

Deloitte Access Economics

# Socioeconomic impact of LMI in Australia

Genworth

May 2014

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# Glossary

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ABS	Australian Bureau of Statistics
ADI	Authorised deposit-taking institution
ANZ	Australian New Zealand Banking Group Limited
APS	Australian Prudential Standard
APRA	Australian Prudential Regulatory Authority
CBA	Commonwealth Bank of Australia
CRM	Credit risk mitigant
CUBS	Credit unions and building societies
GFC	Global financial crisis
FHB	First homebuyers
HLIC	Housing Loans Insurance Corporation
ING	ING Bank (Australia)
IRB	Internal ratings based
LGD	Loss given default
LMI	Lenders mortgage insurance
LTV	Loan-to-value
LVR	Loan-to-value ratio
MBL	Macquarie Bank Limited
MI	Mortgage insurance
NAB	National Australia Bank
NSW	New South Wales
PD	Probability of Default
QLD	Queensland
RBA	Reserve Bank of Australia
RNBZ	Reserve Bank of New Zealand
VIC	Victoria
WA	Western Australia
WBC	Westpac Banking Corporation

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# Executive Summary

Lenders mortgage insurance (LMI) is a unique insurance product that promotes access to housing. As a product, it operates to protect financial institutions against loss arising from borrowers defaulting on residential mortgages. What this means is that lenders can do more lending in the presence of LMI which improves borrowers' access to housing and bolsters competition and stability in financial markets and the broader economy.

LMI helps smaller players compete in the home lending market and to diversify risk across the whole financial system. Pre- GFC, Australia had a robust financial system that encouraged innovation and diversified risks. Post-GFC, risks have become more concentrated in banks and, within banks, in the major banks. An effective LMI market can assist with innovation and diversification going forward.

This report contains an analysis of what happens to the socioeconomic benefits of LMI if the financial balance between LMI and its capital adequacy and risk management substitutes alters, such that lenders use less LMI.

## LMI is valuable and valued

LMI benefits banks, and the broader economy and society too. By helping banks manage risk, LMI:

- **Improves access to homeownership.** Extending access and affordability of housing is a longstanding policy goal. LMI has played an integral role in achieving this goal since 1965, when the then government established the LMI industry through the formation of the Housing Loans Insurance Corporation. LMI extends lending to borrowers who may otherwise be excluded from home ownership and brings forward ownership for those with insufficient deposits; for those who are creditworthy but do not have a sizeable deposit or a long credit history, including first homebuyers (FHBs) and the self-employed. This is achieved because LMI can help spread the lender's risk of lending to this group and because mortgage insurers (MIs) have the skills necessary to evaluate the risk of these groups.
- **Increases competition between lenders.** Competition between lenders provides choice and innovation for borrowers and assists affordability. While credit unions and building societies (CUBS), major banks, other banks, and non- authorised deposit taking institutions (non-ADIs) all use LMI, it is used more by small and regional ADIs that cannot carry as much risk on their smaller balance sheets. LMI lowers the level of capital required to be held against loans by lenders, allowing a greater range of lenders into the market which increases the choice of lender available to borrowers. More choice means there will be more competition between lenders for market share.
- **Bolsters financial and economic stability.** In the wake of the GFC, policy makers were concerned about erosion in lending standards and financial system stability. LMI aids financial stability by allowing a greater spread of risk and diversification of lenders exposures.
  - For small ADIs operating in regional markets, LMI allows them to diversify and to smooth the volatility in their balance sheets

- Larger, national lenders can gain from the global diversification of mortgage insurance.
- LMI provides **another set of eyes** looking at mortgage policy, underwriting processes and data at a disaggregated level, **giving an extra layer of protection against risk**. Flowing from this LMI provides an increased quality of risk assessment throughout the economy, which has become even more important since the GFC, and delivers extra diversification of risks.

**Each of these is an important policy goal; LMI provides significant social and economic benefits and helps government achieve key policy goals.**

The benefits of LMI are widely recognised. The Joint Forum of global banking, insurance and securities supervisors sees LMI playing an important role, while the Basel Committee of Banking Supervisors recognises that LMI significantly reduces credit risk for high LVR (or LTV) mortgages and can therefore legitimately be counted in calculating banks' capital requirements.

*MI provides additional financing flexibility for lenders and consumers, and supervisors should consider how to use such coverage effectively in conjunction with LTV requirements to meet housing goals and needs in their respective markets. Supervisors should explore both public and private options (including creditworthiness and reserve requirements), and **should take steps to require adequate MI in instances of high LTV lending** (eg greater than 80% LTV) (emphasis added, Joint Forum 2010).<sup>1</sup>*

LMI is mandatory for high LVR mortgages in Canada and incentivised for a majority of high LVR mortgages in the US, and the 2013 UK budget included funds for mortgage guarantees to support access to housing.

## **LMI in Australia**

Insurance markets work best when insurers have access to a wide distribution of risk, to enable them to price risk appropriately. Mortgage insurers specialise in assessing and managing high LVR risk. An LMI market drives productive efficiency, by enabling transfer of risk from lenders to MIs, subject to the requirements to hold sufficient capital reserves, which also supports the balance between efficiency and sufficiency of system capital.

LMI is predominantly priced using the LVR and the size of the loan, rather than the customer's characteristics that are used to calculate the credit score. This means that pricing is more akin to 'community rating' – where all borrowers pay the same price for equivalent insurance – rather than a purely risk-based approach to pricing.

This approach to pricing addresses affordability concerns for borrowers who tend to have more modest or irregular incomes. But the current LMI pricing structure also increases the importance of insurers having access to a sufficiently broad distribution of risks, or risk

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<sup>1</sup> <http://www.bis.org/publ/joint30.pdf>

pool, including lower-risk borrowers, to keep prices affordable. This goal is supported in other countries by:

- making LMI mandatory, like 3<sup>rd</sup> party property insurance for car owners in Australia; and
- providing regulatory incentives to encourage lenders to use appropriate credit risk mitigation strategies, such as LMI.

ADIs are able to determine capital requirements held for regulatory purposes, according to one of two methods. Internally-rated banks use a model-based approach which is more aligned with the risk profile of individual ADI.<sup>2</sup> Smaller banks use a standardised (default) method.

LMI does not receive explicit regulatory capital relief for internally rated ADIs or Government support in Australia. If lenders prefer to retain risk, keeping the better risks on their books and reducing the average creditworthiness of those remaining in the insurance pool, insurers are forced to respond by some combination of raising the price of LMIs and not accepting applications from riskier applicants.

*For ADIs using approved internal models under Basel II, **APRAs requirement for a 20 per cent loss given default (LGD) floor has, to a significant extent, reduced the explicit regulatory incentive for ADIs to seek LMI cover.** Nevertheless, such ADIs still see the benefit of LMI as a risk transfer mechanism and thus continue to buy LMI protection for their high LTV loans.*

*There has, however, been **a tentative shift among a few of the largest banks over recent years to write home loans at LTVs up to 85 per cent without LMI cover** but to charge borrowers a higher fee to compensate for the greater risk. This has occasionally been characterised as ‘self-insurance’ as the additional fee charged bears some resemblance to the quantum of the one-time premium charged when obtaining LMI cover (emphasis added, Joint Forum 2013).*

Regulatory settings can affect the economy as a whole, and borrowers and lenders in particular, will pay a penalty in terms of economic welfare forgone:

- increasing capital reserve requirements reduces the amount of available capital, so there will be unexploited opportunities for profitable lending, notably to excluded groups of would-be homeowners;
- less diversification of risk by lenders will alter the risk profile of the economy; and
- there will be tension with homeownership policy goals.

## Cost of LMI atrophy

Without recognition of LMI for capital relief, and if major lenders raise their risk retention, the outlook for LMI in Australia will be problematic. To illustrate how this may affect access

<sup>2</sup> In Australia those ADIs approved to use the model-based approach are: Australia and New Zealand Banking Group Limited (ANZ); Commonwealth Bank of Australia (CBA); National Australia Bank Limited (NAB); Westpac Banking Corporation (WBC); and Macquarie Bank Limited (MBL). In addition the accreditation application of ING Bank (Australia) Limited (ING) is subject to assessment

to homeownership, characteristics of borrowers who use LMI are shown in Table i. Borrowers are ranked into five quintiles based on their credit score; a higher score means a higher credit rating. The average value for a number of characteristics was calculated for each quintile. Quintile 5 is most vulnerable to losing access to credit. Typically, this group lacks a long credit track record; they are younger and more likely to be a FHB.

**Table i: Characteristics of borrowers with LMI by credit score quintile (2005-13)**

	<b>Average age</b>	<b>Portion FHB</b>	<b>Portion Major banks</b>
Quintile 1	42.29	8%	18%
Quintile 2	42.57	11%	37%
Quintile 3	41.41	15%	38%
Quintile 4	40.91	17%	32%
Quintile 5	40.67	19%	26%
<b>All</b>	<b>41.59</b>	<b>14%</b>	<b>30%</b>

Source: Genworth data, Deloitte Access Economics calculations

To highlight the potential consequence for the economy of reduced access to mortgages enabled by LMI, a series of scenarios are presented using de-identified data from Genworth's database (using the most recent statistics for calendar year, being 2012). The database covers around 50% of successful applications to all LMI providers and is assumed to be representative of all applicants.

### Decreasing the pool of high LVR customers

This scenario is illustrative and may not resemble actual outcomes.

If internal model-based banks self-insure the most creditworthy of their high LVR customers, LMIs are assumed to:

- increase the price of mortgage insurance, to cover the increased average risk of the mortgages in the insurance pool; or
- decline applications from applicants with low credit scores to maintain the average level of risk in the pool.

If the 20% of applicants with highest credit ratings (top 20% in Table ii) are removed from the risk pool, the risk of the pool will increase and Genworth estimates this would add a minimum of 15% to the price of LMI on average. This will adversely affect housing affordability.

Alternatively, the risk of the insurance pool could be maintained by declining applications from an offsetting number of applicants with low credit scores (Table ii). If applicants are excluded on the basis of credit scores to maintain the pool average score, in 2012 over \$11 billion of mortgages, by value would have been declined and over 2,800 FHBs missed out; more than 6,000 under 35s would stay at home or in rental accommodation; and in excess of 1,800 self-employed would not become homeowners. If the number of applicants with high credit scores is reduced, say by 40%, the impact on underserved groups is more than doubled.



Table ii: Scenario modelling

Scenario	Value declined (\$b)	FHBs declined	Under 35s declined	Self-employed declined
Top 20% insured by banks	11.2	2,884	6,376	1,832
Top 40% insured by banks	25.2	8,664	17,884	3,682
Top 50% insured by banks	30.2	10,846	22,544	4,212

Source: Genworth data, Deloitte Access Economics calculations, assuming Genworth customer base is 50% of the LMI market.

With less LMI, scrutiny of the level of risk carried on loan books and the risk diversification will fall. Risk-pooling benefits, including fungible capital, will be diminished. The alignment of information and incentives may become more skewed. Countercyclical properties of LMI will have a reduced impact. Financial system stability would not be improved.

## Concluding comments

LMIs have powerful incentives to provide mortgage insurance widely and efficiently because it improves their capacity to manage their risk in a way that maximises their long-term sustainability. A decreasing mortgage insurance pool puts at risk the prospects of homeownership for vulnerable groups and the extra layers of scrutiny of risk and diversification provided by LMI to the economy.

The Joint Forum has highlighted the importance of a well-functioning LMI market during times of housing market downturns. For this to happen, the LMI market must be sustained at a sufficient level during housing market upturns to retain the capacity to perform its role in a downturn.

It has not been possible to fully evaluate the overall socioeconomic impact that would result from reduced LMI due to the limited information on borrowers and lenders risk characteristics and behaviour at a national level. Despite these qualifications, the estimates presented in this report demonstrate that every year thousands of potential homeowners in vulnerable groups would not be able to purchase their home without LMI.

If the financial balance between LMI and its capital adequacy and risk management substitutes alters, such that lenders use less LMI (and only on the riskiest loans), hedging of lenders' risks may become less efficient. Recognising the differences with and without LMI illustrates the economy risks losing the prudential benefits provided by LMI and also the efficiency, equity and competition that it provides.

## Deloitte Access Economics

# 1 Background

Lenders mortgage insurance (LMI) protects financial institutions against loss arising from borrowers defaulting on residential mortgages. Lenders can do more lending in the presence of LMI which improves borrowers' access to housing and bolsters competition and stability in the broader economy. Genworth has engaged Deloitte Access Economics to examine what happens to the socioeconomic benefits of LMI if the financial balance between LMI and its capital adequacy and risk management substitutes alters, such that lenders use less LMI.

## 1.1 LMI defined

LMI is a credit risk mitigant (CRM) that protects a mortgage lender against losses arising from a borrower defaulting. If the proceeds of foreclosure on a defaulted residential property are less than the borrower's outstanding obligation to the lender, LMI makes up the shortfall where the loan has been insured. LMI is typically purchased to cover mortgages with a high loan to valuation ratio (LVR), because the expected loss given default (LGD) for these loans is relatively high.

The lender benefits from LMI through the transfer of risk of default to a third party. The mortgage insurer (MI) now holds the credit risk and sets aside capital reserves against it. The implication of this is that the level of capital reserves usually required to cover the level of risk on the lender's books can be reduced. In other words, the primary benefit is that LMI provides capital relief to lenders.

