estimation and validation issues stemming from the recording of multiple defaults by the same obligor (i.e. an obligor going in and out of default several times, which can artificially boost observed default rates but lower observed loss given default rates). Subsequently, it has become apparent that the problem of multiple defaults can be more complicated and not always resolved or appropriately dealt with by APRA's proposal. Moreover, by using the term 're-aging', the APRA requirement can cut across an ADI's obligations under consumer credit legislation. APRA has also found that, as institutions have become more aware of the issues involved, they have sought to address the problems caused by multiple defaults in more tailored ways.

Accordingly, the additional paragraph dealing with re-aging has been removed from the second release of APS 113.

Threshold for the use of the top-down approach for purchased corporate receivables

The issues

Under the requirements for purchased corporate receivables, an ADI must determine the regulatory capital charge for default risk using either the 'bottom-up' approach (which is similar to the general IRB corporate approach and requires ADIs to assess the default risk of each individual borrower in the purchased pool of receivables) or the 'top-down' approach (which is similar to the general IRB retail approach and involves the estimation of the one-year

expected loss for the pool of receivables).

Under the Basel II Framework, regulators must establish size or concentration limits above which capital charges must be calculated using the minimum requirements for the bottom-up approach. The first release of APS 113 proposed a \$100,000 limit for this purpose.

Comments received

The only comment received on this proposal was that the threshold should be consistent with the SME retail threshold of \$1 million.

APRA's prudential approach

Currently, ADIs typically have full recourse to the seller of purchased receivables for default risk, which would allow the exposures to be treated as direct exposures to the seller (i.e. as a normal corporate exposure). Consequently, ADIs do not currently have sufficient capacity to implement an effective top-down approach for purchased corporate receivables. Given the immaterial holdings of such receivables, this position is not expected to change in the short term. APRA therefore intends to retain its proposal.

Minimum LGD for exposures secured by residential real estate, including SME corporate exposures

The issues

Consistent with the Basel II Framework, the initial draft of APS 113 included the proposal for a minimum LGD estimate of 10 per cent for exposures in the residential mortgage sub-asset class.

Comments received

Under the AIRB approach for corporate exposures, an ADI may determine its own LGD estimates. The corporate IRB asset class includes SME exposures that do not meet the criteria for inclusion in the IRB retail asset class. Those exposures can be secured by residential properties.

Through the IRB approval process, APRA is aware of a number of IRB applicants that are proposing to assign LGD estimates for SME corporate exposures secured by residential real estate that are below the retail LGD floor set for similar exposures.

APRA's prudential approach

APRA does not consider a lower LGD estimate for equivalent types of collateral between IRB asset classes to be an appropriate outcome.

The second release of APS 113 establishes, under the AIRB approach, an LGD floor for retail and corporate exposures secured by residential real estate of 10 per cent; where considered appropriate, APRA may require an ADI to meet a higher minimum LGD for such exposures.

Outstanding issues

The following issues for APS 113 remain outstanding:

- inclusion of the IRB rules for the recognition of netting which were outstanding in the initial draft of APS 113. APRA's intention is to release the IRB netting rules at the same time as the standardised approach netting rules, which will be incorporated into the soon-to-be released second draft of *Prudential Standard APS 112 Capital Adequacy: Standardised Approach to Credit Risk*;
 - inclusion of the Basel II Framework's revised counterparty credit risk proposals, which would permit ADIs' own estimates in this area. In
- keeping with applicant ADIs' timetables and following consultation with them, APRA has decided to defer into 2008 the development and implementation of the Australian application of the internal modelling approach for counterparty credit risk. This has been done in the interest of expediting other aspects of the Basel II Framework that have greater current relevance to both APRA and the institutions concerned;
 - treatment of margin lending. Both the standardised and IRB approaches to credit risk typically result in a zero capital requirement for ADIs' margin lending exposures. APRA does not regard this as an appropriate outcome. A project is currently underway to determine a more suitable approach; and
 - the IRB treatment of exposures to related entities. Under the current rules, when calculating stand-alone capital requirements, debt exposures to related entities are treated in the same manner as those to unrelated entities; however, under the IRB framework, risk-weights depend on internal credit ratings. It is difficult to see how an ADI could independently rate its exposures to related parties.

