RECENT DEVELOPMENTS IN SECURITISATION[1]

Introduction

Globally, since mid 2007, there has been a widespread reappraisal of the risks associated with investing in structured credit products. As has been the case overseas, the Australian securitisation market has been dislocated, with investors cautious about participating in this market. This has seen issuance of asset-backed securities being limited and spreads widen significantly. Financial institutions who relied on securitisation for funding have scaled back their lending, though this decline has been offset by increased lending by others, particularly the major banks. As a result, the process of dis-intermediation that was evident throughout the past decade, has been partly reversed. Nonetheless, in recent weeks there have been signs that conditions are improving in the securitisation market, with the first public residential mortgage backed securities (RMBS) issued for the year.

This article compares the securitisation market to the other areas of the local bond market, discusses the characteristics of asset-backed securities (particularly RMBS), and summarises recent developments in the securitisation market.

Structure of the domestic bond market

Broadly speaking, securitisation is the process of converting a pool of illiquid assets, such as mortgages, into a tradeable security. Typically, a special-purpose vehicle buys assets and funds these purchases by selling securities – asset-backed securities (ABS) – to investors.[2]

In examining the securitisation market in Australia, it is useful to put it in the context of the overall bond market. The domestic bond market is made up of five broad categories:[3]

- bonds issued by the Australian Government (CGS) and state borrowing authorities (semis);
- bonds issued by Australian financial institutions;
- bonds issued by Australian corporates;
- A$ denominated bonds issued in Australia by non-residents – Kangaroo bonds; and
- asset-backed bonds issued by Australian-domiciled vehicles.

Over the past five years, the stock of government bonds (CGS and semis) outstanding has been broadly unchanged, with the Federal government maintaining the stock of CGS at around $50 billion, despite running

1 *This article was prepared by Susan Black of the Domestic Markets Department of the Reserve Bank of Australia.*

2 *The exposure to credit risk can also be synthesized through derivatives instead of the outright purchase of assets.*

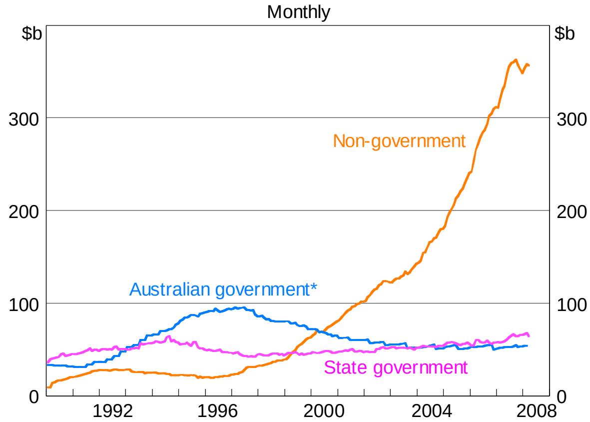
budget surpluses (Table 1 and Graph 1).[4] In contrast to government bonds, the stock of bonds issued by non-government entities in Australia has grown rapidly over this period, and, at $360 billion, is now around three times larger than the stock of government bonds (Graph 2). This growth has been relatively broad-based across the four non-government issuers. Despite the recent fall in the stock of asset backed bonds outstanding – which is discussed in more detail later – it continues to account for the largest segment of the domestic bond market, making up one quarter.

Table 1: Domestic Bonds Outstanding

	Outstanding ($ billion)		Share (per cent)		Average annual growth
	2003	**2008**	**2003**	**2008**	**2003 – 2008**
CGS	58	55	24.6	11.5	-1
Semis	52	65	22.0	13.6	5
Financials	24	89	10.2	18.7	30
Corporate	31	45	13.1	9.4	7
Kangaroos	20	110	8.5	23.1	41
Asset-backed bonds	51	113	21.6	23.7	17
Total	**236**	**477**	**100.0**	**100.0**	**15**

