Putting the 'mort' back in mortgage – a pocket guide to the global credit crisis

An edited version of a paper presented by:

Jeremy Cooper, Deputy Chairman, Australian Securities and Investments Commission

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1. Introduction

1 This paper looks at the United States sub-prime mortgage crisis, exploring some of the factors leading to the crisis and its continuing effects on global credit markets. It is intended to be a very basic introduction to the topic aimed at gently navigating the reader through the key issues.

2 Because the sub-prime crisis is still unfolding, this paper necessarily only tells the story so far. Also, the paper does not deal with issues affecting sub-prime related securities issued in Australia by Lehman Brothers Australia because those matters might be the subject of legal proceedings in the future.

2. Overview

3 It is complicated, but the basic problem can be boiled down to what financiers have done for centuries: borrowed short and lent long or borrowed in a liquid form only to invest in or lend on illiquid assets. This generally works because the longer term/illiquid asset strategy offers a premium to compensate for the risk of having your money tied up. What seems to have happened in the last five years or so leading up to the crisis is that more and more money poured into the more illiquid (and hence risky) assets, but the higher yields that investors should have received steadily reduced. This is called a narrowing of 'credit spreads'.[1] When the normal premium a lender earns for a riskier loan is little more than the risk-free rate of return attaching to government-issued bonds, risk has become 'mis-priced' and has to correct to long-term market norms at some point. This partly explains what happened.

4 The response to this fall in yields, or the lower reward for tying your money up, seems to have been to use more and more borrowed money to boost returns. This is called 'leverage' or 'gearing'. Leverage can cause just the same boost in the opposite direction when things go wrong and this also partly explains a large part of the current crisis.

5 One hallmark of this financial crisis has been an increased level of complexity and dispersion of risk through so-called (slicing and dicing)[2] to the point where those two factors (complexity and on-

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1 The term 'credit spread' means the additional yield received by investors over and above that of government bonds for holding a security with the same maturity. The difference reflects the credit quality; effectively the 'price' of the perceived additional risk over that of a government bond.

2 Refers to the myriad ways of repackaging and passing on risks and rewards that modern financial markets afford. In the context of mortgages, this is sometimes referred to as the 'originate-to-distribute' model.

selling) lead to a virtual seizure in many parts of the financial system. Part of this was due to mistrust: nobody knew for sure who owned what and what risks were attached to the various 'slices' of risk.

6 Write-downs at financial institutions following the slide in US house prices and surge in foreclosures on sub-prime and other mortgages have already reached over US$500 billion. Some experts predict that the ultimate cost will be US$1.4 trillion and some even as high as US$2 trillion in write-downs.

7 Although the current global credit crisis has its roots in sub-prime mortgages and the boom in mortgage-backed securities, the scale of the over-the-counter credit derivatives markets (US$58 trillion in size)[3] has also fuelled the contagion. Adding to the difficulties, these contracts are privately negotiated and trade in non-transparent and largely unregulated markets. The mechanisms for weighing up the overall risks of these instruments have been shown to be inadequate and their complexity has meant that almost all institutions have not fully appreciated their potential risks. The credit rating agencies (**CRAs**) that the market depended on to assess the instruments were involved in their creation and it seems were conflicted and under-equipped to perform that role to the necessary standard.

8 There have been two standout events in the crisis so far. The near collapses of the British bank Northern Rock and the American investment bank Bear Stearns.[4]

9 Northern Rock was the UK's eighth largest bank and fifth largest mortgage lender. It relied heavily on wholesale markets for funding, which dried up following the sub-prime crisis. The Bank of England provided an emergency guarantee of deposits, but not before there was a 'run' on the bank, the first in 140 years in the UK.[5]

10 The near-collapse of Bear Stearns in March 2008 was another showcase of all these risks playing out. Bear Stearns reportedly had US$11.1 billion in tangible equity capital and US$395 billion in assets; a gearing ratio of more than 35 to one.[6] The Fed broke new territory in propping up Bear Stearns, the first time since the Great Depression that a non-bank had been rescued. The rescue was partly because Bear was connected to all leading financial

[3] Bank of International Settlements' estimate of total notional amounts outstanding under credit default swaps at the end of 2007.

[4] The troubles at Fannie Mae and Freddie Mac are at least as significant, but are still unfolding.

[5] Maximilian J.B. Hall, 'The sub-prime crisis, the credit squeeze and Northern Rock: the lessons to be learned' (2008) 16(1) *Journal of Financial Regulation and Compliance* 19.

[6] Roddy Boyd, 'The last days of Bear Stearns', *Fortune Magazine* 31 March 2008, accessed at www.cnnmoney.com.

institutions through the many over-the-counter trades it had entered into. The impact of allowing Bear to fail on all of those counterparties, and on confidence in general, was gauged to be too big a risk.

11 There have been calls for greater regulation in response to this crisis, but we will also see that previous regulatory interventions[7] have actually played at least some part in creating the factors that brought about the current crisis.

3. What was wrong with US mortgages?

12 What went wrong with mortgage lending in the United States? Basically, it came down to bad banking and a housing construction boom. Credit was extended to people who were very poor risks, who borrowed money without an adequate deposit and whose loans were supported by poor, or no, documentation. These practices were fuelled by overly cheap official interest rates following the dotcom crash, the belief that property prices would always rise and the fact that in key parts of the United States a home loan is a non-recourse obligation (the lender can only look to the property, and not the borrower, to satisfy the loan).

