Information Paper

International capital comparison study

13 July 2015

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Glossary

Term	Definition
ABA	Australian Bankers' Association
Additional Tier 1 (AT1) capital	Capital instruments that provide loss-absorption but do not satisfy all of the criteria for inclusion in Common Equity Tier 1 capital
ADI	Authorised deposit-taking institution
APRA	Australian Prudential Regulation Authority
Basel Committee	Basel Committee on Banking Supervision
Basel I	Basel Committee, *International convergence of capital measurement and capital standards*, July 1988; and Basel Committee, *Overview of the amendment to the capital accord to incorporate market risks*, January 1996
Basel II	Basel Committee, *International Convergence of Capital Measurement and Capital Standards. A Revised Framework — Comprehensive Version*, June 2006
Basel III	Basel Committee, *Basel III: A global regulatory framework for more resilient banks and banking systems*, December 2010 (revised June 2011)
Common Equity Tier 1 (CET1) capital	The highest quality component of capital. It is subordinated to all other elements of funding, absorbs losses as and when they occur, has full flexibility of dividend payments and has no maturity date
CCF	Credit conversion factor
FSI	Financial System Inquiry
IRB	Internal ratings-based approach to credit risk
IRRBB	Interest rate risk in the banking book
LGD	Loss-given-default
Major banks	Australia and New Zealand Banking Group Limited, Commonwealth Bank of Australia, National Australia Bank Limited and Westpac Banking Corporation
PD	Probability of default

Term	Definition
QIS	Quantitative impact study
RCAP	Regulatory Consistency Assessment Programme
RWAs	Risk-weighted assets
S&P	Standard & Poor's
Tier 1 capital	Capital that provides loss-absorption, comprising Common Equity Tier 1 capital and Additional Tier 1 capital
Tier 2 capital	Capital instruments that provide loss-absorption but do not satisfy the criteria for Common Equity Tier 1 capital or Additional Tier 1 capital
Total capital	The sum of Tier 1 capital and Tier 2 capital

Executive summary

The Financial System Inquiry (FSI) recommended that *'…capital standards [should be set] such that Australian authorised deposit-taking institution capital ratios are unquestionably strong'*.[1] To this end, a baseline target in the top quartile of internationally-active banks was proposed.

The Australian Prudential Regulation Authority (APRA) fully supports the FSI's recommendation that the capital ratios of Australian authorised deposit-taking institutions (ADIs) should be 'unquestionably strong'.

An important first step in addressing the FSI's recommendation is to estimate the capital position of Australian ADIs relative to their international peers. As detailed in the FSI's Final Report, this is complex given:

- varied national discretions exercised in implementing the global capital adequacy framework, known as the Basel framework, by different jurisdictions, including Australia;
- the determination of an appropriate international peer group; and
- the different measures of capital adequacy that can be used for any comparison.

As a result, there is no internationally-harmonised capital ratio that provides a definitive measure of capital adequacy for the purposes of international comparisons. This study therefore details APRA's analysis of the comparative capital adequacy position of Australia's four largest banks (major banks) against a set of global peers, using a range of measures of capital strength.

Relative position

If, where reliable estimation is possible, domestic regulatory requirements were measured in a manner closer to common international supervisory practice, APRA estimates that reported Common Equity Tier 1 (CET1) capital ratios of the Australian major banks would, on average, be in the order of 300 basis points higher. With some caveats, other measures of risk-based capital would increase by a similar magnitude. In broad terms, this is accounted for by:

- around 100 basis points in differences due to APRA's definition of capital; and
- around 200 basis points due to differences in the calculation of risk-weighted assets (RWAs).

These adjusted ratios support APRA's view that the Australian major banks are well-capitalised, but they would not place the banks in the top quartile of their international peers, as proposed by the FSI. APRA's analysis finds that, on an adjusted basis, Australia's major banks:

- are above the median, but not in the top (fourth) quartile, for CET1 ratios; and
- rank similarly or lower for other measures of capital adequacy (Tier 1, Total capital and leverage).[2]

These findings reinforce the broad conclusions of the FSI.

Achieving the fourth quartile

The FSI did not set out a specific target for the relative positioning of capital ratios, beyond proposing they be positioned in the top quartile. As this study shows, the top (fourth) quartile captures a wide range of possible outcomes. For the purpose of this analysis, APRA has used the 75th percentile (i.e. the bottom of the fourth quartile) as a benchmark. This provides an estimate of the *minimum* adjustment needed if the FSI's suggestion is to be achieved.

1 Financial System Inquiry, *Final Report*, November 2014, page 41.

2 This study uses the convention that the first (lowest) quartile represents the range from the bottom of the distribution to the 25th percentile, the second quartile represents the range from the 25th percentile to the median and so on.

Broadly, APRA's analysis finds that, on average:

- positioning CET1 capital ratios at the bottom of the fourth quartile would require an increase of around 70 basis points in CET1 capital ratios; and
- to simultaneously achieve a position in the fourth quartile for all four measures of capital adequacy, the increase in the capital ratios of the major banks would need to be significantly larger, albeit that there are more substantial caveats on the ability to accurately measure the relative positioning of Australian banks using measures other than CET1.

The conclusions of this analysis are, on balance, likely to provide a conservative scenario for Australia's major banks, given:

- limitations on data availability have meant that certain adjustments that might otherwise have unfavourably impacted the relative position of the Australian major banks have not been possible. These relate to (i) the exclusion of upward adjustments to the capital ratios of some foreign banks, and (ii) the exclusion of the impact of the capital floor on the capital ratios of the Australian major banks;
- anticipated changes arising from the Basel Committee on Banking Supervision's (Basel Committee) review of variability in RWAs will possibly lead to a relatively lower position for the Australian major banks; and
- international peer banks are continuing to build their capital levels – over the past couple of years, the major banks have seen a deterioration in their relative position, despite an increasing trend in their reported capital ratios.

Next steps

The results of this study will inform, but not determine, APRA's approach for setting capital adequacy requirements. While APRA is fully supportive of the FSI's recommendation that Australian ADIs should be unquestionably strong, it does not intend to tightly tie that definition to a benchmark based on the capital ratios of foreign banks. APRA sees fourth quartile positioning as a useful 'sense check' of the strength of the Australian capital framework against those used elsewhere, but does not intend to directly link Australian requirements to a continually moving benchmark such that frequent recalibration would be necessary.

APRA will be responding to the recommendations of the FSI as soon as possible, bearing in mind the need for a coordinated approach that factors in international initiatives that are still in the pipeline. This will mean that, whilst APRA will seek to act promptly on matters that are relatively straight-forward to address, any final response to the determination of unquestionably strong will inevitably require further consideration. In practice, this will be a two-stage process as:

- APRA intends to announce its response to the FSI's recommendation regarding mortgage risk weights shortly. To the extent this involves an increase in required capital for residential mortgage exposures of the major banks, and the banks respond by increasing their actual capital levels to maintain their existing reported capital ratios, it will have the effect of shifting these banks towards a stronger relative positioning against their global peers; and
- other changes are likely to require greater clarity on the deliberations of the Basel Committee (unlikely to be before end-2015) before additional domestic proposals are initiated.

As a result of these factors, and the broader caveats contained in this study, an accurate measure of the increase in capital ratios that would be necessary in order to achieve fourth quartile positioning is difficult to ascertain at this time. A better picture is likely to become available over time as, in particular, international policy changes are settled. Based on the best information currently available, APRA's view is that the Australian major banks are likely to need to increase their capital ratios by at least 200 basis points, relative to their position in June 2014, to be comfortably positioned in the fourth quartile

over the medium- to long-term. This judgement is driven by a range of considerations, including:

- the findings of this study;
- the potential impact of future policy changes emerging from the Basel Committee; and
- the trend for peer banks to continue to strengthen their capital ratios.

In instituting any changes to its policy framework, APRA is committed to ensuring any strengthening of capital requirements is done in an orderly manner, such that Australian ADIs can manage the impact of any changes without undue disruption to their business plans. Furthermore, this study has focussed on the Australian major banks; the impact of any future policy adjustments, if any, is likely to be less material for smaller ADIs.

The benefits of having an unquestionably strong banking sector are clear, both for the financial system itself and the Australian community that it serves. Furthermore, Australian ADIs should, provided they take sensible opportunities to accumulate capital, be well-placed to accommodate any strengthening of capital adequacy requirements that APRA implements over the next few years.

Chapter 1 — Introduction

In December 2014, the FSI presented its final report on the Australian financial system to the Commonwealth Government. The first recommendation of the FSI was that APRA should '*set capital standards such that Australian authorised deposit-taking institution capital ratios are unquestionably strong*'.[3] To this end, a target of being in the top quartile of internationally-active banks was proposed. Furthermore, according to the FSI, while this principle should apply to all ADIs, it is of particular importance for ADIs that pose systemic risks or require access to international funding markets.

