

Financial Stability in a Low Interest Rate Environment: An Australian Case Study

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1. Introduction

This paper examines two periods in which the RBA and APRA worked cooperatively to moderate potentially dangerous Australian home lending booms. The first intervention, with the benefit of hindsight, proved successful; time will tell whether the second intervention proves equivalently successful.

This paper is also, to some extent, a personal reflection from two people who had been deeply involved in the policy response to financial stability risks in the post-global financial crisis period. Charles Littrell was Executive General Manager at APRA – first for the Policy and Statistics division and later for the Supervisory Support division – during the entire pre- and post-crisis period; Luci Ellis was head of the Reserve Bank’s Financial Stability Department from October 2008 until December 2016. In many respects, the evolving views and relationship of the agencies described below are also the authors’ own story.

To start the story, the next section gives some background on the evolution of Australia’s institutional arrangements for financial regulation. The paper then discusses how the institutional arrangements and past experiences of the agencies influenced their thinking about the implications of low interest rates for financial stability. That thinking helped frame the agencies’ responses to two episodes of strong housing market and household borrowing activity, which are detailed in Section 5. A brief conclusion follows.

2. Background to Australia’s Institutional Arrangements

The financial stability policy framework in Australia in the post-crisis period was shaped by some crucial prior decisions and events. Its institutional context had as its starting point the recommendations of the Wallis Inquiry (Financial System Inquiry 1997). This set up the institutional framework of an integrated prudential regulator (APRA), separate from the central bank, and a central bank with a more general financial stability mandate. Subsequent events, specifically the failure of the insurance company HIH, spurred some modifications to these arrangements (HIH Royal Commission 2003). APRA’s governance was changed; its resourcing was increased; and its mandate was clarified in a way that empowered it to respond to broader risks. Consequently, in the period leading up to the global financial crisis,

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Australia had a set of institutional arrangements that allowed policymakers to be proactive and empowered them to respond to financial stability risks.

In the initial phase after separation, APRA and the Bank set up formal and informal structures to ensure effective cooperation in achieving shared goals. The two agencies entered into a memorandum of understanding (MOU) that, among other things, set up a coordination committee made up of senior staff from each agency. These more formal arrangements were assisted, in the first instance, by existing personal relationships between RBA staff and former RBA staff at APRA. Over time, with turnover and attrition, these existing links could no longer be relied upon. The expectation of a duty to forge good working relationships had, however, already been set up. It was also supported by specific measures, such as the inclusion of a key performance indicator in the job description of the Bank's Head of Financial Stability Department requiring the incumbent to build and maintain good relationships with APRA.

One of the key decisions in the post-Wallis setting that turned out to be remarkably helpful was that the Bank elected not to retain a residual supervisory function once it was no longer the prudential supervisor of banks. Many other central banks in countries that had made similar institutional changes around the same time instead retained an independent on-site inspection function, on the grounds that the central bank needed this capacity for financial stability purposes. A common effect, unfortunately, was that the new supervisory agency and the central bank commenced operations as rivals rather than colleagues, and the new supervisory agency suffered from a lack of experienced bank supervisors.

The MOU between APRA and the Bank contemplated that Bank staff could accompany APRA staff on supervisory visits, which has indeed occurred. The Bank has also engaged in its own non-supervisory liaison meetings with selected banks ahead of the drafting of each half-yearly *Financial Stability Review*. But the Bank refrained from setting up a rival source of supervisory intelligence and influence, and therefore avoided diminishing the authority of the actual prudential supervisor. This marker of mutual respect between agencies seems to have been helpful in building relationships and cooperation, and avoiding misunderstandings or 'turf wars'.

Another useful decision in the post-Wallis environment was the government's allocation of a legislated financial stability mandate to APRA. (The Bank's financial stability mandate has never been explicit in legislation, but was referenced in the Treasurer's second reading speech for the Australian Prudential Regulation Authority Bill 1998. It was subsequently included in the Statement on the Conduct of Monetary Policy agreed between the Governor and the Treasurer.) Much of the post-crisis international policy debate has pointed to the limitations of a purely 'microprudential' approach to prudential regulation and supervision (FSB, IMF and BIS 2011a, 2011b; IMF 2013). Under this approach, the supervisor is assumed to be narrowly focused on the safety and soundness of individual financial institutions, rather than taking responsibility for the broader financial stability and risk environment (a 'macroprudential' approach). Regardless of whether or not this was a fair characterisation of the conduct of prudential supervision in other countries, it did not describe APRA's mandate or its approach. To give some examples:

- APRA conducted its first banking industry stress test in 2002/03, called 'Project Panama', which among other things led to substantial strengthening of bank capital requirements for home loans, and to stronger capital and reinsurance arrangements for lenders mortgage insurance (LMI) companies (Coleman *et al* 2005).
- APRA warned off the banking industry from material participation in subprime lending.
- From 2003, APRA amended its supervisory approach to ensure that the most resources, and the earliest responses to indications of weakness, would be applied to the largest, systemically important institutions (Littrell 2004). This is precisely the 'cross-section' dimension of macroprudential policy, as described in Borio (2003), though arrived at independently of the literature that identified it.
- APRA's policy infrastructure, notably in adopting International Financial Reporting Standards (IFRS) in 2005 and Basel II from 2005 to 2008, followed a consistently conservative line, which (along with other decisions) has led to Australian bank capital rules that are materially 'super-equivalent' to (i.e. stricter than) the international minimum standards (APRA 2016).

The adjustments to regulatory arrangements in the wake of the failure of HIH were also crucial to the resilience of these arrangements during the crisis. The Wallis Inquiry recommendations had been predicated on presumptions common in the North American and European regulatory debate: that market discipline would be superior to bureaucratic intervention; and that traded markets and investments would come to dominate banking. One implication of these presumptions was that, as market-based finance gradually supplanted the role of financial intermediation the prudentially regulated sector would fade in importance. Another implication was that smaller institutions, being relatively insulated from market discipline, required more prudential scrutiny than larger ones. The failure of HIH challenged those presumptions, prompting a rethinking of the importance of prudential supervision generally, and of the attention given to large entities in particular. A new Australia-specific consensus developed in favour of a strong and inquiring supervisor. The HIH Royal Commission recommended that APRA 'develop a more sceptical, questioning and, where necessary, aggressive approach to its prudential supervision of general insurers' (Recommendation 26). This more aggressive approach was not limited to general insurance: in Recommendation 28, the Royal Commissioner recommended that APRA 'develop systems to encourage its staff and management continually to question their assumptions, views and conclusions about the financial viability of supervised entities, particularly on the receipt of new information about an entity' (HIH Royal Commission 2003).

