



NEW ZEALAND

FINANCIAL SECTOR ASSESSMENT PROGRAM

TECHNICAL NOTE—MACROPRUDENTIAL INSTITUTIONAL FRAMEWORK AND POLICIES

May 2017

This Technical Note on Macprudential Institutional Framework and Policies on New Zealand was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed in May 2017.

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Prepared By
**Monetary and Capital Markets
Department**

This Technical Note was prepared by Caio Ferreira with contributions from Lucyna Gornicka and Siegfried Steinlein (IMF staff) in the context of the Financial Sector Assessment Program in New Zealand. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at <http://www.imf.org/external/np/fsap/fssa.aspx>

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Glossary

CFR	Core funding ratio
CoFR	Council of Financial Regulators
DTI	Total debt-to-income ratio
DSR	Debt servicing ratio
FMI	Financial market infrastructures
GDP	Gross domestic product
GFC	Global financial crisis
IRB	Internal ratings based
LCR	Liquidity coverage ratio
LGD	Loss-given default
LVR	Loan-to-value ratio
PD	Probability of default
MoU	Memorandum of understanding
NZ	New Zealand
RBNZ	Reserve Bank of New Zealand
SIFI	Systemically important financial institutions
VAR	Vector-autoregression

EXECUTIVE SUMMARY

New Zealand has a strong institutional framework for macroprudential policy. This framework is based on a clear mandate for financial stability operationally clarified by a Memorandum of Understanding (MoU). The Reserve Bank of New Zealand (RBNZ) is the single prudential regulator with responsibilities and powers for the supervision of financial institutions and macroprudential policies. The MoU on macroprudential policy signed between the RBNZ and the Minister of Finance legitimized the macroprudential use of the existing prudential instruments and further strengthened the responsibility of the RBNZ on macroprudential policy by providing additional clarity around the broad parameters of the policy, such as the objectives, governance and instruments. The clear mandate for financial stability, independent decision making, transparent communication and external accountability form the basis of the strong framework put in place.

Institutional arrangements could be strengthened further by making the procedures to adjust the macroprudential framework more transparent. The MoU on macroprudential policy created a relatively narrow framework limiting actions to banks and including four instruments in the macroprudential toolkit. Formalizing an agreed set of tools and objectives clarified the Reserve Bank's role in this area but also effectively constrained its powers to take macroprudential actions. Risks may arise from other institutions and, in some circumstances, a different set of tools may be needed. In this context, the MoU requires the RBNZ to advise the Minister of Finance on changes to the macroprudential framework, and for the Minister to subsequently agree. Nevertheless, the lack of clear and transparent procedures for adjusting the MoU creates the risk of a lengthy process that may undermine timely prudential action. To mitigate this risk, the process described in the MoU should be more transparent. In particular, the RBNZ advice and the opinions of the Minister on the need for adjustment should be publicly disclosed. Institutional arrangements could also be further strengthened by maintaining an effective accountability framework for the RBNZ that does not jeopardize the integrity and independence of its macroprudential decision making process.

New Zealand has actively used macroprudential tools to address systemic risks in the housing sector. In mid-2013, rules were introduced requiring banks to reduce the volume of high loan-to-value ratio (LVR) lending to below 10 percent of new commitments (from around 30 percent prior to the new rules). Real estate prices and credit expansion continued to grow strongly, particularly in the Auckland area, leading the RBNZ to tighten further the LVR restriction to Auckland investors in late 2015. Despite the financial stability benefits generated by the reduction of the LVRs, growth in house prices and credit have remained elevated, reducing the effectiveness of the policy and leading the RBNZ to extend restrictions nationwide starting in October 2016. The new restrictions eliminate the difference between Auckland and the rest of the country and impose tighter limits on investor loans and owner-occupier lending.

Despite the positive effects of the LVR restrictions, housing sector imbalances remain and could require further prudential actions. Although there were improvements in the loan-to-value indicators after the LVR restrictions, evidence indicates that imbalances in the sector have not been

fully addressed and still generate substantial systemic risk. Credit and price growth has remained strong for years. Long term declining rental yields and a persistently rising price-to-income ratio suggest the possibility of overvaluation. Household debt-to-income levels have reached record highs. Considering that housing loans represent more than half of banking sector assets, authorities are encouraged to continue the closer monitoring of the financial system and promote further actions to increase the resilience of the system if the recent adjustment to the LVR regulation does not substantially change the balance of risks.

Limits on debt-to-income (DTI) should become part of the macroprudential tool kit. The RBNZ is currently discussing with the Minister of Finance the introduction of limits to total DTI in the macroprudential toolkit. Caps on DTI or measures of similar nature, such as debt servicing to total income (DSI), can usefully complement the LVR restrictions by addressing remaining risks and more directly targeting the risks derived from record high household indebtedness. DTI limits can increase the resilience of the financial sector by reducing the probability of defaults (PD) and eventual losses and can contribute to the stabilization of the sector by reducing demand for loans. Considering that risks build up relatively quickly, it is important to have the legal and operational basis in place before the need to use prudential instruments fully materializes.

Authorities should consider gradually establishing limits on DTI if the balance of risks remains. It is still not possible to assess the full effects of the October 2016 LVR adjustments on the housing market, but the persistence of imbalances suggests that the potential benefits from LVR measures have reached their limits and other tools are needed. If the measures do not substantially reduce current risks, DTI limits should be considered. Price increases, as currently observed in New Zealand, tend to reduce the effectiveness of the LVR restrictions due to refinancing operations, potentially requiring successive tightening. In this scenario, caps on DTI could work as automatic stabilizers because they tend to become more binding when house prices grow faster. The reliance on multiple tools also tends to reduce distortions compared to the use of only one more conservatively calibrated tool. First time home buyers, for instance, tend to be more affected by LVR restrictions because they do not have the equity gain represented by increases in house prices but they tend to be in a relatively better position in terms of servicing the debt in relation to investors and other owner occupier buyers. Authorities should take a gradual approach when implementing the restrictions to mitigate uncertainties over the strength of the transmission of the policy actions and reduce the burden on lenders and borrowers.

The concentration of the financial sector generates structural vulnerabilities that need to be addressed. The four biggest banks in New Zealand hold 87 percent of the banking system's assets. These banks have very similar business models with the majority of their assets associated with housing loans and partly reliant on foreign funding. Direct exposures among them are relatively limited, but the potential for spillovers is elevated. One of the important channels for spillovers is the reliance on overseas funding which could lead to a tightening in the whole system in case of problems in one bank. Furthermore, due to their size, the deleveraging or fire sales of assets by one bank is likely to contaminate the whole system due to the depression of asset values and economic activity.

Capital requirements should better reflect the systemic risk posed by the concentration of the financial system. Distress of systemically important financial institutions (SIFIs) tends to cause significant disruption to the wider financial system and economic activity. The largest banks in New Zealand are systemically important and should be required to hold capital commensurate with the magnitude of the externalities of their eventual failure. Considering the high importance of market discipline in the RBNZ prudential approach and that, in practice, smaller banks traditionally maintain larger capital ratios, it does not seem necessary to differentiate the size of the capital buffer by banks. Nevertheless, the current review of the capital requirements regulation being done by the RBNZ should increase capital thresholds for the SIFIs or the whole system to better reflect the risks posed by the concentration of the financial system.

Table 1. New Zealand: Main Recommendations

Recommendation	Timing¹	Authorities
Strengthen institutional arrangements for macroprudential policy by increasing communication efforts and transparency when adjustments to the framework are being considered.	C	RBNZ/Treasury
Maintain an effective accountability of the RBNZ that does not jeopardize the integrity and independence of its macroprudential decision making process.	C	RBNZ/Treasury
Enhance the operational basis for macroprudential policy by including DTI limits in the macroprudential toolkit.	I	RBNZ/Treasury
Implement DTI measures if the changes to the LVR do not substantially reduce the risks in the housing sector.	I	RBNZ
Increase capital requirements to reflect the risks posed by the concentration of the financial sector in four main banks.	I	RBNZ
Review liquidity regulatory requirements aiming to reduce banks reliance on the provision of liquidity by the RBNZ.	I	RBNZ
1 C = continuous; I (immediate) = within one year; ST (short term) = 1–3 years; MT (medium term) = 3–5 years.		

INTRODUCTION

1. The global financial crisis (GFC) motivated meaningful changes to financial stability policy in New Zealand. Although New Zealand banks weathered the GFC relatively well, the crisis exposed certain vulnerabilities. Following the collapse of Lehman Brothers, severe funding pressures forced the RBNZ to provide liquidity support by expanding the list of eligible collateral and the New Zealand Government introduced temporary deposit and funding guarantee facilities. As most immediate threats receded, the authorities' focus moved to improving the approach to the monitoring of systemic risk, while developing a new framework to directly address systemic risks that are tied to the financial cycle.

2. Aligned with the international discussions on macroprudential policy, New Zealand authorities improved their framework by further developing processes and tools directly targeting system-wide risks. New Zealand is a small open economy exposed to international capital flows and with a financial system dominated by four large Australian banks whose domestic lending is heavily concentrated in housing. The prudential framework in New Zealand was developed to deal with these particularities. Although policies have always maintained a "protect the whole" approach, authorities decided to take an additional step to improve the processes and tools to identify and mitigate systemic risks on both the time (cyclical) and cross-sectional dimensions.

