

IMPACTS OF REGULATORY CHANGES TO RISK WEIGHTS FOR RESIDENTIAL MORTGAGE LOANS ON FIRST HOME BUYERS

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Executive Summary

Genworth Financial commissioned Econtech to estimate the impacts of the Australian Prudential Regulation Authority's (APRA) proposed changes to risk weights for residential mortgage loans under the standardised approach to credit risk on first home buyers and high-risk borrowers¹. Specifically, Econtech's analysis focuses on borrowers with loans with a loan-to-valuation ratio (LVR)² higher than 90 per cent. These groups are chosen because:

- over 70 per cent of first home buyers seek finance of between the 90 per cent and 100 per cent of the purchase price of their property³;
- high risk borrowers are the most likely group to be affected by APRA's proposed changes;
- generally, for loans of less than 80 per cent LVR LMI is not required; and
- the volume of loans issued in September 2006 in the 90-100 per cent LVR band was higher than the number of loans issued in the 80-90 per cent in the same period.⁴

Importantly, precise measurement of the likely changes in the cost of mortgage loans for first home buyers and high risk borrowers when APRA's proposed changes take place is a challenging task. As such, whilst being as detailed as possible considering the time and information available for the preparation of this report, the calculations presented in this study are broad estimates of the likely impact of the proposed regulatory capital system on the cost of borrowing.

Changes Affecting Residential Mortgage Loans under Basel II

One of the key points of APRA's proposed changes is the implementation of revised weights for residential mortgage loans. The current and proposed capital adequacy requirements in Australia for residential mortgages under the standardised approach to credit risk are set out in Table 1.⁵

Note that the arrangements presented in Table 1 mean a reduction in risk weight for standard loans from the current position in most cases, and that APRA proposes extra bands of LVR with the objective of better align capital and risk. Further, APRA proposed a new form of loan risk mitigation in the form of 'eligible guarantees'. In contrast to the risk weights assigned to loans with LMI (that range between 35 and 100 per cent), the risk weight for mortgages supported by highly rated eligible guarantees⁶ is set at a uniform 20 per cent irrespective of LVR and type of loan.

It is difficult to be precise about the impact of eligible guarantees on the mortgage industry, but to the extent that capital requirements for lenders using guarantees are lower than for those using LMI, the use of guarantees over LMI is likely to be encouraged. This is

¹ For the purpose of this report, we refer to 'high risk borrowers' as those borrowers with a limited credit history (i.e. this refers to "low-doc" loans).

² LVR refers to the ratio between the size of the loan and the value of the property.

³ Figure provided by Genworth Financial, 24 September 2007.

⁴ John F. Laker "Credit Standards In Housing Lending – Some Further Insights", speech to the Institute of Chartered Accountants 20 June 2007.

⁵ The position for ADIs using the internal ratings based approach is different and is not presented in this report.

⁶ In particular, APRA has stated in its prudential standard that entities with an external rating grade of two or better will be able to issue eligible guarantees.

especially relevant considering that the Basel Committee has previously addressed the issue of the interchangeability of guarantees and insurance.⁷ Indeed, the Basel Committee suggests that “provided that such a product [insurance] meets the operational requirements laid down in paragraph 154-165 of the Technical Guidance⁸, any product may be treated as a guarantee”.⁹ Notably, a legal analysis of LMI operating in Australia conducted by Allens Arthur Robinson concluded that, “An Australian LMI policy governed by Australian laws is strongly aligned with the requirements of an eligible guarantee”.¹⁰ This suggests that an LMI policy that satisfies the criteria of an eligible guarantee set out by APRA, should be treated as if it were an eligible guarantee.

Table 1
Current and Proposed Risk-Weighting Scheme for Residential Mortgage Loans under APRA’s Standardised Approach to Credit Risk (per cent)

CURRENT						
LVR (%)	Standard loans		Non-standard loans*			
	Risk-weight (no LMI) %	Risk-weight (with LMI) %	Risk-weight (no LMI) %	Risk-weight (with LMI) %	Risk-weight (with LMI) %	Risk-weight (with LMI) %
0-60	50	50	50	50	50	50
60.01-80	50	50	100	100	50	50
>80	100	50	100	100	50	50
PROPOSED						
LVR (%)	Standard loans			Non-standard loans*		
	Risk-weight (no LMI)	Risk-weight (with LMI)**	Risk-weight (eligible guarantee)	Risk-weight (no LMI)	Risk-weight (with LMI)**	Risk-weight (eligible guarantee)
0-60	35	35	20	50	35	20
60.01-80	35	35	20	75	50	20
80.01-90	50	35	20	100	75	20
90.01-100	75	50	20	100	75	20
>100.01	100	75	20	100	100	20

Source: APRA Discussion Paper, “Implementation of the Basel II Capital Framework, Standardised Approach to Credit Risk”, April 2005 and APRA Guidance Note, “AGN 112.1 - Risk-Weighted On-Balance Sheet Credit Exposures, September 2004.

Notes: LMI stands for Lenders Mortgage Insurance.

* Defined as loans not meeting specified criteria; for the most part, this refers to “low-doc” loans.

** A minimum of 40 per cent of the original amount must be insured.

Likely Effects of Proposed Changes on Borrowers

This report finds that, for most standard loans, APRA’s proposed changes under Basel II would reduce the mandatory minimum capital reserves that ADIs must hold against loans advanced.¹¹ In contrast, for most non-standard or ‘low-doc’ loans, APRA’s proposed

⁷ Bank of International Settlements (BIS), Quantitative Impact Study 3, Frequently Asked Questions, Section E, Credit Risk Mitigation, Question 6. Available online from <http://www.bis.org> (accessed 3 October 2007).

⁸ Paragraphs 154 to 156 deal with the operational requirements for guarantees and credit derivatives and it gives additional guidance as to the criteria which must be met by an eligible guarantee. These provisions are replicated by APRA in Attachment M of the Prudential Standard APS 112 (*Prudential Standard APS 112, Capital Adequacy: Standardised Approach to Credit Risk*, July 2007).

⁹ Ibid.

¹⁰ Allens Arthur Robinson, “Lender’s Mortgage Insurance Industry Submission. APRA Discussion Paper: Implementation of the Basel II Capital Framework Standardised Approach to Credit Risk, The Legal and Legal Policy Issues”, October 2005, pp.2.

¹¹ Except for standard loans with LVR >100.01 and LMI, for which the risk weight under Basel II increases from 50 per cent to 75 per cent.

changes would mean that ADIs' mandatory minimum capital reserves must increase or remain at the current level.

In general terms, this means that the pricing for riskier loans might increase by a small amount, and that the pricing for the least risky loans might drop by a small amount. This is in line with the key objective of the Basel II Framework, which is to set capital requirements that are more sensitive to the type and level of home loan risks. Hence, although on average credit risk capital requirements for home loans should fall, the new rules mean that more capital must be held for the riskier loan types.

In particular, this report finds that under APRA's proposed changes:

1. the monthly payment for a standard loan with a LVR of 95 per cent and LMI would not change;
2. the monthly payment for a standard loan of \$272,000¹² with a LVR of 95 per cent and an eligible guarantee is approximately \$38 less, than for a standard loan with LMI at the 50 per cent risk weight proposed by APRA;
3. the monthly payment for a non-standard loan of \$272,000 with a LVR of 95 per cent and LMI would be approximately \$34 more, than under the current capital requirements; and
4. if APRA's proposed risk weight for a standard loan with a LVR of 95 per cent and LMI were reduced from 50 to 35 per cent, the monthly payment for a loan of \$272,000 with these characteristics would be reduced by approximately \$19.

Detailed estimates on the cost of servicing a loan of \$272,000 at various risk weights under Basel II are presented in Table 2.