By the time the financial crisis began to hit major financial centres abroad, Australia had a reasonably well-developed framework for thinking about broader risks to the economy emanating from the financial sector. It also had mature arrangements for interagency cooperation, and these deepened further in response to the crisis. Therefore, unlike the authorities in some other countries, the Australian agencies did not have to change their approach significantly in response to the experiences of the crisis.

Some changes were nonetheless needed, mainly to adjust to the greater degree of post-crisis international policy activity. Both agencies were invited to join the Basel Committee on Banking Supervision (BCBS) in 2009. This required the Bank to develop a deeper understanding of the prudential framework, after a decade of being little involved in formulating prudential policy. In addition, the Bank's participation as a member of the Financial Stability Board (FSB) became more intensive, in line with the increased activity of the FSB relative to its predecessor, the Financial Stability Forum. As well as the direct implications of this for resourcing and the activities of senior Bank staff, this also necessitated more interagency cooperation with APRA and the other member agencies of the Council of Financial Regulators: the Australian Securities & Investments Commission (ASIC) and Treasury. Because much of this work involved the same senior staff, it tended to reinforce the strength of the relationships needed for effective day-to-day management of domestic risks.

3. How Institutional Arrangements and History Shaped the Philosophy of Financial Stability Policy in Australia

The institutions and events described in the previous section shaped the Australian agencies' approach to financial stability policy in a number of ways. Firstly, as noted above, APRA's financial stability mandate and approach meant that it was never narrowly microprudential in its outlook. Both the micro (institution-specific) and macro (industry- or system-level) perspectives were at play in the supervisory priorities APRA set over the past 15 years. More broadly, the Australian authorities came to understand that prudential tools were not the only ones available and necessary to the pursuit of financial stability. Macroprudential supervision was defined in Australia as being 'subsumed within the broader and more comprehensive financial stability policy framework' (RBA and APRA 2012), and a broader 'macro prudence' approach was articulated, being '[t]he way in which the public sector works collectively to promote financial stability' (Littrell 2013). This broader perspective became stronger and more explicit following the HIH failure. That experience had taught the authorities that even the biggest and most prominent institutions could fail, and that such failures could be very harmful.

Related to this, over the post-crisis period, the Australian authorities began to see their financial stability mandates as being more closely related to conditions in the non-financial sectors, especially households, rather than focused primarily on the financial sector. The RBA was already putting relatively more resources than some other central banks into analysing household and housing developments' implications for financial stability, even before the crisis (Ellis 2014b). That emphasis was validated by the experience of the crisis and by a careful reflection on the legislated mandate the Bank actually had – the economic prosperity and welfare of the people of Australia – in place of an explicit financial stability mandate.¹ Towards the end of this period, the Bank's public statements about its financial stability mandate were making it clear that its role was not to 'care about asset prices or credit for their own sakes', but rather, to improve the welfare of society, which is comprised of *people* (Ellis 2014c).

¹ See Clause 10(2)(c) of the *Reserve Bank Act 1959* (<https://www.legislation.gov.au/Details/C2015C00201>).

Secondly, the experience during the peak of the crisis underlined to the senior officials involved just how important it was to work closely together and to respect each other's expertise. Personal relationships and rapport were important – including our own – and needed to be built. As summarised by one of this paper's authors, 'a culture of cooperation, dialogue and mutual respect is more important than formalised arrangements' (Ellis 2012a).

Finally, an appreciation for the importance of supervision, along with the sensibilities of the senior people in both agencies (including the authors of this paper), drew them to develop an intellectual framework that was less model-driven and more behavioural than in some other countries. Two specific features of that framework stand out as having been influential in the development of the policy responses outlined in Section 5.

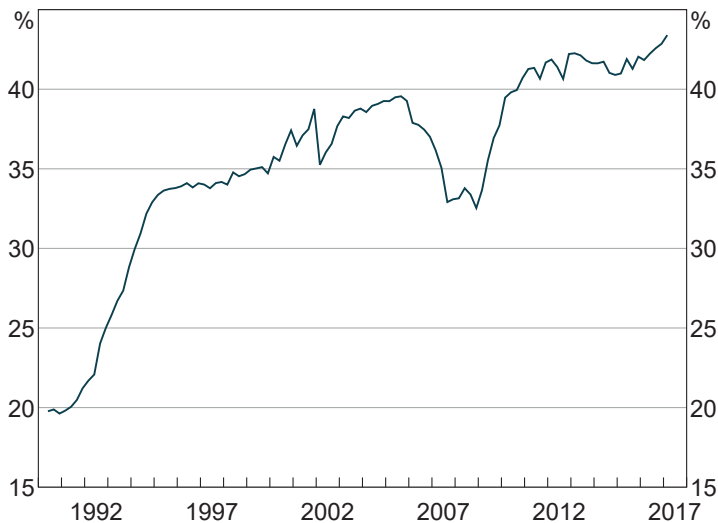
First, APRA was more willing to lean against banks' risk and capital choices where needed. This was enabled by a legislative mandate that gave APRA rule-making powers. But it was also made possible by an intellectual framework that recognised that the incentives of bank management often push them in the direction of taking more risk than is socially optimal. APRA's approach made no presumption that the 'market outcome' could be assumed to be 'optimal'.

Second, both agencies were highly aware of the importance of lending standards as a driver of risk in both the banking system and the non-financial sector. This view had percolated up in APRA through the experience of practical supervision. The Bank's view was also particularly influenced by the example of the US mortgage crisis, where a breakdown in lending standards was essential to the outcome (Ellis 2010, 2011a). Over time, an explicit view of lending standards as a multidimensional concept developed in the Bank (Ellis 2012b). This shared sensibility shaped the response to issues associated with mortgage lending standards in recent years, as discussed below, and in particular influenced the two agencies to avoid framing the issues solely, or even initially, in terms of high loan-to-valuation ratio (LVR) lending, as had been the case in some other countries.