3. This note evaluates the current macroprudential policy framework and the need for additional policy actions to mitigate systemic risks. The assessment proceeds in the context of the overall stability analysis and builds on the "Staff Guidance Note on Macroprudential Policy (IMF, 2014a)," its background note ("Detailed Guidance on Instrument (IMF, 2014b)"), numerous publications by the RBNZ, and other material reflecting the emerging international consensus in this field. The assessment is divided in four sections. The second section discusses the strengths and weaknesses of the current institutional framework. The third section describes the assessment of the FSAP team on systemic risks associated with the financial cycle and the policies used by the authorities to address them. The fourth section discusses policies and risks arising from the structure of the financial sector.

INSTITUTIONAL FRAMEWORK

4. The institutional framework for prudential policy needs to ensure that decision makers are not biased towards inaction. The framework needs to ensure *willingness to act* and counter biases towards insufficiently timely action that can arise from difficulties in quantifying the benefits of activating macroprudential tools. Inaction is often exacerbated by lobbying from the financial industry and political pressures that excessively focus on short-term costs and disregard more diffuse benefits. Willingness to act requires a clear and explicit mandate for financial stability and an accountability framework that holds authorities responsible to fulfill it. The effectiveness of the macroprudential framework also depends on the authorities' *ability to act* that requires access to appropriate information and a toolkit that allows authorities to address emerging systemic risks.

Finally, the framework should promote effective cooperation in risk assessment and mitigation in a manner that preserves the autonomy of separate policy functions.

A. Willingness to Act

5. The RBNZ is the single prudential regulator in New Zealand with responsibilities for financial institutions and macroprudential policies. The RBNZ is responsible for the regulation and supervision of banks and other deposit taking institutions, insurance firms and financial market infrastructures (FMIs).¹ The RBNZ is also the resolution authority for banks, insurers, and NBDTs. Macroprudential policy is implemented through the same legal framework as traditional prudential policy (i.e., section 1(A)(b) which defines the overarching purpose of the RBNZ with respect to the financial system and Part 5 of the RBNZ Act with respect to registered banks). The RBNZ responsibility for macroprudential policy is in practice widely perceived and accepted in the financial industry and public sector.

6. New Zealand has a strong base for macroprudential policy derived from a clear mandate for financial stability operationally clarified by a MoU. The statutory objectives of the RBNZ with respect to the banking sector are defined as *“promoting the maintenance of a sound and efficient financial system; or avoiding significant damage to the financial system that could result from the failure of a registered bank”* (section 68, Part 5). The powers conferred on the RBNZ by the RBNZ Act also provide the legal basis to monitor systemic risks and implement macroprudential policy. However, considering the different focus and approaches demanded by macroprudential policy, a MoU on Macroprudential policy and operating guidelines was signed between the Governor of the RBNZ and the Minister of Finance. The MoU legitimizes the macroprudential use of the instruments and further strengthens the responsibility of the RBNZ for macroprudential policy by providing additional clarity on the broad parameters of the policy, such as the objectives, governance arrangements and the specific instruments available for use.

7. The MoU on macroprudential policy clearly attributes to the RBNZ the responsibility to monitor emerging risks to the financial system and intervene when needed. The MoU establishes that the objective of the RBNZ’s macroprudential policy is to increase the resilience of the domestic financial system and counter instability arising from credit, asset prices or liquidity shocks. The focus of the policy described in the MoU is on the time-dimension. The instruments of macroprudential policy are designed to provide additional buffers to the financial system along the macro-credit cycle. The MoU also acknowledges that macroprudential actions can help dampen extremes in the financial cycle and correctly considers this to be a secondary role. Actions to address systemic risks on the cross section dimension are also assessed and implemented by the RBNZ, within its traditional prudential framework. The MoU explicitly requires the RBNZ to assess financial system developments and monitor risks to the system. When significant risks are judged to be emerging, macroprudential intervention—in the form of deployment of a macroprudential policy instrument—should be considered by the RBNZ.

¹ The RBNZ regulates but does not supervise nonbank deposit-takers. Supervision is undertaken by trustees, who are overseen by the Financial Markets Authority (FMA).

8. The New Zealand framework provides channels to promote a dialogue between the RBNZ and the government, while safeguarding the independence of the decision making process. The RBNZ is, in practice, the authority responsible for macroprudential policy. It should, however, keep the Minister of Finance and the Treasury regularly informed on its thinking on significant policy developments and emerging risks to the financial system. The RBNZ should also consult with the Minister and the Treasury when macroprudential intervention is under active consideration and inform them prior to making any decision on triggering a macroprudential policy instrument. The Treasury provides advice on the impact of decisions taken by the RBNZ on broader Government objectives. Instruments included in the toolkit are expected to be subject to enhanced consultation and discussion procedures with the Treasury due to their potential impact on the overall economy and synergies with other government policies (i.e., tax policies). Nevertheless, the Minister of Finance and the Treasury are consulted on all decisions to impose, amend or revoke prudential requirements, regardless of the status of the instrument in the macroprudential toolkit. These procedures are designed to allow opportunities for the government to express their views while maintaining a necessary and appropriate level of independence of the macroprudential decision making process.

9. The Governor of the RBNZ is legally the sole decision maker for prudential policy. However, the RBNZ has established committees to assist the decision making process and enhance the governance structure. All prudential policies are discussed and approved by the Governing Committee (which also undertakes monetary policy decisions), comprised of the Governor, the two Deputy Governors and the Assistant Governor. For macroprudential policy, a key advisory role is undertaken by the Macro-Financial Committee (MFC). This Committee, which also includes the members of the Governing Committee, meets monthly to assess financial stability and potential policy responses to risks.

10. The RBNZ is subject to external oversight and its communication procedures on macroprudential policy are transparent. The Board of Directors is one of the main pieces of the accountability framework. The Board acts as an agent of the Minister of Finance in reviewing how well the RBNZ meets its legal obligations. The Board reviews the efforts of the RBNZ to maintain a sound and efficient financial system and monitors the regulatory process of the RBNZ, publishing its conclusions in an annual report. The oversight of the Board has been enhanced recently, particularly after the Minister of Finance asked the Board to explicitly monitor the regulatory process and how the objectives of soundness and efficiency in the financial sector are balanced. This is a difficult task and the Board is still in the process of developing an appropriate framework to do it. The oversight is complemented by transparent communication with the public and the financial industry. All prudential measures are subject to public consultation and the publication of an impact assessment, although the consultations have been relatively short and there seems to be room for improving the impact assessment. The RBNZ also publishes twice a year a financial stability report with its views on the risks to the financial sector. The report is reviewed by the Parliament and the Board of Directors. Finally, the RBNZ has also published several papers discussing the macroprudential framework in New Zealand and discloses twice a year an updated data series of the main indicators used to assess imbalances and the need for macroprudential actions.

B. Ability to Act

11. The RBNZ has appropriate powers to collect information for assessing financial stability and is working to improve data quality. The RBNZ has extensive powers to require regulated entities to supply information. The RBNZ has also established formal arrangements to facilitate information sharing with other agencies including the Treasury and the members of the Council of Financial Regulators (CoFR).

12. The MoU signed with the Minister of Finance included four instruments in the macroprudential toolkit of the RBNZ. These are: (i) a countercyclical capital buffer; (ii) adjustments in sectoral capital requirements; (iii) restrictions to the share of high loan-to-value ratio (LVR) residential mortgages; and (iv) adjustments to the minimum core funding requirement. These tools are meant to address risks associated with the financial cycle. As a prudential regulator, the RBNZ is also empowered to implement a variety of other tools whose calibration is not expected to fluctuate over the financial cycle such as, the leverage ratio, limits on interbank exposures, liquidity requirements and D-SIFIs buffers.² In this context, the MoU is a voluntary and effective constraint agreed by the RBNZ with the purpose of clarifying and legitimizing a different approach to the use of traditional policy instruments.

13. The framework includes provisions to extend the scope of the current macroprudential framework after consultation with the Treasury and the Minister of Finance. The MoU on macroprudential policy designed a framework to address the most likely potential systemic risks from banks, which account for the major share of the assets of the financial system. However, the MoU acknowledges that risks may arise from other institutions and that, in some circumstances, it may be more efficient to apply a different set of tools. In this regard, the MoU provides room for adding instruments to the toolkit with the agreement of the Minister of Finance and requires the RBNZ to advise the Minister of Finance on changes to the macroprudential framework that would extend the use of macroprudential instruments to nonbanks. The MoU will be reviewed after 5 years, in 2018.

C. Cooperation Arrangements

14. The New Zealand integrated prudential arrangement facilitates coordination across policy functions. The RBNZ operates as an integrated supervisor, resolution authority, macroprudential authority and central bank. The assignment of the macroprudential mandate to the RBNZ is natural given that the central bank already concentrates the relevant regulatory and supervisory powers. The model facilitates the timely sharing of information and collaboration across the different policy functions. The Governing Committee, for instance, discusses all major monetary and financial decisions falling under the responsibilities of the RBNZ, thus ensuring appropriate coordination across monetary and macroprudential policy actions.

² Leverage ratio and D-SIFIs buffers haven't been implemented in New Zealand for the time being.

15. There are arrangements in place to mitigate group thinking and provide checks and balances that are necessary due to the concentration of power. The RBNZ has created internal arrangements that allow the challenge of the dominant view. The Macro-Financial Committee, for instance, plays a key role in debating macroprudential policy and discussing analytical and policy papers prepared by staff. The Governing Committee is another forum to debate competing views, albeit in a context where the Governor alone is the sole decision maker defined by the RBNZ Act. External arrangements involve discussions with the Treasury prior to the implementation of measures, mandatory public consultation and oversight by the Board.