Table 2
Loan Cost under Basel II

Loans (all with LVR= 95%)	Monthly payment	Annual payment	NPV of interest payments	NPV of interest payments + LMI paid upfront	NPV of interest payments + LMI/guarantee paid upfront
Standard loan with LMI at 50% risk weight	\$1,962	\$23,752	\$201,007	\$205,057	
Hypothetical standard loan with LMI at 35% risk weight	\$1,943	\$23,521	\$199,632	\$203,682	
Standard loan with eligible guarantee at 20% risk weight	\$1,924	\$23,291	\$198,232		\$202,282
Non-Standard loan with LMI at 75% risk weight	\$2,311	\$27,943	\$221,664	\$231,048	

Source: Econtech estimates.

Note: Assumes that the average cost of an eligible guarantee is the same as the average cost of LMI.

¹² Figure provided by Genworth Financial. This figure reflects the average loan amount for first home buyers borrowing over 90 per cent across Australia, which is \$271,814.

1. Introduction

On 11 April 2005, the Australian Prudential Regulation Authority's (APRA) released the first in a series of discussion papers regarding the implementation in Australia of the new capital adequacy regime, known as Basel II Framework (the Framework). This new capital adequacy regime sets up risks and capital management requirements designed to ensure that a bank holds capital reserves appropriate to the risk the bank exposes itself to through lending and investment practices. The Basel II Framework will be implemented in Australia from 1 January 2008.

In the light of Basel II regulatory changes, Genworth Financial commissioned Econtech to estimate the impacts of APRA's proposed changes to risk weights for residential mortgage loans under the standardised approach to credit risk on first home buyers and high risk borrowers.

Importantly, precise measurement of the likely changes in the cost of mortgage loans for first home buyers and high risk borrowers when APRA's proposed changes take place is a challenging task. As such, whilst being as detailed as possible considering the time and information available for the preparation of this report, the calculations presented in this study are broad estimates of the likely impact of the proposed regulatory capital system on the cost of borrowing.

This report is structured as follows.

- Section 2 presents the background of the Basel II Framework.
- Section 3 outlines the changes affecting the residential mortgage loans under Basel II.
- Section 4 provides evidence on the observed impacts of the 1988 Basel Accord and the expected impacts of the more recent Basel II Accord, based on international literature.
- Section 5 presents estimates on the likely effects of APRA's proposed changes on borrowers.
- Section 6 outlines the conclusions of this report.

While all care, skill and consideration has been used in the preparation of this report, the findings refer to the terms of reference of Genworth Financial and are designed to be used only for the specific purpose set out below. If you believe that your terms of reference are different from those set out below, or you wish to use this report or information contained within it for another purpose, please contact us.

The specific purpose of this report is to estimate the impacts of APRA's proposed changes to risk weights for residential mortgage loans under the standardised approach to credit risk on first home buyers and high risk borrowers.

The findings in this report are subject to unavoidable statistical variation. While all care has been taken to ensure that the statistical variation is kept to a minimum, care should be taken whenever using this information. This report only takes into account information available to Econtech up to the date of this report and so its findings may be affected by new information. Should you require clarification of any material, please contact us.

2. Basel II Background

On 11 April 2005, the Australian Prudential Regulation Authority's (APRA) released the first in a series of discussion papers regarding the implementation in Australia of the new capital adequacy regime, known as Basel II Framework (the Framework). The Basel II Framework will be implemented in Australia from 1 January 2008.

APRA believes that adoption of the Framework will make the Australian banking system safer and more efficient. Safer, because authorised deposit-taking institutions (ADIs), their supervisors and market participants will have available capital measures that better reflect ADIs' risk profiles and therefore their true financial condition. And more efficient because ADIs' business decisions will be more closely based on the underlying economics of transactions rather than the regulatory distortions created by the existing rules.

Basel II is the second of the Basel Accords, which are recommendations on banking laws and regulations issued by the Basel Committee on Banking Supervision (a committee of banking supervisory authorities established by the central bank governor of the G10 countries in 1975). The fundamental objective of the Basel II Framework is to strengthen the international banking system by creating international standards that banking regulators can use when regulating capital requirements.

The standards included in Basel II are based around a three pillar framework. The three pillars cover:

1. minimum capital requirements (addressing risk);
2. supervision requirements (potential additional capital); and
3. market disclosure requirements (to promote greater stability in the financial system).

Pillar 1

The first pillar of Basel II sets out the mechanics for new minimum capital adequacy requirements for the different types of risk that an ADI faces. Specifically, Pillar 1 covers the calculation of risk weights to determine a basic minimum capital figure for three major components of risk: credit risk, operational risk and market risk. These risks are defined under the Basel II Framework as follows.

- *Credit Risk.* Credit risk is “the exposure faced by a bank arising from the risk that the counterparty to a transaction could default before the final settlement of the transaction cash flows. An economic loss would occur if the transaction or portfolio of transactions with the counterparty has a positive economic value at the time of the counterparty default”.¹³
- *Operational Risk.* Under the Basel II Framework, operational risk is defined as “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. The definition includes legal risk but excludes strategic and reputational risk”.¹⁴

¹³ Allnes Arthur Robinson, “Insurance as Potential Capital Charge Mitigant under the Basel II Capital Adequacy Framework”, February 2006, Page 2.

¹⁴ APRA Discussion Paper, “Implementation of the Basel II Capital Framework, Standardised Approach to Operational Risk”, July 2005.

- *Market Risk.* Market risk is defined under the Framework as “the risk of losses in on- and off-balance sheet positions arising from movements in market prices. The risks subject to this requirement are: the risks pertaining to interest rate-related instruments and equities in the trading book; and foreign exchange risk and commodities risk throughout the bank”.¹⁵

The Framework includes a number of options for calculating an ADI’s minimum regulatory capital charge for each type of the risks described above, according to their level of sophistication in risk management. These options range from relatively simple approaches to more sophisticated approaches that rely more heavily on an ADI’s own quantitative risk estimates.

The credit risk component can be calculated in three different ways of varying degree of sophistication. The simplest is the Standardised Approach to Credit Risk (Standardised Approach), which provides set risk weights for some asset classes and requires the weight on others to be determined by the public credit rating assigned to the particular asset by rating agencies. This is the approach that the majority of ADIs are expected to adopt¹⁶. ADIs can also, after obtaining consent from APRA, adopt the Internal Ratings Based (IRB) Approach or the Advanced IRB Approach to Credit Risk. These more sophisticated approaches will allow ADIs to use their own risk models to determine appropriate minimum capital.

Consistent with the approach taken for credit risk, the Basel II Framework includes a number of alternative options for determining the regulatory capital charge for operational risk. As with the regulatory capital charge for credit risk, it is expected that the vast majority of Australian banks, building societies and credit unions will use the standardised approach in determining their regulatory capital charge for operational risk.¹⁷ The simplest approach to operational risk is the Alternative Standardised Approach (ASA). Banks can also implement the Advanced Measurement Approaches (AMA) to operational risk. These are the most complex approaches that will be available to an ADI, and are based on an ADI’s own quantitative model¹⁸.

For market risk, the Framework describes two main methods of determining capital, a Standardised Approach and an Internal Model Approach. An ADI must either use the standard method or seek approval from APRA to use its own risk measurement model for determining the regulatory capital requirement for market risk. Nonetheless, ADIs using their own risk measurement model to determine regulatory capital are subject to a more robust set of requirements¹⁹.

¹⁵ APRA Discussion Paper, “*Implementation of the Basel II Capital Framework, Market Risk*”, August 2007.

¹⁶ APRA Discussion Paper, “*Implementation of the Basel II Capital Framework, Standardised Approach to Credit Risk*”, April 2005.

¹⁷ APRA Discussion Paper, “*Implementation of the Basel II Capital Framework, Standardised Approach to Operational Risk*”, July 2005.