Chapter 2 – Advanced measurement approaches to operational risk

Review of submissions

APRA received seven submissions on the second draft of *Prudential Standard APS 115 Capital Adequacy: Advanced Measurement Approaches to Operational Risk* (APS 115). This chapter examines the main issues raised and APRA's response in each area. It also addresses issues raised through other channels.

Conservatism

Issues raised

The second release of APS 115 proposed the requirement that an ADI be conservative in the assumptions used in its operational risk measurement model, including the assessment and incorporation of severe loss events. APRA saw this requirement as necessary to ensure the sufficiency of operational risk regulatory capital.

Comments received

Submissions recommended that the conservatism paragraph should be reworded to be more principles based, since the use of conservative assumptions may not always be necessary or appropriate (especially if, for example, the model adopts stochastic parameters). In addition, submissions recommended that the subjectivity and uncertainty of the operational risk measurement model should be addressed through the application of risk margins to the overall capital result.

APRA's prudential approach

APRA did not intend to lock an ADI into using stochastic parameters, since conservatism may be built into the assumptions that are used to arrive at the parameter values.

APRA is not supportive of an overlay of Pillar I risk margins to produce an overall capital result.

The latest release of APS 115 has extended conservatism to modelling choices in addition to the assumptions used in the operational risk measurement model. It explicitly states that the incorporation of conservatism must consider the results of sensitivity analysis.

Expected loss offsets

The issues

The second release of APS 115 proposed that for operational risk expected loss (EL) to be measured and accounted for to the satisfaction of APRA, the ADI must be able to demonstrate that, among other considerations, the EL offsets are included in the price of related products and services.

Comments received

Submissions suggested that it would be difficult to meet this requirement since the price of related products and services is usually market driven.

APRA's prudential approach

APRA notes that overseas regulators (e.g. the UK Financial Services Authority and the US Federal Reserve Board) are intending to allow a combination of budgeting and pricing for the purpose of an EL offset.

The latest release of APS 115 proposes that the EL offsets be 'considered' instead of 'included' in the pricing of related products and services.

Operational risk management function

The issues

The second release of APS 115 set out the role and responsibilities of an independent specialist operational risk management function.

Comments received

Submissions commented that the draft APS 115 did not recognise the role of the embedded business unit risk function and, in addition, that it needed to reflect the operational risk management's functional role in 'supporting' the implementation of the operational risk management framework.

APRA's prudential approach

The revised standard has now addressed the role of embedded operational risk staff. However, APRA remains of the view that it is the responsibility of the operational risk management function to ensure the consistent implementation of the operational risk management framework.

Economic capital and its use

The issues

The second release of APS 115 proposed that an ADI's operational risk measurement system must be capable of allocating economic capital for operational risk to internal business lines in a sufficiently granular manner that created incentive to improve operational risk management.

Comments received

Industry commented that the draft APS 115 did not adequately recognise drivers other than capital for improving operational risk management.

APRA's prudential approach

APRA's intent was to create incentives to improve operational risk management practices. The revised standard clarifies that capital is only one of the incentives that could be used to influence operational risk management behaviour.

Independent review

The issues

The second release of APS 115 set out requirements for the independent review of the operational risk management framework, both prior to receiving APRA's approval to use an advanced management approach (AMA) and then on an ongoing basis, to ensure the continued integrity of the framework.

Comments received

Submissions commented that the requirements for independent review were focused on assessing the implementation of the existing methodology. It was recommended that the independent review should also consider the overall continuing appropriateness of the methodology in light of industry developments in operational risk modelling practices.

APRA's prudential approach

The revised standard now explicitly requires the independent review to cover the continuing appropriateness and adequacy of the operational risk modelling approach.

AMA data requirement

The issues

APRA proposed that an ADI must have policies relating to its AMA data requirements, which specifically address the data characteristics of confidentiality, integrity and availability.

Comments received

Submissions requested clarification on the interpretation of and APRA's expectations for 'data characteristics of confidentiality, integrity and availability'. In a broader context, APRA has received specific requests for guidance as to how institutions should be managing data.

