Centre for Ideas and the Economy

'AussieMac'

A Policy Initiative for the Australian Government to Protect Households and the Financial System Against Current and Future Credit Crises

IdeaPITCH No.1

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Date: 9th April, 2008 (First Version: 26th March, 2008)

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Executive Summary

There is a new global financial crisis emerging caused by the collapse of sub-prime lending in the United States. As with previous capital market dislocations, Australia has not been insulated from the instability. The 'primary' market for residential mortgage-backed securities in Australia has for all intents and purposes evaporated. The consequence of this is that smaller banks, building societies and non-bank lenders that used the process of securitisation to provide housing finance over the last decade have either severely rationed credit or withdrawn from the market altogether. As a result, the Big-5 banks have dramatically increased their share of the mortgage market, albeit at the cost of acute balance sheet pressures.

Australia needs a policy solution that will guarantee the provision of the 'public goods' of a minimum level of liquidity and price discovery in the mortgage-backed securities market during future financial crises. Failure to act with a systematic policy response will see the heightened competition that emerged in the mortgage market over the past 10 years significantly dissipate with a likely further casualty being the low home loan margins that households have enjoyed during this period. In such an environment, home owners and businesses may not receive the full benefit of attempts by the Reserve Bank of Australia to reduce interest rates.

We propose that the Commonwealth Government sponsor an enterprise – 'AussieMac' – that would leverage the Government's AAA-rating to issue low-cost bonds and acquire high-quality mortgage-backed securities from Australian lenders just as Fannie Mae and Freddie Mac have done in the United States (and the CMHC in Canada). AussieMac's role as a long-term liquidity provider would be especially important during periods of capital market failure when third-party funding for Australian home loans can disappear with potentially dire ramifications for the financial system. While this enterprise would have to be closely monitored and controlled, it would not constitute a significant near-term drain on public funds. Instead, it would restore stability and long-term confidence to both the primary and secondary mortgage markets in Australia and ensure that the vigorous level of competition that has characterised the housing finance industry will continue into the future.

About

The Melbourne Business School is one of the leading providers of management education in the Asia-Pacific. The Centre for Ideas and the Economy (or CITE) is a newly-created research centre residing within MBS. It is devoted to the creation and dissemination of academically evaluated, rigorous and practical policy ideas for application in the public and business spheres. This IdeaPITCH is one of a series of publications from the CITE. An IdeaPITCH is a vehicle by which academic researchers can place into the public domain policy ideas that have their genesis in academic research but have yet to be explored in broad detail. The purpose of an IdeaPITCH is to generate interest in such exploration by governments and others in the community. Comments are welcome on the proposal put forward in this report.

About the Authors

Christopher Joye is Managing Director of Rismark International, a quantitative research, investment and intellectual property development firm. He led the 2002-2003 Prime Minister's Ownership Task Force and was the lead author of its main report. In 2007, the Bulletin Magazine selected Christopher as one of Australia's "10 Smartest CEOs" while BRW included Christopher in its list of "Australia's Top 10 Innovators". Christopher previously worked with Goldman, Sachs & Co in London and Sydney and with the Reserve Bank of Australia. Christopher received Joint 1st Class Honours and the University Medal in Economics & Finance from the University of Sydney. He was a Commonwealth Trust Scholar at Cambridge University where he studied for a PhD.

Joshua Gans is a professor at Melbourne Business School in Australia. His research focuses on competition policy and innovation. He is the author of several textbooks and policy books, as well as numerous articles in economics journals. Gans received a Bachelor of Economics (Honours) and the University Medal from the University of Queensland before going to Stanford University to study for his Ph.D. in Economics. He graduated from Stanford in 1995 and moved to Melbourne Business School in 1996 as an Associate Professor and became a full Professor in 2000. In 2007, Gans received the inaugural young economist award from the Economic Society of Australia. This is an award given every two years to the best economist working in Australia, who is aged under 40.

Acknowledgements

We thank Adam Bauer, Glen Bertram, Ian Joye, Andrew Leigh, Jamie McPhee, Sean Oldfield, John Powell, Ben Skilbeck and especially, Nicholas Gruen, for valuable comments and feedback. All views expressed are solely those of the authors and do not necessarily represent those of the above individuals and organisations. Responsibility for all errors lies with the authors.

Disclaimer

Christopher Joye is Managing Director and Joshua Gans is an advisor to Rismark International, a provider of shared equity mortgages in Australia, amongst other things. While Rismark has an interest in the efficient operation of home lending markets in Australia, it does not fund through the RMBS securitisation markets; the focus of the policy proposals contained in this report.

The latest version of this paper will be available at www.mbs.edu/jgans

Introduction

The current global credit market crisis exemplifies the need for the Commonwealth Government to introduce an important policy innovation that would insulate Australian households, and the key financial institutions that provide them with funding, from external capital market shocks that have nothing to do with the integrity of the Australian economy, its financial system, or the quality of Australian home loans. This solution is motivated by the growing frequency with which extreme financial market dislocations appear to be occurring.[3]

As the world's economies become increasingly open and integrated, the impact of these seemingly unrelated circumstances[4] is transmitted through the global financial system with stunning speed and often carries unforeseen consequences. As the Treasurer, Wayne Swan, observed in Parliament, "The world has witnessed substantial financial market turbulence since it began in August last year, making its presence felt across markets, across nations, and across continents…The [Australian] residential mortgage backed securities market is no longer functioning in an effective way."[5] This fact has implications not only for the availability of funds for housing finance but also for the ability of small and medium enterprises to obtain credit – both for short- and long-term needs.

In this report, we argue that where these external shocks wreak unjustified havoc at home there is a role for government to prevent effective 'market failures' of the type that we are seeing in the primary residential mortgage-backed securities (RMBS) market today. In particular, we believe that when key economic markets irregularly collapse governments have a responsibility to supply the 'public goods' of a minimum level of liquidity and price discovery.[6] While governments are increasingly recognising that markets are not as efficient, and the investors that populate them not as rationale, as was once believed, to date interventions in Australia by the central bank have been limited to the banking sector. Non-bank lenders, who have clearly suffered the most from the closure of the primary securitisation markets, cannot, ironically enough, avail themselves of the central bank's liquidity services. Put differently, government is currently providing liquidity to the organisations least in need of it; ie, the banks. The market failure we identify is akin to the problems associated with 'bank runs', albeit applied to the 'shadow' banking sector. Bad decisions can, by virtue of a lack of transparency in certain overseas markets such as the US, translate into increased costs and a lack of liquidity elsewhere. This is precisely what we have seen in global debt markets over the last eight months.

These failures, however, light a path to potential solutions. Indeed, one solution that we propose here has the important quality of not requiring significant immediate outlays of government funds (and hence, no corresponding impact on the government's fiscal position). Instead, it proposes that the government use its strong standing in the credit markets to insulate the economy, and in particular, the state of competition in our lending markets, from extreme global financial dislocations.

Our contention is that the instability in international capital markets will almost certainly have long-term consequences for the cost, flexibility and availability of Australian credit in both the residential mortgage and small business lending sectors. The difficulties faced by Australian lenders trying to securitise AAA-rated home loans via the primary RMBS market, which has historically been the source of hundreds of billions of dollars of cost-effective "off balance-sheet" funding, has resulted in the withdrawal of major participants (eg, Macquarie Bank, RAMS and ANZ's Origin) and a dramatic reduction in the capacity of

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[3] For example, the 1987 stock market crash, the 1997 Asian crisis, Russia defaulting on its debt in 1998, the associated collapse of the hedge fund LTCM, and the equities 'tech wreck' of 2001.

[4] For example, what relevance do US sub-prime borrowers defaulting on their home loan repayments have for the Australian-listed company ABC Learning?

[5] Speech, 18th March, 2008. Swan further comments, "With financial institutions here and elsewhere unable to raise as much funds through securitisation, and uncertainty as to the extent of exposures to losses on these assets, they began to hold on to the cash they had. Banks here and elsewhere became more reluctant to lend to each other, except in the very short term."

[6] Bengt Holmstrom and Jean Tirole (1998), "Private and Public Supply of Liquidity," *Journal of Political Economy*, 106 (1), pp.1-40.

smaller providers to offer credit (eg, Adelaide Bank, Challenger, Credit Union Australia, Wizard, Resimac, Heritage Building Society, etc).

The advent of RMBS securitisation in Australia during the mid 1990s transformed the mortgage market by intensifying competition to the demonstrable benefit of Australian households. With the effective closure of these markets, the rationing of credit has already begun (on an 'intra-market' basis) with a striking increase in industry concentration. According to Fujitsu Consulting, the Big-5 majors' new home loan market share has risen from circa 75% (pre sub-prime) to nearly 90% today. The 'reintermediation' of the major banks back into the home loan market is also forcing them to ration credit in other, more capital-intensive, sectors, such as small business lending (which has a 100% risk-weighting rather than the 35-50% risk weighting applied to home loans). The scaling back of these competitive forces will have negative long-term ramifications for Australian households and small businesses, and undermine a decade or more worth of microeconomic achievement.

The evaporation of third-party liquidity for Australian home loans has occurred in spite of their extraordinarily low historic default rates, which rank among the best in the world, and the exceptional overall health of the domestic economy. For these reasons there is a need to stem the tide and shore up the future by establishing a government agency, or a 'government sponsored enterprise' (GSE), that is capable of supplying a minimum level of liquidity to Australian lenders and fostering trading activity in the secondary RMBS market.

This issue is known to central banks around the world. They, including the Reserve Bank of Australia (RBA), have sought to fulfill such a role by providing restricted liquidity to banks that want to use their ballooning home loan exposures as collateral. While the RBA's recent modifications to its repurchase (or 'repo') facility criteria have assisted in staunching some of the primary RMBS market illiquidity, their actions have not in any way prevented the fundamental disruptions that are re-shaping the competitive dynamics in Australia's housing finance market.

