

Macroprudential Policy: Past, Present and Future

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Macroprudential Policy: Past, Present and Future

Kia ora tatou, it is great to be here with you today to talk about the important role of macroprudential policy in the management of financial stability.¹

It is six years now since macroprudential policy was established in New Zealand via a policy memorandum with the government in May 2013, and loan-to-value ratio (LVR) restrictions were first implemented in October 2013.² At its introduction, we committed to reviewing the policy's efficacy after five years; most of my talk today is drawing on that recently completed review and the lessons we drew for how we use macroprudential policy in the future.³

Macroprudential policy in some ways is new wine in old vessels. Direct restrictions on the borrowing capacity of households, such as the LVR instrument, are novel for New Zealand's recent history. More than 30 years ago the removal of a wide range of restrictions on borrowing, including interest rate controls and government directives on bank lending to various industries, led to significant improvements in the efficiency of the financial system.

We don't want to undo the fruits of these reforms, so why did we bring lending restrictions back? International experience and research has demonstrated that good regulations – including macroprudential policy such as targeted borrower restrictions – are beneficial for promoting financial stability. And financial stability is very worthwhile, because wellbeing is seriously harmed by financial crises.

With evidence from over 140 banking crisis around the world over the past fifty years to draw on, we can clearly see the immense impact those countries experience in terms of lost economic growth, increased public debt and unemployment rates. Furthermore, these adverse economic impacts tend to be more severe for the most vulnerable in society, which ultimately translates into a deterioration in social cohesion and the quality of life. While in New Zealand the lack of recent severe downturns could cloud our sense of risks, the international evidence demonstrates their profound economic impacts and serves as a lesson for us too.

My speech from earlier this week outlined the Reserve Bank's overall prudential framework for safeguarding financial stability.⁴ Macroprudential policy is one key part of this prudential framework. We want to use macroprudential tools when risks are particularly high, to build resilience among banks and households, and to mitigate the economic cost of a future crisis.⁵

My talk will cover three broad issues. Firstly, how does macroprudential policy mitigate risks to the financial system? Secondly, looking back, has the Reserve Bank's macroprudential policy enhanced

¹ I am very grateful to Bruce Lu for considerable assistance in the preparation of this speech, along with valuable comments from other Reserve Bank colleagues.

² The loan-to-value ratio is a measure of the size of the loan relative to the value of the borrower's collateral held against the loan, usually expressed as a percentage.

³ Lu (2019) assesses the effectiveness of loan-to-value restrictions in enhancing financial stability, and looks for any side effects. Ovenden (2019) discusses the Reserve Bank's strategy for operating macroprudential policy.

⁴ Bascand (2019).

⁵ Macroprudential policy in the New Zealand context refers to policies with a time-varying dimension, although internationally the term is broadly used to refer to prudential policies that are focused on the financial system.

financial stability, and were there any side effects? Lastly, I want to discuss how macroprudential policy should be governed, and the Reserve Bank’s approach to using the tools.

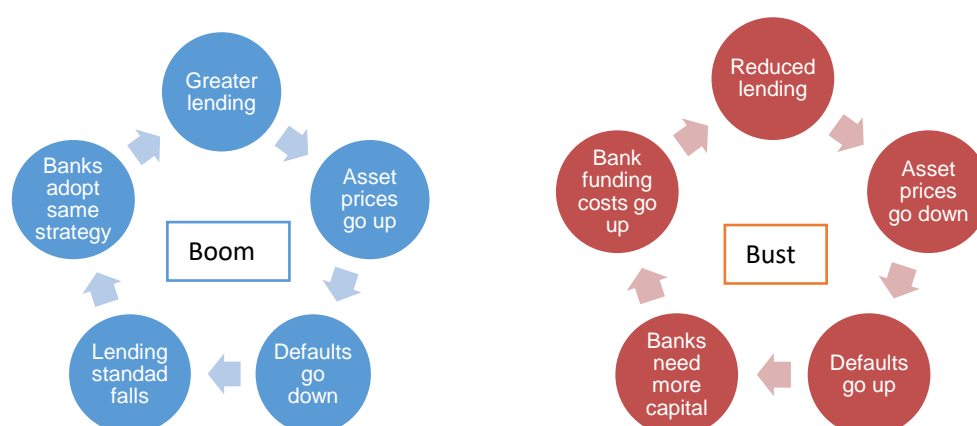
Part 1 – The role of macroprudential policy

To start with, let’s take a look at how systemic risks are created from the boom and bust in the financial cycle, and how macroprudential policy can increase resilience of banks and households when those risks are high.

