



Institute of Finance Professionals New Zealand Inc.

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Ian Woolford  
Financial System Policy and Analysis Department  
Reserve Bank of New Zealand  
Wellington

By Email: [CapitalReview@rbnz.govt.nz](mailto:CapitalReview@rbnz.govt.nz)

Dear Ian,

### **INFINZ – Submission on the Regulatory Capital Review**

Thank you for the opportunity to provide submissions on the Reserve Bank's *Bank Capital Review: Capital Review Paper 4* ("Capital Review Paper").

#### **About INFINZ**

The Institute of Finance Professionals in New Zealand Inc (INFINZ) is the pre-eminent industry body for finance and capital markets professionals in New Zealand. INFINZ is a voluntary organisation, with membership of more than 1,650 individuals drawn from right across the sector, including treasury professionals, investment analysts, fund managers, bankers, lawyers, academics and students.

One of the key missions of INFINZ is advocacy for stronger capital markets in New Zealand. Vibrant capital markets underpin the key matters of productivity, well-being and investment, where there is an increasing focus on addressing New Zealand's infrastructure deficit and decarbonising our economy. This submission has been prepared primarily with those issues in mind.

#### **A note about the preparation of this submission**

The resource for INFINZ's advocacy function is drawn solely from members of its board. This submission was prepared by a sub-committee, comprising a corporate treasurer, an economist, an M&A and governance consultant, and a finance/capital markets lawyer, with some input from a finance academic and prudential supervision expert. It also reflects input from:

- a range of communication, including forum discussions, with members who are CFOs or corporate treasurers of a number of New Zealand's leading companies and other institutions; and
- specialist treasury advisers, who are regularly in touch with borrowers across the full range of large corporates to small-to-medium sized companies (SMEs).

We are grateful for the input from our members on what is a very difficult subject. We would like to acknowledge that, while we have consulted as broadly as we could, the nature of our membership is such that it is not possible to canvass all of them for their views.

We have appreciated the time taken by members of the Prudential Supervision Department to meet with us to discuss the Capital Review and the open engagement brought by that group. We look forward to continuing this dialogue as the proposals are developed.

## Introduction – key themes of our submission

The purpose of capital requirements and other tools is to achieve a “*sound and efficient financial system*” (s 68 of the Reserve Bank of New Zealand Act 1989 (“RBNZ Act”). The Reserve Bank also has the purpose, in its prudential and other functions, to “*promote the prosperity and well-being of New Zealanders, and contribute to a sustainable and productive economy*” (s 1A RBNZ Act, as amended recently following Phase 1 of the Reserve Bank Review).

These principles form the basis for the Reserve Bank’s prudential mandate. Given the importance of the consultation process, it is essential that submitters and other stakeholders have the information they need in order to assess whether the capital proposal presented by the Reserve Bank achieves the objectives underlying that mandate.

INFINZ acknowledges the importance of the Capital Review, since financial stability underpins New Zealand’s broader economic performance. We support the Reserve Bank in wanting a sound, stable and efficient banking sector. This is especially significant given the key place that bank financing has in the New Zealand market, particularly for those (such as SMEs or rural borrowers) who do not have the scale or credit rating to access the capital markets.

Clearly measures taken to achieve stability (such as capital requirements) have material economic consequences that need to be assessed, both from the perspective of efficiency and soundness. Although these criteria involve inherent trade-offs, the degree of their interdependence and complementarity should not be neglected – particularly in circumstances where similar stability results can be achieved by alternative, more efficient, means.

It is essential that we devote the time and resources to getting this right. Although the Reserve Bank has rightly focused on our acknowledged vulnerabilities (e.g. elevated housing-related debt), the same factors mean that our economy has a high degree of sensitivity to the cost and availability of debt financing. These flow through to our levels of investment and therefore productivity, which are already well below the OECD median, with widespread consequential impacts on our prosperity and wellbeing.

Our poor domestic savings record and constrained access to foreign direct investment mean that we are also likely to remain heavily reliant on debt to finance the significant investments required to address our infrastructure deficit and related housing affordability issues, adjust to increasingly rapid technological change, and achieve the Zero Carbon target. In the latter regard, it is encouraging to see the Reserve Bank’s recent commitment to a climate change strategy.

Together, these factors make it particularly important that the optimal balance of soundness and efficiency is achieved.

To date, the debate has centred on the capital proposal’s funding cost impacts – whether the marginal benefit of higher capital exceeds the marginal cost of the capital requirement. This is important, and in our view should be subject to additional scrutiny,<sup>1</sup> but it is not the only issue for consideration.

Empirical studies indicate that factors other than capital ratios (for example, controls addressing funding structure and credit growth) have at least as much of a role in achieving stability as the level

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<sup>1</sup> The UBS calculation of an 80 to 125 basis point margin increase is by now quite well known, and we are aware of other calculations prepared by credible investment analysts that are also around or above a 100 bp increase (+/-), which is two and a half times the high end of the Reserve Bank’s projected range. Other independent analysts have arrived at numbers somewhere in the middle – it is not a precise science. We are not able to test these projections ourselves, but consider that it would be prudent to for a sensitivity analysis to be undertaken.

of loss-absorbing capital/leverage. For this reason, a narrow focus on capital is unlikely to be optimal in achieving either soundness or efficiency, without a closer look at the contribution of other options available in the prudential toolkit (summarised in Appendix 1). These complementary tools should be explored in a cost-benefit analysis and should be factored into decisions on the ultimate level of prudential capital, consistent with the approach taken by the Bank of England (Brooks et al 2015).

As noted below, the Reserve Bank has implemented policies addressing these matters and thus contributing to stability, but it is not clear that the resulting lower systemic risk probability has been factored into the calculation of the minimum capital requirement.

This is more than a question of cost of capital, although that is very important in light of New Zealand's Net International Investment Position and reliance on debt intermediated by the banking system as the dominant source of capital. There is a broader range of potential impacts from the changed policy, which are not given in-depth consideration in the Capital Review Paper. These could include transitional or lasting changes in lending composition, credit growth, and deposit rates, as well as second order impacts on investment and productivity. Some of these effects may be less prevalent if alternative tools are used (including alternative loss-absorbing capital instruments), but in any event they should be factored into an analysis of the proposal's contribution to soundness and efficiency.

As things stand, we think that insufficient material and analysis has been put forward to enable a confident assessment that the capital proposal is the best solution to achieve optimal financial stability settings for New Zealand, either viewed alone or when considered alongside other prudential options.

This is all the more important where the recommended option differs materially from the approach recently taken in other jurisdictions – most notably in Australia – in relation to both the level of capital required and how it is composed. There is little exploration of these alternative approaches in the Capital Review Paper or accompanying material. A cross-country comparison to Australia would be particularly relevant given the home-host relationship in relation to our four largest banks.

Our key submission is that the capital proposal warrants a level of scrutiny proportionate to the magnitude and breadth of its potential impacts on the wider economy. Such an assessment can only be made based on a robust cost-benefit analysis. This includes assessing alternative options and consideration of the contribution to stability provided by other existing or available prudential tools, and of the broader range of potential impacts the capital settings may have. That is, what are the optimal settings across each of the prudential tools available that, in combination, deliver the optimal balance of stability and cost? Such an assessment would provide confidence to all stakeholders that both soundness and efficiency will be optimised.

## **Two key questions**

Before addressing the detail, there are two key questions to consider: (1) what problem are we trying to solve; and (2) why is the position in New Zealand so different to other jurisdictions as to require significantly higher minimum levels of regulatory capital, and regulatory settings so heavily tilted toward the common equity tier 1 (CET1) component of the prudential toolkit?

At first sight, New Zealand stands out in the comparative strength of its banking system, not its fragility.<sup>2</sup> But we rank low on many efficiency and productivity measures, sometimes among the lowest

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<sup>2</sup> For example Fitch, which recently conducted its own stress tests on the New Zealand banking system, found it resilient to shocks, consistent with the Reserve Bank's own regular stress tests. Refer also the assessment in the IMF FSAP (May 2017), pgs 22 to 24, that New Zealand banks are "resilient to a severe global economic downturn".

in the OECD, due in large part to deficient non-residential investment. In these circumstances, it is particularly important to give due emphasis to both soundness and efficiency.

In addition to these factors, the determination that greater conservatism is required in New Zealand's prudential settings is based on a 'risk appetite framework' and the related regulatory approach in which the efficiency criterion is analysed as a second level criterion, after requisite soundness is achieved (each of these points is canvassed in more detail below).

The policy settings are also influenced to some extent by resourcing considerations and by a regulatory philosophy having a preference for simplicity and for a light-handed approach. A number of these matters were highlighted by the IMF in its recent FSAP assessment.

Similar factors that have led to the conservatism bias in the level of capital have also influenced the restriction in its composition to CET1, missing the opportunity to access the complementary qualities of bail-in instruments in creating a risk-averse constituency with 'skin in the game' to counteract the incentives of shareholders and to yield pricing signals more responsive to emerging credit issues.

In our submission, each of these premises would warrant further evaluation, particularly in light of the FSAP recommendations and the concurrent Phase 2 Review.

### **Taking the time to get it right**

The New Zealand financial system is consistently described by the Reserve Bank, credit rating agencies, and international agencies as stable and well-capitalised, albeit subject to the familiar vulnerabilities of housing-related and rural debt. Overall economic conditions are sound, credit growth is muted, and there is no sign of the emergence of the sorts of exuberance or financial exotica associated with the GFC (although even then, with only limited penetration to New Zealand).

In its most recent Financial Stability Report (published in November 2018, just prior to the capital proposal), the Reserve Bank noted:

- Household sector indebtedness remains a key vulnerability, but risk is reducing (thanks, at least in part, to the LVR "speed limits" imposed by the Reserve Bank).
- The banking system is sound, with large capital buffers.
- Banks have strengthened their funding profiles, through higher deposits, lower market exposure, and weaker credit growth. The percentage of offshore funding has reduced substantially.

The banks have passed rigorous and regular stress tests, in which the banking system was able to absorb losses – including in a scenario of a "severe" fall in house prices – and retain sufficient capital to meet minimum capital requirements.

Over the longer run, New Zealand is one of only six countries whose banking systems have never suffered a financial crisis (including the similarly structured Australian and Canadian banking systems, despite the relatively high levels of credit in each).<sup>3</sup> This is acknowledged in the Capital Review Paper (para 51 on pg 22), which noted that "*the absence of any banking crisis here in the post-war era,*<sup>4</sup>

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<sup>3</sup> Refer Laeven and Valencia (2018), Huang and Ratnovski (2009) and Reinhart and Rogoff (2009).