LMI began in the United States in the 1930s as a government policy to promote home ownership (Allen and Chan, 2000). It was introduced into Australia in 1965, again as a government policy initiative designed to increase home ownership. Initially LMI in Australia was provided by the government-owned Housing Loans Insurance Corporation (HLIC), which was subsequently privatised and purchased by GE Mortgage Insurance (now Genworth) in 1997.

The Australian LMI market was worth \$911 million in gross premiums in 2012 (APRA, 2013). There is currently a duopoly of stand-alone insurers; Genworth and QBE. A small number of major banks' 'captive' mortgage insurers make up the rest of the market.

## 1.2 Context of this report

If the financial balance between LMI and its capital adequacy and risk management substitutes alters, lenders may choose to use less LMI. For example, if internally-rated lenders (i.e. the major banks) are not allowed to claim explicit capital relief for their LMI cover, this removes the regulatory incentive to use LMI. Yet, LMI allows lenders to diversify their risks, aiding financial sector stability. If lenders have to hold the full amount of capital against the risk of mortgage default, even when they have LMI, this will increase the cost of providing mortgages to high LVR borrowers and tie up capital that could be employed to

stimulate economic growth. As the banks can be expected to pass on these costs, fewer high LVR applicants will be able to afford to buy a house or run a small business.

Alternatively, the banks could forego purchasing LMI for more creditworthy borrowers – i.e. they could self-insure and continue to buy LMI for their less creditworthy customers. Fewer more creditworthy borrowers in the mortgage insurance pool will push up the price of LMI for less creditworthy borrowers. In all cases, groups of potential borrowers will be excluded from the housing market or unable to obtain capital for their small business.

Finally, LMI is more important for smaller lenders because they have less capacity to self-insure, and some rely on it to help them to obtain funding through securitisation. Availability of LMI will have a disproportionate effect on these smaller lenders; enhancing their ability to compete with large lenders who enjoy a competitive advantage from having the balance sheet capacity to self-insure. Competition in lending increases choice and reduces prices for borrowers.

There is bipartisan support for increasing access to capital for home ownership and small business and for competition and stability in banking. The groups of potential borrowers who are likely to be excluded from owning a home by non-recognition of LMI may exhibit common socioeconomic characteristics. If these groups can be identified and there are sufficient socioeconomic reasons for supporting them, lack of capital relief for LMI will have socioeconomic costs as well as running against the grain of broader government policy goals.

## 1.3 Approach and scope of the report

The report draws on two primary sources; publicly available reports on LMI and Genworth's database.

The analysis builds on an earlier Genworth report, *'The economic value of LMI'*, released in 2010 and refines and extends the analysis to incorporate recent developments in LMI following rulings by key prudential standard setters and regulators in Australia and overseas.

Genworth provided access to their database – after first disguising individual customer's identities – giving a unique insight into the characteristics of the LMI market in Australia from 2007 to the present.

Chapter 2 describes how LMI provides value to the Australian economy. This added value is most obvious in its effects on access and affordability of housing. The manner in which LMI contributes to competition between lenders and financial stability is also laid out. Interrogation of Genworth's database provides statistics that illuminate aspects of LMI's contribution to the economy.

In Chapter 3, the key regulatory issues are addressed, viewed from the different perspectives of regulators, lenders and insurers. The transition in regulation of the financial system following the Global Financial Crisis (GFC) clouds the outlook, but it is possible to discern some trends that are affecting the provision of LMI to the market.

Chapter 4 draws together the analysis of the preceding chapters and Genworth's database to explore how pressures on the LMI market may lead to decreases in affordability of housing and access to home ownership. Implications for competition and stability are also addressed. The magnitude and scope, including spatial dimensions, of the social and economic impacts are provided.

## 2 LMI is valuable and valued

LMI ameliorates information asymmetry that would otherwise lead to credit rationing and higher prices (interest rates) for mortgages. This **improves access to housing**, by allowing more, and a wider range, of borrowers to obtain a mortgage earlier than otherwise. LMI **increases financial stability**; it mitigates default risk for lenders, provides an extra check on the creditworthiness of borrowers and helps support the housing market in downturns. Importantly, LMI **fosters competition** between lenders because it helps smaller lenders who can't accept large risks onto their balance sheets and supports securitisation, a key source of funds for non-bank lenders.

### 2.1 Improving access to housing

LMI serves to improve access to housing by protecting lenders from the risk of LGD on mortgages. This is done by transferring mortgage risk from lenders or mortgage originators to insurers; it provides protection for lenders against losses in the event of borrower default from typically high LVR loans secured against mortgages. Essentially, LMI is a CRM which, in the event of borrower default, pays the lender the positive difference between the borrowers' loan obligation amount and the funds received through foreclosure.

#### 2.1.1 Policy goal – extending homeownership

Achieving home ownership for all Australians has been a central social and political goal since at least the 1950s. Initially the government's response was to encourage socially-driven mortgage lending. During the 1950s this took the form of Commonwealth-State government assisted housing and the War Services Home program. Subsequently in 1965, mortgage insurance was introduced in Australia through the Australian Government-owned HLIC. The aim of this policy initiative was to increase homeownership – primarily through greater access to funding for low-deposit borrowers.

Following the deregulation of Australia's financial system, beginning in the 1980s Australia's banking system underwent significant expansion. From the 1980s to the early 1990s, LMI made the transition from providing services primarily to building societies and credit unions, who were the HLIC's largest customers, towards retail banks who had traditionally avoided low-deposit borrowers. Indeed, by 1993 Australian banks had become the HLIC's largest customers.

The HLIC was privatised and purchased by GE Mortgage Insurance, now Genworth, in 1997. The elements of the scheme remain the same, encouraging greater access to funding by borrowers and promoting financial innovation, with community rating for borrowers with LMI, while avoiding the challenges encountered by government service providers.

#### 2.1.2 Including a wider group of borrowers

Beyond the financial benefits, LMI is an essential element in growing homeownership, providing both improved social and economic outcomes for borrowers. While lenders

benefit from the cover provided by LMI, borrowers benefit from additional choice of lenders. Community rating of LMI helps address equity issues by charging borrowers based on the LVR and value of the property insured, rather than the risk characteristics of the individual. This allows marginal borrowers, who may lack a long credit history or have a modest income but are nonetheless worthwhile borrowers, access to housing.

The RBA has observed that, on average, around 90 % of purchases by FHBs and around 65% of owner-occupier repeat-buyer purchases involve a mortgage. Moreover, between 20% and 30% of new mortgages issued in Australia have LMI. For the large banks, between 15% and 30% of their mortgage lending is covered by LMI. This shows that LMI has a significant presence particularly in the market for FHB mortgages.

Groups that traditionally have difficulty accessing housing finance include FHB and the self-employed. The former are affected by a lack of a long credit history, and the latter face difficulties due to the lumpy flow of their income contrasting with lenders' preference for regular repayments of loans.

Finally, borrowers with moderate income also gain greater access to housing through access to LMI than would otherwise be the case. ADIs require a deposit of 20% of the purchase price of the property. On a mortgage of around \$690,000 (the median house price in Sydney in 2013), a deposit of around \$138,000 would be required. Compared to the average annual income in Sydney of around \$87,000 in 2011, this is a significant amount, and may prevent potentially creditworthy borrowers from entering the housing market, particularly for those earning moderate, or below average, incomes.

Generally without the collateral of a home, it is often the case that FHBs, younger borrowers and borrowers with moderate incomes will lack the savings for a deposit for a residential mortgage. Nevertheless they may be in a financial position where they are capable of meeting ongoing payment obligations and their income will grow as their career advances.

LMI is a key element supporting affordable housing policy goals in other countries too, such as the United States. Through participation in the secondary mortgage market, Government agencies Freddie Mac and Fannie Mae provide liquidity, stability and affordability to the U.S. housing market and purchase loans from mortgage lenders to expand residential mortgage credit in the United States. The Federal Housing Finance Agency, as regulator of these agencies, includes affordable housing goals as part of their organisational objectives.

Freddie Mac and Fannie Mae assist FHBs to purchase their first home, finance mortgages for lower-income borrowers, and provide finance through a number of federal housing subsidy programs. In 2012, around half of FHBs with loans purchased by Fannie Mae and Freddie Mac made down payments of less than 20%.<sup>3</sup> The laws establishing Fannie Mae and Freddie Mac require that they use CRMs for all of those loans with less than 20% down payment, with LMI being the predominate one. It is these borrowers who benefit from increased access to homeownership through access to LMI.

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<sup>3</sup> Fannie Freddie first time homebuyer data based on data published by Fannie Mae and Freddie Mac for GSE MBS issued between July 2012 and September 2013. Quoted in Genworth, 2013.

### 2.1.3 Extending homeownership beyond metro areas

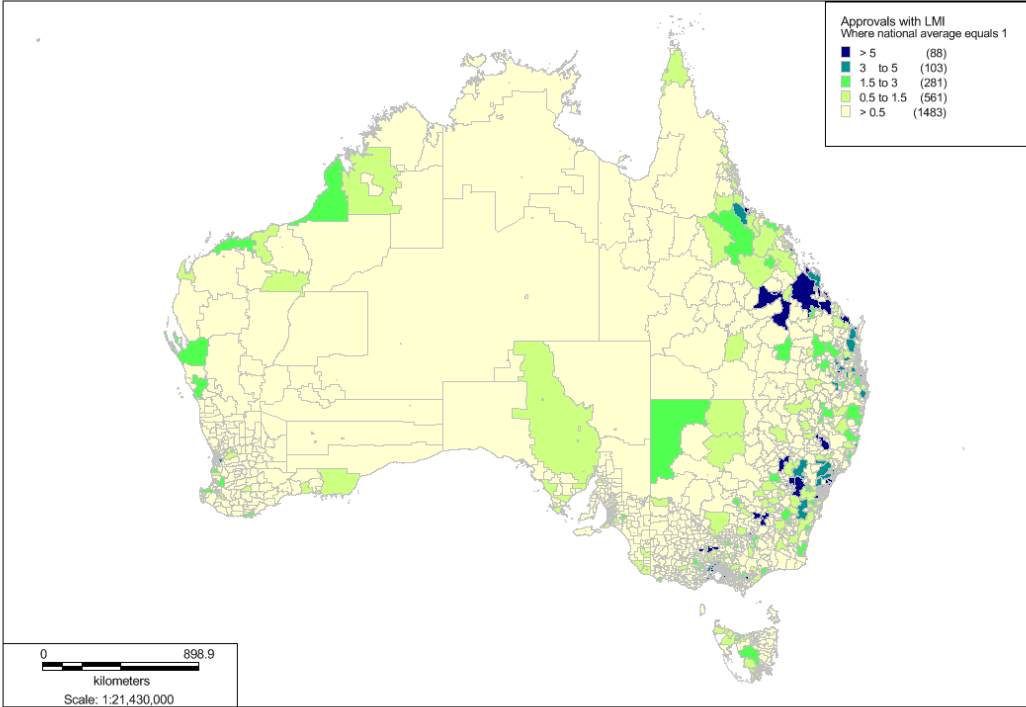
While some 27% of outstanding mortgages are outside major cities, 35% of LMI is placed in regional and remote areas of Australia (ABS Census 2011). Borrowers residing in regional and remote areas face unique circumstances relative to their metropolitan counterparts. For example, borrowers in regional and remote areas tend to be underserved, having limited choice of lenders and products.

Between 20% and 30% of new mortgages issued in Australia have LMI. However, these mortgages are not evenly distributed around Australia. According to Genworth's database, in 2012, the LMI 'hotspots' – postcodes with five or more times the national average of successful LMI applications – were concentrated in Central and South East Queensland and the outskirts of Melbourne. These hotspots are indicated by the dark shading in the following charts.