13 Loans were often originated by mortgage brokers who were not going to be responsible for the quality of the loan in the long-term (the 'originate-to-distribute' model).

14 These bad credit risks were then re-packaged into complex and highly leveraged financial instruments that were widely distributed in wholesale global credit markets.

15 Defective incentive structures, weak and fragmented regulation, monetary policy, conflicted rating agencies, overly complex instruments, greed and excessive risk-taking all played their part in this crisis.

4. Impact on Australia

16 There have been some direct and quite sudden impacts from the global credit crisis in Australia.

17 For example, RAMS Home Loan Group announced on 16 August 2007 that it could not sell $6.17 billion of extendable commercial paper, which was its largest source of funding for home loans. This effectively meant that RAMS' business model was no longer sustainable (in that it relied on the wholesale credit market for

[7] The creation of Fannie Mae, the anti-deficiency statutes and the *Glass-Steagall Act* for example.

funding). On 2 October 2007, Westpac bought the loan book for $140m, valuing RAMS at only AUD$0.40 per share. Other non-bank lenders have also been impacted by the tightening up of securitisation markets, as this was the main way they raised funds.

18 On 29 August 2007, Basis Capital's, Basis Yield Alpha Fund (a hedge fund), went into external administration after incurring losses due to indirect exposure to the US sub-prime market.

19 Second round effects of the crisis have included the impact on Australian banks by a tightening up of wholesale funding markets leading banks to increase interest rates as the cost of refinancing has increased. Some banks have also reported significant write-downs due to provisioning for expected bad loans.

20 Retail investors have lost money through equity market disruptions and, in some cases, directly through hedge funds investing in collateralised debt obligations (**CDOs**). As a consequence, retail investors have become increasingly risk averse, seeking investments with lower risks and higher liquidity, such as cash.

21 Despite these impacts, a few weeks ago, the visiting OECD chief Angel Gurria said "I agree we are facing unprecedented and ... uncharted situations, but Australia is well prepared."[8]

5. Regulatory and financial literacy failure

22 The sub-prime crisis also highlights regulatory failures on top of the shortcomings exhibited by market participants and the market itself. Lax regulation of credit intermediaries (eg mortgage brokers) and low levels of financial literacy in the United States were two key ingredients that created the opportunity for the problems that ensued.

23 At the wholesale level, there was a general lack of understanding of the risks of complex financial structures. Even risk managers have suggested that they could not see the downside[9] and nobody wanted to be the one to 'leave the party early'.

24 Many sophisticated institutions have been affected.[10] Back in April 2007, the International Monetary Fund Financial Stability Report rated credit risks as the lowest risk in its Financial Stability Map relying on stress-testing by investment banks that losses would be contained in sub-prime mortgages and would not pose a systemic threat or spread to those with exposure to sub-prime

[8] ABC Radio National 'OECD secretary-general talks about credit crunch' Friday, 8 August 2008, 6.35pm, transcript: http://www.abc.net.au/pm/content/2008/s2329426.htm.

[9] 'Confessions of a risk manager' *The Economist*, 7 August 2008.

[10] For example, in July 2008, National Australia Bank Limited wrote down $1 billion of AAA rated CDOs by 90%.

mortgages through securitisation.[11] This reflected a general reliance on investment banks to do the risk assessment competently. Not surprisingly, this assessment had changed dramatically by October 2007.

6. Non-recourse mortgages in parts of the US

25 One big contributing factor to the sub-prime meltdown is the way in which home lending works in certain North American States. In the affected States, a home loan is secured by a mortgage, but is without recourse to the borrower. This is apparently a hangover from the Great Depression and is supported by so-called 'anti-deficiency' statutes in those States that prevent a lender from pursuing a defaulting borrower for the difference between the balance owing and the value of the mortgaged home. This regime exists in a minority of States (relevantly in California and Florida where property and lending booms have occurred), but this difference in the risk profile of the transaction (ie if it goes wrong the borrower just walks away)[12] has contributed to two distinct bubbles in the real estate market.

26 The first bubble is populated borrowers who were fundamentally incapable of servicing and repaying the loan. Wags called these borrowers 'NINJAS' which stands for 'no income, no job or assets'.

27 The second bubble is occupied by speculators. In the belief that real estate prices would keep rising, many US investors speculated in properties. So long as these investors could service the debt on their home loans (and they lived in a non-recourse State), there was no downside risk. Certain parts of the United States, particularly the San Francisco area, are now seeing large-scale foreclosures on these properties as their value has plummeted and investors have defaulted on their loans. It is estimated that around one-third of Americans who bought homes since the beginning of 2003 are now in 'negative equity' (ie the current market value of their homes is less than the debt owed to the bank).[13]

28 Strong competition in the housing market led to a relaxation of lending practices as banks fought to compete with non-bank lenders. Loans with relaxed standards such as 'no doc' loans could be funded through securitisation. At around the same time, US banks realised that the Basel II framework (a new set of

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11 International Monetary Fund *Global Financial Stability Report Financial Market Turbulence: Causes, Consequences, and Policies* April 2007, p. 7.