<sup>4</sup> The reference here is likely to a bank failure in 1895 requiring recapitalisation by its shareholders and the government – refer Chris Hunt "Banking crises in New Zealand – an historical perspective" RBNZ Bulletin, Vol. 72, No. 4, December 2009. Neither that, nor a similar occurrence following the 1987 crash, were systemic in nature.

poses some pragmatic constraints on the range of analytical tools that are available to us” and that “there has been no large loan loss events in New Zealand in recent decades” (para 63, pg 25).

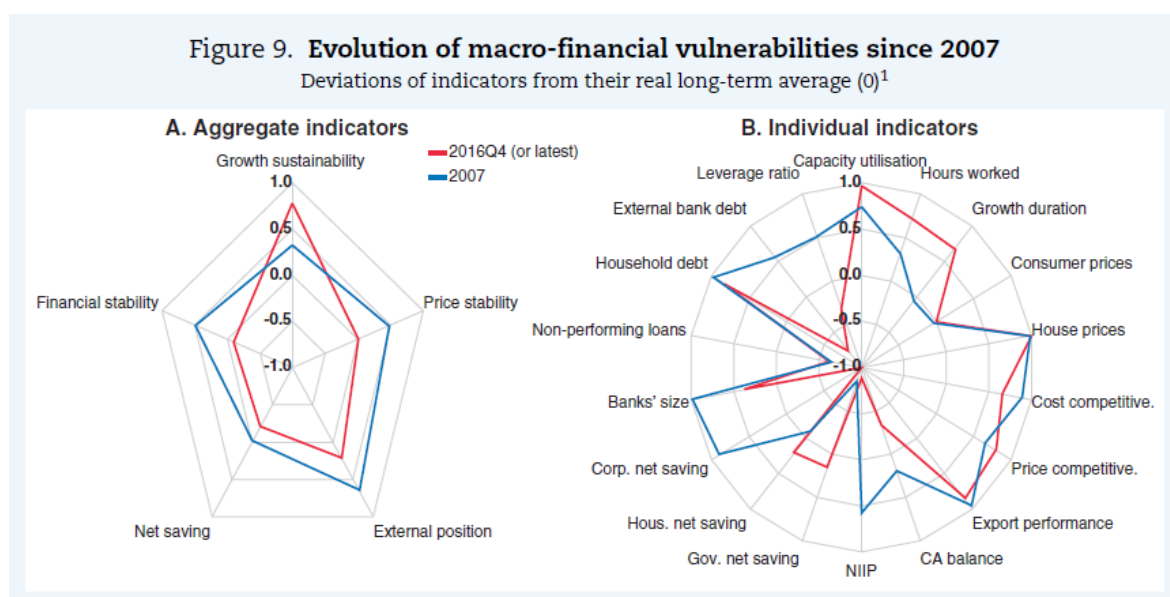
The IMF in its recent Financial System Assessment conducted stress tests which found that major New Zealand banks are “resilient to a severe global economic downturn”.<sup>5</sup>

The OECD, in its most recent survey of New Zealand (June 2017),<sup>6</sup> similarly found little cause for alarm in relation to macro-economic or financial system stability – each of which has been improved since the GFC, at the same time as the banking system has significantly bolstered its capital adequacy, liquidity and funding resilience, and new tools have been added to the Reserve Bank’s arsenal.

Key OECD findings were:

- Macro-financial vulnerabilities are generally lower than at the end of the last expansion in 2007, with high house prices and associated high levels of household debt remaining the major sources.
- The external position remains a risk, with relatively weak cost and price competitiveness and export performance, but all have improved since 2007, as has the current account balance and net international investment position.
- *Financial stability has shown the greatest improvement, as tightened regulation has reduced external bank debt and leverage.*

The changes since 2007, and remaining key vulnerabilities, are shown in the following diagrams:



None of this leaves room for complacency, but it does provide good conditions in which to ensure that the review of capital settings is robust and comprehensive. This is not a situation in which, in exercise of its operational independence, the Reserve Bank needs to move quickly, or alone.

<sup>5</sup> IMF “New Zealand: Financial System Stability Assessment” (IMF Country Report 17/110, May 2017), pgs 22 to 24.

<sup>6</sup> [www.oecd.org/economy/surveys/NewZealand-2017-oecd-economic-survey-boosting-productivity-and-adapting-to-the-changing-labour-market.pptx](http://www.oecd.org/economy/surveys/NewZealand-2017-oecd-economic-survey-boosting-productivity-and-adapting-to-the-changing-labour-market.pptx)

It is also an ideal time to fundamentally review the central banking arrangements in New Zealand, to ensure that they serve us as well for the next three decades as they have in the previous three, since the RBNZ Act 1989 came into effect. We commend the Government for the current review, the first phase of which – concerning monetary policy – has now become law.

### **Concurrence of the Phase 2 Review of prudential policy-making arrangements**

Phase 2 of the review concerns the equally important, but less conspicuous, topic of prudential supervision. The terms of reference for Phase 2 were agreed on 7 June 2018, addressing the financial policy provisions of the RBNZ Act, and the broader governance and accountability arrangements for the Reserve Bank, particularly as relate to prudential regulation and supervision.

On 1 November 2018, the Phase 2 paper was released for consultation, six weeks before the Capital Review Paper. The Phase 2 paper looks at changes which may be made to the structure and accountability arrangements for prudential policy and supervision. While it is not necessarily the case that the Capital Review should be put on pause pending the outcome of the Phase 2 Review, it equally would be a missed opportunity if one of the most significant decisions in the 30-year history of the RBNZ Act were to take place without at least some acknowledgement of the issues that motivated the Phase 2 Review.

In this regard, we think that there is a gap in the arrangements under the existing RBNZ Act for Ministerial and broader government agency engagement and input in relation to prudential policy-making, by comparison to:

- monetary policy, which is subject to detailed provisions as to Ministerial input in sections 9 to 15 of the RBNZ Act, recently bolstered by new institutional arrangements (including the establishment of a Monetary Policy Committee) established under the Phase 1 reforms; and
- macro-prudential policy, which is the subject of a Memorandum of Understanding (MOU) between the Minister of Finance and the Reserve Bank,<sup>7</sup> including that the Reserve Bank will keep the Minister and the Treasury regularly informed on its thinking on significant policy developments and will consult with them where macro-prudential intervention is under active consideration.<sup>8</sup>

The former likely reflects the primacy of the Reserve Bank's monetary function<sup>9</sup> and the latter the real economy impacts of policies such as loan-to-value ratios (LVR) limits. Because the macro-prudential MOU arose extra-legislatively and under the same statutory power (in s 74 RBNZ Act), it appears likely that the lack of any equivalent procedures for prudential policy reflects a course of conduct, rather than having a particular statutory basis.

There is no question about Reserve Bank's powers to undertake the capital review or set standards, or its operational independence in doing so. The question is about the degree of engagement and scrutiny that should be brought to a proposal of such broad economic significance.

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<sup>7</sup> Refer <https://www.rbnz.govt.nz/financial-stability/macro-prudential-policy/mou-between-minister-of-finance-and-governor-of-rbnz> (13 May 2013).

<sup>8</sup> It is notable, for example, that the government has requested the Reserve Bank to undertake a full cost-benefit analysis if it wished to use debt-to-income controls as a complement to high LVR restrictions (refer OECD (2017)).

<sup>9</sup> This is borne out by *Hansard* reports on the RBNZ Bill, where the debate in the House was overwhelmingly dominated by monetary policy considerations and barely mentions the prudential function.

Engagement by the Minister of Finance and agencies outside the Reserve Bank, such as the Treasury, would be consistent with the evident intent of the accountability provisions in Part 6 of the RBNZ Act. Robust governance and accountability arrangements are also a key component of international best practice for the operational independence of prudential supervisors,<sup>10</sup> and have been described as an “*indispensable complement to independence*” (Masciandaro/IMF (2011)).

The capital proposal is a prime example of a prudential decision that would have broad economic significance. As such, pending legislation implementing Phase 2 determinations, it would be appropriate to apply a process or approach of the nature described in the macro-prudential MOU, which provides for Government engagement and input while carefully preserving operational independence. This would reflect the policy direction of the Government in the Phase 2 Review.

### **Ensuring that the scrutiny is proportionate to the proposal's impacts**

The consultation process is important and is welcome, as is the transparency that the Financial System Policy and Analysis Department has brought to the consultation process. But the capital proposal is not subject to any Parliamentary oversight process or other checks and balances, such as the disallowance procedure for secondary legislation. Exclusive reliance on public consultation to fill that gap poses a challenge, due to the complexity of modern prudential frameworks and vastness of the related empirical and theoretical literature. These make it a daunting, resource-intensive subject for potential submitters who are non-specialists, creating significant barriers to engagement.

Because the impacts of the proposal will flow far beyond the community of regulated banks, it is vital that such dramatic changes to regulatory settings are subject to rigorous and independent scrutiny. The broadening economic impact of prudential policy, and corresponding questions about the accountability and oversight arrangements in its formulation, are a key focus of the Phase 2 Report. Advice to officials in connection with the Phase 2 review notes:<sup>11</sup>

“Over recent years there has been a significant growth in the breadth and complexity of prudential regulation and with this comes a **wider range of impacts on the wider economy**. This raises the question as to whether there are **appropriate safeguards** in place as to the setting of regulatory requirements. While it is desirable to delegate matters of technical detail to regulatory agencies, the question is whether the prudential requirements are subject to **too little scrutiny**, particularly in comparison with the IPS Act, the NBDT Act and the financial markets regime.” (Emphasis added.)

The capital proposal is a banner example of a policy with a *wide range of impacts on the wider economy*. We submit that the process for the formulation and implementation of a proposal this significant should include the scrutiny and appropriate safeguards noted above. In this context we note that the Phase 2 review team is due to report back in the next few weeks.

As such, it is imperative that time is taken to get it right, meaning – at a minimum – to move forward only on the basis of a comprehensive and robust cost-benefit analysis. Ideally, this process would include engagement with, and input from, broader agencies within the government. The confidence of stakeholders and the public would also be enhanced by some degree of oversight by, or ‘second opinion’ from, an agency that is independent from both the Reserve Bank, as proponent, and the community of regulated banks.

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<sup>10</sup> Refer Principle 2 of the Basel Core Principles for Effective Banking Supervision.

<sup>11</sup> Dr James Every-Palmer QC *Reserve Bank Prudential Regulation of Banks* (August 2017).

## Costs and benefits

The 3 April Capital Review Background Paper (on pg 1) says that:

This paper **does not provide a cost-benefit assessment** of the proposal to increase bank capital, but has been prepared in order to provide further information to those who wish to provide feedback during the consultation process which ends on 17 May 2019. The Reserve Bank will carry out a full cost-benefit assessment for a Regulatory Impact Statement to help inform and describe final decisions in the review. (Emphasis added.)

We submit that a rigorous cost-benefit analysis needs to be undertaken *before* decisions are made, not just in the Regulatory Impact Statement required to be prepared following the decision. In particular, it is a prerequisite to informed participation in the consultation process, particularly for non-specialist stakeholders, including small businesses, industry bodies and the public at large.