**Table 2.1: Top 10 LMI hotspots, 2012**

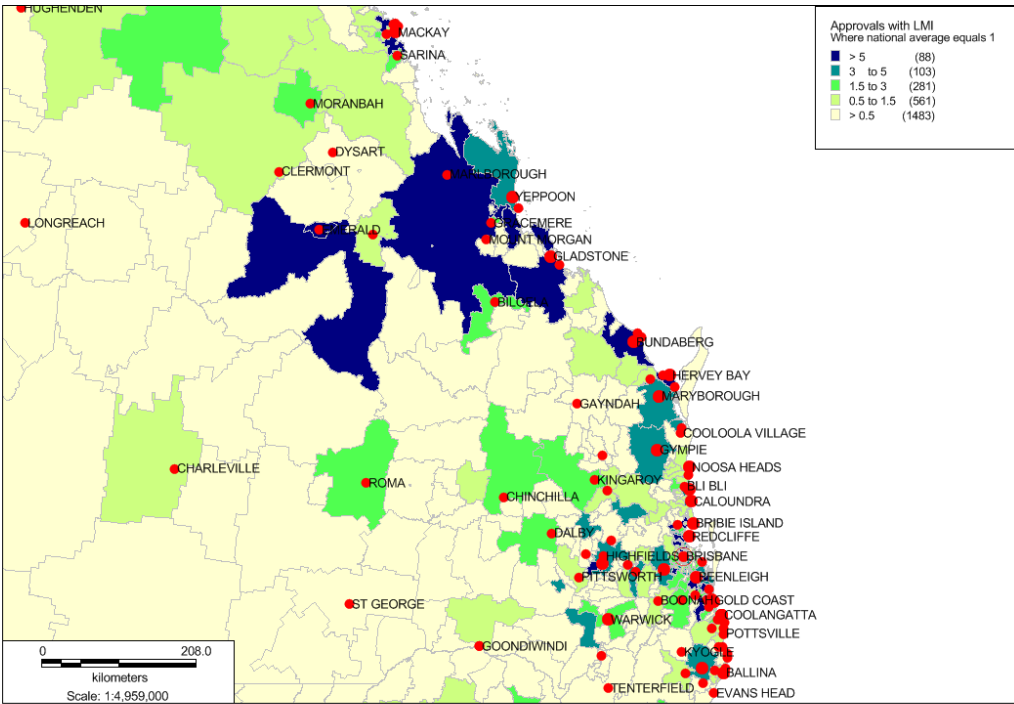
2012
4740 Mackay (QLD)
4680 Gladstone (QLD)
4350 Toowoomba (QLD)
3029 Hopper's Crossing (VIC)
3030 Melton (VIC)
3977 Cranbourne (VIC)
6164 Atwell (WA)
6065 Jandabup (WA)
6210 Mandurah (WA)
2170 Casula (NSW)

Chart 2.1: LMI approvals by postcode



Source: Genworth and DAE

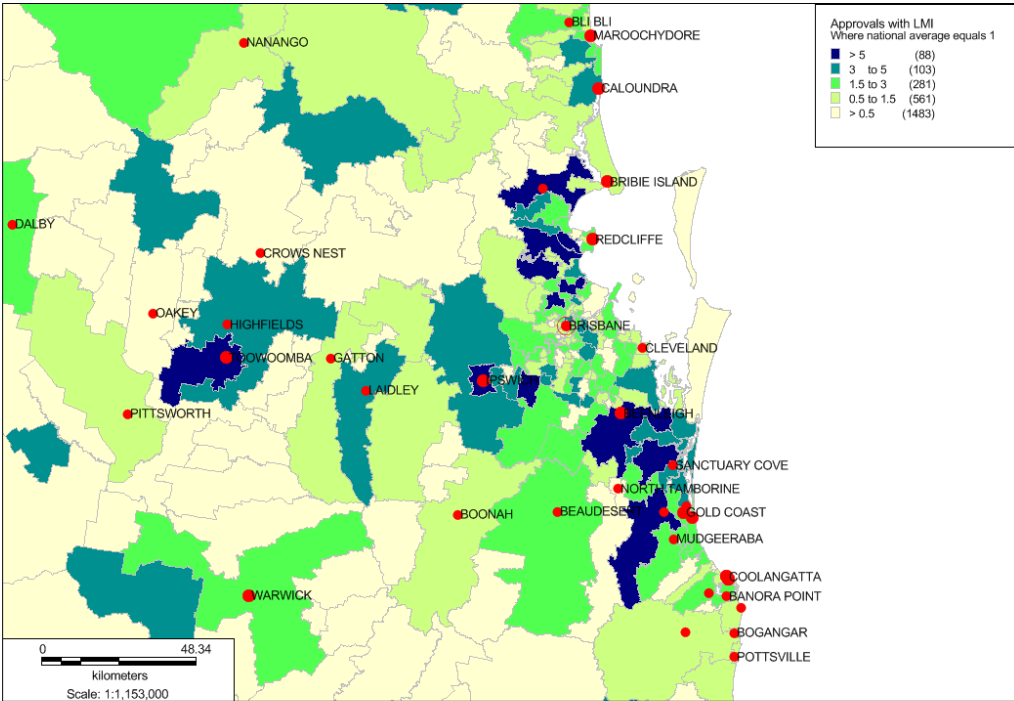
Chart 2.2: LMI approvals by postcode: South and Central Queensland



Source: Genworth and DAE

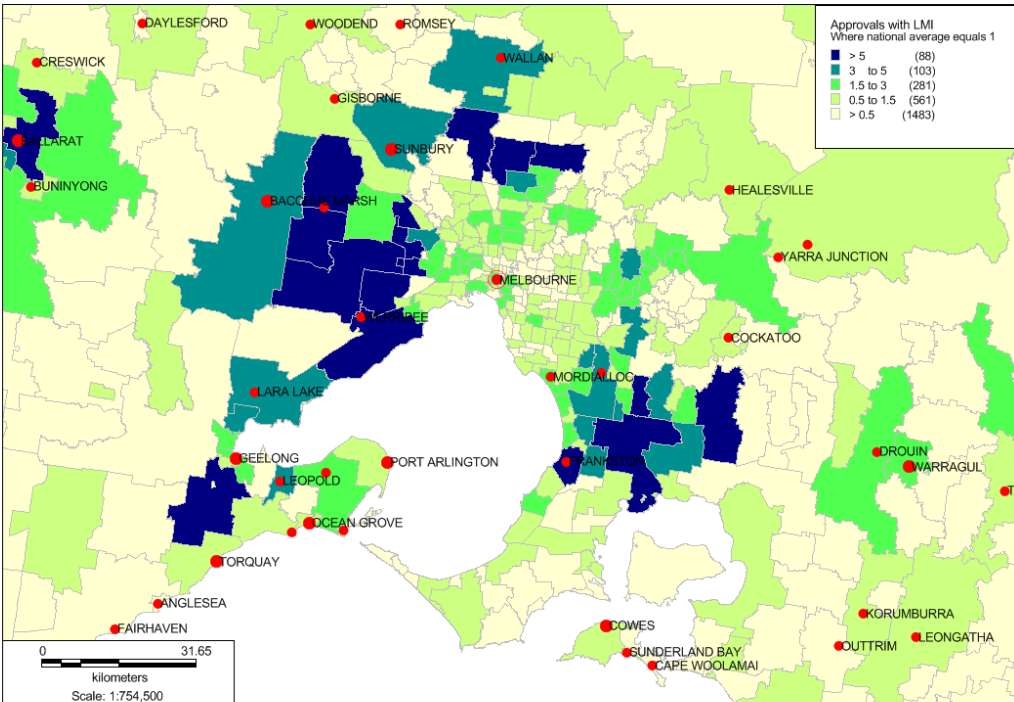


Chart 2.3: LMI approvals by postcode: South East Queensland

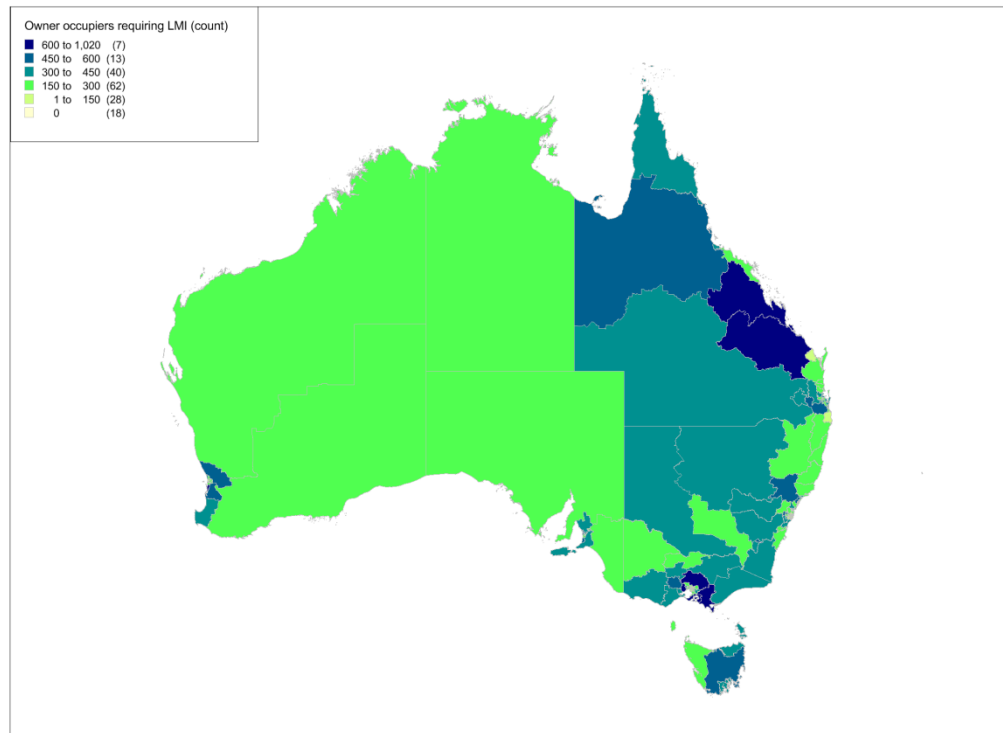


Source: Genworth and DAE

Chart 2.4: LMI approvals by postcode: Metropolitan Melbourne



Source: Genworth and DAE

**Chart 2.5: Number of LMI applications by Federal electorate**

Source: Genworth and DAE

## 2.2 Increasing competition between lenders

LMI ensures there is greater competition and innovation in the lending market.

### 2.2.1 Increased innovation and choice for consumers

Lenders mortgage insurance lowers the level of economic capital required to be held against loans by lenders, while maintaining sufficient system capital. This reduces barriers to entry for new entrants, encouraging greater competition in the mortgage market. This is achieved by allowing a greater range of lenders into the market which increases the choice of lender available to borrowers.

Further, there are important implications for competition for innovations associated with mortgage lending. This was highlighted by the House of Representatives Standing Committee on Economics in 2008.

*The increased pressure that the non-banking sector places on banks led to the banks emulating many of the new products that were being offered. The Australian Banker's Association agree that foreign banks and the non-banking sector forced the banks to 'accept reduced margins and to roll out new technology and new products, and to otherwise respond to competitive pressures' (House of Representatives Standing Committee on Economics, 2008:12).*

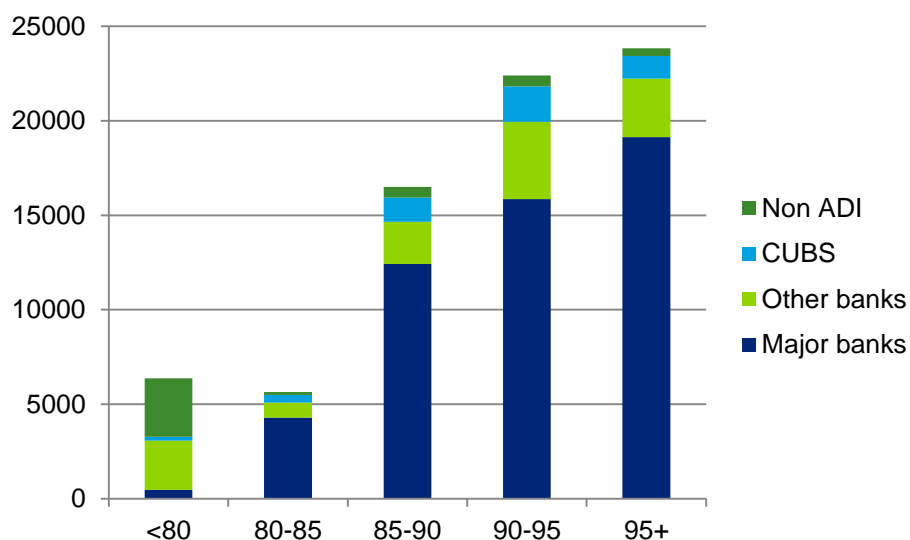
LMI was an important aspect of increasing innovation in lending products in Australia prior to the GFC by encouraging greater access to funding by non-ADI lenders through securitisation. Prior to the GFC in 2008, Australia's financial system benefited from greater competition between intermediaries and capital markets which resulted in a range of lending innovations. This included an expansion of wholesale lenders - particularly non-ADI lenders - offering a variety of mortgage products and the introduction of instruments including residential mortgage-backed securities (RMBS) securitisation. RMBS securitisations in Australia benefits from pool based LMI cover. Hence, LMI provided necessary support for investor confidence in these new products further encouraging the mortgage market in Australia. This competition and innovation in markets for lending products encouraged homeownership.

### 2.2.2 Helps smaller regional lenders compete

Part of the increase in choice of lender is through a greater number of small and regional ADIs offering mortgage products to borrowers. Small lenders are more exposed to volatility due to their small balance sheets and some of this risk can be mitigated through LMI. Hence, diversifying risk with LMI can play a vital role in enabling small lenders to increase their lending.

Credit unions and building societies (CUBS), major banks, other banks, and non-ADIs all use LMI. Chart 2.6 shows how the different institutions spread themselves across LVR buckets in 2012. The major banks dominate all categories with LVRs of 80 or more, but their share fluctuates between 71% of LMI in the 90-95% bucket and 80% in the adjacent 95+% bucket, indicating different levels of competition in each space. Other banks and non-ADIs account for most LMI approvals in the sub-80% LVR bucket.

**Chart 2.6: LMI shares by institution, 2012**



Source: Genworth, DAE

## 2.3 Enhancing financial stability

LMI has enhanced Australia's financial stability by contributing to improved risk management within individual financial institutions and across Australia's financial system. This is achieved through a range of functions performed by LMIs in Australia's financial system as well as the functions of LMI itself.

### 2.3.1 Second set of eyes

LMI provides a 'second set of eyes' in Australia's mortgage market. LMIs undertake their own view of potential borrowers thus providing additional analysis of individual lender's lending standards, risk appetite and processes and active risk management encouraging stringent lending practices. In doing so, this also can provide extra information about borrowers and lending practices to prudential supervisors as well as providing bank management with feedback on how their mortgage book is performing, including against their peers.

The importance of the additional analysis provided by LMIs is particularly important during times of excess credit availability, such as prior to the GFC. This was recently highlighted by the Reserve Bank of Australia.