Faced with these changes, there is an immediate need for close consideration of more direct government involvement in the capital markets. This is especially the case as the government's own very sound standing as an issuer of securities could be used to back liquidity of the kind that is currently drying up. This has the potential to resolve all of the aforementioned liquidity woes and restore healthy competition to Australia's mortgage market. Such intervention has precedent elsewhere. Historically, similar initiatives in the US, with the now privatized GSEs, Fannie Mae and Freddie Mac, and in Canada, with the government-owned CMHC, were created with precisely the same mandate that we have in mind: that is, to "stabilize mortgage markets and protect housing during extraordinary periods when stress or turmoil in the broader financial system threaten the economy."[7]

Under our proposal, the Commonwealth Government could guarantee the credit worthiness of a similar Australian government agency, referred to here as 'AussieMac,' thereby lending it Australia's AAA credit rating.[8] This would allow AussieMac to issue substantial volumes of extremely low cost bonds into the domestic and international capital markets. The funds raised through issuing these bonds could be used to acquire high-quality AAA-rated Australian home loans off the balance-sheets of lenders. AussieMac would therefore serve to guarantee liquidity in the Australia home loan market in the

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[7] This is how the GSE regulator, OFHEO, characterises one of the GSE's roles.

[8] It is critical to note that our AussieMac proposal has nothing to do with the NSW Government mortgage financing agency, FANMAC, and the Government mortgage originator, HomeFund, which suffered significant difficulties in the early 1990s. These organisations ran into trouble because HomeFund was providing home loans to incredibly high risk borrowers who could not meet their repayments. One of the principal reasons for the problems was that HomeFund was misleading borrowers about the terms and conditions of their loans and aggressively targeting low-income or poorly-equipped households that could not service their repayments. For example, in 1993 Auditor General's report showed that 11% of HomeFund's unsubsidised borrowers and an amazing 35% of HomeFund's subsidized borrowers were in default, the latter of which more than twice as high as US sub-prime default rates. By way of contrast, average 30 day default rates on prime Australian home loans are just 0.84% according to S&P data. Importantly, it is categorically not proposed that AussieMac would be an originator of home loans, like HomeFund. Rather, the originators would be the mainstream private sector lenders that operate today. Even more importantly, AussieMac would only acquire high credit quality 'prime' mortgages sourced in accordance with its credit criteria just like the Canadian and US GSEs. Another issue with FANMAC and HomeFund was that their specially designed products involved steep increases in repayments made by borrowers after a certain period of time had elapsed much like the way the US adjustable rate mortgages that have caused so many problems work (ie, get a big reduction in repayments for a few years then get slammed by a huge increase down the road). As the NSW Ombudsmen said at the time, HomeFund was ill-considered, badly advised and poorly understood, even by the Government. Since inception, the overseas GSEs have generally had a hugely positive influence on the formation of the mortgage markets in the countries in question. One should not, therefore, extrapolate out from the sub-prime-like HomeFund experience.

event that other private sources of capital were to supply insufficient funding, such as is currently the case. This is exactly the role being fulfilled today by the CMHC in Canada, and Freddie Mac and Fannie Mae in the US. The Australian mortgage market, by way of contrast, is suffering from the absence of equivalent support.[9] In the near- to medium-term AussieMac could be privatised with the result that its debt would be taken off the government's own balance sheet, if that was deemed desirable.

AussieMac's liquidity guarantee would restore deep competition in the Australian mortgage industry and enable lenders that originate high credit quality home loans to always access a readily available source of finance. In this way, the establishment of an AussieMac-like agency would almost immediately resolve the market failures currently evidenced in the primary RMBS market and help to insulate Australian households and the financial system at large from exogenous global shocks that have nothing to do with the integrity of the Australian economy.

The presence of an agency such as AussieMac could have other important benefits. According to a leading financial economist, Richard Roll, numerous academic studies have found that the participation of Fannie Mae and Freddie Mac in the US home loan market has resulted in the reduction of mortgage rates by 25-50 basis points more than would have been the case in their absence.[10] Of course, this analysis presupposes that the primary and secondary US mortgage markets would have emerged without the presence of the US GSEs in the first place (which were effective duopolists for many decades), which is highly doubtful to say the least. Moreover, to the extent that AussieMac issues long-dated fixed-rate paper it could also assist in the development of 30-year and 40-year fixed-rate home loans in Australia, which are such a critical element of the US market but unseen here. Finally, there would be considerable merit in imbuing AussieMac with an explicit affordable housing mandate such that it can supply credit-enhancement and securitisation services to facilitate the provision of finance to low-income and/or disadvantaged households where there is private-market failure to do so. The CMHC, Fannie Mae and Freddie Mac have all been chartered with objectives along these lines.

The funding advantages afforded to such an agency should ensure that it is a profitable going concern that does not require any direct public subsidies. There are, to be sure, many important details that need to be worked out around the 'execution' of such a plan. For example, government would be well advised to institute appropriate restrictions to safeguard against this agency unnecessarily disintermediating natural private sector activity. While Fannie Mae and Freddie Mac have been extraordinary successful institutions for the best part of 50 years, they too have been occasionally embroiled in governance sagas that tend to at one time or another afflict all major corporations.[11] With this in mind, it will be important for government to learn from these mis-steps and institute the strongest possible oversight regime. Nonetheless, these possibilities should not prevent a concrete exploration of the creation of an Australian GSE as one potentially powerful shield against global financial turbulence.

The Australian Mortgage Securitisation Market

Up until nine months ago, Australia had the fourth largest secondary mortgage market in the world, with over $284 billion worth of prime home loans having been successfully sold to local and overseas investors since 2002.[12] A key driver of the exponential growth in the Australian RMBS market, which has risen in value from just $3.3 billion loans outstanding in January 1996 (see figure below), was the fact that Australian mortgages have one of the lowest long-term default rates in the

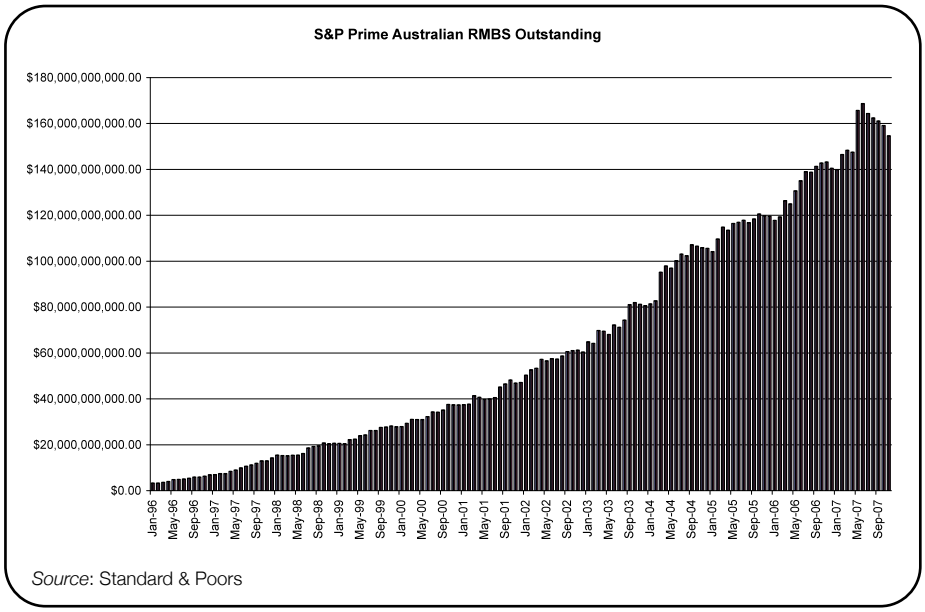
[9] We believe that there is an argument that the presence of a similar GSE in the UK would have prevented the 2007 'run' on the major UK lender, Northern Rock, which resulted in its nationalisation.

[10] Richard Roll, "Benefits to Home Owners from Mortgage Portfolios Retained by Fannie Mae and Freddie Mac," *Journal of Financial Services Research*, 23 (1), 2003, pp.29-42.

[11] Freddie Mac and Fannie Mae have been recently forced to re-state their earnings due to widespread accounting errors.

[12] According to S&P SPIN data at November 2007.

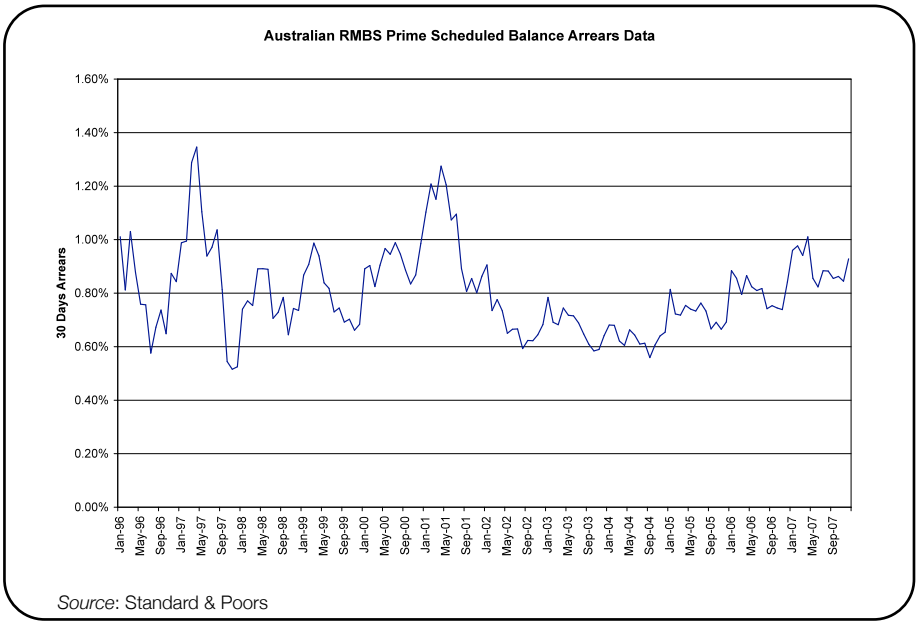
developed world and significantly less than comparable rates of default on US loans.[13,14] This is, in part, a function of the full-recourse nature of Australian mortgages and the fact that the level of personal bankruptcies in Australia is lower than in the US (significantly), Canada, and the UK.[15]



Source: Standard & Poors

In contrast to the US, where around 10-15% of all mortgages are classified as 'sub-prime.'[16] Australia does not have a large sub-prime market. Indeed, the RBA estimates that only around 1% of Australian home loans can be classified in this way.[17]

Even today, after a cycle of 12 interest rate rises, Australian mortgage default rates are still not significantly greater than historical averages. For example, the S&P scheduled payment 30 days-plus arrears estimate on prime Australian RMBS at December 2007 was just 0.93%, which is not significantly different from the historical average between 1996 and 2006 (a sample period that noticeably excludes the much higher real interest rates and default rates experienced in the late 1980s and early 1990s). By comparison, 30 day default rates on



Source: Standard & Poors

[13] For example, the claims frequency on mortgage insured loans has averaged just 0.64% over the last 40 years according to one of Australia's largest mortgage insurers.

