



# **Review of the Reserve Bank of New Zealand's Capital Adequacy Proposals**

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# 1. Introduction and executive summary

1. The Reserve Bank of New Zealand (“**the RBNZ**”) has released a paper seeking feedback on a proposal to increase the minimum level of capital required to be held by New Zealand banks (“**the January 2019 paper**”).<sup>1</sup> In this report we set out our review of the January 2019 paper and proposal. We also refer throughout our report to a companion paper released by the RBNZ in April 2019 (“**the April 2019 paper**”),<sup>2</sup> which sets out further detail on the RBNZ’s analysis in the January 2019 paper.
2. The RBNZ’s proposal involves raising the minimum Tier 1 capital requirement for the big four banks (Westpac, ANZ, ASB and BNZ)<sup>3</sup> from the current 8.5% of risk-weighted assets (“**RWA**”) to 16%, in combination with also increasing the measure of RWA itself for these banks. The joint effect is that these four banks will be required to hold considerably more equity capital, and/or reduce their lending. The combination of the increasing capital requirement and increasing RWA amount to a change in the minimum Tier 1 capital requirement from 8.5% to, effectively, 18.5% of current RWA.<sup>4,5</sup>
3. We conclude that various flaws lead the RBNZ to propose this more stringent set of capital ratio requirements that would impose clear costs on the economy, in return for an unclear and unsubstantiated benefit.
4. More particularly:
  - a. The RBNZ’s papers do not present any evidence that the existing capital requirements are inadequate, or that the future will be riskier (and require stronger capital requirements) than the past. More generally the papers do not contain any proper problem definition;
  - b. The RBNZ’s papers do not robustly justify the fundamental driver of the proposal, being the 1-in-200 year probability of a crisis;
  - c. The RBNZ’s papers apply a framework that prioritises its unsubstantiated concerns about a lack of soundness (or “**creditor confidence**”) ahead of gross domestic product (“**GDP**”), with no analysis of the extent to which society would be willing to accept this trade off;
  - d. The RBNZ introduces an additional principle (“**levelling the playing field**”), ostensibly to enhance competition, when in fact the RBNZ’s proposal would have the opposite effect. Attempting to level the playing field in this way would not enhance economic performance, and would lead to a reallocation of deposits to, and lending by, the less regulated finance sector. Accordingly, the RBNZ’s proposal might actually reduce soundness;
  - e. The proposal would increase the probability of RBNZ involvement in management of banks, with no analysis of the efficiency of this, or whether it might actually undermine soundness;
  - f. The RBNZ’s papers do not analyse the implications of an open economy and foreign (Australian) ownership of the largest four banks; and

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<sup>1</sup> RBNZ (2019), “Capital Review Paper 4: How much capital is enough?”, January.

<sup>2</sup> RBNZ (2019), “Capital Review Background Paper: An outline of the analysis supporting the risk appetite framework”, April.

<sup>3</sup> And the smaller banks, albeit by a slightly smaller amount.

<sup>4</sup> From Table 9 of the January 2019 paper, the required increase in Tier 1 capital is \$46.4b, which is 18.5% of current RWA for the big four banks of \$251.1b.

<sup>5</sup> If the banks’ margin over the minimum requirement is maintained, the actual Tier 1 ratio would go from 13.4% to 23.4% (the RBNZ states, at footnote 4 of the January 2019 paper, that at the end of March 2018 the aggregate Tier 1 capital ratio across all locally incorporated banks was 13.4%, implying a margin of 4.9 percentage points over the minimum requirement of 8.5%).

- g. The RBNZ's papers do not analyse the possibility that the banks would lower their lending in response to the proposed changes, and the implications of this for the economy. More generally the RBNZ's papers appear to under-estimate the negative economic effects of the proposed changes. These negative economic effects would be exacerbated by the likelihood that banks would hold more equity capital than the required 16%, just as they hold a margin over required capital today.

## 2. Inappropriate analytical framework

- 5. Rigorous public policy analysis starts with careful problem definition. There is no analysis of problem definition in the RBNZ's papers, although it is clear the RBNZ considers the current capital ratio of the banks (particularly the largest four) to be too low.
- 6. However:
  - a. The RBNZ does not provide evidence that the current capital ratios are too low, or that the future will be riskier than the past and warrant higher capital ratios;
  - b. The RBNZ applies a framework that prioritises its accordingly unsubstantiated concerns about a lack of soundness (or "creditor confidence") ahead of GDP, with no analysis of the extent to which society would be willing to accept this trade off; and
  - c. The RBNZ introduces an additional principle ("levelling the playing field"), ostensibly to enhance competition, when in fact the RBNZ's proposals would have the opposite effect.
- 7. These flaws lead the RBNZ to propose a more stringent set of capital ratio requirements that would impose clear costs on the economy, in return for an unclear and unsubstantiated benefit.
- 8. We discuss each of these three points in more detail in the following sections.

### 2.1. Are current ratios too low?

- 9. It is important to note the banks currently hold materially more capital than they are required to by regulation, as the RBNZ acknowledges (at [15] of the January 2019 paper). The RBNZ states (footnote 4 of the January 2019 paper) that at the end of March 2018 the aggregate Tier 1 capital ratio across all locally incorporated banks was 13.4%. This compares with the current regulatory capital requirement of 8.5%.
- 10. Indeed, an internal RBNZ paper acknowledges that there are other incentives on banks to hold capital, beyond just regulatory requirements.<sup>6</sup> In particular, this paper sets out the following factors that influence banks' capital ratio targets:
  - a. Regulatory minima;
  - b. Expectations of ratings agencies and wholesale funding markets;
  - c. International and domestic peer comparisons;
  - d. Other internal bank analysis (e.g., stress testing); and
  - e. An allowance for year-on-year variability above the regulatory buffer.
- 11. It is also important that the New Zealand banks, and indeed the economy more generally, came through the global financial crisis ("GFC") relatively well, and this was the assessment of the RBNZ. For example, in a 2018 speech, RBNZ Deputy Governor Geoff Bascand noted that New

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<sup>6</sup> RBNZ (2018), "Background notes on capital review", 25 July, available at: <https://www.rbnz.govt.nz/regulation-and-supervision/banks/capital-review-proposals-information-release>

Zealand's financial sector "has weathered the GFC better than most".<sup>7</sup> A 2012 paper by then RBNZ Governor Alan Bollard (with Tim Ng) states that New Zealand "escaped the worst of the financial crisis".<sup>8</sup>

12. Importantly, New Zealand has only ever had two banking crises, one in the late 1880s/early 1890s and the other in the late 1980s, both involving the state-owned Bank of New Zealand, and at least the latter crisis is not considered systemic.<sup>9</sup> This number of crises has been acknowledged by the RBNZ as being "limited",<sup>10</sup> particularly relative to the US where banking panics occur frequently.<sup>11</sup> The nature of the financial system was certainly considerably different in the 19<sup>th</sup> century to that of today, and prudential regulation of the system today is considered "well established", compared with "minimal regulations" in the 19<sup>th</sup> century and a "regulatory framework in a state of flux" in the late 1980s.<sup>12</sup>
13. As recently as November 2018 in its Financial Stability Report the RBNZ stated that "New Zealand's financial system is sound".<sup>13</sup>
14. The RBNZ has also conducted stress tests, which involve modelling a "severe macroeconomic downturn scenario".<sup>14</sup> The most recent (2017) stress test found that the big four banks could "absorb material losses in a downturn event while remaining solvent" and meet minimum capital requirements.<sup>15</sup> While the RBNZ notes that stress testing results can be sensitive to the underlying assumptions,<sup>16</sup> it nonetheless notes that it uses stress tests "to assess the soundness of the financial system".<sup>17</sup> Yet the RBNZ seems to give this stress testing zero weight in reaching a view on the current capital requirements proposal.
15. Moreover, the credit ratings of the New Zealand banks by the major ratings agencies (Standard & Poor's and Moody's) imply a high level of soundness, and one that implies a risk of failure materially below the RBNZ's proposed 1-in-200 year threshold.
16. In Table 1 we report the credit ratings of the New Zealand banks and their Australian parents, as well as those for selected banks in Finland, Norway and Czech Republic. We choose the banks for the latter three countries because, across a set of international comparisons reported by the RBNZ, they are the *only* countries that have capital ratios greater than the ratio proposed by the RBNZ.<sup>18</sup> The banks chosen from these countries are the ones reported by the RBNZ in its international comparisons.
17. We might expect to see these relatively high capital ratios reflected in banks having consistently higher credit ratings than banks that (currently) have relatively lower capital ratios, as is the case

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<sup>7</sup> "Financial Stability – risky, safe or just right?", 13 November 2018, available at: <https://www.rbnz.govt.nz/news/2018/11/financial-stability-risky-safe-or-just-right>

<sup>8</sup> Alan Bollard and Tim Ng (2012), "Learnings from the Global Financial Crisis", *RBNZ Bulletin*, 75(3), 57-66.