4. Interpretation of the Effect of Low Interest Rates on Financial Stability

The connections between low interest rates and financial stability risk are of particular concern in a country like Australia, given some of its structural features. For example, the Australian banking system is heavily concentrated in its mortgage business, increasingly so in recent decades (Figure 1). The mortgage book is also overwhelmingly structured as variable-interest rate loans, and the fixed-rate loans that are available generally only have short fixed-rate periods (1–5 years, see Tsatsaronis and Zhu (2004)). Therefore, monetary policy decisions strongly affect the mortgage market and developments in the mortgage market are important for the stability of the banking system.

Figure 1: Bank's Domestic Housing Lending
Share of total resident assets



Source: APRA

Unlike some other countries' authorities and some international agencies, the Australian agencies have not tended to interpret movements in macro-level measures of indebtedness or asset prices as directly measuring changes in financial stability risk. The background to this more nuanced analysis was that Australia had changed from being a high-inflation country to a low-inflation country in the early 1990s; this change was cemented by the Bank's inflation-targeting regime. Over the course of the late 1990s and early 2000s, the consequences of this change, and some financial deregulation, became apparent in the housing and mortgage markets. The details of this change were explained by the Bank at the time (Stevens 1997; RBA 2003a, 2003b) and more recently (RBA 2014b, pp 14–42), so this paper will not repeat that material. The key message from that analysis is that the equilibrium sustainable ratio of household debt to household income is higher when nominal interest rates are (permanently) lower. This is largely because each individual new borrower can service a larger mortgage than when interest rates are higher, but with the same repayment.² Because of this, households would tend to bid up the price of the existing housing stock and the housing price-to-income ratio would also rise; this is exactly what happened.

These developments were an important aspect of the Australian agencies' thinking on the effects of low interest rates on financial stability. They did not immediately interpret any increase in indebtedness or price-to-income ratios as being synonymous with increased financial stability risks. Instead, they were more focused on how these macro-level developments translated into risk profiles at a more granular level. On the other hand, while

² There is an additional effect from the slower growth of nominal incomes, in that the individual debt-to-income ratios of households that borrowed do not decline as quickly as they would if inflation and nominal income growth were higher. In other words, the debt does not inflate away as quickly.

the increase in indebtedness and housing prices in the late 1990s and early 2000s was regarded as being potentially benign, it was already well understood that there was a limit to that transition. It was also understood that once that transition was complete, further rapid growth in credit and housing prices should be interpreted as less benign.

With this context in mind, the regulators in Australia interpreted most (though as noted below, not all) of the increase in housing prices or household debt relative to household incomes over the 10 years to around 2005 as being the result of the disinflation and deregulation described above. Although some speculative behaviour from both borrowers and lenders occurred in the late stages of the transition period, overall the key macro-level changes, such as to the household debt-to-income ratio, seemed likely to be sustained and sustainable. Subsequent events tended to support this view. A point of inflection seemed to have been reached around 2005: housing price growth slowed; household debt stabilised as a proportion of household income; the household saving ratio turned around and began to rise; and mortgage arrears rates stayed low overall. Some of these developments, particularly the rise in the saving ratio, might have been amplified by the (temporary) positive income effects of the large increase in the terms of trade and the resulting mining investment boom. But the slowdown in housing prices and credit growth was the opposite of what one might see if expected future income growth had increased because of the mining boom; clearly, the high incomes were understood to be transitory. This suggests that some other factor, such as the end of the transition to a new equilibrium, is likely to have been at play in producing the housing market outcomes. Also relevant was the tightening in prudential settings affecting the provision of mortgage finance and lenders mortgage insurance that followed on from the 'Project Panama' stress tests.

The focus on risk profiles at the granular level implied a need for disaggregated and distributional analysis. Past Bank work emphasised that most of the mortgage debt was held by higher-income households, the ones most able to service it (Ellis, Lawson and Roberts-Thomson 2003). But both agencies were highly aware that the 'average' or 'typical' borrower is unlikely to be the locus of financial difficulties or default risk. They were also influenced by the example of the United States, where a minority of borrowers (subprime, as well as borrowers of 'Alt-A' and other non-standard products) were nonetheless numerically important enough to pose issues for lenders. In a low interest rate environment, market segments that were particularly sensitive to incentives set by the level of interest rates, such as borrowers with interest-only loans, were understood to require particular attention.

In addition to this more structural analysis of a permanent change in (nominal) interest rates, the Australian authorities have long been highly alert to the connections between lower interest rates at a more cyclical frequency and a heightened potential for financial stability risks. The background to that awareness comes from the banking system's concentration in variable-rate mortgage exposures. This had increased in the wake of the period of banking system distress in the early 1990s. After that experience, most of the banking system chose to concentrate on mortgages and other lower-risk business. In effect, the banks switched, by acquisition and new business choices, to a common low-risk business model.

One of the policy consequences of this shift to a largely common business model was that APRA came to regard the mortgage business as the low-risk ‘ballast’ in the banking system, with the crucial caveat that home loan underwriting standards could not be allowed to materially slip. APRA therefore strives to ensure that the mortgage business of the banking sector remains low risk. Periods of cyclically low interest rates have tended to be met by increased supervisory attention on the risk profiles and underwriting practices for home lending. A recent example of this was the suite of supervisory measures announced by APRA in December 2014 (APRA 2014). Earlier examples included the changes to prudential requirements for banks and lenders mortgage insurers following the 2003 ‘Project Panama’ stress test, as already mentioned in Section 2 (Laker 2003).

Similarly, the Bank’s analysis of the connections between low interest rates and financial stability risks were shaped by the importance of the housing and mortgage markets in the transmission of monetary policy. Bank staff have long been conscious that monetary policy easing works through getting people to borrow more and take on more risk. This does not mean that rates should never be lowered because that might increase risks. Firstly, the financial stability mandate has never been interpreted to mean that risks should be driven to near zero, even if that were possible. Secondly, periods of slow growth and excess real-economy capacity are periods when some additional economic risks should be taken.

At the same time, policy easing in an environment of already low rates needs to be approached with some caution. This is because the physical realities of the property market imply sluggish adjustment in the stock of property, which can inherently generate cycles in prices and increases financial distress. Demand for property – and credit – is demand for a stock. But the supply induced, in the form of new construction, is only small relative to that stock, limiting the adjustment that is feasible in any one year. Moreover, a decline in interest rates pulls some housing construction forward, meaning that there is less incremental demand to be met in the future and therefore potentially leaving a ‘hole’ to be filled further out (Ellis 2015). Conventional models do not capture these mechanisms particularly well (Ellis 2014a). It should be noted that, relative to many other advanced economies, demand for housing in Australia exhibits a high background rate of expansion because of a relatively high population growth rate, as well as inward investment by foreigners.