Sources: ABS; RBA

Graph 1
Bonds on Issue in Australia*
Monthly

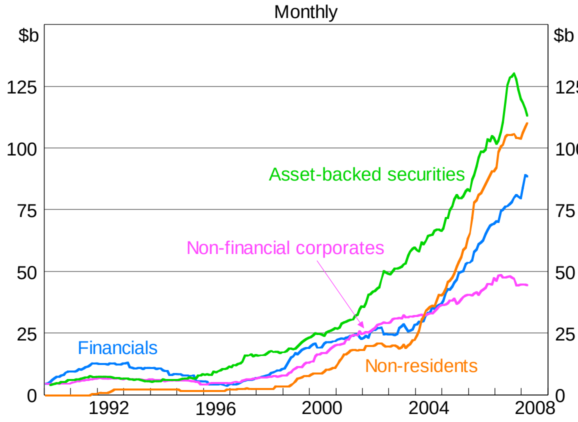


* Excluding bonds purchased by the Australian government
Sources: ABS; RBA

3 Here we are only considering bonds – instruments with tenors of 1 year or more – rather than all securities.

4 The Federal government has recently announced $5 billion of additional bond issuance in 2008/09, with the prospect of a further $20 billion in the future.

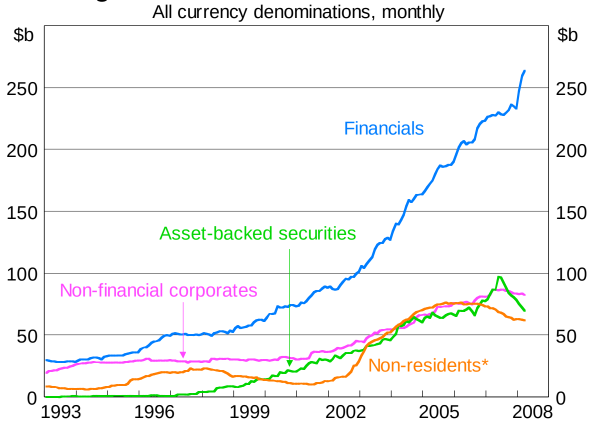
Graph 2
Non-government Bonds on Issue in Australia
Monthly



Sources: ABS; RBA

The bonds outstanding in Table 1 and Graph 2 relate only to those issued in Australia. Australian entities are also active in the offshore bond market, with the stock of Australian non-government entities' bonds issued offshore ($415 billion) actually greater than their stock onshore ($250 billion) (Graph 3). Mostly, this reflects financial institutions accessing a diverse range of funding sources available offshore, through both unsecured bonds and asset-backed bonds.

Graph 3
Non-government Bonds on Issue Offshore
All currency denominations, monthly



* Australian dollar-denominated issuance only
Sources: ABS; RBA

In terms of the stock of asset-backed bonds, just over half were issued onshore ($115 billion versus $70 billion). Prior to 2003, offshore issuance was almost exclusively in US$. Since this time, asset-backed bonds have been issued in a wider range of currencies, particularly euros, as European investors have become significant purchasers of these assets.

Characteristics of the securitisation market

The rapid growth in asset-backed bonds prior to mid 2007 was driven by the securitisation of residential mortgages, with the value of these increasing from around $20 billion in 1998 to peak at $175 billion in June 2007. (The recent fall to $140 billion is discussed later.) Residential mortgage-backed securities (RMBS) account for 80 per cent of asset-backed ***bonds***, with collateralised debt obligations (CDOs) and commercial mortgage-backed securities (CMBS) each making up a further 8 and 7 per cent respectively, and bonds backed by leases, receivables and motor vehicle loans comprising the remainder (Table 2). Around three-quarters of asset-backed ***securities*** outstanding are bonds (ie. have a tenor of one year or more), with asset-backed commercial paper (ABCP, which has a tenor of up to one year) making up just over 20 per cent. Around two-thirds of ABCP is backed by mortgages (including RMBS); ABCP vehicles are commonly used to temporarily 'warehouse' mortgages until a sufficient pool is built up for RMBS to be issued, and may also be used for the longer-term financing of mortgages.[5] ABCP issued by Australian-domiciled conduits – issued onshore and offshore – roughly doubled over the three years to mid 2007, reaching a peak of $72 billion. (The subsequent decline is discussed later.)