[14] In its 2006 Investor Guide, S&P commented, "Australian residential mortgages have always been considered to have had low credit risks…To date, performance of Australian RMBS transactions has been outstanding; there have been no losses or chargeoffs on any rated notes...The absolute level of losses on loans in Australian RMBS pools has been extremely low compared with the volume of loans that have been securitized…Some of the fundamental characteristics of the Australian market which underpin the quality of residential mortgage loans are: the full recourse nature of loans to borrowers; a strong home ownership ethos and a high free-and-clear ownership rate; the rarity of severe downturns in nominal property prices across the country; and good prepayment speeds due to nondeductibility of interest on housing loans." *Standard and Poor's*, *An Investor Guide to Australia's Housing Market and Residential Mortgage-Backed Securities*, *November 2006*.

[15] According to S&P, the main reasons for Australia's low level of personal bankruptcies are "the historical willingness of Australians to repay debt (that is, a strong credit culture), the severe consequences of bankruptcy under Australian law, the stigma associated with bankruptcy, and the difficulty in accessing finance after bankruptcy. Also, even in bankruptcy, lenders continue to have personal recourse alongside other creditors to bankrupt borrowers after the security property is sold." Standard and Poor's, An Investor Guide to Australia's Housing Market and Residential Mortgage-Backed Securities, November 2006.

[16] See RBA *Financial Stability Review* (March 2007).

[17] *Ibid*.

US prime loans are heading towards 4% whereas 30 day delinquencies on US sub-prime mortgages are over 16%.[18] While default rates will undoubtedly increase in the next year as an inevitable response to the RBA's contractionary monetary policy stance, the long-term resilience of Australian household balance-sheets is a well documented fact.

The sophistication of credit markets, and securitised mortgage markets in particular, makes it especially difficult for policymakers to navigate their way through this complex miasma and understand the real-world consequences of the current global credit crunch. Indeed, the RBA itself has had a tough enough time trying to predict what the evaporation of liquidity in debt capital markets means for the Australian economy (refer to the Board's changing views on this subject between November 2007 and March 2008).

We believe that the global liquidity crisis, and the desertion of demand for primary residential mortgage-backed issuance in Australia more specifically, is bringing about the most profound transformation of the Australian home loan industry since the emergence of mortgage-backed securitisation in the mid 1990s. Amongst other things, these ructions have significantly increased costs for borrowers (over and above RBA-induced rate changes), dramatically reduced competition in the mortgage origination market, and commensurately increased the market share and bargaining power of the Big-5 major banks.[19] According to market participants, there have also been other, equally insidious consequences, such as a rationing of credit by the major banks from more capital-intensive sectors, like small business lending (which attracts a 100% risk weighting), to enable them to fund their gains in the more attractive home loan market (which only has a 35-50% risk weighting). Based on this analysis, both households and small businesses ultimately suffer.

It was the advent of Australian mortgage-backed securitisation (without any explicit government support) in the mid 1990s–whereby lenders could secure funding from third-parties such as super funds and overseas investors—that enabled the emergence of non-bank lenders, like Aussie Home Loans, Wizard, Macquarie Group, Challenger Finanical Group, Resimac, RAMS and Mortgage House, amongst many others.

What is less appreciated is that the smaller retail banks and building societies, such as Adelaide Bank, Credit Union Australia and Heritage Building Society, were also prolific securitisers (relative to the volume of home loans they originated), as the process of off balance-sheet funding enabled them to effectively compete with the majors.

The table below (compiled from JP Morgan estimates) illustrates the different funding mixes of the seven largest banks in Australia with a clear increase in the use of securitised funding as the size of the bank declines.

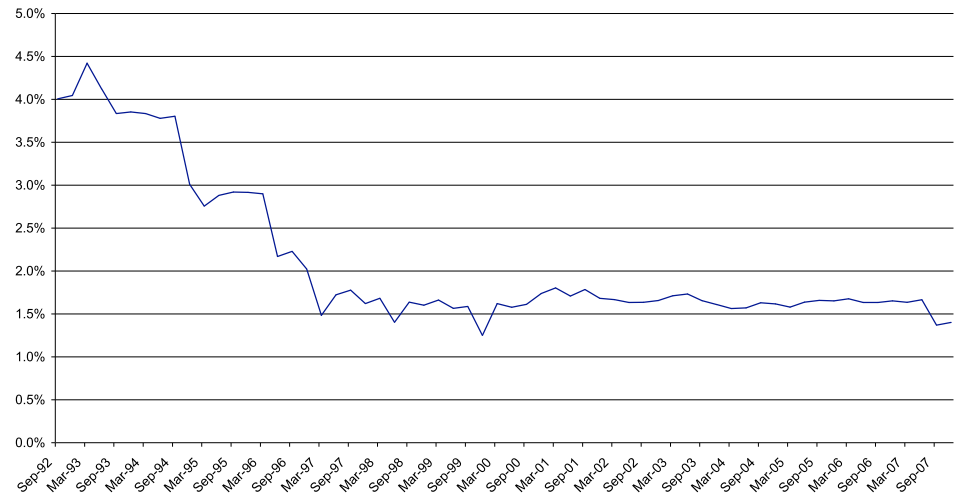
Australian Bank Funding Mix							
	ANZ	**CBA**	**NAB**	**WBC**	**SGB**	**BOQ**	**BEN**
Household Deposits	11%	28%	10%	10%	29%	35%	24%
Non-household Deposits	42%	29%	40%	28%	11%	30%	43%
Total Deposits	53%	57%	50%	38%	40%	65%	66%
Securitisation	**6%**	**4%**	**10%**	**3%**	**17%**	**22%**	**30%**
Other Wholesale Funding	**33%**	**31%**	**31%**	**56%**	**39%**	**9%**	**1%**
Total Wholesale Funding	**39%**	**35%**	**41%**	**59%**	**56%**	**31%**	**31%**
Interest Bearing Liabilities	93%	92%	91%	96%	96%	97%	97%
Free Float	7%	8%	9%	4%	4%	3%	3%
Total Funding	100%	100%	100%	100%	100%	100%	100%

Even smaller institutions, like Adelaide Bank, were until the 2007 sub-prime crisis sourcing up to 50% of their capital from the securitisation markets. Of course, the systemic decline in net household savings rates over the last 50 years has only further complicated the task traditional retail banks have had in funding their mortgage origination activities through their deposit

[18] According to the RBA's February 2008 Statement on Monetary Policy.

[19] This should give one pause in light of recent calls to discard the Four Pillars Policy due to purportedly heightened competition in the mortgage market.

base as the demand for home loans rises.



Source: RBA

To summarise, the emergence of liquid secondary mortgage markets in Australia in the mid 1990s, following the lead of the long-standing, multi-trillion dollar US mortgage-backed securities market (which in turn derived its existence from the presence of the US GSEs), directly contributed to a dramatic decline in the home loan margins captured by Australian lenders from over 4% in 1992 to just 1.4% today, and delivered a tremendous improvement in the cost, availability and flexibility of housing finance in Australia (refer to the figure above).

Global Credit Crisis Consequences

Prior to the emergence of the global liquidity crunch in August 2007, the Big-5 major banks in Australia accounted for roughly 75% of new home loan volumes.[20] Their dominance in the market had declined significantly since the dawn of the non-bank lenders and the increasing national prominence of other regional banks and building societies.

Within the space of just eight months there has been a stunning reversal in this competitive dynamic with the latest Fujitsu Consulting analysis for February 2008 data suggesting that the 'new' home loan volume market share of the Big-5 majors has risen to nearly 90%. Fujitsu Consulting believe that this figure will stabilise at around 85%. This has effectively resulted in the Australian mortgage market taking a step back in time to the pre-securitisation days prior to the mid 1990s when there was little competition to the majors in the home loan market (and consumers paid margins of 4% above bank bills relative to the 1.4% they pay today).

The dramatic reduction in competition faced by the majors, who have a profound comparative advantage insofar as they can fund new loans via their deep deposit bases, has been brought about the effects of the global credit crunch on the primary RMBS issuance market, which, as discussed previously, has largely dried up. The challenges confronted by smaller bank lenders, non-bank lenders and building societies in securing new funding has forced them to either dramatically ration credit and reduce their origination levels (eg, Adelaide Bank, Challenger, Resimac, Credit Union Australia, Wizard, Heritage Building Society, Liberty, Bluestone, Mortgage House and all the other smaller 'mortgage managers') or terminate lending altogether and withdraw completely from the market (eg, RAMS, Macquarie Bank and ANZ's Origin).