APRA fully agrees with the FSI's recommendation that the capital ratios of Australian ADIs should be unquestionably strong; strong capital adequacy ratios will enhance the resilience of the financial system, ultimately adding to the welfare of the broader Australian community.

Australia's capital adequacy framework is based on the internationally-agreed Basel framework (see Box 1 for a high-level description of the framework). The Basel framework recognises that global minimum standards, while critical to ensuring a minimum level of financial soundness amongst internationally-active banks, may not always be able to adequately deal with specific domestic conditions. For this reason, the framework:

- allows individual jurisdictions to implement more robust requirements where they consider it necessary; and
- in some areas, makes specific provision for national discretion in the manner in which some requirements are implemented.

Most jurisdictions have implemented the Basel framework in a manner that exceeds the global minima that have been agreed. In some cases,

Box 1: The Basel framework

The Basel capital adequacy framework is based on three Pillars:

- Pillar 1 establishes quantitative measures of capital adequacy, and minimum capital ratios;
- Pillar 2 establishes a methodology for supervisors to assess individual banks' risk profiles and determine whether a bank's Pillar 1 capital requirements might need to be increased; and
- Pillar 3 establishes minimum public disclosure requirements to improve the market's understanding of a bank's capital structure and risk profile.

The Pillar 1 requirements consist of a definition of eligible regulatory capital (the capital base), and a measure of risk (RWAs). Capital ratios are expressed as the ratio of the capital base to RWAs.

At its core, the capital base comprises shareholders' funds and retained earnings. Preference shares and various subordinated debt instruments may also be included, provided they meet conditions that ensure they are available to absorb loss in certain circumstances.

Total RWAs are derived from measures of the credit risk, operational risk and market risk to which a bank is exposed. RWAs may be determined using either the standardised approach in which the measure of risk is prescribed by the supervisor or, if approved by the supervisor, an internal model which utilises a bank's own risk measures.

Banks with approved internal models need to make, and maintain, substantial investment in risk measurement and modelling systems and controls, and in specialist staff skills. The four Australian major banks are all accredited to apply the modelling approaches to determine their RWAs.

3 Financial System Inquiry, *Final Report*, November 2014, page 41.

this has been by way of simply raising minimum capital requirements. In others (including Australia), it has been through more targeted measures that strengthen the definition of capital and RWAs. Other jurisdictions have implemented requirements above the minima in ways that may not be readily observable, such as through non-public adjustments to individual banks' minimum capital adequacy requirements. In some cases, a combination of the above approaches has been used.

As a result, both the FSI and APRA have noted that a direct comparison of banks' capital adequacy ratios across jurisdictions is challenging. There is no single, internationally-harmonised measure of capital adequacy that is publicly available.

APRA's response to the FSI Interim Report noted that: '*Many jurisdictions have… adopted domestic measures that are more conservative than the internationally agreed minimum standards. National authorities are also increasingly making use of macroprudential adjustments within the regulatory framework, which can lead to additional changes to capital requirements and risk weights in response to increased levels of risk. As a result of these additional requirements imposed by national authorities, computing a precise 'internationally harmonised' capital ratio is not practically possible*'.[4] This point is also acknowledged in a report commissioned by the Australian Bankers' Association (ABA) and submitted to the FSI.[5]

In an attempt to overcome these complexities, this study analyses the impact of these differences on a range of measures of capital adequacy for Australia's major banks, utilising information drawn from various studies undertaken by the Basel Committee, the industry's own study on this matter, and APRA's own judgement. Rather than seeking to precisely define the relative position of Australia's banks against their international peers based on a single capital ratio, this study draws some broad conclusions based on a range of measures of capital strength.

Chapter 2 considers an appropriate peer group for the purpose of comparing the relevant measures of capital adequacy. Chapter 3 discusses the adjustments APRA has made to estimate comparison ratios. Chapter 4 presents the results of APRA's analysis and compares this against other relevant studies. Chapter 5 sets out the broad conclusions and next steps.

4 APRA, *Response to the Interim Report*, August 2014, page 53.

5 PwC, *International comparability of capital ratios of Australia's major banks*, commissioned by the ABA, August 2014, page 3.

Chapter 2 — Scope of the comparison

2.1 Selection of banks for the capital comparison

2.1.1 Australian ADIs

In making its recommendation on ADI capital adequacy ratios, the FSI stated that having unquestionably strong capital ratios was important for all ADIs, but was of particular importance for those that pose systemic risks or require access to international funding markets. APRA has previously identified the four major banks as systemically important, and these banks are the largest Australian debt issuers in foreign capital markets. [6] While APRA agrees that an unquestionably strong capital standard should apply to all ADIs, for the purpose of this study APRA has limited the analysis to the four major banks. A focus on Australia's major banks is also consistent with other similar studies.

2.1.2 International peer banks

APRA has considered two alternative peer groups of international banks.

The first draws on the Basel Committee's most recent quantitative impact study (QIS). Every six months, the Basel Committee publishes a QIS to monitor the impact of the implementation of the Basel III framework. The QIS collects data from over 200 banks from the Basel Committee's 27 member jurisdictions (including Australia). These banks form a diverse group both in terms of geographic location and business model.

Slightly less than half of the banks in this study are classified as both large and internationally active; the latest Basel QIS includes 98 such 'Group 1' banks, including the Australian major banks.[7]

One key advantage of the Basel QIS is that 'fully phased-in' capital adequacy ratios are published: these ratios are based on a consistent definition of regulatory capital.[8] The Basel QIS, therefore, provides a view of the capital base (the numerator of the capital adequacy ratios) that is, to the maximum extent possible, internationally harmonised.[9] Jurisdictional differences between banks are limited mainly to RWAs (the denominator of the risk-based capital adequacy ratios).

A disadvantage of the Basel QIS is that the names of the included banks are not disclosed. Without knowing which non-Australian banks are included, APRA is unable to make any further adjustments to the capital adequacy ratios of these banks to allow a more consistent comparison. It is also possible that some of the 94 non-Australian Group 1 banks are not obvious peers of the Australian major banks, though the relatively large sample size would limit the impact of any individual banks on the overall distribution of capital adequacy ratios.

The second approach to determining a relevant peer group involved APRA compiling a bespoke list of potential peers of the Australian major banks, based on publicly available data. In developing such a list, APRA took advantage of the Basel Committee's requirement that banks with a leverage ratio exposure measure exceeding €200 billion should publicly disclose various indicators that are used to assess which banks are regarded as systemically important on a global basis. Utilising this information, APRA constructed an

6 APRA, *Domestic systemically important banks in Australia*, December 2013.

7 Basel Committee, *Basel III monitoring report*, March 2015. The 98 Group 1 banks are located in 21 member jurisdictions: Australia, Belgium, Brazil, Canada, China, France, Germany, India, Italy, Japan, Korea, the Netherlands, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

8 The Basel III framework significantly amended the determination of regulatory capital, the numerator of the capital adequacy ratios. These amendments are currently being implemented in jurisdictions across the world, but different jurisdictions are at different stages of implementation.

9 There is one important caveat for legacy capital instruments – see section 2.2.

alternative peer list comprising 63 banks (including the four Australian major banks).

A drawback of this alternative is that the capital base for each bank is reported based on the approach and timetable of its home jurisdiction in implementing Basel III, rather than on a fully phased-in internationally-harmonised basis used by the Basel Committee's QIS. To make meaningful comparisons would require significant assumptions to be made and, even then, APRA's view is the results would be considerably less reliable than the Basel QIS.

A comparison of the distribution of reported CET1 capital adequacy ratios for the Basel QIS Group 1 banks and the alternative peer list reveals that they are very similar (refer to Table 1). Therefore, at least for reported CET1 capital adequacy ratios, the use of Basel QIS Group 1 banks does not appear to materially affect the broad distribution of the ratios.

Given the similar distribution of reported capital adequacy ratios, but the harmonised capital base available for Basel QIS Group 1 banks, APRA considered the Basel QIS peer group to be superior to the alternative peer group for the purpose of this study.

Table 1: Distribution of reported CET1 ratios (%)

	Basel QIS Group 1	Alternative peer list[10]
Maximum	20.9	20.7
75th percentile	13.3	13.3
Median	11.6	11.8
25th percentile	10.2	10.6
Minimum	8.3	8.6

Sources: Basel Committee, *Basel III monitoring report*, March 2015, based on June 2014 data, and bank financial statements and Pillar 3 disclosures for September 2014 (or nearest).

10 The alternative peer list reflects 61 peer banks selected from the banks meeting the global systemically important bank disclosures requirement and two large Singaporean banks, Oversea-Chinese Banking Corporation and United Overseas Bank, that APRA elected to add to the list – see Appendix 2.

2.2 Relevant capital measures

The Basel III framework includes four measures of capital adequacy: CET1, Tier 1, Total capital and leverage. The first three of these involve various measures of the capital base, but all use RWAs as the denominator of the ratio. The leverage ratio uses Tier 1 capital as the numerator but the denominator is not risk-weighted. Banks are required to meet the risk-based ratios and, in time, it is envisaged banks will also be required to meet a minimum leverage ratio.