### Government requirements for and guidance on cost-benefit analysis

Government guidance requires that a cost benefit analysis “*evaluates different policy options*” to improve decision-making.<sup>12</sup> The Treasury guidance notes that a Multi-Criteria Analysis (MCA) may be required, as a complement to the cost-benefit analysis, to determine all factors which contribute to achieving to the relevant objective and to evaluate them against the relevant criterion.

The Guide to Cabinet’s Impact Analysis Requirements states that:<sup>13</sup>

*“Before a substantive regulatory change is formally proposed, the government expects regulatory agencies to provide advice or assurance on the robustness of the proposed change, including by: ...*

- undertaking systematic impact and risk analysis, including assessing alternative legislative and non-legislative policy options, and how the proposed change might interact or align with existing domestic and international requirements within this or related regulatory systems;
- making genuine effort to identify, understand, and estimate the various categories of cost and benefit associated with the options for change; ...”. (Emphasis in original.)

The *Guide to Social Cost Benefit Analysis* notes that a more comprehensive cost-benefit analysis “*where the importance of the decision requires it*” – i.e. the degree of analysis should be proportionate to the potential impacts.<sup>14</sup>

### Approach to considering costs and benefits in the Capital Review Paper

After setting out the risk appetite framework, the analysis underlying the recommended CET1 requirement is contained in paragraphs 29 to 78 of the Capital Review Paper. It comprises an assessment of international econometric studies on optimal capital (Brooks, LEI, Dagher, and Firestone), modelling of risks in a New Zealand context, stress tests, and impacts of capital on output.

The Reserve Bank last conducted an exercise of this nature in September 2012, when it assessed the costs and benefits of moving to the Basel III framework, and found that the currently applicable

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<sup>12</sup> Refer <https://treasury.govt.nz/information-and-services/regulation/information-releases/regulatory-review-programme/cost-benefit>

<sup>13</sup> Refer <https://treasury.govt.nz/publications/guide/guide-cabinets-impact-analysis-requirements-html> and see also section 162AB(1) of the RBNZ Act, which requires the Reserve Bank to “assess the expected regulatory impacts of any policy that it intends to adopt under Part 5” (which includes the prudential supervision mandate).

<sup>14</sup> Refer <https://treasury.govt.nz/sites/default/files/2015-07/cba-guide-jul15.pdf>



minimum regulatory capital level would be optimal in New Zealand. In that paper, the Reserve Bank took the approach of calculating benefits of higher capital by estimating the expected fall in the probability of a financial crisis, and of assessing the likely cost in terms of the probable fall in economic activity. The capital ratio in which the marginal GDP costs and benefits lines intersect was determined to be optimal. This appears to be a reasonable approach in light of the soundness and efficiency mandate.

The departure in the current capital review from the approach taken in 2012 appears to result primarily from the adoption of the “risk appetite framework”. In this approach, a provisional capital level is determined as that required to achieve the degree of soundness implied by the risk tolerance, and the efficiency analysis is then applied to see whether it is likely that capital could be increased from the provisional amount without loss of expected output.<sup>15</sup>

This approach places very significant weight in both the analysis and the recommended capital level on the risk appetite framework and, by extension, on the strength, reliability and applicability of the analysis underlying that framework. As noted further below, there are reasons to doubt it has those qualities.

More importantly, introducing a heavy conservatism bias into an optimality assessment is not assured to deliver the increase in soundness that the hypothetical risk averse citizen desires. Based on empirical literature and experience (refer below), there are substantial reasons to doubt that much higher levels of common equity capital actually deliver the lower probability of financial crisis inferred from overseas empirical studies (and underlying the 1-in-200 year probability).

In addition, existing vulnerabilities arising from persistently weak levels of investment and productivity would be exacerbated by any increase in the cost of capital (the debate is only “how much?”), with consequent impacts on output, wellbeing, and ultimately soundness.

### **Questions arising from literature on the costs and benefits of high capital requirements**

The assumptions in the Capital Review Paper which form the basis for the capital proposal raise a number of questions that, in our submission, warrant further analysis:

- The **benefits** comprise the marginal benefit that the additional capital provides in reducing the probability of financial crises, with the quantum depending on how costly these are to the economy, compared with ‘ordinary recessions’. Yet this rests on a critical assumption about the efficacy of higher capital in preventing financial crises and on the difficult and debatable question of what costs are attributable to banking crises, and do not have an independent cause. In each case, recent empirical studies suggest that these assumptions should be tested more fully.
- The **costs** depend on the higher borrowing margins engendered by the increased capital requirement, and also would include other potential impacts such as credit rationing, changes in lending composition and sectorial impacts, as well as second order effects, for example on investment and saving. There is significant divergence of views on the former, with a number of independent analysts suggesting an increase in borrowing costs between double and triple the Reserve Bank’s estimates. Potential broader or second order impacts are not evaluated.

We address these questions in more detail below. Some further analytical queries in relation to the Capital Review Paper are set out in Appendix 3.

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<sup>15</sup> Capital Review Paper, paragraphs 24 and 25.

### Benefits – the efficacy of capital in lowering the probability of financial crises

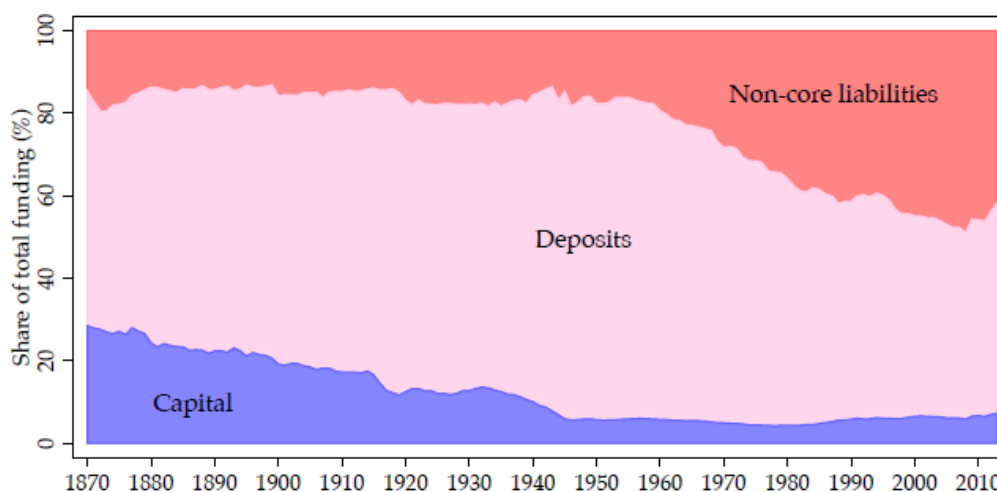
A key assumption in the Reserve Bank’s analysis is that a substantially higher capital requirement will achieve soundness by materially decreasing the probability of financial crises, providing benefits in fiscal, output and other costs avoided. Although this matches intuition, there are a number of important caveats to this arising from both macro-prudential literature and experience. These call into doubt the approach of placing such a high degree of reliance on a very high capital ratio, in the form of CET1, as the core prudential tool, as well as the assessment of the benefit of doing so:

- **Empirical evidence:** The efficacy of significantly higher capital requirements in reducing the probability of financial crisis has been challenged in recent empirical studies. For example, Jordà et al (March 2017) pg 2, find that:

“there is no statistical evidence of a relationship between higher capital ratios and lower risk of systemic financial crisis. *If anything, higher capital is associated with higher risk of financial crisis.*” (Emphasis added.)

Factors that were found to be far more significant were funding structure (in particular the loan-to-deposit ratio) and high credit growth. Each of these is addressed by prudential tools other than capital (e.g. Net Stable Funding Ratio, monetary policy, macro-prudential tools and counter-cyclical buffers). The impact of funding structure is also borne out from the change in the composition of bank balance sheets in the lead-up to the GFC:

**Figure 3:** *Composition of liabilities, averages by year for 17 countries, full sample.*



Notes: Averages over 17 sample countries. This figure plots the shares of capital (blue), deposits (pink) and non-core (red) in total funding. Categories add up to one (100%).

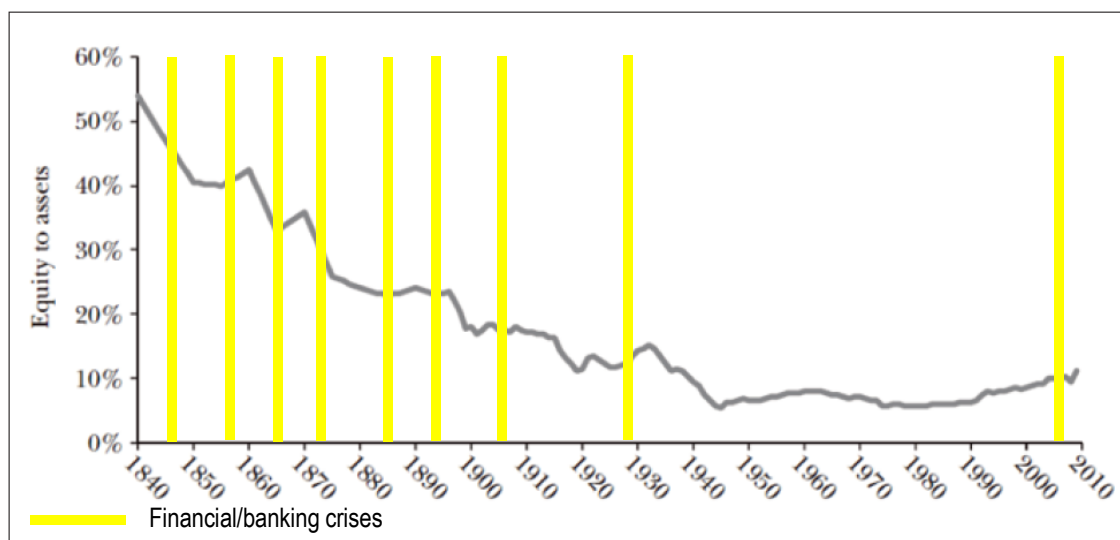
- **Theoretical underpinning:** The empirical conclusions about the relative efficacy of capital compared with other prudential tools mesh with studies on the causes of financial crises. The vulnerability arises from banks’ intermediation role in (a) creating ‘riskless’ debt, funded by deposits, so that people and firms have a way to transact, and (b) transforming those riskless deposits into real investments in the economy (such home and business loans), which carry risk. This is critical to the functioning of the economy, but inherently exposes banks to the risk of self-fulfilling panic-based runs: when there are concerns about an upcoming recession, bank money becomes “information-sensitive” because depositors are concerned some banks might fail. Because they often don’t know which ones, there is an incentive to withdraw money

from all banks. This cannot be solved by capital alone because the money is lent out, so the only way to meet all depositors' demands would be to cash in all the debts of the banking system, which would drive asset prices down, exacerbating the problem. (Gorton, 2012)

This feature of bank debt, however, creates incentives for banks funded substantially through deposits to operate conservatively (D'Angelo and Stulz, 2015), which is another reason to focus supervisory attention on funding structure – as the Reserve Bank does via its Core Funding Ratio. As noted by Gorton (2012), the main issues in the GFC arose with banks which were funded by very short term (and uninsured) wholesale debt, particularly in the form of repos and asset backed commercial paper. As such, the “run” was wholesale, as repos and CP frozen in the initial credit crunch had the same vulnerability as bank deposits.