*During buoyant times when risk appetite among lenders rises, LMIs could limit the extent that lending standards weaken because they provide a 'second set of eyes' in the loan origination process (Reserve Bank of Australia, 2013).*

In the US, studies have established that LMI reduces the probability of default (PD) on higher (>80%) LVR loans; one study showed that the PD was reduced by 24%-48%, due to "additional underwriting scrutiny and the lenders (or borrowers) obligation to maintain process integrity" (MICA 2012).

### 2.3.2 Diversification

Through diversification LMI spreads the risks associated with lending. Loans are secured by LMI, transferring the risk of loss given default from the loan originator to the lender's mortgage insurer. Further, the pooling effect of LMI diversifies lender default risk across geography, lenders, time and loan product, which reduces the risk of over-exposure of any single ADI. The safety net can therefore perform its role – insurers will honour claims in a credit event.

*Mortgage insurance provides additional financing flexibility for lenders and consumers, and supervisors should consider how to use such coverage effectively in conjunction with LTV requirements to meet housing goals and needs in their respective markets (The Joint Forum, 2010, emphasis added).*

Mortgage default losses rarely occur uniformly across national economies. There are almost always geographic regions or individual lenders that are disproportionately affected, due to local economic conditions and varying loan origination and servicing capabilities. Therefore, where risk can be pooled market-wide, individual losses are absorbed within the distribution of all risk held, thereby providing added levels of financial system stability.

LMI makes system capital reserves for mortgage defaults more fungible which lowers the cost of capital. LMIs hold a pool of capital that can be allocated to lenders who need it.

### 2.3.3 Smoothing the cycle

LMI exerts a countercyclical influence on the credit cycle, through capital and lending practices which strengthen Australia's financial system's resilience to economic downturns and limit the build-up of credit risk. These counter-cyclical properties offset pro-cyclical tendencies of the lending market and the economy more broadly.

Further, mortgage insurance premium income and reserve requirements also contribute to the countercyclical protection provided by MIs during housing market downturns. For example, during times of economic stress mortgage losses rise and capital to risk ratios fall, conversely during times of economic stability MIs earn higher premium income and experienced lower losses and are therefore in a position to increase holdings of capital.

During times of economic downturn LMI enables the continued accessibility and affordability of lending to high LVR borrowers. Conversely during the peak of the economic cycle, the additional lending analysis performed as part of LMI agreements discourages imprudent lending to more speculative borrowers.

*... they [MIs] dampen swings in lending standards and maintain sufficient capital to withstand any housing market and economic downturn (Reserve Bank of Australia, 2013: 39).*

LMI supports the availability of capital during credit events; this is largely the result of reserve requirements that are in addition to basic insurance capital standards (Genworth, 2010b). Hence, LMI provides a capital buffer to withstand shocks to the financial system and broader economy emanating from the housing sector.

*LMI also increases lenders willingness to lend during times of economic and housing market downturn. This maintains sufficient credit in the Australian financial system. Thus, LMI further contributes to financial stability during downturns (Reserve Bank of Australia, 2013).*

Finally, LMIs restrain price pressure in supply constrained property markets. LMIs are not incentivised to under-price risk – because they take the first loss – and as for example lenders may be to increase market share, and therefore borrowers are less likely to overpay for assets through access to cheap finance and are more constrained in what they are able to borrow.

### 2.3.4 Restrictions on high LVR lending as a macro-prudential tool

High LVR lending restrictions promote financial stability without the need for monetary policy interventions. Broadly the policy aims to address the challenges of rising household indebtedness and house prices growth. This is largely achieved by lowering the risk of mortgage default that result from boom and bust property price cycles.

These policies are being increasingly used by governments and regulators around the world to restrict access to mortgages by higher risk borrowers where higher risk is defined as

lower deposit, borrowers. For example, Canada, New Zealand, Norway and Sweden all recognise policies which restrict the share of new lending at high LVRs (APRA, 2013).

Recent research undertaken by the IMF of 42 member countries showed that around one third of the countries surveyed had implemented restrictions on high LVR lending. By restraining house price growth, these policies also aim to provide protection for consumers more generally by mitigating the impact of downturns in the housing market in the wider economy.

The RBNZ modelled a smaller impact of LVR limits than outlined above. Firstly, LVR limits will likely lower annual household credit growth by between 1 and 3 percentage points and secondly, reduce house price inflation by between 1 and 4 percentage points. The lower growth in household credit is the result of slower housing market activity and a reduction of household indebtedness for new borrowers.

Wong et al (2011) found evidence that economies which have adopted high LVR limits had reduced household indebtedness. There was however, mixed evidence that high LVR restrictions had slowed house price growth. This suggests that the policy has the greater impact on the household sector instead of the property market as other research has suggested.

Further, LVR limits may exclude potentially credit-worthy borrowers from accessing finance for housing. In these instances, LMI could play an important role, whereby regulatory requirements allow high LVR lending which has adequate LMI taken out against it.

Indeed, empirical evidence has shown that LMI on loans over the maximum threshold can reduce the impact on liquidity constraints placed on borrowers without undermining the effectiveness of the LVR limits as a macroprudential tool (Wong, et al, 2011).

Despite the restrictions on high LVR lending the RBNZ has adopted, exemptions are allowed under Housing New Zealand's Mortgage Insurance Scheme, including the Welcome Home Loan Scheme and Kainga Whenua program. RBNZ has allowed this as acknowledgement of the important role that lenders mortgage insurance plays in government housing policy objectives. In addition it presents minimal risk to financial stability, since any bank losses are underwritten or guaranteed by Housing New Zealand (Reserve Bank of New Zealand, 2013).

## 3 Fostering a strong market for LMI in Australia

Despite the widely accepted economic benefits and global support for LMI, the future of LMI in Australia is uncertain. The uncertainty largely revolves around how the environment for lenders mortgage insurance will evolve.

### 3.1 Requirements for a strong mortgage insurance market

Insurance markets work best when insurers have access to a wide distribution of risk, to enable them to price risk appropriately. Information asymmetries and moral hazard are minimised and therefore trade is enabled to occur in a more efficient manner.

Lenders mortgage insurers specialise in assessing and managing high LVR risk. An LMI market drives productive efficiency, by enabling transfer of risk from lenders to MIs, which also supports the balance between efficiency and sufficiency of system capital (Figure 3.1).

LMIs take the first loss, so they have the balanced incentives of growing the market and prudently managing the level of default risk. In this way, they effectively set the risk appetite for the high LVR market. Applications from lenders' customers for LMI are appraised initially on the basis of credit scores; applications are judged against benchmarks derived from data for the pool of past customers that have helped to predict default.

However, LMI is priced differently, based on the LVR and the size of the loan, rather than the customer's characteristics used to calculate the credit score. This means that pricing is more akin to 'community rating' – where all borrowers pay the same price for equivalent insurance (apart from some loadings that may apply, e.g. to self-employed and investment loans) – than a purely risk based approach to pricing.

This approach to pricing LMI in Australia is a legacy of the government-provided origins of the market, the HLIC. The HLIC had the primary policy objective of increasing home ownership – through greater capture of low-deposit borrowers – in an efficient and effective manner. This approach to pricing addresses affordability concerns for those borrowers who tend to have more modest or irregular incomes. But the current LMI pricing structure also exacerbates the importance of insurers having access to a sufficiently broad distribution of risks, or risk pool, to keep prices affordable. In this context, LMI is supported internationally by:

- making LMI mandatory, as is the case of Canada, and like 3<sup>rd</sup> party property insurance for car owners in Australia; and
- ensuring regulatory settings encourage lenders to use appropriate credit risk mitigation strategies, such as LMI.

These two approaches are discussed in more detail in Section 3.2.

**Figure 3.1: LMI and the balance between efficiency and sufficiency**

Productive efficiency is optimised where an allocation of inputs is such that the only way to increase output of one commodity is to reduce output of another. This means the value of the economy's production/productive capacity is maximised – a primary goal of economic policy. Here, LMI promotes productive efficiency through the transfer of credit risk from lenders to insurers and investors, subject to the constraint of ensuring sufficient capital holdings.

**Insurance markets** exist to allow risk to be transferred to those most willing to hold it, and therefore those who need to be compensated least. Namely, this will be those parties who seek to hold an entire (normal) distribution of risk, and can therefore reliably price a risk-transfer service at a rate sufficient to ensure a positive economic return. Given sufficient scale and scope, insurers are arguably the most accurate at assessing and pricing risk<sup>4</sup>. It is also argued that insurers are more forward looking in their risk assessment – given their 'through-the-cycle' business model and regulatory requirements – and that third-party capital at risk provides similar incentive in the system to ensure prudent mortgage underwriting as if the lender itself had capital at risk.

In comparison, many lending institutions are said to lack multi-cycle residential loan data, most particularly on those highest risk segments. This is also particularly relevant to those relatively new entrants to the mortgage market and/or smaller less traditional lenders. This inadvertently limits their ability to validate any risk formulas they apply to their lending portfolios, and can consequently lead to an under-pricing of risk. Beyond matters of competency, it is also the case that incentives exist for lenders to under-price risk where origination fees and market share are paramount, and originator capital at risk is low or nil (Wachter, 2010).

Therefore, where MIs hold the risk, **information and incentives align**:

MIs have the balanced incentives of growing the size of the market and prudently managing the level of default risk (Wachter, 2010); and

MIs' scale and scope allows them to 'specialise' in the service of assessing and managing HLVR risk. This implies information asymmetries are minimised and therefore trade is enabled to occur in a more efficient manner.

<sup>4</sup> MIsLMIs accumulate (over time and markets) extensive loan level data from which robust economic and behavioral models of mortgage default can be constructed.



Investors recognise these structural differences between banks and insurers and price risk accordingly – that is, insurance capital will typically be cheaper than banking capital for a given level of risk. Insurers are able to capitalise on this difference in the cost of capital (imperfect arbitrage), and thereby bridge capital and insurance markets. As a result, a productive efficiency gain is realised, and further unexploited surplus in the economy is captured through the extension of the mortgage market to higher risk segments. Insurance capital can be lower as a result of benefits of diversification.

Following from this, at the same time as LMI drives productive efficiency, **LMI supports balance between efficiency and sufficiency**. That is, lenders are only required to hold capital in reserve to support the regulatory determined average level of default risk in the economy, but only because a safety net exists for those situations where the economy-wide average level is less than the actual/expected level of default for any single lender. The benefits of this are:

If all lenders were required to hold reserves to support the greatest potential level of default in the economy, this would be for the average lender and therefore the financial sector on-average, inefficient.

Conversely, setting the capital adequacy ratio at the economy-wide average level of loss (without LMI cover) leaves the possibility of lender default and financial system instability, should actual borrower default losses (real risk) exceed expected losses (average risk) for a particular lender(s).

Given LMI is a ‘first loss cover’, LMI provides the financial sector a safety net (contingent capital). This overcomes the shortcomings of the ‘siloed’/**non-fungible**<sup>5</sup> nature of lender capital in times of default (Genworth, 2010a). The difference in the capitalisation required is an efficiency gain, in that the capital is then free to be put to its most productive use (from both the lenders’ and the borrowers’ perspectives). Pooled capital is able to be allocated as and where losses occur.

As an outcome of these productive efficiency roles and benefits, LMI is likely to promote greater levels of value-add in the Australian economy, without compromising economic stability. This is because by definition, improved productive efficiency implies improved values of production and at the same time as production values are improving incentives exist for capital sufficiency to be maintained. Improved efficiency is a welfare enhancing outcome, which can be shared across all parties connected to a transaction – in this case, borrowers, lenders and insurers.

Source: The Economic Value of LMI, Genworth, 2010

<sup>5</sup> The capital excess to one lender’s requirements cannot be used to pay claims to another lender’s higher than average delinquencies

## 3.2 Global recognition of benefits

The benefits of LMI are widely recognised; LMI is currently available in around 40 countries, through public and private providers; and its prudent use is encouraged by global regulatory standard-setters and by policy.

### 3.2.1 International standard-setters

There is strong in-principle support for using LMI and recognising its CRM properties in calculating banks' capital requirements, as illustrated by the following quotes from prudential regulatory standard-setters, the Basel Committee of Banking Supervision (BCBS) and the Joint Forum.

The Joint Forum's Differentiated Nature and Scope of Financial Regulation stated in 2010,

*MI provides additional financing flexibility for lenders and consumers, and supervisors should consider how to use such coverage effectively in conjunction with LTV requirements to meet housing goals and needs in their respective markets. Supervisors should explore both public and private options (including creditworthiness and reserve requirements), and **should take steps to require adequate MI in instances of high LTV lending** (e.g. greater than 80% LTV) (Joint Forum 2010, emphasis added).<sup>6</sup>*

*The Basel II capital framework recognises that credit risk mitigation techniques can significantly reduce credit risk at a bank. In particular, paragraph 140 of the framework establishes that where guarantees or credit derivatives are direct, explicit, irrevocable and unconditional, and supervisors are satisfied that banks fulfil certain minimum operational conditions relating to risk management processes, banks may take account of such credit protection in calculating capital requirements. (BCBS 2013)<sup>7</sup>*

In 2012, the FSB released principles for Sound Residential Underwriting Practices (Principles). The Internationally agreed Principles aim to promote mortgage underwriting practices and allow regulators to supervise and detect falling underwriting standards. This is particularly necessary during times of booming housing markets. The Principles are high-level, not specific, reflecting differences across international jurisdictions.