In a recent combined report by two industry observers, InfoChoice and *The Sheet*, the authors comment:

> What's also overlooked, in the context of the credit conditions that now prevail, is how significant a proportion of home loan business in Australia is supplied by lenders whose business models were created on the back of, and essentially dependent upon, securitisation. Seven months after that market froze over it is becoming all too apparent that wholesale lines from banks, which were never meant to be anything more than short-term funding, won't fill the gap. While a very small number of lenders may be able to put in place long term bank lines to replace the funding once provided from the debt capital market many cannot. And the conditions and pricing on bank funding are becoming quite

[20] Fujitsu Consulting, 2008.

adverse.[21]

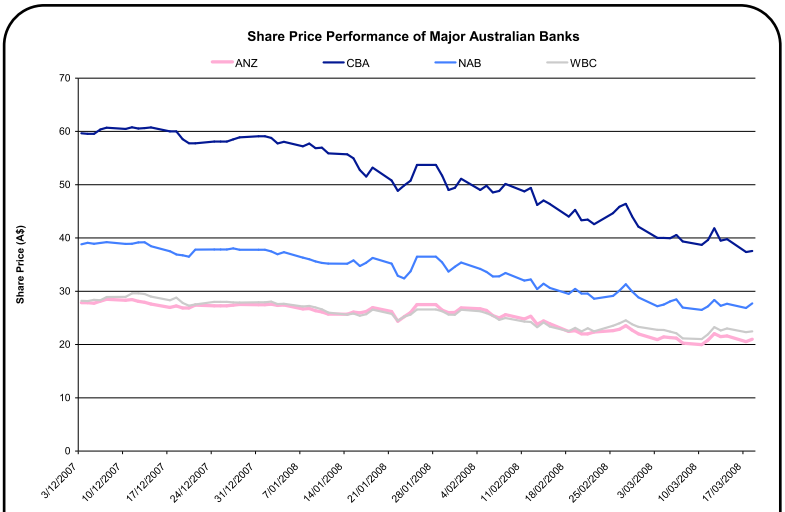
Perhaps the biggest casualty to date has been Macquarie Bank, whose PUMA division was one of the pioneering mortgage securitisers in Australia and for a long time served as the primary funder behind the non-bank lender Aussie Home Loans. On the 5th of March 2008, Macquarie announced that it was effectively shutting down its Australian mortgage business because of the liquidity crunch with staff terminations reported to number up to 200.22 Since that time it has been reported in the media that Macquarie has also terminated its US mortgage operations. More recently, ANZ Bank has followed suit by shutting down its wholesale funding securitisation business, Origin.

Australia's two largest 'non-conforming' lenders, Liberty and Bluestone, have also announced that they are radically scaling back their new loan issuance because of an inability to access sufficient third-party funding. In this context, Bluestone's founder and Executive Chairman, Alistair Jeffrey, recently commented, "Non-banks have outsourced their balance sheets to the capital markets. Our business has relied on the strength of the securitisation market. That market is dysfunctional."

One of Australia's biggest wholesale mortgage funders is the Challenger Financial Services Group, which has around 2.5% of the entire home loan market.[23] Challenger provides funds to third-party originators, known as mortgage managers, who 'white-label' Challenger home loans under their own brands. In March 2008, Challenger's CEO, Mike Tilley, disclosed that Challenger "stopped writing any real volume around about November because it was clear that we couldn't make money on new mortgages."[24]

Here it is important to note that system-wide credit rationing has yet to materialise as the volume of outstanding housing finance is still rising, although this remains a genuine risk. There is, of course, severe credit rationing in the non-Big-5 segment of the market. As the non-major lenders fall by the wayside the bigger banks have had to (willingly) step into the breach in a process that is being described as 're-intermediation.' However, even the larger banks relied on wholesale funding and securitised capital sources to originate new loans as can be seen from the table above. The market share gains secured by the major banks have therefore started to place considerable pressure on their own balance-sheets. This has been evidenced by many of the banks signaling their need to raise new equity or hybrid debt capital to fund continued home loan issuance. There have also been wide reports of credit rationing by the major banks in the small business and corporate lending markets (see Centro, Allco, MFS, Rubicon, ABC Learning and others), which had served to plug the gap left by their historic market share losses to the smaller lenders in the home loan market.

With the major banks facing the specter of exhausting their balance-sheet capacity as a result of rising residential mortgage demand, combined with growing concerns around a blow-out in bad debt risk in the corporate lending market as interest rates increase and the economy slows down, their stocks have recently suffered sizeable falls (see the figure to the right). Since the original publication of this paper, *The Sheet* has reported that bad debts provisioning by the major banks has started to increase, with ANZ announcing on the 7th of April that the total provision for



Source: UBS Australia

[21] *State of play: the Australian mortgage industry* (17 March 2008).

[22] Macquarie is continuing to fund small levels of new volumes through Virgin Money and Aussie Home Loans.

[23] According to CEO Mike Tilley, February 2008, as quoted in *The Sheet*.

[24] *Ibid*.

credit impairment for the March 2008 half, including a rise in the collective provision, was "likely to be approximately $975 million" versus $567 million for the full year in 2007.

On Friday the 7th of March, ANZ Bank's CEO, Mike Smith, gave a speech at the Australian British Chamber of Commerce in which he argued that "not only are no more interest rate rises required in Australia to contain inflation but that last week's rate rise engineered by the RBA wasn't necessary either." Smith continued, "One of the many things I believe is missing in this debate is that if we can't properly reprice lending, there is a real risk banks will ultimately be limited in the amount we are able to lend customers to buy houses or to expand their businesses… We saw this earlier [last] week when Macquarie became the first prime lender to say it would scale back its mortgage business as they no longer see it as having a balanced risk-reward relationship."[25]

Smith was flagging these concerns in the context of the need for ANZ to raise more equity capital to shore up its balance sheet. Along similar lines, CBA recently announced that it has cancelled a share buyback in order to increase capital by around $400 million (sufficient to fund growth of one-third of CBA's loan book). According to *The Sheet*, "The genesis of the decision to hold on to this capital appears to be the bleak assessment of other banks and debt and equity investors that the bank's managing director Ralph Norris … encountered in separate visits to Europe and North America last week… Other banks also raising capital, though somewhat under the radar, include Wizard ($315 million), National Australia Bank (at least NZ$350 million through a tier one hybrid being sold by Bank of New Zealand) and Bendigo and Adelaide Bank."

CBA's CFO, David Craig, has not been shy in acknowledging the process of re-intermediation that is currently gripping the Australian mortgage market: "The call for funds from the consumer markets continues to be very strong... There's an increasing need for re-intermediation by some of our customers who are having trouble funding themselves in debt capital markets and who are turning to banks for help... And you see players vacate the field. Macquarie Bank last week in mortgages. There may be others. There are fewer players at the moment. That clearly reduces supply…You've heard a couple of other banks say they may need to ration lending."[26]

One limited response of the RBA to the liquidity crisis has been to broaden the range of securities that could be used for repurchase agreements (or 'repos') to include AAA-rated RMBS. However, the RBA will only provide funds for 90% of the face value of the securities and will only lend for a very limited period of time, which is not normally longer than six months (ie, the RBA does not actually buy the assets as with a conventional securitisation). This is, therefore, a very restricted solution to the current liquidity crunch, which, more importantly, is only 'practically' available to ADIs since non-bank lenders cannot repo their own assets and would not ordinarily have any other assets to use as security.

In explaining its decision to increase the pool of eligible collateral to include AAA-rated RMBS, the RBA commented:

> Through the period of turbulence there has been a much larger premium placed on liquid assets. This was generating a distortion between different parts of banks' balance sheets and between different banks depending on their funding sources. Assets, which in other times would be treated similarly in the market, were being discriminated based on their repo-eligibility. The broadening of repo-eligibility sought to address one source of the distortion. As the dislocation was particularly prevalent in the securitised markets, the change sought to address the dislocation at its source rather than indirectly.

In an indication of the aforementioned balance-sheet stresses, several Australian banks have taken immediate advantage of 'emergence funding' facilities offered by the RBA to avoid a Northern Rock like outcome. Westpac was the first to undertake a $10.6 billion 'internal securitisation' of its home loans, which are repo-eligible with the RBA. In response to what was widely considered to be a very unusual move, Westpac commented at the time, "It's a form of emergency funding." Other institutions, such as Members Equity and the Bank of Queensland have subsequently followed suit.

In a 29 November 2007 speech on the burgeoning capital market chaos, Guy Debelle, Assistant Governor for Financial Markets at the RBA, submitted these insights on the ramifications for the Australian securitisation market:

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[25] As quoted in *The Sheet*, March 2008.

[26] *ibid*.

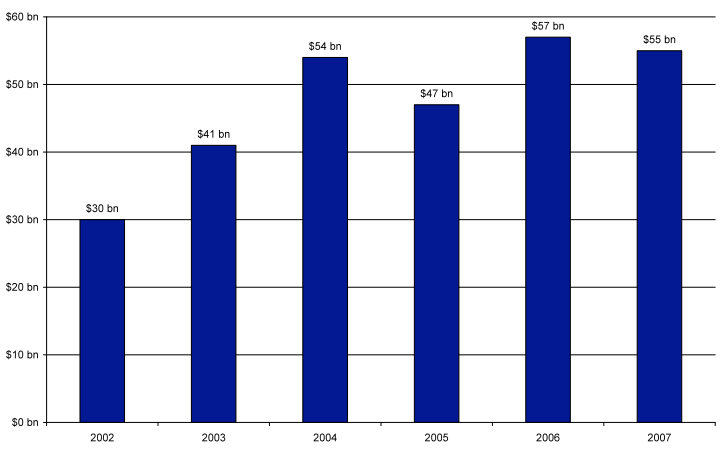
> The recent developments pose a number of challenges for the securitisation industry. In general, the growth of the securitisation market has enhanced the operation of the financial system. It has facilitated intermediation by enabling institutions to sell to a broader class of investor, rather than solely relying on intermediation across their own books. It has provided investors with a fixed interest product to meet their investment criteria. In Australia, as in other countries, the growth of securitisation in the mortgage market in particular has significantly enhanced competition. As described in detail in other RBA publications, it has allowed new entrants and contributed to lower margins. However, the recent developments have generated a large amount of investor scepticism about securitised products. A lemons problem has arisen where all securitised products are being sold, albeit to varying degrees, at a discount because investors have become concerned about the product itself.