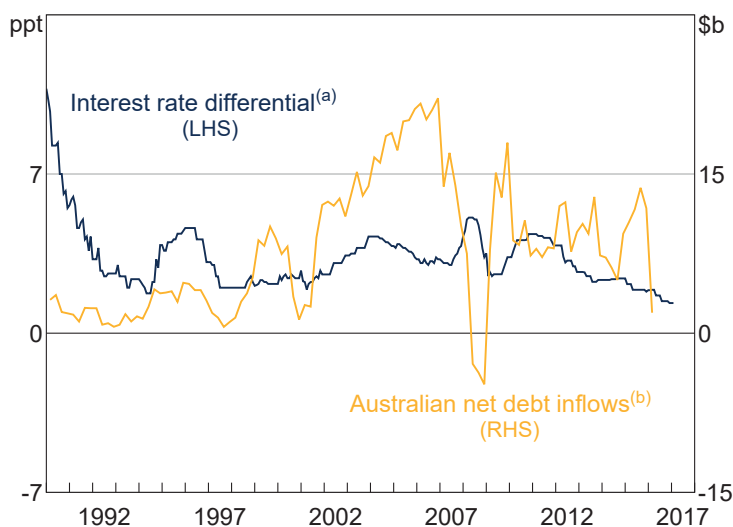
Caution is also needed because, after a long period of economic expansion and rising housing prices, some exuberance on the part of lenders and borrowers could be expected. One way this caution plays out is APRA’s focus through on-site examinations both on bank lending policies and on how these policies are reflected (or not) in each bank’s lending decisions.

Against that need for caution, the Australian policy environment includes some features that tend to mitigate the financial stability risks when interest rates are low. The first is the flexible inflation-targeting regime and floating exchange rate. Australia has a freely floating exchange rate regime and does not use monetary policy or other tools to target the level of the exchange rate. In general, the Australian dollar moves over medium to longer time horizons in ways that at least partially cushion Australia from economic shocks from abroad, including movements in the terms of trade. Because of this, the Bank is unlikely to set interest

rates lower than the level required by domestic economy considerations alone. International experience suggests that countries with fixed or managed exchange rate regimes are more likely to face challenges in balancing macroeconomic policy objectives and financial stability risks (Crowe *et al* 2013).

Another aspect of a floating exchange rate regime is that it makes it easier for the central bank to set monetary policy according to domestic conditions – even if the level of interest rates is therefore noticeably different from global levels – without generating excessive financial stability risks from the ensuing capital flows from abroad. The most direct reason why this is the case is that, under a freely floating exchange rate regime, these flows do not generate a balance of payments surplus and monetary expansion. In addition, the capital flows attracted by higher interest rates would bid the price of domestic currency up (the exchange rate appreciates); in other words, the flows are moving the price against themselves and making this ‘carry trade’ investment strategy less attractive. That ‘carry trade’ strategies are less attractive when the exchange rate is freely floating is suggested by the complete lack of relationship between interest rate differentials and private debt capital flows into Australia (Figure 2).

Figure 2: Interest Rate Differential and Debt Inflows



Notes: (a) Difference between Australia's target policy rate and the average of the target policy rates in the G3

(b) Four-quarter forward moving average

Sources: ABS; Central banks; RBA

Another mitigant to financial stability risks from low interest rates stems from the structure of Australia's retirement saving arrangements. In Australia, superannuation is compulsory for almost all employees and is structured into defined contribution, rather than defined benefit, plans. As a result, a large fraction of financial sector assets – representing more

than 100 per cent of GDP – is unleveraged. Much of this asset pool is held on behalf of younger beneficiaries with very long investment horizons. Fund managers do not have to take extra risk to meet return hurdles when interest rates are low, because they have not made any particular promises about returns, as would be the case for a defined benefit fund (RBA 2014b, pp 171–189). There is, therefore, arguably less of a tendency for the Australian asset management industry to engage in ‘search for yield’ behaviour when rates are low than would be the case in some other countries where defined benefit pensions (and similar life insurance products) are more common (Antolin, Schich and Yermo 2011; FSB 2017).

More recently, nominal interest rates have declined further, relative to the averages seen in the rest of the inflation-targeting period. This has raised the question of whether Australia is seeing another step-down in the equilibrium nominal interest rate, and hence an increase in the equilibrium household debt-to-income ratio. This possibility cannot be entirely ruled out, but seems unlikely. Given that the Bank’s inflation target has not changed, a decline in the equilibrium nominal interest rate can only come from a decline in the equilibrium real interest rate. If that is the case, in the current circumstances it cannot be a response to past financial deregulation or a decline in the inflation risk premium, because no such deregulation has occurred recently and the inflation risk premium is unlikely to have declined in recent years. A decline in real interest rates could occur because trend economic growth has declined, but that is not a scenario in which an increase in household indebtedness would be regarded as benign. More importantly, the cost of assuming that the equilibrium debt-to-income ratio has risen, and being wrong about that, has far more negative implications for financial stability and economic welfare than the cost of making the opposite mistake. The authorities have therefore chosen not to interpret recent developments as an equilibrium phenomenon.

5. Policy Actions Taken in Recent Years

5.1 Countercyclical intervention 1.0: 2002–05

By late 2002, APRA had largely absorbed the lessons from the HIH and other failures, and had fundamentally restructured its approach to supervision and regulation. Among many other changes, APRA commenced looking harder for signs of emerging systemic risks. Given that the banking system comprises the largest part of the financial system, and loans backed by housing are the largest item on the banking industry’s balance sheet, home lending was a natural early focus.

This focus turned out to be fortunate, because from the late 1990s to the early 2000s the home lending industry and its associated service providers had succeeded in greatly increasing housing credit, but partially at the cost of degrading lending standards. While APRA was observing potentially reckless lending behaviour from individual lenders, the RBA was regarding the aggregate credit indicators with increasing disquiet, even in the context of a shift to lower interest rates and higher equilibrium prices.

Accordingly, from 2002 and continuing through 2005, both agencies commenced a considered and coordinated intervention which sought to improve the quality of Australia’s home lending, with ‘quality’ defined at both the macro and micro levels.