16. The framework contains formal arrangements to foster cooperation among the agencies and government entities that regulate the financial sector. The CoFR was formed in 2013 to share information, identify important trends and issues and ensure that appropriate coordination arrangements are in place to respond to financial market events and developments. The members of the CoFR are the Financial Markets Authority (FMA), the RBNZ, the Treasury and the Ministry of Business, Innovation and Employment (MBIE). CoFR meets quarterly and is chaired on a rotating basis between the Governor of the RBNZ and the Chief Executive of the FMA. There is also a subcommittee of CoFR (the Banking Forum) which meets to discuss ongoing and upcoming regulatory matters relating specifically to registered banks. Members of the Banking Forum are the four permanent members of CoFR and other public agencies that have an interest in the banking sector such as the Ministry of Justice (MoJ) and the Inland Revenue Department (IRD). Furthermore, there are bilateral MoUs between the FMA and the RBNZ and between the Treasury and RBNZ dealing with issues such as information sharing.

D. Assessment of Systemic Risks

17. The RBNZ analysis of systemic vulnerabilities is sophisticated and timely. RBNZ has a dedicated department, the Macro-Financial Department, with two teams and 10 staff that leads systemic risk analysis and macroprudential policy discussions. The RBNZ staff has published a number of papers to discuss topical issues on financial stability and macroprudential policy. The department is also in charge of the Financial Stability Report (FSR), published twice a year. The report appropriately covers risks to the financial system, the international financial markets, financial risks to the New Zealand economy (such as housing market, agriculture and external sector) and strengths and weaknesses of financial institutions and infrastructure. It also includes boxes on special topics, such as implications of the LVR restrictions and dairy farm land valuation. The FSR serves as a key accountability document under the RBNZ Act (section 165A), where after receiving the FSR from the RBNZ, the Minister of Finance must present it to Parliament. Moreover, the 2013 MoU on Macroprudential policy requires the FSR to detail the reasons for, and impact of, any macroprudential intervention undertaken by the RBNZ. The RBNZ Board in its monitoring role reviews each FSR shortly after publication. All the macroprudential work is done in close collaboration with the Prudential Supervision, Economic and Financial Markets Departments and cooperation arrangements with other government and supervision authorities contributes to the process.

18. Data limitations indicate that there are opportunities for improvement. Important current data limitations include reports that are not sufficiently standardized to allow consistent collection of data across financial entities. The RBNZ is working, for instance, to increase standardization and improve data quality of reports of insurance firms and debt-to-income for mortgage customers. Data collection has been expanding, but information is not always granular enough to allow a detailed analysis of asset and liability structures or more detailed solvency and liquidity stress tests. Data on market risks is also limited and information on liabilities does not cover the type of counterparties and the existence of collateral. There are also ongoing efforts to improve commercial real estate information.

E. Recommendations

19. Efforts to clarify the objectives and role of macroprudential policy should be strengthened. The implementation of the macroprudential framework in New Zealand follows a transparent process. There were workshops discussing the issue and papers describing the framework and technical matters (Rogers, 2013). The MoU also provided guidance on how the powers that already exist in legislation would be used. However, as would be expected due to the novelty of the framework, the introduction of the measures in 2013 generated some initial confusion amongst markets participants that still do not seem to have full clarity about the framework. The macroprudential framework (particularly lending restrictions such as LVR rules) naturally constitutes a substantial departure from the traditional prudential supervision approach used by the RBNZ that heavily relies on market discipline. The communication efforts to explain the objectives of the policy should continue. In particular, it seems necessary to emphasize that the primary role of macroprudential policy is to increase the resilience of the financial sector and contain the procyclical feedback between asset prices and credit (as opposed to controlling the financial cycle per se).

20. Institutional arrangements could be further strengthened by maintaining an effective accountability of the RBNZ that does not jeopardize the integrity and independence of its macroprudential decision making process. Timely prudential action requires institutional frameworks with decision making processes free from lobbying by the financial industry and political pressures. The RBNZ independence, responsibilities and powers require appropriate mechanisms for checks and balances that seem to be in place. Nevertheless, assessing if supervisors are fulfilling their responsibilities to maintain financial stability is a complex task due to the lack of commonly agreed metrics to measure this objective. In this regard, the work of the Board to develop a framework to enhance its monitoring of the RBNZ's responsibility to maintain a sound and efficient financial system is welcome. The framework should allow effective accountability without jeopardizing the integrity of the decision making process by reviewing actions already taken and not aiming to influence them in advance.

21. Procedures for cooperation and information sharing among agencies are in place but should be further enhanced. As the only prudential authority in New Zealand, the RBNZ concentrates the largest share of information and analysis on the financial sector. There are arrangements in place for information sharing and policy coordination such as the CoFR, bilateral

MoUs with both the FMA and Treasury, and consultation procedures with the Treasury. The CoFR should work as an active and timely forum to discuss the risks faced by the financial sector where all members express their views and share their analysis. A more detailed description of the objectives and expected role of each member should help to increase the effectiveness of the Council. Along the same lines, the development of guidelines to be followed on the consultation procedures between the Treasury and the RBNZ should safeguard that both parties are aware of each other views without creating obstacles for timely action.

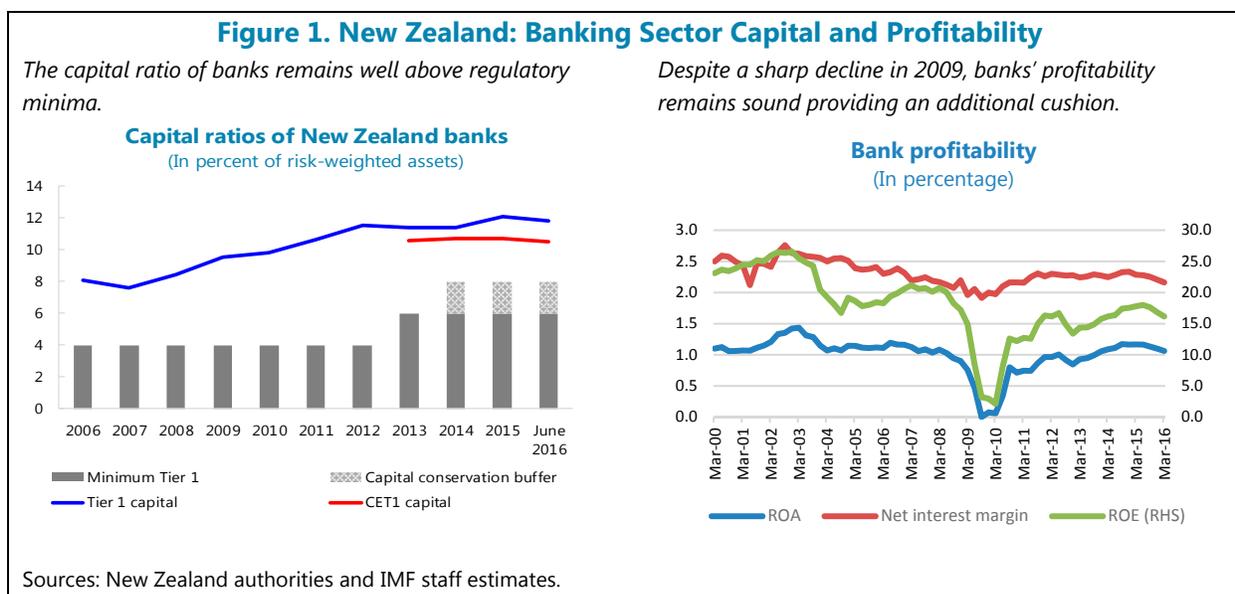
22. Procedures to extend the macroprudential framework beyond banks and improve the macroprudential toolkit should be more transparent. The MoU on macroprudential policy created a relatively narrow framework limiting actions to banks and including just four instruments in the toolkit. Formalizing an agreed set of tools and objectives clarified the Reserve Bank's role in this area but also effectively constrained its powers to take macroprudential actions. Risks may arise from other institutions and, in some circumstances, a different set of tools may be needed. In this context, the MoU requires the RBNZ and the Minister of Finance to agree on changes to the macroprudential framework. Nevertheless, the lack of clear and transparent procedures for adjusting the MoU creates the risk of a lengthy process that may undermine timely prudential action. To mitigate this risk, the process for amending the MoU should be more transparent. In particular, the RBNZ advice and the opinions of the Minister on the need for adjustment should be publicly disclosed and the Minister should provide a response within an appropriate timeframe.³ Furthermore, a more regular review of the macroprudential toolkit prescribed in MoU than the current five years (e.g., biannually), may be useful to allow a reflection on what elements of the framework might be missing.

FINANCIAL CYCLE RISKS AND TOOLS

23. Stress tests suggest that the financial system in New Zealand is resilient,⁴ but some market imbalances remain a source of vulnerability. Banks, who dominate the financial system, have capital and liquidity buffers well above the regulatory minima. Despite the expectation of increasing NPLs in the dairy industry, asset quality is high and the relatively high profitability provides another cushion to absorb shocks (Figure 1). Nevertheless, imbalances in the housing market, increasing household leverage and concentration in the banking sector remain sources of vulnerabilities that need to be addressed.

³ The Treasury might need to develop additional analytical capacity on financial stability issues in order to better assist the Minister in this task.

⁴ See technical note on stress testing.



A. Credit Expansion and Housing Sector Imbalances

24. After a period of rapid expansion, credit growth in New Zealand decelerated after the GFC. While credit growth has accelerated recently, credit gap indicators suggest that overall credit is still aligned with its long term trend. The low interest rate environment that has prevailed after the GFC has reduced the costs of funding to banks. However, increased spreads counterbalanced the funding costs resulting in a smoother reduction on effective mortgages rates.