The RBA's concerns highlight the nature of the market failure that we document next: providers of liquidity in the US RMBS market have had grave difficulties evaluating the risk profiles of assets within that market. While Australian prime RMBS assets have exceedingly low credit risks, which are just a fraction of their US counterparts, the market for these securities has become exceptionally thin and, in some cases, non-existent, purely as a function of the huge increase in global risk-aversion. Importantly, the Australian mortgage market does not benefit from a GSE, such as the CMHC, Freddie Mac or Fannie Mae, to supply liquidity during these 'exported' crises.

Effective Market Failure in the Primary RMBS Market

After experiencing extraordinary growth over the last decade-plus with annual issuance since 2003 averaging $50.8 billion, there have been virtually no AAA- or AA-rated RMBS primary transactions in Australia since November 2007 (see chart below). This dearth of investor demand followed precipitous falls in primary market RMBS activity after the onset of the August 2007 sub-prime crisis. Most experts expect very thin primary market liquidity to persist for another 6-12 months. When demand does eventually return, participants project that it will do so in limited form and on materially more expensive terms. The current RMBS market failure has arisen as a function of a number of factors, including:

- **The demise of the "Structured Investment Vehicles" (SIVs)**, which were a key source of demand for RMBS issues. The SIVs borrowed short-term money using commercial paper (CP) and then used this money to acquire AAA-rated RMBS bonds earning a small spread on the return yielded by the bonds relative to the cost of the CP. The 2007 US sub-prime crisis resulted in a liquidity crunch in the CP market with funding disappearing. The absence of any significant liquidity in the CP market remains to this day. Since the SIVs rely on short-term CP funding to underwrite their longer-dated RMBS assets, there is a regular need to 'roll-over' that CP funding. In many cases the sponsoring SIV banks, such as Citigroup, have had to rescue the SIVs and bring them back on to their own balance-sheets (reporting losses as the mark-to-market value of the RMBS securities plummets);[27]



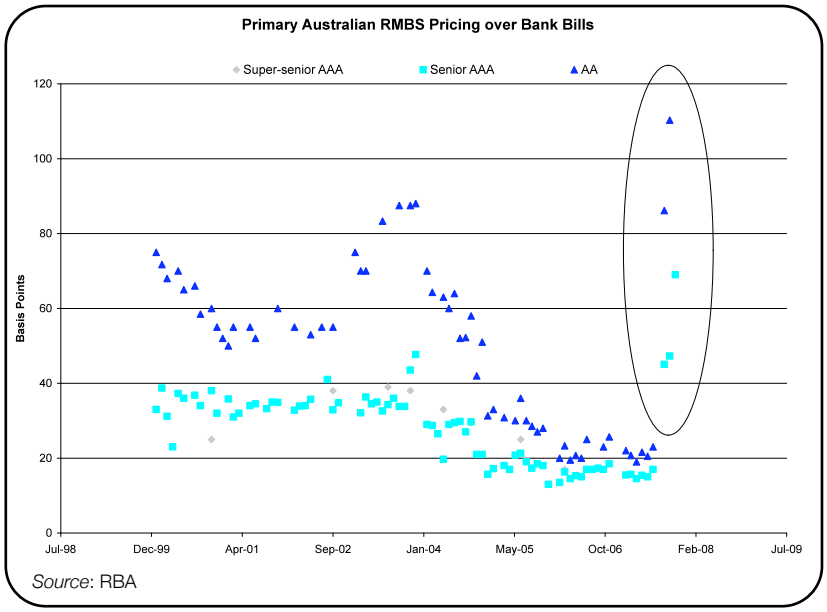
Source: Standard & Poors

- **The demise of other sources of primary RMBS demand**, including "Collateralized Debt Obligations" (CDOs), which are a type of asset-backed security and structured credit product comprising a portfolio of fixed-income assets. There had been tremendous growth in the CDO market with US$489 billion issued in 2006.[28] Many CDOs had significant exposures to sub-prime mortgages and as delinquencies

[27] Virtually all global investment and commercial banks have recorded significant losses on the value of their loans as a result of the sub-prime crisis, including: Citigroup (US$24.1 bn);Merrill Lynch (US$22.5 bn); UBS (US$18.7 bn); Morgan Stanley (US $10.3 bn); Credit Agricole (US $4.8 bn); HSBC (US$17.2 bn); Bank of America (US$9.4 bn); CIBC (US$3.2 bn); and Deustche Bank (US$3.1 bn), to name just a few (Source: http://en.wikipedia.org/wiki/Subprime_mortgage_crisis).

[28] Securities Industry and Financial Markets Association.

on these assets sky-rocketed in 2007 CDOs experienced ratings downgrades and losses. As the mortgages underlying the CDOs fell in value, the banks and investment funds holding them faced challenges pricing the assets given the CDOs' inherent illiquidity. In the latter half of 2007 these organisations ultimately began writing down the value of their investments in the CDOs to less than 50 cents in the dollar resulting in massive reported losses (eg, Bear Stearns, Merrills, Morgan Stanley, Citigroup, UBS, Credit Agricole, HSBC, Bank of America, CIBC, Deustche Bank etc). This has in turn resulted in a dramatic decline in the new issuance of CDOs,[29] with the knock-on effect that CDO funds for RMBS have all but disappeared;



Source: RBA

- Finally, **the absence of liquidity** for Australian RMBS has seen the last recorded AAA primary market spreads to bank bills blow out to 69 basis points (according to the latest RBA data), while recent secondary market trades of Australian RMBS have seen spreads of up to 300 basis points. Pre sub-prime, primary and secondary RMBS transactions usually priced at less than 20 basis points for AAA tranches (refer to the above figure). In order for a standard non-bank securitiser to break-even on a primary RMBS issue they would—after all asset-acquisition, structuring and transaction costs—typically have a maximum acceptable RMBS price of around 80 basis points over banks bills (with normal market pricing at less than 20 basis points).[30] With no current primary market demand for Australian RMBS (in part because of the absence of SIV and CDO demand), and typical secondary market pricing at late 100 basis points to early 200 basis points above bills (ie, up to 10 times higher than pre sub-prime pricing), one can see why primary liquidity has disappeared. Local institutions, such as super funds, are also much more likely to acquire RMBS assets in the secondary market since the pricing offered is far cheaper than any primary issue. However, even the secondary market trading activity is highly illiquid.

The picture is one of a disappearing market. And the story of how that has occurred is a somewhat familiar one. The US economist Paul Krugman likens the issue to a "giant bank run, albeit on financial institutions that aren't called banks – and aren't regulated like banks." He goes on:[31]

> Bank runs come in two kinds. In some cases, the bank run is a pure self-fulfilling prophecy: the bank is "fundamentally sound," but a panic by depositors forces a too-hasty liquidation of its assets, and it goes bust. It's as if someone calls "fire!" in a crowded theater, provoking a stampede that kills many people, even though there wasn't actually a fire. In other cases, the bank is fundamentally unsound — but the bank run magnifies its losses. It's as if someone calls "Fire!" in a crowded theater, and there really is a fire — but the stampede kills people who would have survived an orderly evacuation. We're in the second case. The Fed has spent the last 7 months trying to assure people that there isn't any

[29] According to the *Financial Times*, Citigroup is predicting that CDO issuance will fall by 60% in 2008 year on year.

[30] A rough approximation of the calculus for a securitiser can be thought of as follows. They face around 80 basis points of all-in operating and structuring costs when originating the loans. Taking, say, a further 20 basis points of securitisation costs (given past pricing) and the recent historical margin of mortgages rates over BBSW of about 140 basis points, it would appear that lenders require circa 40 basis points of "margin" to make their minimum return on equity hurdles. If you then assume that the maximum interest rate a lender can charge in order to be competitive in the home loan market is roughly 200 basis points over BBSW, this implies that the maximum primary RMBS price they can bear is about 80 basis points. Note these are indicative figures for illustrative purposes only. Of course, another critical challenge a non-bank lender faces is whether given these parameters they can find third-party warehouse funding to originate the loans in the first place. With the exit of Societe Generale from the warehouse funding market in Australia (which provided around $9 billion worth of facilities), there is a large funding 'gap' independent of all of the primary RMBS market illiquidity issues.

[31] Paul Krugman's *New York Times* blog: 18th March, 2008.

> fire. But there is. Worse yet, thanks to decades of deregulation, the theater doesn't have a sprinkler system - and the town the theater is in doesn't have a fire department.

While Australian lenders are clearly in Krugman's first case, the potential fall-out is no less concerning. The problem is that market participants cannot distinguish between good and bad debt in the RMBS sector. As Joseph Stiglitz explained recently in *The Guardian*:[32]

> Globalisation implies that America's mortgage problem has worldwide repercussions. The first run on a bank occurred against the British mortgage lender Northern Rock. America managed to pass off bad mortgages worth hundreds of billions of dollars to investors (including banks) around the world. They buried the bad mortgages in complicated instruments, buried them so deep that no one knew exactly how badly they were impaired, and no one could calculate how to reprice them quickly. In the face of such uncertainty, markets froze.…
>
> Securitisation, with all of its advantages in sharing risk, has three problems that were not adequately anticipated. While it meant that American banks were not hit as hard as they would otherwise, America's bad lending practices have had global effects. Moreover, securitisation contributed to bad lending: in the old days, banks that originated bad loans bore the consequences; in the new world of securitisation, the originators could pass the loans onto others. (As economists would say, problems of asymmetric information have increased.)

In this respect, what we have seen is a classic market failure and with that a presumptive rationale for government intervention to improve efficiency. The issue is how to effectively achieve that intervention. It is to this issue that we now turn.

The Public Goods of Liquidity and Price Discovery

The central tenet of this proposal is that a basic level of liquidity in key economic markets is a 'public good'. The policy imperative here is reinforced by the fact that severe market dislocations, such as the credit crunch that we are presently observing, are becoming increasingly common and more quickly transmitted in today's highly networked world. The presence and apparent regularity of these extreme events is consistent with recent academic innovations in the so-called 'behavioural finance' and 'extreme value theory' literatures.