¹⁸ APRA Discussion Paper, “*Implementation of the Basel II Capital Framework, Advanced Measurement Approaches to Operational Risk*”, October 2005.

¹⁹ APRA Discussion Paper, “*Implementation of the Basel II Capital Framework, Market Risk*”, August 2007.

Pillar 2

Pillar 2 relates to the internal assessment of capital adequacy and the supervisory review process. Specifically, Pillar 2 is intended to achieve two objectives:

- to ensure that banks have adequate capital to support all the risks in their business; and
- to encourage them to use better techniques for monitoring and managing their risks.²⁰

The second pillar of Basel II also provides a framework for dealing with other risks an ADI may face that are not addressed by Pillar 1. Some of the risks mentioned in the Framework are liquidity risks, credit concentration, reputational risks and strategic risks.

Pillar 3

Pillar 3 deals with market disclosure and market discipline. Specifically, the purpose of this Pillar is to encourage market discipline through a set of disclosure requirements that will allow market participants to assess key pieces of information on the capital, risk exposures and risk assessment processes of an institution and, hence, its prudential standing.²¹

This section discussed the general background of the new Basel II Framework. The next section focuses on the changes proposed by APRA under Basel II that will affect residential mortgage loans, which are the focus of this report.

²⁰ John F. Laker, “*The Basel II Framework – Some thoughts on Pillar 2*”, Basel II Symposium, Economic Society of Australia, Melbourne 28 September 2005.

²¹ Ibid.

3. Changes Affecting Residential Mortgage Loans under Basel II

Section 2 discussed the general background of the new Basel II Framework. This section focuses on the changes proposed by APRA under Basel II that will affect residential mortgage loans, and it is structured as follows. Section 3.1 describes the current position in Australia with respect to risk-weights for residential mortgage loans. Section 3.2 describes how risk-weights for residential mortgage loans will change under APRA's proposal. Section 3.3 provides a summary of the current and proposed capital charges under the standardised approach to credit risk.

3.1 Current Situation

The current capital adequacy arrangements in Australia for residential mortgages establish that all ADIs must carry a 50 per cent risk weight (4 per cent capital) for residential mortgage loans up to:

- 80 per cent loan-to-valuation ratio (LVR) for standard loans²²; and
- 60 per cent LVR for non-standard loans²³.

For standard loans above 80 per cent LVR and for non-standard loans above 60 per cent LVR, all ADIs must carry additional capital. Specifically, ADIs must carry a 100 per cent risk weight (8 per cent capital), unless those loans are insured through an 'acceptable lenders mortgage insurer'²⁴, in which case the 50 per cent capital risk weight (4 per cent capital) applies.²⁵

The current risk weights for residential mortgages are set out in Table 3.1 below.

Table 3.1
Current Risk-Weighting Scheme for Residential Mortgage Loans

LVR (%)	Standard loans		Non-standard loans*	
	Risk-weight (no LMI) %	Risk-weight (with LMI) %	Risk-weight (no LMI) %	Risk-weight (with LMI) %
0-60	50	50	50	50
60.01-80	50	50	100	50
>80	100	50	100	50

Source: APRA Discussion Paper, "Implementation of the Basel II Capital Framework, Standardised Approach to Credit Risk", April 2005 and APRA Guidance Note, "AGN 112.1 - Risk-Weighted On-Balance Sheet Credit Exposures, September 2004.

Notes:

LMI stands for Lenders Mortgage Insurance.

* Defined as loans not meeting specified criteria; for the most part, this refers to "low-doc" loans.

²² LVR refers to the ratio between the size of the loan and the value of the property.

²³ Defined as loans not meeting specified criteria; for the most part, this refers to "low-doc" loans.

²⁴ APRA Discussion Paper, "Implementation of the Basel II Capital Framework, Standardised Approach to Credit Risk", April 2005, Page 5.

²⁵ APRA Guidance Note, "AGN 112.1 - Risk-Weighted On-Balance Sheet Credit Exposures", September 2004, page 17.

3.2 APRA's Proposed Changes

As mentioned in Section 2, the new Basel II capital adequacy regime sets up risks and capital management requirements designed to ensure that a bank holds capital reserves appropriate to the risk the bank exposes itself to through lending and investment practices. Generally speaking, these rules mean that the greater risk to which the bank is exposed, the greater the amount of capital the bank needs to hold to safeguard its solvency and overall economic stability.

One of the key points of APRA's proposed approach is the implementation of revised weights for residential mortgage loans. In particular, APRA proposes to introduce a risk weighting scheme for residential mortgage loans which is based upon the LVR of a loan, the loan type (whether the loan is a standard or non-standard housing loan) and whether the loan has acceptable mortgage insurance covering a minimum of 40 per cent of the original loan amount. Depending upon these characteristics, a loan may be risk-weighted at 35, 50, 75 or 100 per cent, as detailed in Table 3.2. Importantly, the information presented in Table 3.2 refers to the risk weights to be carried by ADIs adopting the standardised approach to credit risk. The position for ADIs using the internal ratings based approach is different and is not presented in this report.

Table 3.2
Risk-Weighting Scheme for Residential Mortgage Loans under APRA's Standardised Approach to Credit Risk

LVR (%)	Standard loans		Non-standard loans*	
	Risk-weight (no LMI) %	Risk-weight (with LMI)** %	Risk-weight (no LMI) %	Risk-weight (with LMI)**%
0-60	35	35	50	35
60.01-80	35	35	75	50
80.01-90	50	35	100	75
90.01-100	75	50	100	75
>100.01	100	75	100	100

Source: APRA Discussion Paper, "Implementation of the Basel II Capital Framework, Standardised Approach to Credit Risk", April 2005.

Notes:

LMI stands for Lenders Mortgage Insurance.

* Defined as loans not meeting specified criteria; for the most part, this refers to "low-doc" loans.

** A minimum of 40 per cent of the original amount must be insured.

Note that the arrangements presented in Table 3.2 mean a reduction in risk weight for standard loans from the current position in most cases and that APRA proposes extra bands of LVR with the objective of better align capital and risk.

Significantly, as shown in Table 3.2, under the APRA's proposed arrangements, in order for an ADI to obtain a 35 per cent risk weighting in respect of a residential mortgage loan exposure, the loan will need to meet strict criteria, including:

- standard loans - LVR of 80 per cent or less (if no LMI) or 90 per cent or less (with LMI); and
- non-standard loans - LVR of 60 per cent or less and it must have LMI.

As a result, ADIs involved in “low-doc” lending and other non-standard loans will only gain the benefit of the 35 per cent weighting in certain circumstances and would face higher capital charges depending on the LVR, type of loan and extent and type of LMI.

Eligible Guarantees

As shown in Table 3.2, under the proposed arrangements, the applicable risk weight differs for standard and non-standard eligible residential mortgages, and for uninsured and insured mortgages when insured to at least 40 per cent of the amount of the mortgage by an acceptable LMI. Additionally to the arrangements shown in Table 3.2, an ADI may, in risk weighting a loan secured by an eligible residential mortgage, make allowance for eligible collateral and guarantees.

In contrast to the risk weights for residential mortgages with LMI (that vary between 35 and 100 per cent), the risk weight for residential mortgages supported by highly rated eligible guarantees is set at a uniform 20 per cent irrespective of LVR and type of loan.