- **Observed experience:** High capital ratios have not been associated with low incidence of financial crises. Taking the United States for example, fifteen crises occurred (1797, 1811, 1813, 1816, 1819, 1825, 1837, 1847, 1857, 1866, 1873, 1884, 1890, 1893, 1907) during a period where banks' capital ratios exceeded the level recommended by 'big capital' advocates such as Anat Admati, and a further four when capital exceeded 20%. By contrast, the period in which capital ratios reached their modern levels did not see a systemic crises until the GFC in 2007 (there was also the non-systemic 'savings and loans' crisis in the mid-80s):

Figure 1: capital ratios of US banks 1840- 2010 (ref: Hanson, Kashyap and Stein 2010)



### Benefits – evidence on the severity and persistence of financial crises

Another key underpinning of the analysis in the Capital Review Paper is that financial crises stand out as having far more severe and lasting effects than ordinary recessions. The high costs associated with financial crises is also an important component of the rationale for the risk appetite framework (refer 3 April Background Paper, pgs 17 to 19).

These assumptions also should be treated with caution in light of recent empirical studies. Notably, Romer & Romer, in an empirical study cited by the Reserve Bank, investigated the conventional wisdom that financial crises are followed by large downturns and weak recoveries. They found that the costs are smaller, and less persistent, than previously thought:

“Studying the aftermath of crises using our new series and standard regression techniques leads to a view that is very different from the conventional wisdom. Crises in advanced countries are associated with falls in output, but the falls are only moderate. When measured using industrial production, output

quickly rebounds and returns to its pre-crisis path. When measured using GDP, output does not bounce back, but this pattern is driven entirely by the experience of Japan. ... Using conventional regression techniques with previous chronologies of post-war financial crises in advanced countries also does not provide strong support for the view that the aftermaths of crises are persistently grim.” (40-41)

In addition, as pointed out by the Reserve Bank, the impacts of financial crises are very difficult to disentangle from credit-fuelled asset bubbles that commonly precede them. As a result, the economic and societal impact attributed in some studies to financial crises may to a large extent be due to the underlying factors that caused the financial instability, rather than to the financial stability itself (i.e. the financial instability may be a symptom rather than the cause).

This is consistent with the Reserve Bank’s own work, which indicates that recessions are more severe and protracted if they follow house price bubbles, whether or not accompanied by a financial crisis.<sup>16</sup> It also matches up to the experience of the GFC, which saw large housing booms and associated accumulation of household debt. Mian and Sufi (2014) argue that these developments, rather than the financial crisis itself, were the main drivers of the downturn and, especially, of the weak recovery.

The Reserve Bank’s stress tests also point to the likelihood that adverse economic events of the magnitude that would threaten financial stability – for example very high levels of unemployment combined with a very dramatic collapse in property prices – would themselves carry material and long-run output costs, independently of any financial crisis impacts.

### **Implications**

None of this is to suggest that capital ratios are not important – they clearly are, and that is why in the same exercise undertaken by the Reserve Bank in 2012 it recommended capital levels higher than the Basel III minima.

It does, however, raise questions about the basis for the risk appetite framework and the associated high degree of conservatism built into the capital proposal, and more broadly about whether the cost-benefit assessment has been sufficiently developed and stress-tested.

Most significantly, it calls into question the methodology of subordinating the efficiency criterion to soundness. The skew in the cost-benefit calculus created by this approach creates a real risk that the proposal to substantially increase the level of regulatory capital, and to fulfil that requirement through CET1 alone, could have an adverse impact on the key objective in section 1A of the RBNZ Act of contributing to a sustainable and productive economy. This risk is heightened by New Zealand’s persistent weakness in investment, and hence productivity, even in the current ‘steady state’.

Other implications that arise from the foregoing analysis and from broader prudential literature include:

- **Focus on other factors and tools:** Financial crises reflect a range of underlying imbalances (such as excessive credit growth and asset bubbles) and corresponding vulnerabilities, and resolving those requires a range of tools. As such, it is important that the broader toolkit is appropriately factored into the capital proposal at its formulation stage and is taken into account in a cost-benefit analysis. In this regard, it is also notable that a number of matters which are the subject of the Phase 2 review – for example, depositor protection and crisis management – potentially will have an important bearing on the capital adequacy tool, as will

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<sup>16</sup> Reserve Bank “Financial stability from housing market cycles” (2016).

future determinations to be made by the Reserve Bank (for example, as to leverage ratios, TLAC, and further policy development in relation to the countercyclical buffer).

- **Incentives and market signals:** Since the GFC revealed some inadequacies in excessive reliance on minimum capital requirements, a number of prudential regulators and economists have sought alternative solutions that can complement CET1 minimum requirements. These studies focus in particular on the potential of alternative bail-in instruments to create:
  - a risk-averse constituency with powerful incentives to monitor banks, because the holders of those instruments (a) are subordinated to depositors and other senior creditors (so that bail-in instruments are more risk-sensitive) and (b) do not receive upside beyond the interest return, as holders of common equity do;
  - credit-sensitive pricing signals, that (being based on market trading) are more responsive, because they are based on market participants' current perceptions of credit issues and asset impairments, than capital ratios, which are based on reported financial statements – this effect was particularly notable in the GFC, when some banks in the U.S. which were bailed out with TARP funds had very healthy reported capital ratios on the eve of that bailout, but had market-implied ratios close to the insolvency zone; and
  - prompts, through those pricing signals and resultant bondholder pressure, to timely corrective action at bank level, by (for example) replacing management responsible for the issues and recapitalisation or other balance sheet repair (for example asset sales) – for this reason it would not be entirely accurate to characterise these instruments as 'gone concern', rather than 'going concern', capital.

These features align well with the Reserve Bank's regulatory philosophy of emphasising the market discipline pillar. It also interacts well with the open bank resolution (OBR) tool, since these instruments bail-in by explicit contractual agreement. This is particularly relevant given the evidence from new empirical studies – that markets for wholesale bank debt are no longer pricing in a high probability of government bail-out – that the consistent messages from supervisors and legislators about moral hazard and "too big to fail" are starting to get through.<sup>17</sup>

There is a large literature examining the part that could be played by contingent convertible or other bail-in interests (refer for example Coffee (2011), Calorimis and Herring (2011), and Flannery (2009), and a large and increasingly liquid market in them has developed.

Recent experiences with contingent capital in Europe (e.g. Deutsche Bank) suggest that the potential benefits set out above are starting to come to fruition, after some false starts in jurisdictions which do enjoy have strong institutions (emphasising the centrality of that factor to stability).

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<sup>17</sup> Antje Berndt, Darrell Duffie and Yichao Shu "The Decline of Too Big to Fail" (March 2019). In this regard it is notable that the primary objection by 'big capital' advocates Admati and Hellwig, that these instruments would not perform because of regulatory pressure and moral hazard, may have been too pessimistic – refer Anat R Admati and Martin Hellwig *The Bankers' New Clothes: What's wrong with banking and what to do about it* (Princeton University Press, 2013).

These factors suggest that questions of the “quality” of capital have more dimensions than simply loss-absorption and that the Reserve Bank should take a wider lens to its evaluation of composition of capital at whatever minimum it ultimately opts for.

- **Mitigating the costs of crises:** The empirical study by Jordà et al (March 2017) concluded that the key impact of capital is not so much in preventing financial crises, but in reducing their severity and the persistence of their impacts on output and trend GDP growth. The same is also achieved by bail-in instruments or other total loss-absorbing capital (TLAC), which carry a far lower cost of capital than common equity. These have been implemented in Australia and a number of other jurisdictions.
- **Stress-testing of assumptions:** A key lesson from analysis by Jordà, Gorton and others is that econometric studies should not be taken in isolation and should be tested against empirical research and observed experience. These models employ simplifying assumptions to analyse the resilience of a ‘representative bank balance sheet’ in absorbing losses of a given magnitude, by reference to historical experience of non-performing loans. Those assessments are made ex post and with perfect information, which does not match the conditions applying on the eve of a potential financial crisis. Those conditions create an equilibrium in which it is rational for deposit-holders, or short term wholesale lenders, to run or to freeze credit (Diamond and Dybvig, 1983).

The extent of the efficacy of an enlarged CET1 requirement, and the complementarity of other capital and prudential measures, are matters for debate, but are cornerstones of a rigorous cost-benefit analysis. Such an analysis is crucial in forming a sound basis for stakeholders’ engagement in the consultation and for determining the optimal prudential settings to achieve a “sound and efficient” financial system. The significance and potential impacts of the capital proposal require that this is done at the stage of formulation, not only as part of an ex post Regulatory Impact Statement – particularly given the absence of any Parliamentary process to give effect to the proposal.

### Costs

As with benefits, there are a number of components to the question of what costs higher capital requirements may carry and how they should be factored into the assessment. The focus in the Capital Review Paper, and in much of the ensuing debate, is on the impact on borrowing costs that arise as a result of higher bank capital ratios, and the degree to which they are dampened by the Reserve Bank’s Modigliani Miller assumption. In this regard, there are inherent difficulties in accurately determining the level of the ‘MM offset’ that should be assumed (refer for example Cline, 2015), which are magnified in a New Zealand context by the fact that D-SIBs price debt off their group’s AA- credit rating, not their own far lower stand-alone ratings, and the issue of disentangling equity cost of capital when the capital is at the subsidiary level.

While cost of capital is very important, particularly given New Zealand’s relatively high level of private debt, it is not the only potential cost to consider. Other potential consequences of the proposal may include:

- **A reduction in the availability of credit** or in the trajectory of credit growth. For example, Dagher et al (2016), pg 9, find that “one would expect that any rapid increase in mandatory capital ratios would take place at least partially through an adjustment of bank assets, with potentially large negative effects on credit and macroeconomic performance”. Other studies identifying this effect include Aiyar et al (2016), Cohen (2013) and Gropp (2018).
- **Sectorial/distributional impacts** – for example, the potential for the new measures to have a disproportionate impact on the cost or availability of credit to particular sectors with higher

risk weights, for example SMEs and agri-borrowers which are heavily reliant on domestic bank funding for working capital and term investment needs and few, if any, alternative sources of capital available to them.