Table 2: Australian Asset-Backed Securities Outstanding[(a)]

As at March 2008

	$ billion
Asset-backed bonds	183
RMBS	143
CDOs	13
CMBS	12
Other[(b)]	14
Asset-backed commercial paper	53
Of which: Residential mortgages[(c)]	38
Total	**236**

(a) Issued onshore and offshore by Australian-domiciled vehicles
(b) Mainly bonds backed by leases, receivables and motor vehicle loans.
(c) Includes RMBS
Sources: ABS; RBA; S&P

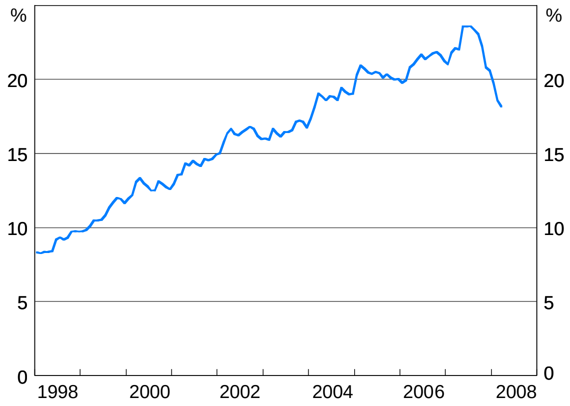
While CDOs, CMBS and other ABS have also increased significantly over the past ten years – representing a broadening of the type of securitisation in Australia – they have done so at a slower pace and from a lower level. As a result, this paper focuses on the securitisation of mortgages through RMBS and ABCP.[6]

In part, the rapid growth in securitisation reflected the strong demand for housing finance. However, this is not the full story, as the stock of securitised housing loans has been growing at a faster pace than housing credit; the share of housing loans funded through securitisation has increased from less than 10 per cent in the late 90s to a peak of almost 25 per cent (Graph 4).

5 For more detail on ABCP, refer to Black S and C Fisher (2008) '[The Asset-backed Commercial Paper Market]' RBA Bulletin, January.

6 For more details on CDOs, refer to Black S and A Rai (2007) [Recent developments in Collateralised Debt Obligations in Australia]', RBA Bulletin, November.

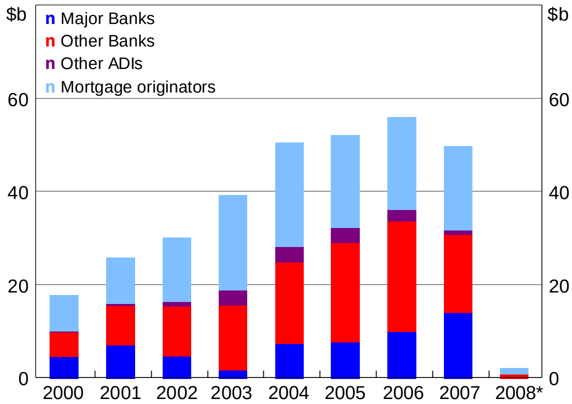
Graph 4
Share of Housing Credit Funded by Securitisation



Source: RBA

In large part, this reflected the change in the composition of lenders in the mortgage market following the entry of mortgage originators, who rely (or at least, relied) predominantly on securitisation for funding. Mortgage originators became established in the mid 1990s after the fall in the general level of interest rates reduced the banks' competitive advantage of being able to raise low-cost retail deposits. With high mortgage interest rates relative to capital market interest rates, funding mortgage lending in the wholesale market became profitable. Prior to the recent turmoil in credit markets, mortgage originators accounted for around 35 per cent of RMBS issuance (Graph 5).

Graph 5
Issuers of Mortgage-backed Securities



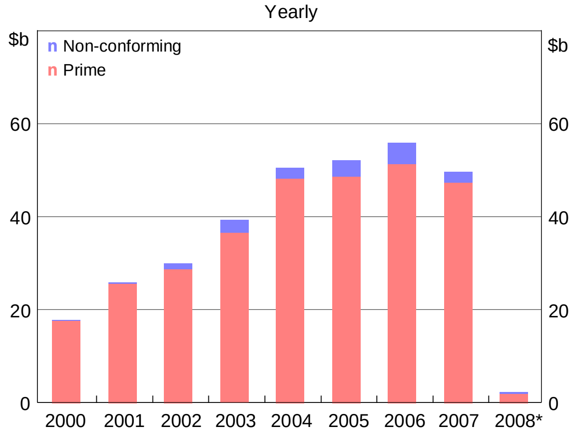
* Data to May 2008.
Source: RBA

The other main factor driving the growth in RMBS was issuance by the regional banks. The regional banks have been more active in securitising loans than the major banks, as they face higher costs in funding their balance sheets through unsecured bonds than the major banks. For the regional banks, the relative cost of funding loans through securitisation has tended to be less than through unsecured bonds. Prior to mid 2007, regional banks securitised around a third of their housing loans while the major banks securitised less than 10 per cent. As a result, despite their smaller size, the regional banks accounted for roughly 40 per cent of RMBS issuance whereas the major banks accounted for 20 per cent.

