

**MEMORANDUM FOR** Financial System Oversight committee

**FROM** Financial Policy (Ian Woolford and Susan Guthrie)

**DATE** June 2018

**SUBJECT** **Bringing the components of the Capital Review together**

**FOR YOUR** Decision

We recommend FSO Committee:

1. **Note** the logistical and tactical connections between progressing the Capital Review and our short-term priorities and BAU activities;
2. **Agree**, in-principle, to the key denominator framework decisions;
3. **Note** the conceptual approach to incorporating the different components of the Capital Review, and provide feedback on whether this is a useful approach.

## Overview

1. This paper provides:
  - An overview of the components of the Capital Review, and the desired next steps;
  - Reasons for making in-principle decisions now about the key dimensions of the denominator proposals;
  - A conceptual framework for bringing together all of the information gathered to support the Capital Review.

## Capital Review Components

2. As FSO Committee know, the Capital Review is broadly divided into three components: the numerator of the capital ratio, the denominator, and the ratio itself.

Component	Description	Status
Numerator	What should qualify as capital? Or to put it another way, what is the quality of capital in our framework?	Consulted on; In-principle decisions announced (to remove contingent convertible instruments from the framework).
Denominator	Proposed changes to the risk-weighted assets framework.	Consulted on; seeking in-principle decisions now from FSO on 4 key matters.
Ratio	Minimum capital requirements, and related calibration.	Not yet started: awaiting input from a Quantitative Impact Study, and in-principle decisions on framework.

3. Essentially, the first two stages address the capital calculation framework: the requirements for which capital instruments can count as regulatory capital (the numerator) and proposals for what can or cannot be calculated under the Internal Models approach, dual calculation and reporting of RWA, the imposition of a floor and so on (the denominator of the capital ratio).
4. The third stage (the ratio) can be thought of as a calibration exercise, where we can determine the desired degree of conservatism in the overall capital framework (e.g. what are the floors), having settled on the calculation components, along with the role of buffers, including capital ratio requirements (e.g. should CET1 be 4.5 percent or higher?). It is the time to look holistically at the framework, and, ultimately, calibrate to reflect the desired risk appetite.
5. To be clear, in and of themselves decisions on these framework issues are expected to have both capital and more general cost impacts on the banks. In some cases the direction of the costs are clear (but not yet the quantum). Dual reporting would have IT and process system impacts that will impose costs on the IRB banks and will take time to implement. On the other hand, the net impact of requiring IRB banks to standardise some models is less certain. For example, there is a general presumption that capital would increase somewhat under the standardised operational risk framework, but on the other hand it is much simpler to calculate and can be expected to result in potentially material cost savings; to a lesser degree the same may be true for the proposed standardisation of some internal models.
6. We would also draw a distinction between capital increases arising out of framework changes, to those that are simply a resetting of expected outcomes for an outlier bank. RBNZ s105  
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RBNZ s105 The RBNZ s105 situation can be thought of as a prime example of the sort of monitoring and regulatory problems with the IRB framework that we are trying to address as a part of the capital review. A decision was taken last year to address our concerns about RBNZ s105 housing capital outcomes. Therefore, any capital impact on RBNZ s105 should not be conflated with capital consequences from the Capital Review framework changes as such. (Although of course this argument doesn't apply to RBNZ s105 system costs arising from our review.)

**Question: When is re-litigation not re-litigation**

7. Answer: when there is a new Governor.
8. One of the options in the initial scoping paper to FSO for the Capital Review was to do away with internal models. Governors at the time were not supportive of this option, and this was reflected in the consultation paper.
9. We do just want to pause and confirm that that position continues to hold, given this is the first Capital Review decision paper to FSO under the new governorship.
10. We would make the point that we understand how significant removing internal models would be for the banks.
11. We would also make the point that we can also approach the problem more laterally, rather than simply keeping or dumping internal models. A different approach to

mitigating the risks inherent in the internal models framework is viable and attractive, especially in the New Zealand context (lightly resourced, monitored, and enforced).

12. In terms of this risk mitigation approach, it is worth making several points.
13. First, the following in-principle decisions – over and above assuming we are not removing internal models – are designed to mitigate the risks of internal models, thereby affecting the judgement about whether it is ‘worth the candle’ to get rid of them. Probably not is the answer if our internal models framework and approach is internally coherent and appropriately calibrated. This will crucially depend on the nature, and calibration, of the dual reporting and floor decisions.
14. Second, imposing a floor is a framework decision, the question of how the floor is calibrated is a question yet to be addressed. The floors policy offers a range of benefits, consistent with the principles underpinning this Review, including competitive neutrality (our aim is for the framework to not systematically advantage one type of bank over another) and enhanced risk management (the models will have a more ‘genuine’ use, enhanced risk identification rather than simply capital relief).
15. The US is an interesting case. They require the large banks to be internal models banks because they argue they are sophisticated enough to do a decent job in modelling, because they are systemic, and because they think internal modelling ought to generate more information about risk that should lead to reduced probability of failure. However, they require the IRB banks to hold the greater of 100 percent of the standardised amount or the modelled amount. One way of thinking about this is as a framework overlay for any systemically important bank, rather than a straight capital charge.
16. The point is there are ways to retain the benefits of internal modelling and robustly address our concerns other than by way of simply removing internal models from the framework, but this is best addressed as a part of the calibration discussion.