- A **decline in deposit rates** in order to maintain margins or in response to any reduction in the official cash rate implemented to mitigate the effect of the capital requirement. This in turn may put pressure on those (such as retirees) reliant on savings returns, drive savers to higher yielding investments which are more complex and risky (information-sensitive) than deposits, and operate as a further disincentive to saving – already a significant policy issue (Savings Working Group, 2011).
- **Transitional costs** as new lending is re-priced or banks seek to re-price existing loans under customary “increased cost” clauses. In this regard, although a 5-year transition is proposed, this may not have the mitigating effects intended – for example, Dagher et al (2016), pg 4, note that “*markets tend to anticipate full compliance with new standards ahead of phase-in periods.*” Any such effects will not necessarily be restricted to new lending, as loan agreements almost invariably give banks the ability to reprice, including specifically as a result of the impacts of increased capital requirements on their cost of funding or profitability.
- Impacts on **capital markets efficiency**, for example through an increase in the cost of hedging or reduced willingness of banks to incur the capital costs associated with market-making, which supports secondary market liquidity and is vital to the performance and sustainability of the debt capital market.
- Changes in the **composition of lending** – for example lending may be tilted toward asset classes with low risk weights, such as housing, at the expense of lending to the productive economy, which carries higher risk weighting (see sectorial impacts below). This factor may operate to exacerbate existing imbalances, undermining financial stability. Another effect for which there is empirical evidence, and which can run counter to the response just mentioned or accompany it, is the incentive to undertake riskier lending in order to maintain profitability (Dautović, 2019).
- Changes in **financial system structure**, through an impetus to move lending to off-balance sheet vehicles or to less regulated parts of the financial system (shadow banking). This is not always a negative phenomenon, particularly in a concentrated banking system such as New Zealand, but it creates risks if credit growth in this sector outpaces risk management procedures, underwriting practices are weak, significant related party lending occurs, or irrational exuberance comes into play. Each of these phenomena were evident in the failure of finance companies in New Zealand in the mid- to late-2000s.
- To the extent that **monetary policy** is employed to counteract any effects of an increase in banks’ cost of funding, this will reduce the Reserve Bank’s ability to respond to weakening economic conditions by lowering the policy rate. Romer & Romer point to this as potentially a significant factor contributing to Japan’s large and protracted slowdown in economic growth, in the “lost decade” following the 1987 stock market crash (and in turn heavily skewing the data on the impact of financial crises). This is potentially a significant issue given the already historically low official cash rate.

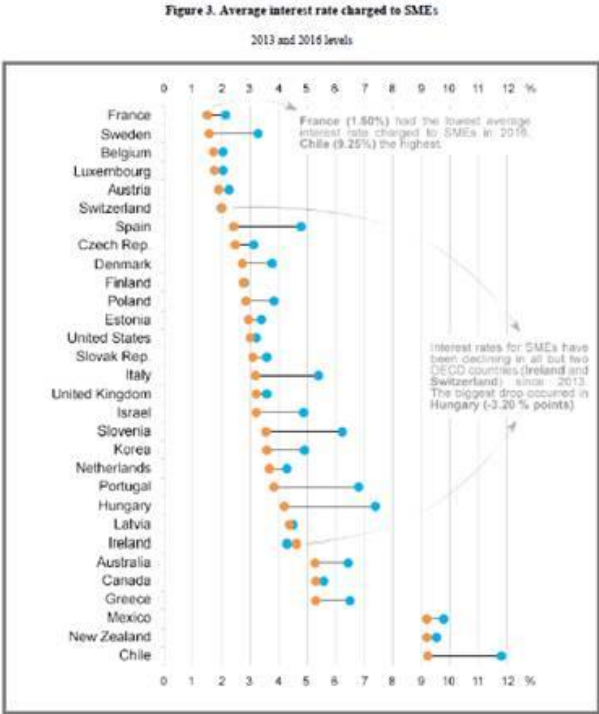
The unprecedented nature of the capital proposal makes it difficult to predict the likelihood or scale of such impacts. Empirical evidence is mixed, but all have been found to exist in at least some circumstances, and they are assessed in many of the overseas studies reviewed by the Reserve Bank

(albeit by reference to the different circumstances applying in those jurisdictions). These are not addressed in the consultation document, but should be considered in evaluating of the merits of the proposal, or at least stress-tested, including by reference to whether alternative options are less likely to give rise to such effects or to do so to the same extent.

**Funding and sectorial impact**

One issue identified in prudential studies, but not considered in the Capital Review Paper, is the impact that may be borne by high capital usage sectors critical to the economy (for example, small to medium sized enterprises (SMEs), rural borrowers, and the construction sector). This is particularly important because SMEs and the non-corporate agri sector do not enjoy the access that large companies have to alternative sources of funding, such as the local and international debt capital markets, and so are heavily reliant on bank lending.

As a recent OECD report on SME funding internationally highlights, the cost of capital for SMEs is already high in New Zealand and is not reducing at the rate evident in other OECD countries:



Because SMEs play such a crucial role in our economy, including in sustaining employment and contributing to productivity, any impact on the availability or cost of bank funding is a real concern, and should be a matter specifically assessed in a cost-benefit analysis of the capital proposal (including, ideally, by reference to the in-depth studies by the OECD into this issue and potential responses).

The issues with rural lending are similar but may be intensified by the broad range of issues farmers are currently confronting, including managing emissions, water quality, labour capacity, pressure to deleverage, etc. The rural sector is a vital cog in our economy and concern about how to appropriately manage issues associated with rural debt are evident in the recent Farm Debt Mediation Bill. It is important in this context that the capital proposal is given effect in a joined up way to broader Government initiatives, and particularly that the Capital Proposal does not precipitate a rapid or disorderly response to issues of rural debt, or increase the cost of capital to such an extent as to undermine the significant investments that will be required to respond to the various challenges in this sector.



Decarbonisation is another issue that is both linked to efficient capital (as a key input) and wellbeing (as an outcome). Very substantial investments will be required to sources of generation in order to meet zero carbon targets and to transition to EVs, among many others. More broadly, the infrastructure deficit and related housing affordability issues are rightly the focus of a range of Government initiatives and require a very significant investment response. These matters should also be factored into the approach taken to achieving the optimal balance of soundness and efficiency.

### **The part played by other factors, and prudential tools corresponding to them**

Empirical studies have found that there are a number of factors of as much or more significance as capital adequacy requirements to the incidence or probability of banking crises. We set some of these out below, with the policy response contained in the Basel III framework, and our assessment of the New Zealand position (both in brief, non-comprehensive summary):

- **Funding structure:** In particular the degree to which banks' loan books are funded by deposits (i.e. the loan-to-deposit ratio (LtD)) is a key indicator. Funding structure, particularly through diminished or low LtD is significantly correlated with financial crises.

Basel response: Net Stable Funding Ratio.

NZ assessment: **Strong:** implemented by way of the Core Funding Ratio. A high percentage of the loan book is now funded by either 'sticky' deposits or long tenor wholesale or retail debt.

- **Credit growth / asset bubbles:** Financial crises are very commonly preceded by rapid asset price appreciation and a corresponding increase in credit growth and debt levels.

Basel response: Countercyclical buffer (in addition to the dampening effect provided by conventional monetary policy).

NZ assessment: **Strong:** Macro-prudential policy enhances the broader framework of prudential regulation by actively varying prudential instruments over time to help reduce the potentially damaging effects of asset and credit booms. This tool, in the form of the LVR speed limits, has been applied and performed broadly according to expectations (Dunstan, 2014). The countercyclical buffer (which the Reserve Bank is currently formulating more detailed policies on) is available. Monetary policy can also have a positive impact on financial stability through its dampening effect on the credit cycle.

- **Liquidity:** Sufficient cash or high quality liquid assets to cover short run liquidity requirements.

Basel response: Liquidity Coverage Ratio (LCR).

NZ assessment: **Strong:** LCR applies.

- **Strength of institutions:** Rule of law, independent judiciary, strong regulators, lack of corruption, property rights, audit rules, and similar factors indicating the strength of a country's institutions help stave off financial crises.

NZ assessment: **Very strong:** New Zealand ranks very highly in this criterion by general acclamation (including in rating agency reports and assessment by international agencies such as the World Bank and OECD).

There are also factors which can contribute significantly to the likelihood of financial crises, including the following (again accompanied by an assessment of New Zealand's position):

- **Financial liberalisation:** Similar to excess credit growth, rapid financial liberalisation has been identified as a common factor in many financial crises (for example Reinhart & Rogoff, Gorton (2012)).

NZ assessment: **Stable:** The financial liberalisation process was concluded in the late 1980s and New Zealand's banking system is described by the Reserve Bank as relatively conservative and vanilla.

- **Currency pegs/foreign liabilities:** Financial crises can be caused or contributed to by attempts to defend a currency peg (e.g. Sweden ~1992, Asian financial crisis ~1998) or by incurring substantial unhedged foreign liabilities.

NZ assessment: **Strong:** Floating exchange rate removes the first risk, and most borrowing is either done in New Zealand dollars or hedged via an economic or derivative position.

- **Culture and conduct:** Nick Le Pan, a former head of Canada's top banking regulator, the Office of the Superintendent of Financial Institutions (OSFI), is reported as saying: "*What's more important is how the business is conducted, whether it be the capital markets investment banking business, or whether it be the retail business. Are they conducted with the right culture, and customer focus, and prudence, and sustainability? That's much more important for safety and soundness*". We agree with that and note that it is a key focus of both the Reserve Bank and the Financial Markets Authority, who have recently reported back with recommendations following an investigation into these issues.

NZ assessment: **Strengthening:** The Reserve Bank/FMA study did not reveal issues of the magnitude that have arisen in other jurisdictions, including under the Hayne inquiry, but nonetheless called for more focus in this area and has backed this up with a number of recommendations that are currently being considered.

Finally, there are some factors – such as "**regulatory intensity**" – that have been shown not to have a statistically significant influence on the probability of a financial crisis, but nonetheless are commonly pursued by prudential authorities. The Reserve Bank currently takes a different approach to this, preferring (for example) not to undertake site visits.

To sum up, as noted by the IMF in its recent FSAP assessment, New Zealand's prudential settings are strong and as a result its financial system is stable. But the issues discussed below (under *Broader economic impacts*) indicate that we are falling short in underpinning the level of investment necessary to improve our productivity and wellbeing and to adjust to the impacts of rapid technological change and global warming (among others).

This has been a significant focus of Government initiatives in recent years, leading to the establishment of the Productivity Commission. As that Commission's work on housing affordability, infrastructure, carbon adjustment show, the need for a renewed focus on investment has become significantly more pressing. This is the context in which the approach to the soundness and efficiency criteria must be assessed.