Demand from domestic and non-resident investors for RMBS was very strong in the years leading up to the credit market turmoil, supporting the robust growth in the market. This was evident in the steady decline in spreads to swap on RMBS at issuance from around 40 basis points for AAA-rated tranches of prime RMBS in 2000 to less than 20 basis points in mid 2007. In part, strong demand for RMBS, as a highly rated product with relatively high yields, reflected investors' 'search for yield' that was widespread over this period.

The bulk of Australian RMBS are prime (95 per cent of issuance since 2006) – they are backed by loans made to borrowers that satisfy financial institutions' standard lending criteria (Graph 6). Nearly all loans made by banks, building societies and credit unions, as well as most loans made by mortgage originators, fall into this category. Almost all prime RMBS are 100 per cent covered by lenders' mortgage insurance (LMI). This provides investors in RMBS with protection against losses by making up any shortfall if a property sale raises insufficient funds to cover the loan, in the case of default. Subordination is also used to provide credit enhancement to the senior RMBS tranches; RMBS (and most other asset-backed bonds) are sold in tranches, where the most senior tranche (typically rated AAA) has first claim on the underlying mortgages, with the priority of claims decreasing to the most junior tranche.

Graph 6
RMBS Issuance
Yearly



* Year-to-date
Source: RBA

In recent years, strong competition in housing lending led to a contraction in margins on housing loans as well as some relaxation in lending standards. Heightened competition led to an increase in the availability of loans with little or no deposit (high loan-to-value ratios, LVRs) and low-doc loans. Low-doc loans are designed mainly for the self-employed or those with irregular incomes who do not have the documentation required to obtain a conventional mortgage. These developments in the wider market were also reflected in prime RMBS issuance, with the share of low-doc RMBS increasing from being non-existent in the late 90s to accounting for around 10 per cent of issuance in recent years, and more high LVR loans being included in loan pools. As investors became more comfortable with these riskier loans, the risk margin required on RMBS with these characteristics narrowed (prior to the recent volatility in markets).

Non-conforming RMBS also became more common over the past 5 or so years. These RMBS are backed by loans to borrowers who have impaired credit histories or other high-risk characteristics. These loans tend to be originated by specialist non-conforming mortgage originators. Subordination provides the main source of credit enhancement for non-conforming RMBS; non-conforming loans are rarely covered by LMI. Non-conforming RMBS typically have an unrated tranche which is often referred to as the "first loss" tranche as it absorbs all losses after property sale on the underlying loans until it is exhausted, thereby providing protection to the rated tranches. This tranche is typically retained by the loan originator or sold to specialist investors that are closely associated with the lender.

The non-conforming market in Australia (which is almost entirely funded through securitisation) is the closest market we have to the US sub-prime market.[7] However, there are some important differences. The market is much smaller in Australia, with these loans only provided by a few specialist non-deposit taking lenders, whereas they were provided by a wide range of financial institutions in the US. Non-conforming loans make up only about 1 per cent of outstanding Australian loans in 2007, well below the 13 per cent sub-prime share in the US. This comparison is even more stark in terms of the share of new loans – about 1 to 2 per cent in Australia in recent years compared to 20 per cent in the US in 2006.

Also, the quality of Australian non-conforming loans is higher than US sub-prime loans; as at the end of 2007, the share of Australian non-conforming loans that were more than 90 days in arrears was less than 5 per cent compared to just below 15 per cent for US sub-prime loans. This partly reflects the tighter lending standards that were prevalent in the Australian non-conforming market (lower LVRs and a lack of the low teaser rates or deferred repayment options common in the US), as well as the low unemployment rate and strong income growth in Australia. Australian loans were also less subject to the problems associated with the "originate and distribute" model that was common in the US, with lenders here typically retaining the first loss tranche.