12 This has given rise to the expression 'jingle mail' describing the noise made by an envelope posted by the borrower back to the bank containing the keys to the mortgaged property.

13 According to research by Zillow.com, an online specialist in house values.

international prudential standards for banks) was going to be very friendly to banks with mortgages on their books. An unintended consequence of Basel II was that banks were incentivised to lend aggressively in home mortgages.[14] On top of those factors, just as authorities were seeking to restrain Fannie Mae and Freddie Mac[15] from further home lending, the US banks saw this hiatus as an opportunity to regain market share.

29 The availability of non-recourse loans does not necessarily make a difference if banks, in practice, do not pursue claims where a borrower has few assets beyond the mortgaged home. However, it might have allowed savvy borrowers to regard their mortgage as a 'put option' to hand back the mortgaged property to the bank if things went wrong.

7. What 'sub-prime' means - Fair Isaac Corporation

30 In the US, a mortgage is considered to be 'sub-prime' if it does not conform with the standards required in order to be guaranteed by one of the government-sponsored enterprises, such as the Federal National Mortgage Association (known as 'Fannie Mae' based on its acronym FNMA) and the Federal Home Loan Mortgage Corporation (Freddie Mac).[16]

31 Fannie Mae was set up as a Government agency in 1938 to provide liquidity for aspiring homeowners and their related mortgages. Prior to that time, there was only limited, short-term finance available for home buyers. In 1968, the agency became a private enterprise, but there is still an implicit (and perhaps now an explicit) Government guarantee of their obligations. Freddie Mac was set up as a competitor in 1970.

32 From the late 1950s, Fair Isaac Corporation started developing a score for measuring mortgage credit risks, called 'FICO' scores. Sub-prime loans have a minimum FICO score of 620 or below. Over 720 is considered to be 'prime'.[17] In many cases, the FICO scores meant that banks did not have to do the same analysis of a prospective borrower to determine their creditworthiness.

33 Mortgages that were 'sub-prime' had a higher risk of borrower default (eg the borrowers had a poor credit history). The loan

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14 Adrian Blundell-Wignall & Paul Atkinson 'The Sub-Prime Crisis: Causal Distortions and Regulatory Reform' (Paper presented to the Reserve Bank of Australia Conference 2008) p. 5.

15 See para 31 and following for an explanation of these entities.

16 Guy Debelle *'A comparison of US and Australian housing markets'* (Speech to the Sub-prime Mortgage Meltdown Symposium, Adelaide, 16 May 2008) available at www.rba.gov.au.

17 Federal Reserve *Regional Outreach Nonprime Mortgage Conditions in the United States, Technical Appendix*, June 2008: http://www.newyorkfed.org/regional/techappendix_spreadsheets.html.

might also have a larger loan-to-valuation ratio or less documentation than required by Fannie and Freddie.

34 As a result of the higher risk, sub-prime borrowers were charged higher interest rates. For example, in December 2007, a mortgage with a FICO score of 730 (ie a 'prime' mortgage) had an average interest rate of 5.79%, but for a loan with a FICO score of 617 (sub-prime), interest rates were 8.68% on average.[18] Borrowers were also offered interest-only mortgages during an initial period; variable payment options where unpaid interest capitalised (so-called 'negative amortisation' loans) and 'honeymoon' interest rates where initial low rates escalated over time.

8. Australia – about 1% of market (no doc and non-conforming)

35 While Australia has had similar average levels of household debt to the US, Australia had far fewer 'non conforming' loans than the US. In 2007, while 13% of outstanding loans in the US were 'non-conforming', in Australia it was only 1%.[19] In 2006, 20% of all new mortgages in the US were non-conforming loans. Australia also had higher quality loans (with less defaults), lower loan-to-valuation ratios, lower unemployment and a higher rate of economic growth.

9. Level of US mortgage defaults

36 In May 2008, Chairman of the Federal Reserve, Ben Bernanke reported that about one quarter of sub-prime adjustable-rate mortgages in the US were 90 days or more in foreclosure. In 2007, 1.5 million homes were repossessed, up 53% from 2006. The rate of serious defaults was at 2% of all mortgages, up 50% from 2004.[20]

37 The Federal Reserve attributed location as an important factor. Most affected were California, Nevada, Arizona, Colorado and Florida, where house prices were initially comparatively high and then rapidly fell from the end of 2006 to the end of 2007. There was also a high proportion of non-owner occupier mortgages in these areas.[21] Other factors include areas with high unemployment

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[18] Federal Reserve Bank of New York.
[19] Guy Debelle 'A comparison of US and Australian housing markets' (Speech to the Sub-prime Mortgage Meltdown Symposium, Adelaide, 16 May 2008) available at www.rba.gov.au.
[20] Ben Bernanke, 'Mortgage delinquencies and foreclosures' (Speech to Columbia Business School's 32nd Annual Dinner New York 5 May 2008).
[21] Ibid.

or high levels of construction, which encouraged investors to speculate.

10. Securitisation – mortgage–backed securities

38 What is securitisation? In its most basic form, securitisation involves packaging illiquid assets (such as mortgages) into tradeable securities, which can then be on-sold to investors. Where the underlying assets are mortgages, the end-product is referred to as a 'mortgage-backed security' (**MBS**). The attraction for mortgage lenders is that the proceeds from these sales provide liquidity for further lending. Each securitisation effectively replenishes the funds already advanced to borrowers. Investors in the securities receive a claim on the mortgage assets and a share in the cash flow.