APRA's focus in this work was largely upon ensuring that each bank's loan portfolio was soundly capitalised and well managed. Major elements in this work included:

1. Public and private warnings intended to discourage reckless lending.³ Among other things, and as it turned out presciently, APRA warned off the industry from subprime lending, and instituted discouraging measures for other unconventional lending, such as low doc.
2. In 2003, APRA conducted one of the earliest 'modern' industry stress tests, which focused upon home lending.⁴ This stress test indicated that the industry was generally in reasonable shape with respect to home lending, but a number of outlier institutions and several common deficiencies were identified for supervisory follow-up. This test and the resultant publicity also helped to ensure that bank boards understood the need to focus upon risks in home lending (Littrell 2004).
3. In January 2003, APRA released a report and raised standards for lending through brokers (Chanthivong, Coleman and Esho 2003).
4. In June 2003, APRA disallowed capitalised expenses (such as broker commissions) relating to loan originations from the prudential balance sheet (Kingston and Maddox 2003).
5. In November 2003, APRA announced an intention to switch from the Basel I 50 per cent risk weight for home loans, to a three-factor model based upon LVRs, insurance status, and the conventionality (or not) of the loan (APRA 2003). The resulting risk weights ranged between 50 and 100 per cent. This three-factor approach carried over to APRA's implementation of the Basel II standardised approach in 2008 (with the safest home loans being reduced to 35 per cent risk weights – the previous approach was therefore super-equivalent to the Basel II standard).
6. After further stress testing, APRA announced its intention to approximately double LMI capital requirements, and to tighten up business arrangements between LMI companies and banks, and between LMI and reinsurance companies (Coleman *et al* 2005).

The RBA's actions during this period fell into two camps:

1. Steady interest rate increases, justified by generally strong economic conditions, but with a clear reference to buoyant conditions in home lending and housing prices.⁵
2. Enthusiastic use of the bully pulpit. A partial list includes:
 - (a) The RBA's inaugural half-yearly *Financial Stability Review* in March 2004 devoted six of its opening seven paragraphs to issues associated with a home lending boom that had speculative elements (RBA 2004).
 - (b) The RBA commissioned a Roy Morgan Research survey in early 2005 on household behaviour towards home equity (Schwartz *et al* 2006).
 - (c) Many references in speeches by senior staff, among which Governor Macfarlane's speech in April 2003, entitled 'Do Australian Households Borrow Too Much?', is a representative example (Macfarlane 2003).
 - (d) Many references to home loan risks in Parliamentary testimony.

3 See, for example, APRA's warning to credit unions and building societies on overexuberant lending practices (APRA 2002).

4 In fact, the BCBS's initial guidance document on stress testing was drafted by a former APRA officer, based in large part on the lessons from APRA's initial and follow-up stress testing.

5 See, for example, the double rate increases in May and June 2002, and the November 2003 rate increase announcement.

One particularly important piece of public communication was the Bank's submission to the Productivity Commission's Inquiry into First Home Ownership (RBA 2003b). This longer document provided an opportunity for a more complete analysis of the drivers of the increase in housing prices in the preceding years. In particular, it was possible to draw out the role of increased demand in generating this growth and, therefore, divert the attention of some observers that had previously been exclusively focused on supply – an exclusivity that was, in the Bank's view, probably erroneous. The submission made a particular issue of the role of small-scale property investors in the household sector buying properties to rent out to other households. This sector seems to have been something of a bellwether of risk and speculative intent, and therefore the Bank paid particular attention to it (and continues to do so). This understanding was informed by a Bank study tour of Canada, the Netherlands, the United Kingdom and the United States that was undertaken as part of the work going into the submission. Dr Ellis was one of the two Bank staff involved in that study. In addition to the public bully pulpit, the Governor and other senior staff also jawboned in private, which both encouraged APRA's interventions, and provided useful support for them with government and industry.

As a result of the above initiatives, the Australian banking industry entered the global financial crisis with a sounder and better capitalised home loan portfolio than would have otherwise been the case.

5.2 Countercyclical intervention 2.0: 2014–17

From 2008 through 2010, the public sector's focus was on encouraging the banking industry not to become timid, in the face of many temptations to do so. This work has been well publicised elsewhere and included deposit guarantees, new debt guarantees, fiscal stimulus, and the like. While APRA did not cease to focus upon high-quality home lending, the regulatory stance was generally less constraining. Significant supervisory actions were occurring behind the scenes, but these were more in the usual mode of engagement with boards to influence behaviour, rather than through public and industry-wide actions. The effects of this were somewhat discernible in the data: for example, the share of high LVR mortgage lending reduced over the course of 2014, even before any publicly announced actions were taken (RBA 2014a).

In the early 2010s, the mining investment boom, which had proven so helpful during the global financial crisis, was also reaching its end. From a macroeconomic perspective the RBA was happy to see other construction activity, including a large increase in activity associated with new housing construction, take up the slack until around 2013.

By 2014, however, both the macro- and micro-related comforts with the large increases in home lending had run their course. APRA was observing more marginal lending decisions by many banks. The RBA could see potentially worrisome trends in the aggregate statistics. By the second half of 2014, therefore, all four members of the Council of Financial Regulators (APRA, RBA, ASIC and Treasury) were comfortable that a period of constrained growth for home lending would be the most sensible strategy.

Accordingly, in December 2014, APRA wrote to the banking industry, asking them to maintain firmer underwriting standards, and suggesting a benchmark of 10 per cent growth in investment property lending. APRA then commenced a comprehensive increase in supervisory pressure to ensure these suggestions were met, which made real progress by mid 2015, and was largely complete by the end of 2015.

Following on from the December 2014 letter, APRA's supervisors also commenced a comprehensive and detailed review of bank home loan underwriting policies, particularly borrower serviceability models (a Bank officer participated in the review team). APRA uncovered information confirming its suspicions that marketing pressure had often overbalanced bank risk management caution, with the result being that banks were in some instances willing to lend more than was prudent to their most aggressive borrowers. By various means, APRA has encouraged the banking industry to adopt more conservative assumptions in their underwriting models, which as a general rule has reduced the maximum potential loan for some classes of borrowers by around 15 per cent (Richards 2016). This reduction only affected borrowers seeking to maximise their borrowings, not the average borrower, but that is exactly how one can lean against developing risks most efficiently.