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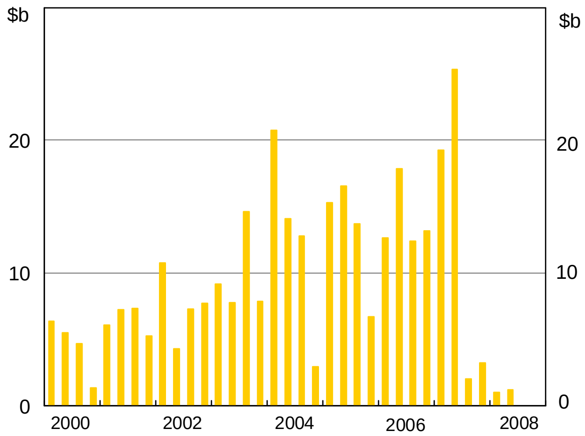
7 For more details, see Debelle G (2008) '[A comparison of US and Australian housing markets](), Address to the Sub-prime Mortgage Meltdown Symposium, 16 August.

Recent developments

The period since July 2007 has been one of considerable turmoil in financial markets. As has been well documented elsewhere, the collapse in investor confidence in securities backed by US sub-prime mortgage debt led to a general reappraisal of the risks involved with structured credit markets and, in turn, other risky assets.[8] While the repricing of risk has impacted the Australian bond market generally, the securitisation market has been most affected.

Since the onset of the credit market strains in mid 2007, the volume of Australian RMBS issuance has been very low; quarterly issuance has averaged $2 billion compared to average quarterly issuance of $18 billion over the previous year (Graph 7). However, there have recently been some signs of improvement. In May, the first public RMBS for the year were issued, with Citigroup's $500 million prime RMBS and GMAC's $300 million non-conforming issue. Citigroup's deal was three-times oversubscribed, and it appears that a few other RMBS are currently in the pipeline. Also, a few securitisations of auto loans have recently taken place with another currently being marketed.

Graph 7
RMBS Issuance
Quarterly



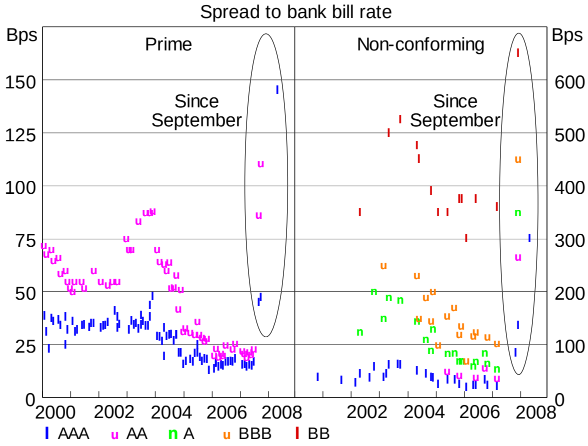
Source: RBA

The RMBS that have been issued during the current period of volatility have been a smaller size than was previously typical ($370 million compared to $1.6 billion). Partly reflecting investors' reappraisal of risk, some RMBS have also been more conservative, with no, or a small share of, low-doc loans and relatively low loan-to-value ratios. However, though there have also been a number of non-conforming issues. More recently, there has been a trend towards new prime RMBS being structured so that the rating of the senior tranche is independent of the credit enhancement provided by lenders' mortgage insurance (LMI), following concerns about the mortgage insurance and bond insurance sector. Both prime and non-conforming issues have also been structured with more subordination.

Standard & Poor's recently downgraded the credit rating of PMI's Australian operations one notch to AA- from AA, though they acknowledged the relative strength of the local operations in the process. PMI is one of the two major providers of LMI in Australia, providing LMI to around 45 per cent of securitised mortgages. PMI's Australian operations remain on credit watch negative due to the two notch downgrade of the parent (to A+ from AA). While PMI Group suffered losses this year, the Australian operations remained profitable and PMI has indicated that it intends to 'quarantine' PMI Australia so that it maintains its rating. Following the downgrade of PMI, S&P downgraded around 175 subordinated RMBS tranches to AA- from AA. However, the ratings of almost all senior tranches (AAA) were affirmed as they have sufficient protection from subordination. Since subordinated tranches only make up a few percentage points of the value of an RMBS, the overall effect of this downgrade on the RMBS market was small. Three ABCP programs were placed on credit watch negative as a result of the PMI downgrade (the programs are currently rated A1+).