39 Securitisation has played an important role in providing alternative sources of funding for financial institutions, including short-term funding, which is important for companies and investors. It also distributes credit risks more broadly. The credit risk of an institution lending to a borrower, or a particular type of borrower can be transferred to a number of third parties.

40 Securitisation also enabled financial institutions to package credit into a form that suited the needs of investors. For example, a lower risk security could be created on the basis that another party had accepted a greater proportion of the risks for a higher interest rate. There was a market for higher-grade AAA or super senior investments to replace government bonds, which had previously provided a low risk investment. Securitisation has also increased competition, for example, by providing a source of funding for non-bank lenders.

41 However, prior to the sub-prime crisis, the amount and variety of these securities rapidly increased and the risk attaching to them became 'under priced' as investors searched for higher yield. The margin over the risk-free interest rate that borrowers paid for credit narrowed to very low levels. These securities were given investment-grade ratings by credit rating agencies based on various factors, including that the 'higher risk' portions were taken on by investment banks, allowing the remainder to be classified as lower risk and the existence of bond insurance (see section 16).

42 At the time of the sub-prime crisis in late 2007 to early 2008, the market re-priced the risk of these securities. As the mortgages behind the securities defaulted in large numbers, CRAs were forced to change the ratings of even the highest investment grade portions. Many holders were forced to sell the securities because

their investment mandates did not allow them to hold lower grade securities. At the same time, a liquidity crisis emerged as the market for these securities dried up. The lack of liquidity then created uncertainty about what the securities were worth and how large the losses would be, extending the liquidity crisis. Banks started hoarding liquidity because they did not know how much they would need to weather the crisis.

43 The Australia-New Zealand Shadow Financial Regulatory Committee has suggested a couple of reforms to address the securitisation part of the sub-prime equation, including by requiring on-balance sheet securitisation and an increase in government and public sector-backed securitisation.[22]

44 The particular type of securitisation that was prevalent in the sub-prime crisis was the creation of CDOs.

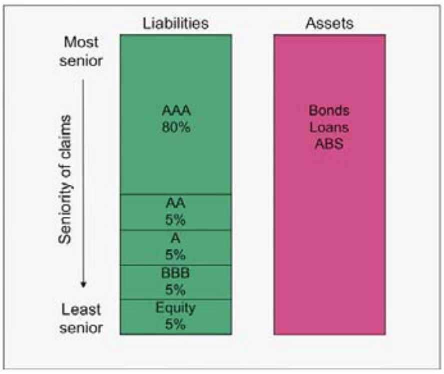
11. What are CDOs?

45 CDOs are securities backed by a pool of assets or securities. CDOs can be issued against mortgage-backed securities, other CDOs (called a 'CDO squared') or even against derivatives over mortgage-backed securities or CDOs.

46 For a good explanation of how CDOs work, see the RBA's paper on *Recent Developments in Collateralised Debt Obligations in Australia*, published in November 2007.[23]

47 The diagram below illustrates the different tranches of an asset-backed CDO and how the junior (higher risk, higher interest) tranches insulate the senior (lower risk, lower interest) tranches.

Figure 1: Illustration of a CDO showing the different tranches



Source: RBA

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22 Glenn Boyle and Kevin Davis, 'Mortgage markets after the sub-prime crisis' *Infinance August* 2008, p. 18.
23 Reserve Bank of Australia, 'Recent Developments in Collateralised Debt Obligations in Australia' *Reserve Bank Bulletin*, November 2007.

48 The process of assigning a credit rating to a CDO is more complex than for a bond. Some credit ratings were assigned based on the risk that there would be a default. This meant that a senior tranche of a CDO could have a high rating because the junior tranches insulated it from a risk of default. However, a rating does not necessarily take into account the expected size of the loss, but just the likelihood of it occurring. It is difficult to factor the expected loss into the rating of a CDO because it involves correlating losses in the underlying assets back to the tranches of the CDO and taking into account the embedded leverage in the CDO. This results in a CDO potentially being much riskier than another instrument with the same credit rating.

49 CDOs manufactured using sub-prime mortgages and on sold were, in hindsight, much more risky than expected. They suffered from the problem that they were infected by poor credit to begin with and were heterogenous (ie a mixture of different securities, maturities and risks that didn't go together properly). They were illiquid to begin with and very dependent on ratings.

12. What are credit default swaps?

50 A credit default swap (**CDS**) is a financial derivative used by financial institutions to insure against credit risk (eg to hedge the risk of loss if you hold a bond) or as a speculative tool (ie to buy in the market as a bet on a change in credit spreads).[24] Swap prices in the secondary market go up when the credit quality of the bond falls and go down when the credit quality goes up. This can be an important barometer of the financial health of the bond issuer and is closely watched by the share market.

51 As the name suggests, it involves a 'swap': the holder of the debt (bond) swaps the risk of the debt for the creditworthiness of the issuer for a fee.

52 During the recent period of economic boom and few defaults, the amount of these swaps on issue increased to roughly twice the size of the US stock market (US$58 trillion). The swaps were over increasingly complex securities such as CDOs.