In standard finance theory, academics, and the commercial practitioners that follow their prescriptions, have all too often made the erroneous assumption (for analytical purposes) that asset returns are 'normally distributed' (ie, virtually never subject to events like the 1987 stock market crash or the 2001 tech wreck) and that financial markets are 'frictionless'—ie, investors always benefit from perfect liquidity and price-discovery. These are, by way of example, some of the essential assumptions underpinning the 'Capital Asset Pricing Model' (CAPM), which is widely used around the world by investors and their advisors. Up until recently, the assumption of perfect liquidity and return normality were condition precedents in almost all financial models used by financial market participants.

In the real world, however, investors are finding that they are increasingly faced with periods of profound illiquidity, extremely poor price discovery, and, in certain cases, complete market failure. In the financial market history of the last two decades, there are numerous examples of this illiquidity problem and governments acting to remedy it. In 1998 the massive hedge fund LTCM confronted severe illiquidity when the Russian government defaulted on its debt obligations, losing some US$4.6 billion in less than four months (LTCM was also hit by a sudden convergence in the 'correlations' of all of the assets it held, which it had previously assumed to be uncorrelated and hence well-diversified). Of course, at that time the US Fed acted to facilitate a bail-out of LTCM by a consortium of investment banks.

In the past eight months, major institutions around the world have been subject to the specter of extreme illiquidity in the market for many of their debt securities, which has in turn made price discovery near impossible (ie, how do you value assets for which there are virtually no prices, and when prices do exist almost all participants—including the regulators and government—agree that they represent dramatic deviations from any understanding of fair market value).

One of the primary problems here is that academics, practitioners, and regulators are discovering that financial markets are not always 'efficient' in the sense that was popularized by University of Chicago financial economists such as Eugene

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[32] "Houses of cards," *The Guardian*, 9th October, 2007.

Fama[33] (1965). This assumption of market efficiency has dramatically changed the financial market landscape and led, for instance, to the prolific use of 'index' funds provided by State Street, Vanguard and others. The market efficiency paradigm in turn hinged on the belief that investors are in aggregate highly rational 'agents' that are not subject to systematic behavioural biases. This assumption can in turn be traced back to the work of the US economist John Muth who developed the so-called 'rational expectations' theory under which individuals and institutions make forecasts about the future without any fundamental error or bias. That is, investors' expectations are, on average, accurate. This rational expectations hypothesis has underpinned much macroeconomic analysis of the last half century.

More recently, though, pioneering academics such as Kahneman and Tversky[34] —the former of whom received the Nobel Prize in 2002— and Richard Thaler have applied principles from psychology, sociology and anthropology to document that in practice people behave in a manner that can deviate strikingly from the equilibrium predictions of the efficient markets hypothesis (and rational expectations in particular).

This makes intuitive sense if we cast our minds back through history and consider the speculative fads and crashes of the Dutch tulip mania, the emergence of junk bonds in the early 1980s, the related 1987 stock market crash, the late 1990s tech craze and the inexorable tech wreck of 2001. Over the last 20 years a large body of evidence has built up illustrating that humans are fallible and subject to a wide range of biases, including irrational loss-aversion, framing, use of heuristic rules of thumb, hindsight biases, and cognitive dissonance (ie, avoiding information that conflicts with our assumptions).

Many authors, such as Barberis, Shleifer, and Vishny[35] and Daniel, Hirshleifer, and Subrahmanyam[36] have demonstrated that there can be major mispricings, non-rational decision making, and return anomalies in financial markets due to these behavioural biases. In particular, the tendency of humans to identify fictitious 'patterns' in otherwise random return sequences, and for us to be consistently 'over-confident' in our assessment of our own forecasting abilities, can result in significant market over- and under-reactions in asset price returns (eg, consider the tech boom and subsequent crash). Behavioural economists have also found evidence of the anecdotally well-known market phenomenon of 'herding' and 'groupthink' whereby strongly anomalous market-wide effects can materialise where there is collective fear and greed (again consider the wild and seemingly irrational—at least judging by the actions of central banks—swings in the risk appetites of global debt investors before and after the US sub-prime crisis).

It is now accepted by many economists that these behavioural biases that plague human decision-making under uncertainty can cause extreme asset price bubbles and subsequent crashes. In parallel with these innovations in the field of behavioural finance, academics have also started to accept that capital market returns are not 'normally distributed', but rather characterized by 'fat-tails.'[37] The presence of these fait-tails or so-called 'black swans' in asset returns, which suggests that extreme events (such as the 1987 crash or the current credit crunch) can occur with far greater regularity than the predictions of a 'normal' distribution, is also consistent with the tendency of investors to irrationally herd in one positive or negative direction, which can perpetuate clusterings of extremely positive or negative outcomes, such as that which we are observing today.

For better or worse, it would appear that recent regulatory changes that require institutions to 'mark-to-market' securities that they would previously hold to 'term' sometimes serves to further exacerbate these liquidity crises and entrench the associated market failures (since these institutions are forced to report losses and raise equity to supplement their capital on the basis of inaccurate prices that are an artifact of irrational investor risk-aversion and the consequent unwillingness to trade).

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[33] "The Behavior of Stock-Market Prices," *Journal of Business*, 38 (1), 1965, pp. 34-105

[34] "Prospect Theory: An Analysis of Decision under Risk," *Econometrica*, 47 (2), 1979), pp.263-291.

[35] "A Model of Investor Sentiment" *Journal of Financial Economics* 49, September 1998, pp.307-343.

[36] "Investor Psychology and Security Market Under- and Overreactions," *Journal of Finance*, 53(6), December 1998, pp.1839-1885.

[37] Mandelbrot, B.B. (1963), "The Variation of Certain Speculative Prices," *Journal of Business*, 36, pp.394-419

In the presence of highly uncertain prices, institutions are reluctant to lend to one another as they do not have sufficient visibility on the value of the collateral that they will use as security. This propagates potentially enormous problems for the financial system at large as transactions that were previously considered to be nearly risk-free are subject to perceptions of 'counterparty risk'. This is precisely what happened with Bear Stearns, which on 10 March 2008 reportedly still had US$17 billion in cash. A few days later, the leading US investment bank Goldman Sachs announced to the world that it would no longer serve as a counterparty in Bear Stearns' transactions. Goldman's actions shattered confidence in Bear Stearns' ability to service its obligations and meant that it could no longer raise any short-term debt funding to underwrite its working capital requirements. Once again, the Fed was forced to step in and inject liquidity into a market that had failed: in particular, the Fed took Bear Stearns' otherwise illiquid and unpriceable assets as security and lent JP Morgan the US$30 billion that it needed to buy Bear Stearns.

In 2005 paper, economists Cifuentes, Ferrucci and Hyun Song Shin,[38] argue:

> When the market's demand for illiquid assets is less than perfectly elastic, sales by distressed institutions depress the market prices of such assets. Marking to market of the asset book can induce a further round of endogenously generated sales of assets, depressing prices further and inducing further sales. Contagious failures can result from small shocks… At times of market turbulence the remedial actions prescribed by these regulations may have perverse effects on systemic stability. Forced sales of assets may feed back on market volatility and produce a downward spiral in asset prices, which in turn may affect adversely other financial institutions…In this way, the combination of mark-to-market accounting and solvency constraints has the potential to induce an endogenous response that far outweighs the initial shock.

It should be clear that market failures and the absence of price discovery suggest that the provision of a minimum level of liquidity can be construed as a 'public good'. While in practice it is hard for any good to unconditionally satisfy the two key conditions of a public good—namely 'non-rivalness' and 'non-excludability'—many come close to approximating them (eg, the light from a lighthouse, clean air, and market infrastructures). It is well known that markets can fail to produce sufficient quantities of such goods, which is referred to as the 'public good problem'. As a technical aside, there may be an argument that market liquidity is 'rival' but 'non-excludable', in which case it may be more appropriately classified as a 'common pool resource'. In any event, you have similar problems to those found with public goods, albeit that in this case they are known as the 'tragedy of the commons'.

The argument that market liquidity has public good characteristics is an increasingly well-understood feature of the academic literature. Schwartz and Francioni[39] note that a number of different 'exchange goods' have public good qualities. They nominate 'price discovery' in financial markets, wherein transaction prices are like the beam from a lighthouse. The quality of these prices in turn relies on the effectiveness of the market's infrastructure, systems, procedures and protocols, which takes the bids and offers and transforms them into market-clearing trades that give rise to prices. Price discovery is also dependent on how the exchange discharges its self-regulatory obligations. Schwartz and Francioni assert that an exchange's self-regulatory obligations and the provision of supplementary liquidity are other examples of 'exchange-produced' public goods.

Along similar lines, Holmström and Tirole[40] address the question of whether "the state has a role in creating liquidity and regulating it either through adjustments in the stock of government securities or by other means?" They conclude that when there are liquidity shocks and "aggregate uncertainty" the private sector "…cannot satisfy its own liquidity needs. The government can improve welfare by issuing bonds that commit future consumer income…The government should manage debt so that liquidity is loosened (the value of bonds is high) when the aggregate liquidity shock is high and is tightened when the liquidity shock is low. The paper thus suggests a rationale both for government-supplied liquidity and for its active management."

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[38] "Liquidity Risk and Contagion," Bank of England Working Paper, No.264.

[39] *Equity Markets in Action: The Fundamentals of Liquidity, Market Structure & Trading*, John Wiley and Sons, 2004.

[40] *op.cit*.

The provision of supplementary liquidity and price stabilisation services by a government agency, such as we are seeing today with the RBA (on a limited basis that only ADIs can, in practice, benefit from), the US Fed, the Bank of England, the CHMC in Canada, or, perhaps in the future, AussiMac, is clearly consistent with the supply of the public goods of liquidity and price discovery. In short, these interventions are needed because the production of sufficient liquidity and accurate price discovery are not forthcoming in a pure market environment that is gripped for considerable periods of time by irrational investor behaviour—that is, by the complete closure of otherwise incredibly low-risk markets, such as the market for primary AAA Australian mortgage-backed securities. Importantly, the supply of liquidity and price discovery by these government agencies conveys non-rival and non-excludable benefits to all market participants.