## The efficiency criterion

The Reserve Bank has done a lot of work on what efficiency means.<sup>18</sup> In its May 2014 Financial Stability Report, the Reserve Bank noted:

“An efficient financial system is one that enables economic resources to be allocated to their best use across time and space without imposing unnecessary costs (or ‘rents’) on households and businesses. ... [A]n inefficient financial system can hamper economic prosperity by imposing unnecessary costs on households and businesses ... and misallocating resources.”

Deputy Governor Geoff Bascand recently gave the following interpretation:<sup>19</sup>

“The efficiency goal means different things in different contexts: we minimise compliance costs; we support innovation and operate a regime that is open to new entrants; we avoid creating unnecessary frictions in the supply of credit to the economy; and we ensure that financial resources are allocated in a productive (and not harmful) way to maximise long term economic growth.”

We agree with that. In our opinion, in the context of setting prudential policies which can have broad economic effects, efficiency must be interpreted as extending to the broader concepts referred to above. This also accords with the new objective in the RBNZ Act of contributing to a “sustainable and productive economy”.

A key premise of the Reserve Bank in its capital review is that New Zealand’s high levels of household and farm debt, and the fact that we are a small open economy, require an overlay of conservatism in our prudential settings. This is the ‘risk aversion framework’ underlying the new capital requirements,<sup>20</sup> and has translated into a proposed capital level that would be among the highest in the world, once the underlying conservatism in risk weights and other inputs are factored in.<sup>21</sup>

The same factors underlying the recommended risk aversion, however, make us heavily reliant on debt funding and thus particularly sensitive to the cost of debt capital – particularly when combined with our muted equity investment potential resulting from inadequate domestic savings, and the constraints on foreign direct investment owing to the Overseas Investment regime.

Another factor cited by the Reserve Bank in setting a very conservative risk tolerance is the concentrated nature of the banking system, but the effects of this are ambiguous as comparative studies have suggested that such systems may be more stable and resilient to shocks – for example the Canadian banking system, like the Australasian banking system, came through the GFC largely unscathed.<sup>22</sup> Similarly, Gorton (2012) notes that “countries with highly concentrated banking systems are less likely to have crises”.

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<sup>18</sup> Refer for example Chris Bloor and Chris Hunt “Understanding financial system efficiency in New Zealand”, Reserve Bank of New Zealand Bulletin, Volume 74(2), June 2011.

<sup>19</sup> From a speech entitled “Financial stability – risky, safe, or just right?” delivered to the UBS Australasia Conference in Sydney (13 November 2018).

<sup>20</sup> Refer the 3 April Background Paper and the discussion below.

<sup>21</sup> An internal memorandum (7 August 2016) notes that the Reserve Bank approach to capital adequacy is more conservative than that taken by either Basel or APRA. It was noted that the effects of this conservatism are difficult to quantify, but “are roughly equivalent to banks holding an additional 1-2 percentage points of CET1 when measured on a Basel basis”.

<sup>22</sup> Huang and Ratnovski (2009). See also Laeven and Valencia (2018).

## The soundness criterion and the risk appetite framework

The Capital Review Paper (pg 14) notes that the Reserve Bank’s “risk appetite framework” (intended to reflect society’s tolerance for risk) “plays a central role in both the policy goals and our decision-making process”. The 3 April background paper sets out further detail on the analytical basis for the capital proposal and the risk appetite framework.

Each of these papers indicate that the Reserve Bank has chosen to formulate prudential policy to achieve the soundness limb on the basis of the ‘risk appetite framework’ which is informed by risk aversion literature. The Reserve Bank notes that this does not reflect the conventional approach to prudential regulation (at pg 12):

“In the majority of the capital policy studies we reviewed the policy goal was defined solely in terms of maximising expected output, with no role for risk aversion.”

And that:

“any modelled representation of society’s preferences depends on assumptions (the accuracy of which may be impossible to verify ex ante) and the results will be very sensitive to the assumptions made.”

The risk aversion literature seeks to identify and quantify cognitive or behavioural biases to explain deviations from results achieved under standard economic models, which are predicated on rational actors. A number of questions arise in relation to the application of risk aversion principles to prudential policy:

- The O’Donoghue paper cited by the Reserve Bank<sup>23</sup> does not contemplate the application of risk aversion models to prudential regulation, stressing the models are context-specific and require further development. O’Donoghue also cautions a “*model that describes people’s behaviour might not be the metric we ought to use for welfare analysis*”.<sup>24</sup>
- The literature suggests a very broad range of conclusions can be drawn, with a high degree of complexity in particular when results are abstracted from a ‘representative person’ to broader society: “*measuring attitudes to risk is a difficult task, if not impossible, at a macro-level*”.<sup>25</sup>
- It is unclear how the risk appetite framework interacts with the “efficiency” component of the prudential mandate, which on its face suggests that the goal should be to achieve the optimal level of capital, in line with the approach normally taken in capital policy studies. This comes back to the discussion above about the balance between soundness and efficiency, including the integration of this with broader economic policy goals. Ultimately the question in relation to any prudential policy is the extent to which it contributes to “soundness and efficiency”, and care must be taken in introducing a behavioural bias into the analysis.<sup>26</sup>

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<sup>23</sup> Ted O’Donoghue and Jason Somerville “Modelling Risk Aversion in Economics” (Journal of Economics Perspectives, 32:2, 91-114 (2018)).

<sup>24</sup> O’Donoghue, pgs 98, 106, and 111. Perhaps just as salient is the observation, on pg 104, that loss-overweighting generates “risk-aversion and thus a willingness to pay for insurance that is larger than the actuarially fair price”.

<sup>25</sup> For example, J François Outreille “Risk Aversion, Risk Behaviour, and Demand for Insurance: A Survey” (Journal of Insurance Issues, 37(2), 2014, 158 at pg 170).

<sup>26</sup> Douglas W Blackburn and Anrey D Ukhov “Individual vs. Aggregate Preferences: The Case of a Small Fish in a Big Pond” (May 2008).

In the 3 April Background Paper (pg 11), the Reserve Bank cites the Firestone study in support of the approach taken of incorporating its risk appetite framework as a central factor in its capital policy. But that study only makes very brief mention of the potential relevance of risk aversion literature, and then primarily to note that it had been excluded from its cost-benefit analysis.

The 3 April Background paper also states:

In practical terms, society’s risk appetite is relevant for the capital policy decision because ... there is a potential trade-off between expected output and stability. If given the option of a capital policy that, compared to an alternative, delivers more stability but less expected output, what would the public choose?

In any event, we do not think there is necessarily such a dichotomy between soundness and efficiency as the above comments suggest. For example, the IMF defines the closely related concept of “financial stability” as follows:

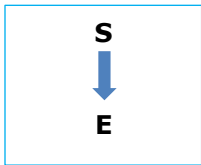
“Broadly, financial stability can be thought of in terms of the financial system’s ability: (a) to facilitate both an efficient allocation of economic resources—both spatially and especially intertemporally—and the effectiveness of other economic processes (such as wealth accumulation, economic growth, and ultimately social prosperity); (b) to assess, price, allocate, and manage financial risks; and (c) to maintain its ability to perform these key functions—even when affected by external shocks or by a build up of imbalances—primarily through self-corrective mechanisms.”

The above definition is an indication that the soundness and efficiency goals should be read together and optimally would be mutually reinforcing rather than incompatible, involving inherent trade-offs. As applied by the Reserve Bank the influence between these criteria runs the other way, with its approach to soundness – based on an overlay of risk aversion – affecting the way it interprets efficiency:<sup>27</sup>

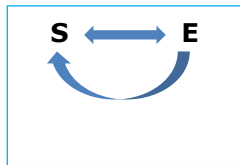
“This second ‘leg’ of the policy goal is akin to delivering a constrained maximisation of expected output – expected output is being maximised but this is conditional on achieving the stability objective. ... If the soundness objective dictates a level of bank capital that is higher than the output maximising level, the soundness objective dictates the level of capital that will be required of banks.”

In other words, the efficiency criterion is constrained by reference to the soundness criterion, which itself is set off a ‘risk appetite framework’, carrying a high degree of conservatism.

So analysed, the approach to the statutory criteria would look like this:



By contrast, the IMF suggests it would be more appropriate to look at them like this:



In view of the long-term stability of the New Zealand (and wider Australasian) banking system, but New Zealand’s poor record in investment and productivity, we think the IMF approach is more sound. In addition, the suggestion that soundness and efficiency are inherently at odds could have a tendency to overlook the potential complementarities that can be achieved – either through recognising the contribution that is made by other components of the prudential toolkit or by exploring options (such as bail-in instruments or TLAC) that may achieve the same stability results but at less cost.

<sup>27</sup> 3 April Background Paper, pg 13.

A degree of interdependence is also evident in the statutory criteria, in the sense that soundness is required to underpin long-term investment and to avoid costly boom-bust cycles, and productivity and wealth creation (i.e. increasing output) are essential to servicing and sustaining our high level of private debt. The feedback loops between the criteria are another reason to keep them in proper balance.

### **Broader economic impacts – investment, productivity and wellbeing**

As noted previously, the RBNZ Act was recently amended to redefined the purposes of the Reserve Bank in its prudential and other functions, to “*promote the prosperity and well-being of New Zealanders, and contribute to a sustainable and productive economy*” (s 1A RBNZ Act). The reference to a ‘sustainable and productive’ economy echoes the ‘soundness and efficiency’ criteria, and recognises the connection between prudential policy-making and broader economic outcomes.

It also aligns well with the IMF’s definition of “financial stability” noted above, which is closely linked to efficiency and emphasises the contribution to be made by the financial system to the real economy, including through efficient asset allocation, “*and ultimately prosperity*”. It also implies shifting at least some of the prudential focus to imbalances that have built up in the economy – a significant issue in New Zealand, particularly in relation to housing. Here, for example, that might involve looking at the potential impact on those imbalances of much higher capital requirements.

A key issue identified by the OECD in its 2017 survey of New Zealand is that “*Productivity remains well below that of leading OECD countries*”, restraining living standards and well-being. The Survey goes on to find that productivity is held back by persistently weak investment, such that non-residential capital formation per person in the labour force is less than 75% of the OECD average.

The same factors mean that GDP per capita is below the OECD mean, and that “*improving productivity growth is a major long-term challenge for improving inclusiveness and living standards*”.

The fact that New Zealand’s productivity has lagged behind that in most other OECD countries over the past two decades, despite generally productivity-friendly policies, is sometimes referred to as ‘the New Zealand enigma’. This has a number of potential causes, some of which – such as distance from markets and lack of scale – we can’t do much about (beyond, perhaps, investing in technology). However, one of the key factors – cost of capital – lies at least partially in our control. The OECD notes (pgs 34-35):

“A higher cost of capital than in most other advanced economies contributes to low capital investment. As national saving has persistently fallen short of investment, New Zealand has accumulated substantial foreign liabilities, and international investors may require a premium to invest there (Rose, 2009; McDermott 2013). Also, owing in part to its small size, New Zealand has thin venture capital, stock and bond markets. Low rates of capital investment depress wages, with negative consequences for income distribution and inclusiveness.”