Market participants generally focus on the CET1 ratio as the prime measure of capital adequacy for banks, as it comprises the highest quality capital. Tier 1 includes Additional Tier 1 (AT1) capital, which is also capable of absorbing losses on a going-concern basis but is less subordinated than CET1 capital. Total capital also includes Tier 2 capital, which is available to absorb losses only when a non-viability event is triggered or in liquidation. The leverage ratio provides a non-risk-based measure of bank leverage; it also avoids model risk and measurement error that may be present in estimating RWAs. These measures are summarised in Table 2. This study has regard to all of these measures of capital adequacy, as each provides a different perspective regarding the capacity of a bank to absorb losses.

Table 2: Capital adequacy ratios

CET1 capital ratio (minimum 4.5 per cent)
$\frac{\text{CET1 capital}}{\text{Total RWAs}}$
Tier 1 capital ratio (minimum 6 per cent)
$\frac{\text{Tier 1 capital (CET1 capital plus AT1 capital)}}{\text{Total RWAs}}$
Total capital ratio (minimum 8 per cent)
$\frac{\text{Total capital (Tier 1 capital plus Tier 2 capital)}}{\text{Total RWAs}}$
Leverage ratio (minimum yet to be finalised)
$\frac{\text{Tier 1 capital (CET1 capital plus AT1 capital)}}{\text{Exposure measure}}$

While the Basel QIS provides a consistent measure of the Basel III capital base, it is important to note that a comparison of the non-CET1 capital measures is made more complex due to the treatment of certain legacy (pre-Basel III) capital instruments included in Tier 1 and Total capital. The Basel QIS capital adequacy ratios are fully phased-in and as such do not include legacy AT1 and Tier 2 capital instruments that do not meet the new eligibility requirements introduced by Basel III, but continue to be included in the capital base of banks under transitional provisions. A key determinant of the extent of any such legacy instruments is whether a bank operates in a jurisdiction with contractual, rather than statutory, bail-in arrangements.[11] In the former, legacy instruments must be redeemed and replaced over time. In the latter, existing instruments are automatically eligible (provided they meet all other criteria).

The exclusion of legacy instruments results in approximately half of these capital instruments issued by the Australian major banks being excluded from their Basel QIS-reported ratios. The legacy instruments of banks in jurisdictions that have made provision for statutory bail-in are included in full. Banks in statutory bail-in jurisdictions will therefore tend to report relatively more AT1 and Tier 2 capital than other jurisdictions such as Australia during the period of transition.[12] Given the names of the individual banks are not disclosed in the Basel QIS, it is not possible to adjust for this transitional legacy capital issue. The effect of this issue will diminish over time as legacy instruments are replaced, but does mean there is less comparability in non-CET1 ratios at the present time.

11 Under Basel III, non-equity capital instruments must be capable of being converted to equity or written off if various triggers are breached. In some jurisdictions, this is implemented by way of statutory (i.e. legislative) provisions. In others (including Australia), it is implemented through a contractual regime in which bail-in features are implemented via commercial contracts.

12 This will cease to be an issue once legacy capital instruments have been replaced with fully compliant instruments, which will likely occur well before the end of the Basel framework's transitional period ending 1 January 2022.

Chapter 3 — Adjustments to reported capital adequacy ratios to improve comparability

The Basel framework provides a blueprint for the prudential regulation of internationally-active banks. The framework, however, is intended to serve as a minimum standard. While jurisdictions typically implement local requirements that meet the minimum requirements set out in the framework, in practice there are also a range of differences that reflect the specificities of each jurisdiction's banking system. Making precise comparisons of bank capital adequacy ratios across jurisdictions can therefore be challenging.

3.1 Adjustments to regulatory capital

For the purpose of its QIS, the Basel Committee requires participating banks to restate their capital base in a manner that complies with the requirements set out in the Basel framework, with no allowance for transitional arrangements. This process ensures that the numerator of the capital adequacy ratios analysed in that study is determined, to the maximum extent possible, in an internationally-consistent manner. The Basel QIS generally uses RWAs as determined by each bank's home jurisdiction, with the exceptions that some adjustments are made where these directly relate to the adjustments to regulatory capital. For example, for the Australian banks, the main adjustment to RWAs in the Basel QIS relates to certain investments in financial institutions. APRA requires these to be deducted from the capital base, whereas the banks are not required to do so for Basel QIS purposes. However, this adjustment to the capital base also requires an adjustment to RWAs, since the non-deducted exposures must be included in RWAs instead. Appendix 1 lists the material adjustments made for the Australian banks.

3.2 Adjustments to peer bank RWAs

A potentially material area of difference in the implementation of the Basel framework across jurisdictions is the determination of RWAs. This may be driven by differences in policy position (i.e. a decision to adopt a more conservative supervisory stance) or in banks' underlying risk profiles (i.e. the exposures in that jurisdiction are considered more risky than similar exposures in other jurisdictions). As a consequence, it is challenging to determine which variations in RWAs require an adjustment to enable an appropriate comparison between banks in different jurisdictions. It is not appropriate to adjust for differences in risk profile, since comparable capital adequacy ratios should account for differences in risk.

Compared to Australia, however, most other jurisdictions have fewer areas with stricter requirements than the Basel framework for RWAs. This is supported by reports published by the Basel Committee as part of its Regulatory Consistency Assessment Programme (RCAP), which assesses how individual jurisdictions have implemented the Basel framework, and how that implementation differs from the minimum standards.[13] This finding is in line with the observation that, when seeking to achieve more conservative prudential outcomes, many jurisdictions increase minimum overall capital requirements, rather than adjusting RWAs. This is, for example, reflected in Table 5.1 of the FSI Interim Report: although APRA's capital requirements are often considered to be at the more conservative end of the spectrum, most jurisdictions have at least one minimum capital ratio requirement above that set by APRA.[14]

To aid its analysis, APRA decided to make a range of adjustments to the RWAs of the Australian banks, but not to attempt adjustments for the sample of Basel QIS Group 1 banks located in other jurisdictions, on the basis that:

- there are challenges in determining which jurisdictional differences in RWAs should be adjusted for capital comparison purposes;

13 http://www.bis.org/bcbs/implementation/l2.htm

14 Financial System Inquiry, *Interim Report*, July 2014, pages 3-35.

- the absence of knowledge as to the identity of the specific banks in the sample makes the appropriate amount of any adjustment, even on an 'on average' basis, difficult to determine;
- compared to Australia, most other jurisdictions have fewer areas with stricter requirements for RWAs than the Basel framework; and
- this study also takes into account the leverage ratio, which is a non-risk-weighted measure of capital adequacy.

The result of this approach may be that, on balance, the relative positioning of the Australian banks could be slightly higher than would otherwise be the case.

3.3 Adjustments to Australian bank RWAs

APRA has typically taken a conservative approach to the measurement of capital adequacy, relative to international minimum standards. This has been the case for many years and continues the approach adopted by the Reserve Bank of Australia when it had responsibility for the prudential supervision of banks prior to APRA's creation.

This study adjusts RWAs for the Australian major banks to enable, as far as practical, an international comparison on a more consistent basis. As RWAs for international peers are not adjusted, it follows that any adjustments to the Australian banks' RWAs should be directed at addressing differences in Australian standards from common international supervisory practice.

For the purpose of this study, RWA adjustments were made according to the following criteria:

- APRA's approach is clearly different from common supervisory practice elsewhere;
- this difference reflects a difference in supervisory policy, rather than an adjustment to account for a difference in underlying risk; and
- the adjustment has a material impact on RWAs. For the purpose of this study, a material impact was any adjustment that would increase/decrease the major banks' weighted average capital adequacy ratios by 5 basis points or more.[15]

The inclusion and impact of a number of these adjustments is not 'black and white'; there is necessarily an element of judgement involved. The following sections discuss, for each adjustment, the rationale behind its inclusion and the basis upon which the adjustment is made.

In broad terms, the adjustments that have been made relate to the assessment of RWAs for credit and, to a lesser extent, market risks. APRA has not made any adjustments to RWAs for operational risk. The identified adjustments affect the risk-based capital adequacy ratios (CET1, Tier 1 and Total capital) but do not affect the leverage ratio as the latter is not a risk-based measure.

3.3.1 20 per cent LGD portfolio constraint required for residential mortgage exposures

Banks accredited to use their internal models for the calculation of RWAs for credit risk utilise the internal ratings-based (IRB) approach. Under the IRB approach, banks must estimate, amongst other things, the loss-given-default (LGD) on their exposures, assuming an economic downturn (downturn LGD).