When the economy is doing well, banks face competitive pressure to relax their lending standards. When homeowners experience house price inflation, their access to credit will generally increase. As a result, lending to less credit-worthy borrows can increase to an extent that is harmful to society (figure 1), without individual lenders bearing the full cost of higher debt levels.

It’s no surprise that those dynamics can apply in reverse when the economy weakens: as household incomes fall, the ability of borrowers to service debt is undermined, and defaults increase. This produces losses in the banking system and can trigger a fire-sale of housing, which compounds the downturn in house prices. In this situation, the banks respond by become significantly less willing to lend, making the downturn in the economy more severe and the recovery slower than it need be.

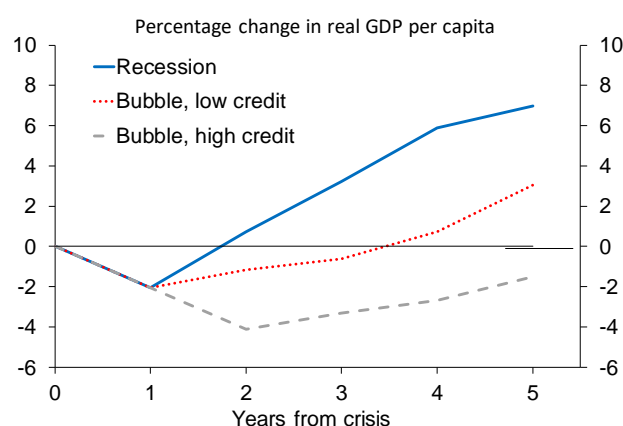
Figure 1: Boom-bust financial cycles



Based on a large sample of downturns across many countries, we understand that the occurrence of a house price bubble and strong credit growth in the upswing of a financial cycle tend to be followed by deeper recessions, in terms of lost GDP per capita and increased unemployment (figure 2).⁶

⁶ Jorda et al. (2013), Bridges et al. (2017), and Aikman et al. (2018). For an overview of financial stability risks from housing market cycles, see Thornley (2016). Figure 2 shows that a recession tends to be more severe, in terms of lost GDP per capita, if it is immediately preceded by an asset price bubble, and be even more severe if preceded by both an asset price bubble and strong credit growth.

Figure 2: The role of asset bubbles and credit in the severity of recessions (1870-2013)



Source: Jorda et al (2015)

Our prudential framework for safeguarding financial stability is more than just our macroprudential policy (Table 1).⁷ Our framework includes a minimum level of capital and liquid assets that banks must hold, to ensure they remain solvent and can retain market confidence during periods of severe stress. We call these our baseline prudential buffers. In cases of bank distress or failure, there are procedures in place to carefully manage the situation and limit the impact. We use macroprudential policy to build an additional layer of protection if risks are particularly high at a point in time.

It's important to remember that macroprudential tools are complementary to a strong set of baseline prudential buffers, and will be ineffective at promoting lending during hard times if banks are unable to remain solvent or retain market confidence. And prompt use of macroprudential tools reduces the likelihood that prudential buffers are drawn on.

The Reserve Bank's LVR policy, that's our loan-to-value ratio policy, is the most well-known tool of macroprudential policy and upholds lending standards during the credit upturn, thereby lowering the debt burden of households ahead of a downturn. In the macroprudential toolkit⁸, we also have capital and liquidity tools that build additional buffers for banks, putting them in a better position to keep lending to the economy when things turn sour. While the liquidity tool – minimum core funding requirements – is in place, we haven't adjusted it so far to limit risks to financial stability. So in practice our active use of macroprudential policy pertains only to LVRs.