APRA's prudential approach

In March 2007, APRA wrote to AMA/IRB applicants outlining its expectations in relation to data management principles. The revised standard has clarified the interpretation of data characteristics and incorporated the wording from the relevant sections of the data management principles to ensure consistency.

APRA invites comments on the principles that should be considered in a specific prudential standard on data management. APRA will consult with industry on any proposed prudential standard, but has outlined its expectations on data management principles at this time to facilitate discussions.

Operational risk-related credit losses

The issues

The second release of APS 115 proposed that operational risk-related credit losses that are intrinsically recoverable from the borrower must be treated as credit risk for the purpose of calculating an ADI's minimum regulatory capital requirement.

Comments received

Submissions requested clarification on the use of 'intrinsically recoverable' as a criterion for differentiating losses between operational risk and credit risk.

APRA's prudential approach

In response to comments that the term 'intrinsically recoverable' could not be easily applied, APRA has removed the term from the revised standard. In addition, the standard has been amended to clarify the specific exception of fraud perpetrated by parties other than the borrower that must be treated as operational risk for the purposes of regulatory capital.

Operational risk losses that are related to market risk

The issues

The second release of APS 115 proposed that operational risk losses that are related to market risk must be treated as operational risk for the purpose of calculating operational risk regulatory capital. Positions resulting from operational risk events must be included in the calculation of regulatory capital for traded market risk in line with APRA's soon-to-be-released draft prudential standard on market risk (APS 116).

Comments received

Submissions noted that there is potential for double counting of losses in applying the requirements of APS 115 and APS 116. Clarification was sought on the treatment of operational risk events that are related to market risk.

APRA's prudential approach

All open positions in the trading book must be included in the calculation of traded market risk capital in accordance with APS 116. The revised APS 115 and prudential practice guide have included additional clarification on recording operational risk events that are related to market risk and on the treatment of the (market risk-related) operational risk losses for the purposes of operational risk regulatory capital.

External loss data

The issues

The second release of APS 115 proposed that external loss data must include data on the gross loss amount

and loss event category, information on any recoveries to the extent that these are known, the nature and scale of the operation where the event occurred and any other available information that would assist in assessing the relevance of the loss event to the ADI.

Comments received

Submissions highlighted the need for some flexibility in the requirements for external loss data collection, since the sources of external loss data are limited within the industry.

APRA's prudential approach

APRA has no intention to restrict the sources of external loss data. The revised standard makes it clear that the data requirements for external loss data must be complied with where information is available.

Risk mitigation

The issues

The second release of APS 115 set out requirements that insurance coverage must satisfy in order to recognise insurance as an operational risk mitigant.

Comments received

Submissions commented that the treatment of insurance as a mitigant was overly restrictive and did not align with current insurance practice. For example, the standard proposed that there must be no exclusions or limitations for losses/expenses caused by any statutory authorities.

APRA's prudential approach

The revised standard allows exclusions to be included in the policy subject to APRA's approval. Further guidance on the use of insurance as a risk mitigant is now provided in the prudential practice guide.

Sensitivity analysis

The issues

The second release of APS 115 used the term 'stress testing' to describe the activities outlined in paragraphs 50 and 51 of Attachment B.

Comments received

Submissions recommended that 'sensitivity analysis' would be a more appropriate description of these activities. Submissions also commented that it is difficult to expect the results of sensitivity analysis to influence operational risk loss reporting thresholds.

APRA's prudential approach

The term 'stress testing' has been replaced with 'sensitivity analysis' in Attachment B.

The revised standard clarifies the requirement that the results of sensitivity analysis must be reflected in an ADI's policies and methodology documentation and in the incorporation of conservatism.

Chapter 3 – Interest rate risk in the banking book

Review of submissions

There were nine submissions on the first draft of *Prudential Standard APS 117 Capital Adequacy: Interest Rate Risk in the Banking Book* (APS 117). This chapter examines the main issues raised and APRA's response in each area. It also addresses issues raised through other channels.