According to APRA’s prudential standard²⁶, only certain types of guarantees with particular characteristics will be recognised as providing acceptable credit risk mitigation for capital adequacy purposes. These requirements include the following:

- the guarantee must represent a direct claim on the guarantor with the extent of the cover being clearly defined and incontrovertible;
- it must be irrevocable;
- there must be no clause in the guarantee that would allow the guarantor to cancel unilaterally the cover of the guarantee or that would increase the effective cost of cover as a result of deteriorating credit quality in the guaranteed exposure;
- the guarantee must be unconditional;
- there should be no clause in the guarantee outside the direct control of an ADI that could prevent the guarantor from being obliged to pay out in a timely manner in the event that the original counterparty fails to make the due payment(s); and
- a claim that is indirectly guaranteed by the Australian Government may be treated as guaranteed by the Australian Government provided that:
 - the indirect guarantee covers all credit risk elements of the claim;
 - both the original guarantee and the indirect guarantee meet all the operational requirements for guarantees except that the indirect guarantee need not be direct and explicit to the original claim; and
 - the ADI is satisfied that the cover of the indirect guarantee is robust and that there is no historical evidence that suggests that the coverage of the indirect guarantee is not equivalent to that of a direct guarantee of the Australian Government.

Additionally, in order for a guarantee to be recognised, the following operational requirements must be satisfied:

²⁶ APRA Prudential Standard APS 112, “*Capital Adequacy: Standardised Approach to Credit Risk*” July 2007.

- on the qualifying default/non-payment of the counterparty, the ADI has the capacity to pursue, in a timely manner, the guarantor for any monies outstanding under the documentation governing the transaction. The guarantor may make one lump sum payment of all monies under such documentation to the ADI or the guarantor may assume the future payment obligations of the counterparty covered by the guarantee. The ADI must have the right to receive any such payments from the guarantor without first having to take legal action in order to pursue the counterparty for payment;
- the guarantee is an explicitly documented obligation assumed by the guarantor; and
- the guarantee covers all types of payments the underlying obligor is expected to make under the documentation governing the transaction.

Importantly, the only eligible guarantors that APRA recognises for capital adequacy purposes are:

1. Commonwealth, State, Territory and local governments (including State and Territory central borrowing authorities) in Australia; central, state and local governments in other countries; public sector entities in Australia and overseas; central banks, ADIs and overseas banks; international banking agencies and multilateral regional development banks (where these guarantors have a lower risk-weight than the counterparty); and
2. other entities with an external rating grade of two or better.

It is difficult to be precise about the impact of eligible guarantees on the mortgage industry, but to the extent that capital requirements for lenders using guarantees are lower than for those using LMI, the use of guarantees over LMI is likely to be encouraged. This is especially relevant considering that the Basel Committee has previously addressed the issue of the interchangeability of guarantees and insurance.²⁷ Indeed, the Basel Committee suggests that “provided that such a product [insurance] meets the operational requirements laid down in paragraph 154-165 of the Technical Guidance²⁸, any product may be treated as a guarantee”.²⁹ Notably, a legal analysis of LMI operating in Australia conducted by Allens Arthur Robinson concluded that, “An Australian LMI policy governed by Australian laws is strongly aligned with the requirements of an eligible guarantee”.³⁰ This suggests that an LMI policy that satisfies the criteria of an eligible guarantee set out by APRA, should be treated as if it were an eligible guarantee.

3.3 Summary of Capital Charges

As mentioned before, this section provides a summary of the current and proposed capital charges under the standardised approach to credit risk. Table 3.3 shows the capital charges applicable to standard loans. Similarly, Table 3.4 shows the capital charges applicable to

²⁷ Bank of International Settlements (BIS), Quantitative Impact Study 3, Frequently Asked Questions, Section E, Credit Risk Mitigation, Question 6. Available online from <http://www.bis.org> (accessed 3 October 2007).

²⁸ Paragraphs 154 to 156 deal with the operational requirements for guarantees and credit derivatives and it gives additional guidance as to the criteria which must be met by an eligible guarantee. These provisions are replicated by APRA in Attachment M of the Prudential Standard APS 112 (*Prudential Standard APS 112, Capital Adequacy: Standardised Approach to Credit Risk*, July 2007).

²⁹ *Ibid.*

³⁰ Allens Arthur Robinson, “*Lender’s Mortgage Insurance Industry Submission. APRA Discussion Paper: Implementation of the Basel II Capital Framework Standardised Approach to Credit Risk, The Legal and Legal Policy Issues*”, October 2005, pp.2.

non-standard loans. For easy reference, increases in capital charge under the new arrangements are presented in red font.

Table 3.3
Current and Proposed Capital Charges for Standard Residential Mortgage Loans under the Standardised Approach to Credit Risk

LVR (%)	Proposed			Current	
	Capital Charge (no LMI) %	Capital Charge (with LMI)** %	Capital Charge with eligible guarantee	Capital Charge (no LMI) %	Capital Charge (with LMI)**%
0-60	2.8%	2.8%	1.6%	4%	4%
60.01-80	2.8%	2.8%	1.6%	4%	4%
80.01-90	4%	2.8%	1.6%	8%	4%
90.01-100	6%	4%	1.6%	8%	4%
>100.01	8%	6%	1.6%	8%	4%

Source: Econtech

Notes:

Based on the full risk weight capital ratio = 8% and the risk weights presented in Table 1 and 2.

LMI stands for Lenders Mortgage Insurance.

** A minimum of 40 per cent of the original amount must be insured.

Table 3.4
Current and Proposed Capital Charges for Non- Standard* Residential Mortgage Loans under the Standardised Approach to Credit Risk

LVR (%)	Proposed			Current	
	Capital Charge (no LMI) %	Capital Charge (with LMI)** %	Capital Charge with eligible guarantee	Capital Charge (no LMI) %	Capital Charge (with LMI)**%
0-60	4%	2.8%	1.6%	4%	4%
60.01-80	6%	4%	1.6%	8%	4%
80.01-90	8%	6%	1.6%	8%	4%
90.01-100	8%	6%	1.6%	8%	4%
>100.01	8%	8%	1.6%	8%	4%

Source: Econtech

Notes:

Based on the full risk weight capital ratio = 8% and the risk weights presented in Table 1 and 2.

LMI stands for Lenders Mortgage Insurance.

* Defined as loans not meeting specified criteria; for the most part, this refers to "low-doc" loans.

** A minimum of 40 per cent of the original amount must be insured.

4. International Experiences with the Basel Accords

To provide further evidence on the likely effects of APRA's proposed changes to capital requirements, Econtech conducted a literature review on countries with similar regulations. These empirical papers provide evidence on the observed impacts of the 1988 Basel Accord and the expected impacts of the more recent Basel II Accord. Importantly, whilst being as comprehensive as possible considering the time and budget available for this project, the list of studies contained in this review is by no means exhaustive. However, the studies presented in this section provide a useful source information on the likely effects of APRA's proposed changes on bank behaviour and the availability of credit.

This section is organised as follows. Section 4.1 reviews papers that provide evidence on the observed impacts of the 1988 Basel Accord (Basel I). Section 4.2 reviews papers that examine the expected impacts of the more recent Basel II Accord (Basel II). Reviewing the impacts of both Basel I and Basel II provides a broader scope in understanding the international experience with capital adequacy regulations. Finally, Section 4.3 provides a summary of the literature review.

4.1 Impacts of Basel I

Ten years after the adoption of the 1988 Basel Accord, Jackson et al (1999)³¹ empirically reviewed its impact across the G-10 countries. Relevant here are the side effects considered in this report, specifically, that bank lending may have been constrained by the increased capital requirements. Evidence suggesting that "bank capital pressures during recent cyclical downturns in the U.S. and Japan may have limited bank lending in those periods and contributed to economic weakness in some macroeconomic sectors"³² is found. This is because, although banks can increase their capital ratio by raising new capital or boosting retained earnings in booms, in recessions, cutting back on loans may be more cost effective. This is especially important for small companies, since it is difficult for them to find alternative sources of finance. There is some indication that such cut backs occurred in the early 1990s in the US.

