



# BACKGROUND PAPER

## The regulatory capital framework for authorised deposit-taking institutions (ADIs)

*This paper was prepared by APRA in response to a request from the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry*

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# Chapter 1 – The risk-based capital framework

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This paper responds to a request from the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry for background on the capital prudential framework applying to the banking industry, with particular regard to the current and proposed treatment of residential mortgage lending and lending for small- and medium-sized enterprises.

## The role of capital for banks

Traditionally, a bank's primary function is to accept deposits from customers and lend to borrowers, a process known as financial intermediation. This process plays an important economic role and involves, at some level, nearly all members of the community. As with any other business, a bank has assets and liabilities but, because its core business is financial intermediation, these assets and liabilities are primarily financial in nature.

A bank's assets are mostly in the form of financial contracts where the other party to the contract (or counterparty) owes money to the bank. These assets primarily take the form of loan repayments by borrowers. Other assets include cash and high quality securities that the bank might hold, and money it has deposited with other banks (including the Reserve Bank of Australia). In common with other businesses, it may also have non-financial assets such as property, plant and equipment.

A bank's liabilities provide the bulk of its funding, and are also mostly in the form of financial contracts where the bank owes the counterparty. These include customer deposits and other types of funding, and in many cases may be of a short-term nature. In most cases, these liabilities are issued in capital-guaranteed form, i.e. with the bank guaranteeing to return principal, plus interest at a pre-agreed rate, either at call or at a pre-determined maturity date.

Put simply, capital is the difference between these assets and liabilities. Among other things, capital consists of funding provided by shareholders and other investors and unused profits generated by the business's activities.

The primary risk that capital seeks to address is the risk that a bank's (risky) assets fall in value to such an extent that it is unable to meet the (fixed) obligations on its liabilities. Because capital does not need to be repaid, is subordinated to other liabilities, and (in its purest form) does not have fixed servicing obligations, it is available to absorb any losses that a bank might suffer.

In Australia, the Australian Prudential Regulation Authority (APRA) establishes prudential standards for, amongst other things, the type and minimum amount of capital that banking institutions (known as authorised deposit-taking institutions, or ADIs) must hold.<sup>1</sup> These rules

<sup>1</sup> Sections 11AF and 11AG of the *Banking Act 1959*.

are collectively called the capital adequacy framework.<sup>2</sup> Capital held by an ADI that meets these standards is referred to as regulatory capital.

## The regulatory capital framework

APRA's capital adequacy framework is largely based on the framework developed by the Basel Committee on Banking Supervision (the Basel Committee), an organisation established for banking supervisors and central banks from a number of countries to cooperate on banking-related matters, including the development of internationally agreed capital requirements.<sup>3</sup>

Under this framework, capital adequacy is determined based on an assessment of whether a bank has adequate regulatory capital relative to the risks in its business activities. The most significant risk for a bank is from its lending activities and is typically referred to as credit risk: the risk that a borrower or other counterparty will not pay the bank what is owed.<sup>4</sup>

Assigning capital requirements according to these risks is done through a process of categorising assets into separate classes and weighting their value (the amount owed, or exposure amount) according to their relative riskiness. These asset classes include exposures to governments, other banks, corporate entities and individuals, and those secured by residential or commercial property. Assets where the risk of loss from non-repayment is low, such as Australian Government securities, receive a low risk weight, while assets with high exposure to loss, such as loans already in arrears, receive high risk weights.

Assets weighted in this way are referred to as risk-weighted assets, or RWA. Additional RWAs are also generated by other types of risk (e.g. market and operational risk), but these are small relative to RWAs for credit risk.

The formula for determining capital adequacy ratios is expressed as:<sup>5</sup>

$$\text{Capital adequacy ratio} = \frac{\text{Regulatory capital}}{\text{Risk-weighted assets}}$$

The capital adequacy framework requires that a bank hold a minimum amount of regulatory capital as a proportion of its total RWAs.<sup>6</sup> Regulatory capital mostly includes ordinary shares,

<sup>2</sup> APRA's prudential standards are available at:

<http://www.apra.gov.au/adi/PrudentialFramework/Pages/prudential-standards-and-guidance-notes-for-adis.aspx>

<sup>3</sup> See <https://www.bis.org/bcbs/index.htm>

<sup>4</sup> Other risks include: operational risk (loss from breakdowns or deficiencies in internal processes, technology failures, human errors, fraud and natural disasters); market risk (loss from changes in market rates or prices) and liquidity risk (where a bank cannot meet requests for cash).

<sup>5</sup> *Prudential Standard APS 110 Capital Adequacy* (APS 110), Attachment A.