In addition to its financial stability role, the Reserve Bank also has responsibility for price stability. Macroprudential policy and monetary policy are set for different objectives, but they do interact. For example, the official cash rate (OCR) may be raised in response to an upturn in the economic cycle, which generally helps with the macroprudential objective by moderating credit and house price growth. However, the impact of macroprudential policy on inflation is much smaller than the OCR, and the policy is not a lever for achieving inflation or employment goals. In general, macroprudential policy and monetary policy tend to be complementary, and together will maximise both financial stability and price stability.

⁷ Bascand (2019) explains in more detail how our regulatory tools fit together and complement one another.

⁸ A memorandum of understanding between the Reserve Bank and the Minister of Finance lists four macroprudential instruments. These are the core funding ratio, the countercyclical capital buffer, the sectoral capital requirements, and the LVR restrictions (English and Wheeler, 2013).

Table 1: Macroprudential policy and baseline prudential requirements

Prevention	Purpose	Relevant instruments	Impact on financial system resilience	Impact on wider economy	Supervision, oversight and disclosure
	<i>Macroprudential policy</i> Reduce risk that the financial system amplifies a severe economic downturn	Borrower restrictions (LVRs)	Reduced losses in a severe economic downturn	More resilient households and banks reduces potential severity of an economic downturn	
		Capital and liquidity instruments (CCyB/SCR)		Lowers incentives on banks to deleverage in a downturn; supports higher credit supply and economic activity	
<i>Prudential policy</i> Maintain baseline resilience of the financial system	Capital buffers	Banks remain solvent through the economic cycle	Maintains market confidence and lowers risk of sudden increases in funding costs for households, businesses and the economy		
	Liquidity policy				
	Governance and local incorporation				
Management	Manage and limit impact of distress or failure	Collateral standards	Banks remain functioning parts of financial system	Maintains availability of credit and banking services necessary for economic activity Mitigates costs for creditors and taxpayers	
		Outsourcing			
		OBR			
		Minimum capital	Losses absorbed by shareholders first		

As with all interventions, the financial stability benefits of macroprudential tools need to be weighed against their potential cost to efficiency. As such, it's vital to review such tools, and publish the results to increase accountability and transparency, and to build lasting legitimacy in the eyes of the public.

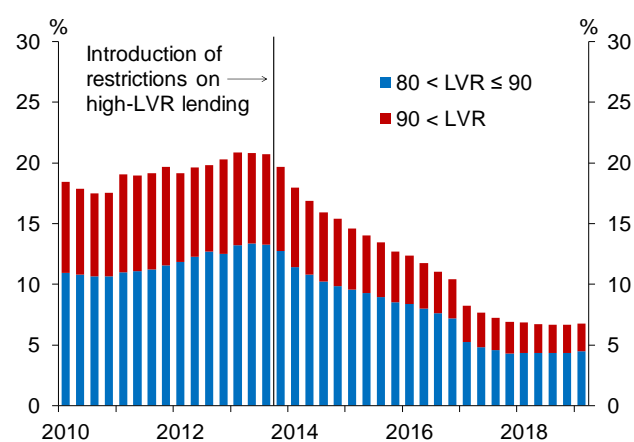
Part 2 – Have the LVR restrictions enhanced financial stability?

New Zealand was among the leaders in macroprudential policy when the LVR restrictions were first introduced, and since 2013, borrower-based tools have gained greater acceptance internationally, including in the UK, Ireland and Canada. While a few Southeast Asian countries have used the LVR tool since the 1990s, it was the global financial crisis - referred to as the GFC - that made the world more conscious of financial stability risks, leading to a greater acceptance of mortgage lending restrictions.