<sup>9</sup> The RBNZ has stated that New Zealand has not had a systemic banking crisis in its post-war economic record – see p.3 of the April 2019 paper.

<sup>10</sup> Geoff Bascand's speech to the Institute for Governance and Political Studies, 26 February 2019, available at: <https://www.rbnz.govt.nz/research-and-publications/speeches/2019/speech2019-02-26>

<sup>11</sup> Chris Hunt (2009), "Banking crises in New Zealand – an historical perspective", *RBNZ Bulletin*, 72(4), 26-41.

<sup>12</sup> *Ibid.*, at Table 1.

<sup>13</sup> RBNZ (2018), "Financial Stability Report", November.

<sup>14</sup> Charles Lilly (2018), "Outcomes from the 2017 stress test of major banks", *RBNZ Bulletin*, 81(9), 3-18.

<sup>15</sup> *Ibid.*, at p.8.

<sup>16</sup> See the April 2019 paper at p.23.

<sup>17</sup> Lilly (2018), *op cit.*, at p.3.

<sup>18</sup> See Figure 3 below, based on the median capital ratio shown.

in New Zealand and Australia. While there are two instances of banks in Table 1 having higher credit ratings than the New Zealand banks (DNB Bank in Norway and OP Corporate Bank in Finland, on the Moody's ratings), in all other cases the banks in Finland, Norway and Czech Republic shown in Table 1 have the same or lower credit ratings than the New Zealand banks.

**Table 1: Credit ratings of banks in NZ, Australia and selected countries**

<b>Bank</b>	<b>Standard &amp; Poor's</b>	<b>Moody's</b>
<b>New Zealand</b>		
ANZ	AA-	Aa3
BNZ	AA-	Aa3
ASB	AA-	Aa3
Westpac	AA-	Aa3
<b>Australia</b>		
ANZ	AA-	Aa2
NAB	AA-	Aa2
Commonwealth Bank	AA-	Aa2
Westpac	AA-	Aa2
<b>Finland</b>		
Aktia Bank	A-	Aa3
OP Corporate Bank	AA-	Aa2
<b>Norway</b>		
DNB Bank	AA-	Aa1
<b>Czech Republic</b>		
CSOB	A+	Aa3
Komerčni	A	Aa3
Ceska Sporitelna	A	Aa3

Source: ratings agencies. We use Standard & Poor's local/foreign currency long-term rating and Moody's long-term counterparty risk rating.

18. It is also possible to translate the credit ratings into default probabilities. A 2008 *RBNZ Bulletin* paper reports that the Standard & Poor's AA rating is associated with a cumulative probability of default over five years of 1-in-300.<sup>19</sup> More recent analysis by Standard & Poor's calculates the cumulative probability of default over five years to be approximately 1-in-300 for an AA-rating.<sup>20</sup> That is, a company with an AA- credit rating has a 1-in-300 (0.33%) chance of defaulting by the end of a five-year period.

19. This cumulative probability that a company will default by the end of a five-year period can be converted to a probability that the company will default in any given year. That is, if an AA-rated company has a 0.33% chance of defaulting by the end of a five-year period, what is the probability that it will default in any given year (conditional on prior survival)? This "conditional default probability" (also known as the "hazard rate") can be calculated from the cumulative default probability, and in this case would yield a default probability of 1-in-1,500 for an AA-

<sup>19</sup> Doug Widdowson and Andy Wood (2008), "A user's guide to credit ratings", *RBNZ Bulletin*, 71(3), 56-62.

<sup>20</sup> See Table 26 of S&P (2018), "2017 Annual Global Corporate Default Study and Rating Transitions", 5 April.

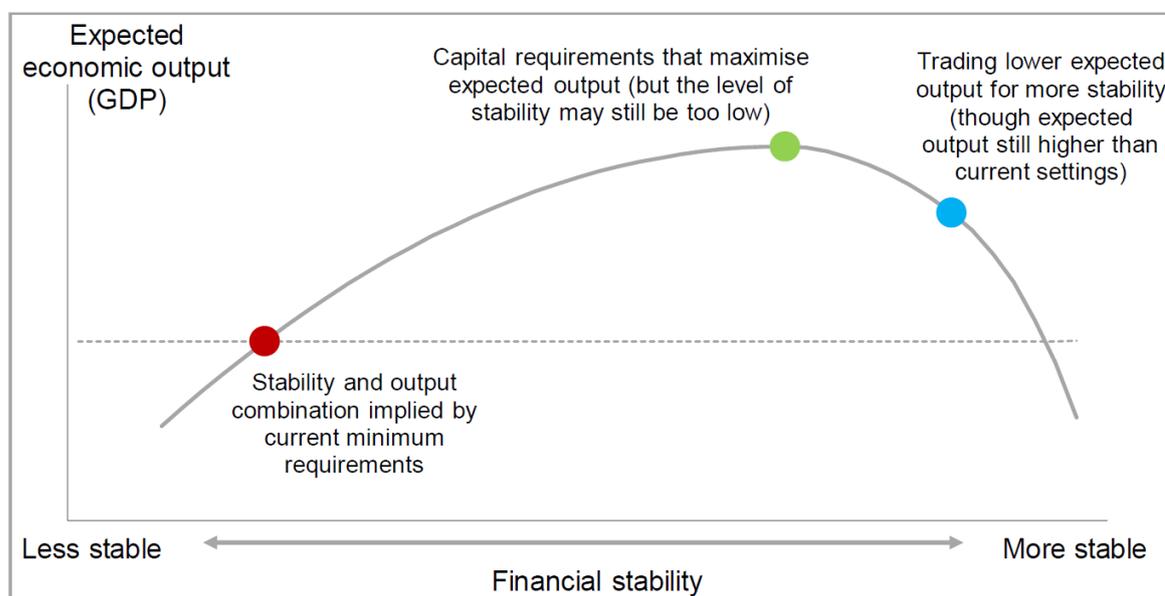
rating.<sup>21</sup> That is, based on their AA- Standard & Poor’s rating, the New Zealand banks are assessed as having a 1-in-1,500 (or 0.067%) probability of default in any given year. This is comparable to the RBNZ’s 1-in-200 year (0.5%) threshold,<sup>22</sup> and implies that the ratings agencies consider the risk of failure to be materially below that proposed by the RBNZ.

20. In summary, this evidence finds that the existing bank capital requirements have delivered a financial system the RBNZ has recently stated to be sound, which is corroborated by the default probabilities implied by banks’ credit ratings. The RBNZ has not provided any evidence to suggest the contrary.

## 2.2. The RBNZ framework

21. The RBNZ’s framework is replicated in Figure 1 below. The approach taken by the RBNZ is to choose the point shown by the blue dot, which provides greater “stability” than the status quo (the red dot) but does not maximise expected GDP (which would occur at the green dot).

**Figure 1: RBNZ's Stylised Risk Appetite Framework**



Source: Figure 3 of the January 2019 paper

22. At least based on the January 2019 paper, trading off GDP in this way is on the basis that the vague notion of “retaining creditor confidence” ([17]) is more important than maximizing expected economic output. Indeed, at [22] the RBNZ’s discussion of efficiency is based “on the assumption the soundness objective is met”, and its two-step process at [24] starts with the soundness objective before proceeding to the efficiency one. “Retaining creditor confidence” (or “soundness”) is achieved by choosing the blue dot, and then the RBNZ tests whether output could be expanded if we move further to the right in Figure 1 – there is no scope to move further to the left, even if that would increase economic output.

