SHADOW BANKING:
Australian and international experience around times of financial stress and regulatory reform

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This paper examines how the share of ‘shadow bank’-based financing has evolved in Australia and a number of other countries. It focuses on developments around the recent crisis and, for Australia, around the late 1980s/early 1990s period of financial upheaval and regulatory reform. Australia’s past experience suggests that the financial crisis-related shock to risk attitudes and global regulatory focus on shadow banking will remain considerable near-term headwinds for aggregate shadow banking activity. Nonetheless, regulators should remain focused on fast-growing components and their linkages to other parts of the financial system, particularly given the potential for financing patterns to change in response to the wave of global financial reforms. An earlier version of this paper was presented to the 2013 Australian Centre for Financial Studies’ Melbourne Money and Finance Conference.

Shadow banking — credit intermediation involving entities and activities outside the regular banking system — played a key role in the financial crisis. In a number of countries, Australia included, shadow banking rose procyclically with risk appetite, assisted by deficiencies in global regulation and supervision. As risk attitudes turned, shadow banking activity widely contracted and exposed a number of vulnerabilities in the financial system, triggering a wave of global regulatory reforms.

These developments have spawned a large literature on shadow banking, and there is considerable uncertainty about how the sector might evolve. Retrenchment from risk is a natural response to such a tumultuous period and this has generally dampened shadow banking growth in recent years. Nonetheless, risk attitudes are inherently cyclical, and there are signs of improving sentiment influencing shadow bank activity. Growth in shadow banking in many countries reflected regulatory arbitrage, with financing activity ostensibly moving out of the prudentially regulated sector. With the regulatory net tightened in myriad ways, is this likely to occur again? Where should regulators be directing their attention?

While acknowledging that we are in uncharted territory, this paper looks for guidance in past experience with the shadow banking sector. In particular, we focus on developments in Australia around the late 1980s/early 1990s period of financial system upheaval and wave of regulatory reforms, and contrast that with developments in recent years.

International background
International shadow banking developments are of interest for a number of reasons. They impacted heavily on Australia by helping to create ultimately unsustainable financing conditions, particularly with respect to demand for Australian securitisation. Shadow banking developments abroad also provide points of comparison for our own system.

The Financial Stability Board (FSB)’s annual shadow banking monitoring exercise examines shadow banking in 25 jurisdictions and the euro area. The definition of shadow banking used in that exercise is credit intermediation activity ‘outside the regular banking sector’. In practical terms the definition basically relies on a non-prudentially regulated concept and covers all financial institutions that are not banks, insurance companies, pension funds, public financial institutions or central banks. This provides a useful summary definition for examining broad trends. As alluded to throughout the text, however, risk analysis generally requires moving beyond this aggregated measure into the details of the underlying components, as the level of regulation varies and certain types of entities have more bank-like risks than others.
The aggregated data show that activity in the shadow banking sector is broadly procyclical. Pre-crisis, shadow banking growth typically outpaced growth in GDP and other parts of the financial system — across the selected aggregated groups for advanced and for developing countries, shadow banking accounted for a rising share of total assets in the financial system (Figure 1). Shadow banking growth was supported by the environment of high risk tolerance and, in many countries, regulatory arbitrage and growth of structured investment vehicles. During and post-crisis, however, the share of shadow banking assets fell as risk perceptions and attitudes shifted, prompting a relative return of financing activity to the regulated sector, a not uncommon phenomenon in times of stress.\(^5\)

Notwithstanding the aggregated trends, however, there is a wide divergence in shadow banking activity by country. For example, the international comparison highlights that the size of shadow banking in Australia is quite low by international standards, particularly following the recent decline.\(^6\) Among financial systems in large advanced economies, the highest share of shadow banking assets is in the US, reflecting in part the role of government agencies in supporting securitisation of housing debt. As is well known, US shadow banking grew strongly in the lead-up to the crisis, but subsequently fell after 2008 with contraction occurring in components such as money market funds, structured finance vehicles and securities broker-dealers. In contrast, in the euro area and the UK, the data show a continued increase in the share of shadow banking activity. In the case of the UK, the FSB's report suggests this may reflect factors associated with London’s large share of the OTC derivatives market and accounting treatment, but that further work would be needed for a full understanding.\(^7\)

In non-Japan Asia, considerable recent attention has focused on China’s shadow banking system, with reports that tight bank regulations in China are encouraging credit intermediation activity through entities such as finance companies and trusts. The data above suggest that the shadow banking system remains very small in China, though some analysts believe that the true size of China’s shadow banking system could be many times larger.\(^8\) In the region, Hong Kong has a relatively large shadow banking sector, mainly reflecting investment funds.