Citigroup's RMBS (rated AAA) that was issued in mid May priced at a spread of 145 basis points to swap (Graph 8). This is well above the spreads seen late last year of around 45 basis points, and the average spreads of less than 20 basis points prior to the credit crunch, for prime AAA-rated RMBS. Reflecting this high cost of funds, Citigroup's issue was structured with a "yield enhancement reserve" deposited by the bank to cover any shortfall between the interest income received from the mortgages and the payments on the RMBS. Reportedly, GMAC's RMBS priced at a very high spread of 300 basis points for the senior AAA tranche, nearly 170 basis points above the spread at which non-conforming RMBS were issued last in December 2007.

Graph 8
RMBS Pricing at Issuance
Spread to bank bill rate



Source: RBA

Secondary market RMBS spreads rose sharply in early 2008 on forced selling of RMBS by distressed leveraged investors, mainly structured investment vehicles (SIVs, who bought around one-third of Australian RMBS prior to the credit crisis) and, to a lesser extent, foreign banks. As SIVs were forced to unwind their positions, they had to sell both the loss-making US sub-prime RMBS and CDOs as well as their profitable

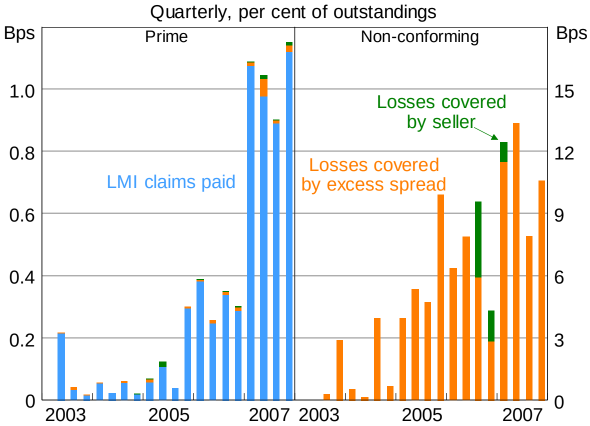
8 *See Reserve Bank of Australia (2008),* Financial Stability Review*, March and Reserve Bank of Australia (2008),* Statement on Monetary Policy,

Australian RMBS. This led to a dislocation in the local RMBS market, with excess supply from the SIV sales as well as reduced demand in part due to the absence of the SIVs themselves.

While most of the SIV unwinding was mostly completed by March, spreads continue to be elevated amidst very illiquid conditions. Despite local investors acknowledging that prices have fallen to attractive levels and that RMBS are backed by good quality loans, many have been reluctant to enter the market as they would need to mark-to-market losses if prices were to fall again. It is difficult to gauge current prices, as few trades have been taking place and bid-ask spreads remain wide. Market estimates suggest that spreads on domestic AAA-rated prime RMBS are around 120 – 170 basis points, having eased from the highs of 150 – 200 basis points earlier in the year. Spreads appear to be higher offshore than onshore (possibly around 40 basis points), reflecting the more strained conditions overseas and greater prevalence of SIVs as investors in these issues.

The currently elevated spreads appear to reflect stickiness in spreads given illiquid conditions, investors' caution towards securitisation markets and the general conditions in credit markets rather than concerns about losses on RMBS. Investors in rated Australian RMBS have never suffered any losses of principal – any losses on the underlying loans after the sale of the property have been covered by lenders' mortgage insurance, the profits of the securitisation vehicles, and to a lesser extent, unrated tranches. Although losses on loans increased in 2007, they are still relatively low as a share of outstandings; 4 and 45 basis points for prime and non-conforming loans respectively (Graph 9).