And that takes me to our review of the LVR policy and its effectiveness by looking at the implications for financial stability, financial system efficiency and other public policy objectives.⁹

Our analysis showed that as a result of introducing the LVR policy, resilience of the banking system has increased. And while it's more difficult to pinpoint, we also found that the policy has had a significant benefit in mitigating the risk to the economy from financial cycles. As you might expect, the restrictions have lowered the LVRs of mortgage borrowers. The share of the stock of mortgages with a LVR of above 80 percent has declined from 20 percent in 2013 to an average of 7.5 percent in the past two and a half years (figure 3). This fall has reduced the proportion of loans that would be in negative equity given a house price decline, meaning that the credit losses on banks' mortgage portfolio would be lower in a stress event.

Figure 3: Share of the mortgage stock with LVR above 80, by value



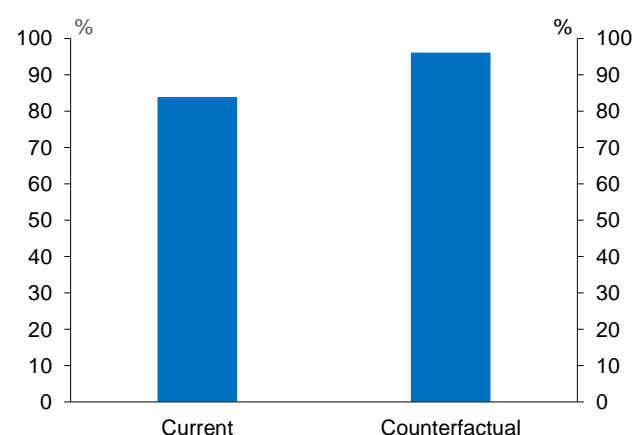
Sources: RBNZ LVR Lending Positions Survey

Not only that, the policy has lowered the magnitude of a potential house price correction, which further mitigates potential credit losses. It has achieved this by reducing the number of distressed borrowers who would be forced to sell their homes and by lowering house price inflation during the housing market upswing, thereby bringing house prices more in line with economic fundamentals.

⁹ Lu, 2019.

We estimate that, had we not imposed the LVR restrictions, mortgage losses in a severe economic downturn involving a fall in house prices would absorb nearly all the capital banks hold against their housing loans (figure 4). Under the current environment, mortgage losses in a severe downturn are estimated to be lower, showing that the LVR policy has improved the resilience of the banking system.

Figure 4: Modelled credit losses as a share of housing capital requirement



Source: Lu and Bloor (2019).

Improving the resilience of banks is only one objective of the LVR policy – the other goal is to reduce the potential for the financial cycle to impair economic performance.

International evidence show that economies with high household debts relative to disposable incomes have suffered larger declines in consumption during the GFC than less indebted economies.¹⁰ The other major factor driving the collapse in consumption in many economies is the large fall in house prices. These dynamics have worsened the impact of the GFC.

A more severe economic downturn will weigh on wellbeing, but will also lead to a deterioration in banks' non-mortgage assets. For example, in Ireland private consumption fell sharply over the GFC with retail sales declining by almost 20 percent annually by 2009, which led to widespread defaults on business loans. By 2013, more than 40 percent of SME loans in Ireland were in default.

Our modelling suggests that the LVR policy has slowed the growth in household debt in New Zealand. A lower level of household debt and more durable house prices should insulate domestic demand, and the wider economy, against financial instability.

Side effects of LVR intervention

Up to now, I've talked about the benefits of the LVR policy, but we need to acknowledge that all regulations have the potential for unintended impacts in the process of achieving their objectives.

The LVR restrictions have the potential to undermine financial system efficiency by restricting lending to some borrowers who are able to comfortably service the loan, but who have insufficient housing equity to meet the LVR requirements. This is why the Reserve Bank allows a speed limit of high-LVR loans under the policy, which are available to borrowers at the discretion of their bank.