<sup>21</sup> As set out in John C. Hull (2012), *Options, Futures, and Other Derivatives*, Eighth Edition, Prentice Hall, Boston (at pp.522-523), the five-year cumulative default probability ( $Q$ ) would be given by the formula  $Q = 1 - e^{-5\lambda}$ , where  $\lambda$  is the hazard rate. Where  $Q=0.33\%$ , re-arranging this formula yields a value for  $\lambda$  of 0.067%, or approximately 1-in-1,500.

<sup>22</sup> On our interpretation, the 1-in-200 is a conditional default probability, i.e., the probability of default in a given year, conditional on prior survival. For example, of the risk tolerances referred to by the RBNZ as context for the 1-in-200 (the April 2019 paper, at p.16), the Basel confidence level has been referred to as “the likelihood that the bank will remain solvent over a one-year horizon” (Basel Committee on Banking Supervision (2005), “An Explanatory Note on the Basel II Risk Weight Functions”, July, at p.3).

23. In effect the RBNZ is prioritising a concept of soundness (“retaining creditor confidence”) over that of economic performance more broadly, i.e., over that of efficiency. In the January 2019 paper, the RBNZ does not provide any justification for this – the RBNZ simply asserts (at [24]) that there should be a “two-step decision-making process”:
- “Step 1: Determine the level of capital that achieves the soundness objective. This is the provisional capital target.*
- Step 2: If it seems likely that increasing capital beyond what is required to achieve soundness will entail no loss of expected output, set the capital target above the provisional target”.*
24. The RBNZ does provide a justification for choosing the blue dot over the green dot in the April 2019 paper. The RBNZ argues that society is willing to trade-off some expected output to reduce the probability of a banking crisis, on the basis that society is risk averse. For example, the RBNZ states that “the evidence strongly suggests that society is not indifferent to risk, so it seems important to accommodate the possibility that society may prefer capital levels that deliver a great deal of stability even if it means some sacrifice of expected output”.<sup>23</sup>
25. However, the RBNZ does not undertake any analysis regarding how much expected output society would be willing to trade-off (i.e., the vertical drop from the green dot to the blue dot) for a given increase in stability (the right-hand shift from the green dot to the blue dot). Rather the RBNZ chooses the location of that blue dot without any analysis of its vertical or horizontal distance from the green dot, but instead on the basis of what we consider to be an arbitrary 1-in-200 year probability of a crisis.
26. The RBNZ does acknowledge this side step. For example, it states:<sup>24</sup>
- The approach adopted by the Reserve Bank incorporates society’s risk tolerance in a simple way. We represent the costs and benefits of capital objectively (without any weightings) and incorporate risk aversion by aiming to cap the probability of a crisis at some predetermined level.*
27. While we are sympathetic to the difficulties of operationalising the RBNZ’s risk aversion framework, the problem with the RBNZ’s side step is that the position of the blue dot is chosen on the basis of different considerations to those underlying the conceptual argument for shifting to the right and down from the green dot.
28. The location of that blue dot on the horizontal axis is the 1-in-200-year probability of a crisis. The justifications for choosing the particular location of the blue dot are not robust, and as noted are not related to the conceptual framework adopted by the RBNZ. The RBNZ illustrates our general point where it states “[t]his paper is not intended to provide a cost-benefit assessment of the proposal”.<sup>25</sup> In short the RBNZ is proposing a particular probability, and a particular concomitant capital ratio, without having undertaken a cost-benefit assessment of the value of these changes to society.
29. In the January 2019 paper, the only stated bases for the 1-in-200 year probability are the “precedents” referred to at footnote 5 of that paper. One of these is a 0.5% risk of insolvency used in insurance solvency standards in Europe. However, it is not at all clear how solvency standards for insurance are relevant to the required standard for banks, when the nature of risks and costs associated with events are quite different between the two industries.
30. Footnote 5 also refers to the internal ratings based (“**IRB**”) capital equation for credit risk specifying a 0.1% annual risk tolerance, i.e., a 1-in-1000 year probability of an event, yet the RBNZ notes that “in practice the level of solvency delivered by the equation is somewhat less due

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<sup>23</sup> The April 2019 paper, at p.12.

<sup>24</sup> See page 12 of the April 2019 paper.

<sup>25</sup> Page 4 of the April 2019 paper.

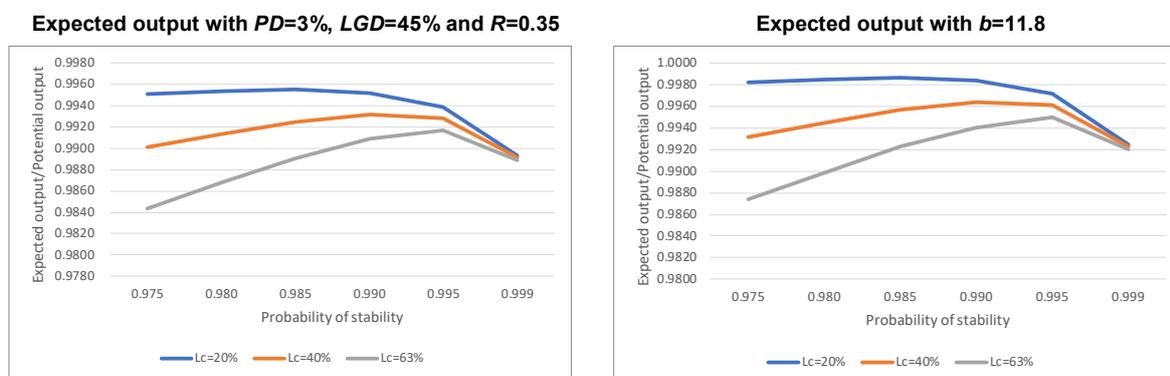
to modelling uncertainties”. Clearly a 1-in-1000 probability is not a “precedent” for a 1-in-200 year probability, and the RBNZ has not provided any detail on how “somewhat less” may change the 1-in-1000 year figure.

31. In the April 2019 paper the RBNZ provides some further examples, including 1-in-1000 years for earthquake risks for non-life insurers in New Zealand, 1-in-250 years for other non-life catastrophes, and 1-in-500 years for a US deposit insurance fund. It is acknowledged in the April 2019 paper that there is “a range of risk tolerances”. Our point is that these examples appear to provide little basis for justifying the RBNZ’s choice of the 1-in-200 year probability for banking.
32. In the April 2019 paper the RBNZ has added two more justifications for the 1-in-200 year probability.
33. The first is the broader social impacts of a crisis (e.g., on physical and mental health, family cohesion, etc).<sup>26</sup> However, the RBNZ’s consideration of these impacts is asymmetric – the RBNZ does not consider the social impacts of the lower GDP implied by the shift from the green to blue dot.
34. The second is “the preliminary finding from the early modelling work” (p.19), which is based on the modelled relationship between GDP and the probability of a crisis. The model is one of a closed economy, treating New Zealand as independent of world markets. From this modelling the RBNZ found that adopting the 1-in-200 probability could maximise GDP for particular input values used (as shown in Figure 5 of the April 2019 paper). But this is nothing to do with risk aversion. It does not provide a basis for moving from the green dot on Figure 1 above to the blue dot.
35. The RBNZ’s Figure 5 in the April 2019 paper is based on a closed economy model with multiple inputs – see the equation at p.10 of the April 2019 paper, for which the key variable inputs are  $b$  (the marginal impact of a change in the capital ratio on GDP) and  $K$  (the proposed capital ratio).  $K$  itself varies due to changes in the probability of default ( $PD$ ), loss given default ( $LGD$ ) and correlation ( $R$ ). The RBNZ has noted (p.28 of the April 2019 paper) that the values of  $PD$ ,  $LGD$ , and  $R$  vary over specified ranges, as does the value of  $b$  (see Table 8 of the April 2019 paper). Yet the RBNZ’s Figure 5 is based only on one set of values for  $b$ ,  $PD$ ,  $LGD$ , and  $R$  (being  $b=8.1$ ,  $PD=2.25\%$ ,  $LGD=40\%$  and  $R=0.3$ ).
36. Taking different values for these variables (while still remaining within the ranges specified in the April 2019 paper) can yield quite different results from those shown in the RBNZ’s Figure 5. By way of example:
  - a. In the left panel of Figure 2 below we have shown the results of the RBNZ’s model using values of  $PD=3\%$ ,  $LGD=45\%$  and  $R=0.35$ , which is a scenario reported in the RBNZ’s Table 2 of the April 2019 paper, and we continue to use  $b=8.1$ . This shows that expected output is maximised at a 1-in-100 year probability of a crisis for  $L_c=40\%$  (the orange line) or 1-in-67 years for  $L_c=20\%$  (the blue line); and
  - b. In the right panel of Figure 2 we show the results of the RBNZ’s model (with  $PD=2.25\%$ ,  $LGD=40\%$  and  $R=0.3$ ) using a value  $b=11.8$ , which is a scenario the RBNZ reports in Table 8 of the April 2019 paper. Again the  $L_c=40\%$  and  $L_c=20\%$  lines show output maximised at 1-in-100 and 1-in-67 years respectively.