However, it is important to note that during a recession banks might also reduce lending due to other factors, such as a perception of increased riskiness. Also, it is likely that periods in which banks are capital constrained, are also those in which they are making large write-offs, which reduces their capital. It is also possible that loan demand in such periods will be weak.

In addition, Jackson et al (1999) examine whether the fixed capital requirements had limited risk taking behaviour by banks or whether the banks had simply shifted to the riskier assets within the same weighting band. The authors note that "over time, the banks have learned how to exploit the broad brush nature of the requirements – in particular, the limited relationship between actual risk and the regulatory capital charge."³³ This supports the introduction of Basel II.

³¹ Jackson, Patricia et al. 1999, "Capital requirements and bank behaviour: the impact of the Basle Accord" Basle Committee on banking supervision working papers, No. 1, Bank for International Settlements, Switzerland.

³² Jackson, Patricia et al. 1999, p2

³³ Jackson, Patricia et al. 1999, p2

In another related paper, Peek and Rosengren (1995)³⁴ investigate the early 1990s credit crunch in the US mentioned above. They seek to differentiate between the part of the fall in lending due to bank regulations, and the part due to voluntary behaviour of the banks. These effects can be separated by comparing banks that faced binding constraints from the introduction of capital requirements with those that did not. They conclude that the capital crunch (which lead to a credit crunch) indeed had an explicit regulatory link. They note that the fall in lending was most severe in New England, which had a large proportion of its banks facing constraints from the new regulations.

Importantly, this Peek and Rosengren study examines changes in net *new* lending, as opposed to the stock of loans held by banks. After correcting for various factors, they find that “formal regulatory action causes a significant drop in a bank’s lending to sectors likely to be most dependent on local bank funding.”³⁵ This shrinkage in new loans is statistically and economically significant. The shrinkage was shown to be in addition to any shrinkage due to weak loan demand caused by overall weakness in the economy at that time. This, in part, answers some of Jackson et al’s concerns about the many effects working to decrease lending in periods of recessions.

Other writers in the early 1990s also recognised the relationship between the stricter capital controls and the fall in bank lending rates in the US. Again, they single out New England as having an especially pronounced reaction.

Bernanke, Lown and Friedman, writing in 1991, note that the slowdown in lending in the US was contributed to by both weak demand and a shortage of equity capital.³⁶ However, they remain sceptical that the credit crunch played a significant role in worsening the recession. They estimate that capital shortage had only a modest effect on the availability of loans. They also find that employment growth has little relationship with bank capital-asset ratios and that a fall in demand for all types of credit occurred, indicating that the demand side was important. However, as noted by the authors, they were writing at a time when it was still unclear as to whether the recession had ended, and as such their observations cannot be definitive. Other economists have also questioned the empirical analysis in the paper.³⁷

Furlong (1992) also writes of the early 1990s US situation, analysing cross sectional time series data for individual banks.³⁸ The author finds evidence that capital standards had indeed increased in the early 1990s. He supports the view that the increase in capital standards and the decline in the capital position of some banks contributed to slow loan growth over the 1990-1991 period. Furlong shows that the bank lending had become more sensitive to their capital positions in the 1990s, also slowing loan growth. Nationally, however, a significant proportion of the slowing in loan growth was due to factors other than the increased capital requirements, which is in contrast the New England experience.

³⁴ Peek, Joe and Rosengren, Eric 1995, “*Bank regulation and the credit crunch*”, Journal of banking and finance, Vol. 19 (1995), pp679-692

³⁵ Peek, Joe and Rosengren, Eric 1995, p680

³⁶ Bernanke, Ben S., Cara S. Lown and Benjamin M. Friedman 1991, “*The credit crunch*” Brookings paper on economic activity, Vol. 1991, No. 2. (1991), pp. 205-247

³⁷ Bernanke, Ben S., Cara S. Lown and Benjamin M. Friedman 1991, p245

³⁸ Furlong, Frederick T. 1992, “*Capital regulation and bank lending*” Economic Review, Number 3, Federal Reserve Bank of San Francisco, p 23-33

Choi (2000)³⁹ also examines the effects the adoption of the Basel I standards, but focuses on the effect on Korean Banks of the imposition of increased capital requirements in the aftermath of the Asian Financial Crisis. Similar concerns as those identified in Jackson et al and Peek and Rosengren's reports resurface here.

In Korea, the 8 per cent capital requirements were applied in a hasty manner, and these requirements contributed to the curtailment of credit, even after controlling for other factors. In particular, the requirements worsened conditions for Small and Medium Enterprises (SMEs), as banks reduced loans to firms with higher risk. This filtered through to have macroeconomic effects since SMEs tend to depend on banks to finance their investment. Moreover, banks which were more capital-constrained reduced the size of their loans drastically, causing a more acute contraction in loans.

4.2 Impacts of Basel II

Tanaka (2002)⁴⁰ develops a model to analyse the macroeconomic effect of Basel I and Basel II, with particular focus on the monetary transmission mechanism, otherwise known as the money multiplier. Tanaka argues that the "monetary transmission mechanism is weakened if banks are poorly capitalised or if the adequacy requirement is stringent".⁴¹ That is, monetary policy is likely to be more effective if the banking sector is well-capitalised and the capital adequacy requirement is low. It is therefore predicted that Basel II would weaken the effectiveness of monetary policy during recessions.

Importantly, Tanaka also argued that a rise in credit risk, perhaps caused by macroeconomic downturn, may lead to sharper contractions in loan supply under Basel II than before. This is because a rise in credit risk will raise the probability of facing a regulatory penalty for given levels of capital and loans. Hence, the supply of bank loans is likely to expand more rapidly during booms and contract more sharply during recessions.

In another paper, Tanaka reemphasises this pro-cyclical effect of Basel II.⁴² The discussion is extended by noting that this increased cyclical volatility could be difficult to offset through the use of monetary policy, given its weakened effect during recessions. Tanaka does note, however, that empirical research needs to be carried out in order to more concretely understand the dynamic of the response of loan supply to monetary policy under Basel II.

Tanaka's 2003 paper discusses how capital adequacy regulations could end up leading to a reduction in aggregate loan supply, that is, a credit crunch. Banks will choose the most cost effective way to meet the new regulatory requirements and "if the cost of raising new capital is very high - as is often the case for financially weak institutions - banks are likely to reduce their lending in order to fulfil the regulatory requirement."⁴³

³⁹ Choi G. 2000, "The macroeconomic implications of regulatory capital adequacy requirements for Korean banks" Economic Notes, Banca Monte dei Paschi di Siena SpA, Vol. 29, no, 1-2000, pp. 111-143.

⁴⁰ Tanaka, Misa 2002, "How to bank capital and capital adequacy regulations affect the monetary transmission mechanism?", CESifo Working Paper No. 799.

⁴¹ Tanaka, Misa 2002, p1

⁴² Tanaka M. 2003, "The macroeconomic implication of the new Basel Accord", CESifo Economics Studies, Vol. 49, 2/2003, 217-232

⁴³ Tanaka 2000, p222

Moreover, banks will face incentives to move their lending to firms with more sound credit ratings, since these will have a lower capital requirement. This is likely to adversely affect SMEs and firms in developing countries. Tanaka advises that “special provisions for SMEs and emerging market borrowers may have to be introduced in order to ensure their continued access to bank loans”. This is likely to be a greater concern the higher the reliance on bank finance.

In “Basel 2 and the UK Mortgage Market” (2007)⁴⁴, a report based on a survey of UK mortgage lenders, Jaggat examines the issues faced by mortgage lenders complying with the new Capital Requirements Directive in the UK. The report notes in particular the differences between lenders intending to adopt the internal ratings based (IRB) approach to credit risk, and those choosing to stay on the simpler, standardised approach.