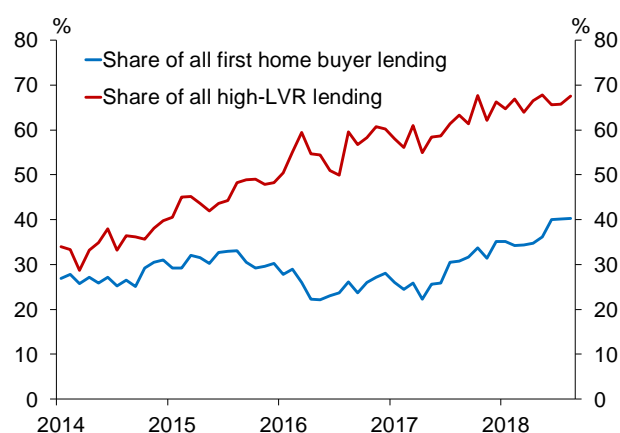
¹⁰ Floden, 2014 and Cecchetti et al., 2011.

The LVR policy can also work against the social objective of housing affordability. To be clear, the Reserve Bank does *not* have housing affordability as an objective, but it is sensible to be aware of the impact of our actions on the other goals of the government. A uniform calibration for the LVR restrictions, as was the case in late 2013 and 2014, is likely to restrict the access to credit for first home buyers, who tend to have less savings for a deposit and have not benefitted from previous house price appreciation. These controls that restrained first home buyers were necessary to protect the financial system, and to stop buyers from taking on too much debt and becoming distressed. In contrast, the effect on investors from a uniform LVR policy tends to be weaker in a rising market.

We've recalibrated the LVR restrictions over time to target the riskier forms of investor lending, as the emerging evidence points to greater risks associated with highly leveraged investors. This also had the effect of rebalancing the burden of policy away from first home buyers. The share of new mortgages going to first home buyers has risen from 10 percent in 2014 to 17 percent by the end of 2018, a historically healthy level. In the recent years, first home buyers have accounted for the lion's share of the high-LVR lending permitted under the policy (figure 5).

Housing affordability remains an important challenge for public policy, and structural reforms are necessary to improve affordability in the long term. The LVR restrictions are for the purpose of enhancing financial stability, and aren't suitable for addressing broader social challenges.

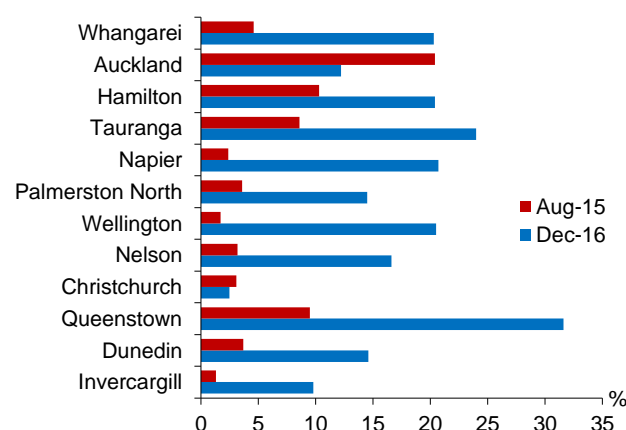
Figure 5: First home buyer high-LVR lending



Exemptions can be used to mitigate the tension between the LVR and other public policies, so long as they do not undermine the financial stability objective. For example, the exemption on construction finance has helped to address concerns that the LVR policy is hindering new housing supply. The Reserve Bank's consultation with stakeholders in all macroprudential policy interventions helps to inform the design of policy, including the exemptions.

Between November 2015 and September 2016, the Reserve Bank implemented targeted LVR restrictions for Auckland borrowers, owing to high risks of a severe house price decline in Auckland that would heavily affect the financial system. This move was effective in moderating the risk in Auckland. However, market intelligence suggested that Auckland investors increasingly purchased in other regions, which contributed to housing market exuberance in the rest of New Zealand. With high risk lending continuing to rise elsewhere, this tells us that a regional policy may be ineffective at reducing vulnerabilities at the national level. The likely spill-over effects would need to be considered carefully before using a regional policy in the future.