25. The strong credit growth experienced during the last few years is putting pressure on funding and increasing household indebtedness to long-term highs. During the last two years, credit has accelerated and currently outpaces deposit growth. Credit expansion has set household debt-to-income ratio (DTI) on a long term increasing trend. The aggregate debt servicing ratio (DSR) has been relatively stable, however, due to the substantial reduction in the cost of loans (Figure 2). On the corporate side, balance sheets are also stretched. The property-related DTI increased remarkably during the last two decades to reach 116 percent.

26. Growing imbalances in the housing sector suggest an increase in systemic risk. Following a slowdown on lending after the GFC, mortgage lending increased sharply, despite restrictive macroprudential measures introduced by the RBNZ. Housing prices have also grown strongly, particularly in the Auckland area and long term declining rental yields suggests the possibility of overvaluation. The risks to the financial sector of a correction is meaningful considering the significant proportion of investors in the market and that the vast majority of mortgages are repriced within 3 years. As a result, the DSR could increase and, consequently, could lead to defaults when interest rates normalize (Figure 3).

Figure 2. New Zealand: Credit Expansion

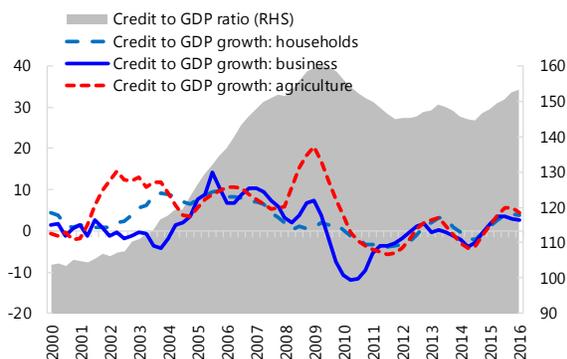
Credit growth decelerated in after the GFC. The slowdown aligned the credit to GDP gap with the long term trend, but strong credit growth resumed in the last few years increasing household indebtedness.

Overall credit has expanded rapidly, but growth decelerated after the GFC.

Despite recent strong growth, the credit-to-GDP gap still is aligned with the long term trend.

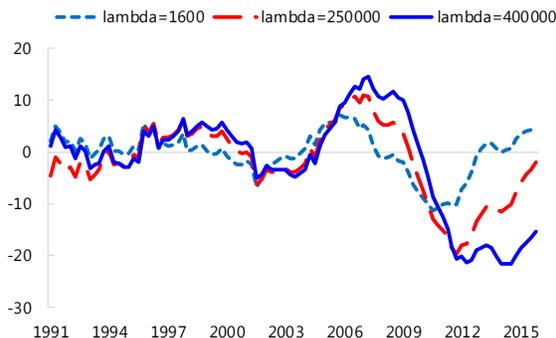
Credit-to-GDP ratio and growth

(In percent, annual change)



Credit to GDP gap

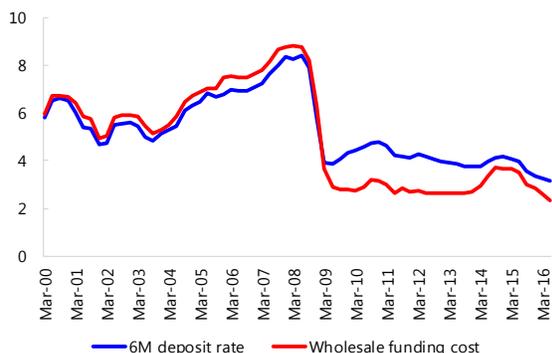
(Percent deviation from trend, one-sided HP filter)



Bank's funding costs decreased sharply after the GFC...

Banks' funding costs

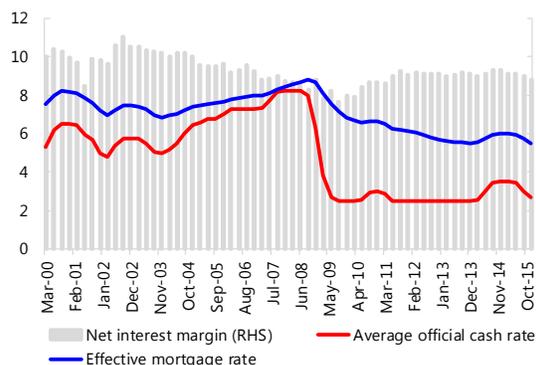
(In percent)



...but an increase in spreads smoothed the fall in mortgage rates.

Mortgage rates and banks' net interest margin

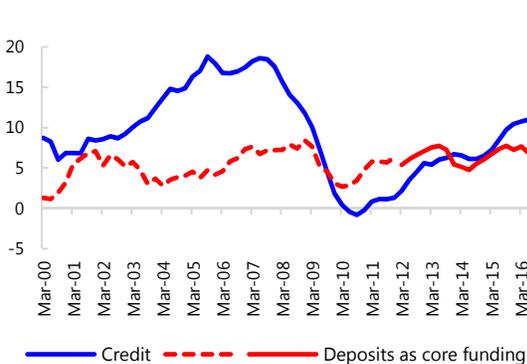
(Annual rate, in percent)



Credit has recently outpaced deposits...

Deposits and credit to GDP growth

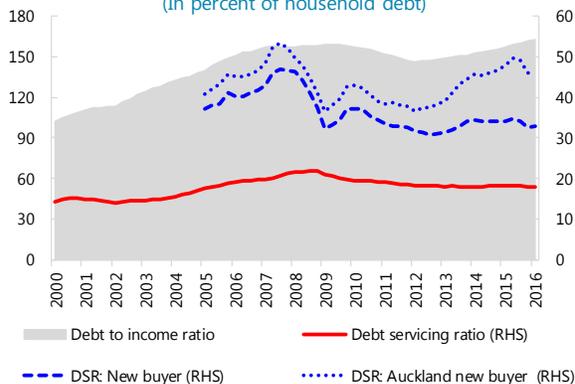
(In percent, annual change)



...and household DTI has reached long-term highs.

Household debt to income and debt servicing ratios

(In percent of household debt)



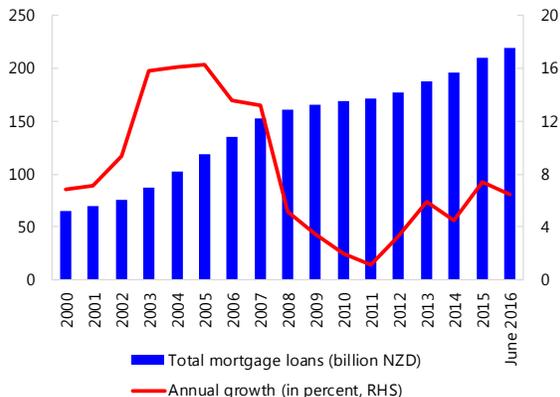
Sources: New Zealand authorities and IMF staff estimates.

Figure 3. New Zealand: Housing Market Risks

The housing market continues to accumulate imbalances, increasing systemic risk.

Following a moderate slowdown after the GFC, mortgages continued to grow...

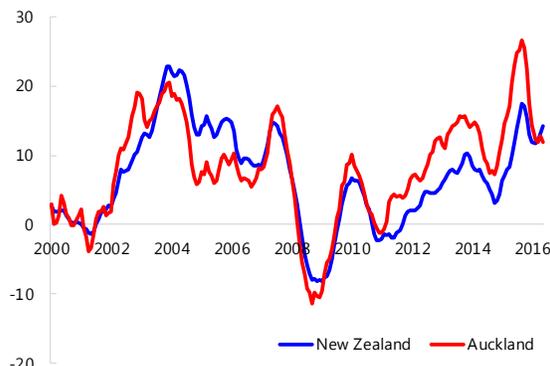
Mortgage lending in New Zealand



...and the increase in house prices remains elevated.

House prices growth

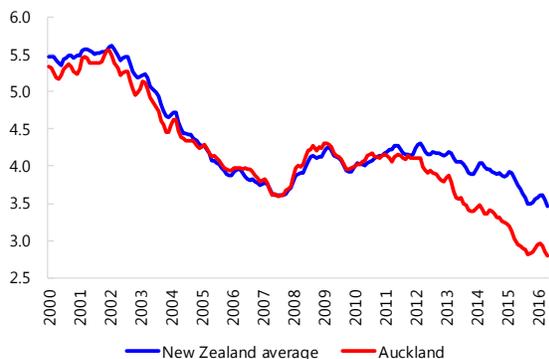
(Annual percentage change, 3 month average)



Long-term declining rental yields...

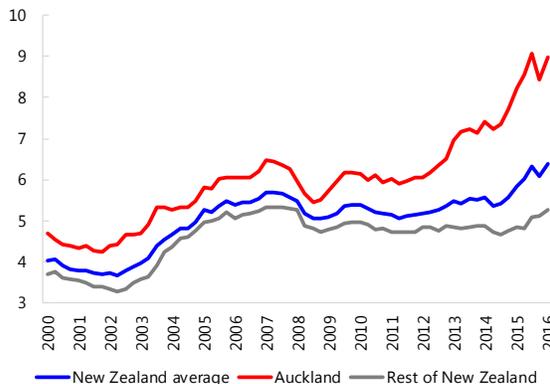
Rental yields

(In percent)



...and increasing price to income suggest overvaluation.

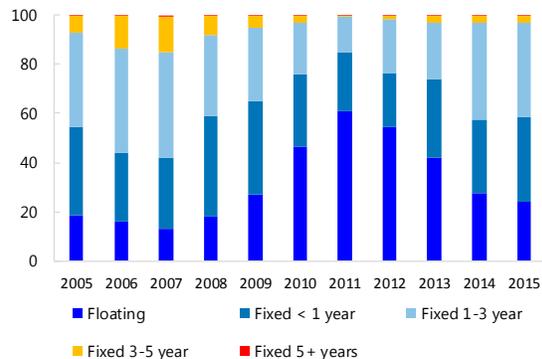
House price to income ratios



Repricing increase risks of higher NPLs.