<sup>6</sup> APS 110, paragraph 24.

retained profits and other reserves but can include other types of shares, and capital instruments (e.g. debt instruments) that meet criteria specified by APRA.

A bank must ensure that its actual level of regulatory capital, and hence its capital adequacy ratio, exceeds the minimum requirement at all times.

# Chapter 2 – Residential mortgage lending and lending to small- and medium-sized enterprises

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## Approach to determining credit risk-weighted assets

Consistent with the Basel Committee’s framework, Australia’s capital framework allows two approaches to determining risk weights for credit risk:

- The **standardised approach** is the default approach and uses an APRA-determined set of risk weights to reflect general risks of different asset classes. These are not tailored to a specific ADI and are set at a level to ensure adequate capitalisation on average across portfolios and ADIs of differing risk characteristics.<sup>7</sup>
- The **internal ratings-based (IRB) approach** permits, subject to APRA approval, an ADI to use its own internal financial models and experience data to assess risk at a more granular level, and set capital parameters accordingly. Achieving APRA’s approval to use the IRB approach requires an ADI to have a strong and sophisticated risk management framework and capacity.<sup>8</sup>

In February 2018, APRA commenced consultation on proposed changes to the capital adequacy framework.<sup>9</sup> These proposals cover a wide range of credit risk exposures, such as exposures to other banks, corporate entities and individuals. The following sections of this paper focus on APRA’s current and proposed changes to its requirements for risk-weighting residential mortgages and loans to small- and medium- sized enterprises (SMEs).

## Residential mortgage lending

### Standardised approach

#### Current requirements

Under the current standardised approach for Australian ADIs, risk weights for housing loans take account of three factors:

- the size of the loan compared to the value of the property (the loan-to-valuation ratio, or LVR) where the higher the LVR, the higher the risk weight;
- operational criteria where loans that have been properly assessed (including property valuation) and documented receive lower risk weights; and

<sup>7</sup> Prudential Standard APS 112 Capital Adequacy: Standardised Approach to Credit Risk (APS 112)

<sup>8</sup> Prudential Standard APS 113 Capital Adequacy: Internal Ratings-based Approach to Credit Risk (APS 113)

<sup>9</sup> See APRA’s discussion paper, *Revisions to the capital framework for authorised deposit-taking institutions*, February 2018, available at: <http://www.apra.gov.au/adi/PrudentialFramework/Pages/revisions-capital-framework-and-leverage-ratio-Feb-2018.aspx> (the February 2018 discussion paper).

- for loans with LVRs over 80 per cent, whether the ADI has lenders mortgage insurance (LMI).<sup>10</sup>

The risk weights allocated according to these factors are set out in Table 1.

**Table 1** *Current risk weights for residential mortgage loans under the standardised approach*

LVR %	Standard <sup>11</sup>		Non-standard <sup>12</sup>	
	With LMI RW %	No LMI RW %	With LMI RW %	No LMI RW %
LVR <= 60	35	35	35	50
60 < LVR <= 80	35	35	50	75
80 < LVR <= 90	35	50	75	100
90 < LVR <= 100	50	75	75	100
LVR > 100	75	100	100	100

### Proposed requirements

APRA's proposed changes to risk weights for housing loans do not significantly change the role that the three factors outlined above (LVR, operational requirements and, if relevant, LMI) play in determining risk weights and capital requirements. However, APRA is proposing to make some adjustments to align with recent changes that the Basel Committee has made to the credit risk framework and APRA's heightened expectations relating to an ADI's assessment of a borrower's ability to repay (serviceability requirements).<sup>13</sup>

<sup>10</sup> APS 112, Attachment D, paragraph 5.

<sup>11</sup> 'Standard loans' are those that meet operational requirements about serviceability, property valuation, documentation and marketability: APS 112, Attachment D, paragraph 6.

<sup>12</sup> 'Non-standard loans' are those that don't meet operational requirements: APS 112, Attachment D, paragraph 7.

<sup>13</sup> In December 2017, the Basel Committee released *Basel III: Finalising post-crisis reforms*, available at: <https://www.bis.org/bcbs/publ/d424.htm>. APRA's measures related to serviceability requirements include its December 2014 and March 2017 letters to industry, available at <http://www.apra.gov.au/adi/Publications/Documents/141209-Letter-to-ADIs-reinforcing-sound-residential-mortgage-lending-practices.pdf> and <http://www.apra.gov.au/adi/Publications/Documents/Further-measures-to-reinforce-sound-residential-mortgage-lending-practices.pdf> and *Prudential Practice Guide APG 223 Residential Mortgage Lending* (APG 223), February 2017, available at: <http://www.apra.gov.au/adi/PrudentialFramework/Documents/APG-223.pdf>