Of the institutions surveyed, around half intended to adopt IRB, however, these lenders comprised 93 per cent of total mortgage assets. Moving to IRB status will mean that customer and risk data will be enhanced, which should improve pricing and underwriting decisions.

The majority of lenders surveyed expect their minimum capital requirements for credit risk on their mortgage portfolios to fall compared to under Basel I. Reductions for lenders opting for the standardised approach are expected to average 25 per cent, compared to those opting for the IRB approach at over 60 per cent.⁴⁵ The greatest reductions are expected in lenders with a large proportion of their businesses in residential mortgages. Transitional rules, however, mean that allowable reductions under IRB will be limited until the end of 2009. Also, some large diversified banks expect no reduction in their overall minimum capital requirements, because of the higher risk weighting on some assets.

These capital savings should free up significant capital for some firms. These could be used to reduce the capital allocated to low risk portfolios, grow the business, returning the savings to shareholders. That is, there is a possibility that more loans be extended to high risk, high return portfolios.

In terms of pricing, the direction of price movements in the UK reflects the expected direction of the change in credit risk. More respondents expected a narrowing rather than a widening of margins in the prime market, already a very competitive market, and likewise for the buy-to-let market. In the self-certification and sub-prime markets, however, more respondents expected margins to widen. However, many lenders believed that these changes would be small. Moreover, some lenders commented that, due to competition and their status as price takers, neither credit risk or capital requirements are the biggest factors determining price.

An important consideration for first home buyers, small business owners, and borrowers with a limited credit history is that about 50 per cent of lenders, adopting both approaches, expect Basel II to impact the products they develop.

“There has been an increase in the proportion of lending to home buyers where the products have flexible products such as the ability to underpay, draw on reserves, and

⁴⁴ Jaggat, Brian 2007, “*Basel 2 and the UK Mortgage Market – challenges and opportunities*”, Ernst and Young LLP

⁴⁵ Jaggat, Brian 2007, p37.

redraw amounts paid ahead. Over 50% of loans now taken out offer over and under payments and around 5% operate offsets between current accounts and mortgage loans. These products tend to require more regulatory capital than products without flexible features... But despite that, the lenders we interviewed suggested that they would be unlikely to limit the flexibility to draw on reserves, as there is customer demand for such features.”⁴⁶

Jaggar’s report concludes that Basel II will widen the gap between small and large lenders in the UK, with mortgage banks and large building societies likely to be the main winners. This gap will appear in terms of size, capability and customer knowledge. This is because lenders adopting the IRB approach, mostly large lenders, have the potential to gain a competitive advantage at the expense of those adopting the standardised approach.

However, the strength of this argument may be undermined by the fact that Jackson⁴⁷, writing in 1999, found no persuasive evidence that the introduction of the 1988 Basel Accord significantly levelled the playing field for banks.

4.3 Summary of Literature Review

The findings of reports concerning the Basel I Accord consistently observe that the introduction of higher capital adequacy requirements had an adverse effect on lending to bank-dependent borrowers, such as small businesses, particularly in periods of recession. While first home buyers and those with short credit histories are not examined directly, the analysis might be extended to their situation.

A major concern for Basel II is its pro-cyclicality effect, as it preserves financial stability at the cost of increased macroeconomic volatility. This is in addition to the increased sensitivity to changes in credit risk, also linked to the stage of the business cycle, of the volume of bank loans available. These two effects could be important for first home buyers, small businesses and borrowers with a short credit history, who may be less able to withstand substantial swings in economic activity and face a lower supply of loans in times of recession.

Moreover, under Basel II, because banks have an overall incentive to move away from higher risk loans, there can be less loans available to first home buyers, small businesses and borrowers with a short credit history, who are perceived to be more risky.

However, considering the findings by Jaggar, this might be offset by an increase in overall lending. Given that banks expect their overall capital requirements to decrease, this may translate into an increase in overall lending, which may include an increase in lending across loan types.

⁴⁶ Jaggar, Brian 2007, p30

⁴⁷ Jackson 1999, p5

5. Likely Effects of Proposed Changes on Borrowers

In this section, Econtech analyses the likely effects of APRA's proposed changes on first time buyers and high-risk borrowers.⁴⁸ Specifically, Econtech's analysis focuses on first home buyers and high risk borrowers with loans with an LVR higher than 90 per cent. These groups are chosen because:

- over 70 per cent of first home buyers seek finance of between the 90 per cent and 100 per cent of the purchase price of their property⁴⁹ as it is often difficult for them to save for a deposit that is sufficiently large to obtain finance at non-penalty interest rate;
- high risk borrowers are the most likely group to be affected by APRA's proposed changes;
- generally, for loans of less than 80 per cent LVR LMI is not required; and
- the volume of loans issued in September 2006 in the 90-100 per cent LVR band was significantly higher than the number of loans issued in the 80-90 per cent in the same period.⁵⁰

Precise measurement of the likely changes in the cost of mortgage loans for borrowers when APRA's proposed changes take place is a challenging task. Nonetheless, in this study, Econtech provides some broad calculations of the likely impact of the proposed regulatory system, on the cost of borrowing. To do so, Econtech estimates the effects of the regulatory changes on the cost of the following loans.

- Loan 1- A standard loan with LVR of 95 per cent and no LMI, which according to the proposed standards attracts a 75 per cent risk weight.
- Loan 2- A standard loan with LVR of 95 per cent and LMI, which according to the proposed standards attracts a 50 per cent risk weight.
- Loan 3- This is a hypothetical loan with a hypothetical risk weight. The aim of this example is to illustrate what would be the cost of a standard loan with LVR of 95 per cent and LMI under the new arrangements if the weight currently assigned by APRA (50 per cent) were reduced to 35 per cent.
- Loan 4- A standard loan with LVR of 95 per cent and eligible guarantee, which according to the proposed standards attracts a 20 per cent risk weight.
- Loan 5- A non-standard loan with LVR of 95 per cent and LMI, which according to the proposed standards attracts a 75 per cent risk weight.

Importantly, to estimate the cost of the above loans under the new regulatory system, Econtech made the following assumptions.

- *Average loan size*- for this report it is assumed that the average loan size is \$272,000. This is based on data provided by Genworth Financial which shows that the average loan amount for first home buyers borrowing over 90 per cent is \$271,814.

⁴⁸ For the purpose of this report, we refer to 'high risk borrowers' as those borrowers with a limited credit history (i.e. this refers to "low-doc" loans).

⁴⁹ Figure provided by Genworth Financial, 24 September 2007.

⁵⁰ John F. Laker "Credit Standards In Housing Lending – Some Further Insights", speech to the Institute of Chartered Accountants 20 June 2007.

- *Loan repayment period*- for the estimates presented in this report, Econtech assumed an average loan repayment period of 30 years.
- *Average cost of LMI*- it is assumed that the average rate of LMI for a standard loan with a LVR of 95 per cent is 1.62 per cent of the loan size. This LMI rate is based on current Genworth Financial rate card for a standard loan. For non-standard loans, it is assumed that the average rate of LMI for a loan with a LVR of 95 per cent is 3.45 per cent of the loan size.⁵¹
- *Average cost of eligible guarantee*- it is assumed that the average cost of an eligible guarantee is the same as the average cost of LMI for each type of loan.
- *Interest rates for Standard Loans*- the estimates in this report assume a standard variable rate of 8.32 per cent. This rate is based on a prime borrower, with no adverse credit history and for fully verified loans. Additionally to this variable rate, it is assumed that a 0.50 discount off standard variable rate applies to those loans with LMI and that a 0.50 adder applies for loans without LMI.⁵²
- *Interest rates for Non-Standard Loans*- the estimates in this report for non-standard loans assume an interest rate of 9.45 per cent.⁵³
- *Funding rate for lender*- for this report, it is assumed that lenders can access additional funds at the official cash rate of 6.5 per cent.⁵⁴
- *Marginal Return on Equity (ROE)* – To assess the possible implications of APRA’s changes on a bank’s costs of lending, it is necessary to know how much profit the bank would lose (or gain) by having to hold more (or less) capital. Broadly, the ROE measures the profits that a firm generates from every dollar of net assets. Hence, the ROE of a bank can be used to measure how much profit the lender would lose (or gain) by having to hold more (or less) capital. Particularly, this report uses the marginal return on equity (as opposed to the average return on equity) of banks to estimate their increased costs (or savings) due to APRA’s changes. The marginal return on equity is used because it is the return that banks are making on their newer investments that conveys the most information about the additional costs (or savings) that a bank would face by holding more (or less) capital. Further, at the margin, when banks want to expand or contract, they would increase or decrease their wholesale funds, not the retail deposits.