The report recommended five practices, some of which were particularly weak leading up to the GFC:

- Effective verification of income and other financial information
- Reasonable debt service coverage
- Appropriate LVRs
- Effective collateral management and

<sup>6</sup> <http://www.bis.org/publ/joint30.pdf>

<sup>7</sup> <http://www.bis.org/publ/bcbs245.pdf>

- **Prudent use of mortgage insurance**

In August 2013, The Joint Forum of the Bank for International Settlements outlined a set of recommendations for both policymakers and regulators. The recommendations were based on analysis of the interaction between MIs, mortgage originators and underwriters.

The Joint Forum outlined seven recommendations:

- policymakers should consider requiring that mortgage originators and mortgage insurers align their interests;
- supervisors should ensure that mortgage insurers and mortgage originators maintain strong underwriting standards;
- supervisors should be alert to – and correct for – deterioration in underwriting standards stemming from behavioural incentives influencing mortgage originators and mortgage insurers;
- supervisors should require mortgage insurers to build long-term capital buffers and reserves during the troughs of the underwriting cycle to cover claims during its peaks;
- supervisors should be aware of and take action to prevent cross-sectoral arbitrage which could arise from differences in the accounting between insurers' technical reserves and banks' loan loss provisions, and from differences in the capital requirements for credit risk between banks and insurers;
- supervisors should be alert to potential cross-sectoral arbitrage resulting from the use of alternatives to traditional mortgage insurance; and
- supervisors should apply the FSB Principles for Sound Residential Mortgage Underwriting Practices to mortgage insurers noting that proper supervisory implementation necessitates both insurance and banking expertise.

The recommendations highlighted the importance of a well-functioning MI market during times of housing market downturns.

In a related sphere, international regulators have recognised the potential benefits of securitisation, including its positive effect on credit availability and see an **ongoing role for mortgage insurance in supporting the prudent use of securitisation**:

*Authorities should employ a broad tool kit to address misaligned incentives. Raising origination and underwriting practices or standards for assets that are securitised, in line with earlier Joint Forum recommendations. In relation to residential mortgages, this could include verification by lenders of borrowers income and financial information, measures to ensure reasonable debt service coverage of mortgage obligations and realistic qualifying mortgage payments, requiring appropriate loan to valuation ratios, requiring sound collateral appraisal and valuation processes and **the use of mortgage insurance** (Joint Forum 2012, emphasis added).<sup>8</sup>*

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<sup>8</sup> <http://www.bis.org/publ/joint26.pdf>

### 3.2.2 How LMI is applied globally

The application of LMI differs around the world. This reflects differences in regulatory requirements and the extent of government intervention in the MI market. MI is either mandatory on all loans above a specified LVR or it is incentivised through relief on capital reserve requirements for the underlying mortgages (Bank for International Settlements, 2013).

- There are differences in the application of mandatory LMI. In Canada and Hong Kong, LMI is required on all high LVR loans made by any deposit-taking institutions. While in the United States, LMI is required on all loans with high LVRs, which are sold to the government-sponsored housing enterprises (GSEs) (Fannie Mae or Freddie Mac).
- LMI is incentivised through lower-risk weights on the capital requirements for underlying mortgages in Australia (standard banks only, although APRA is considering whether to allow capital relief for internally-rated banks), Canada, France, Mexico, Spain, and the United Kingdom.

Governments also play different roles in the LMI market across jurisdictions.

- The governments directly participate in the provision of LMI in Canada, Hong Kong, Indonesia, Mexico, the Netherlands, and United States. In some of these countries, the government, or a government agency, is the primary or only provider of LMI. For example, the Canadian government provide a back-stop guarantee on all LMI obligations. While in the United States the US Federal Housing Administration (FHA) targets specific markets (low to moderate income, and first home buyers). In other countries, such as Australia, the government no longer plays an active role in the provision of LMI.

Around the world, governments are supporting lenders' mortgage insurance to access to housing (Table 3.1). This is how MI started out in Australia, before evolving into the current private-provided model.

**Table 3.1: International mortgage market structure**

	<b>MI used widely?</b>	<b>MI used mandatory?</b>	<b>Does government actively participate?</b>
Australia	Yes	No, but it has some advantages in provisions and capital requirements	No
Canada	Yes	MI is required by statutes for all Federally Regulated Financial Institutions (FRFIs) on Mortgages where the borrower is putting less than a 20% down payment	MI is provided by CMHC, a federally-owned Crown corporation. CMHC has a about a 70% share of the insurance in force. The federal government backs the private mortgage insurers, which represent the remaining 30% share of the MI in force.
Germany	No	No	No
Mexico	11.5% of loans are insured	No but it has some advantages in provision and capital requirements	Yes through Sociedad Huiptecaraoa Federal
Netherlands	Yes	No	Yes. About 80% of new mortgages below the maximum of €350,000 are guaranteed by the NHG. The share of mortgages insured by private insurers is close to zero.
United Kingdom	No it is widely available by private providers but not commonly taken out	No	Yes. The government introduced Help to Buy in 2013.
United States	Yes	No regulatory requirement is in place but GSEs and therefore most lenders require insurance for LTVs above 80%	Yes through the Federal Housing Administration but the largest providers are private firms.

Source: Financial Stability Board, 2012.

### 3.2.3 United States

The US Federal Housing Authority plays a direct role in the provision of LMI in the United States to promote social goals and housing affordability, particularly for low to moderate income individuals. Loans must meet certain requirements in order to be eligible for FHA insurance (U.S. Department of Housing and Urban Development).

The LMI market is reliant upon the future status and role of the government statutory enterprises in the market. In particular, the winding-down of GSE operations to support the US housing market as conditions improve could shift credit risk towards the private market and in doing so increase the role of privately provided mortgage insurance (Bank for International Settlements, 2013).

The regulation of private and public providers of LMI in the United States differs and as such, regulators should be cognisant of developments which result in greater private provision of MI. While the FHA insures 100% of the losses, private providers insure only 25-30% of any unpaid loan balances.

### 3.2.4 Canada

Government legislation requires all high LVR residential mortgages – those that have an LVR of greater than 80% – to be insured against default for the full amount by either the Canada Mortgage and Housing Corporation or by a private mortgage insurer.<sup>9</sup> As a result, a majority of single family mortgages with an LVR of greater than 80% are insured while mortgages with less than 80% LVR are generally not insured (Bank for International Settlement, 2013).

The Canadian mortgage market is distinguished from other mortgage markets internationally because a large part is explicitly guaranteed by the Government. The guarantee takes the form of legislation which protects lenders in the event of default by the insurer.

There are two private providers of LMI in Canada: Genworth Financial Mortgage Insurance Company Canada and Canada Guaranty. These private insurers have agreements with the Canadian Government that 90% of the value of the insured residential mortgage loans will be protected against loss should the private insurer fail.<sup>10</sup> Mortgages with greater than 95% LVR cannot be underwritten by a federally-regulated depository institution (Bank of Canada, 2012).

This guarantee has in part, been responsible for the ongoing strength of the Canadian housing sector and partly explains the sector's resilience through the GFC, in spite of its proximity to the United States and its poorly performing housing sector.

Through regulatory provisions, LMI has (in effect) its own capital requirements.

*Capital requirements are based on the Minimum Capital Test for non-life insurers. There is, however, a special requirement for mortgage insurers where an additional provision is based on the in force book of insured mortgages.... Mortgage insurers all establish a capital target based on scenario testing subject to OSFI review. As a result they are all holding capital of 150% or more of the required minimum (Bank for International Settlement, 2013).*

Mandatory cover helps to deal with adverse selection, thus contributing to a better working insurance market.

Canada is an example of significant government involvement in the market. It is important to acknowledge that while there are important social goals which can be supported by increased government involvement, any benefits should be balanced against the potential costs (Reserve Bank of Australia, 2013).

<sup>9</sup> LVT ratios are used in Canada; it is the same thing as LTV.

<sup>10</sup> The guarantee is subject to a deductible equal to 10% of the original principal of the loan amount (Bank for International Settlements, 2013).

- Firstly, where credit risk is transferred from the financial sectors balance sheet to the public sector, through for example a government guarantee of mortgage insurers, in the event of losses this could potentially cost tax payers significantly. (Assuming that the losses have not implicitly been transferred for losses by Systemically Important Financial Institutions.)
- Secondly, subsidies could distort mortgage lending by under-pricing mortgage insurance relative to how the market would otherwise price mortgages. This could potentially lead to a greater number of higher-risk mortgages being taken out. The more riskier pool of mortgages should be balanced against the significant social benefits outlined elsewhere in this report (Chapter 2 and Chapter 4).

### 3.2.5 United Kingdom

Prior to the GFC LMI played an important role in the expansion of the housing market in the United Kingdom (UK). However, the LMI market has been significantly restrained since the GFC. In the UK 2013 Budget, the Government announced it will provide mortgage insurance to lenders to encourage them to provide high LVR mortgages. UK lenders will have an option to purchase a guarantee on the mortgage – down to 80% of the purchase value of the property. The guarantees could support more than £100 billion in lending over 3 years.

While LMI is not explicitly required to be held against any loans in the UK, the UK Prudential Regulatory Authority advises smaller building societies of the potential benefits of LMI as a credit risk tool for high LVR mortgages (Bank for International Settlements, 2013).

## 3.3 Treatment of LMI in Australia

The Australian LMI system is distinguished by not being mandatory or having active government participation; although the use of LMI is still widespread

### 3.3.1 Not mandatory

Australian lenders are not required to have LMI on their high LVR retail mortgage loans. However, lenders' require their high LVR customers to purchase LMI or pay an additional fee that is of similar magnitude to the LMI premium for the loan.

### 3.3.2 Capital relief

According to requirements first set out in Basel II, ADIs are able to determine capital requirements held for regulatory purposes, that is, calculate their capital adequacy ratio, according to one of two methods:

- a standardised (default) method (the *standardised method*) or;
- a model based approach which is more aligned with the risk profile of individual ADIs (the *internal ratings based* (IRB) or *model-based approach*). APRA approval is required for ADIs utilising this method.

### 3.3.2.1 The standardised method

Australian Prudential Standard (APS) 112 applies to ADIs holding of regulatory capital against credit risk exposures.

All ADIs in Australia not currently approved for the model-based approach and using LMI are eligible for the reduction in risk weighting as set out in the table below. This includes primarily smaller lenders, credit unions and building societies. In general, these ADIs will lack the resources required to use the model-based approach. Under this approach LMI is explicitly recognised in the level of capital required for regulatory purposes.



Figure 3.2: Standardised approach

**APS 112 Capital Adequacy: Standardised Approach to Credit Risk****Objective and key requirements of the Prudential Standard**

An ADI may reduce the credit risk capital requirement for on-balance sheet assets and off-balance sheet exposures where the ADI has obtained direct, irrevocable and unconditional credit protection in the form of mortgage insurance from an acceptable lenders mortgage insurer.

**Appendix D: Residential Mortgages**

The determination of the appropriate risk-weight is also dependent upon mortgage insurance provided by an acceptable lenders mortgage insurer. For this purpose, lenders mortgage insurance must provide cover for all losses up to at least 40 per cent of the higher of the original loan amount and outstanding loan amount (if higher than the original loan amount).

**Table 3.2: Risk-weights for residential mortgages**

LVR (%)	Standard eligible mortgages		Non-Standard eligible mortgages	
	Risk-weight (no mortgage insurance) %	Risk-weight (with at least 40% of the mortgage insured by an acceptable LMI) %	Risk-weight (no mortgage insurance) %	Risk-weight (with at least 40% of the mortgage insured by an acceptable 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, 2013a, APS 112

**3.3.2.2 Model-based approach**

In Australia those ADIs approved to use the model-based approach are: (Australia and New Zealand Banking Group Limited (ANZ); Commonwealth Bank of Australia (CBA); National Australia Bank limited (NAB); Westpac Banking Corporation (WBC); and Macquarie Bank Limited (MBL). ING Bank (Australia) Limited (ING) is seeking internal ratings-based accreditation. These banks have the resources and capabilities to gain approval for use of the model-based approach. It is in the interests of the larger banks to use this approach because otherwise it may be perceived negatively by the market (APRA, 2013b).

**Figure 3.3: Model-based approach****APS 113 Capital Adequacy: Internal Ratings-based Approach to Credit Risk****Objective and key requirements of the Prudential Standard**

The key requirements that an authorised deposit-taking institution that has approval to use an internal ratings-based approach to credit risk must meet both at the time of initial implementation and on an ongoing basis for regulatory capital purposes:

- quantify certain credit risk components to determine the capital requirement for a given credit exposure and
- have approval from APRA to use an internal ratings-based approach to credit risk for determining the institution's credit risk capital requirement.

An approached ADI may rely on its own internal estimates for some or all of the necessary credit risk components in determining the capital requirement for a given credit exposure. Credit risk components include measure of: probability of default, loss given default, exposure at default and maturity.

The model-based approach to credit risk is based upon measures of unexpected losses and expected losses.

Source: APRA, 2013b, APS 113.

### 3.3.3 Impact on regulation in Australia

The explicit regulatory incentive for internal model-based banks in Australia to use LMI does not yet exist (See Appendix A for information on why this is the case). This changes the incentives for the banks that already can 'cherry pick' the most creditworthy borrowers. Consequently, the LMI market is likely moving towards some combination of:

- lenders using alternatives CRMs to LMI
  - self-insurance, holding the additional risk on the books rather than diversifying, and charging the customer a higher price;
  - potentially adopting less desirable – from a regulatory perspective – CRM alternatives;
- banks continuing to use LMI as a risk management tool for high LVR and riskier lending, but in the context of the overall creditworthiness of the insurance pool;
- higher prices, with LMIs covering higher risks and more uncertainty about pricing, by raising prices for all home buyers with high LVR loans
  - 'community rating', inherited from HLIC, means all borrowers will face higher prices
  - or move to risk-based pricing

- credit rationing, with insurers maintaining their preferred risk profile by refusing more applicants; or
- partial or full withdraw from the market, as in NZ where Genworth and QBE have wound down their operations and RBNZ has moved to cap high LVR lending.