In its supervisory work, APRA formed the view that institutional arrangements in banks had tended to favour marketing-driven relaxation of underwriting quality, rather than prudence-driven risk management decisions. This is unsurprising 25 years into a historic economic expansion. At any rate, APRA determined that its prudential practice guide on home lending, which had been issued in 2014, was not sufficiently helpful to bank risk managers. Accordingly, a new and more directive version of this prudential guidance was issued for comment in 2016, and finalised in 2017 (APRA 2017).

As an unrelated but highly relevant initiative, the Financial Systems Inquiry recommended that APRA narrow the disparity between the internal models based and standardised approaches to home loan credit risk.⁶ APRA announced a change in 2015 that had the effect of increasing major bank equity-to-asset ratios for home lending by about 40 per cent. This increase was from a ratio of 1.5 per cent on average, to 2.5 per cent, compared with approximately 4 per cent for 'standardised approach' banks. Finally, APRA introduced some helpful statistical changes intended to clean up the relevant data, and also began publishing aggregate and industry segment exposures to residential and commercial property lending (available at <http://www.apra.gov.au/adi/Publications/Pages/Quarterly-ADI-Property-Exposures-statistics.aspx>).

The Bank's contribution in this phase was primarily centred around communication and providing analytical input. In the period around 2012–13, when housing prices were beginning to increase, Bank officials took a relatively balanced stance, cautioning against 'unrealistically alarmist' interpretations of the data (Edey 2013) or reading too much into minor price movements (Ellis 2011b). The intended message was that aggregate housing prices were not, in and of themselves, a risk indicator or a target of financial stability policy.

6 Recommendation 2, Financial Systems Inquiry (2014).

Over the course of 2013 and 2014, the Bank began to communicate increasing concern about several developments in housing and mortgage markets. First, lending to investors for housing (mainly buy-to-let) had picked up sharply, especially in New South Wales and Victoria. The experience of 2002–03 had primed senior Bank staff to interpret strong investor lending as a sign of speculative intent. Second, both APRA's and the Bank's information were pointing to an unwelcome easing in some aspects of lending standards. Third, inner-city apartment construction had picked up, primarily in Melbourne and Brisbane (RBA 2015). Although additional supply might be expected to help take the pressure off prices, Bank staff were concerned that this new supply was unusually concentrated, both geographically and in the types of property being built, in ways that could make this market segment more vulnerable to a downturn. They were also mindful that loans to property developers tended to pose more risk to lenders than mortgage loans to households (Ellis, Kulish and Wallace 2012; RBA 2016).

In addition to APRA's focus upon sound lending from the bank perspective, for many years ASIC has focused upon responsible lending from the borrower's perspective. ASIC has taken enforcement action against dishonest sales practices in real estate, and has successfully prosecuted a number of home loan brokers who have manufactured fraudulent loan applications (e.g. ASIC 2016). APRA and ASIC are continuing to investigate the degree to which banks might be exposed to incorrect or fraudulent home loan application data.

Although it is arguably still early days, the measures APRA and ASIC announced in late 2014 had some observable success. How the industry would respond was not predictable ahead of time. After an initial period of transition, the ultimate outcomes were achieved about a year later and were broadly satisfactory. Credit growth and new lending moderated for a period (Figure 3), and the composition of the new lending had a better risk profile (Figure 4). Importantly, high LVR lending never really reached worrying levels during this period. The few lenders that had particularly high shares of such lending in prior years had already been induced to pull back on this kind of activity by APRA's normal supervisory activities (RBA 2014a). Calls by some observers during this period for APRA to put quantitative constraints on high LVR lending therefore struck the agencies as somewhat misdirected. The issues, rather, were with serviceability, a dimension of lending standards that has many moving parts and is therefore not especially amenable to quantitative restrictions. That said, APRA's Prudential Practice Guide did impose some quantitative restrictions, specifically on the interest rates used in the repayment calculations determining maximum allowable loan size.

Figure 3: Housing Credit Growth
Six-month-ended annualised

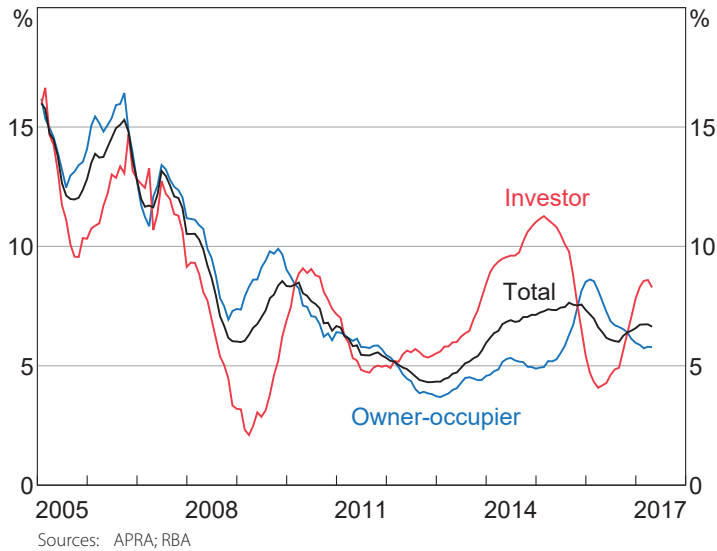
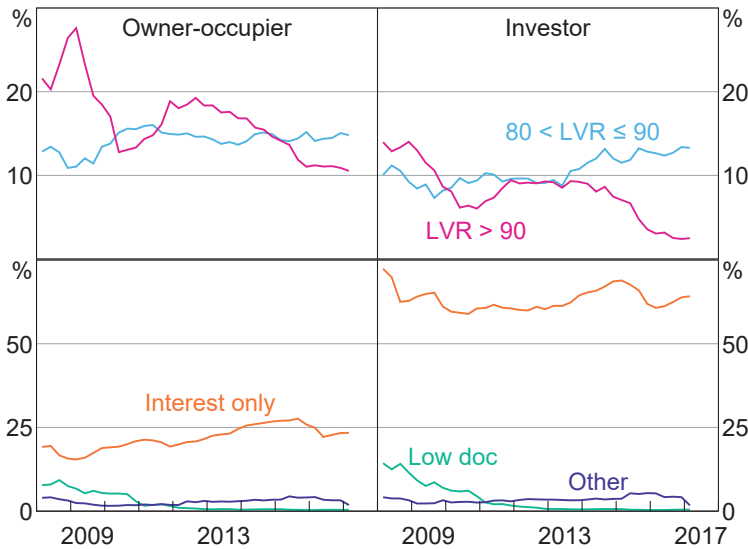