53 Following the market downturn, holders of these swaps are increasingly uncertain about the ability of the issuers to cover any defaults. The issuer has to either take the bond for par value or pay the difference between par and current value. (It will need

[24] See footnote 1 for a definition of 'credit spread'.

substantial liquidity to do this if things go wrong). This nervousness has led to a slowing of liquidity in these swaps.

54 Observers have suggested that part of the reason for the Fed to prop-up Bear Stearns was to ensure that its collapse did not trigger a collapse in the CDS market where hedge funds had bet on the creditworthiness of Bear Stearns as issuer of a substantial volume of swaps. Commentators have called for more regulation and transparency as a liquidity seizure of the CDS market could have wider ramifications than the sub-prime crisis.[25]

13. Role of investment banks

55 Following the collapse of Bear Stearns, there have been calls for greater regulation of investment banks due to their role in the sub-prime crisis.

56 Investment banks had multiple roles, often acting as 'prime brokers' to hedge funds (lending them money and providing other services) while packaging up CDOs for on-sale, while the same hedge funds might have been trading in derivatives relating to those securities. There were many potential conflicts of interest involved.

57 Investment banks have also borne their share of the losses, with large write-downs, particularly as they often held the lower investment grade portions of the sub-prime mortgage backed CDOs.

58 An important part of the sub-prime story is the repeal of the *Glass Steagall Act* by the Clinton administration. The Act was introduced as part of the Roosevelt New Deal in 1933 in response to the 1929 Wall Street crash. Glass-Steagall forced a structural separation of commercial banking from investment banking (ie the securities business). Basically, you couldn't be in both businesses. The aim was to prevent securities speculation from destroying bank capital and confidence in the safety of bank deposits.

59 Congress and President Clinton repealed the *Glass-Steagall Act* in 1999[26] allowing investment banks to underwrite and trade MBS and CDOs and set up SIVs to facilitate offerings of those securities.

[25] Janet Morrissey, 'Credit default swaps: the next crisis?' *Time Magazine* 17 March 2008, accessed at www.time.com.
[26] By passing the *Gramm-Leach-Bliley Financial Services Modernization Act*.

14. The three factors

60 There are typically three ingredients in any significant financial crisis or corporate collapse: complexity, lack of transparency and skewed incentives. In the sub-prime crisis, all three were present. Let us have a look at each one:

60.1 Complexity

The ultimate products into which the sub-prime loans were transformed were so complicated it appears that many participants simply did not understand the risks involved. This includes the CRAs paid to rate them and the models used by the industry to price and trade them.

60.2 Lack of transparency

As outlined in more detail below, the process of securitising the mortgages meant that the risks could be transferred without being readily apparent to the transferee. Also, the securities were not traded in transparent or well-regulated markets. Lastly, the accounting rules that permit the liabilities to be regarded as off-balance sheet contribute to this opacity by shielding investments in such securities from accounting and audit regimes normally applicable to banking institutions.

60.3 Skewed incentives

Mortgage brokers benefited from creating more and more mortgages, with little regard to their quality because the risk of loss did not lie with them. They made their commission on the volume of loans they originated. Similarly, investment bank executives were also incentivised to take risks to earn short-term profits with less regard for longer-term consequences. They bought the loans, packaged them into securities and then on-sold them with less incentive to look into the lending standards being applied.

15. Role of hedge funds

61 First, a slight detour. The hedge fund was first developed by an Australian: Alfred Winslow Jones. He was born in Melbourne to American parents. He was later a journalist for *Fortune* magazine and took up an interest in investing after writing an article on stock forecasting. He is credited with inventing the first 'hedge fund' in 1949.

62 The classic definition of a hedge fund is a pool of investment capital (generally unregulated) for sophisticated investors that seeks to remove the risk of a fall in the share market by a technique

called 'short selling' (which means making a profit from falling prices). The classic hedge fund makes money by picking the right investments regardless of overall market sentiment. There is evidence that this is happening in the current market turmoil, [27] but that is probably the subject of a separate paper.

63 Hedge funds played a part in this sub-prime crisis, but they were neither the cause of the problem nor the solution to it. Hedge funds had been regarded as the new providers of liquidity in a largely dis-intermediated credit market (ie a market that was bypassing the banks in providing credit directly). However, as the crisis unfolded, it became clear that hedge funds were dependent on the investment banks for credit and that the only real creators of liquidity in the financial system were the central banks. Hedge funds found it increasingly difficult to make markets or provide liquidity in the midst of the crisis because they were already highly leveraged and it was hard to access more funding.

64 Hedge funds also participated by investing in CDOs, particularly the risky portions, and by issuing credit default swaps.

16. Monoline insurers & wrapping of bonds

65 Part of the whole CDO proposition was that the credit quality of the higher-ranking tranches of debt securities could be enhanced by insurance. This was the role of the so-called 'monoline' insurers such as AMBAC who specialised in 'wrapping' CDO tranches with insurance cover to make them more creditworthy and thereby able to attract a higher credit rating. By wrapping the CDOs, the insurers were effectively lending their own creditworthiness to the securities.