Differences in growth, importance and form of the sector underscore that generalisations about shadow banking may not always be widely applicable.

**Evolution of Australian shadow banking**

**Developments in aggregate**

The focus of this section is on the rise and fall of shadow banking in two phases: around the late 1980s/early 1990s asset price boom and bust; and the 2008 financial crisis. The data are based on the ‘non-prudentially regulated’ shadow banking concept used in previous Reserve Bank of Australia publications,\(^9\) with the data extended back to 1960 for a longer run historical perspective.\(^10\)

The shadow banking sector had strong relative growth during the 1960s to early 1980s amid heavy banking regulation, led by registered financial corporations (RFCs) (Figure 2). The rise is even larger if we include credit unions and building societies (CUBS) which were less tightly regulated than banks.\(^11\) While the shadow banking sector picked up a considerable share of financial sector assets over this period, the expansion of the overall financial sector was negligible (Figure 3). The shadow banking sector’s share peaked in the early 1980s as the banking system was deregulated, and eventually fell sharply in the wake of the late 1980s/early 1990s asset price boom bust.

The second wave of growth in the share of shadow banking started in the mid-1990s, plateauing in the lead-up to 2008. This phase was led by strong growth in securitisation, amid ongoing declines in the share of RFCs. Another distinguishing feature of this period was that the rise in share of the shadow banking sector occurred at a time of very strong overall financial sector growth, such that the peak in shadow bank assets as a share of GDP in 2007 was around double the peak in 1989. Shadow banking reacted to the shock with a much steeper decline post 2008, both as a share of financial system assets, and as a share of GDP.
Other investment funds cover a range of managed fund products, such as public unit trusts investing in equities and property, and cash management trusts and hedge funds. This aspect of shadow banking has also shown strong procyclical movements, reflecting both valuation effects and the reaction of investor inflows to changes in risk conditions and policy changes (Figure 5). Many of these ‘shadow bank’ activities are not very bank-like, such as unit trusts invested in listed equities. Products such as cash management and unlisted property or mortgage trusts lend themselves more to maturity and liquidity risks at varying stages of the financing process.

Cash management trusts — pooled investment vehicles to access wholesale money markets — came to prominence in the mid-1990s. By offering higher interest rates and greater flexibility on cash investments than authorised deposit-taking institution (ADI) deposits, funds under management grew solidly until the early 2000s (Figure 6). However, the onset of the financial crisis in 2008, and high-profile concerns about money market funds in the US, marked a sharp contraction in the sector; ADI deposits became more attractive, reflecting more competitive pricing and terms, and additional depositor protection available through the Financial Claims Scheme.

Unlisted property and mortgage trusts are also products that have grown strongly in high risk appetite periods before falling away sharply in response to market turmoil. In the late 1980s a run on popular unlisted property vehicles led to restrictions on investor withdrawals, in an attempt to manage the inherent liquidity mismatch of products offering prompt withdrawals while invested in illiquid assets. Post 2008, funds under management at mortgage trusts have fallen sharply, with the attraction to investors undermined by greater appreciation of the associated liquidity and credit risks, and uncompetitive returns relative to the ADI deposit market.

Developments by sector
Registered financial corporations (RFCs) cover finance companies, which are involved in activities such as consumer finance, motor vehicle sales or the financing of equipment, and money market corporations which are involved in investment banking. These institutions grew strongly between 1960 and the 1980s (Figure 4), reflecting that they were able to perform bank-like activities without the battery of interest rate and other controls imposed on the banking system. Money market corporations continued their strong growth even post deregulation during the high debt growth period of the 1980s.