Calculation basis

The issues

In the first draft of APS 117, APRA proposed that ADIs should measure the risk of interest rate changes to both earnings and economic value, but the capital requirement is principally based on the risk of loss of economic value. Specifically, APS 117 bases the capital requirement for repricing and yield curve risks on the interest rate sensitivity of the economic value of the ADI's Tier 1 capital, excluding the value of the trading book. There is no direct incorporation of earnings impact into this measure, although APS 117 does identify the possibility of ADIs adopting more sophisticated techniques, such as dynamic simulation, which are able to combine both earnings and economic value impacts. Measures of basis risk and optionality risk may be based in part or whole on earnings impacts, although capital requirements for these risk sources are generally expected to be smaller than for repricing and yield curve risk.

Comments received

Submissions raised a number of concerns about APRA's proposed approach:

- an earnings impact is excluded from the main part of the capital requirement even though it is the principal focus of interest rate risk management for many ADIs at present;
- the capital calculation excludes the impact of a notional portfolio of fixed-rate term bonds issued by the ADI to reflect the shareholders' expectation of a stable stream of earnings on capital – a technique used by most Australian banks in their internal interest rate risk management practices. The term of such a notional portfolio is often referred to as the 'investment term of capital' (iToC). One effect

of using an iToC adjustment is that it introduces some earnings impacts into what is otherwise an entirely economic value-based measure. Some submissions suggested that allowing an iToC adjustment where the portfolio has duration equal to the holding period would provide recognition of the offsets, in the form of increased earnings on capital, that occur through the holding period when interest rate increases cause a fall in economic value;

- the capital calculation treating fixed-rate, interest-bearing Tier 1 instruments separately from the derivatives intended to hedge them means that the hedge is viewed as a large exposed position;
- the treatment of embedded gains and losses is unclear; and
- there is no clear alternative method to be used where model recognition is not obtained.

APRA's prudential approach

APRA recognises that an economic value capital measure is different from the primary focus of most ADIs' current interest rate risk analysis. Economic value provides a focus on solvency under extreme conditions, which is of greatest interest to supervisors and the depositors they are charged with protecting. Earnings analysis is more aligned with shareholder concerns and a normal operating environment.

Similarly, an iToC is a device whose effect is to align economic value analysis with shareholder interests, notably in terms of receiving a steady stream of earnings. APRA recognises that use of an iToC can be valid in a solvency context if its effect is limited to providing an offset arising from changes in earnings over the holding period. An iToC with duration equal to the holding period would approximate the earnings offset achievable if the ADI were to lock in its banking book portfolio at the start of the holding period and not update it during the period (so the duration at the end of the period would be one year shorter). APRA considers a more realistic model is where an ADI continually updates its banking book portfolio to keep the net duration constant throughout the holding period. In such a situation, the earnings offset arising is the same as that created by an iToC with duration

equal to half the holding period. The revised standard introduces an 'earnings offset' adjustment of this nature. It has the form of a notional portfolio of swaps, on a monthly moving average basis out to one year, so that average duration is six months.

The difficulty with the treatment of hedges over interest-bearing Tier 1 instruments arises because the hedges are payable in cases where the interest flows they are hedging are not payable. The revised standard addresses ADIs' concerns about treatment of the hedges by changing the capital requirement to be based on the interest rate sensitivity of the economic value of the ADI's Fundamental Tier 1 capital, excluding the value of the trading book. This removes the separation that existed in the initial draft APS 117 between the hedges and the interest-bearing Tier 1 capital items. Nevertheless, APRA remains concerned about the residual interest rate risk created by interest rate hedges over interest-bearing capital instruments in Tier 1 or Tier 2, which could degrade depositor protection if a hedge is out of the money in a liquidation. Accordingly, APRA will pay particular attention to large, long-term, fixed-rate capital exposures, and their hedges, in assessing an institution's overall risk. APRA will expect ADIs to monitor these potential exposures at a suitably senior level in the organisation.

The revised standard provides a clearer and more formal treatment of embedded gains and losses by explicitly including them in the capital requirement – as an addition if they are losses or a deduction if they are gains – subject to the non-traded interest rate risk regulatory capital requirement not being less than zero.

Unlike for operational and credit risk, there is no prescribed standard method for determining capital for non-traded interest rate risk. That is because ADIs that do not use the AMA approach to operational risk and the IRB approach to credit risk will not, in general, be required to hold capital against non-traded interest rate risk. Where an ADI is required to hold such capital but does not have model approval, a means of determining capital will be formulated which is appropriate to the risks of that ADI. ADIs should not assume that that method would be a 200-basis

point parallel shift test as outlined in Annex 4 of the Basel principles document, as that test addresses only repricing risk.⁴

Holding period

The issues

The initial release of APS 117 proposed that the non-traded interest rate risk regulatory capital requirement be based on a one-year holding period.