Given the difficulty of reliably estimating downturn LGD for retail loans secured by residential mortgages in Australia (due to the absence, to date, of any significant period of house price declines), APRA has not approved the LGD models of the major banks for residential mortgage exposures. Instead, APRA has set a portfolio-level LGD floor of 20 per cent for these exposures. This is an item where APRA has followed the Basel framework but has adopted a more conservative supervisory stance.

Banks across a large number of jurisdictions report, on average, lower LGD estimates for residential mortgage exposures than the Australian major banks. Many are closer to the 10 per cent

15 This is for simplicity to ensure that the total number of adjustments will be limited without materially affecting outcomes.

floor set by the Basel framework. Conversely, some peer banks with LGD estimates that are higher than those applicable to Australian banks have implemented these to reflect material differences in the risk profile of their domestic residential mortgage sector.

While the Basel framework LGD floor for residential mortgage exposures is 10 per cent, APRA has applied a 15 per cent estimate for the purpose of this study. This recognises that most peer banks use LGD estimates in excess of the floor, though less than 20 per cent, and some peer banks apply the materially higher standardised (i.e. non-model) approach risk weights to part, or all, of their mortgage portfolio.

This adjustment increases the major banks' risk-based capital adequacy ratios.

While this adjustment is appropriate at the present time, the international trend is for average risk weights for residential mortgage exposures to increase: in due course, it may be necessary to revisit the need for this adjustment.

3.3.2 Interest rate risk in the banking book (IRRBB) as a Pillar 1 capital charge

The Basel framework addresses IRRBB by way of a Pillar 2 add-on. As a national discretion, however, IRRBB may instead be included in the minimum Pillar 1 requirement. APRA has opted to implement this national discretion for those ADIs using internal models to calculate RWAs. However, Australia is an outlier in this respect: most peer jurisdictions do not include RWAs for IRRBB in Pillar 1. For the purpose of this study, RWAs for IRRBB have been excluded from capital calculations.

This adjustment increases the major banks' risk-based capital adequacy ratios.

While this adjustment is appropriate at the present time, the Basel Committee is currently consulting on proposals which have the potential to introduce a requirement for IRRBB RWAs to be included in Pillar 1; as with the LGD for mortgages, in due course it may be necessary to revisit the validity of this adjustment.

3.3.3 LGD parameter for unsecured non-retail exposures

Given that LGD estimates should reflect economic downturn conditions, in practice APRA requires banks accredited to use the Advanced IRB approach to apply an LGD parameter of at least 60 per cent to the majority of unsecured non-retail exposures.[16]

This is an item where APRA has followed the Basel framework but has adopted a more conservative supervisory stance. This difference materially impacts the bank and corporate portfolios, and to a lesser extent the corporate small- and medium-sized enterprise and sovereign portfolios.

The Basel Committee's 2013 hypothetical credit portfolio exercise reported that, internationally, banks accredited to use the Advanced IRB approach use a range of LGD parameters for individual bank and corporate obligors, with an approximate average of 45 per cent. There is a greater variance for sovereign obligors.[17] These estimates are close to the 45 per cent supervisory estimate included in the Foundation IRB approach.

In order to estimate the impact of APRA's approach, this study applies an LGD parameter of 45 per cent to non-retail exposures, which is consistent with the supervisory estimate under the Foundation IRB approach. The use of this estimate recognises that the peer group includes banks accredited to use the Advanced and the Foundation IRB approaches.

This adjustment increases the major banks' risk-based capital adequacy ratios.

16 Within the IRB approach, two options are available. The Advanced IRB approach allows banks, with supervisory approval, to estimate the probability of default (PD), LGD, exposure at default and effective maturity. Under the simpler Foundation IRB approach, as a general rule, banks provide their own estimates of PD and rely on supervisory estimates for other risk components.

17 Basel Committee, *Regulatory Consistency Assessment Programme (RCAP). Analysis of risk-weighted assets for credit risk in the banking book*, July 2013, page 33.

3.3.4 Credit conversion factor (CCF) for undrawn non-retail commitments

Because of a lack of strong empirical justification for lower estimates, APRA requires banks accredited to use the Advanced IRB approach to apply a CCF in excess of 75 per cent for most off-balance sheet exposures. This is an item where APRA has followed the Basel framework but has adopted a more conservative supervisory stance.

The Basel Committee's 2013 hypothetical credit risk portfolio exercise reported that international peer banks accredited to use the Advanced IRB approach appear to operate with CCFs that are lower than the Foundation IRB approach: '*based on the [exposure at default] models provided by these [banks accredited to use the Advanced IRB approach], the average conversion factor applied to undrawn commitments is roughly 50 per cent; this can be contrasted with the 75 per cent CCF for such commitments under the [Foundation IRB] approach.*'[18]

For the purpose of this study APRA has elected to apply a 75 per cent CCF to the non-retail portfolios. The use of this estimate recognises that the peer list includes banks accredited to use the Advanced and the Foundation IRB approaches. In addition, given anticipated changes arising from the Basel Committee's review of variability in RWAs across jurisdictions APRA does not consider it to be appropriate to use an estimate less than the supervisory estimate included in the Foundation IRB approach.

This adjustment increases the major banks' risk-based capital adequacy ratios.

3.3.5 Supervisory slotting and scaling factor for specialised lending

Specialised lending is associated with financing where the repayment is highly dependent on the performance of the underlying assets, rather than the cash flow and capacity of a broader commercial enterprise. For the five specialised lending sub-asset classes, the Basel framework stipulates that banks that do not have supervisory approval to use their own estimates of PD under the IRB approach are required to map their internal grades to supervisory categories, each of which is associated with a specified risk weight.[19] This is the so-called 'supervisory slotting approach'.

In Australia, the predominant forms of specialised lending are financing for income-producing (commercial) real estate and project finance. Given the lack of empirical data with which to build credible models and risk estimates, and concerns that the calibration would not appropriately address concentration risks in the portfolio, APRA has not allowed the explicit use of PDs (or LGDs) for specialised lending exposures, and has required the use of the supervisory slotting approach.

Several jurisdictions allow bank-determined PD and LGD estimates for specialised lending exposures and address concentration risks associated with this asset class in Pillar 2. Other jurisdictions apply supervisory slotting but have adopted a national discretion allowed under the Basel framework to reduce some of the applicable risk weights.

For the purpose of this study, APRA has estimated average risk weights for mapped groups of slotted specialised lending exposures using the relevant IRB risk weight function detailed in *Prudential Standard APS 113 Capital Adequacy: Internal Ratings-based Approach to Credit Risk*. This adjustment is limited to the two material sub-asset classes of income-producing real estate and project finance.

Given the use of the supervisory slotting approach is part of the Basel framework, this is an area where APRA has followed the framework, without a more conservative supervisory stance. However, given APRA's understanding of the treatment of these exposures in other jurisdictions, this

18 *Ibid*, page 43. This finding is limited to committed revolving lending facilities in the corporate asset class, and may not generalise to other types of credit exposures.

19 The five sub-asset classes of specialised lending are: project finance, object finance, commodities finance, income-producing real estate and high-volatility commercial real estate. APRA has not implemented the high-volatility commercial real estate sub-asset class as it is not considered to be material in Australia.

adjustment will support more consistent capital comparisons.

In addition to estimating average risk weights for these exposures, APRA has made an adjustment for the scaling factor within the RWA calculation formula. The Basel framework prescribes that a scaling factor of 1.06 be applied to RWAs determined under the IRB approach. APRA, however, does not apply this scaling factor to either the specialised lending asset class or to securitisation exposures risk-weighted under the IRB approach to securitisation. The Basel Committee's RCAP assessment was that this issue is material for specialised lending.[20] This study includes an adjustment for the scaling factor on specialising lending exposures; no adjustment has been made for the immaterial difference with respect to securitisation exposures.

This adjustment increases the major banks' risk-based capital adequacy ratios:

- as estimating average risk weights by using proxy PD and LGD estimates for specialised lending exposures increases risk-based capital adequacy ratios; while
- including a scaling factor reduces them.

The combined effect of these two impacts is a net increase in the risk-based capital ratios.

3.3.6 Other retail exposures covered by the standardised approach to credit risk

For certain segments of their credit portfolios, the Australian major banks use the standardised approach to credit risk. The Basel framework's standardised approach to credit risk allows exposures in the regulatory retail portfolio to be risk-weighted at 75 per cent. APRA requires a risk weight of 100 per cent for these exposures. This is an item where APRA is more conservative than the Basel framework.

This adjustment increases the major banks' risk-based capital adequacy ratios.

3.3.7 Exchange rate used to convert euro-denominated thresholds into Australian dollars

The Basel framework includes euro-denominated thresholds in relation to:

- small business exposures to be included in the retail portfolio;
- exposures to a single individual in the revolving retail sub-portfolio; and
- a firm size adjustment for small- and medium-sized enterprises that are included in the corporate portfolio.