66 In Australia, it is estimated that there are about $27bn in wrapped bonds, mainly in the energy and infrastructure industries, representing roughly 7% of the Australian bond market. The RBA estimates that half of domestic bond investors were required to sell down their holdings due to credit downgrading at the end of July 2008.[28]

67 It appears that the practice of 'wrapping' was also more risky than it appeared because the insurers themselves were not always sufficiently capitalised or creditworthy to make a meaningful difference in the event of a serious deterioration in the quality of the underlying securities. This exposed another weakness in the

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[27] Hedge Fund Research's fund-weighted composite index is down about 3.4% in the year to August 2008, compared with the MCSI world equities index, which is down 15%.

[28] Katja Buhrer, 'CDOs looking more vulnerable' *Australian Financial Review*, 18 August 2008, p. 24.

global financial system. The proposition that a relatively modestly capitalised insurer could make a difference, for example, to the creditworthiness of the bonds of a major US municipality was exposed as being more risky than previously thought.

68 Earlier this month, the two largest bond insurers, AMBAC and MBIA were taken off 'credit watch negative' and now have an outlook of AA negative.

17. Credit Rating Agencies

69 What are CRAs? There are three worldwide CRAs. Moodys, Standard & Poors (owned by The McGraw-Hill Companies) and Fitch, owned by Paris-based financial services group, Fimalac SA. In very simple terms, they rate the probability of a debt issuer defaulting and use various ratings or scores to rank that likelihood. Ratings issued by CRAs are deeply woven into the global financial system and the sub-prime crisis has caused this dependence to be re-assessed.

70 CRAs have shouldered a significant proportion of the blame for the fall out of the sub-prime crisis. Securitised products backed by sub-prime mortgages needed high investment-grade ratings to be saleable.

71 These ratings were given on the basis that the higher risks were quarantined in the lower-grade securities that carried higher returns. However, it turned out that the extent of mortgage defaults exceeded the assets required to cover the junior securities leading to unexpected downgrades of the senior securities as well.

72 The conflict of interest created by the CRA business model, where the issuer pays for the rating, has been blamed for the high ratings given to these securities. More controversial still was the fact that CRAs began working on the design of structured products because of the complexity involved and then rated them. This added another dimension to the conflict.

73 Risk managers in financial institutions also placed too much reliance on credit ratings without sufficient independent due diligence. Some might have relied exclusively on credit ratings to value these securities.

74 As a result of all these issues, there have been calls for greater regulation of CRAs or stricter requirements for ratings of structured financial products. The International Organization of Securities Commissions (**IOSCO**) is reviewing its voluntary code for CRAs introduced in 2004. The US Securities and Exchange Commission (**SEC**) has proposed rules to reduce over-reliance on

credit ratings[29] and the European Union is looking at registering CRAs.[30]

18. Accounting and audit issues

75 One of the over-arching questions arising out of the sub-prime crisis is: How could financial institutions so easily move things off balance sheet? It seems that US GAAP, with its black letter rules, was at least part of the problem.

76 Under the US GAAP rules-based approach, banks were able to enter into arrangements designed to counter the suggestion that they had ownership or control of the SIVs that engaged in sub-prime-related activities. Without such ownership and control, they were able to keep SIVs off their balance sheets.[31]

77 As an example, Deutsche Bank moved from reporting in US GAAP to IFRS at the beginning of 2007. As a result, it was required to consolidate an additional 200 SIVs onto the bank's corporate balance sheet.[32]

78 IFRS uses a more principles-based method of disclosure and was fully adopted in Australia by 2006. The US SEC is reviewing some of these issues, holding a roundtable on the adoption of IFRS and the performance of US GAAP during the sub-prime crisis on 4 August 2008.

19. RBA on sub-prime

79 The Reserve Bank of Australia has described the current financial turmoil as 'cyclical' and not a permanent change to the economic landscape.[33] Larger than just sub-prime mortgages, we have seen markets re-price risk following risk being undervalued in the boom time, or as Adrian Blundell-Wignall of the OECD describes it, the 'flood of liquidity'.[34] As the price of risk readjusts, the cost of borrowing will be more expensive in the interim and the market for

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29 On 1 July 2008, the SEC announced moves to eliminate any of its own rules that relied on credit ratings: see Securities Exchange Commission 'SEC publishes proposals to increase investor protections by reducing reliance on credit ratings' (Press Release 2008-127, 1 July 2008).

30 European Commissioner Charlie McCreevy speech 'Regulation and supervision after the credit crunch' 4 July 2008.

31 Financial Accounting Standards Board, *Summary of Statement (FAS 140)*, accessed at http://www.fasb.org/st/summary/stsum140.shtml.

32 David M. Katz, 'Global Standards: Jilted at the Altar?' *CFO.com* 5 August 2008, accessed at http://www.cfo.com/printable/article.cfm/11878562/c_2984368?f=options.

33 Ric Battellino, Deputy Governor, RBA 'Opening Comments to House of Representatives Standing Committee on Economics Inquiry into Competition in the Banking and Non-Banking Sectors', Sydney, 14 August 2008, available at www.rba.gov.au.

34 Adrian Blundell-Wignall & Paul Atkinson 'The Sub-Prime Crisis: Causal Distortions and Regulatory Reform' (Paper presented to the Reserve Bank of Australia, Conference 2008) p. 5.

alternative funding, such as through securitisation, has also narrowed.

80 The RBA Assistant Governor, Philip Lowe, has suggested that "most episodes of financial disturbances have their roots in the build up of risk in good times".[35] In good times, high prices lead to high levels of optimism and encourage risk-taking, which again fuels the prices and the optimism. Into this mix, the market added a rapid rate of financial innovation.