Comments received

Most submissions argued that a one-year holding period was too long. The principal reason cited was that positions could be liquidated to remove risk in a much shorter period. It was also suggested that potential for regulatory arbitrage against the trading book could arise, because the capital requirement for an interest rate exposure in the trading book would be only around 60 per cent of what it would be in the banking book.

Other matters raised were:

- whether it is acceptable to scale up daily VaR figures to one year using a 'square root of time' approach;
- whether an historical sampling approach is acceptable for estimating the 99th percentile; and
- whether some types of ADIs could use shorter holding periods than others if they have differently structured banking books.

APRA's prudential approach

APRA acknowledges that there is no 'correct' holding period. Portfolios could be liquidated in a shorter time than one year, but there is no guarantee as to how large losses may become before an ADI would decide to do so.

The holding period principally determines the scaling of the capital requirement. The capital requirement has a different scale between banking and trading book positions. However, given the greater uncertainty regarding a number of model assumptions in the banking book, especially as they relate to customer behaviour, this does not appear unreasonable. APRA

⁴ *Principles for the Management and Supervision of Interest Rate Risk*, Basel Committee on Banking Supervision, July 2004.

also notes that the accounting treatment common for the trading book, namely daily mark-to-market, provides a level of transparency and discipline that does not exist in the banking book.

While the Basel II Framework does not prescribe a capital requirement for interest rate risk, the Basel principles document envisages using a one-year holding period with a 99 per cent confidence level for measuring risk. In the absence of compelling arguments to the contrary, APRA considers it preferable to use the same holding periods and confidence level as envisaged in the Basel document.

The one year holding period will apply to all ADIs subject to APS 117, but only for the purpose of determining the non-traded interest rate risk regulatory capital requirement. ADIs are free to use whatever holding period they feel appropriate in calculations for their own risk control purposes, economic capital and other management functions.

The revised standard does not prescribe a means of estimating the 99th percentile. Historical sampling is an acceptable approach, as also would be Monte Carlo or parametric approaches. Scaling results from shorter periods up to one year would also be acceptable, although the scaling should be applied to interest rate changes and revaluation then performed, rather than simply scaling VaR results. This is important because convexity can have a considerable effect over a one-year period.

Repricing assumptions

The issues

The initial release of APS 117 proposed that ADIs would need to make repricing assumptions regarding items that do not have a contractually defined repricing date. The draft standard only prescribed how these assumptions should work for straightforward items; for most items where behavioural considerations come into play, ADIs would be expected to develop their own assumptions, supported by analysis.

Comments received

Questions raised in submissions included:

- whether it is acceptable to use repricing assumptions that are not constant throughout the year, for accounts where interest rate changes may occur at particular times of the year;
- whether run-off analysis of account 'stickiness' is an acceptable technique for justifying a non-zero duration of at-call transaction accounts; and
- whether it might be desirable for APRA to prescribe repricing assumptions for at-call transaction accounts.

APRA's prudential approach

The revised standard remains non-prescriptive about repricing assumptions, including those for at-call transaction accounts. APRA recognises that there are differences between institutions and their customer bases and that it is feasible for them to use different repricing assumptions for items such as at-call transaction accounts. The revised standard states that the repricing assumptions must be clearly documented and supported by appropriate analysis. In general, analysis such as run-off 'stickiness' would be considered acceptable. In cases where an ADI's assumptions are significantly different from those of other ADIs, a greater depth of analysis may be required.

Repricing assumptions will not be required to be constant throughout the year, if the ADI can demonstrate that a pattern is observable.

Interest payment frequency

The issues

APRA proposed that the frequency of modelled interest payments relating to a modelled principal payment should reflect the frequency most commonly applicable to wholesale instruments of a comparable term from inception to payment.

Comments received

The suggestion was made that this requirement on the model is overprescriptive and should be removed.

APRA's prudential approach

The requirement has been removed from the revised standard.