It is not possible to know what will be the eventual outcome, due to limited information about how borrowers, lenders and insurers will respond. However, in all cases, the number of successful mortgage applicants is likely to decline, which is contrary to home ownership policy goals.

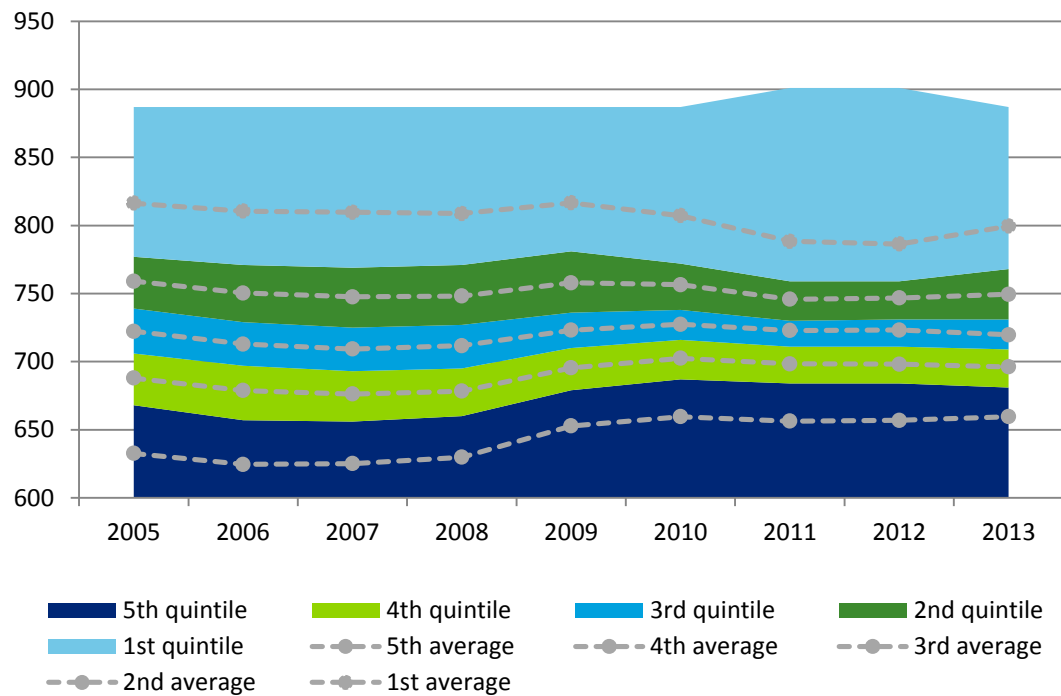
### 3.3.4 Evidence of impact

The lack of explicit recognition of LMI for capital relief for IRBs is having an observable effect in Australia.

*For ADIs using approved internal models under Basel II, **APRAs requirement for a 20 per cent loss given default (LGD) floor has, to a significant extent, reduced the explicit regulatory incentive for ADIs to seek LMI cover.** Nevertheless, such ADIs still see the benefit of LMI as a risk transfer mechanism and thus continue to buy LMI protection for their high LTV loans.*

*There has, however, been **a tentative shift among a few of the largest banks over recent years to write home loans at LTVs up to 85 per cent without LMI cover** but to charge borrowers a higher fee to compensate for the greater risk. This has occasionally been characterised as ‘self-insurance’ as the additional fee charged bears some resemblance to the quantum of the one-time premium charged when obtaining LMI cover (Joint Forum 2013).*

Genworth’s database of successful applicants for LMI suggests that this shift is material. Chart 3.1 splits applicants into quintiles based on their credit scores, with Quintile 1 containing individuals with the highest credit scores – the higher the score, the better the credit rating. The tightening of credit standards is evident in the increase in the average credit score of the lowest quintiles. Yet, at the same time, the average score of the highest quintile has been falling suggesting that the most creditworthy borrowers may have been removed from the pool.

**Chart 3.1: Credit scores, by quintile**

Source: Genworth and DAE

## 4 Potential cost of LMI atrophy

This chapter presents scenarios to illustrate the impact of a diminished LMI market. It is not possible to fully evaluate the overall socioeconomic impact that would result from reduced LMI due to the limited information on borrowers and lenders risk characteristics and behaviour at a national level. The estimates of the impact on homeownership depend on a number of key simplifying assumptions:

- Genworth's customers are representative of all high LVR borrowers;
  - This seems reasonable given the size of Genworth's share of the LMI market
- IRBs can increase their share of high LVR borrowers without limit
  - This may not be feasible in practice, although Genworth estimates that internal model-based banks could retain up to 40% of the most creditworthy of high LVR borrowers.
- Mortgage insurers will respond to the changing risk structure of the high LVR mortgage pool by either raising prices or accepting fewer applicants with low credit scores.
  - This convention is adopted to simplify, although some combination of alternative responses is likely
- If mortgage insurers do not provide LMI, there is no alternative source of funds available to the borrower; the borrower will not be able to purchase a property until and unless their financial circumstances improve notably
  - This is consistent with the risk profile of the borrower

The scenarios outlined below provide an example of potential outcomes and in doing so highlight the important role that LMI plays for individual borrowers and for Australia's financial system more broadly.

### 4.1 Cohorts of borrowers used for modelling

The choice of the metrics and weightings used to select suitable applicants for mortgages are unique for each bank and LMI, due to the logistic regression approaches which each bank adopts when statistically analysing the historical experience of its portfolio (Deloitte Consulting). Nonetheless, a lot of research has been done to work out which loans are more vulnerable to default and key triggers and causes of mortgage default. Particular characteristics of stressed borrowers are generally accepted to include some combination of (AHURI 2010):

- generally low to moderate income, with conventional motivations for home ownership – e.g. security, pride, investment value;
- high initial LVR, varying positively with income, relatively high mortgage interest rates, and more likely to borrow from sources other than banks;
  - Moody's Investor Services estimates that borrowers with LVRs above 90% at origination are about four times more likely to default than the average (MIS 2012);
- triggers are loss of work & income, too much debt and interest rates too high.

While the presence of these characteristics helps lenders make lending decisions, they may be more prevalent in some groups in the community. As such, these vulnerable groups are likely to bear the brunt of measures that compromise the effectiveness of LMI.

There are both broader societal costs and costs for individual borrowers if Australia's financial system were to have a smaller LMI market or lack one altogether. The groups of potential borrowers that are likely to be excluded may exhibit common socioeconomic characteristics.

To illustrate how this may affect access to homeownership for vulnerable groups, the socioeconomic characteristics of borrowers who use LMI are summarised in the following table. Quintile 5 is judged the least creditworthy based on credit scores, so is most vulnerable to losing access to credit. Typically, this group lacks a long credit track record; they are on average younger and more likely to be a first-home buyer.

**Table iii: Characteristics of borrowers with LMI, by credit score quintile (2005-13)**

	<b>Average age</b>	<b>Portion FHB</b>	<b>Portion Major banks</b>
Quintile 1	42.29	8%	18%
Quintile 2	42.57	11%	37%
Quintile 3	41.41	15%	38%
Quintile 4	40.91	17%	32%
Quintile 5	40.67	19%	26%
<b>All</b>	<b>41.59</b>	<b>14%</b>	<b>30%</b>

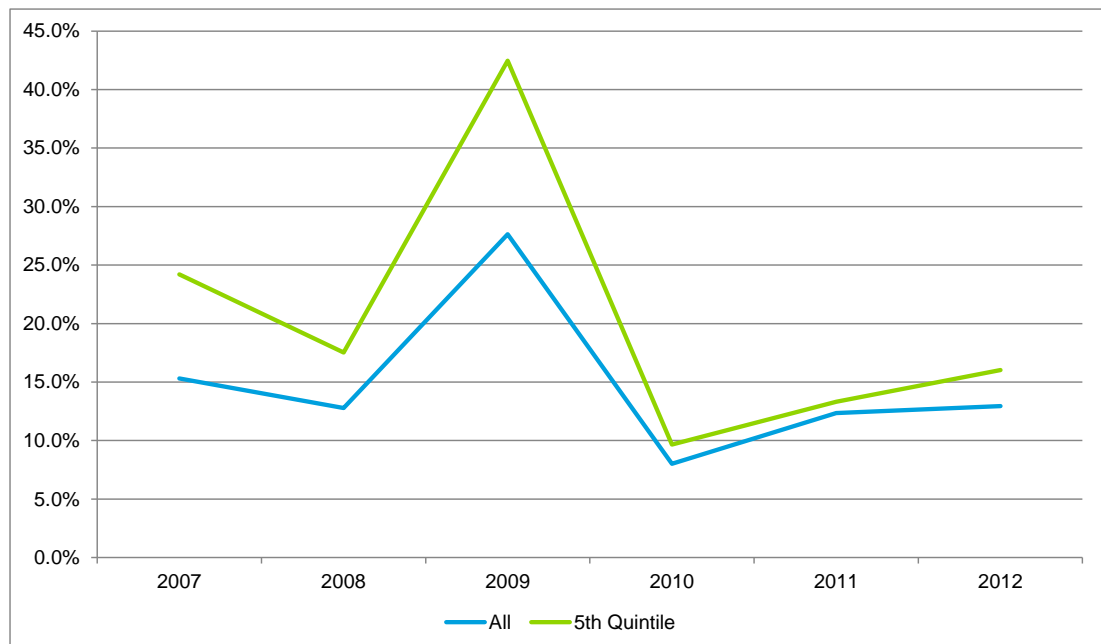
Source: Genworth data, Deloitte Access Economics calculation

#### 4.1.1 First-home buyers

The following chart shows that FHBs comprise a significant share of the LMI market. More marginal first-home borrowers – those in the lowest quintile of credit scores – rely more heavily on LMI than those already in the housing market.

First-home buyers generally account for around 15-17% of the housing market, based on new settlements (Deloitte Consulting 2012). The number of FHBs doubled to almost 30% in 2009 as people took advantage of first-home buyers' stimulus. FHBs tend to buy cheaper homes but have higher LVRs than other buyers, hence, may require LMI to gain approval from their lender.

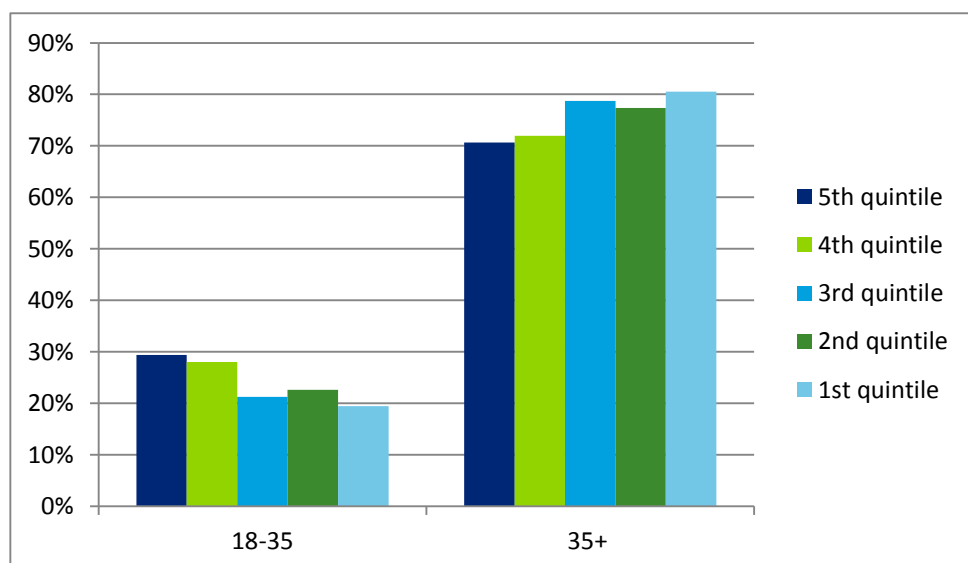
Chart 4.1 also demonstrates that FHBs comprise a significant share of all LMI applicants and that FHBs response to the government stimulus package in 2009 was supported by LMI. Moreover, more marginal borrowers – those in the lowest quintile of credit scores – rely more heavily on LMI than other types of borrowers. This illustrates the important smoothing role that LMI plays during times of economic uncertainty.

**Chart 4.1: First-home buyers share of successful LMI applications**

Source: Genworth, DAE

#### 4.1.2 Younger borrowers

It has also been observed that housing purchases with mortgage finance are more common for younger households than for older households, as older households have built up higher levels of housing equity and other wealth (RBA, 2010). Within the category of purchases with mortgage finance, younger age groups tend to have lower credit scores than older age groups. This is shown in the chart below. Those in the bottom quintile are more likely to be young (less than 35 years) than those in other quintiles.