An exposure that falls under one of these thresholds receives a lower risk weight than a comparable exposure exceeding that threshold. At the time of implementation, APRA converted these thresholds into Australian dollars on a 1:1 basis. This results in lower thresholds, and therefore higher risk weights, than if the thresholds were set by reference to the observed euro-Australian dollar foreign exchange rate at the time of implementing the Basel framework, or indeed since that time. For the purpose of this study, APRA has made an adjustment for these thresholds using the exchange rate on the relevant reporting date.

This adjustment increases the major banks' risk-based capital adequacy ratios. The impact of this adjustment is, however, dependent upon movements in the exchange rate.

APRA has previously indicated that it is willing to consult on revising the currency threshold for small business exposures to be included in the retail portfolio, so that it is more closely aligned to the actual exchange rate (for example, replacing the $1 million threshold with a $1.5 million threshold, which is closer to the Basel framework's €1 million threshold).[21] If implemented, there is unlikely to be a need for this adjustment in the future.

20 Basel Committee, *Regulatory Consistency Assessment Programme (RCAP). Assessment of Basel III regulations - Australia*, March 2014, page 30.

21 APRA, *Financial System Inquiry submission*, March 2014, page 80.

3.4 Impact on the CET1 ratio

Figure 1 illustrates the impact of the identified adjustments on the Australian major banks' weighted average CET1 ratio. The ratios that are shown are the:

- Headline ratio - the unadjusted ratio as determined under APRA's prudential framework;
- Basel QIS ratio – the capital ratio reported for Basel QIS purposes, capturing adjustments to the regulatory capital base to comply with the fully phased-in requirements of the Basel III framework; and
- Comparison ratio – the capital ratio including the Basel QIS-related adjustments to the regulatory capital base and also the adjustments to the Australian major banks' RWAs as detailed in section 3.3.

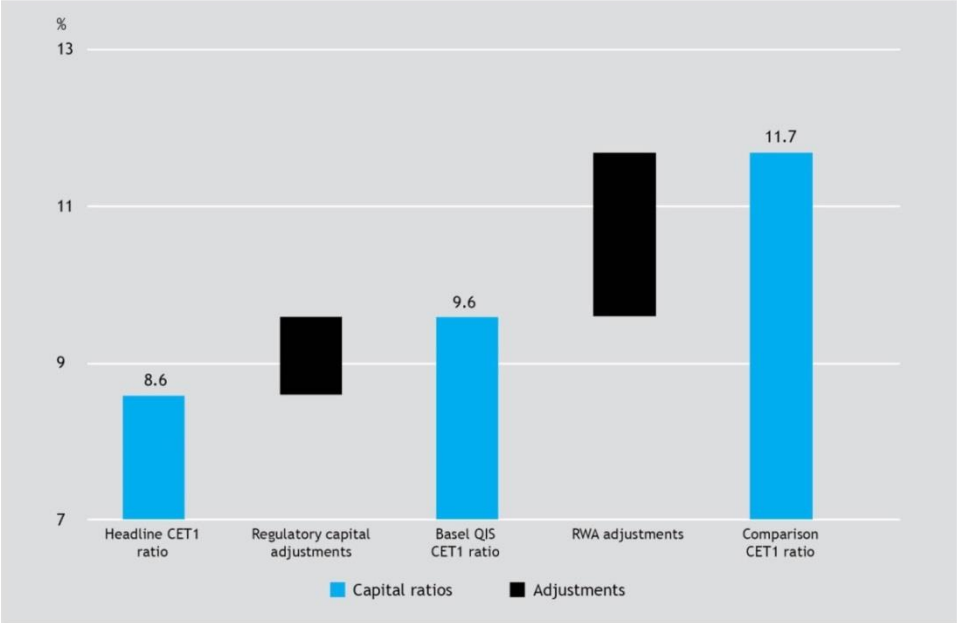
In broad terms, adjustments to regulatory capital add about 100 basis points to the Headline CET1 ratio. RWA adjustments add an additional 200 basis points.

3.5 Basel capital floor

At the time internal models were introduced into the Basel framework as part of the Basel II reforms, the Basel Committee included a transitional floor for those ADIs switching to the use of internal models to calculate their RWAs. This floor is set at 80 per cent of the Basel I capital requirement.[22] In simple terms, the effect of the floor is to limit the reduction in RWAs (and hence the increase in the reported capital ratios) that banks might obtain from moving to internal models, to a maximum of 20 per cent of the RWAs that they calculated under the Basel I regime.

Nearly all Basel Committee member jurisdictions retain a capital floor in some form, based either on Basel I or on the Basel II standardised approach. Of jurisdictions covered in published RCAP reports, only Australia has removed the floor entirely.[23]

Figure 1: Impact of the adjustments on major bank CET1 ratios (June 2014)



22 Basel Committee, *International Convergence of Capital Measurement and Capital Standards. A Revised Framework — Comprehensive Version*, June 2006, paragraph 45.

23 In the European Union, the local regulator may waive application of the floor for a specific bank, but this has not been the case for the sample of large banks reviewed in the European RCAP report.

Excluding the floor from this study could have a material impact on the risk-based capital adequacy ratios of the Australian major banks. APRA removed the transitional floor from its prudential requirements in 2011 as it was materially lower than the level of RWAs reported by the banks accredited to use internal models. This was because of the conservative approach built elsewhere into the Australian framework (see section 3.3 and Appendix 1). As a result, the floor had no impact on the reported capital adequacy ratios of the relevant banks; it was a reporting burden that served no purpose. This would remain true today.[24] The adjustments to RWAs detailed in this study, however, may reduce RWAs to a level where the floor would have an impact if it were included. It is challenging to determine the exact impact of a floor as the relevant Basel I data is no longer collected. It is plausible that the inclusion of a capital floor could reduce the reported Australian Comparison CET1 ratio by a material amount.

Another challenge to determining an 'internationally comparable' capital floor is that jurisdictions differ in their determination of the floor and in its calibration. The manner of disclosure of the floor also differs between jurisdictions. In some cases, the floor is included in the determination of the Headline ratio so that the published capital adequacy ratio is reduced when the floor is binding. In other jurisdictions, the floor is reported separately and less prominently than the Headline ratio, so even when the floor does serve as a binding constraint it may not be immediately obvious to external observers.

As the floor was intended to be a transitional measure, the fully phased-in capital adequacy ratios for the Basel QIS do not include an estimate of its impact for any of the banks included in that study.[25] Therefore, even though there is potential for this item to be material, APRA concluded that making adjustments to Australian and international peer bank RWAs to account for the impact of the capital floor would not be possible for the purpose of this study.[26]

24 Refer to Basel Committee, *Regulatory Consistency Assessment Programme (RCAP). Assessment of Basel III regulations - Australia*, March 2014, page 21.

25 Note, however, that the Basel Committee recently proposed a new, permanent capital floor (see Basel Committee, *Capital floors: the design of a framework based on standardised approaches*, December 2014). If implemented, this floor would likely be included in the Basel QIS fully phased-in capital adequacy ratios. In that case, APRA would also include the impact of the new capital floor in its estimated Comparison ratios in future studies. Depending on its calibration, such a floor could significantly reduce the reported Comparison capital adequacy ratios of the major banks.

26 A similar issue exists with regards to the amount and basis of capital deductions that are used in determining the capital floor.

Chapter 4 — Comparative analysis

4.1 Risk-based capital adequacy ratios

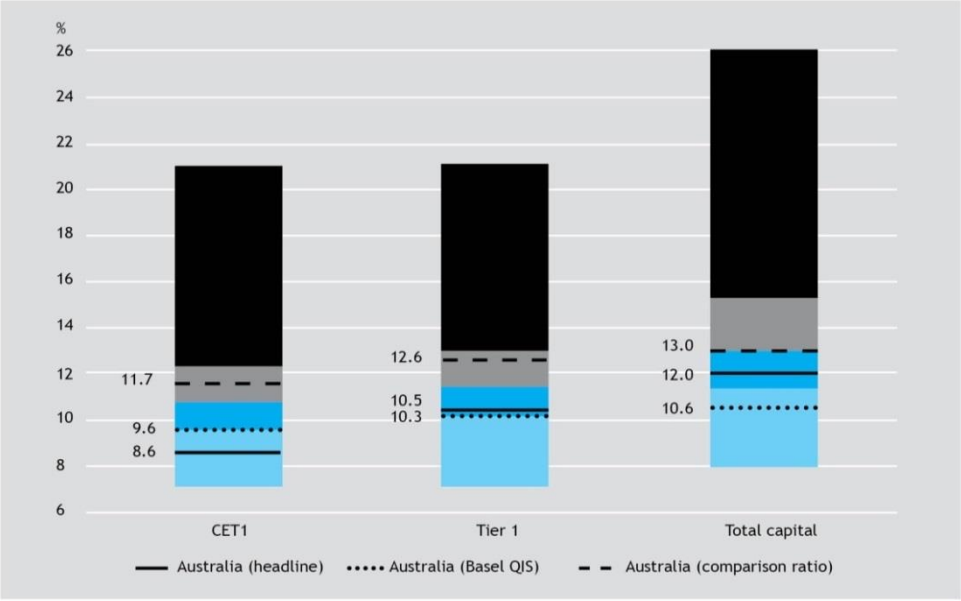
Figure 2 shows the position of the Australian major banks' risk-based capital adequacy ratios (CET1, Tier 1 and Total capital) in the distribution of Basel QIS Group 1 banks. For each measure, three Australian ratios are shown: the Headline ratio, Basel QIS ratio and Comparison ratio, as defined in section 3.4. All three ratios represent the weighted average for the Australian major banks.[27]

As detailed in Figure 2:

- the major banks' weighted average Headline CET1 ratio is positioned approximately in the middle of the first (lowest) quartile. When measured as a Comparison ratio, it is positioned in the middle of the third quartile;
- the Headline Tier 1 ratio is positioned in the second quartile, whereas the Comparison Tier 1 ratio is positioned in the third quartile; and
- the Headline Total capital ratio is in the middle of the second quartile, while on a comparison basis, the Total capital ratio is at the median of the distribution.