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<sup>26</sup> Pages 17-19 of the April 2019 paper.

**Figure 2: Relationship between expected output and stability with varying assumptions**



Source: NERA analysis utilising the RBNZ model

37. Our point is not that these alternative RBNZ assumptions are preferable to the base case chosen by the RBNZ, but that there are a range of inputs underlying the RBNZ’s model, and its results can vary quite considerably based on plausible variation in these inputs. This suggests that little weight should be placed on the outcome of this modelling to justify the 1-in-200 year probability.
38. Interestingly, an internal RBNZ paper dated 30 October 2018 states,<sup>27</sup> “We believe a reasonable interpretation of ‘soundness’ in the context of capital setting is to cap the probability of a crisis at 1% (or 0.5% if we wish to mirror approaches taken in insurance solvency modelling)” ([36]).
39. We note that if the RBNZ adopted 1% (1-in-100 year probability of crisis), then based on the literature set out in the January 2019 paper, the implied capital ratio could be in the order of what is actually held today.<sup>28</sup> In particular, at the end of March 2018 the aggregate Tier 1 capital ratio across all locally incorporated banks was 13.4% (footnote 4 of the January 2019 paper). The RBNZ’s analysis of the literature suggests a 1% probability of a crisis would be associated with:
  - a. An 11% capital ratio, based on Table 1 of the January 2019 paper;
  - b. A capital ratio in the range of 8-11%, based on Table 2 of the January 2019 paper;
  - c. A capital ratio in the range of 14-16%, based on Table 3 of the January 2019 paper;
  - d. A capital ratio in the range of 14-17%, based on Table 4 of the January 2019 paper; and
  - e. A capital ratio anywhere in the range of 14%-25%, based on Table 5 of the January 2019 paper.
40. Clearly these results are quite variable, reflecting the different studies and methodologies used. However, it is interesting to note that on some results, the existing Tier 1 capital held already meets a 1-in-100 year crisis probability. Indeed, the RBNZ appears to come to a similar

<sup>27</sup> Susan Guthrie (2008), “Risk appetite framework to set capital requirements”, memorandum for RBNZ Banking Steering Group, 30 October, available at: <https://www.rbnz.govt.nz/regulation-and-supervision/banks/capital-review-proposals-information-release>

<sup>28</sup> As we have already noted, it is implicit in the ratings of the main New Zealand banks that the ratings agencies already assess the risk of failure to be lower than 1-in-200 years.

conclusion in a 13 November 2018 paper, noting that capping the probability of a crisis at 1% translates to a capital ratio of 12-13% of RWA.<sup>29</sup>

41. Our point is that the RBNZ's problem definition consists of claiming that the capital ratios today fall short of what would be required to limit crises to once every 200 years. However, there is little justification for this claim and the 1-in-200-year aim, and no empirical evidence offered that the banks are currently under-capitalised.
42. Relative to other countries, the proposal would place New Zealand at the high end of capital requirements – see the RBNZ's reported comparisons shown in Figure 3 below. The RBNZ has acknowledged this and states that this “moves us towards our goal, expressed back in 2017, of capital requirements that are conservative relative to our peers”.<sup>30</sup> There is no reason given, however, as to why New Zealand needs to be moved to be more conservative, particularly given:
  - a. the virtual absence of financial crises in New Zealand's history;
  - b. the evidence that the existing bank capital requirements have delivered a financial system the RBNZ has recently stated to be sound, corroborated by the default probabilities implied by banks' credit ratings, which say that the proposed default probabilities are met under existing ratios;
  - c. the finding from Table 1 presented earlier that having a high capital ratio is not necessarily associated with having a high credit rating;<sup>31</sup> and
  - d. that New Zealand may already be more conservative than our peers.
43. Regarding this latter point, we note that PwC has prepared a set of international comparisons that differ from those reported by the RBNZ. PwC's finding from these comparisons is that New Zealand's four large banks are currently well capitalised relative to their international peers.<sup>32</sup> While the RBNZ has not fully accepted the PwC analysis, it has nonetheless concluded that “we would accept the overall assessment that we are likely to be more conservative than many of our peers”.<sup>33</sup>

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<sup>29</sup> See Appendix 4 of the 13 November 2018 memo from Susan Guthrie to the Financial System Oversight Committee, titled “Capital Ratio Calibration”, available at: <https://www.rbnz.govt.nz/regulation-and-supervision/banks/capital-review-proposals-information-release>

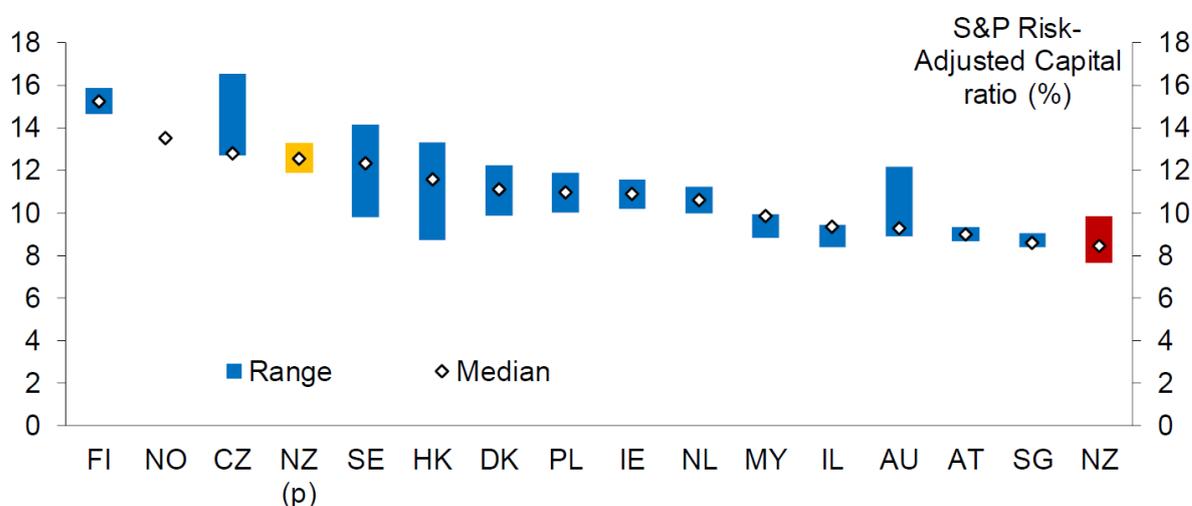
<sup>30</sup> As noted in Geoff Bascand's speech to the Institute for Governance and Political Studies, 26 February 2019, available at: <https://www.rbnz.govt.nz/research-and-publications/speeches/2019/speech2019-02-26>

<sup>31</sup> We recognise that this may in part reflect difficulty in making international comparisons of capital ratios, something acknowledged by the RBNZ (the RBNZ has stated that “these sorts of cross-country comparisons are extremely difficult to do, and rely heavily on the methodological approach” – Financial Policy memorandum to FSO, “2017 PwC (NZ) study”, 2 May 2018) and PwC (see PwC's 2017 report to the New Zealand Bankers' Association (“International comparability of the capital ratios of New Zealand's major banks”) noting the complexity of making international comparisons). It may also reflect differences across banks and countries in the margin over the regulatory minimum capital ratio held.

<sup>32</sup> PwC (2017), “International comparability of the capital ratios of New Zealand's major banks”, report to the New Zealand Bankers' Association, October.