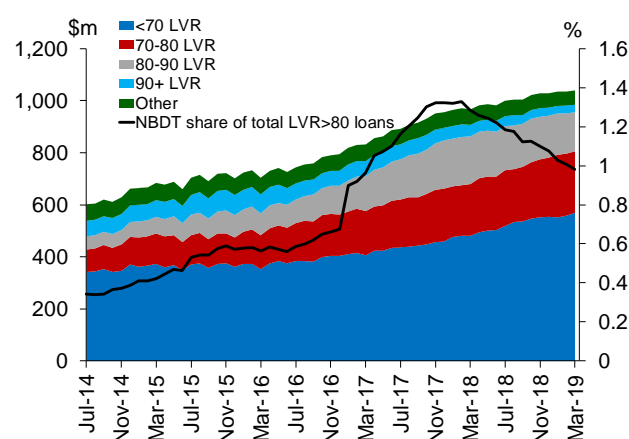
Figure 6: Annual house price inflation in urban areas



Source: Real Estate Institute of New Zealand

An underlying concern we had with the LVR policy is that risky lending could shift from banks to non-bank lenders who are not constrained by the policy. While there has been some growth in mortgage lending by non-bank lenders since 2014, their funding of purchases in the housing market remains very low. Non-bank deposit takers account for less than one percent of total mortgages with an LVR of more than 80 percent (figure 7). This evidence suggests that the LVR restrictions policy has remained effective for a longer period than we had initially thought.

Figure 7: NBDT mortgage stock by LVR, and NBDT share of total high-LVR mortgages



Part 3 – Strategy for macroprudential policy

The experience we have had in operating macroprudential policy is invaluable for developing an effective policy strategy. I want to touch on the principles of good governance, before discussing our operational strategy, and the outlook for macroprudential policy.

Principles of good governance

In this context, governance relates to the process for making macroprudential decisions, and mechanisms for holding decision-makers to account for those decisions. The Phase 2 Review of the Reserve Bank Act is considering the suitable governance framework for macroprudential policy.

The operational independence of the Reserve Bank is a guiding principle of the Phase 2 review, and we strongly agree that this is important for a functioning governance framework. The cost of a macroprudential intervention, in terms of reduced credit availability, are highly visible, while the longer-term financial stability benefit is hard to measure. Clearly, deploying macroprudential policy when it is needed does not make you popular, and therefore elected politicians may have difficulty committing to what is required for a long-term financial stability objective. Internationally, macroprudential tools are used far less actively in jurisdictions where the government is heavily involved in decision-making.¹¹

We think that operational independence is key for all macroprudential instruments. The Phase 2 review raised the option of political oversight for borrower-based tools, like the LVR restrictions. The rationale is that, because these tools incur a direct distributional cost on affected households, elected politicians are needed to maintain legitimacy. However, in the Reserve Bank's view, the controversial nature of these tools strengthens the case for operational independence, to ensure that the tool can be used promptly when necessary.

That said, the accountability and transparency of decision-makers plays a particularly important role in macroprudential policy, because financial stability is inherently difficult to quantify as an objective. The Reserve Bank has been transparent in explaining its policy decisions in consultations and the *Financial Stability Reports*, although transparency was more limited prior to policy action. To fill this gap, the Reserve Bank has recently published a macroprudential framework document that explains our strategy for using the tools.

The government has recently announced an in-principle decision to change the governance framework for prudential policy. We agree that the governance framework can be improved by moving from the single decision-maker model, where all powers related to prudential policy rest with the Governor, to a governance board. A governance board allows for more rigorous testing of decisions from a diverse range of perspectives, provides for more external input, and can insure against extreme preferences by individuals - the board model is also widely understood and used. We can see the Reserve Bank Board taking responsibility for the macroprudential framework and scrutinising the operation of macroprudential policy by the Governor and his staff for which the Board will ultimately be responsible.