Figure 4: ADI's Housing Loan Characteristics
Share of new loan approvals



Notes: Series are break adjusted for reporting changes; 'Other' includes loans approved outside normal debt-serviceability policies and other non-standard loans; 'Interest only' is seasonally adjusted
Sources: APRA; RBA

One of the challenges in calibrating the policy measures and communicating the agencies' concerns was that neither agency felt that the risk outlook was cause for extreme alarm. Neither agency viewed the risk in the mortgage book, or the dynamics in the mortgage market, as likely to create a crisis or cause a bank to fail. While the increase in indebtedness and weakening in lending standards made the sector more vulnerable to a negative shock emanating from elsewhere in the economy, or overseas, this would only exacerbate a low-probability scenario, not create it. Some procyclicality in housing market dynamics was envisaged, but again, this fell well short of a future crisis. It would therefore have been difficult to justify draconian measures. Similarly, it would have been hard to justify the kinds of policy responses that had been employed in recent years based only on a decision framework that focused on 'bubbles'. Housing prices were not obviously at odds with 'fundamentals', such as strong population growth, as much of the private sector commentary over this period highlighted. Instead, a risk management approach of being alert to changes in resilience to shocks was a better characterisation of the agencies' framework.

Another challenge was maintaining public focus on the aims of policy – maintaining prudent lending standards and resilience to shocks – rather than more accessible metrics such as housing price growth. Both APRA and the Bank reiterated this message in speeches and testimony. It is not clear that these communications were completely effective, given the public attention on housing prices as an indicator of affordability.

A third challenge in calibrating the policy response was Goodhart's law: the likelihood that an empirical regularity will no longer be reliable once it is exploited for policy purposes. This is particularly the case in the prudential realm, where lenders and borrowers have incentives to find a mutually agreeable contract that is not restricted by regulatory constraints. APRA's 10 per cent benchmark on investor lending portfolio growth is arguably an example of this phenomenon, given that lenders initially redirected their competitive enthusiasm into owner-occupier lending, especially refinancing where the valuation of the collateral is less certain than a recent market sale price would be.

6. Conclusions

Over recent decades, Australia has been well served by a strong, forward-looking supervisor and good relationships between the supervisor and the other regulators, including the central bank and Treasury. It has also been well served by a macroeconomic policy framework that supported financial stability goals. Given the potential financial stability consequences of low interest rates, it is important to ensure that interest rates are low only when the economy genuinely needs them to be low. Having your own monetary policy (and by implication, a freely floating exchange rate) makes this feasible. Having an inflation target that allows some flexibility in the speed of return to the target also helps. Faced with a macro need for low interest rates, but worries about a home lending boom, prudential regulators can take supervisory and regulatory steps to retard aggressive lending for targeted sectors. We are confident that such steps will work in the short to medium term. It is unclear if tighter prudential regulation can permanently offset lower rates in the long term.

How much of the low level of interest rates can be attributed to secular, permanent, drivers versus cyclical might affect how much of the resulting increase in indebtedness the authorities would want to accommodate. It is important to be mindful that debt burdens inflate away more slowly when inflation (and thus nominal income growth) is low. In the end, though, the interaction between nominal interest rates and serviceability tests means that a permanent disinflation effectively eases an artificial credit constraint on new borrowers, created by high inflation. In this sense, its effects should probably be accommodated, as long as one is sure that the change is genuinely secular and permanent.

It is less clear whether the effects of cyclically low interest rates on debt levels should be accommodated. Ultimately, this will have to be reversed, which could be difficult for some borrowers and may involve some asymmetries in the adjustment. But shutting off this response entirely is not practical, because cyclically low interest rates are a product of the monetary policy stance, and monetary policy works in part by encouraging more borrowing. As a result, low interest rates tend to magnify both the upswing and the downswing in prices of leveraged assets, thereby also magnifying the potential for financial distress.

One issue from low nominal interest rates is that the central bank has less room for conventional monetary stimulus. For the regulator, this affects the calculation of how much capital is necessary in the banking system. Loss of shock absorption in monetary policy may require additional shock absorption in capital requirements. As a corollary, low interest rate strategies probably become more flexible and less risky if they are combined with effective and proactive prudential supervision of speculative lending. On the other hand, repeated episodes of success in managing these challenges could be leading both lenders and borrowers to underestimate risks of upswings in housing markets.

References

- Antolin P, S Schich and J Yermo (2011)**, 'The Economic Impact of Protracted Low Interest Rates on Pension Funds and Insurance Companies', *OECD Journal: Financial Market Trends*, 2011(1), pp 237–256.
- APRA (Australian Prudential Regulation Authority) (2002)**, 'APRA Calls on Credit Unions and Building Societies to Review Property Lending Practices', Media Release 02.37, 19 September.
- APRA (2003)**, 'APRA Proposes Changes to Home Loan Risk Weighting', Media Release 03.75, 27 November.
- APRA (2014)**, 'APRA Outlines Further Steps to Reinforce Sound Residential Mortgage Lending Practices', Media Release 14.30, 9 December.
- APRA (2016)**, 'International Capital Comparison Update', *APRA Insight*, Issue 2, Article 1.
- APRA (2017)**, 'Prudential Practice Guide APG 223 – Residential Mortgage Lending', February.
- ASIC (Australian Securities & Investments Commission) (2016)**, 'ASIC Permanently Bans Aussie Home Loans Mortgage Broker', Media Release 16-358MR, 20 October.
- Borio C (2003)**, 'Towards a Macroprudential Framework for Financial Supervision and Regulation?', BIS Working Papers No 128.
- Chanthivong A, ADF Coleman and N Esho (2003)**, 'Report on Broker – Originated Lending: Results of a Survey of Authorised Deposit-Taking Institutions, Undertaken by the Australian Prudential Regulation Authority', January.
- Coleman A, N Esho, I Sellathurai and N Thavabalan (2005)**, 'Stress Testing Housing Loan Portfolios: A Regulatory Case Study', Working Paper, Australian Prudential Regulation Authority, September.
- Crowe C, G Dell'Ariccia, D Igan and P Rabanal (2013)**, 'How to Deal with Real Estate Booms: Lessons from Country Experiences', *Journal of Financial Stability*, 9(3), pp 300–319.
- Edey M (2013)**, 'Panel Discussion', Remarks given at the Financial Services Institute of Australasia (FINSIA) Financial Services Conference 2013, Sydney, 18 September. Available at <<http://s3-us-west-2.amazonaws.com/brr-streamguys/files/RBA/sp-ag-180913/index.htm>>.
- Ellis L (2010)**, 'The Housing Meltdown: Why Did It Happen in the United States?', *International Real Estate Review*, 13(3), pp 351–394.
- Ellis L (2011a)**, 'Eight Policy Lessons from the US Housing Meltdown', *Housing Studies*, 26(7-8), pp 1215–1230.
- Ellis L (2011b)**, 'The Platypus Moment: Rents, Risks and the Right Responses', Address given to The Paul Woolley Centre for the Study of Capital Market Dysfunctional Conference 'Allocation of Financial Sector Rents across Society', Sydney, 13–14 October.
- Ellis L (2012a)**, 'Macroprudential Policy: A Suite of Tools or a State of Mind?', Address given to The Paul Woolley Centre for the Study of Capital Market Dysfunctional Conference 'Are Markets the Problem or the Solution? The Role of Regulation in Financial Markets', Sydney, 11–12 October.
- Ellis L (2012b)**, 'Prudent Mortgage Lending Standards Help Ensure Financial Stability', Address given to the Australian Mortgage Conference 2012 'A Brave New World – Challenges in a Changing Market', Sydney, 23 February.