Again, it is important to note the results for the Tier 1 and Total capital adequacy ratios are less reliable due to the issue of legacy capital instruments, as detailed in section 2.2. For these measures of capital adequacy, the Headline ratios are higher than the Basel QIS ratios as APRA's framework allows for the phasing-out of legacy capital instruments. APRA has not adjusted the reported Basel QIS and Comparison Tier 1 and Total capital adequacy ratios for the impact of this transitional legacy capital issue as it affects not only Australian banks, but banks in most other jurisdictions as well.

Figure 2: Basel QIS capital adequacy ratios (June 2014)



27 The distributions of Group 1 bank ratios in Figure 2 include the Australian major banks' individual Basel QIS ratios. In practice, an increase in the major banks' reported ratios would also lead to a small upward shift in the overall distribution of Group 1 banks. This also applies to the leverage ratio distribution in Figure 4.

Figure 3 illustrates how the distribution of fully phased-in CET1 capital adequacy ratios for Basel QIS Group 1 banks has changed over time. It shows that, other than a slight upward drift in order to meet the Basel III requirements, the distribution has remained fairly stable. Unsurprisingly, the main change is in the first quartile. The minimum has increased at a relatively higher pace, thereby compressing the overall distribution, as banks that have weaker capital positions have left the industry or strengthened their capital base in order to meet the new Basel III requirements.

Figure 3 also shows the evolution of the Australian major banks' CET1 ratio determined in accordance with the Basel QIS methodology, i.e. using the Basel QIS ratios as defined above. The major banks have, over time, seen a deterioration in their relative position in the distribution, despite an increasing trend in their reported ratios. Although Figure 3 is based on Basel QIS CET1 ratios (rather than Comparison CET1 ratios), the trend over time is likely to be the same if measured on a more comparable basis.

For recent reporting dates, the fourth quartile has a broader range than the other three quartiles combined, demonstrating that there remain significant outliers at the top end of the distribution. While the 75th percentile is relatively stable, the spread of the fourth quartile illustrates the need for some care in using a relative measure, particularly if it is to be based on a higher percentile in the distribution, to determine minimum capital adequacy requirements for Australian ADIs.

4.2 Leverage ratio

Figure 4 shows the distribution of the Tier 1 leverage ratio. It reports only one ratio for the Australian major banks, which is based on the Basel QIS results. As APRA only recently implemented the leverage ratio disclosure requirements, no Headline ratios have yet been published. In addition, as the leverage ratio does not use RWAs, it is not necessary to make any further adjustments to estimate a Comparison ratio. However, the same caveat regarding legacy capital instruments that was applicable to the analysis of the Tier 1 risk-based capital ratio applies to the Tier 1 leverage ratio.

Figure 3: Basel QIS CET1 capital ratio over time

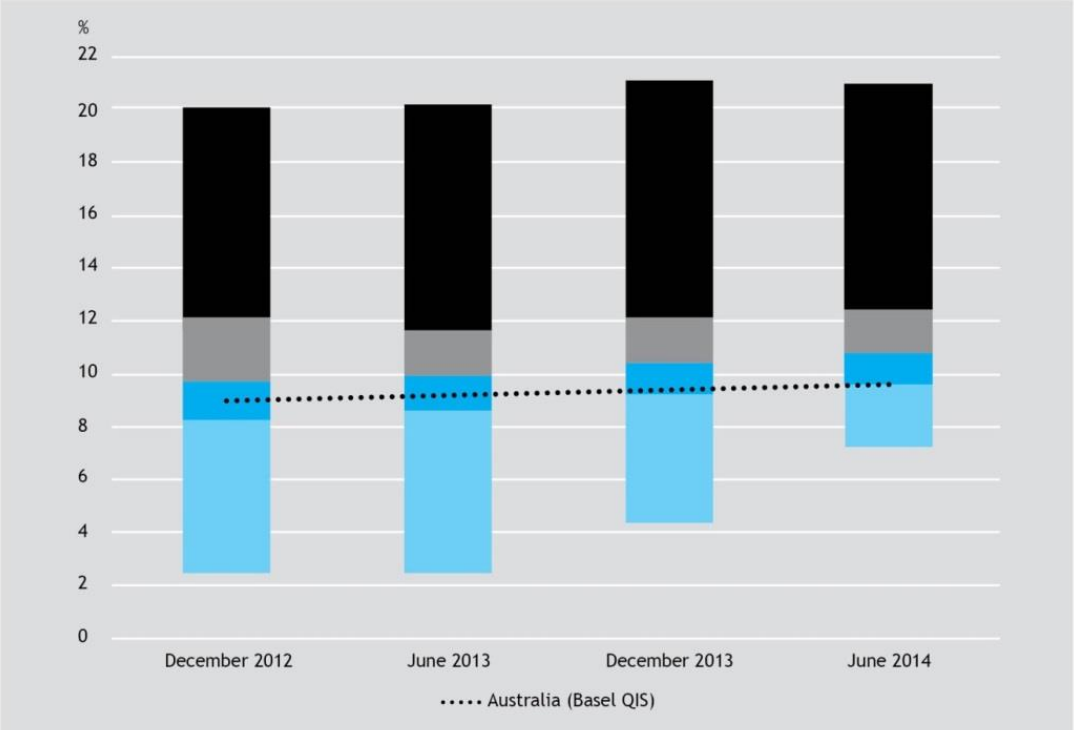
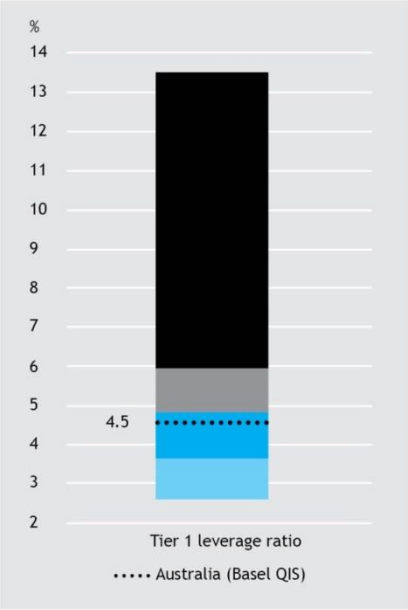


Figure 4 shows that, as at end-June 2014, the weighted average Tier 1 leverage ratio for the Australian major banks was 4.5 per cent. This places them just below the median of the distribution.

Figure 4: Basel QIS Tier 1 leverage ratio (June 2014)



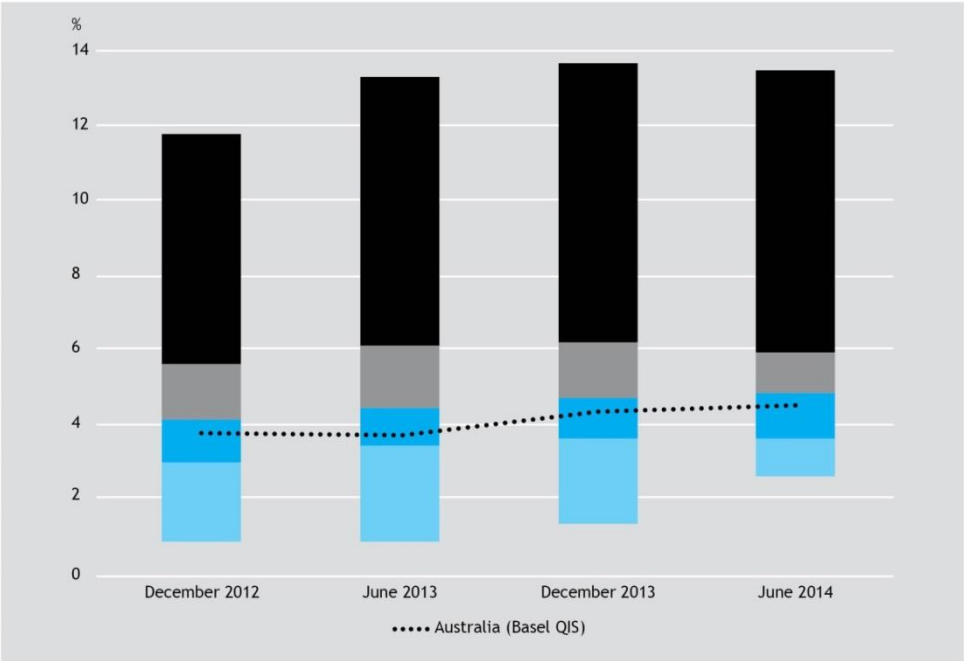
To help mitigate the impact of the transitional legacy capital issue detailed in section 2.2, the results are compared to a CET1 leverage ratio. This provides a similar outcome: the major banks report a weighted average CET1 leverage ratio of 4.2 per cent, placing them in a similar position in the distribution as for Tier 1 leverage.[28]

Figure 5 illustrates how the distribution of fully phased-in Tier 1 leverage ratios for Basel QIS Group 1 banks has changed over time.[29] The observations made in the previous section for the distribution of CET1 capital adequacy ratios also apply here, though the distribution of the fourth quartile has an even broader range when compared with the other quartiles than for the CET1 capital adequacy ratio.