FIGURE 4: Registered financial corporations

<table>
<thead>
<tr>
<th>Total assets as a share of nominal GDP</th>
<th>1989</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance companies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money market corporations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: ABS; RBA.

However, RFC activities wound back significantly in the ensuing slump. Many domestically owned merchant banks closed after large losses in the late 1980s/early 1990s and some foreign banks converted their money market corporations to bank branches when foreign bank guidelines changed in 1992. This sector has subsequently declined further, with the pace hastening following the 2008 financial crisis, partly reflecting a pullback in activity from foreign bank-owned money market corporations.
Securitisation has driven the main movement in shadow banking in the recent cycle. Securitisation barely existed around the time of the late 1980s/early 1990s period of financial stress, with recorded residential mortgage-backed securities (RMBS) issuance commencing in modest volumes in the late 1980s, associated with state government housing programs. Given its small size, and the relatively limited shock to housing markets in the late 1980s cycle, the RMBS market was relatively unaffected during this period.13

RMBS issuance (which has accounted for the bulk of overall asset-backed securities (ABS) issuance) picked up strongly through the 1990s and into the 2000s (Figure 7), and accounted for an increasing share of the fast growth in housing credit (Figure 8). The market was supported by a number of well-known structural factors buoying the housing market generally. Structurally lower inflation and interest rates that lowered debt-servicing burdens enabled households to increase borrowing. Households were low leveraged and seen as a sound credit risk relative to the business sector that had just emerged from the boom–bust cycle.14

In this environment non-bank mortgage originators increasingly accessed funding through securitisation markets (Figure 9), partly reflecting that banks’ activities in the housing market were ripe for competition. Cross-subsidisation of payment services meant that lines of business like housing could be targeted, and lower interest rates eroded banks’ low-cost deposit advantage.15 Smaller banks also increasingly tapped RMBS markets for the lower cost funding on offer.

However, the aftermath of the 2008 crisis has refocused attention on the importance of demand for RMBS in supporting the market growth. By the early 2000s foreign investors accounted for more than half of Australian ABS ownership (Figures 7 and 8). As became apparent, much of this demand came from structured investment vehicles (SIVs), which, owing to gaps in regulation and supervision, operated with a particularly vulnerable business model of funding.
themselves with short-dated liabilities while investing in long-dated assets like RMBS.16 This demand subsequently fell away, creating pressures for the mortgage originators and banks that had become too reliant on securitisation markets for funding. Volumes have picked up again to date in 2013, reflecting issuance by banks more than non-bank mortgage originators.

Comparison of periods of financial stress and regulatory reform

Two themes emerge from the Australian history of shadow banking. First, growth in shadow banking is highly related to perceptions of risk and risk appetite. Second, developments and growth in shadow banking are often shaped by the regulatory environment. As it happens, significant changes in these risk and regulatory aspects are often closely linked. Both around the late 1980s/early 1990s and the more recent financial crisis around 2008, significant financial trauma prompted a widespread reassessment of risk and significant changes to the regulatory structure.

With that in mind, this section focuses on the shocks experienced in the two episodes, and the regulatory reform that emerged — or is emerging for the recent period. Given our knowledge of how the shadow banking sector evolved from the late 1980s/early 1990s shock, this comparison provides a point of reference to gather thoughts on how the shadow banking sector may develop in the future, and potential areas of risk for regulatory vigilance.

Financial stress

The shocks of the late 1980s/early 1990s and the 2008 financial crisis to Australia had both similarities and important differences.

Domestically, in both periods there was a considerable build-up in debt in Australia followed by sharp debt reduction, led by the business sector (Figure 10 and Table 1). Housing debt to GDP and house prices were relatively stable in the aftermath of both. However, the office property price cycle was considerably larger in the earlier period, and domestic macroeconomic and financial sector outcomes were materially worse. There was a sharp recession, unemployment rose more sharply and the Australian banking sector sustained significant losses. In contrast, in the recent episode, Australian growth outcomes were relatively resilient and the banking sector remained highly profitable.