Graph 9
Losses on Loans in RMBS Collateral Pools*
Quarterly, per cent of outstandings



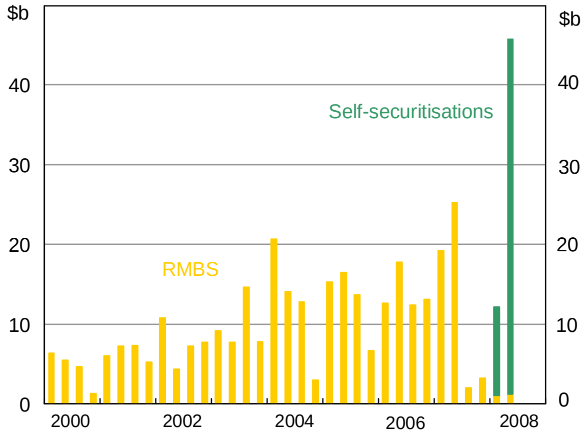
* Post-mortgagee sale, excluding losses to unrated tranches.
Sources: RBA; Standard & Poor's

A number of banks have recently converted some portion of the mortgages on their balance sheet into RMBS, which they also hold on balance sheet and can be used in a repurchase agreement in the RBA's domestic market operations, thereby providing the banks with an additional source of liquidity in case of emergency. This follows the RBA's widening of the list of securities eligible for repurchase agreements in September 2007 to include highly rated RMBS and ABCP backed by prime mortgages. Self-securitisations are not included in our measure of

May.

RMBS issuance in Graph 7 as they remain on-balance sheet and are not used for funding. However Graph 10 shows the magnitude of these structures; cumulatively, the value of self-securitisation is now $56 billion. Nine banks have set up these facilities, including all of the major banks.

Graph 10
RMBS Issuance
Quarterly

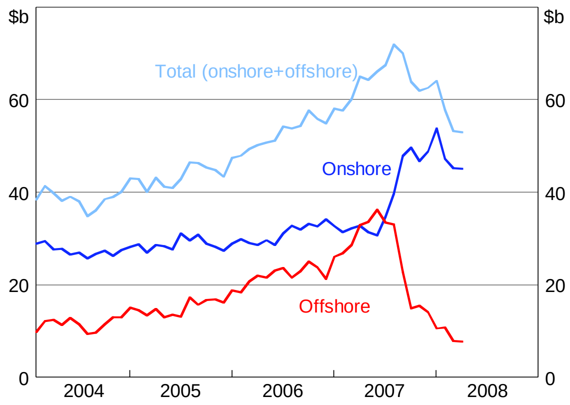


Source: RBA

Conditions have also been very strained in the asset-backed commercial paper (ABCP) market since mid 2007, with issuance falling sharply and spreads widening significantly. The general reassessment of risk, and uncertainty over exposure to US sub-prime housing loans, led to investors being unwilling to roll over paper, or only doing so at shorter maturities. This focused attention on a shortcoming of conduits' funding strategy which relies on issuing short-term paper to fund longer-term assets. Many programs were forced to call on their back-up lines of liquidity provided by banks. This has highlighted the fact that banks can be exposed to significant risks arising from their links with conduits. Reassessment of these risks is likely to have an impact on the future growth of the ABCP market, as will the imposition of a regulatory capital charge on banks' back-up liquidity facilities as part of the introduction of Basel II.

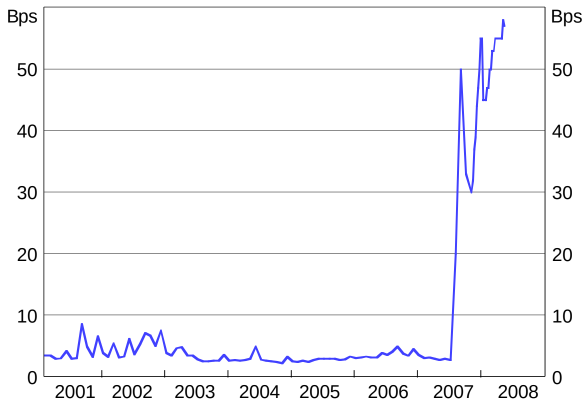
Australian ABCP outstanding has fallen 27 per cent since the peak in July 2007 to March 2008 (the latest data available, Graph 11). In part reflecting the more strained conditions in the US, Australian-domiciled conduits have switched a large share of ABCP onshore. The slightly better performance of the Australian market appears to partly reflect the different purpose of ABCP conduits in Australia, which are used to fund loans rather than securities to a greater extent than in the United States. Nonetheless, liaison suggests that some programs are only able to issue at maturities as short as 14 days in the Australian market, compared with up to 180 days prior to the strains in markets. Spreads continue to be at elevated levels – around 50 to 60 basis point spread to the bank bill swap rate compared to an average spread of 5 basis points prior to the onset of the turbulence (Graph 12).