As I have acknowledged earlier, macroprudential policy can produce tension with other objectives of public policy. This reinforces the importance of consultation with the government, in line with our current practice, although there needs to be a clear boundary between consultation and decision-making. The Phase 2 review raised the option of assigning a formal advisory role to an interagency committee, which could be well placed to consider the potential tension between macroprudential policy and other government policies. However, in our view, an interagency committee runs the risk of undermining accountability, and its added value may be limited given that the Reserve Bank already consults extensively on macroprudential decisions.

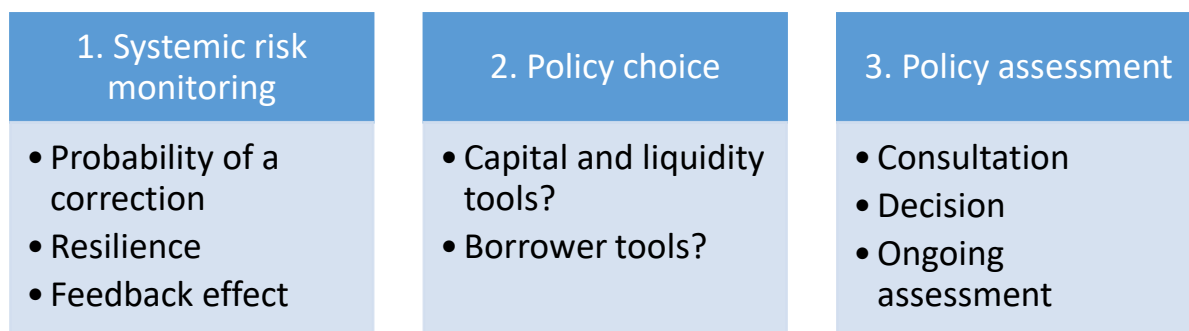
The Phase 2 review of the Reserve Bank Act will have a significant bearing on the future of New Zealand's financial system, and it's important that you have a say - I encourage you to take a look at the consultation material on the Treasury's website.

¹¹ Edge and Liang, 2017.

Decision making for macroprudential policy

So how do we operationalise our macroprudential policy in line with the principles of transparency, accountability and rigorous decisions? Well, the Reserve Bank's decision-making follows three steps (figure 8).

Figure 8: Operation of macroprudential policy



Firstly, we assess the nature of the risks facing the financial system, or **systemic risk monitoring**, by using a range of quantitative indicators.

We look at the probability of a correction in the credit cycle. A number of studies have identified house price overvaluation and household debt as reliable predictors of a correction in the credit cycle.¹²

Next, we assess the current resilience of the financial system to a correction. To do this, we monitor banks' lending portfolios, their capital positions, and undertake stress tests of banks.

Finally, we examine the feedback effect of the identified risk with the wider economy. The main indicator for this assessment is bank lending standards, which could undermine the resilience of the financial system over time, and increase vulnerabilities in the housing market and wider economy.

After considering all this information, we can judge whether these risks fall into the purview of macroprudential policy. That said, no set of indicators can mechanically capture the nature of risks, and reasoned judgements will always form a part of our decision-making.

The second step is **policy choice**, where we consider what an appropriate policy response might look like. Macroprudential instruments can be categorised into capital and liquidity tools that are focused on improving bank balance sheets, and borrower-based tools that improve household resilience.

Three capital and liquidity instruments are available, including the countercyclical capital buffer, the sectoral capital requirement and the core funding ratio. These tools build additional buffers for the banking system to absorb adverse shocks. In a downturn, these buffers reduce the risk of bank failure or deleveraging, and can be cut to support the supply of credit to the economy. The single borrower-based instrument we have is the LVR restrictions. In our view, a debt-to-income (DTI) tool would be a useful addition to our macroprudential toolkit. The Phase 2 review will consider the appropriate instruments to be included in the Reserve Bank's future toolkit.

¹² Borio et al. (2018) and Aikman et al. (2018).

Our choice of tools depends on the risk we face. On the one hand, if we are concerned with low resilience on bank balance sheets, capital-based instruments may be the most effective tool. On the other hand, the LVR restrictions are more effective at restraining exuberance in the housing market and household debt, and at insulating the economy against adverse shocks.