<sup>33</sup> Financial Policy memorandum to FSO, “2017 PwC (NZ) study”, 2 May 2018, available at: <https://www.rbnz.govt.nz/regulation-and-supervision/banks/capital-review-proposals-information-release>

**Figure 3: International comparisons of capital ratios**



Source: RBNZ (2019), “Safer Banks for Greater Wellbeing”, presentation slides from a speech by Geoff Bascand to the Institute for Governance and Political Studies, 26 February 2019.

44. In short, the RBNZ has not identified a problem with the current regime. Good public policy requires robust problem definition – otherwise the proposed solutions may result in net costs. Indeed, in its *Guide to Social Cost Benefit Analysis*, the New Zealand Treasury states that “[a]ny policy or decision process starts with defining a problem or opportunity and identifying the potential need for a project or regulatory proposal”.<sup>34</sup> All the RBNZ provides is some suggestion (at [17] of the January 2019 paper) that the banking system needs to retain creditor confidence, but there is no evidence provided that existing levels of creditor confidence are too low.
45. Regulatory change that occurs in an ad hoc fashion without proper problem definition and analysis induces risk of future changes in regulation. Regulatory uncertainty harms firms’ incentives to invest and innovate, and is detrimental to long-run maximisation of social welfare (economic efficiency).
46. We also note there is no analysis by the RBNZ of the implications (if any) of Australian ownership of the four largest New Zealand banks. We would expect the RBNZ to at least consider whether the Australian banks would have stronger incentives and more ability than shareholders in standalone banks to prevent or manage crises in their subsidiaries. The Australian banks might have these incentives because they want to protect their trans-Tasman brands, meet Australian Prudential Regulation Authority (“APRA”) regulatory requirements and/or because of potential spillovers of confidence in the bank as a whole across the Tasman. Indeed, we note that the BNZ banking crisis in the late 1980s was associated with more general pressure on the financial system at the time,<sup>35</sup> yet only the New Zealand government-owned BNZ required a bail out.

### 2.3. The principle of “levelling the playing field”

47. The RBNZ has specified (at p.7 of the January 2019 paper) that one of the principles of its capital review is for there to be “as level a playing field as possible” between the big four banks and the other banks. This appears to be on the basis that the big four banks use their own internal models to determine their capital requirements, as opposed to other banks that use models prescribed by

<sup>34</sup> New Zealand Treasury (2015), “Guide to Social Cost Benefit Analysis”, July, at paragraph [8].

<sup>35</sup> Chris Hunt (2009), “Banking crises in New Zealand – an historical perspective”, *RBNZ Bulletin*, 72(4), 26-41.

regulators, which the RBNZ has argued provides the former with a “competitive advantage”.<sup>36</sup> Relatedly, the RBNZ has stated that the “current rules distort competition”.<sup>37</sup>

48. The RBNZ has stated that the big four banks can produce lower capital requirements than the other banks using their own internal models (known as the IRB approach).<sup>38</sup> Accordingly the RBNZ has proposed a re-calibration of these internal models, involving an adjustment to a parameter to reduce the average difference between these internal models and the standardised models of the other banks and an “output floor” that sets a lower bound on RWA produced under these models (see [86] of the January 2019 paper).
49. Nowhere does the RBNZ a) explain why the internal models are inferior to the standardised models;<sup>39</sup> or b) explain why the four Australian banks – these hold nearly 90 percent of New Zealand’s banking assets<sup>40</sup> – should have the same or similar RWA to other banks given their business, associated risks and their holding by bank-parents regulated in Australia. Moreover, given the different methods for determining RWA, and the ability for the RBNZ to make changes to the RWA determined by these methods (e.g., the changes referred to at [88] of the January 2019 paper), we query whether there is even a robust interpretation of what measured RWA is.
50. It is not clear to us why the non-IRB banks could also not use their own internal models, or source the expertise to develop these models; or why they should have the same regulatory settings as the big four banks which are the banks that the RBNZ has identified as systemic (the January 2019 paper at [113]), and so matter for banking crises. But in any event, while trying to “level the playing field” in competition terms by these modelling changes, the RBNZ is raising bank costs and likely to be reducing competition by its approach more generally.
51. Indeed, standard competition economics suggests that increasing the costs of participating in a market would reduce competition. The RBNZ has estimated the additional Tier 1 capital that would be required per \$100 of residential mortgage lending, as shown in Figure 4 below. Where a firm’s incremental costs increase in this way, then basic microeconomics shows that this will raise prices and lower output. For example, Pindyck and Rubinfeld (2009, pp.285-286) show that when the price of an input increases, “the higher input price causes the firm to reduce its output”, which will in turn increase prices.<sup>41</sup> Hausman and Leonard (1999) state that the claim that prices will decrease when marginal costs decrease (and presumably their comment would also apply to cost/price increases) is “unexceptional to any student of intermediate microeconomics”.<sup>42</sup>

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<sup>36</sup> See Geoff Bascand’s speech to the Institute for Governance and Political Studies, 26 February 2019, available at: <https://www.rbnz.govt.nz/research-and-publications/speeches/2019/speech2019-02-26>

<sup>37</sup> RBNZ, “Safer banks=safier society”, 22 February 2019, available at: <https://www.rbnz.govt.nz/-/media/ReserveBank/Files/regulation-and-supervision/banks/capital-review/Bank-Capital-Review-summarised.pdf?la=en&revision=90821f7d-0336-44fb-9bab-ee70beb42464>

<sup>38</sup> Geoff Bascand’s speech to the Institute for Governance and Political Studies, 26 February 2019, available at: <https://www.rbnz.govt.nz/research-and-publications/speeches/2019/speech2019-02-26>

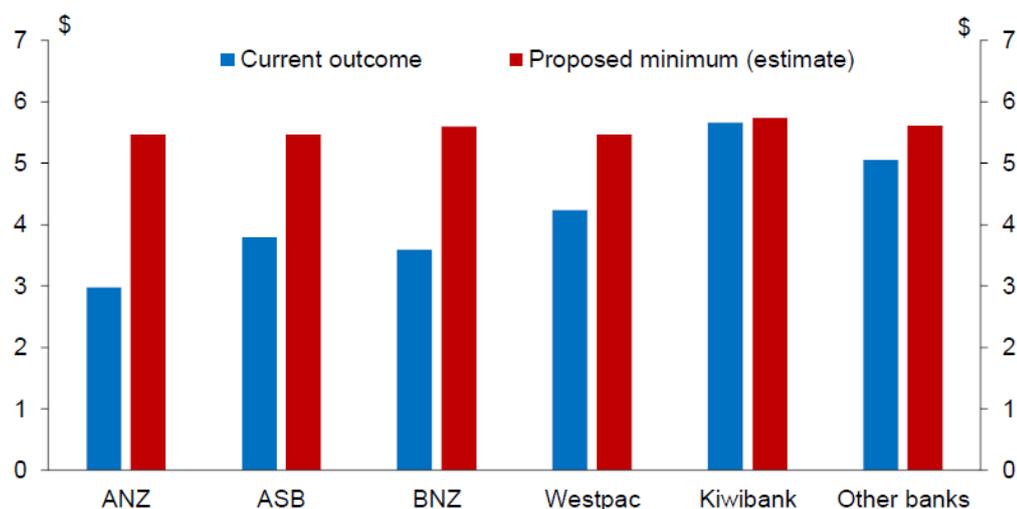
<sup>39</sup> The RBNZ does identify measurement judgements required in assessing some asset classes of the RWA that might influence this choice (at Appendix 3 of the January 2019 paper). The merits of the standardised approach are not described.

<sup>40</sup> The January 2019 paper, at [113].

<sup>41</sup> Robert S. Pindyck and Daniel L. Rubinfeld (2009), *Microeconomics*, Seventh Edition, Pearson-Prentice Hall.

<sup>42</sup> Jerry A. Hausman and Gregory K. Leonard (1999), “Efficiencies from the Consumer Viewpoint”, *George Mason Law Review*, 7(3), 707-727.

**Figure 4: Estimated Tier 1 capital per \$100 of residential mortgage lending**



Source: Figure 3 of Geoff Bascand’s speech to the Institute for Governance and Political Studies, 26 February 2019.