Globally, however, macroeconomic and financial sector outcomes were considerably worse around the 2008 financial crisis relative to the late 1980s/early 1990s. The earlier period was marked by recessions in many countries and considerable financial sector stress, with the US savings and loan crisis and the onset of Japan’s ‘lost decade’. However, the global recession was relatively mild in this period and indebtedness was generally lower across governments, economies and banking systems. The period lacked the sense of global financial panic associated with the failure of Lehman Brothers and the subsequent deep recession in many advanced economies.

Reflecting this, pressure on the Australian financial system was more evident in financial indicators around the 2008 financial crisis relative to the earlier period, despite the Australian banks’ relatively better profit performance. The decline in Australian bank equity prices was much more marked and there was greater focus on the banks’ wholesale funding requirements — including the amount sourced offshore (Figure 11) — giving rise to measures such as the Australian Government Guarantee Scheme.17 In comparison, there was scant discussion of wholesale funding pressure arising for the Australian banking sector in the late 1980s/early 1990s episode, consistent with the smaller scale of foreign borrowing during that period,18 though in the lead-up banks had also increased foreign borrowing to fund credit growth well in excess of deposit growth.
The late 1980s/early 1990s and 2008 financial crisis also share the common ground that both periods were associated with subsequent significant financial regulation reforms and increases in bank capital. There are, however, more differences than similarities, with the more global and pervasive financial sector upheaval of the latter period drawing a more global and wide-ranging reform response.

The first Basel Capital Accord was announced in July 1988, prior to the economic and financial disturbance of the late 1980s, but was progressively implemented over the recession period. The period was associated with a large lift in bank regulatory capital in Australia (Figure 12) and abroad. In the more recent period, Basel III is a direct response to the financial crisis. In addition to increased minimum capital ratios and enhanced quality of capital, Basel III calls for a capital conservation buffer and a countercyclical capital buffer, and global systemically important banks will face additional capital buffers.

Another factor common to both periods is a focus on more effective supervision. In Australia in the early 1990s there was clear recognition that supervisory practices had not kept up with the shift from a regulated to deregulated banking system. This marked a shift away from rule-based supervision towards a more risk-based approach, including more on-site visits and moves to strengthen consolidated supervision. Global failings in supervision in the lead-up to the crisis have sparked a global push towards more effective supervision.

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**Regulatory reforms coming out of financial stress periods**

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**TABLE 1: Changes in selected Australian indicators around periods of financial stress**

<table>
<thead>
<tr>
<th></th>
<th>4 years to peak</th>
<th>Peak to trough</th>
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<tbody>
<tr>
<td></td>
<td>Late 80s/early 90s</td>
<td>2007/08 crisis</td>
</tr>
<tr>
<td>Debt (to GDP, ppt)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>32</td>
</tr>
<tr>
<td>Business</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>Household</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Asset prices (per cent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>89</td>
<td>86</td>
</tr>
<tr>
<td>Residential</td>
<td>92</td>
<td>22</td>
</tr>
<tr>
<td>ASX 200</td>
<td>111</td>
<td>139</td>
</tr>
<tr>
<td>Financial sector and activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank share index (per cent)</td>
<td>142</td>
<td>114</td>
</tr>
<tr>
<td>Bank return on equity (ppt)</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Unemployment (ppt)</td>
<td>-2.1</td>
<td>-1.3</td>
</tr>
<tr>
<td>Consumer confidence index (per cent)</td>
<td>-8</td>
<td>8</td>
</tr>
</tbody>
</table>

* Peaks generally taken from 1989/90 and 2007/08.

**FIGURE 11: Net foreign debt**

![Net foreign debt chart](chart1.png)

*Per cent of GDP*

**FIGURE 12: Banks’ capital ratio**

![Banks’ capital ratio chart](chart2.png)

* Per cent of risk-weighted assets; break in March 2008 due to the introduction of Basel II for most ADIs; break in March 2013 due to the introduction of Basel III for all ADIs.