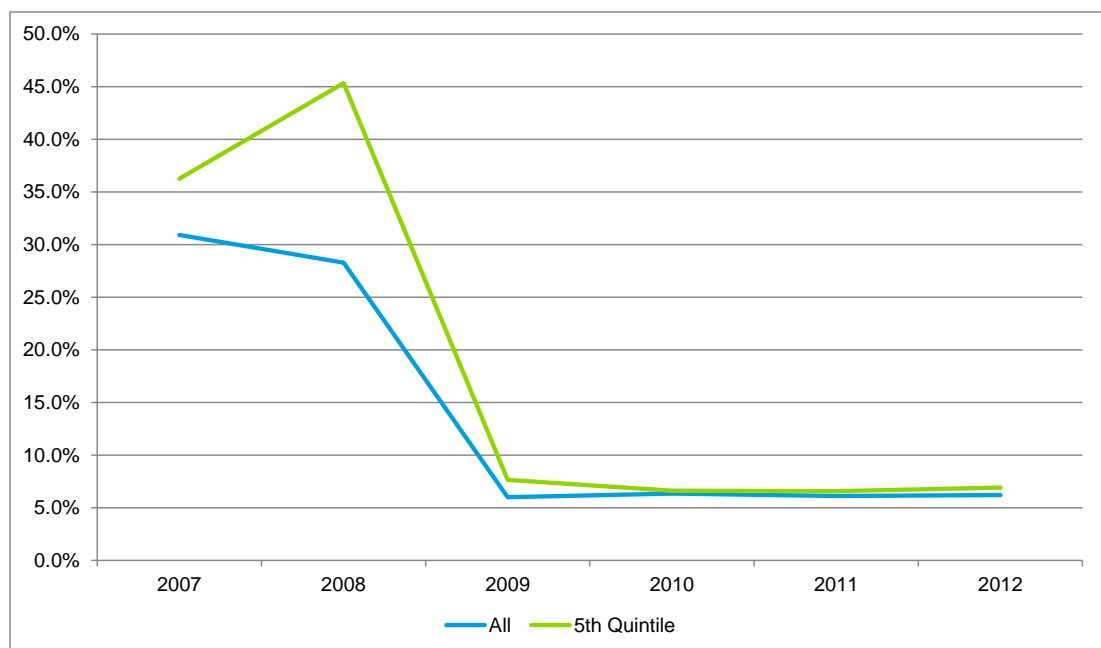
**Chart 4.2: Approval numbers by age, by credit score quintile, (2012)**

Source: Genworth, DAE

### 4.1.3 Self-employed

Before the GFC, the self-employed accounted for 30% or more of successful LMI applications. However, this group has been especially affected by the tightening of lending standards in recent years, demonstrating again that it is borrowers which are traditionally classified as less creditworthy borrowers who rely more heavily on LMI.

**Chart 4.3: Self-employed share of successful LMI applications**



Source: Genworth, DAE

To highlight the potential consequence for the economy of reduced access to mortgages enabled by LMI, a series of scenarios are presented using de-identified data from Genworth's database for 2012.

## 4.2 Decreasing the pool of high LVR customers

If IRBs self-insure the most creditworthy of their high-LVR customers, LMIs are assumed to:

- increase the price of mortgage insurance, to cover the increased average risk of the mortgages in the insurance pool; or
- decline applications from applicants with low credit scores to maintain the average level of risk in the pool.

### 4.2.1 Removing the highest credit scores from the LMI pool

This scenario assumes that major banks chose not to purchase LMI for High LVR mortgage applicants with high credit scores, consistent with the Joint Forum observation that the explicit regulatory incentive for ADIs to seek LMI has been reduced.



#### 4.2.1.1 Impact on housing affordability

If, for example, the 20% of applicants with highest credit scores are removed from the risk pool, the average risk of the remnant pool will increase and Genworth estimates this would add a minimum of 15% to the price of LMI on average. Clearly, this will adversely affect housing affordability and reduce home sales.

Firstly, the remaining pool of borrowers will all pay a higher price for insurance (due to community rating), to compensate LMIs for bearing a higher level of risk. Genworth estimates the price of LMI would rise by around 15% if the community-based pricing model is retained. Using a house price of \$400,000 this would cause the cost of a \$400,000 property to increase by between \$580 with an LVR of 85% to more than \$2,000 with an LVR of 95%.

- For borrowers with an LVR of 85% this would increase the premium from \$3,910 to \$4,496<sup>11</sup>. This would increase the price of the property from \$403,910 to \$404,496. This is an increase in the cost of the purchase of \$586 or around 0.15%.
- For borrowers with an LVR of 90%, this would increase the premium from \$7,056 to \$8,114. This would increase the price of the property from \$407,056 to \$408,114. This is an increase in the cost of the purchase of \$1,058 or around 0.26%.
- For borrowers with an LVR of 95%, this would increase the cost of the premium from \$13,984 to \$16,081. This would increase the price of the property from \$413,984 to \$416,081. This is an increase in the cost of the purchase of \$2,097 or around 0.51%.

The response of demand for housing to price changes is relatively inelastic and has been estimated at around 0.5 (Sinai, 2007). This means that a 1% increase in the price of housing leads to decrease in the demand of housing by 0.5%. For the scenarios above the increase in price, driven by higher LMI premiums would cause a fall in demand for properties valued at \$400,000 of between 0.075% and 0.26% depending on the amount of deposit available to the borrower.

#### 4.2.1.2 Impact on number of successful mortgage applications

Alternatively, the risk of the insurance pool could be maintained by declining applications from an offsetting number of applicants with low credit scores (Table ii). In 2012 over \$11 billion of property transactions would have been declined and over 2,800 first home buyers miss out; more than 6,000 under 35s stay at home or in rental accommodation; and in excess of 1,800 self-employed do not become home owners.

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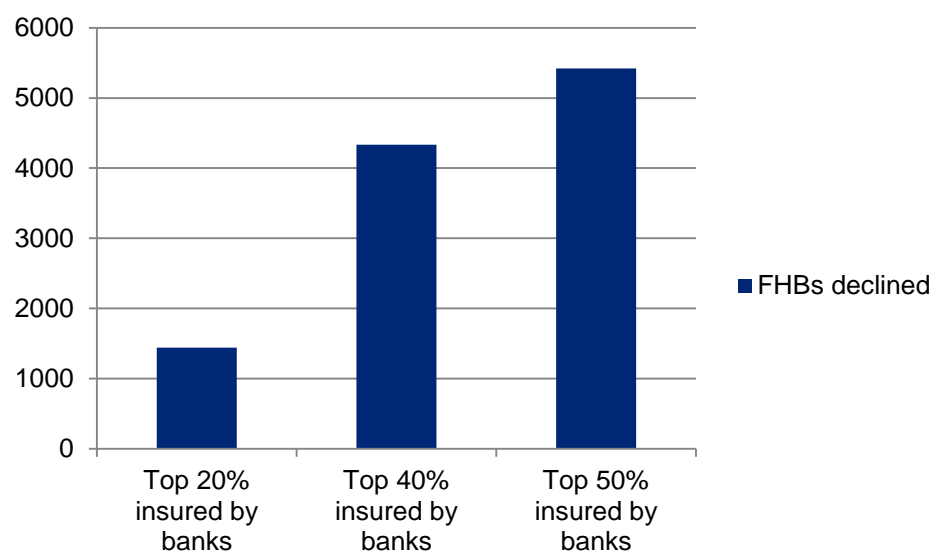
<sup>11</sup> This is calculated as a 15% increase on the price of the LMI premium according to Genworth's LMI premium estimator.

**Table 4.1: Scenario modelling**

Scenario	Value declined (\$b)	FHBs declined	Under 35s declined	Self-employed declined
Top 20% insured by banks	11.2	2,884	6,376	1,832
Top 40% insured by banks	25.2	8,664	17,884	3,682
Top 50% insured by banks	30.2	10,846	22,544	4,212

Source: Genworth data, Deloitte Access Economics calculations. Assumes Genworth customer base is 50% of the LMI market.

If the number of applicants with high credit scores is reduced, say by 40%, the impact on underserved groups is more than doubled. This is illustrated for FHBs in Chart 4.4.

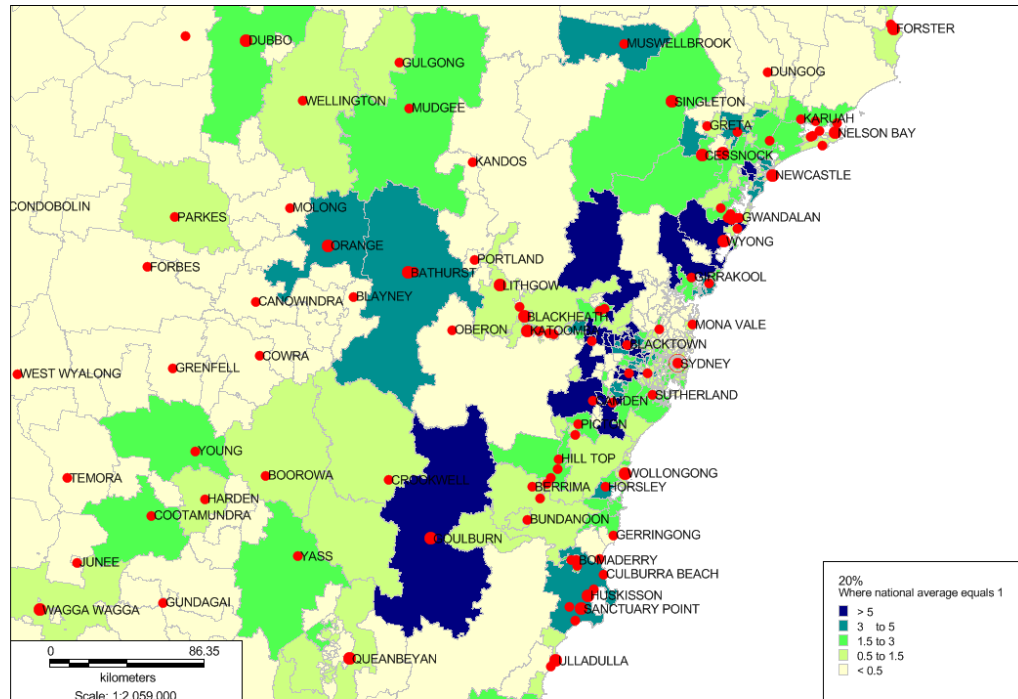
**Chart 4.4: First home buyers declined**

Source: Genworth, DAE

Extending beyond 40% results in still larger reductions in the number of successful applicants. At some point, there will not be enough customers to maintain a viable LMI industry in Australia, although it is not clear where this tipping point lies.

#### 4.2.1.3 Regional effects

The relatively higher incidence of LMI in outer-metropolitan and regional areas suggests that these areas will be disproportionately affected by any reduction in LMI provision. This is illustrated in the following chart showing the most affected areas in NSW indicated by the dark blue shading (additional charts showing the 40% case appear in Appendix B).

**Chart 4.5: Distribution of rejected applications (20% case)**

Source: Genworth, DAE

#### 4.2.2 Removing low LVR mortgages from the LMI pool

Under this scenario, the observed trend of lenders self-insuring up to an LVR of 85% noted by the Joint Forum is extended so there is effectively no market for LMI in Australia above 85% LVR.

- Banks will self-insure all those who have an LVR of less than 85% while all remaining borrowers will be unable to access LMI and consequently will be unable to access a mortgage.
- This is similar to the situation that existed before the HLIC was established when only borrowers with a substantial deposit could apply for a home loan. However, deposit requirements were if anything more onerous then.

#### 4.2.3 Credit rationing – unsuccessful applicants

Banks require LMI for loans with LVR greater than 80%. This means that without a market for LMI, and with banks self-insuring only those with LVR less than 85%, a majority of borrowers will miss out on accessing funding. In 2012 this is equivalent to around 126,000 borrowers.<sup>12</sup>

<sup>12</sup> Genworth is around 50% of the market. This was calculated using 2012 Genworth data, aggregated to the whole industry.

Socioeconomic characteristics of these two groups are summarised in the following table. This group is on average younger, with fewer dependants, significantly more likely to be a first-home buyer and have less than average income.

**Table 4.2: Socioeconomic characteristics by credit score, 2012**

	<b>Average age</b>	<b>Portion FHB</b>	<b>Portion Major banks</b>	<b>Average Income</b>
Less than 85 LVR	44.0	3%	13%	120,947
More than 85 LVR	39.6	22%	44%	102,115
<b>All</b>	<b>41.6</b>	<b>14%</b>	<b>30%</b>	<b>111,482</b>

Source: Genworth data, Deloitte Access Economics calculations

Assuming that all high LVR borrowers, i.e. all those with a loan to value ratio above 85%, are unable to obtain LMI in 2012 and Genworth's customer base represents 50% of the market:

- applications would be declined for more than \$50 billion worth of property annually;
- around 18,000 FHBs miss out;
- Some 31,000 under 35s stay at home or in rental accommodation, and
- 6,000 self-employed don't become homeowners.

#### 4.2.4 Other economic impacts

If the financial balance between LMI and its capital adequacy and risk management substitutes alters, such that lenders use less LMI (and only on the riskiest loans), hedging of lenders' risks may become less efficient. There will be less diversification of mortgage risk by individual lenders and in the economy as a whole.

Scrutiny of the level of risk carried on loan books will fall. Prudential supervisors will have a second set of eyes scrutinising lending practices. Bank management will lose valuable feedback on mortgage lending practices.

Risk-pooling benefits, including fungible capital, will be diminished. The alignment of information and incentives may become more skewed.

The countercyclical properties of LMI will have a reduced impact. Macroprudential controls will have to be tightened to achieve the same degree of restraint. Financial system stability would not be improved.