52. This is exactly why even the RBNZ is anticipating a price increase (and/or quantity decrease, as we discuss later in this report). The other key implication of reduced competition would be less innovation.
53. In summary, whatever the merits of “leveling the playing field” through the re-calibration of the models, the RBNZ’s overall proposal to increase the required capital ratios would increase banks costs and actually lessen competition, not increase it. If the RBNZ really wanted to increase competition, the more logical policy would be to reduce the capital ratios for the smaller banks. Indeed, lack of RBNZ consideration of this reduction is inexplicable, given the smaller banks present lower systemic risk, as the RBNZ acknowledges (see, e.g., [124] of the January 2019 paper).
54. There is also a potential tension between a desire to reduce banking crises and a desire to increase competition. The economics literature on the effects of competition and market structure on the banking sector is equivocal, highlighting trade-offs: for example, increased competition can enhance the efficiency of the banks, but at the same time it may also destabilise them.<sup>43</sup> The RBNZ does not explore this tension.
55. It is also relevant that banking markets are typically characterised by similar market structures to that which currently exists in New Zealand, being a small number of large banks and a relatively large number of smaller fringe banks.<sup>44</sup> It is not good public policy for the RBNZ to advocate a principle of “levelling the playing field”, without an analysis of whether seeking to do so is even socially desirable.
56. An important final point on this topic is that by reducing the competitiveness (raising the costs) of the regulated banks, the RBNZ’s proposal is likely to facilitate the expansion of non-regulated (or at least less regulated) financial institutions into deposit-taking and lending. These other financial institutions would have a new competitive advantage over the regulated banks. The consequent

<sup>43</sup> For summaries of this literature see Pere Gomis-Porqueras and Benoit Julien (2007), “Market Structure and the Banking Sector”, *Economics Bulletin*, 4(24), 1-9; and Hong Liu, Phil Molyneux and John O. S. Wilson (2013), “Competition in banking: measurement and interpretation”, in Adrian R. Bell, Chris Brooks, and Marcel Prokopczuk (eds.), *Handbook of Research Methods and Applications in Empirical Finance*, Edward Elgar.

<sup>44</sup> See, e.g., Astrid A. Dick (2007), “Market Size, Service Quality, and Competition in Banking”, *Journal of Money, Credit and Banking*, 39(1), 49-81.

reallocation of deposits to, and lending by, the less regulated sector would seem to run contrary to the RBNZ's desire to increase soundness. This is a point noted by Firestone et al (2017), which the RBNZ has cited and relied on for its analysis in the January 2019 paper, where these authors state that migration of lending out of the regulated financial sector can lead to "systemic risks becom[ing] less effectively controlled" (while also increasing competition from these entities).<sup>45</sup> This point is particularly salient given New Zealand's open economy and the associated ease of movement of transactions.<sup>46</sup>

### **3. Banks' margin over the regulated requirement**

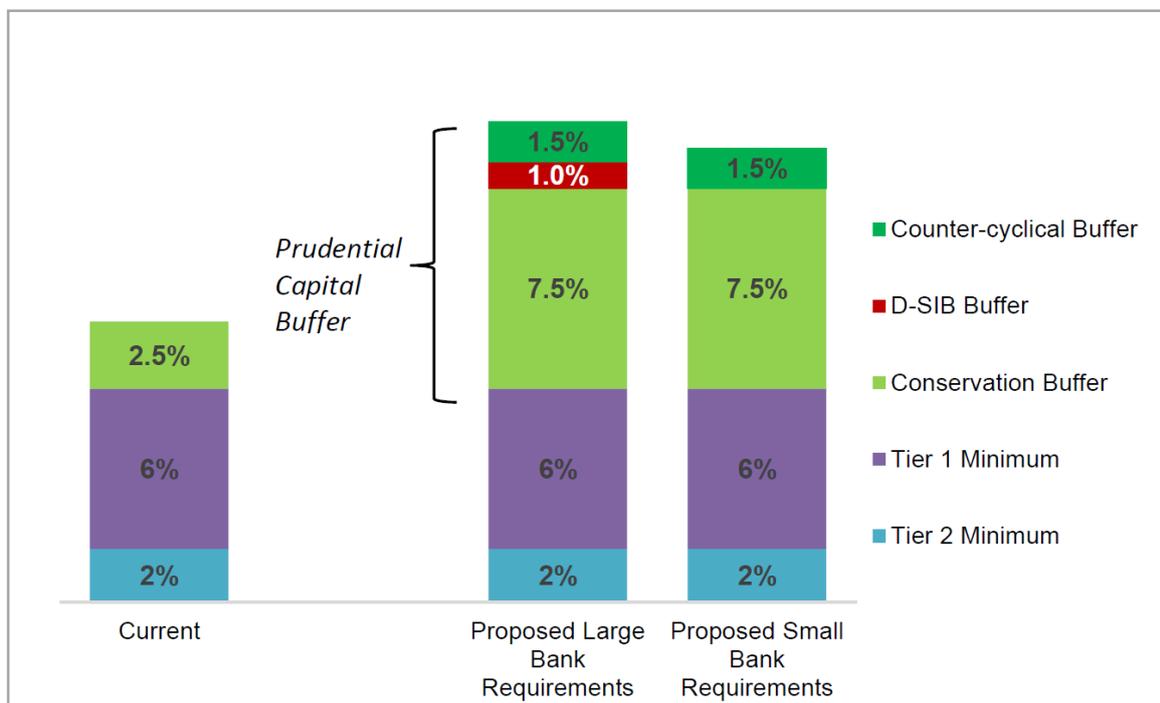
57. As already noted, the banks today hold a materially higher level of capital than they are required to by the RBNZ. They are likely to continue to hold a margin if the regulatory ratios are raised, even though the rise is actually in respect of the buffer.
58. At present, the regulatory framework sets a Tier 1 capital requirement of 6% with a conservation buffer of 2.5% – see Figure 5 below. If capital drops below the 6% minimum, a bank would be in breach of its Conditions of Registration. If within the conservation buffer, but above the minimum, banks "face limits on their ability to distribute their earnings, for example through dividends, and must provide a plan for the Reserve Bank's approval setting out how the bank will rebuild its buffer" (the January 2019 paper at [91]).
59. The RBNZ's proposal, as shown in Figure 5, is to retain the 6% Tier 1 minimum while increasing the conservation buffer, and adding two further buffers, to create a new "prudential capital buffer" of 10% (for the four large banks). Within the prudential capital buffer, banks would "be subject to automatically triggered restrictions on discretionary payments and an increasingly intensive supervisory response" (the January 2019 paper at [92]).

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<sup>45</sup> Simon Firestone, Amy Lorenc, and Ben Ranish (2017), "An empirical economic assessment of the costs and benefits of bank capital in the US", Finance and Economics Discussion Series 2017-034. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2017.034>

<sup>46</sup> Vives (pp.59-60) analyses the increased, even disruptive, pressure banks are presently facing from non-bank (or shadow bank) organisations using digital technology and artificial intelligence, and reports "The increase in regulatory burden on traditional banks, in terms of raised capital requirements and legal scrutiny, explains about 55% of shadow bank growth in the period 2007-2015, and 35% of this dynamic is explained by the use of financial technology". (Xavier Vives (2019), "Competition and stability in modern banking: A post-crisis perspective", *International Journal of Industrial Organization*, 64, 55-69.)