Basis risk

The issues

The initial release of APS 117 proposed that ADIs be required to hold capital against basis risk. No particular method was prescribed, other than that any method must meet the 'soundness standard' of 99 per cent confidence over a one-year holding period and must explain the historical variation of margins between product interest rates and the implied cost of funds.

Comments received

Some submissions suggested that basis risk was more likely to lead to positive rather than negative profit variations and that, therefore, no capital should be required. Others suggested that the effects of leads and lags between wholesale and customer rates should be excluded from basis risk, because these fall under the classification of 'business risk' and often provide a benefit to the ADI. There was concern that, because basis risk measurements are typically earnings based, double-counting of risk could arise between basis risk and the economic value-based measurement of repricing and yield curve risk.

The question was also asked whether an approach similar to that outlined in the draft prudential practice guide APG 117 would be acceptable.

APRA's prudential approach

APRA is aware that techniques for measuring basis risk are in their infancy. For that reason, the standard is non-prescriptive about methodology. It is also true that basis risk can often lead to positive outcomes and, for some ADIs, this may be the usual case. Nevertheless, while the possibility of significant negative outcomes exists, they must be considered. Accordingly, and consistent with the Basel Committee, APRA believes that basis risk should be included in measurements of interest rate risk. The revised

standard includes basis risk and does not exclude leads and lags. Although these may be classifiable under business risk, they also arise out of changes in interest rates and APRA considers it is appropriate to include them under interest rate risk. If an ADI's analysis shows that losses from such events are rare and/or small, the capital estimate would consequently be expected to be low.

Because different methods will typically be used to measure basis risk as opposed to repricing and yield curve risks, it is possible that overstatement of risk may occur if estimates for these two risks are added without adjustment. Such overstatement may often not be significant but, where there is concern, adjustment is possible by applying diversification benefits, as permitted under paragraph 23(c) of Attachment B to APS 117.

The example of basis risk in APG 117 is not intended to represent a method of measuring basis risk, but rather an example of how it can arise. Nevertheless, a method that simulated scenarios for product rates and implied cost of funds, measured cumulative shortfall over a year and took the 99th percentile, would be likely to be considered acceptable, although APRA does not suggest that is the only approach that would be acceptable.

Optionality risk

The issues

The initial release of APS 117 proposed that ADIs be required to hold capital against optionality risk. As with basis risk, there was no prescription as to what method should be used, other than that it must meet the 'soundness standard' of 99 per cent confidence over a one-year holding period and accurately capture the unique risks associated with optionality, including the non-linear price characteristics of implicit option positions.

Comments received

Confirmation was sought that derivatives used to mitigate risk on anticipated future new business would not need to be included in the analysis until the future new business actually started. Submissions also asked whether stress test approaches to optionality risk would be acceptable.

APRA's prudential approach

The revised standard requires all interest rate derivatives to be included in the analysis. If they relate to future business that is locked in, both the future business and the derivatives should be included and the exposures would be expected to offset one another, at least partly. However, if the new business is not definite, as for example is the case with a rate-lock facility, then optionality risk exists, which must be reflected in the ADI's calculations.

Stress test approaches may be acceptable for measuring optionality risk, provided the stresses are suitably chosen to capture the major risks arising out of optionality.

Model track record

The issues

The initial release of APS 117 proposed that ADIs be required to have a 12 month track record in the use of their non-traded interest rate risk measurement model before approval would be given.

Comments received

Some submissions suggested that the requirement for a 12-month track record was too onerous and would prevent most ADIs from gaining accreditation before 1 January 2008.

APRA's prudential approach

The revised standard does not prescribe a minimum of 12 months for the model's track record.

Qualitative requirements

The issues

The initial release of APS 117 set out a system of qualitative requirements that needed to be met by ADIs in relation to the management of non-traded interest rate risk.

Comments received

A number of submissions suggested that the qualitative requirements were too onerous and required the ADI's board to be too involved in the

detail of non-traded interest rate risk management. It was also suggested that there was some duplication in the qualitative requirements.

One submission asked whether the requirements applied to directors of 'Level 1 ADIs' (subsidiaries in a banking group) as well as 'Level 2 ADIs' (the parents of banking groups) and whether the existence of a group capital allocation mechanism might remove the requirement for Level 1 ADIs. Another submission asked whether it is acceptable for the independent non-traded interest rate risk management function to consist of two separate teams.