Source: APRA.
crisis drew a more global and wide-ranging reform response including to: reduce liquidity risk; address the problem of ‘too big to fail’; strengthen financial market infrastructure through requirements for central clearing of standardised OTC derivatives; address weaknesses arising from use of credit rating agencies; introduce securitisation reforms; and provide explicit shadow banking rules.22

Clearly, as part of this regulatory response, there has been quite a focus on addressing the risks that became apparent from shadow banking. In addition to the reforms explicitly targeting areas well known for their role in shadow banking excesses (credit rating agencies, securitisation and ‘shadow banks’) a number of measures within other reforms should also serve to reduce shadow banking risks. These include tighter controls on banks moving securitisation off balance sheet when credit and liquidity risks remain, and ‘too big to fail’ reforms that will reduce the complexity that previously helped to obfuscate banks’ shadow banking activity.

**Looking ahead**

Recent history internationally and in Australia suggests a general procyclical pattern in shadow banking. Shadow banking has mainly flourished in an environment where solid risk appetite has tested the limits of the regulatory and supervisory framework, with subsequent contraction when risk appetite falls and regulatory and supervisory frameworks are tightened.

Looking at a longer time frame, in Australia, aggregate growth in shadow banking was slow to recover from the late 1980s/early 1990s financial shock. Overall growth was curtailed by contraction among the shadow banking components that proved particularly vulnerable, both through the response of investors and of regulators. The driver of growth came from securitisation — a component that attracted relatively little attention during the problems of the late 1980s/early 1990s.

What lessons might this imply for the period ahead?

Shadow banking is very diverse globally so we should be wary of attempting to draw sweeping conclusions. However, for Australia at least, past experience suggests that we should not expect the overall shadow banking sector to return to its pre-crisis share of financial system assets anytime soon. The big shock to risk attitudes, higher indebtedness levels here and abroad, and globally tighter regulation and supervision of the sector are considerable headwinds.

Subdued growth in overall shadow banking should not, however, be seen as grounds to declare victory that regulatory and supervisory settings have tamed risks in the shadow banking sector. While overall shadow banking activity is likely to be held back by risk aversion and regulatory responses in market segments that proved problematic during the crisis, other shadow banking components could well flourish, perhaps spurred by measures taken to address existing challenges. For example, unconventionally easy monetary policy in some large advanced countries has encouraged a search for yield, and regulatory changes could encourage growth in other products. On this point it is noteworthy that the SIVs that ultimately proved so damaging in the financial crisis were first created in 1988 — the year of the Basel Accord.23

History suggests that any fast-growing form of financial activity is a sensible place to start looking for risk and damaging linkages. Looking internationally, the low-yield environment has encouraged strong growth in some non-bank products engaging in maturity transformation. One example is US agency real estate investment trusts (REITs), which engage in leveraged maturity transformation by financing mortgage-backed securities with repurchase agreements (repos). The US Financial Stability Oversight Council has noted the potential for disruption to arise as a shock to agency REITs could induce repo lenders to raise margins or pull back funding which, in turn, could compel agency REITs to sell into a declining market.24 Inflows into mutual funds and exchange-traded funds that invest in less liquid assets such as high-yield bonds have been increasing, potentially creating pressures if redemption pressures were to increase suddenly.

**Collateral transformation** is also looming as an area worthy of, and receiving, close regulatory attention. This is the idea that regulatory reforms that require higher holdings of liquid assets (Basel III) and collateralisation of exposures (OTC derivatives reforms) will create collateral shortages, which can be alleviated with financial intermediaries arranging potentially complex collateral lending arrangements.25

Domestically, as noted, there has been a recent pick-up in securitisation. It is clear with hindsight that the previous growth was unsustainable and ultimately created some tensions, though securitisation activity has a long way to go to return to anywhere near those levels. Risk sensitivity among investors, borrowers and regulators,26 and the less favourable fundamentals for housing debt growth, are all factors likely to limit the potential for unsustainable growth and damaging linkages, though it will remain an area of regulatory attention.