81 This year the RBA also held its conference on *Lessons from the Financial Turmoil of 2007/2008*. Some interesting lessons from this conference are outlined below.

82 Securitisation of mortgages, by introducing an intermediary investment bank, meant that there was an asymmetry of information between the bank approving the loan and the investor taking on the risk. This was compounded by the insurers, the CRAs (and perhaps the FICO rating score) taking over the bank's basic role of assessing creditworthiness. This made it easy to 'sell lemons into the capital markets' and to sell them at an inflated price.[36]

83 There was an underlying 'solvency crisis' as financial institutions did not have enough capital to cover their losses, leading to banks reducing lending and capital market liquidity drying up.

84 Some suggestions for reform include increasing competition and independence of CRAs and auditors, a lender of last resort facility for maintaining financial stability in times of turmoil and, rather than government bail-outs, enhanced protection for depositors and streamlined winding up procedures for banks. There has been a suggestion that the United Kingdom needs a whole new regime for bank insolvencies.[37]

20. Possible solutions

85 There is some sign that the US investment banks are seeking their own solutions to some of the structural causes of the sub-prime crisis ahead of efforts by governments and regulators. On 6 August 2008, the Counterparty Risk Management Policy Group III (**CRMPG III**), led by Gerald Corrigan, former head of the Federal Reserve Bank of New York and managing director at

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35 Philip Lowe, Assistant Governor (Financial System), RBA 'The Financial Cycle and Recent Developments in the Australian Financial System' (Speech delivered to the 6th Annual Retail Financial Services Forum, Sydney, 13 August 2008) available at www.rba.gov.au.

36 Blundell-Wignall and Atkinson, p. 10.

37 Treasury Committee Report *The Run on the Rock* 26 January 2008, reported in 'Lessons from the Rock' *The Financial Times* 10 January 2008.

Goldman Sachs, issued a report on suggested changes to the securitisation and derivatives industries, aimed at curbing excessive risk-taking. The suggested measures include:

- support for accounting reforms aimed at bringing off-balance sheet exposures on to balance sheets;
- new criteria for 'sophisticated investors', which would probably result in a smaller investor base for more complex securities;
- a suggestion that big financial institutions and regulators should meet once a year to talk about risk management;
- creation of a clearing house for OTC derivatives; and
- investments in technology to confirm and settle trades and determine exposures across all counterparties on a same-day basis.

86 Perhaps the most unexpected proposals involve new criteria for the 'sophisticated investors' allowed to buy complex financial products. Under the plans, even pension funds and other institutional investors would no longer be automatically allowed to buy bonds backed by assets such as sub-prime mortgages. All but the wealthiest retail investors would be barred from buying structured products, such as auction-rate securities, a US$330 billion market used by municipalities and student loan providers to raise funds.

87 Mr Corrigan said the "markets had been sandbagged by complexity" and suggested the new rules would help ensure sophisticated financial products were only sold to investors with the resources and skills to understand and monitor them.

88 Mr Corrigan added that banks could be required to provide 'multiple' billions of dollars in capital to back their promise to the New York Fed to create a clearing house for the credit derivatives market this year. The banks put their weight behind accounting changes to be introduced by 2010 requiring them to hold many complex products on balance sheets.

89 The Financial Stability Forum (**FSF**) was set up by the G7 Ministers and Central Bank Governors to analyse the causes for the market turbulence and make some recommendations for improving the resilience of markets. The Financial Stability Forum published its findings on the sub-prime crisis in April 2008. Its suggested solutions include:

- strengthened prudential oversight of securitisation and off-balance sheet exposures including through raising Basel II capital requirements for structured products (such as CDOs) and to monitor the effect of these requirements on capital and whether additional capital buffers are required. This includes strengthening the capital buffers for monoline insurers;

- adopting standard trade documentation and settlement protocols for OTC derivatives;
- improving transparency and valuation of structured products. The FSF will issue guidance to encourage better risk disclosure and standards for off-balance sheet vehicles and greater transparency in structured products;
- introducing a separate credit rating scale for structured products and generally strengthening oversight of CRAs: internally, by IOSCO Codes and for investors and regulators to make their own assessments of credit risk and be less reliant on credit ratings; and
- central banks to enhance their operational frameworks and international authorities to cooperate cross border in crisis management.

21. Other possible regulatory moves

90 These events might lead to another phase of regulatory change. The sorts of things that are being speculated on are that the US will re-introduce the *Glass-Steagall Act* in some form or move to have significant OTC derivatives trade in more transparent, and possibly regulated, markets. However, there is also evidence that previous regulatory reforms to deal with earlier crises, such as the reforms to set up Fannie Mae and Freddie Mac to increase the ability of Americans to own their own home, have played at least some part in the current crisis.

91 Another interesting aspect is the move by the Fed to 'take over responsibility for Wall Street'. By bailing out Bear Stearns and lending to Fannie Mae and Freddie Mac, the Federal Reserve has made it harder to say no to more bail-outs. This risks creating skewed incentives; the risk that the market starts trading on the basis that a bail-out might be available. The Fed has also broadened the range of securities that it will accept through its 'discount window'. The discount window is a 'safety valve' by which central banks lend reserve funds to eligible institutions on a short-term basis (by buying eligible securities from them) to meet temporary shortages of liquidity in the market.