APRA's prudential approach

The qualitative requirements in the revised standard reflect a review by APRA of the original requirements and a comparison with the requirements for credit and operational risks. In response to issues raised, the qualitative requirements have been somewhat reduced and streamlined.

Qualitative requirements on the board of an ADI apply regardless of whether the ADI is a parent or subsidiary within a group. The existence of a group capital allocation mechanism has no effect on this.

There is no intrinsic reason why an independent non-traded interest rate risk management function made up of two separate teams would be considered unacceptable.

Scope of the standard

The issues

APRA proposed that APS 117 apply to all ADIs that have approval to use the IRB approach to credit risk or the AMA to operational risk. All requirements of the standard would apply to those ADIs.

Comments received

The question was raised whether an ADI that had very little exposure to non-traded interest rate risk would be exempted from some of the qualitative requirements and/or be allowed to use a simplified measurement approach. Some ADIs to whom the standard would not apply asked what the standard implied in terms of APRA's expectations of them.

APRA's prudential approach

The revised standard does not provide for any exemption from the qualitative requirements. APRA's view is that ADIs with the intent and capability to adopt the IRB and AMA approaches should also have robust and comprehensive systems for managing non-traded interest rate risk. Although this risk may be low at a particular point in time or over a period, it cannot be relied upon to remain that way indefinitely.

The revised standard confirms that ADIs that do not have APRA approval to use the IRB/AMA approaches are not subject to the standard. However, such ADIs are encouraged to adopt, for their own internal purposes, the general requirements and risk measurement principles of APS 117 to manage, measure and monitor exposure to non-traded interest rate risk. APRA would expect that such adoption would be on a broad principles basis and would not seek to mirror the exact requirements, which have been devised with large, complex institutions in mind.

Significance and materiality

The issues

The initial release of APS 117 provided that, where an ADI is able to demonstrate to APRA that the potential loss from its exposure to basis and/or optionality risks is not significant when compared to the potential loss arising from repricing and yield curve risks, APRA may approve the exclusion of basis and/or optionality risks from the ADI's non-traded interest rate risk regulatory capital requirement. There are also a number of places in the standard where reference is made to materiality.

Comments received

Submissions requested that APRA specify what would be considered significant or material in this context.

APRA's prudential approach

The revised standard does not specify what would be considered significant or material. APRA's view is that it is not desirable to provide general definitions of these concepts, as they are very dependent on context. ADIs wishing to disregard an item or risk on the grounds of immateriality or insignificance

should outline their reasons for doing so, including supporting analysis, and submit as part of their application for model accreditation. Simple assertions of immateriality are unlikely to be persuasive.

Subsidiaries of foreign banks

The issues

APRA proposed that subsidiaries of foreign banks be subject to APS 117 if they are using IRB or AMA models.

Comments received

Some subsidiaries of foreign banks that will be seeking to use IRB/AMA approaches have asked how the standard should apply to them and whether they will apply to APRA or to their home regulator for accreditation of their non-traded interest rate risk measurement model.

APRA's prudential approach

Applications for approval of non-traded interest rate risk measurement models by local subsidiaries of foreign banks must be made to APRA, consistent with the treatment of applications for approval of IRB/AMA approaches. This ensures the consistent treatment of foreign-owned and domestically owned ADIs.

Material currencies

The issues

APRA proposed that ADIs be required to model at least one yield curve in each material currency. A material currency is defined as a currency for which the total book value of the ADI's banking book items in that currency is more than five per cent of the total book value of all banking book items.

Comments received

One submission asked whether a physical exposure to a foreign currency can be disregarded for the purpose of determining whether that currency must be treated as a material currency, if the exposure is hedged back to Australian dollars.

APRA's prudential approach

The revised standard clarifies this point by indicating that, where an exposure in one currency is hedged into a different currency, it can be treated as an exposure in the latter currency for the purposes of the standard, provided the hedge is effective. Hence, a foreign currency exposure that is effectively hedged to Australian dollars need not count towards determining whether that foreign currency must be treated as a material currency.



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