As a proxy for the marginal ROE, Econtech used the average ROE of banks that hold a smaller portion of retail deposits as a share of their total assets. Some examples of these are the Adelaide Bank, Bendigo Bank and Bank of Queensland. Based on information about the average ROE for these banks in 2006⁵⁵, Econtech assumed that the marginal ROE for home loan providers is 15 per cent.

- *Lenders Margins*- this report assumes that the margins in the Australian mortgage industry remain the same after the new arrangements are implemented. Therefore, it is assumed that if capital requirements increase (or decrease) under the new arrangements, lenders would transfer the additional cost (or savings) to consumers to maintain their profit margin constant. This means that if capital requirements increase for a particular

⁵¹ Figures provided by Genworth Financial, 25 September 2007.

⁵² Information provided by Genworth Financial.

⁵³ Ibid.

⁵⁴ RBA official cash rate at October 2007.

⁵⁵ Macquarie Research Group Notes, “*Bank Sector Valuations, September 2007*”, “*Bank of Queensland, August 2007*”, and “*Adelaide Bank/Bendigo Bank, August 2007*”.

type of loan, it is expected that this loan price (i.e the interest rate charged on the loan) would increase. Similarly, if capital requirements decrease for a particular type of loan, it is expected that this loan price (interest rate) would decrease.

- *Loan Pricing* - The change in loan price is calculated in two steps. First, Econtech estimated the banks' increased costs (or savings) from having to hold more (or less) capital by using the spread between the funding rate and the marginal ROE. For instance, if the risk weights for a particular loan decreased from 50 to 35 per cent, this means that the capital requirement for a bank offering this loan would decrease by 1.2 percentage points (from 4 per cent to 2.8 per cent). This means that this bank could earn an additional 8.5 per cent (the spread between the funding rate and the marginal ROE) on the 1.2 percentage points of reduced capital charges. Second, since it was assumed that banks would transfer the increased costs (or savings) to consumers, the changes in capital costs estimated in the first step are used to adjust the interest rate paid by borrowers. A summary of the interest rates used to calculate the cost of loans under the current and proposed arrangements is presented in Table 5.1.

Using the above assumptions and the information presented in Table 5.1, Econtech estimated the cost of the above loans under the new regulatory system. The sections below present the results of this analysis.

Table 5.1
Inputs Used to Estimate the Cost of Loans

	Loan Description	Loan Amount	Current Risk Weight	Proposed Risk Weight	Current capital charge	Proposed capital charge
Loan 1	95% LVR loan (no LMI)	\$272,000	100%	75%	8.00%	6.0%
Loan 2	95% LVR loan (with LMI)	\$272,000	50%	50%	4.0%	4.0%
Loan 3	95% LVR loan with 35% risk weight (with LMI)	\$272,000	50%	35%	4.0%	2.8%
Loan 4	95% LVR loan (with eligible guarantee)	\$272,000	50%	20%	4.0%	1.6%
Loan 5	95% LVR non-standard loan (with LMI)	\$272,000	50%	75%	4.0%	6.0%

Table 5.1 (Continued)
Inputs Used to Estimate the Cost of Loans

	Loan Description	Current Interest Rates on Loan (% p.a.)	Adjusted Interest Rates on Loan (% p.a.)	Cost of LMI/guarantee (\$)
Loan 1	95% LVR loan (no LMI)	8.82%	8.65%	\$0
Loan 2	95% LVR loan (with LMI)	7.82%	7.82%	\$4,050
Loan 3	95% LVR loan with 35% risk weight (with LMI)	7.82%	7.72%	\$4,050
Loan 4	95% LVR loan (with eligible guarantee)	7.82%	7.62%	\$4,050
Loan 5	95% LVR non-standard loan (with LMI)	9.45%	9.62%	\$9,384

Source: Econtech estimates.

Notes:

- Loan 3 is a hypothetical loan. The aim of this example is to illustrate what would be the cost of this loan under the new arrangements if the current weight assigned by APRA (50 per cent) were decreased to 35 per cent.
- Loan 4 is considered under the current arrangements as equivalent to loan 2. Hence, it is assumed that under the current arrangements it would attract the same weight and capital charges than loan 2.

5.1 Cost of Loan 1 under Basel II

Loan 1 is a standard loan with a LVR of 95 per cent and no LMI. Under the current arrangements, this type of loan attracts a risk weight of 100 per cent or a capital charge of 8 per cent (Tables 3.1 and 3.3). In contrast, under APRA's proposed arrangements, this same loan would attract only a 75 per cent risk weight or a capital charge of 6 per cent (Tables 3.2 and 3.3). Given that the capital requirements for this type of loan actually decrease under the new regulatory system, it is expected that the price for this loan would drop by a small amount. The estimated cost of this loan using the inputs in Table 5.1 and the assumptions outlined before is presented in Table 5.2. This table shows the monthly and annual payments for this type of loan under the current and proposed arrangements, and the Net Present Value (NPV) of interest payments.

Table 5.2
Cost of Loan 1

	Current	Proposed	Difference
Monthly payments	\$2,153	\$2,120	-\$33
Annual payment	\$26,054	\$25,658	-\$396
NPV of interest payments	\$213,285	\$211,346	-\$1,939

Source: Econtech estimates.

As shown in Table 5.2, under the proposed arrangements, a borrower with a loan with the characteristics of Loan 1 would pay \$33 less a month, or \$396 less a year, when compared to the current arrangements. In NPV terms, this means that under the proposed arrangements, a borrower would pay about \$1,939 less for this loan, or around 0.7 per cent of the purchase cost of the dwelling.

5.2 Cost of Loan 2 under Basel II

Loan 2 is a standard loan with a LVR of 95 per cent and LMI. Under the current arrangements, this type of loan attracts a risk weight of 50 per cent or a capital charge of 4 per cent (Tables 3.1 and 3.3). Under APRA's proposed arrangements, the risk weight for this loan would remain the same, attracting a 50 per cent risk weight or a capital charge of 4 per cent (Tables 3.2 and 3.3). Given that the capital requirements for this type of loan remain unchanged under the new regulatory system, it is expected that the price for this loan will not change. The estimated cost of this loan using the inputs in Table 5.1 and the assumptions outlined before is presented in Table 5.3. This table shows the monthly and annual payments for this type of loan under the current and proposed arrangements, and the Net Present Value (NPV) of interest payments with and without LMI paid up front.

As expected, Table 5.3 shows that the payments under the current and proposed arrangements do not change.

Table 5.3
Cost of Loan 2

	Current	Proposed	Difference
Monthly payments	\$1,962	\$1,962	\$0
Annual payment	\$23,752	\$23,752	\$0
NPV of interest payments	\$201,007	\$201,007	\$0
NPV of interest payments + LMI paid upfront	\$205,057	\$205,057	\$0

Source: Econtech estimates.