It's worth noting that all tools come with possible costs to financial system efficiency. For example, capital and liquidity tools increase the cost of credit provision for banks, while borrower-based tools curtail credit availability. Both of these effects could reduce short-run economic growth. We need to choose the right tool for the job to have confidence that the benefits to financial stability exceed any costs to efficiency.

The final step in our decision-making is **policy assessment**, which includes consultation, a final decision and ongoing assessment. The consultation will typically consider several policy responses and settle on a favoured option. However, we listen carefully to our stakeholders and, should we find their arguments persuasive, we will change our views.

Once a macroprudential tool has been deployed, the Reserve Bank will continue to assess its effect in the six-monthly *Financial Stability Report*. This asks whether there are unintended consequences, and whether the policy intervention remains optimal. Our ongoing assessment of the impact of the LVR policy has informed each adjustment in its calibration. The good news is that declining risks have allowed us to ease the LVR restrictions, starting in 2017.

The outlook for macroprudential policy

We left the LVR policy unchanged in the May *Financial Stability Report*, in order to monitor the effect of our recent easing and the recent fall in mortgage rates. Looking ahead, we are comfortable with further easing in the LVR policy over time, but this is predicated on risks continuing to abate. Specifically, we want to see household debt levels remaining stable relative to incomes, prudent lending standards from banks, and moderate house price inflation. If these conditions are met, we are inclined to continue easing the restrictions.

In the long term, we face a choice between removing the LVR restrictions and maintaining a permissive setting. A full removal would of course eliminate any efficiency cost, and could be done alongside the deployment of a less intrusive tool if we are still worried about residual risks. But on the flip side a permanent LVR setting will continue to guard against the very risky forms of lending, and may better prepare the banking system to adapt to a more restrictive calibration if risks re-emerge. The efficacy of a permanent LVR setting is an important policy question for future research.

As you may know, the Reserve Bank has proposed a material increase to banks' capital requirements to increase the resilience of the financial system. The proposals include a more prominent role for the counter-cyclical buffer, providing more certainty that this buffer will be built prior to a downturn in the financial cycle, in order to support lending during a systemic crisis.¹³ As a consequence, macroprudential tools, including the LVR restrictions, may need to be used less actively. That said,

¹³ The counter cyclical buffer would be released during a systemic downturn to support lending. In contrast, it is unlikely that easing LVRs during a downturn would have the same benefit, as banks will be reluctant to undertake high-LVR lending when under stress.

different tools are effective for addressing different risks, and there will still be a role for borrower-based tools to more directly address risks associated with household debt.

Part 4 – Conclusion

In conclusion, financial stability is important for the wellbeing of New Zealanders, and macroprudential policy is a key line of defence for safeguarding financial stability. Baseline prudential tools ensure that potential threats to the financial system can be absorbed and the damage repaired. Macroprudential policy reduces the likelihood and severity of the threat, and mitigates the adverse impact on the economy.

To inform our strategy for macroprudential policy, we have reviewed our operation of the LVR restrictions policy since 2013 and the growing research on macroprudential policy internationally. We found that the LVR restrictions policy has significantly improved the resilience of the banking system. We have also gained a broader understanding of the side effect of the LVR policy on other public policy areas, of ways to mitigate the potential policy tensions, and of the limitations of macroprudential policy.

Our experience in LVR restrictions has helped to shape our strategy for using macroprudential policy. Our strategy broadly follows a three-step process of systemic risk monitoring, policy choice, and policy assessment, including evaluation after implementing the macroprudential tools. We are transparent and accountable, both in outlining how the tools will be used and in making the case for their implementation.

The government is reviewing the role and powers of the Reserve Bank as they relate to financial stability, including whether our macroprudential framework remains fit for purpose. The principles of good governance I have touched on, and our refreshed macroprudential strategy, form an anchor, and should be compatible with a range of outcomes of the review. I hope our refreshed strategy on macroprudential policy has contributed to the understanding, accountability, and lasting legitimacy for the framework.

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