92 Commentators have argued that the decisions about which financial institutions should be rescued should have been put to the

elected representatives of Congress, rather than the Federal Reserve.[38] Fannie Mae and Freddie Mac had combined direct and contingent liabilities of roughly US$5 trillion or nearly 40% of US GDP (running at around US$14 trillion) or about 65 times their regulatory capital at the end of March 2008. To put this in some further context, the total US public debt is about US$9.5 trillion. The current debate is around the fact that $5 trillion was notionally added to the national balance sheet by unelected officials in the rescue of Fannie and Freddie. However, US Congress has now effectively endorsed the bail-outs in an effort to increase public confidence in these institutions.[39]

22. Dictionary

ABS or asset-backed security means a security that is backed by assets such as loans, credit card debt or receivables etc that is not a mortgage-backed security. The securities can be divided into different classes based on the riskiness of the underlying assets.

Basel II means the Basel Capital Accord of the Bank for International Settlements. It is a capital adequacy framework that sets minimum capital requirements for banks and enhanced disclosure.

CDO or collateralised debt obligation means a security that is backed by a pool of bonds, loans or other kinds of debt or credit. The CDO is divided into different types of debt referred to as tranches. Each tranche might have a different level of risk and corresponding rate of interest.

CDS or credit default swap means a swap to transfer the credit risk of a product (or reference entity) between parties. The seller of the swap guarantees the creditworthiness and the buyer receives credit protection.

CRA or credit rating agency means an agency that provides an assessment of the creditworthiness of an entity or a product in the form of a rating eg Standard & Poors, Fitch, Moodys.

CRMPG III or Counterparty Risk Management Policy Group III means the private initiative set up under the guidance of the President's Working Group on Financial Markets to respond to the sub-prime crisis of 2007 and 2008.

Fannie Mae or the Federal National Mortgage Association means a US Government-sponsored enterprise that was designed to create a secondary market in mortgages to enhance liquidity and enable greater home ownership by purchasing mortgages that meet certain criteria and issuing mortgage-backed securities to create liquidity.

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38 'Mission creep at the Fed' *The Economist*, 7 August 2008.
39 Section 1117 of the *Housing Rescue and Foreclosure Prevention Act 2008*.

Fed or the Federal Reserve means the central bank of the United States, responsible for monetary policy.

Financial Stability Forum or FSF means the group convened in April 1999 to promote worldwide financial stability through cooperation in financial supervision and surveillance.

FICO score means a measure of credit risk established by the Fair Isaac Corporation where the higher the score, the lower the risk of default and the lower the cost of borrowing.

Freddie Mac or Federal Home Loan Mortgage Corporation means a US Government sponsored enterprise that plays the same role as Fannie Mae.

IFRS or International Financial Reporting Standards means the accounting rules designed to allow comparable balance sheet disclosure and preparation.

loan-to-valuation ratio or LVR means the ratio of the amount of the loan to the value of the property at the time of entering into the loan.

monoline insurance company means an insurance company that provides a guarantee to an issuer to enhance their credit rating, usually through a 'credit wrap'. The insurers are called 'monoline' because they specialise in one particular market, which gives them the expertise to provide the credit guarantee.

mort as in *mortgage* refers to the 'dead' pledge (old French)[40] where the profits from the mortgaged land were not available to the borrower to amortise the loan. The later 'living' pledge, on the other hand, allowed for the profits of the land to be used to repay the loan.

mortgage-backed security means an asset-backed security that is backed by a pool of mortgages.

non-conforming loan means, in the US, a loan that does not meet the requirements of the government-sponsored enterprises such as Fannie Mae and Freddie Mac regarding loan amount, loan-to-valuation ratio and features of the loan.

OTC means over-the-counter, a customised, private, wholesale and largely unregulated, market for trading securities.

prime means a borrower, rate or loan that is classified as high quality because they are considered to be creditworthy (eg they have a high FICO score).

RMBS or residential mortgage-backed security means a mortgage-backed security that is backed by residential mortgages, such as sub-prime loans.

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40 Pollock and Maitland, in the *History of English Law Before the Time of Edward I*, 2nd Ed, Cambridge University Press UK, 1898, Bk II pp117-24 explain that the word 'mort' was dealt with in the writings of Glanvill circa 1187 at which time the gage (or security) was said to be dead because the gagee was in possession of the land and entitled to take the rents and profits for himself in lieu of interest. In later times, the sense changed so that the land was said to be 'dead' to the mortgagor if he did not repay the loan. See also Fisher and Lightwood's *Law of Mortgage*, 2nd Australian Ed, LexisNexis Butterworths, 2005, p 12.

securitisation means the process of creating a tradeable financial security from a pool of illiquid assets, such as mortgages, and then dividing the pool into portions that can be sold to investors.

spread means the difference in yield between two debt securities based on the creditworthiness of the issuer, typically in comparison with the relevant Government bond (or the risk-free rate).

SIV or structured investment vehicle means an off-balance sheet entity specialising in issuing short-term securities to invest in bonds or ABS. They are sometimes also called a *conduit*.

sub-prime means a mortgage taken out by a person who has a poor credit history or low documentation of income and hence higher risk of default.

US GAAP means the internationally recognised accounting standards of the United States.

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