On the principle of remaining vigilant on fast growing sectors, one potential area of interest is self-managed superannuation funds (SMSFs). The sector, which currently accounts for around a third...
of superannuation fund assets (Figure 13), has grown rapidly over the past decade and, since 2007, SMSFs have been permitted to borrow to buy assets. The sector is not ‘prudentially regulated’ in line with the broader superannuation industry, though as a personal investment vehicle the sector does not naturally fit what most would consider ‘shadow banking’. Regulators have been active in this area: in April 2013 ASIC released a report focusing on investor protection risks, and in January 2013 APRA clarified guidance that ADI loans to SMSFs for residential mortgage property should be treated as ‘non-standard’ because they may, as a result of the structures involved, have a different and potentially higher loss profile than standard loans.27

**Notes**

1. The authors are from the Financial Stability Department at the Reserve Bank of Australia. The views expressed in this paper are not necessarily those of our employer. We thank colleagues at the Reserve Bank for comments and assistance in preparation of this paper, including Mihovil Matic, Benn Robertson, Chris Stewart and Mustafa Yuksel.

2. For a summary see, Adrian and Ashcraft (2012b). Papers discussing potential regulatory responses relating to shadow banking include Adrian and Ashcraft (2012a), Bianchi and Drew (2010) and Davis (2010).


4. For example, there is less liquidity and maturity transformation for managed funds investing in listed equities than those investing in relatively illiquid assets such as property or mortgages. The FSB report also highlights the need to look beyond the aggregates for risk-based analysis.

5. Adrian and Shin (2009) note that banks have traditionally acted as a buffer for their borrowers in the face of deteriorating market conditions.


7. The Report (p. 15) states that ‘a significant part of growth in UK shadow banking assets is increased value of non-bank financial institution derivative holdings, which is matched by a commensurate increase in derivative liabilities, and is in line with trends in the gross market value of global OTC derivatives.’

8. See, for example, Moody’s (2013).


10. Recent data are from RBA Statistical Table B1; where earlier data were not available in B1, data come from tables 3.4a and 3.4b of RBA Occasional Paper No. 8. Life insurers include friendly societies; Superannuation assets for June 1987 are interpolated from March and September 1987.

11. It is worth reiterating the earlier caveat about the broad nature of the shadow banking definition, as the distinction between ‘prudentially regulated’ institutions and the ‘non-prudentially regulated’ or ‘shadow banking’ sector is not always clear. Some would contend that credit unions and building societies were ‘shadow banks’ during the period of financial regulation, but as they were subject to state-based supervision they are included in the prudentially regulated category here. More recently, self-managed superannuation funds sit somewhat awkwardly within the broader prudentially regulated superannuation category, but the characteristics of this product are not what would generally be considered shadow banking.


13. RBA (1991), which dissected the boom and bust in detail, barely mentioned securitisation.

14. The Reserve Bank of Australia has produced many pieces on these developments. See, for example, RBA (2003) and Debelle (2010).


16. SIVs were able to take on credit and liquidity risk without the prudential safeguards imposed on banks.


18. In addition, many of the worst-affected banks in the late 1980s episode were unlisted state government-owned banks or subsidiaries of foreign banks that were simply handled by foreign parents. Also, as noted previously, a distinguishing feature of the financial crisis was the evaporation of foreign buyers of RMBS, creating stresses that were not evident in the late 1980s/early 1990s: by the onset of the crisis, banks outside of the four majors were sourcing more than a quarter of funding from securitisation (see Littrell (2012)).

19. The original Capital Accord set down the agreement among the G-10 central banks to apply common minimum capital standards to their banking industries, to be achieved by end-year 1992. The standards almost entirely addressed credit risk, which the paper considered ‘the major risk’ faced by banks (BCBS 1988).

**FIGurE 13: Self-managed superannuation funds**

Sources: ABS; RBA.
20. In Australia, total regulatory capital rose from just under 10 per cent in 1990 to over 12 per cent in 1994 before easing back. Overseas, the average ratio of capital to risk-weighted assets of major banks in the G10 rose from 9.5 per cent in 1988 to 11.2 per cent in 1996 (BIS 1999).


22. Regular updates on global reforms are provided in ‘Chapter 4: Developments in the Financial System Architecture’ in the RBA Financial Stability Review.

23. See Adrian and Ashcraft (2012b, p. 6).


25. This issue is discussed briefly in Lowe (2013).

26. Littrell (2012) outlines that APRA’s prudential reforms around securitisation will address the lessons learned about agency, liquidity and business model risks.

27. See ASIC (2013) and APRA (2013).

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