**Figure 5: Current and proposed capital ratio requirements (as a percentage of risk-weighted assets)**



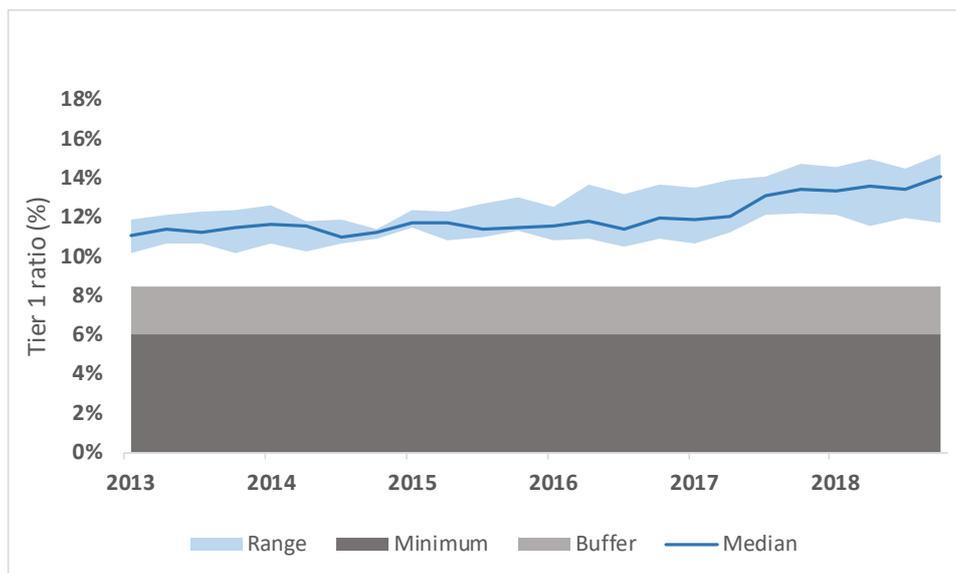
Source: Figure 1 of the January 2019 paper

60. It is likely that:

- a. The time series of Tier 1 capital as a percentage of RWA will be relatively volatile. Indeed, at [15] of the January 2019 paper the RBNZ acknowledges that banks maintain a buffer to “deal with year-to-year fluctuations in capital levels”; and
- b. There would be costs to banks, including a reputational one, from going close to, or below, the 16% threshold.

61. Regarding the first point (60a), Figure 6 below shows a time series of the Tier 1 capital ratios for the four large banks, from March 2013 to December 2018. The graph shows the median capital ratio across the banks, and the range of capital ratios, in addition to the minimum Tier 1 ratio (6%) and buffer (2.5%). It is clear that there is variability in the range of capital ratios across the banks, and variability in the capital ratio over time.

**Figure 6: Tier 1 capital ratios for four large (IRB-accredited) banks**



Source: NERA analysis of data provided by Westpac

62. Regarding the second point (60b), the costs of going close to or below the proposed 16% threshold would include giving the RBNZ decision making powers over disbursements if the bank is within the regulated prudential capital buffer. The RBNZ’s paper does not analyse the effects of the increased prospect of the RBNZ being involved in bank management. While we understand the RBNZ is “not proposing new tools or powers” (the January 2019 paper at [99]), these powers would kick in at a lower threshold. For example, if a bank holds 13% capital today, the RBNZ would not currently be able to intervene, but it would under the proposals.
63. This is despite the RBNZ noting in 2018 that “New Zealand’s financial system is sound”.<sup>47</sup> That is, it is unclear why a financial system that the RBNZ characterises as sound would require a significantly greater probability of intervention, when such intervention is (ostensibly) intended to achieve improved soundness.
64. The irony is that this greater threat of intervention by the RBNZ in bank management might actually reduce “soundness”, the opposite of what the RBNZ is trying to achieve. RBNZ staff are likely to have less expertise and poorer information than bank executives. Intervention of the RBNZ in management of a bank falling in a buffer would almost surely entail some RBNZ discretionary action. Further, the RBNZ’s responsibility for the performance of banks will increase relative to bank management which, together with the RBNZ’s concern for the state of the economy in decisions it takes when the RBNZ directly intervenes, may have a mixed effect on regulatory decisions and predispose regulatory creep.
65. For these and the reasons given above, we think banks would rationally hold a margin above the 16%. This would mean that the effects discussed below (increases in lending margin and/or reduced lending) would be more material than analysed to date by the RBNZ.

## 4. Effect on interest rates and lending

66. The RBNZ proposal would both increase the Tier 1 capital requirement ratio and increase the RWA for the four IRB-accredited banks, materially increasing the dollar value of required Tier 1

<sup>47</sup> RBNZ (2018), “Financial Stability Report”, November.

capital for these banks. We think there is a risk the RBNZ has under-estimated the negative economic effects of this.

67. The RBNZ has estimated that lending margins (the difference between lending and borrowing rates) would increase by 20 to 40 basis points.<sup>48</sup> The January 2019 paper notes also (at [74]) that a one percentage point increase in the Tier 1 capital ratio may lead to a 6 basis point increase in the price of bank credit (so the move from 8.5% Tier 1 to 16% will lead to a 45 basis point increase). On our calculations earlier, because RWA has also increased for the big four banks, the banks will effectively be required to hold Tier 1 capital of 18.5% of current RWA, which would amount to a 10 percentage point increase in the capital ratio and therefore a 60 basis point increase in lending margins.
68. We note that in the April 2019 paper the RBNZ states, based on Figure 10 of that paper, that New Zealand's recent past shows higher capital levels are accompanied by largely unchanging interest margins, potentially implying that the present proposal will not change lending margins. However, the RBNZ is correct to caveat that its Figure 10 is "merely illustrative", as it does not in any way control for other factors that may have changed over the period of analysis that would also influence lending margins, or take into account that the increase in capital under the proposal is long term and of regulatory origin.
69. Also in the April 2019 paper, the RBNZ dismisses interest rate increases in the order of 20 to 40 basis points as not "particularly onerous for the economy" (p.38). However, New Zealand is already a country with relatively high interest rates by global standards.<sup>49</sup> Given this, we are surprised the RBNZ is so relaxed about the prospect of higher interest rates.
70. The RBNZ also argues in the April 2019 paper that a one-off 20 to 40 basis point increase in lending rates would be within the usual range of short-term movements in lending rates (p.38). However, a regulatory induced increase in lending rates is not transitory and would shift the entire lending rate curve upwards. That is, while two-year fixed mortgage rates may currently vary in the range of approximately 2.7% to 3.1% (based on Figure 12 of the April 2019 paper), an increase in lending rates of say 40 basis points would likely result in that variation occurring within the higher range of 3.1% to 3.5%.
71. Moreover, the RBNZ regularly adjusts the Official Cash Rate ("OCR") by small amounts, typically either 25 or 50 basis points. Since its introduction in March 1999, the OCR has been adjusted 52 times, with a median and modal adjustment of 25 basis points. The RBNZ makes these adjustments on the basis that they will have a tangible impact on the economy, so to dismiss an ongoing 20 to 40 basis point change in lending rates as not being "particularly onerous" to the economy is inconsistent with the RBNZ's use of the OCR.
72. The RBNZ also states (at [75] of the January 2019 paper) that a one percentage point increase in the Tier 1 capital ratio would lead to a 3 basis point decrease in the steady-state level of GDP. Thus the proposed 7.5 percentage point increase in the capital ratio would lead to a 22.5 basis point decrease in the steady-state level of GDP.<sup>50</sup> To put this in context, New Zealand's GDP in

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<sup>48</sup> As noted in Geoff Bascand's speech to the Institute for Governance and Political Studies, 26 February 2019, available at: <https://www.rbnz.govt.nz/research-and-publications/speeches/2019/speech2019-02-26>

<sup>49</sup> As noted, for example, in Natalie Labuschagne and Polly Vowles (2010), "Why are Real Interest Rates in New Zealand so High? Evidence and Drivers", New Zealand Treasury Working Paper 10/09, December; RBNZ (2007), "Why are New Zealand interest rates so persistently high by international standards", Supporting paper A4 to Select Committee Submission, July. More recent OECD data also shows New Zealand to have the sixth highest interest rates (on average over the period from 2008 to 2017) of 25 OECD countries – see <https://data.oecd.org/interest/long-term-interest-rates.htm>

<sup>50</sup> As noted at Table 6 of the April 2019 paper, the effect on GDP is on its long-run equilibrium in present value terms.

the year to December 2018 was \$293b,<sup>51</sup> and the RBNZ's GDP cost estimate is then \$0.66b growing at the rate the economy grows, which has been the order of 2.5% per annum.<sup>52</sup>