Bank mortgage loans by type of pricing

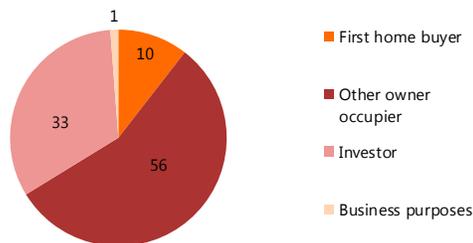
(In percent of total)



Investors are a significant part of the borrowers.

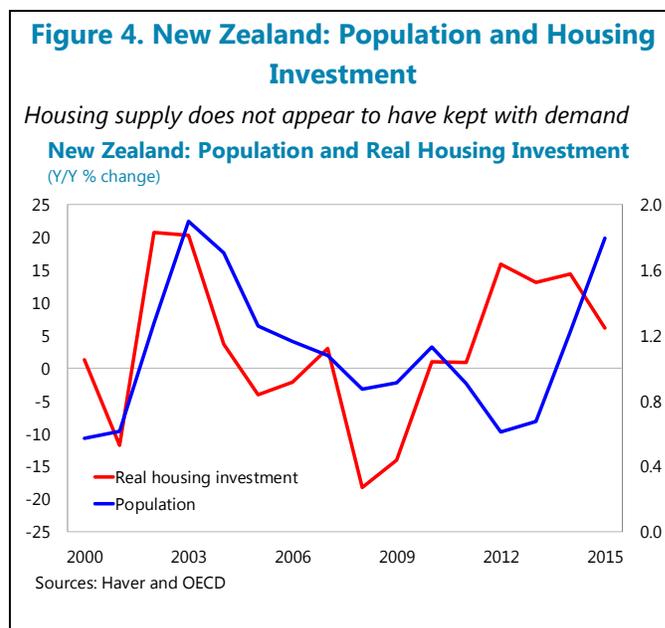
New commitments by borrower type

(In percent of total, end 2015)



Sources: New Zealand authorities and IMF staff estimates.

27. Housing price inflation is partially motivated by fundamentals but there are signs of overvaluation. Housing supply in New Zealand does not appear to have kept up with demand (Figure 4). On the back of strong immigration, population growth has been rapid and well above OECD average, while the share of real housing investment as percent of GDP has remained below the OECD average. The supply problem seems to be particularly acute in Auckland, and supply measures, such as the Unitary Plan,⁵ are expected to have a moderating impact on price dynamics only gradually over time (Box 1). Despite these reasons, international comparisons and fundamental analysis suggest overvaluation in the 20 to 30 percent range.



28. Rising housing prices have allowed investors to use the equity gain to increase leverage and buy new properties. Tax benefits that largely exempt capital gains and relatively limited alternatives for investments have made housing a popular asset category for investments. Higher prices have allowed households to use the equity gain to finance the investment of new properties. This might explain why, despite the conservative restrictions implemented during the last few years, the proportion of investors in the market has increased.

B. Use of Prudential Tools

29. The RBNZ has been actively using LVR tools to address systemic risks from the housing sector. Exposure limits to high-LVR loans were introduced and subsequently adjusted requiring banks to reduce the volume of high-LVR lending as follows:

- **October-2013.** Banks were required to restrict new residential mortgage lending at LVRs over 80 percent (a deposit of less than 20 percent) to no more than 10 percent of the new commitments.
- **November-2015.** To address concerns with investors and the Auckland area, 3 groups of restrictions were created: (i) For investor loans in Auckland, only 5 percent of total new loans could be granted with a LVR above 70 percent, (ii) for other loans in Auckland, only 10 percent of total new loans with a LVR above 80 percent could be granted, and (iii) for loans outside Auckland, only 15 percent of total new loans with a LVR above 80 percent could be granted.

⁵ The Unitary Plan merges several past planning rulebooks and re-zones Auckland to provide higher density housing for population growth of up to 1 million by 2040. The rationale is that higher density and smaller, better located homes would make the city more affordable

Box 1. House Prices in New Zealand (Concluded)

Fundamentals-based approach

Comparing house price developments with their fundamental determinants over time is another approach to assess a potential overvaluation. Following the approach in IMF Country Report No. 16/40 (IMF, 2016a) and modelling real house price changes as a function of real disposable income, the working-age population, equity prices and the level of short- and long-term interest rates captures major demand side fundamentals (Igan and Lougani, 2012). As financial liberalization and disinflation in the 1980s and 1990s impacted the equilibrium levels of house prices and household debt, the estimation period has been set to start after that in the year 2000. Using this approach suggests that house price overvaluation in New Zealand has recently increased further to more than 20 percent.

Regional differentiation and supply factors

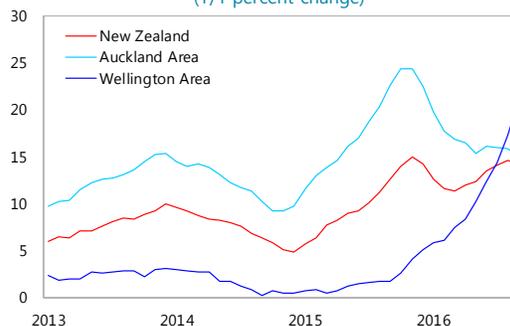
The results above are for New Zealand as a whole.

Price increases are to a large extent driven by developments in the Auckland and Wellington regions (where about a third and a tenth of the population lives, respectively). While residential property prices in New Zealand as a whole picked up 14.3 percent in the year to September, the Auckland and Wellington region experienced price increases of 15.0 percent and 21.2 percent, respectively.

Housing supply in New Zealand would not appear to have kept up with demand. On the back of strong immigration, population growth has been rapid and well

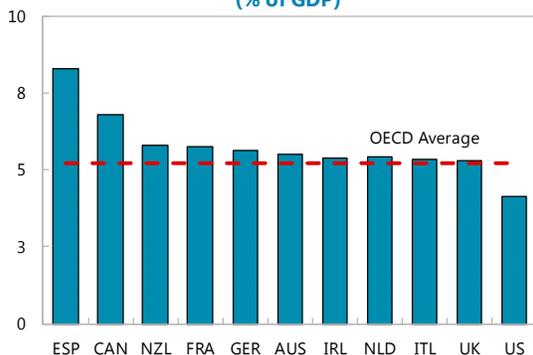
above OECD average, while the share of real housing investment as percent of GDP has remained below the OECD average. The supply problem seems to be particularly acute in Auckland, and supply measures, such as the Unitary Plan, are expected to have a moderating impact on price dynamics only gradually over time.

Residential House Price
(Y/Y percent change)



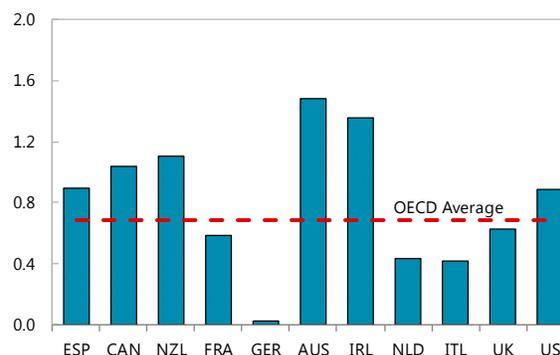
Source: QV via Corelogic

Real Housing Investment, 2000-15
(% of GDP)



Sources: OECD, Haver Analytics, and World Development Indicators.

Population Growth, 2000-15



¹ Prepared by Siegfried Steinlein.

- October-2016.** Geographical differences were removed and the restrictions to investors were tightened. On investor loans, only 5 percent of a bank's total lending to residential property investors can be to borrowers with a deposit less than 40 percent of the house value. On owner-occupier lending, only 10 percent of a bank's total lending to owner-occupiers can be to borrowers with a deposit less than 20 percent of the house value.

30. The RBNZ has also adjusted capital requirements for housing loans, increasing risk weights for loans with high LTVs and investors. In the period between 2013 and 2015 capital requirements for housing loans were adjusted to better align risk weights with the underlying risk of the exposures. The RBNZ considered that the correlation factor of the Basel internal ratings based approach (IRB) formula did not give sufficient weight to the systemic risk presented in mortgage loans and did not reflect appropriately the higher risk represented by investors. To address these shortcomings, the RBNZ increased correlations and Loss-Given Default (LGDs) floors for IRB banks and risk weights for those using the standardized approach. These adjustments were not motivated by changes in systemic risks observed along the financial cycle and are intended to be permanent. Table 2 compares the standardized risk weights in New Zealand in relation to the Basel framework.

31. In practice the adjustments in the capital framework did not substantially increase requirements in relation to the previous rules. Average risk weights for banks following the standardized approach are 38 percent, similar to the weight that would be expected using the Basel Framework. Mortgages in IRB banks are risk weighted in the 25–31 percent range. Changes in correlation increased the requirements by approximately 12 percent considering the mortgage portfolio and 3 percent considering overall capital. Despite the new more conservative calibration, risk weights remained substantially below the ones in force until 2008 (50 percent, following Basel I rules).