Precedents for Government Action

In other countries, such as Canada and the US, the central governments established GSEs to foster primary and secondary trading liquidity in the housing finance markets. Indeed, there is a compelling case that liquid markets for securitised residential mortgages would never have emerged in the US, or for that matter anywhere else in the world, were it not for the establishment of Freddie Mac and Fannie Mae, which were the pioneers of the securitisation process and for many decades the only providers of off balance-sheet funding to US lenders.

The US government first created Fannie Mae in 1938 to "expand the flow of mortgage funds in all communities, at all times, under all economic conditions, and to help lower the costs to buy a home." It was established at a time "when millions of families could not become homeowners, or risked losing their homes, for lack of a consistent supply of mortgage funds across America." Another GSE, Freddie Mac was created in 1970 to compete against Fannie Mae, which was privatized in 1968, with a similar charter to make "America's mortgage markets liquid and stable and [increase] opportunities for homeownership and affordable rental housing across the nation."

Freddie Mac and Fannie Mae achieve these objectives by buying mortgages from lenders, packaging the mortgages into securities and selling the securities—guaranteed by Fannie Mae or Freddie Mac—to investors. Lenders use the proceeds from selling these loans to fund new mortgages, constantly replenishing the pool of finance available for lending to home owners. In this way, these two GSEs ensure that a continuous, low cost source of home loans is available to consumers whenever and wherever they need them. They therefore serve as a liquidity provider of last resort. As the US regulator of the GSEs, OFHEO, notes, "Fannie Mae and Freddie Mac…help stabilize mortgage markets and protect housing during extraordinary periods when stress or turmoil in the broader financial system threaten the economy."

Because of the complexities of residential mortgage securitisation, and the deep difficulties associated with pricing 'prepayment risks' (ie, the risk—unique to mortgages—that home owners 'put' the debt back to investors at undesirable times, such as when interest rates fall), liquid private sector (ie, non-GSE) markets for pools of mortgages did not emerge in the US until the late 1970s and early 1980s.[41] In Australia, the first sizeable securitisations of mortgage pools did not materialise until the mid 1990s.

Today in the US there is over US$6 trillion worth of securitised mortgages, which is one of the largest and most liquid fixed income markets in the world.[42] Importantly, about 40% of US mortgage debt is accounted for by Fannie Mae and Freddie Mac either credit-enhancing that debt or acquiring it themselves as part of their 'retained portfolios.'[43,44]

Fannie and Freddie obviously have especially significant responsibilities during liquidity crunches of the kind seen in the US today. Since the vast bulk of their business is only in high quality 'agency' loans they have limited exposures to sub-prime assets (ie, only via their purchases of AAA bonds that in turn have exposures to sub-prime loans). As US Senator Charles E.

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[41] Michael Lews's book *Liars Poker* provides a fascinating history of the development of mortgage securitisation during the early 1980s within major US investment banks and Salomon Brothers in particular.

[42] The Bond Market Association.

[43] Roll, *op.cit*.

[44] Refer to http://www.ofheo.gov for more details on Fannie and Freddie's activities.

Schumer, who chairs the US Senate Banking Committee's housing subcommittee, commented, "The whole reason Fannie and Freddie exist is to help in times like these."[45]

The Canadian mortgage market benefits from similar government support. The Canada Mortgage and Housing Corporation (CMHC) is Canada's national housing agency. It was established in 1946 as a Crown Corporation owned by the Government of Canada and is the leading supplier of mortgage loan insurance, mortgage-backed securities, housing policy and programs, and housing research.

The CMHC's role in the context of the RMBS markets is multifold. At the consumer level, it provides Lenders Mortgage Insurance (LMI) on a 'loan-by-loan basis' enabling Canadian lenders to supply borrowers with loan-to-value ratios (LVRs) of up to 95%. With the CMHC insurance in place, these loans receive a superior regulatory risk-weighting and can be more easily securitised. (In this context, the CMHC has a particular focus on areas that are poorly serviced by the private sector.) In Australia, mortgage insurance services are adequately supplied by the likes of PMI Mortgage Insurance and Genworth who during the recent financial crisis have provided their products on an uninterrupted basis.

The CMHC also 'guarantees' securitised pools of Canadian home loans under the National Housing Act Mortgage-Backed Securities Program (NHA MBS), protecting investors against borrower default and ensuring that that there is a steady supply of low-cost funds available from the capital markets. In 2006, the CMHC guaranteed more than C$36 billion worth of mortgage-related securities.

Finally, the CMHC issues government-backed bonds, known as Canada Mortgage Bonds (CMBs), to external investors based on pools of insured home loans that it acquires from Canadian lenders along the same lines as Fannie Mae and Freddie Mac.

Through its subsidiary, Canada Housing Trust, the CMHC has become one of the largest bond issuers in the Canadian market. In 2006 Canada Housing Trust issued a record C$25.1 billion in CMBs at an average spread of 11.5 basis points over the equivalent 5-year Government of Canada bond yield. According to Canadian media reports, investors have become increasingly reliant on the CMHC's securities for their contingent of government-backed bonds as liquidity in sovereign bonds has deteriorated as governments pay down debt.

For the purposes of this paper, it is especially important to note that the CMHC does not receive any direct government assistance to support either its mortgage insurance or securitisation activities (just like Fannie and Freddie).

And in striking contrast to the illiquidity that currently plagues the primary RMBS market in Australia, the CMHC has been able to continue to securitise large tranches of high quality Canadian home loans despite the ructions in global credit markets with a successful C$11 billion issue executed in March 2008.

A Potential Policy Solution: 'AussieMac'

In the last eight months fundamental changes have materialised in the competitive and pricing dynamics of one of Australia's largest economic markets — namely the residential home loan industry (with circa $250 billion worth of new mortgage originations each year) — as a result of the external shocks imposed by the global debt market crisis. Almost all observers would agree that the current liquidity crunch has absolutely nothing to do with the integrity of Australia's economy, our financial system, or the credit quality of Australian home loans. The simple fact is that Australian home owners, and the lenders that service them, have become casualties of the extreme illiquidity and risk-aversion that have manifest in international capital markets as a result of the US sub-prime crisis.

In particular, the ability of Australian home loan providers to properly securitise high quality AAA-rated RMBS has for all intents and purposes disappeared, which has in turn led to intra-market credit-rationing and a material reduction of competition in the industry outside of the Big-5 majors. The stresses placed on the major banks' balance-sheets via this new process of forced 're-intermediation' has also seriously raised the spectre, in the banks' own judgment, of system-level credit rationing, which could have catastrophic consequences for Australia's economy. There is some evidence that this is

[45] Washington Post (November 21 2007).

already occurring in the business lending market (eg, Centro, Allco, MFS, Rubicon, ABC Learning and others). For the time being, the banks are having to shore up their reserves by issuing equity and other forms of hybrid debt capital. However, their continued ability to do so given precipitous falls in the value of their own equity and ongoing credit market ructions remains an open question.

The policy problem here is that the effective failure of the primary Australian mortgage-backed securities market arguably exposes consumers, the financial system, and the economy at large to untenable risks. In particular, to the extent that the Government is pushing for policies that will make housing and, especially, housing finance more affordable, a shutdown in a key area for the supply of that finance should be at the top of its agenda.

Given the increasing prevalence of global financial market shocks driven by short-term shifts in participant psychology (that cause dramatic deviations from competitive market equilibrium),[46] which have the capacity to effectively extinguish liquidity in key economic industries, such as the market for AAA-rated Australian RMBS, we believe that there is a need for the establishment of an Australian government agency that has a mandate to safeguard such liquidity in the presence of exogenous disruptions.

As noted earlier, central banks around the world (including the RBA) are trying to address the issues raised by the illiquidity in the RMBS market. But we believe that the gravity of these problems, and the failure thus far of central bank action to remedy them, warrant a more a more systematic policy response.

In the US, the now privatised GSEs, Fannie Mae and Freddie Mac, and in Canada, the government-owned CMHC, were established with the same mandate in mind. Indeed, to quote the US GSE regulator, a central function of these agencies is to "stabilize mortgage markets and protect housing during extraordinary periods when stress or turmoil in the broader financial system threaten the economy."[47]

Today, the US GSEs are responsible for funding and/or securitizing roughly 40% of the more than US$6 trillion worth of pooled home loans. They have an even more crucial role in the current environment in protecting against a wholesale collapse of the US home loan industry, which would undoubtedly represent a risk in the absence of the liquidity support the GSEs are able to supply. Along similar lines, the CMHC in Canada has demonstrated its importance to the stability of the Canadian home loan market by successfully securitising over C$11 billion worth of home loans in the middle of the capital market crisis.

Our contention is that the Commonwealth Government could guarantee the credit worthiness of a similar Australian government agency, referred to here as 'AussieMac,' thereby lending it Australia's AAA credit rating. This would allow AussieMac to issue substantial volumes of extremely low cost bonds into the domestic and international capital markets. The funds raised through issuing these bonds could be used to acquire high-quality AAA-rated Australian home loans off the balance-sheets of lenders. AussieMac would therefore serve to guarantee liquidity in the Australia home loan market in the event that other private sources of capital were to supply insufficient funding, such as is currently the case. In the near- to medium-term we would expect AussieMac to be privatised with the result that its debt would be taken off the government's own balance sheet.

For the avoidance of doubt, AussieMac would not be an originator of mortgages like the CBA. Instead, it would issue AAA-rated bonds and use these funds to acquire conforming, high quality home loans (that satisfy its credit criteria) from Australian lenders that wish to avail themselves of such liquidity. These assets could then be either retained on AussieMac's balance-sheet or sold into the primary RMBS market. In addition, AussieMac would not be mandated to purchase riskier 'non-conforming' or sub-prime loans.

But AussieMac would not operate without constraints. Fannie Mae, Freddie Mac and the CMHC have operating rules that we would expect to apply in the Australian context. Those constraints could include, amongst other things: (i) a limitation of

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46 The tendency of financial market participants to overreact to various events is well documented in the behavioural finance literature (see Barberis and Thaler (2001) for a review)

47 See http://www.ofheo.gov

activities to the primary and secondary securitisation markets; (ii) the mortgages that are purchased or guaranteed are limited in value (perhaps to, say, 85% of the average housing cost in Australian capital cities); and (iii) the debt issued by AussieMac would have to conform with overall public sector debt constraints. As discussed earlier, one could also explore the use of AussieMac to promote affordable housing options for low-income earners where there is private-market failure to do so.