4.3 Achieving the fourth quartile

The FSI did not set out a specific target for the relative positioning of capital ratios, beyond proposing they be positioned in the top quartile. As this study shows, the top (fourth) quartile captures a wide range of possible outcomes.

Figure 5: Basel QIS Tier 1 leverage ratio over time



28 The CET1 leverage ratio distribution is not reproduced here as it is not published by the Basel Committee.

29 The increase in the Tier 1 leverage ratios in December 2013 partly reflects a change in the calculation of the leverage ratio exposure measure in accordance with Basel Committee, *Basel III leverage ratio framework and disclosure requirements*, January 2014.

For the purpose of this study, APRA has used the 75th percentile (i.e. the bottom of the fourth quartile) as its benchmark for analysis. This provides an estimate of the *minimum* adjustment needed if the FSI's proposed relative positioning is to be achieved, but may or may not represent an unquestionably strong level of capital. An unquestionably strong level of capital may in fact exceed the 75th percentile.

Nevertheless, based on the findings of this study:

- positioning the weighted average CET1 ratio of the Australian major banks at the bottom of the fourth quartile would require an increase of around 70 basis points in CET1 capital ratios; and
- to simultaneously achieve a position in the fourth quartile for all four measures of capital adequacy, the increase in the capital ratios of the major banks would need to be significantly larger, albeit that there are more substantial caveats on the ability to measure the relative positioning of Australian banks using measures other than CET1.

The conclusions of this analysis are, on balance, likely to provide a conservative scenario for Australia's major banks, given:

- limitations on data availability have meant that certain adjustments that might otherwise have unfavourably impacted the relative position of the Australian major banks have not been possible. These relate to (i) the exclusion of upward adjustments to the capital ratios of some foreign banks, and (ii) the exclusion of the impact of the capital floor on the capital ratios of the Australian banks;
- anticipated changes arising from the Basel Committee's review of variability in RWAs will possibly lead to a relatively lower position for the Australian major banks; and
- international peer banks are continuing to build their capital levels – over the past couple of years, the major banks have seen a deterioration in their relative position, despite an increasing trend in their reported capital ratios.

4.4 Comparison to other studies

APRA has previously stated that, based on December 2013 data, '*APRA's assessment, which incorporates the Basel Committee's monitoring data and our own estimates of the necessary adjustments to risk-weighted assets, is that the largest Australian banks are broadly in the middle of the third quartile (i.e. above the median) of their peers when it comes to the all-important CET1 ratio. These banks would, however, rank lower on other measures*'.[30] This statement is affirmed by the updated analysis in this study.

The FSI similarly concluded that '*the CET1 capital ratio of Australia's major banks is currently not in the top quartile of internationally active banks, although it is likely to be above the median*', and that '*on a broader measure of capital, which includes CET1, AT1 and Tier 2 capital, Australian major banks are ranked lower*'.[31] The FSI concluded that a plausible range for the Australian major banks' CET1 capital adequacy ratio was 10.0 to 11.6 per cent.[32] APRA's updated results are at the top end of the estimated range, which is partly explained by the difference in reporting period.

The ABA commissioned a report on the international comparability of the major banks' capital adequacy ratios.[33] That study focussed on CET1 capital adequacy ratios, and it concluded that the Australian major banks are in the top (fourth) quartile of a group of 52 selected international banks. The ABA report's 'internationally comparable' CET1 capital adequacy ratio of 12.69 per cent is significantly higher than the 11.7 per cent Comparison CET1 capital adequacy ratio reported in this study. This difference may relate to:

30 Byres, W., *Seeking strength in adversity: Lessons from APRA's 2014 stress test on Australia's largest banks*, speech to the AB+F Randstad Leaders Lecture Series 2014 Sydney, 7 November 2014.
31 Financial System Inquiry, *Final Report*, November 2014, page 45.
32 *Ibid*, page 48, based on December 2013 data.
33 PwC, *International comparability of capital ratios of Australia's major banks*, commissioned by the ABA, August 2014.

- the estimation methodology. Estimates in this study are primarily based on data routinely reported to APRA, rather than on a data template requested specifically for this study. This study therefore utilises a number of assumptions that may differ from corresponding assumptions used for the ABA report;
- differences in reporting dates. APRA's study is based on June 2014 data which has been adjusted to reflect material recent IRB modelling or methodology changes. The ABA report uses March 2014 data for three banks and June 2014 for the other; and
- differences regarding the adjustments made. The ABA report includes additional adjustments relating to margin lending, counterparty credit risk and operational risk. However, the combined impact of these adjustments was estimated to be about 2 basis points, which is below APRA's materiality threshold for this study.

4.5 Credit rating agency capital thresholds

The credit rating agency Standard & Poor's (S&P) has developed a 'risk-adjusted capital ratio' which differs from the Basel framework calculation. This approach applies an internationally-consistent approach to measuring capital adequacy, albeit different from that used by supervisors for regulatory purposes. Eligible capital is roughly equivalent to Tier 1 capital under the Basel framework, while RWAs are driven by macro-economic risks. The S&P risk-adjusted capital ratio is not subject to the transitional legacy capital issue affecting the Basel QIS ratios, and adjustments to the definition of capital are made on a globally uniform basis by S&P.

Under this methodology, the Australian major banks all have a risk-adjusted capital ratio of around 8 per cent, which places them roughly at the 60th percentile of a group of 100 large internationally-active banks.[34] This equates to an 'adequate' level of capital as defined by S&P. Although the definition of the capital ratio is different, and the peer group of banks may contain some differences (although in practice is likely to involve considerable overlap), the relative financial strength of the major banks is consistent with that found by APRA's analysis.

To achieve a 'strong' capital assessment by S&P, the major banks would need to increase their risk-adjusted Tier 1 ratios by around 25 per cent (i.e. to above 10 per cent). A 'very strong' capital level requires a ratio in excess of 15 per cent.[35]

The other main credit rating agencies have not performed a similar assessment, and tend to use capital ratios based on the Basel framework.

34 Standard & Poor's, *How Do Australian Banks' Levels Of Capitalization Stack Up To Their International Peers?*, February 2015.

35 Standard & Poor's, *Australia's Regional Banks Set To Become More Competitive Against Major Banks*, May 2015.

Chapter 5 — Conclusion and next steps

The FSI Final Report recommended that *'…capital standards [should be set] such that Australian authorised deposit-taking institution capital ratios are unquestionably strong*'. APRA fully supports the FSI's recommendation.

The FSI suggested that the unquestionably strong standing of Australian ADIs would be achieved if a baseline target of top quartile positioning, relative to international peers, was achieved. This study confirms APRA's previous analysis that the Australian major banks are well-capitalised, but do not have capital ratios, when measured on a more consistent basis, that position them in the fourth quartile. Given the caveats associated with this study, a degree of caution is needed in assessing the precise relativities, or amount of capital needed to achieve fourth quartile positioning.

Furthermore, the results of this study will inform, but not determine, APRA's approach for setting capital requirements. While APRA is fully supportive of the FSI's recommendation that Australian ADIs should be unquestionably strong, it does not intend to tightly tie that definition to a benchmark based on the capital ratios of foreign banks. APRA sees fourth quartile positioning as a useful sense check of the strength of the Australian capital framework against those used elsewhere, but does not intend to directly link Australian requirements to a continually moving benchmark such that frequent recalibration would be necessary.