Table 2. New Zealand: Residential Mortgages Capital Requirements
(average risk weight, percentage)

Loan-to-valuation ratio ³	Basel II	RBNZ - Qualifying lender's mortgage insurance ²		RBNZ - Non qualifying lender's mortgage insurance ²	
		Non-property investment mortgage loan	Property investment mortgage loan	Non-property investment mortgage loan	Property investment mortgage loan
≤ 80	35	35	40	35	40
>80 LVR ≤90	35 ¹	35	50	50	70
>90 LVR ≤100	>35 ¹	50	75	75	90
≥ 100	>35 ¹	100			

Sources: RBNZ and Capital Adequacy Framework – Standardized Approach.

¹ The Basel framework suggests higher risk weights for mortgages with high LTVs, but do not impose a particular value or threshold.

² Qualification conditions: "A" rating for the insurance and cover all losses up to an amount of no less than 40 percent of the loan value.

³ Property value at origination.

32. The implemented prudential measures are improving the LVR profile of the portfolio of mortgages. The LVR restrictions had a substantial impact on strengthening new loans origination standards and gradually reducing the share of high mortgages in the credit portfolio (Figure 5).

33. The prudential measures also seem to have moved lending and housing prices in the expected direction, but the evidence is inconclusive. In order to evaluate the impact of the LVR restrictions on the growth of credit and house prices, the FSAP team updated the counterfactual analysis conducted by Price (2014). The impact of LVR restrictions on the housing sector was estimated projecting counterfactual growth rates of credit and house prices in the absence LVR limits. The estimation proceeded in two steps. First, a vector-autoregression model (VAR) was estimated consisting of housing-

specific (house price growth, Auckland house price growth, household credit growth, house sales, building consents) and macroeconomic variables (output gap, net migration, mortgage interest rate), using data prior to the announcements of LVR limits by the RBNZ. In the second step, the dynamics of housing-specific variables was projected conditional on the actual behavior of macroeconomic variables in the periods after the introduction of LVR limits (Appendix 1). The results provide mixed evidence on the impact of the restrictions (Figure 6) and are in accordance with the view that during housing booms, rising prices increase the amount that can be borrowed, partially or wholly offsetting tightening of the LVR.

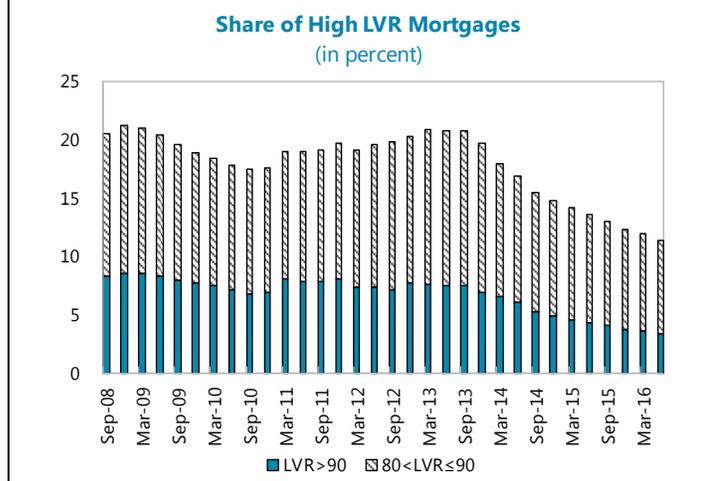
34. Mortgage lending from nonbank institutions and consumer credit does not suggest meaningful leakages from the LVR restrictions. The share of outstanding mortgages from nonbanks has increased, but remains small at approximately 1 percent. The behavior of other consumer credit also does not suggest substantial substitution.

C. Recommendations

35. Despite the positive effects of the LVR restrictions, housing sector imbalances remain and might require further macroprudential actions. While the loan-to-value indicators have improved after the LVR restrictions, there is evidence that imbalances in the sector have not been fully addressed and still generate substantial systemic risk. The growth of credit and housing prices has remained strong for years. The long term decline in rental yields and the persistent rise in the price-to-income ratio as well as fundamental analysis suggest the possibility of overvaluation. Household's debt-to-income have reached record highs and investors are increasing their share of the market. Considering that housing loans represent more than half of banks' assets, authorities are encouraged to continue monitoring closely the financial system and promoting further actions to

Figure 5. New Zealand: LVR Profiles of Portfolio of Mortgages

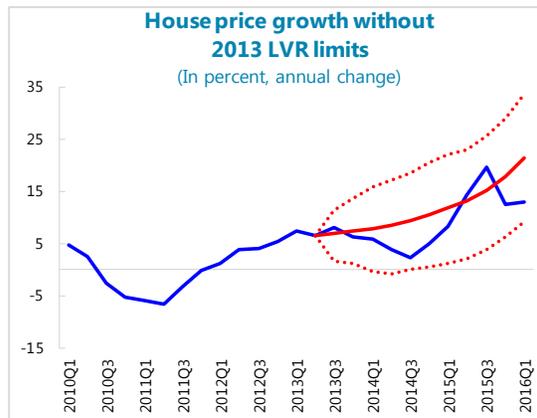
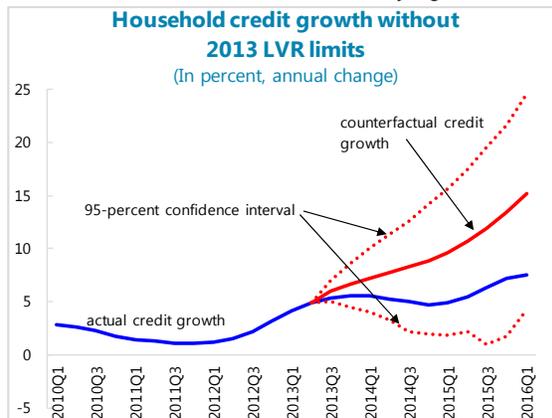
The LVR profile of the portfolio of mortgages is improving.



increase the resilience of the system if the recent adjustment to the LVR regulation does not substantially change the balance of risks.

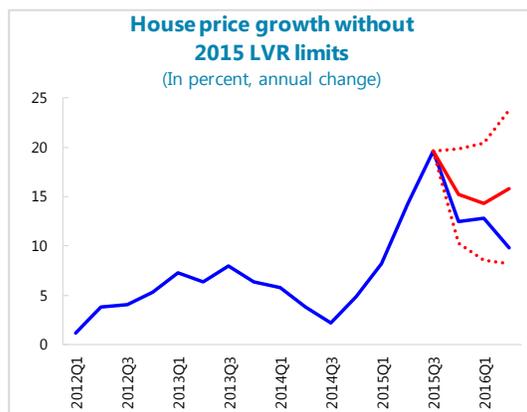
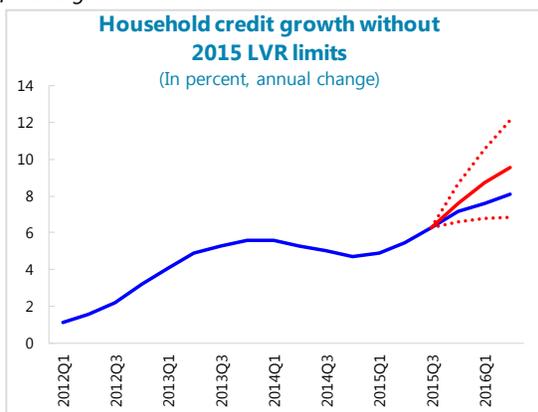
Figure 6. New Zealand: Household Credit and House Prices in the Absence of LVR Limits¹

The counterfactual analysis provides mixed evidence on the impact of LVR limits on housing lending and practices. *Although positive, the difference between the counterfactual and the actual growth of household credit after the 2013 LVR limits is not statistically significant...* *...and there is no evidence that LVR limits introduced in 2013 had a prolonged impact on house prices.*



The 2015 LVR limits do not seem to have affected the rates of credit growth...

...nor the growth of average house prices.



However, the LVR limits introduced in 2015 likely contributed to a reduction of the growth of house prices in the Auckland area, at least in the short term.



Sources: Authorities data and IMF staff estimates.

¹ Prepared by Lucyna Gornicka.

36. Limits on DTI should become part of the macroprudential toolkit. The RBNZ is currently discussing with the Minister of Finance the introduction of limits DTI in the macroprudential toolkit. Caps on DTI, or measures of similar nature such as DSI, can usefully complement the LVR restrictions addressing remaining risks and more directly targeting the risks from record high indebtedness of households in New Zealand. DTI limits can increase the resilience of the financial sector by reducing the PDs and eventual losses and could contribute to the stabilization of the sector by reducing the demand for loans. Considering that risks build up relatively quickly, the expansion of the macroprudential toolkit is an important precautionary step for the RBNZ to be ready to respond should the need arise. As DTI and other affordability metrics are operationally challenging to implement due to definition issues that hinder consistent application across banks, it is key to engage in discussions with banks long in advance.

37. The authorities should consider gradually establishing limits on DTI if current risks remain. It is still not possible to assess the effects of the October 2016 LVR adjustments on the risks stemming from the housing market. If the measures do not substantially reduce current risks, as the recent experience with LVR measures seem to suggest, the authorities should consider complementing current measures with DTI limits.⁶ Price increases, as currently observed in New Zealand, tend to reduce the effectiveness of the LVR restrictions due to refinancing operations, potentially requiring successive tightening. In this scenario, caps on DTI might work as automatic stabilizers because they tend to become more binding when house prices grow faster. The reliance on multiple tools tends also to reduce distortions in comparison to the use of only one more conservatively calibrated tool. First time home buyers, for instance, tend to be more affected by LVR restrictions because they have not benefited from the equity gain represented by the house price increase. Nevertheless, they might be in a better position in terms of income availability in relation to investors and other buyers. Indeed, Table 3 shows that the share of first time buyers with high DTI is substantially smaller than the share of investors and other owner occupiers in New Zealand. When implementing the restrictions, authorities should take a gradual approach to mitigate uncertainties over the strength of the transmission of the policy actions and reduce the burden on lenders and borrowers.