Ellis L (2014a), 'Future Directions in Financial Stability Analysis: Learning from Others, Learning from the Past', Address given to the Paul Woolley Centre for the Study of Capital Market Dysfunctionality Conference, Sydney, 9 October.

Ellis L (2014b), 'Space and Stability: Some Reflections on the Housing–Finance System', Address given to the CITI Residential Housing Conference, Sydney, 15 May.

Ellis L (2014c), 'Why Financial Stability Matters, and What We Can Do about It', Address given to the University of Adelaide, Adelaide, 4 June.

Ellis L (2015), 'Property Markets and Financial Stability: What We Know so Far', Paper presented at the University of New South Wales (UNSW) Real Estate Symposium 2015, Sydney, 8 September.

Ellis L, M Kulish and S Wallace (2012), 'Property Market Cycles as Paths to Financial Distress', in A Heath, F Packer and C Winsdor (eds), *Property Markets and Financial Stability*, Proceedings of a Conference, Reserve Bank of Australia, Sydney, pp 109–132.

Ellis L, J Lawson and L Roberts-Thomson (2003), 'Housing Leverage in Australia', RBA Research Discussion Paper No 2003-09.

Financial System Inquiry (1997), *Financial System Inquiry Final Report*, (S Wallis, Chair), Australian Government Publishing Service, Canberra.

Financial System Inquiry (2014), *Financial System Inquiry Final Report*, (D Murray, Chair), Financial System Inquiry, Canberra.

FSB (Financial Stability Board) (2017), 'Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities', January.

FSB, IMF and BIS (FSB, International Monetary Fund and Bank for International Settlements) (2011a), 'Macroprudential Policy Tools and Frameworks: Progress Report to G20', October.

FSB, IMF and BIS (2011b), 'Macroprudential Policy Tools and Frameworks: Update to G20 Finance Ministers and Central Bank Governors', February.

HIH Royal Commission, The (2003), *The Failure of HIH Insurance, Volume 1: A Corporate Collapse and Its Lessons*, (The Hon Justice N Owen, Commissioner), The HIH Royal Commission, Sydney.

IMF (2013), 'Key Aspects of Macroprudential Policy', IMF Policy Paper, June.

Kingston L and H Maddox (2003), 'Policy Position Paper on the Prudential Treatment of Capitalised Expenses: Results of a Survey of Authorised Deposit-Taking Institutions, Undertaken by the Australian Prudential Regulation Authority', ADI Consultation Package, June.

Laker J (2003), 'The Resilience of Housing Loan Portfolios – APRA's "Stress Test" Results', Address given to Securities Institute of Australia, Sydney, 9 October.

Littrell C (2004), 'The Future of Prudential Regulation in the Australian Financial Services Sector', Presentation given at the Retail Financial Services Forum, Sydney, 26 August.

Littrell C (2013), 'Macro Prudence vs Macro-Prudential Supervision', Address given to Macquarie University Centre for Financial Risk Financial Risk Day 'Financial Stability, Sovereign & Systemic Risk', North Sydney, 22 March.

Macfarlane IJ (2003), 'Do Australian Households Borrow Too Much?', Address given to the Sydney Institute, Sydney, 3 April.

RBA (Reserve Bank of Australia) (2003a), 'Household Debt: What the Data Show', *RBA Bulletin*, March, pp 1–11.

RBA (2003b), *Submission to the Productivity Commission Inquiry on First Home Ownership*, Occasional Paper No 16, Reserve Bank of Australia, Sydney.

RBA (2004), *Financial Stability Review*, March.

RBA (2014a), *Financial Stability Review*, September.

RBA (2014b), *Submission to the Financial System Inquiry*, Reserve Bank of Australia, Sydney, March.

RBA (2015), *Financial Stability Review*, March.

RBA (2016), *Financial Stability Review*, October.

RBA and APRA (2012), 'Macroprudential Analysis and Policy in the Australian Financial Stability Framework', September.

Richards H (2016), 'A Prudential Approach to Mortgage Lending', Address given to Macquarie University Centre for Financial Risk Financial Risk Day 'Banking, Investment and Property Risk: Booms, Bubbles & Busts', Sydney, 18 March.

Schwartz C, T Hampton, C Lewis and D Norman (2006), 'A Survey of Housing Equity Withdrawal and Injection in Australia', RBA Research Discussion Paper No 2006-08.

Stevens G (1997), 'Some Observations on Low Inflation and Household Finances', Address given to the Real Estate Institute of Australia Conference on 'New Horizons for Property', Canberra, 8 October.

Tsatsaronis K and H Zhu (2004), 'What Drives Housing Price Dynamics: Cross-Country Evidence', *BIS Quarterly Review*, March, pp 65–78.