These problems are familiar ones for New Zealand officials. For example, the 2008 Treasury Productivity Paper, to which the Reserve Bank contributed, notes that: “*New Zealand faces a big challenge to overcome its productivity shortfall*”, as it sits 22<sup>nd</sup> out of 30 in the OECD productivity league table, generating 30% less output per employee than Australia. Similarly, the Savings Working Group convened in 2011 commented that growth in productivity, incomes and living standards is much too slow, and described that situation as “*pretty shocking really*”.

The Productivity Paper similarly notes that investment is one of the key productivity drivers, and that “*New Zealand firms face a somewhat elevated cost of capital compared to other OECD countries...*”, with real interest rates showing a persistent premium. Factors identified as contributing to the interest rate premium and high cost of capital were low rates of saving, financial market development,

exchange rate volatility, tax and high levels of debt. Wrapping up the link to investment, the Productivity Paper cites a Reserve Bank study, which concluded that “*a high domestic cost of capital is almost certain to be holding back the total level of real business investment in New Zealand*”.

The Savings Working Group also noted that we have very high net foreign liabilities, 90% of which is in the form of debt – emphasising our high level of sensitivity to the cost of debt capital, which will persist unless the approach to foreign direct investment undergoes a radical change (as recommended by the OECD).

In relation to the imbalances in our economy, the Savings Working Group goes on to note that asset-price inflation has been accompanied by a large increase in debt, more than half of which is housing loans:

“In the last 15 years, household debt has doubled relative to incomes, most of it in the form of mortgages to buy increasingly expensive houses. ... We need to close the GDP gap on the OECD. The gap is the result of low productivity – a lot of hours worked for modest reward. The growth has been driven by the wrong things, an increase in consumption and house prices. These have imbalanced the economy.”

Emphasising the interconnected nature of these issues, the Savings Working Group observed that a number of incentives affect saving, including low interest rates – monetary policy means savers lose out and that households could borrow more than previously, further contributing to asset price inflation. The result is an over-investment in property assets that have a low productivity return. That, in turn, has generated what everyone, including the Reserve Bank, agrees is our most significant financial stability vulnerability, as well as having broader impacts on wellbeing through housing unaffordability.

Prudential rules did not cause this problem, nor by themselves can they solve it, but there is at least a possibility that an increase in the cost of capital engendered by the capital proposal might make matters worse, by creating the conditions for further suppression of real economy investment, reducing our already very low deposit rates, or creating incentives to direct lending away from the productive – but highly risk-weighted – parts of the economy.

### **Concluding comments**

The Capital Review comes at an important time, as the Government prepares the world’s first Wellbeing Budget. Amendments to the objectives of in the RBNZ Act made following Phase 1 of the Reserve Bank review draw a clear connection between the Reserve Bank’s prudential role and the goal of promoting the prosperity and wellbeing of New Zealanders. This connection is also evident from the direct line drawn in studies noted above between cost of capital, investment, productivity and wellbeing. It is an important reason for striving for the optimal balance of soundness and efficiency in our financial system.

The Capital Review is also happening at the same time as a comprehensive review of New Zealand’s prudential supervision arrangements, which consider important questions relating to the connection between the Reserve Bank and the Government in relation to the prudential policy-making function. For the same reasons as just given, we think it is vital that those are more integrated.

These factors also point to the overwhelming case to be made for the Reserve Bank to have substantially more resources to undertake its prudential function, as recommended by the IMF in its recent FSAP, and which is being considered in the next part of the Phase 2 review. In this regard, we note that the Reserve Bank’s 5-year funding agreement can be varied at any time by agreement between the Minister of Finance and the Governor (s 159(3) RBNZ Act).

We have not made any submission on what is the “right” level of capital in New Zealand. Rather, we have called for an evaluation of the capital proposal that is proportionate to its importance and which achieves the optimal balance of soundness and efficiency, to underpin the investment required for prosperity and wellbeing. We thank you for the opportunity to submit on these important questions.

INFINZ has no objection to any publication of this submission.

Yours sincerely,

**Jim McElwain,**  
**Chief Executive**

**Louise Tong,**  
**Chair**

**Ross Pennington,**  
**Chair, Advocacy**

**Clyde de Souza,**  
**Board Member**

**Institute of Finance Professionals New Zealand Inc.**

### **Appendices**

1. OECD investment and productivity data (New Zealand).
2. Prudential policy toolkit, in New Zealand and internationally.
3. Queries in relation to the analysis in the Capital Review Paper.



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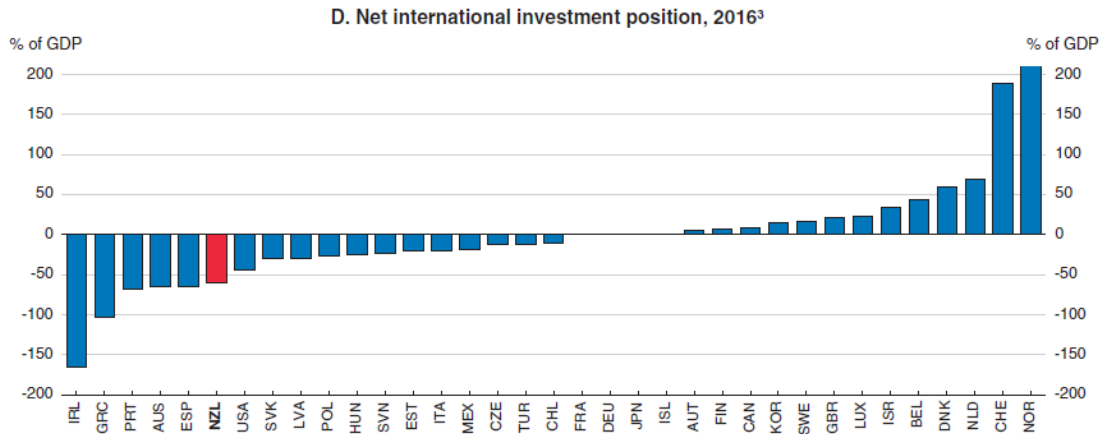
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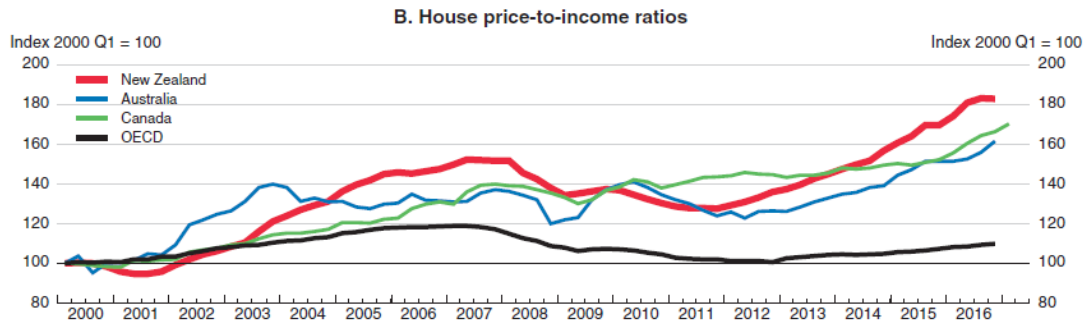
## APPENDIX 1 – OECD INVESTMENT AND PRODUCTIVITY DATA (NEW ZEALAND)

### International obligations (NIIP)

As national saving has persistently fallen short of investment, and New Zealand has run nearly continuous current account deficits, has accumulated substantial foreign liabilities.

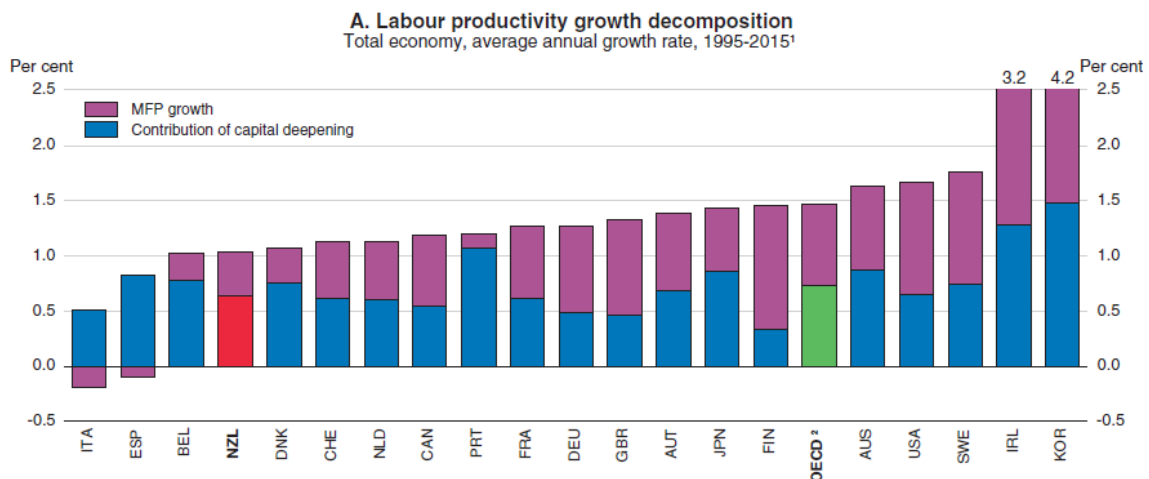


Persistent house price appreciation, which has accelerated over the past two decades, has led to a significant affordability issue, and exposure to interest rate risk.



We have low labour productivity, suppressed in particular by low investment levels.