38. Authorities are encouraged to maintain efforts to reduce distortionary tax benefits and facilitate housing supply. Tax measures announced in the 2015/16 budget have also contributed to reduce the risks in the housing market. The measures apply income tax on profits from property sales for non-primary residences if the house is bought and sold within two years. The government also announced a tightening of reporting and taxation rules for foreign buyers. Considering that favorable tax incentives can incentivize households to excessively leverage against housing assets, authorities are encouraged to continue reducing tax benefits that distort the housing market. Furthermore, demand-side sectoral tools should be complemented with housing supply measures. On the back of strong immigration, population growth has been rapid in New Zealand and housing supply has not kept up with demand. Supply measures operate at a greater lag but they are key to reducing the mismatch between supply and demand in the long term.

⁶ For a summary of international experience with LTV and DTI measures, see IMF 2016b, box 1.

Table 3. New Zealand Share of Mortgages by Type of Borrower and DTI
(in percent)

	First home buyers	Investors
DTI ≤ 3	18.9	14.2
DTI > 3	81.0	84.1
DTI > 4	59.1	74.6
DTI > 5	34.6	59.6
DTI > 6	16.1	45.0
DTI > 7	6.5	32.4
DTI unknown	0.1	1.7

Sources: New Zealand authorities and IMF staff estimates.

STRUCTURAL RISKS AND TOOLS

A. Structural Risks

39. The concentration of the financial sector generates structural vulnerabilities that need to be addressed. The four biggest banks in New Zealand hold 87 percent of the banking system assets (Figure 7). These four banks have very similar business models with the majority of their assets associated with housing loans and partly reliant on foreign funding. Direct exposures among them are relatively limited, but the potential for spillovers is elevated. One of the important channels for spillovers is the reliance on overseas funding which could lead to a tightening in the system in case of problems in one bank. Furthermore, due to their size, the deleveraging or fire sales of assets by one bank is likely to contaminate the whole system due to the depression of asset values and economic activity.

40. The RBNZ has not formally identified a set of systemic important institutions or imposed additional capital requirements based on systemic importance. The decision is related to the desire to avoid moral hazard issues associated with the perception that a set of institutions are ‘too big to fail’. Considering the concentration of the system and the fact that smaller banks tend, in practice, to hold larger capital ratios, the RBNZ considers it more efficient to apply higher requirements to all banks, if it appears necessary. The RBNZ is currently conducting a wider review of the capital framework considering the changes in the international standards proposed by the Basel Committee.

41. The sectoral concentration of the credit portfolio is also high. The majority of the assets of the banks are housing loans. The dairy sector also represents a key systemic risk. Dairy exposures represent around 10 percent of total bank lending, while total agriculture exposures are around 15 percent. All dairy farms are exposed to the same underlying commodity price, so there is a high degree of correlation in cash flows across farms. Farm land values are also highly correlated with commodity prices, and the market is prone to a lack of liquidity during downturns. Because of these

factors, there is a risk of a significant number of farm loans becoming nonperforming during periods of cash flow pressures.⁷ Other agricultural and agribusiness lending is a significantly smaller portion of bank balance sheets and is more diversified.

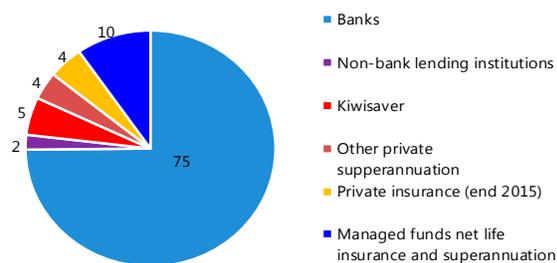
Figure 7. New Zealand: Structure of the Financial Sector

The strong concentration of the financial system generates systemic risks.

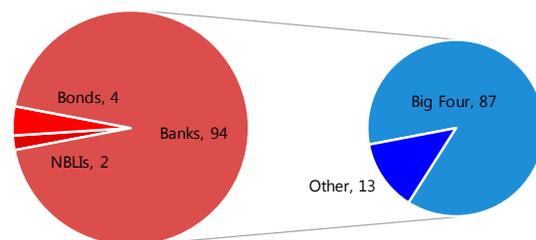
The financial sector is dominated by banks...

...which are highly concentrated on subsidiaries of four Australian banks.

Financial system in New Zealand
(In percent of total financial assets, June 2016)



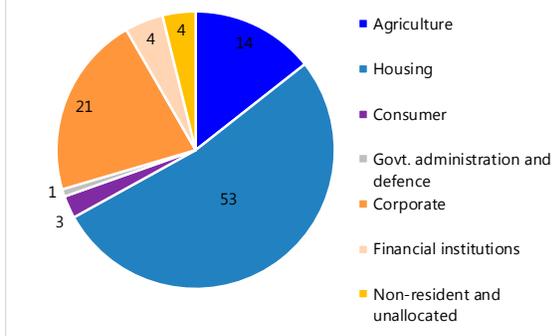
Lending to the economy by the type of institutions
(In percent of total lending, 2015)



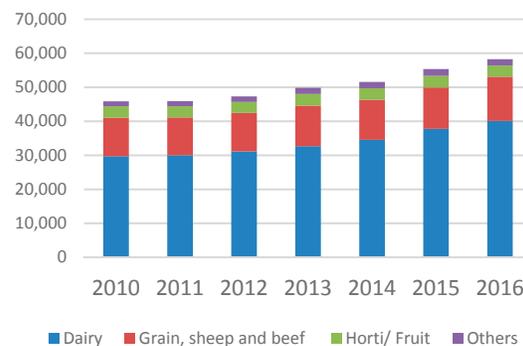
Housing and agriculture credit comprises a large part of the assets of the banks.

Agriculture loans are mainly comprised of loans to the dairy sector that tends to be highly correlated.

New Zealand banks' claims by sector
(In percent of total bank claims, June 2016)



Agriculture Credit
(millions NZ\$)



Sources: Authorities data and IMF staff estimates.

⁷ Dairy commodity prices are currently low, and a large proportion of the sector has been experiencing negative cash flow for the last two seasons. As a consequence, nonperforming loans have been rising, although remain at around 1.5 percent. Stress tests of the sector suggests show that NPLs could increase significantly, but in isolation should be absorbed from underlying earnings across other bank assets.

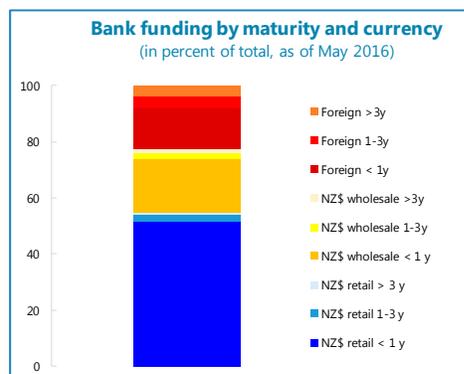
42. New Zealand’s chronically low savings makes the economy dependent on borrowing from abroad.

New Zealand’s banking system has a structural reliance on offshore wholesale funding (Figure 8). Through the introduction of a prudential liquidity policy in 2010, the RBNZ has addressed the rollover risk associated with this structural reliance on wholesale funding by requiring a greater share of debt-funding from long-term instruments. However, offshore funding continues to be material (albeit with a reduced

reliance on short-term wholesale funding) and likely to increase due to the outpacing of deposit growth by credit growth. This creates a structural vulnerability to the deterioration in global funding conditions. Banks tend to hedge the currency risk and foreign currency loans are not material in the system, mitigating part of the problem. One additional issue that challenges the liquidity management of banks in New Zealand is the lack of liquid assets in the system. In practice, a significant part of the liquidity buffer of banks is comprised of residential mortgage-backed securities that can be used in repo operations with the RBNZ.

Figure 8. New Zealand: Structure of Bank Funding

The banking system has a structural reliance on offshore wholesale funding.



B. Use of Prudential Tools

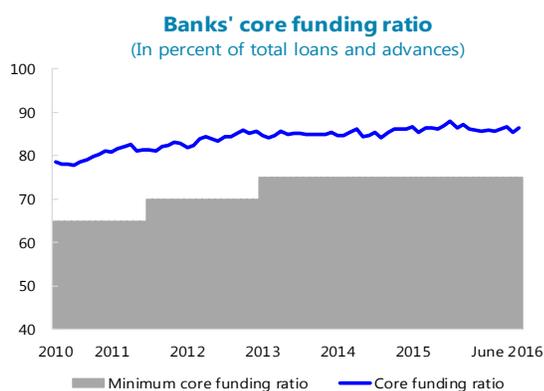
43. RBNZ has strengthened the regulatory framework to reduce the reliance of banks on short-term wholesale funding.

The Core Funding Ratio (CFR) was initially set in 2010 at 65 percent to reflect the existing mix of funding at the time (Box 2). The RBNZ increased the requirement in mid-2011 to 70 percent and to 75 percent in early 2013. In response, banks increased the proportion of retail deposits and long term funding (Figure 9). The regulatory changes were designed to provide a sound minimum funding base for banks and are meant to be permanent. The MoU on

macroprudential policy allows temporary adjustments to the CFR in response to the financial cycle, but the tool has not been used with this purpose yet. Stress tests conducted within the context of the FSAP concluded that the liquidity profile of New Zealand banks is resilient.

Figure 9. New Zealand: Banks’ Core Funding Ratio

Improvements in the liquidity position of New Zealand banks can be attributed to strengthened regulatory standards.