APRA is proposing to apply different risk weights to different types of housing loans to reflect their relative risks. For example, currently there is no difference in risk weights between a loan to an owner-occupier and a loan to an investor. Yet there may well be different levels of risk for these loans; although collectively investment loans have tended to perform well due to a long period of relative economic prosperity in Australia, these have not been tested in a material downturn. Further, a higher proportion of households with high levels of debt own investment property.<sup>14</sup> Experience in the United Kingdom and Ireland showed that investment loans that had performed well before the global financial crisis fell into arrears in higher numbers than loans to owner-occupiers when the crisis occurred.<sup>15</sup> Similarly, the significant share of interest-only housing lending, including to owner-occupiers, is a feature that potentially increases risks in the Australian banking system. Interest-only borrowers face a longer period of higher indebtedness, increasing the risk of falling into negative equity should housing prices fall.<sup>16</sup> Borrowers may also use interest-only loans to maximise leverage, or for short-term affordability reasons.<sup>17</sup> Although there have been measures taken to improve ADIs' serviceability practices, borrowers may face 'payment shock' when the interest-only period ends and regular repayments increase, in some cases significantly. This payment shock is particularly acute when interest rates are low.

To address these concerns, under APRA's February 2018 proposals the lowest risk weights would apply to loans to owner-occupiers where the borrower's repayment is on a principal and interest basis.<sup>18</sup> Higher risk weights would apply to, for example, loans made for investment purposes and loans where repayment is on an interest-only basis. Table 2 sets out proposed risk weights for these different types of loans. These are indicative only, pending further analysis and final calibration. In particular, the risk weights below do not yet take account of LMI, although APRA expects that there will continue to be a capital benefit for loans with an LVR over 80 per cent. As detailed in Table 2, residential mortgage loans that do not meet the LVR, operational requirements and LMI factors would be assigned a flat risk weight of 100 per cent.

<sup>14</sup> See, for example, Reserve Bank of Australia (RBA), 'Characteristics of Highly Indebted Households' in *Financial Stability Review*, April 2017, available at: <http://www.rba.gov.au/publications/fsr/2017/apr/box-c.html>

<sup>15</sup> HM Treasury, 'The buy-to-let market' in *Consultation outcome: Financial Policy Committee powers of direction in the buy-to-let market*, updated 16 November 2016, chapter 3, available at: <https://www.gov.uk/government/consultations/consultation-on-financial-policy-committee-powers-of-direction-in-the-buy-to-let-market/financial-policy-committee-powers-of-direction-in-the-buy-to-let-market#the-buy-to-let-market>

<sup>16</sup> See, for example, APRA, 'Residential mortgages: Update on interest-only lending' in *APRA Insight*, Issue Four 2017, available at: <http://www.apra.gov.au/Insight/Pages/Insight-Issue4-2017.HTML>

<sup>17</sup> See, for example, RBA, 'Box B Interest-only Mortgage Lending' in *Financial Stability Review*, April 2017, available at: <http://www.rba.gov.au/publications/fsr/2017/apr/box-b.html>.

<sup>18</sup> See the February 2018 discussion paper at 2.3.1.

**Table 2** Proposed indicative risk weights for residential mortgage loans under the standardised approach

LVR %	Owner-occupier principal and interest		Other loans: e.g. interest-only, investor	
	Standard RW %	Non-standard RW %	Standard RW %	Non-standard RW %
0 - 50	20	100	30	100
50 - 60	25	100	35	100
60 - 80	30	100	45	100
80 - 90	40	100	60	100
90 - 100	50	100	75	100
> 100	70	100	85	100

## IRB approach

### Current requirements

Under the IRB approach, an ADI must apply an equation that APRA sets to determine the regulatory capital required for a given exposure; equations vary according to asset class. There are three ADI inputs to the equation: the risk of a borrower defaulting (probability of default, or PD), the amount of the exposure at the time of default (exposure at default, or EAD) and the actual loss the bank would incur after any collateral is sold or otherwise realised (loss given default, or LGD).

For residential property exposures an ADI may use its own estimates for two of these inputs, PD and EAD. ADIs are not currently approved to use their own internal models to estimate LGD. Instead, APRA sets the estimate of LGD that is to be used.

### Proposed requirements

APRA is also proposing changes to the current IRB approach.<sup>19</sup>

The categorisation of the residential mortgage portfolio would be similar to that proposed for the standardised approach with different capital equations for owner-occupied principal and interest residential mortgages and for other residential mortgage exposures. Similar to the standardised approach, there will be higher regulatory capital requirements for investment and interest-only exposures as compared to owner-occupied principal and interest exposures.

<sup>19</sup> See the February discussion paper at 2.3.2.