73. In contrast to the RBNZ's forecast of margin increases, publicly-reported analysis by investment bank UBS estimates that lending rates would increase by between 86 and 122 basis points.<sup>53</sup> ASB has estimated an increase in lending rates of between 25 and 75 basis points.<sup>54</sup> These lending rate increases would have a higher GDP cost than that of the RBNZ noted above.
74. We have not assessed in detail the reasons for these differences, however they may in part be due to different assumptions for the Modigliani-Miller ("MM") offset,<sup>55</sup> for which the RBNZ uses a value of 50%. While the specific value for the MM offset is arguable, at the very least there may be a range of plausible values (as the RBNZ implies at Table 8 of the April 2019 paper) which can result in quite different results for the lending margin impact – a lower value for the MM offset would yield higher lending rate impacts. Moreover, the RBNZ's estimate of the MM offset is drawn from studies mostly across the US and Europe.<sup>56</sup> A more recent study focusing on Australia estimates the MM offset to be 25%.<sup>57</sup> This study notes that Australia has a strong dependence on bank lending for financing economic activity and a more concentrated banking sector (which we note are also features of New Zealand) than other countries such as the US, UK and Switzerland for which the MM offset has previously been estimated.
75. As context, the RBNZ's Table 9 of the January 2019 paper notes that the big four banks would need to increase their Tier 1 capital by \$12.8b. At a historic return on equity of 15%,<sup>58</sup> this amounts to approximately \$1.9b per annum in extra cost of capital. With a 50% MM effect, this amounts to just under \$1b per year in extra costs. We note that elsewhere the increase in Tier 1 capital for the big four banks has been calculated as \$19b,<sup>59</sup> assuming the banks choose a buffer of two percentage points, which with a 15% return on equity and 50% MM effect would amount to approximately \$1.4b in extra costs.
76. The RBNZ's assumption appears to be that the banks would incur these extra costs, but that not all of these costs would be passed onto customers. The RBNZ states that "we expect that

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<sup>51</sup> See <https://www.stats.govt.nz/indicators/gross-domestic-product-gdp>

<sup>52</sup> We note that New Zealand's average growth rate in GDP has been 2.4% per annum over the past ten years (based on the GDP production measure, chain volume series nominal values, sourced from Statistics New Zealand). The Treasury is forecasting annual GDP growth for 2019 through to 2023 respectively of 2.9%, 3.1%, 2.7%, 2.5% and 2.3% (Half Year Economic and Fiscal Update, 2018, <https://treasury.govt.nz/publications/efu/half-year-economic-and-fiscal-update-2018>).

<sup>53</sup> "UBS analysts suggest Aussie banks' response to RBNZ's proposals to increase bank capital will have economic impact on NZ 'larger than assumed by the RBNZ', 1 March 2019, available at: <https://www.interest.co.nz/banking/98370/ubs-banking-analysts-suggest-aussie-banks-response-rbnzs-proposals-increase-bank>

<sup>54</sup> "ASB says RBNZ estimates of bank capital are too low", 16 April 2019, available at:

<http://www.scoop.co.nz/stories/BU1904/S00469/asb-says-rbnz-estimates-of-bank-capital-impact-are-too-low.htm>

<sup>55</sup> Indeed, it has been noted that "One reason that ASB arrives at a larger impact than the Reserve Bank's calculations is that it isn't putting as much faith in what is known as the Modigliani-Miller Offset, named after the two economists who devised the theory in 1958" – see "ASB says RBNZ estimates of bank capital are too low", 16 April 2019, available at: <http://www.scoop.co.nz/stories/BU1904/S00469/asb-says-rbnz-estimates-of-bank-capital-impact-are-too-low.htm>

<sup>56</sup> See Table 5 of the April 2019 paper, which reports studies for the US, Europe, Switzerland, the UK and an "International" study.

<sup>57</sup> James R. Cummings and Linh Nguyen (2019), "Impact of the Basel III capital reforms on bank funding costs: Australian evidence", CIBR Paper No. 132/2016/Project T023, presented at the 31<sup>st</sup> Australasian Finance and Banking Conference 2018, available at SSRN: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2885050](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2885050)

<sup>58</sup> As noted in RBNZ (2018), "Background notes on capital review", 25 July, available at:

<https://www.rbnz.govt.nz/regulation-and-supervision/banks/capital-review-proposals-information-release>

<sup>59</sup> Dominick Stephens (2019), "RBNZ's bank capital proposal: impact on the OCR", 15 January.

competitive pressures may limit banks' ability to fully pass these costs on to others".<sup>60</sup> Even if this statement was correct as a matter of economics (which we dispute, particularly in the long-run), it is clearly not right in the present circumstances, where the banks are not obliged to incur the extra costs – their alternative is to reduce their lending, a distinct possibility that is not analysed in the RBNZ's papers. To the degree a bank would incur the extra costs, it would be because it expects to fully recover them.<sup>61</sup>

77. As noted, there appears to be an implicit assumption in the RBNZ's papers that the banks would continue with their existing level of lending, and would increase their equity capital to permit this. There is no analysis of the possibility that the banks would in fact lower their lending, therefore requiring less extra capital.<sup>62</sup>
78. For example, what would be the calculus of the Australian parents of the large four banks? Would raising further capital (\$12.8b on the RBNZ's calculations, or \$19b as calculated elsewhere) for their New Zealand subsidiaries be the highest value use of their scarce equity capital? This is a particularly important question when at same time APRA is proposing an increase in capital for the Australian banks (albeit in banks' Tier 2 capital requirements).<sup>63</sup>
79. A reduction in lending would of course have quite material real economic effects. These economic effects are not captured in the studies that the RBNZ refers to in determining the 3 basis point decrease in the steady-state level of GDP per one percentage point increase in the Tier 1 capital ratio. For example, the Basel Committee on Banking Supervision study referred to by the RBNZ at Table 6 of the April 2019 paper states (at p.21, emphasis added):<sup>64</sup>

*The steady-state analysis assumes that the impact of higher capital and liquidity operates through the higher cost of credit. By focusing on price adjustments, **the analysis does not capture any possible impact of credit rationing that might arise from more stringent requirements.** The reason for this choice is precisely that the analysis focuses on the long-run steady state, after banks have fully adjusted to the new requirements. While banks might shrink their assets by rationing credit if the transition period is too short, the impact of credit rationing is likely to be much smaller in the long run, as markets have time to clear. Non-price effects are likely to be more important during the transition...*

80. Similarly Firestone et al (2017),<sup>65</sup> also referred to at Table 6 of the April 2019 paper, note that their analysis does not include costs of transitioning to higher capital levels. However, Firestone et al refer to the analysis of these transitional costs undertaken by Kiley and Sims (2010), which found a reduction in GDP of between 0.5% and 3% for a 2 percentage point increase in capital

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<sup>60</sup> Geoff Bascand's speech to the Institute for Governance and Political Studies, 26 February 2019, available at: <https://www.rbnz.govt.nz/research-and-publications/speeches/2019/speech2019-02-26>.

<sup>61</sup> The speed and extent of pass-through may be affected by the state of the economy at the time, and whether banks raise lending rates or lower deposit rates (and the relative elasticities between depositors and borrowers), among other factors.

<sup>62</sup> The RBNZ does refer (at [67] of the January 2019 paper) to higher capital levels increasing banks' average funding costs, lowering the quantity of credit available. Also, in a background note, the RBNZ states that the literature shows "a positive relationship between banks' capital levels and lending growth, due to the reduced cost of well-capitalised banks' debt funding" (RBNZ (2018), "Background notes on capital review", 25 July, available at: <https://www.rbnz.govt.nz/regulation-and-supervision/banks/capital-review-proposals-information-release>). However, we think the RBNZ may be considering a demand elasticity effect here (i.e., how an increase in lending rates may alter the demand for loans), rather than addressing the possibility that banks respond to the increased capital requirements by reducing their lending (setting aside any effect on lending rates).

<sup>63</sup> See APRA's proposals at: <https://www.apra.gov.au/media-centre/media-releases/apra-seeks-increase-loss-absorbing-capacity-adis-support-orderly>

<sup>64</sup> Basel Committee on Banking Supervision (2010), "An assessment of the long-term economic impact of stronger capital and liquidity requirements", August.

<sup>65</sup> Simon Firestone, Amy Lorenc, and Ben Ranish (2017), *op cit*.

ratios.<sup>66</sup> Firestone et al suggest that this may be an overstatement, but nonetheless acknowledge that these transitional costs would decrease any net benefits from higher capital ratios. The RBNZ has not taken into account any costs, even if they are transitional, that arise from a reduction in lending.

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<sup>66</sup> M. Kiley and J. Sim (2010), “Technical background report: An assessment of the macroeconomic transition costs associated with higher levels of capital at financial institutions in the United States”, Federal Reserve Board, as cited in Firestone et al (2017), *op cit*.

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