## Conclusion

Lenders mortgage insurance transfers risk from lenders to those institutions best suited to bearing it, mortgage insurers. In doing so, capital is used more efficiently, lenders can lend more and risk is diversified. Equally, there are socioeconomic benefits from extending homeownership to vulnerable cohorts and LMIs role in smoothing the economic cycle.

The benefits of LMI are recognised by global prudential standard setters and by Governments around the world. The benefits of LMI are supported by mandated use of LMI or regulatory incentives to lenders to take on LMI.

It must remain the case that lenders are incentivised to pay insurers more than the insurers' cost of equity/debt for the service of risk reduction, and for a sufficient volume of loans. If not, the LMI model will be undermined, as will the direct and indirect benefits that it provides to the broader economy.

Simulations of reductions in the availability of LMI show that particular groups of potential borrowers are at risk of not being able to obtain a mortgage. These groups include young borrowers, first-home buyers and those living in outer-metropolitan and regional areas.

If lenders use less LMI, there will be less diversification and scrutiny of mortgage risk in the economy. The countercyclical properties of LMI will be reduced. In sum, the economy risks losing the prudential benefits provided by LMI and also the efficiency, equity and competition that it provides.

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## Appendix A: Current regulation of LMI in Australia

APRA is still considering its approach to banks' internal ratings based models, in the interim:

- requiring internal model-based banks to apply long run historical average probability of default (PD) to credit risk
  - this despite riskier vintages of mortgages written during 2005-08 rolling off and being replaced by less risky vintages, which will become more pronounced under generally tighter lending standards post-GFC
- and imposing on lenders a 20% floor for LGD for retail mortgages. This is twice what the global standard-setter, the BCBS, regards as sufficient.

*The BCBS recommends firms using the internal ratings based apply a 10% floor to the exposure-weighted average LGD for retail exposures secured by residential properties and not benefiting from guarantees from central governments (BoE PRA 2013).*

There are obvious benefits attached to the requirement that borrowers purchase LMI for high LVR loans. Recognising LMI would result in the IRBs modelling lower capital requirements to cover their risks. Anecdotally, at least some of the IRBs are able to place an explicit value on LMI to the bank's mortgage portfolio (Institute of Actuaries 2010, Genworth). It has been suggested that the 'true' LGD factors modelled by the banks lie in the range of 8% to 15% (Institute of Actuaries 2010).<sup>13</sup> However, APRA thinks these figures are too low.

*The 20 per cent downturn LGD floor was imposed because the modelling that was coming from the banks including allowing for mortgage lenders' insurance was producing numbers of capital that we thought were far too low. (APRA Chairman Dr Laker, Senate testimony, June 4 2013)*

*The explicit regulatory incentive for Australian banks to use LMI has, to a significant extent, been reduced for banks approved to use internal models because APRA requires a minimum 20 per cent loss given default assumption in these models irrespective of LMI. This floor was imposed as a substitute for the limited downturn experience in Australia over the past few decades (Reserve Bank of Australia, 2013; 40).*

It is not clear what the 'correct' LGD is, however, if the LGD is set too high, then the economy as a whole, and borrowers and lenders in particular, will pay a penalty in terms of economic efficiency foregone. By reducing the amount of available capital, there will be

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<sup>13</sup> <http://www.actuaries.asn.au/Libraries/PublicPolicy/ProjectHarmonyReport.sflb.ashx>

unexploited opportunities for profitable lending, notably to excluded groups of would-be homeowners. Recognition of credit risk transfer via LMI could help to guard against this.

The RBA has also recently noted that institutions approved to use the models based approach to estimating holdings of capital for regulatory purposes have little capital incentive to hold LMI. Instead, LMI is largely taken out by these institutions for credit risk purposes and to obtain the other benefits allowed by LMI.

Basel III calls for banks to hold capital buffers, which will increase the total amount of regulatory capital that banks have to hold to meet prudential requirements. This will reduce the amount of capital available for lending, making the issue of appropriate capital relief more important.

#### 4.2.5 Progress on IRBs' models

APRA and the IRBs have been discussing how to refine the models to satisfy APRA's reservations about:

- the sufficiency of capital held by LMIs
- counterparty risk of LMIs
- capital held by banks compared to capital held by LMIs.

*That relief does not apply for the major players that have authorisation from us to use the advanced Basell II framework because there is a binding floor on their modelling that we have imposed to make sure there is adequate capital in the system as a whole. **I know that causes issues for lenders mortgage insurers.** (Dr Laker, Senate testimony, June 4 2013, emphasis added)*

APRA is the prudential regulator for both lenders and mortgage insurers. If there is a shortfall in insurers' reserves, it seems reasonable for the insurers to address this issue rather than the banks.

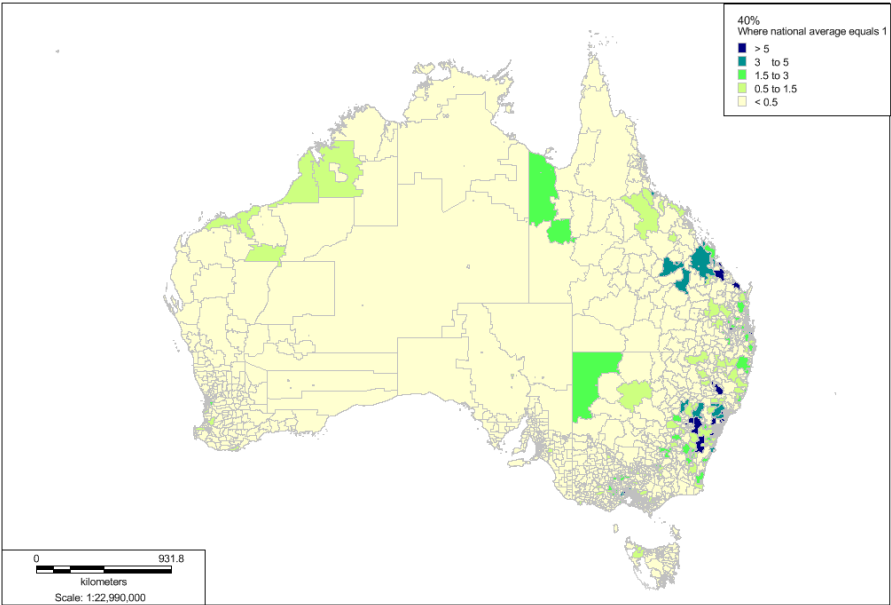
If LMI capital effectively does not count as system capital; the insurance is treated as if it has zero risk mitigation value. For the system as whole, capital increases when an internal model-based bank transfers risk to a MI because there is no change in capital held by the bank – even though it has reduced the risk on its books – but the insurer has to hold additional capital against the new risks it has taken on. This results in a net increase in system capital held for the same overall level of risk; clearly an inefficient outcome. (This is even before considering that insurers pose less systemic risk than banks – failure of an insurer does not have knock-on effects to other insurers, and monoline insurers such as MIs have still fewer links to other parts of the financial system.)

For an IRB, LMI has no value as regulatory capital (although the risk transfer can smooth earnings volatility and enable better targeting of customer cohorts); for a standard bank, the benefits are material.



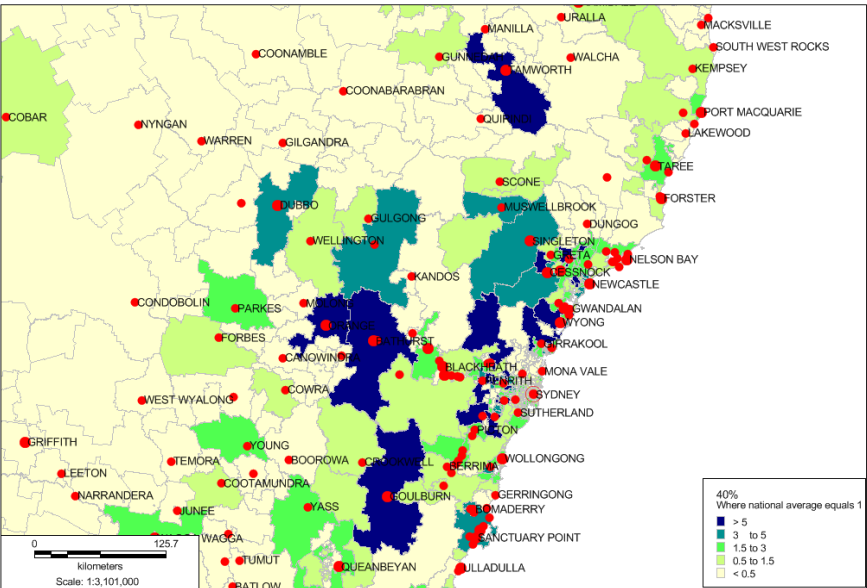
# Appendix B Maps

Chart B.1: Australia (40% case)



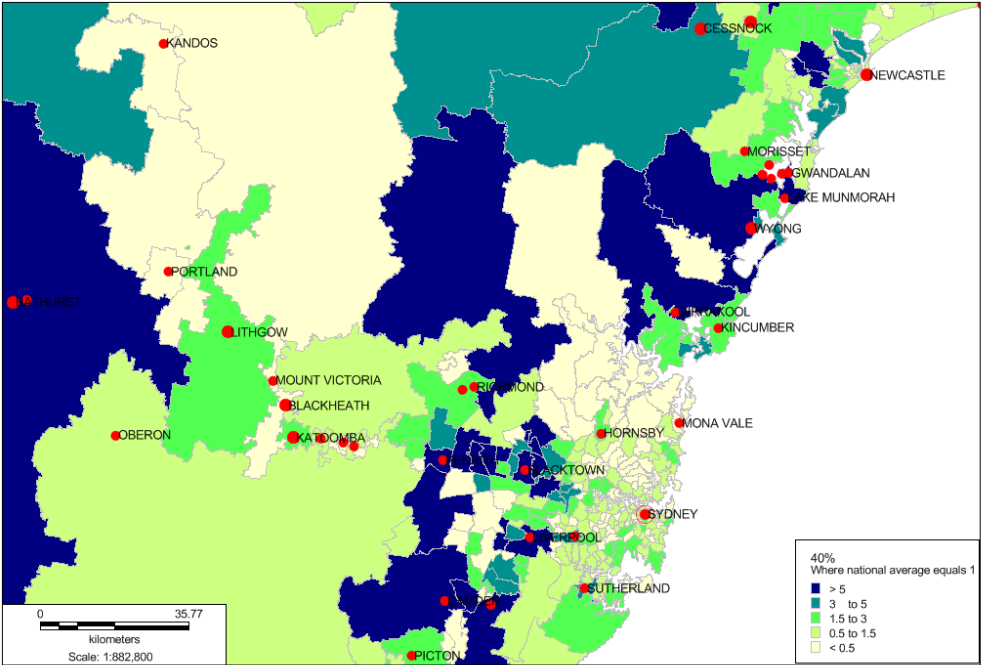
Source: Genworth, DAE

Chart B.2: NSW (40% case)



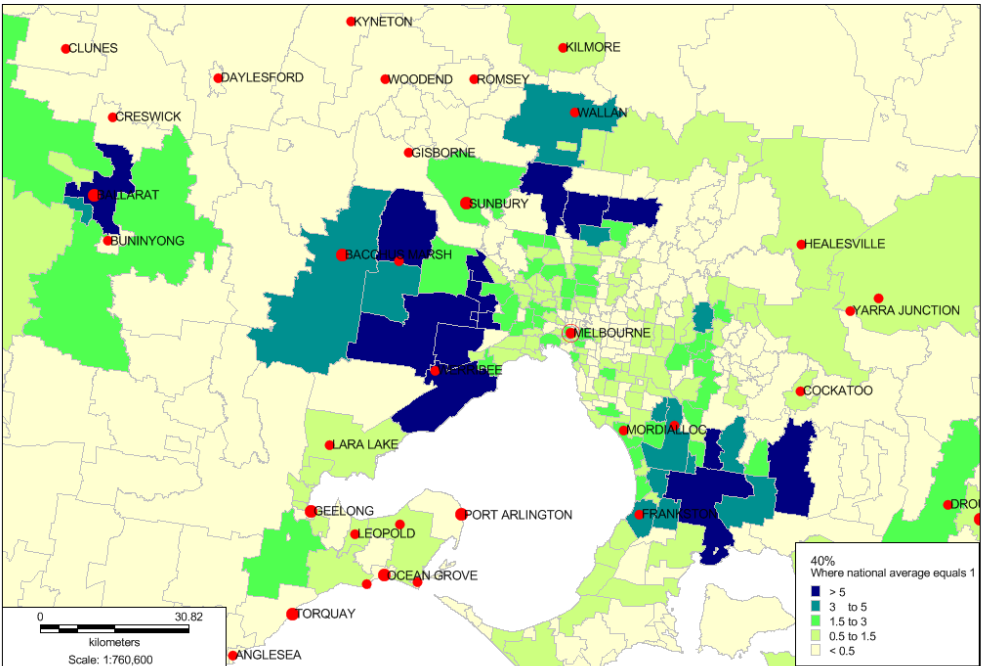
Source: Genworth, DAE

Chart B.3: Sydney (40% case)



Source: Genworth, DAE

Chart B.4: Melbourne (40% case)



Source: Genworth, DAE

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## Contact us

Deloitte Access Economics  
ACN: 149 633 116

Level 9  
225 George St  
Sydney NSW 2000

Tel: +61 2 9322 7000  
Fax: +61 2 9322 7001

[www.deloitteaccesseconomics.com.au](http://www.deloitteaccesseconomics.com.au)

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