44. The capital framework was adjusted to take into account the risks associated with the high homogeneity and correlation of farm loans. The RBNZ considered that the firm size adjustment allowed in the IRB framework reflected a view about the heterogeneity of the exposures that did not apply to small farm loans in New Zealand. The regulatory changes removed the possibility of banks to reduce their capital requirements through the adjustment and established LGD floors as a function of the LVR. At the same time, the Reserve Bank required banks to use a term of 2.5 years for the purpose of the maturity adjustment

Box 2. Liquidity Requirements in New Zealand

RBNZ's Liquidity Policy (BS13) imposes a range of quantitative and qualitative requirements on banks. The policy requires banks to comply with the following quantitative requirements: (i) the one-week mismatch ratio, which cannot be less than zero percent at the end of each business day; (ii) the one-month mismatch ratio, which cannot be less than zero percent at the end of each business day, and (iii) the one-year CFR which cannot be less than 75 percent at the end of each business day.

While the RBNZ introduced BS13 before the development of international standards, the quantitative requirements are similar in terms of their high-level objectives and structure. In particular, the one-month maturity mismatch ratio is conceptually comparable to the liquidity coverage ratio (LCR). Nevertheless, the definition of liquid assets, limits and calibrations are different.

The mismatch ratio tends to be less conservative than the LCR due to a broader definition of liquid assets. The mismatch ratio includes most securities rated BBB- or better, including commercial papers, corporate bonds, asset backed securities, registered bank securities and subordinated debt, which may not be eligible in the Reserve Bank's Domestic Market Operations. The regulation imposes haircuts, including on New Zealand government securities (one or three percent, depending on the maturity) but, overall, the applied haircuts tend to be lower than the ones used by the Basel Committee. There are eligibility limits for residential mortgage-backed securities and registered certificates of deposits, but other securities can be included in the liquidity buffer without restrictions.

The treatment of contractual inflows and committed facilities also tend to be more lenient than international standards. The LCR limits contractual inflows to 75 percent while such cap does not exist in New Zealand. The New Zealand standard also allows banks to consider 75 percent undrawn committed lines granted to the bank, while the LCR completely discard these facilities.

Run-off factors in the mismatch ratio have a less granular structure than the LCR. The outflows prescribed in the domestic regulation are based on the size of the liability (dollar amount) and do not consider the type of institution providing the funds or the existence and type of collaterals. The different structure hinders a direct comparison between the run-off factors used in New Zealand and in the LCR.

The CFR has been designed to address the over-exposure to short term wholesale funding by lengthening the tenor of funding in New Zealand. The objectives of the CRF are similar to the net stable funding ratio proposed by the Basel Committee. The CFR is calculated as the ratio of core funding dollar amount to total loans and advances. The core funding amount includes all funding with residual maturity longer than one year, plus 50 per cent of any tradable debt security with residual maturities between 6 months and one year, plus tier 1 capital, plus a percentage of non-marketable funding with residual maturity less than one year that depends on the size of the liability. The requirement has been tightened over the years. The RBNZ explained that a 75 percent CFR results in liquidity requirements broadly equivalent to a 100 percent NSFR.

C. Recommendations

45. Capital requirements should better reflect the systemic risk posed by the concentration of the financial system. The RBNZ has been making efforts to increase the effectiveness of its approach to bank resolution, and in particular minimizing the impact on the wider financial system from a bank failure.⁸ Nevertheless, distress of SIFIs still tends to cause significant disruption to the wider financial system and economic activity. The largest banks in New Zealand are systemically important and should be required to hold capital commensurate with the magnitude of the externalities of their eventual failure. Considering the high importance of market discipline in the RBNZ prudential approach and that, in practice, smaller banks traditionally maintain larger capital ratios, it does not seem necessary to differentiate the size of the capital buffer by banks. Nevertheless, the current review of the capital requirements regulation being done by the RBNZ is recommended to increase capital thresholds for the SIFIs or the whole system to better reflect the risks posed by the concentration of the financial system.

46. Liquidity requirements should provide stronger incentives for banks to reduce excessive reliance on the provision of liquidity by the Reserve Bank. New Zealand introduced liquidity standards before the development of Basel III, and these have been effective in improving the general liquidity profile of banks since their implementation. Nevertheless, although broadly aligned in terms of high-level objectives the New Zealand standards do not provide the same incentives for banks to hold liquid assets and enhance their liquidity management as the international standards. While the broad range of assets considered liquid by the regulation is necessary due to the shortage of high-quality liquid assets in New Zealand, it results in significant holdings of assets that will only be liquid in stress if there is central bank support, and does not provide strong incentives for banks to maximize holdings of genuine liquid assets. Furthermore, the regulatory approach is not sufficiently granular to differentiate appropriately the structure of assets and liabilities for liquidity purposes, reducing the incentives of banks to consider the differences in their managerial decisions. While the lack of a sufficient volume of liquid assets in the market prevents a full solution to the problem, further convergence with international standards could potentially reduce existing distortions.

⁸ The outsourcing policy requires large banks to have the legal and practical ability to control and execute core outsourced functions. It is designed to ensure that banks have the ability to continue to provide core liquidity, payment and transaction services in the event that one of its service providers fails or becomes dysfunctional, or if the bank itself fails. The Open Bank Resolution policy (OBR) was developed to provide a credible alternative to the use of public funds when resolving systemically important banks. The goal of the OBR policy is to allow a distressed bank to continue its core banking services to retail customers and businesses, while placing the cost of a bank failure primarily on the bank's shareholders and creditors rather than the taxpayer.

Appendix I. The Impact of LVR Restrictions on the Housing Sector in New Zealand—A Counterfactual Analysis¹

Macroprudential measures such as LVR restriction have as the primary goal to increase the resilience of the financial sector but may also help dampen the extremes of the credit cycle. In order to evaluate the impact of the LVR restrictions on credit and house price growth, we update the counterfactual analysis conducted by Price (2014). Extending this analysis, we estimate the impact of the LVR restrictions introduced in November 2015, and update the analysis of the October 2013 LVR limits beyond the initial assessment period.

We estimate the impact of the LVR restrictions on the housing sector projecting counterfactual house and credit growth rates in the absent LVR limits. We proceed in two steps: First, we estimate a VAR that consists of housing-specific and macroeconomic variables using data prior to the announcement of LVR limits by the RBNZ. We estimate the VAR on quarterly data, starting in 1993. The VAR consists of the following 9 variables, which we obtained from the RBNZ and Statistics NZ : (i) net migration of non-NZ citizens per 1000 NZ residents, (ii) net migration of NZ citizens per 1000 NZ residents; (iii) output gap calculated using one-sided HP filter; (iv) floating rate on new mortgage for new customers; (v) number of house sales per 1000 NZ residents; (vi) number of new building consents per 1000 NZ residents (vii) annual real growth rate of average NZ house prices; (viii) annual real growth rate of house prices in the Auckland region, and (ix) annual real growth rate of household credit.

Second, we project the dynamics of the housing specific variables, conditional on the actual behavior of macroeconomic variables, in the periods after the introduction of LVR limits. Thus, for the 2013 LVR limits, we estimate a VAR based on 1993Q1–2013Q1 data, and project housing-specific variables for 2013Q3–2016Q1 period. For the 2015 LVR limits, we estimate the VAR based on 1993Q1–2015Q1 data, and we make forecasts for the three quarters 2015Q4–2016Q2.

The conditional forecasts of housing-specific variables (variables 5–9) are made using the actual paths only of the four macroeconomic variables (variables 1–4) in the forecasted period. Figure 4 presents the actual and the “counterfactual” paths of household credit growth, New Zealand-wide house price growth, and Auckland region house price growth. The counterfactual paths – our conditional forecasts from step two - provide estimates of the behavior of the three variables in the absence of LVR limits. The dotted lines represent the 95-percent confidence intervals around the estimates.

The counterfactual analysis provides mixed evidence on the effectiveness of the LVR limits. While the forecasted household credit growth is above the actual credit growth path following the introduction of 2013 and 2015 LVR limits, the difference is not statistically significant at the 95 percent confidence level. The impact of the LVR limits on New-Zealand average house price growth

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is not statistically significant neither for 2013 nor for 2015 LVR limits. However, the 2015 LVR limits seem to have reduced the price growth in Auckland area (at least in the short-term).² Similarly, the counterfactual analysis indicates that both 2013 and 2015 LVR limits have reduced the number of house sales in New Zealand

² Price (2014) argues that the confidence intervals are very wide due to high volatility of the credit and price growth in the recent years. In the case of 2015 LVR limits, also the forecast period is very short, which increases forecast uncertainty further.

References

- Igan, D. and Lougani, P., 2012, "Global housing cycles", IMF working paper 12/217. (Washington D.C.: International Monetary Fund).
- IMF, 2016a, "New Zealand – Selected Issues", Country report 16/40, February (Washington D.C.: International Monetary Fund)
- _____, 2016b, "Ireland – Macroprudential Policy Framework", Country report 16/316, September (Washington D.C.: International Monetary Fund)
- _____, 2014a, "Staff Guidance Note on Macroprudential Policy," December (Washington D.C.: International Monetary Fund).
- _____, 2014b, "Staff Guidance Note on Macroprudential Policy: Detailed Guidance on instruments," December (Washington D.C.: International Monetary Fund).
- Price, G., 2014, "How has the LVR restriction affected the housing market: a counterfactual analysis?", Reserve Bank of New Zealand Analytical Note AN2014/03, May.
- Rogers, Lamorna, 2013, "A new approach to macro-prudential policy for New Zealand", Reserve Bank of New Zealand: Bulletin, Vol. 76, No. 3, September.