Graph 11
Australian ABCP Outstanding



Source: Standard and Poor's

Graph 12
Australian 30-day ABCP Spreads
Spread to the bank bill rate

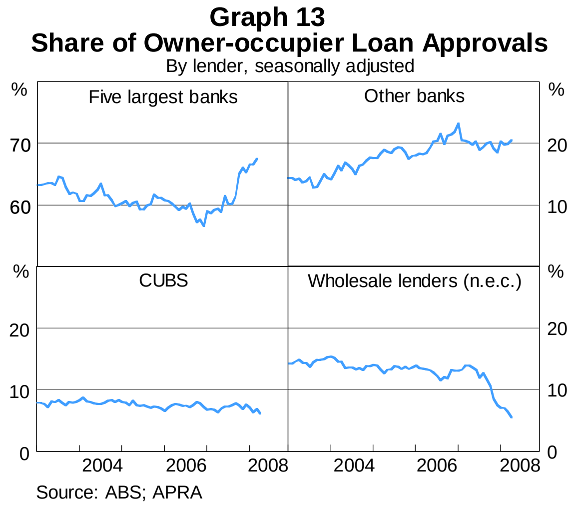


Source: nabCapital

The disruptions in the ABCP market have also highlighted the important role of transparency in the smooth operation of the market. The reluctance of investors to roll over ABCP partly reflected the opacity of the market both in the composition of the asset pools and the lack of publicly quoted prices. Given this lack of information, investors are now reportedly requiring more transparency regarding the collateral backing ABCP. There are some signs that the ABCP market is responding to this, with two of the major banks having recently set up additional ABCP programs with greater than usual disclosure of the underlying assets and sellers of the assets.

Some of the (non-major) banks who are significant participants in the Australian ABCP market, have announced that they intend to scale back their programs. Some of these programs are used to provide warehouses for mortgages prior to securitisation which means that some mortgage originators will need to find a new source of funding for their warehouses. Liaison suggests that other banks are likely to provide replacement warehouses for some of this funding, but at a higher price.

Some lenders who relied on the securitisation market and warehouse funding have subsequently scaled back their new loan growth, or in some cases have temporarily curtailed their lending. As a result, mortgage originators' share of housing loan approvals has roughly halved (Graph 13). However, the decline in lending from these institutions has been met by others, particularly the five largest banks, so that the overall supply of housing credit has not been materially affected.



With almost no securitisation issuance, the major banks have been undertaking an increased share of housing lending and providing increased funding to non-bank lenders (often through warehouses they are now funding on-balance sheet). At the same time, corporates have been borrowing almost exclusively through banks as the bond market has remained virtually closed to them. As a result, the major banks have been undertaking a larger share of financing for the non-government sector as a whole – in other words, reintermediation has been taking place. This has partly reversed the process of dis-intermediation that was evident over the previous decade.[9] The share of housing loans funded by securitisation has fallen from a peak of 24 per cent in mid 2007 to 18 per cent (Graph 4).

Strains in securitisation and wholesale funding markets are also impacting the ratings of smaller institutions who rely on these markets. Standard & Poor's recently affirmed the ratings of most Australian financial institutions, though they downgraded two building societies, and reduced the outlook for several other small lenders that rely heavily on securitisation.

Conclusion

Compared to rest of the Australian bond market, the securitisation market has been the most dislocated during the current turmoil in markets. The recent developments have led to investors reappraising the risk of structured credit products globally, particularly those lacking in transparency such as ABCP. This follows a number of years where risk had been underpriced amidst a widespread search for yield by investors.

Notwithstanding the recent difficulties, securitisation can allow financial institutions to diversify their sources of funding, and enable credit risk to be packaged and sold to meet the preferences of investors. The growth in securitisation in Australia, as in other countries, has significantly enhanced competition, particularly in the mortgage market, by facilitating the entry of new lenders and thereby contributing to lower margins on housing loans. On average, loans backing Australian RMBS are of high quality, with investors in rated tranches never having borne any loss of principal.

In recent weeks there have been signs that the dislocation in the securitisation market might be easing. Secondary market activity has improved, the primary market has tentatively re-opened and a number of other RMBS appear to be in the pipeline.

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9 *For more details, see Box C 'Trends in intermediation', Statement of Monetary Policy, May 2008.*