5.3 Cost of Loan 3 under Basel II

As mentioned before, Loan 3 is a hypothetical loan with a hypothetical risk weight. The aim of this example is to illustrate what would be the cost of a standard loan with a LVR of 95 per cent and LMI under the new arrangements if the weight currently assigned by APRA (50 per cent) were reduced to 35 per cent. As mentioned in Section 5.2, the risk weight of a loan with a LVR of 95 per cent and LMI remains unchanged under Basel II at 50 per cent (capital charge of 4 per cent). The estimates presented in this section illustrate what would be the cost of this same loan if the weight assigned by APRA under Basel II were reduced to 35 per cent.

Given that changing the risk weight from 50 to 35 per cent would reduce the capital requirements for this type of loan, it is expected that the price for this loan would drop by a small amount. The estimated cost of this loan using the inputs in Table 5.1 and the assumptions outlined before is presented in Table 5.4. This table shows the monthly and annual payments for this type of loan with a 50 and 35 risk weights, and the Net Present Value (NPV) of interest payments with and without LMI paid up front.

Table 5.4
Cost of Loan 3

	With 50% risk weight	With 35% risk weight	Difference
Monthly payments	\$1,962	\$1,943	\$19
Annual payment	\$23,752	\$23,521	\$231
NPV of interest payments	\$201,007	\$199,632	\$1,376
NPV of interest payments + LMI paid upfront	\$205,057	\$203,682	\$1,376

Source: Econtech estimates.

As shown in Table 5.4, with a 35 per cent risk weight, a borrower with a loan with the characteristics of Loan 3 would pay around \$19 less a month, or \$231 less a year, when compared to the currently assigned risk weight of 50 per cent. In NPV terms, this means that with a 35 per cent risk weight, a borrower would pay about \$1,376 less for this loan, or around 0.5 per cent of the purchase cost of the dwelling.

5.4 Cost of Loan 4 under Basel II

Loan 4 is a standard loan with a LVR of 95 per cent and an eligible guarantee. Since under the current arrangements the concept of eligible guarantees is not used, it is assumed that currently a loan such as Loan 4 would be equivalent to Loan 2 (a standard loan with a LVR of 95 per cent and LMI) and hence would attract the same weight and capital charges. This means that, under the current arrangements, this type of loan would attract a risk weight of 50 per cent or a capital charge of 4 per cent (Tables 3.1 and 3.3). In contrast, under APRA's proposed arrangements, this same loan would attract only a 20 per cent risk weight or a capital charge of 1.6 per cent (Table 3.3).

Given that the capital requirements for this type of loan actually decrease under the new regulatory system, it is expected that the price for this loan would drop by a small amount, when compared to the cost of Loan 2. The estimated cost of this loan using the inputs in Table 5.1 and the assumptions outlined before is presented in Table 5.5. This table shows the monthly and annual payments for this type of loan under the current and proposed arrangements, and the Net Present Value (NPV) of interest payments with and without LMI/guarantee paid up front. As mentioned before, the cost of the loan under the current arrangements is equivalent to the cost of Loan 2. Hence the difference should be interpreted as the decrease in cost of a standard loan with a LVR of 95 per cent using an eligible guarantee, when compared to the cost of using an LMI for the same loan.

Table 5.5
Cost of Loan 4

	Current	Proposed	Difference
Monthly payments	\$1,962	\$1,924	-\$38
Annual payment	\$23,752	\$23,291	-\$461
NPV of interest payments	\$201,007	\$198,232	-\$2,775
NPV of interest payments + LMI/guarantee paid upfront	\$205,057	\$202,282	-\$2,775

Source: Econtech estimates.

As shown in Table 5.5, under the proposed arrangements, a borrower with a standard loan with a LVR of 95 per cent using an eligible guarantee would pay around \$38 less a month, or \$461 less a year, than a borrower with the same loan using an LMI instead of an eligible guarantee. In NPV terms, this means that under the proposed arrangements, a borrower would pay about \$2,775 less for this loan, or around 1 per cent of the purchase cost of the dwelling.

5.5 Cost of Loan 5 under Basel II

Loan 5 is a non-standard loan with LVR of 95 per cent and LMI. Under the current arrangements, this type of loan attracts a risk weight of 50 per cent or a capital charge of 4 per cent (Tables 3.1 and 3.4). In contrast, under APRA's proposed arrangements, this same loan would attract a 75 per cent risk weight or a capital charge of 6 per cent (Tables 3.2 and 3.4). Given that the capital requirements for this type of loan actually increase under the new regulatory system, it is expected that the price for this loan would increase by a small amount. The estimated cost of this loan using the inputs in Table 5.1 and the assumptions outlined before is presented in Table 5.6. This table shows the monthly and

annual payments for this type of loan under the current and proposed arrangements, and the Net Present Value (NPV) of interest payments with and without LMI paid up front.

Table 5.6
Cost of Loan 5

	Current	Proposed	Difference
Monthly payments	\$2,277	\$2,311	\$34
Annual payment	\$27,538	\$27,943	\$405
NPV of interest payments	\$219,982	\$221,664	\$1,682
NPV of interest payments + LMI paid upfront	\$229,366	\$231,048	\$1,682

Source: Econtech estimates.

As shown in Table 5.6, under the proposed arrangements, a borrower with a loan with the characteristics of Loan 5 would pay \$34 more a month, or about \$405 more a year, when compared to the current arrangements. In NPV terms, this means that under the proposed arrangements, a borrower would pay about \$1,682 more for this loan, or about 0.6 per cent of the purchase cost of the dwelling.

6. Conclusions

This report finds that, for most standard loans, APRA's proposed changes under Basel II would reduce the mandatory minimum capital reserves that ADIs must hold against loans advanced.⁵⁶ In contrast, for most non-standard or 'low-doc' loans, APRA's proposed changes would mean that ADIs' mandatory minimum capital reserves must increase or remain at the current level.

In general terms this means that the pricing for riskier loans might increase by a small amount, and that the pricing for the least risky loans might drop by a small amount. This is in line with the key objective of the Basel II Framework, which is to set capital requirements that are more sensitive to the type and level of home loan risks. Hence, although on average credit risk capital requirements for home loans should fall, the new rules mean that more capital must be held for the riskier loan types.

Notably, although the average LVR for loans across Australia is around 66 per cent⁵⁷, the analysis in this report focuses on the effects of APRA's proposed changes on the cost of loans with LVR over 90 per cent. As mentioned before, this is because the objective of this report is to estimate the effects of the regulatory changes on first home buyers, and over 70 per cent of first home buyers seek finance of between the 90 per cent and 100 per cent of the purchase price of their property.⁵⁸

In particular, this report finds that under APRA's proposed changes:

1. the monthly payment for a standard loan of \$272,000 with a LVR of 95 per cent and no LMI would be approximately \$33 less, than under the current capital requirements;
2. the monthly payment for a standard loan with a LVR of 95 per cent and LMI would not change;
3. the monthly payment for a standard loan of \$272,000 with a LVR of 95 per cent and an eligible guarantee is approximately \$38 less, than for a standard loan with LMI at the 50 per cent risk weight proposed by APRA;
4. the monthly payment for a non-standard loan of \$272,000 with a LVR of 95 per cent and LMI would be approximately \$34 more, than under the current capital requirements; and
5. if APRA's proposed risk weight for a standard loan with a LVR of 95 per cent and LMI were reduced from 50 to 35 per cent, the monthly payment for a loan of \$272,000 with these characteristics would be reduced by approximately \$19.

Given that, in general, loans exceeding a LVR of 80 per cent would be required to obtain insurance, the most relevant results are those included in points 2 to 4 above.

⁵⁶ Except for standard loans with LVR >100.01 and LMI, for which the risk weight under Basel II increases from 50 per cent to 75 per cent.

⁵⁷ Source: AFG Mortgage Index at August 2007.

⁵⁸ This figure was provided by Genworth Financial, 24 September 2007.