APRA will be responding to the recommendations of the FSI as soon as possible, bearing in mind the need for a coordinated approach that factors in international initiatives that are still in the pipeline. This will mean that any final response to the determination of unquestionably strong will inevitably require further consideration. In practice, this will be a two-stage process as:

- APRA intends to announce its response to the FSI's recommendation regarding mortgage risk weights shortly. To the extent this involves an increase in required capital for residential mortgage exposures of the major banks, and the banks respond by increasing their actual capital levels to maintain their existing reported capital ratios, it will have the effect of shifting these banks towards a stronger relative positioning against their global peers; and
- other changes are likely to require greater clarity on the deliberations of the Basel Committee (unlikely to be before end-2015) before additional domestic proposals are initiated.

As a result of these factors, and the broader caveats contained in this study, a precise measure of the increase in capital ratios that would be necessary in order to achieve fourth quartile positioning is difficult to ascertain at this time. A better picture is likely to become available over time as, in particular, international policy changes are settled. Based on the best information currently available, APRA's view is that the Australian major banks are likely to need to increase their capital ratios by at least 200 basis points, relative to their position in June 2014, to be comfortably positioned in the fourth quartile over the medium- to long-term. This judgement is driven by a range of considerations, including:

- the findings of this study;
- the potential impact of future policy changes emerging from the Basel Committee; and
- the trend for peer banks to continue to strengthen their capital ratios.

In instituting any changes to its policy framework, APRA is committed to ensuring any strengthening of capital requirements is done in an orderly manner, such that Australian ADIs can manage the impact of any changes without undue disruption to their business plans. Furthermore, this study has focussed on the Australian major banks; the impact of any future policy adjustments, if any, are likely to be less material for smaller ADIs.

The benefits of having an unquestionably strong banking sector are clear, both for the financial system itself and the Australian community that it

serves. Furthermore, Australian ADIs should, provided they take sensible opportunities to accumulate capital, be well-placed to accommodate any strengthening of capital adequacy requirements that APRA implements over the next few years in response to the FSI's recommendations.

Given the ongoing evolution of the capital adequacy positions of both Australian banks and their global peers – both due to regulatory changes, as well as banks' own decisions on appropriate capital buffers - APRA plans to publish similar capital comparison studies from time to time. Future capital comparisons may be extended to include additional ADIs beyond the Australian major banks.

Appendix 1 — QIS adjustments to regulatory capital

This appendix outlines the material adjustments to banks' regulatory capital base determined under APRA's prudential standards in order to determine the regulatory capital base in accordance with the minimum requirements of the Basel framework.

Adjustment	APRA requirement	Basel framework
1. Deduction for insignificant investments in other financial institutions	APRA requires all equity holdings and other capital support provided by a bank to other financial institutions, as well as holdings of the bank's own capital instruments, to be deducted from the bank's capital base in accordance with the 'corresponding deduction' approach (i.e. the deduction is to be applied to the same tier of capital for which the capital would qualify if issued by the ADI itself). There are exceptions for exposures held under a legal agreement on behalf of a third party where the third party derives exclusively and irrevocably all gains and losses, and indirect holdings arising through full recourse lending to a borrower to purchase a well-diversified and well-collateralised portfolio. APRA requires underwriting positions held for five working days or less to be risk-weighted at 300 per cent if the relevant security is listed, and 400 per cent if unlisted.	The Basel framework allows inclusion in a bank's capital base, up to an amount equal to 10 per cent of the bank's net CET1 capital, of the value of investments in the capital of unconsolidated financial institutions, where the holding or aggregate of holdings does not exceed 10 per cent of the issued common equity of the issuing entity. The value of underwriting positions held for five working days or less is excluded from this threshold. The amount up to the threshold is required to be risk-weighted, with instruments in the trading book treated as per the market risk rules and instruments in the banking book treated as per the credit risk framework.
2. Deduction for significant investments in other financial institutions	APRA requires all equity holdings and other capital support provided by a bank to other financial institutions, as well as holdings of own capital instruments, to be deducted from the bank's capital base in accordance with the 'corresponding deduction' approach (i.e. the deduction is to be applied to the same tier of capital for which the capital would qualify if issued by the ADI itself). There are exceptions for exposures held under a legal agreement on behalf of a third party where the third party derives exclusively and irrevocably all gains and losses, and indirect holdings arising through full recourse lending to a borrower to purchase a well-diversified	The Basel framework allows inclusion in a bank's capital base, up to an amount equal to 10 per cent of the bank's net CET1 capital, of investments in the common shares of unconsolidated financial institutions, where the holding exceeds 10 per cent of the issued common equity of the issuing entity or where the entity is an affiliate of the bank. This amount is required to be risk-weighted at 250 per cent. In addition to the individual cap for this item, the Basel framework applies a cap of 15 per cent of a bank's net CET1 capital to the sum of (i) the aggregate amount of significant investments in all financial institutions, and (ii) deferred tax assets

Adjustment	APRA requirement	Basel framework
	and well-collateralised portfolio.	arising from temporary differences (refer to item 3 below).
3. Deduction for deferred tax assets	APRA requires the full deduction from a bank's CET1 capital of the value of deferred tax assets.	The Basel framework allows inclusion in a bank's capital base, up to an amount equal to 10 per cent of the bank's net CET 1 capital, of deferred tax assets arising from temporary differences. This amount is required to be risk-weighted at 250 per cent. In addition to the individual cap for this item, the Basel framework applies a cap of 15 per cent of a bank's net CET1 capital to the sum of (i) the aggregate amount of deferred tax assets arising from temporary differences and (ii) significant investments in financial institutions (refer to item 2 above).
4. Deduction for investments in commercial entities	APRA requires a full deduction from CET1 capital of the value of equity holdings in, and other capital support provided to, commercial entities. An exception is provided for equity exposures in the trading book, underwriting positions held for five working days or less, exposures held under a legal agreement on behalf of a third party where the third party derives exclusively and irrevocably all gains and losses, and indirect holdings arising through full recourse lending to a borrower to purchase a well-diversified and well-collateralised portfolio. APRA also excludes from the deduction requirement any holdings of subordinated debt in commercial entities, which are risk-weighted at 100 per cent.	The Basel framework requires the value of investments in commercial entities to be risk-weighted at 1250 per cent if they exceed: • 15 per cent of a bank's capital, in the case of individual significant investments in commercial entities; and • 60 per cent of the bank's capital, for the aggregate of investments in commercial entities. Investments below these thresholds are risk-weighted at 100 per cent.
5. Deduction for capitalised expenses and transaction costs	APRA requires a deduction from CET1 for the value of certain intangible items that it considers should be treated in a similar manner to exposures classified as intangible assets under Australian Accounting Standards, such as capitalised expenses and transaction costs.	The Basel framework requires the value of exposures classified as intangible assets under relevant accounting standards to be deducted from CET1 capital.

Adjustment	APRA requirement	Basel framework
6. Deduction for holdings of subordinated tranches of securitisations	APRA requires a deduction from CET1 for the value of holdings of subordinated tranches in a securitisation scheme that was not originated by the bank itself.	The Basel framework requires the value of holdings of subordinated tranches in a securitisation that was not originated by the bank itself to be risk-weighted based on the risk characteristics of the exposures.

Appendix 2 — Alternative list of peer banks

As noted in Chapter 2, APRA chose to use as its peer group the 98 Group 1 banks included in the Basel Committee's most recent QIS. However, given the names of these banks are not disclosed, APRA compared the distribution of capital ratios for banks included in the Basel Committee's QIS with the distribution of CET1 capital ratios published by the following banks. As shown in Table 1, the two distributions were broadly similar, suggesting APRA's choice of peer group does not materially influence the conclusions that have been drawn from the analysis.

ABN Amro	La Caixa
Australia and New Zealand Banking Group	Lloyds Banking Group
Bank of Montreal	Landesbank Baden-Wurttemberg
Bank of Nova Scotia	Mizuho Financial Group
Barclays	Monte dei Paschi di Siena
BayernLB	Morgan Stanley
BBVA	Mitsubishi UFJ Financial Group
BNP Paribas	National Australia Bank
Bank of America	Nationwide Building Society
Groupe BPCE	Nomura
Capital One	Norddeutsch Landesbank
Canadian Imperial Bank of Commerce	Nordea
Citigroup	Oversea-Chinese Banking Corporation
Commerzbank	PNC Financial Services Group
Commonwealth Bank of Australia	Rabobank
Credit Agricole	Royal Bank of Canada
Credit Mutuel	Royal Bank of Scotland
Danske Bank	Santander Group
DBS Bank	Skandinavis Enskilda Banken
Deutsche Bank	Shinhan Bank
DNB ASA	Sumitomo Mitsui Financial Group
DZ Bank	Societe Generale
Goldman Sachs	Standard Chartered Bank
Handelsbanken	Swedbank
Helaba	Toronto-Dominion Bank
HSBC Holdings	UniCredit
ING Bank	United Overseas Bank
Intesa Sanpaolo	U.S. Bancorp
JP Morgan Chase	Wells Fargo
KBC Group	Westpac Banking Corporation
KB Kookmin Bank	Woori Bank
La Banque Postale	

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