Figure 13. Labour productivity



## APPENDIX 1 – PRUDENTIAL POLICY TOOLKIT, IN NEW ZEALAND AND INTERNATIONALLY

	CET1	AT1/Convertibles	TLAC/bail-in	NSFR/Core Funding	LCR/Liquidity cover
<b>What it does</b>	Common shares and retained earnings. Residual claim so absorbs losses (e.g. from impairments) but also benefits from profits.	Hybrid AT1 and Tier 2 instruments which bail in on insolvency, PONV or capital triggers. Sometimes called contingent convertibles or Cocos.	Bail-in regime for bonds. There are different approaches around the world, ranging from all bonds, to a pre-positioned set, to solely AT1/Tier 2. Additional to the Basel requirements.	Net Stable Funding Ratio. Regulates funding structure generally by requiring more retail deposits (because they are 'sticky') and stretching tenor of wholesale funding.	Liquidity Cover Ratio. Required level of high quality liquid instruments (e.g. treasuries) to cover a specified period of short term outflows.
<b>Rationale/ Gap filled</b>	Reduces risks from high leverage by absorbing losses. 'Skin in game' to modify incentives.	Add to loss-absorbing capital and alter incentives (toward greater risk aversion).	Balance sheet repair to speed resolution, clear repudiation of implicit guarantee/moral hazard.	Structure of funding can be important contributors to stability.	Helps manage risk of runs, which result from the maturity mismatch.
<b>Efficacy</b>	Refer empirical studies by Stulz and others and incentives literature (e.g. Coffee, Calorimis). These suggest CET1 is less effective than sometimes suggested and complementary measures (including NSFR) may achieve more.	At minimum, improve LGD and therefore the speed to resolution. Complement CET1 by being more responsive to market re-pricing (e.g. from negative view on asset quality), incentivising proactive response (recapitalisations, firing management), and creating a risk averse constituency to balance shareholders.	A new concept, relatively untested. In principle all debt bails in, but for banks this is complicated by perceived or actual deposit guarantees, and insolvency law may limit bail-in (e.g. secured obligations) or prescribe its order. Intent is to ring fence government support, reduce moral hazard and increase market discipline.	Substantial. Empirical evidence suggests that stable funding is a more significant resilience indicator than high capital.	High. May be contributed to by repo facilities and LOLR function, particularly in a systemic liquidity crisis.
<b>Cost</b>	<b>High</b> , subject to the Modigliani-Miller offset debate.	<b>Mid</b> , lower than equity, higher than deposits.	<b>Mid</b> , as for AT1/Tier 2, but depends on structure. Bail-in bonds (senior unsecured bonds that are the first to be bailed in after regulatory capital instruments) should price substantially cheaper than AT1.  Growing liquidity in the market is likely to lower costs compared to AT1 and Tier 2 capital.	<b>Low</b> . Costs only likely to arise for outliers with unbalanced asset/liability structures.	<b>Low</b> . Costs only likely to arise for outliers with unbalanced liquidity positions.

<p><b>Basel treatment</b></p>	<p>Basel capital requirements (in % of risk weighted assets):</p> <p>CET1: 4.5%.</p> <p>CET1+AT1: 6%.</p> <p>CET1+AT1+Tier 2: 8%.</p> <p>Capital conservation buffer: 2.5% CET1.</p> <p>Total requirement: 10.5% of RWA, with at least 7% CET1.</p> <p>Discretionary counter-cyclical buffer: 0-2.5% of CET1 during periods of high credit growth.</p>	<p>Up to 1.5% of capital requirement may be fulfilled with AT1 capital.</p> <p>Up to 2% of capital requirement may be fulfilled with Tier 2 capital.</p>	<p>New requirement. Driven by FSB (Financial Stability Board) work and currently being implemented in major jurisdictions.</p> <p>Requirement of 16% RWA, 6% LR since January 2019 (rising to 18% RWA and 6.75% LR in January 2022) for G-SIB.</p>	<p>Net stable funding ratio (ASF/RSF) =&gt; 1.</p> <p>Available Stable Funding (ASF): portion of capital/long term liabilities with tenor &gt; 1 year, taking account of 'stickiness'.</p> <p>Required Stable Funding (RSF): amount of stable funding required to be held. It is a function of the liquidity characteristics and residual maturities of assets/off-balance sheet commitments.</p>	<p>Liquidity coverage ratio: Stock of high quality liquid assets (HQLA) must exceed total net cash outflow amount over a 30 calendar day period.</p>
<p><b>NZ position</b></p>	<p><b>Bespoke.</b> NZ has proposed minimum CET1 levels that substantially exceed the Basel minima (in particular increasing the mandatory capital conservation buffer to 7.5%). Otherwise generally consistent with Basel framework, but with divergences in RWA etc.</p>	<p><b>Disfavoured.</b> The RBNZ strongly discourages use of AT1 and Tier 2 instruments, regarding them as complex, lower quality, and uncertain in how they would perform under stress.</p>	<p><b>Non-conforming.</b> NZ OBR regime takes a different approach, by contemplating bail-in of both wholesale funding and retail deposits (subject to 'de minimis' for the latter).</p> <p>The RBNZ is against introducing TLAC policy, referring to complexity and doubts about feasibility of SPE (single point of entry) bail-in approach.</p>	<p><b>Bespoke.</b> Similar in substance but called 'Core Funding Ratio' under BS13 rather than Basel.</p>	<p><b>Bespoke.</b> Similar in substance but under BS13 regime rather than Basel.</p>

	Bail-in regime	OTC rules	Leverage Ratio	Stress tests	State aid prohibition
<b>What it does</b>	On insolvency or PONV selected instruments (e.g. AT1 or all bonds) are bailed in by being written off or converted to equity. AT1 may trigger earlier due to capital triggers and be already gone when bank reaches PONV.	Require trade reporting, central clearing, posting of collateral (initial and variation margin), capital penalties for non-compliance.  ISDA contractual stay rules (i.e. deferred termination) facilitate orderly bail-in.	A raw leverage ratio of total capital to total assets (not risk-weighted assets).	Regulator-led tests of resilience of individual institutions to severe economic stress scenarios.	Rules or directives designed to repudiate implicit guarantee and taxpayer bail-out.
<b>Rationale/ Contribution to Financial Stability</b>	Reduce moral hazard by reversing 'implicit guarantee'. Make swift resolution possible due to having pre-planned which liabilities to write-down/convert.  Bail-in regime designed to result in known outcomes.	Increase transparency as to location and quantum of exposures. Reduce counterparty risk and increase resolution options.  Stay provisions simplify "over-a-weekend" bail-in.	Provides a limit to RWA calculation model arbitrating capital requirements.	Test a bank's level of preparedness and resilience outside of an actual crisis.  Refinement of stress tests may lead to better understanding of where the risks lie in the financial system.	Reduction of moral hazard and related distortions (especially excessive risk-taking).
<b>Efficacy</b>	Allows for orderly clean-up of a bank's balance sheet.	Limits credit exposure and thus calculation basis for RWA calculation.  Lessens contagion risk if one counterparty fails.	Provides an effective backstop/minimum capital that banks have to comply with at all times.	Scenarios are theoretical, might play out differently in reality.	Question whether they will be followed in time of severe crisis.  Political expediency may demand bail-out.
<b>Cost</b>	Requires appropriate bail-inable liabilities on balance sheet; bail-in risk increases borrowing cost.	Higher costs may be limited by requiring all parties to include/use them.	None if LR requirement (in absolute numbers) is lower than the RWA requirement. Additional costs only likely to arise for outliers.	None, except management/regulator time, possibly reputation if failing a test?	Might increase bank borrowing costs due to less chance of government bail-out.
<b>Basel treatment</b>	Bail-in mostly based on FSB work (focusing on G-SIB), being	Not a Basel/FSB requirement. Requirements developed out of international (US/EU) requirements/accords	Requirement of 3% total capital/total exposure under Basel.	Conducting stress tests is an international standard.	Not a Basel/FSB requirement. EU Bank Recovery and Resolution Directive limits circumstances

	introduced in major jurisdictions.	(e.g. G20 Pittsburgh Accord/EMIR)	APRA proposes LR of 3.5% for IRB ADI (3% for standardised ADI).		where state aid can be provided.
<b>NZ position</b>	<p><b>Partial.</b> NZ contemplates bail-in under OBR, but the RBNZ doesn't have a statutory bail-in power.</p> <p>Limited development/ planning of OBR may reduce effectiveness in time of crisis, e.g. due to:</p> <ul style="list-style-type: none"> <li>• Affecting only a limited number of creditors;</li> <li>• Absence of statutory bail-in order;</li> <li>• Identity of post-OBR shareholders.</li> </ul>	<p><b>Non-conforming.</b> NZ has not implemented laws to give effect to the G20 Pittsburgh Accord.</p> <p>NZ has adopted a "wait and see" approach, filling gaps where required for NZ banks to meet international requirements.</p>	<p><b>Non-conforming.</b> NZ has not implemented a leverage ratio as RBNZ has not considered it appropriate for NZ market conditions.</p> <p>RBNZ proposes tightening of IRB approach for calculating RWA, suggesting that it sees issues in current RWA calculations.</p>	<p><b>Yes.</b> NZ carries out stress tests.</p>	<p><b>Yes, bespoke.</b> OBR underlines that there should be no bail-out, but NZ is unusual in extending bail-in to retail depositors while not having (formalised) depositor protection.</p> <p>Limited development/ questions on effectiveness of OBR may put pressure on government to conduct bail-out.</p>

## QUERIES IN RELATION TO THE ANALYSIS IN THE CAPITAL REVIEW PAPER

- **Sensitivity analysis:** The impacts shown in relevant international studies are very broad in range. As a result, it would be helpful for submitters to have more in-depth stress testing to help understand what results are the most likely in the context of the New Zealand financial system and the degree of risk that outcomes will be greater than predicted. In addition, there is no investigation of which of the studies is likely to be most relevant to New Zealand conditions, in terms of methodology, underlying assumptions, factors taken into account, and sample set.
- **Economic impacts:** The assessment of impact on output is very brief, given the significance of the proposal and the key objective in the RBNZ Act that the prudential policy promotes the prosperity and well-being of New Zealanders, and contributes to a sustainable and productive economy. In particular, there is no assessment of the potential impact on key imbalances affecting and issues in a New Zealand context (most notably the low level of investment and impact of that on productivity, growth and wellbeing – each of which is influenced significantly by cost of capital (Treasury Productivity Paper (2008), OECD (2017)) or of second order effects, such as tightening of lending conditions.
- **Factoring in the impact of other prudential tools:** In contrast to the approach taken in the 2015 Brooks/Bank of England study, which took into account in the optimality assessment the contribution of other prudential tools, such as crisis management and standards for additional loss-absorbing capacity, there is no evaluation of the contribution or effect of other elements of the prudential toolkit (such as, in a New Zealand context, Open Bank Resolution). See also IMF (2012), pg 42-55. These studies suggest that a robust cost-benefit analysis must include a consideration of the contributions made to financial stability by other components of the prudential toolkit.
- **Adjustment to reflect underlying conservatism:** The analysis does not take into account the in-built conservatism in the calculation of New Zealand capital levels – which is assessed by the Reserve Bank as adding approximately 200bp on a 'like for like' basis – or the buffer that is held by banks above the regulatory minimum.
- **Other potential impacts/costs:** The broader range of potential bank responses to changed requirements – such as reducing credit to bank-dependent borrowers such as SMEs, balance sheet reduction (deleveraging), or balance sheet adjustment (shifting toward lower risk-weighted assets such as mortgage loans) – is not assessed (contrast Brookes et al (2015), pg 22) and IMF (2012) pg 23-24).
- **Composition:** There is no analysis of other available options, such as fulfilling some of the additional capital requirement through alternative loss-absorbing instruments – the approach recently taken in Australia. In this regard, the study by Dagher et al (2016) notes capital requirements may be met by other bail-in-able instruments, such that that their results “may be reinterpreted as applying to other TLAC instruments”.