For most residential mortgage exposures, subject to APRA's approval, ADIs will also be allowed to use their internal models to estimate the loss that they would incur after the residential property has been sold or realised (LGD).

## Lending to small- and medium-sized enterprises

### Standardised approach

#### Current requirements

Under APRA's current framework, loans to SMEs secured by residential property receive the same capital treatment as other loans secured by residential property (e.g. owner-occupier).<sup>20</sup> That is, the same risk weights apply based on the three factors outlined above (LVR, operational requirements and, if relevant, LMI), regardless of whether the loan is for business purposes or to purchase the property. APRA's approach is more favourable than the approach originally taken by the Basel Committee, which applied the lowest risk weights only to loans extended for residential purposes and specifically excluded loans for business purposes.<sup>21</sup>

Other loans to SMEs, including those secured by other forms of collateral including commercial property, are currently risk-weighted at 100 per cent.<sup>22</sup> APRA's current approach is set out in Table 3.

<sup>20</sup> APS 112, Attachment D, paragraphs 4 and 5.

<sup>21</sup> See Basel Committee, *The International Convergence of Capital Measurement and Capital Standards*, June 2006, paragraph 72, available at: <https://www.bis.org/publ/bcbs128.htm>

<sup>22</sup> APS 112, Attachment A, item 16.

**Table 3** *Current risk weights for loans to SMEs under the standardised approach*

LVR %	Risk weights according to security %		
	Residential property <sup>23</sup>	Commercial property <sup>24</sup>	Not secured by property
0 - 50	35	100	100
50 - 60	35	100	
60 - 80	35	100	
80 - 90	35	100	
90 - 100	50	100	
> 100	75	100	

### Proposed requirements

APRA proposes to define an SME as a business that has annual group sales of less than A\$50 million.<sup>25</sup>

Loans to SMEs secured by residential property would attract the same risk weights as for interest-only loans and loans to purchase investment property. APRA is proposing to reduce the risk weights for SME exposures secured by commercial property and for exposures that are not secured by residential or commercial property.<sup>26</sup>

Table 4 sets out the proposed indicative risk weights for loans to SMEs under the standardised approach, divided between loans that are secured by residential and commercial property, and loans that are not secured by property.

<sup>23</sup> For the purposes of this table, it is assumed that all loans meet operational requirements and loans with LVRs over 80 per cent are covered by lenders mortgage insurance.

<sup>24</sup> These risk weights assume that loan repayments are sourced from the SME's business cash flows rather than income from the secured property.

<sup>25</sup> See the February 2018 discussion paper at 3.2.2.

<sup>26</sup> See the February 2018 discussion paper at 3.2.2

**Table 4 Proposed risk weights for loans to SMEs under the standardised approach**

LVR %	Risk weights according to security %		
	Residential property <sup>27</sup>	Commercial property <sup>28</sup>	Not secured by property
0 - 50	30	60	85
50 - 60	35	60	
60 - 80	45	85	
80 - 90	60	85	
90 - 100	75	85	
> 100	85	85	

## IRB approach

### Current requirements

For SME exposures that are not secured by residential property, an ADI may use its own estimates of the risk of a borrower defaulting (PD), the loss it would incur after collateral for the exposure has been sold or realised (LGD) and the amount of the exposure at the time of default (EAD). Depending upon the amount of the exposure, these credit risk estimates are input into one of two equations defined by APRA to determine the appropriate regulatory capital requirement.

In the case of an SME exposure secured by residential property, ADIs may use a residential mortgage equation to determine the regulatory capital requirement.<sup>29</sup> ADIs must also use APRA's estimate of the loss they would incur after the residential property used as collateral for the exposure has been sold or otherwise realised (LGD).<sup>30</sup>

### Proposed requirements

APRA is proposing a more consistent capital treatment by having one equation to determine the regulatory capital requirement for all SME exposures. However APRA is also proposing to

<sup>27</sup> For the purposes of this table, it is assumed that all loans meet operational requirements and loans with LVRs over 80 per cent are covered by lenders mortgage insurance.

<sup>28</sup> These risk weights assume that loan repayments are sourced from the SME's business cash flows rather than income from the secured property.

<sup>29</sup> APS 113, paragraphs 47 and 48, and Attachment C, paragraph 35.

<sup>30</sup> APS 113, Attachment C, paragraph 3.

limit the use, in certain circumstances, of an ADI's internal estimates other than those for the risk of a borrower defaulting.

Consistent with the proposals for other residential mortgage exposures, for SME exposures secured by residential property ADIs will also be, subject to approval by APRA, allowed to use their internal models to estimate the loss that they would incur after the residential property has been sold or otherwise realised (LGD).



 APRA