AussieMac's liquidity guarantee could act to restore and preserve competition in the Australian mortgage industry by enabling lenders that originate high credit quality home loans to always access a readily available source of finance. In this way, the establishment of an AussieMac-like agency could immediately resolve the market failures currently evidenced in the primary RMBS market and help to insulate Australian households and the financial system at large from exogenous global shocks that have nothing to do with the integrity of the Australian economy.

The presence of an agency such as AussieMac could have other important benefits. As noted earlier, numerous academic studies have found that the participation of Fannie Mae and Freddie Mac in the US home loan market has resulted in the reduction of mortgage rates by 25-50 basis points more than would have been the case in their absence. Of course, this analysis presupposes that the primary and secondary US mortgage markets would have emerged without the presence of the US GSEs in the first place (which were effective duopolists for many decades), which is a separate and tenuous assumption in and of itself. To the extent that AussieMac issues long-dated fixed-rate paper it could also assist in the development of 30-year and 40-year fixed-rate home loans in Australia, which are such a critical element of the US market.

But we do add a note of caution. Our suggestion here is that an AussieMac style intervention be given serious contention. But such interventions are not without costs and practical difficulties. Specifically, how do you ensure that AussieMac appropriately evaluates the risk of the loans that it acquires from lenders? It would, of course, be important for AussieMac to only purchase high credit quality assets, as is the case with overseas GSEs (ie, and not encourage riskier lending). It would be equally important to safeguard against an overall fall in the credit risk standards employed by the mortgage providers that seek to securitise loans given the ostensible assurance of the off balance-sheet liquidity supplied by a GSE.[48] As a consequence, the activities of AussieMac would have to be constrained. Of course, with the consolidation of lending amongst major banks that are considered 'too big to fail,' our housing finance system is already attracting that problem.

What's at Stake

In summary, Australia's financial system is facing important near-term challenges that may see credit for both home loans and small-to-medium enterprises rationed. The capital market crises that have brought about these problems are also irreversibly altering the competitive and pricing dynamics in Australia's housing finance industry. While the underlying forces that have caused these changes are in no way the responsibility of Australian lenders, this fact has not shielded them from the adverse consequences associated with the effective closure of key securities markets.

It is useful to highlight here that we are not merely talking about 'thin trading' or a significant reduction in liquidity. There have been precipitous falls in the volume of activity, and eventually the complete closure of, the primary residential mortgage-backed securities market, which would normally see issuance in excess of $50 billion per annum. The issue is that this market has become a critical bedrock of the way in which Australian financial institutions, and the households to which they lend, originate funding.

Complete disequilibrium of this kind, which is almost entirely attributable to ructions in overseas markets, subjects Australian households, financial institutions, and eventually the economy at large to potentially catastrophic risks.

To this end, we have recommended exploring the establishment of a permanent Australian GSE, which by leveraging off the Commonwealth's secure credit rating, can serve as a liquidity provider of last resort in situations where key markets face failure. We argue this not because it will solve the current financial crisis. Instead, we see it as restoring the conditions that generated a decade long change in the structure of competition in Australia's primary lending markets. In the absence of intervention, competition could be permanently eroded in those markets with adverse implications for consumer costs,

[48] For a discussion of these issue and how they can be dealt with see Stiglitz, Joseph E., Jonathan M. Orszag, and Peter R. Orszag (2002), "Implications of the New Fannie Mae and Freddie Mac Risk-based Capital Standard," *Fannie Mae Papers* 1(2), 1–10.

choice and flexibility. The consequences for investment both in smaller enterprises and also the housing stock are too important to ignore. It is that long-term microeconomic issue that needs immediate government attention before it is too late.

Frequently Asked Questions

Since the public launch of our AussieMac proposal in March 2008, we have received a large number of questions from government, the media and private sector participants. In this section we provide summaries of some of the responses that we have supplied to the questions we received. We also offer a critique of one independent review of our paper, which reflects some of the key questions that have emerged with regard to our proposal.

1. Will AussieMac increase moral hazard by encouraging more relaxed lending standards?

Any objective analysis will show that there is no reason why this should be a risk. As we outline in our paper, AussieMac would be limited by its charter to only purchasing very low-risk, high credit quality 'prime' home loans from Australian lenders (ie, either off the balance-sheets of banks or out of the warehouse facilities provided by non-bank lenders). Unless these lenders originate assets that comply with AussieMac's rigid credit criteria, the assets would not be eligible for purchase. As discussed below, there is a wealth of highly reliable information to facilitate detailed credit risk analysis on Australian home loans. Consequently, so long as AussieMac imposes its credit requirements, there should be no deterioration in lending standards.

Note also that AussieMac would not be 'guaranteeing' Australian home loans. It would be purchasing conforming, low-risk mortgages on its own balance-sheet using funds raised with its AAA sovereign-backed credit rating.

It would be straightforward for AussieMac to set its credit criteria much like any other lender. In Australia, there is exceptionally detailed mortgage and mortgage default data available for the trillions of dollars of Australian home loans that have been originated by Australian banks and non-bank lenders over the last 40+ years.

Mortgage insurers, such as PMI Mortgage Insurance and Genworth, have been insuring the mortgage default risk underpinning Australian home loans since 1965. The AAA-rated or AA-rated mortgage insurers have access to all of this default information, which AussieMac could harness alongside other credit data (such as that provided by VedaAdvantage, which is the key Australian credit bureau) to set its required credit criteria. (Significant default data is also published publicly by the major ratings agencies, such as Standard & Poor's.)

One of the reasons that Australia has one of the lowest rates of mortgage default of any country in the world is because of the strict credit standards imposed by lenders. For example, the mortgage insurance claims frequency on insured Australian home loans has averaged less than 0.7% since 1965 (ie, this is the proportion of loans that the insurers actually have to pay out on). The latest S&P scheduled payment 30 days or more arrears estimate on prime Australian RMBS was only 0.93%, which is a fraction of the circa 4% 30 days arrears on prime US home loans and the 16% + arrears rates on US sub-prime.

Importantly, AussieMac could also mortgage insure away the default risk underpinning any prime home loans that it acquired at relatively low cost. This is standard practice in the Australian mortgage and RMBS securitisation markets, and could be facilitated by either PMI Mortgage Insurance or Genworth, who currently mortgage insure more than $400 billion worth of prime Australian home loans. AussieMac could achieve this in one of two complementary ways: (1) it could insist that all home loans with LVRs greater than 80% of the value of the property are mortgage-insured at the cost of the borrower, which is standard industry practice; and (2) it could then take out 'portfolio-wide' insurance which would be a supplementary cost that it would pay to PMI or Genworth. Note that PMI and Genworth are regulated by APRA and capitalised independently from their parent entities with AA and AAA credit ratings, respectively.

2. Will AussieMac crowd-out private sector participants?

It would be quite easy to place regulatory constraints on AussieMac's day-to-day activities to ensure that it did not disintermediate any meaningful private sector activity.

For example, except during periods of demonstrable market stress, you could limit AussieMac to supplying no more than, say, 5%-10% of the market liquidity (and note that this would be liquidity only for the purposes of acquiring prime RMBS that conformed with AussieMac's strict credit criteria).

This should ameliorate any artificial distortions brought about by AussieMac's participation in the RMBS market during the ordinary function of that market. It would also minimise day-to-day operating costs, notwithstanding that AussieMac should be a cash-flow positive concern with no direct government subsidies (eg, like CMHC in Canada).

AussieMac's chief mandate would be to serve as a liquidity provider of last resort to a key component of the financial system (ie, the securitised RMBS market) in the event of these once-every-ten-years external shocks—which appear to be occurring with increasing regularity given the ever-more integrated nature of financial markets—that result in the closure of critical economic markets for extended periods of time to the potentially irreversible detriment of Australian financial institutions and the households they service.

3. If the private sector cannot price these securities, why would AussieMac be able to? And shouldn't we focus on improving the transparency of these structures?

There is no issue with the transparency, information accessibility, or capacity of investors to price securitised prime Australian home loans, which are very vanilla in structure. Securitised AAA Australian RMBS pools are direct principal and interest pass-through vehicles where investors have complete visibility on the characteristics of all assets in the portfolio both prior to buying those assets and during the period that they hold the assets. There is a wealth of data reported on a monthly basis to investors on the performance of these assets right down to the individual asset level (if so required). In fact, it would be hard to improve the transparency of AAA Australian prime RMBS pools.

Any calls for improved transparency of information or structures is confusing two independent issues: the complexity and obscurity of the SIVs and CDOs that invest in securitised Australian home loans, and which have been casualties of the sub-prime crisis, and the extreme transparency and simplicity of the latter pools—ie, tranches of AAA-rated Australian RMBS. Many investors, such as super funds, global pension funds, and fixed income managers, invest directly into the AAA RMBS pools, which have become a partial surrogate for the Australian government bond market.

4. Will AussieMac help non-conforming lenders like Bluestone and Liberty?

Not ordinarily. Bluestone and Liberty are primarily non-conforming lenders whose assets would not normally satisfy AussieMac's credit criteria. They represent a tiny proportion of the Australian home loan market (ie, less than 1% according to the RBA) and have little consequences for competition or pricing.

5. What other benefits could AussieMac deliver?

One interesting point is that AussieMac's day-to-day role could be very valuable in the context of providing additional liquidity to the Australian government bond market, which is a major issue for the capital markets given that it has recently shrunk so much (the existence of a government bond market is critical to institutions for hedging and risk management purposes, amongst other things). Assuming that it remained a public agency (like the CMHC in Canada) AussieMac's bonds would be incredibly low risk, AAA-rated government debt. The Canada Bonds that the CMHC issues serve exactly the same purpose in that market.

Please note that some responses to critiques and questions will be posted from time to time at the Core Economics blog (http://economics.com.au/index.php?s=aussiemac).