### **In-principle decisions on the denominator consultation**

17. The key in-principle decisions we are seeking are:
  - requiring externally-rated exposures to be rated under the standardised methodology only;
  - requiring, for IRB banks, dual calculation and disclosure under the IRB and standardised methodologies;
  - imposing a floor on IRB exposures (based on some percentage of what capital would be under the standardised framework); and,
  - removing internal modelling of operational risk, instead replacing it with the new Basel standardised framework.<sup>1</sup>
18. We are seeking in-principle decisions on the denominator consultation at this point for several reasons.
19. First, we need concrete data from the banks so we can assess the impact of our proposals, both in terms of banks’ system requirements and capital consequences. While we asked banks to support their submissions with data in the two previous consultations, we did not get anything like the information required to enable a sensible cost-benefit assessment of our proposals.

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<sup>1</sup> See the accompanying FSO paper #7560012 for more details.  
Ref #7571859 v1.10

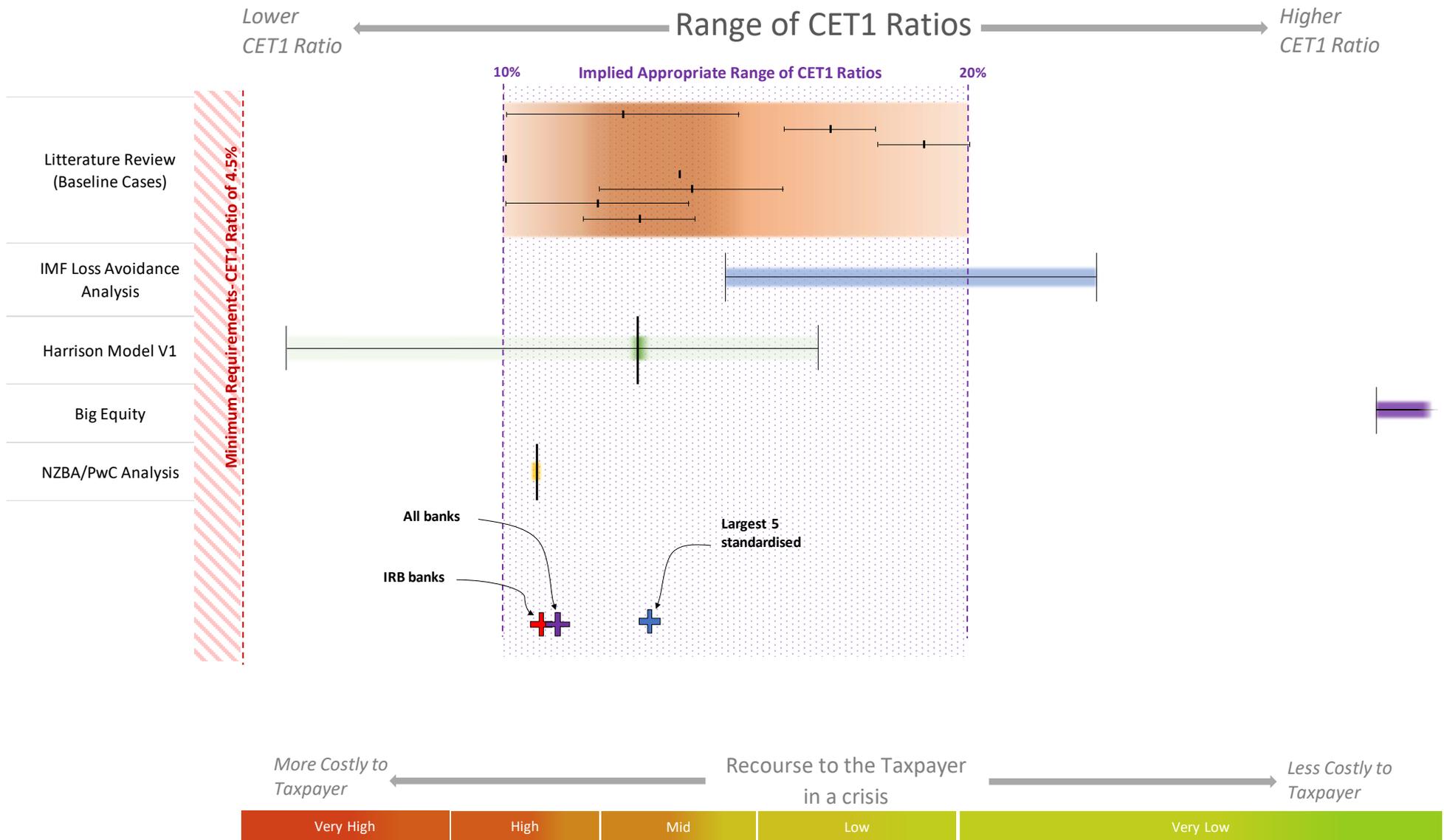
20. Similarly, we need to engage with the banks on the systems impacts, not just from a cost perspective, but also to build up a sense of the transitional times needed to implement the changes. Systems changes are always time consuming for industry, especially compliance-related changes, so we can expect lengthy transition periods, and the sooner we engage on the detail the better.
21. The way we need to obtain this information is by way of a QIS (a Quantitative Impact Study). In order to undertake such a study we need to provide banks with clear instructions and clarity about the calculation framework. Hence, the need to make in-principle decisions. One alternative would be to provide a range of options or scenarios, but this would mean a lot more work for industry and for us.
22. Moreover, there is inherently a reasonably high degree of optionality in calibrating the framework that can be assessed with the information from the QIS under a single scenario. For example, the level at which the calculations are made (exposure or asset class) and the level the floor is calibrated to (see the accompanying paper for more detail). Following the QIS, a more detailed picture of the net costs of the various options can be carefully considered.
23. Note also, that we intend to bring a paper to FSO in July on the QIS, prior to sending it to industry.
24. Second, the tactical approach embedded in the Capital Review is one of risk mitigation (or, put another way, getting the monkey off our back<sup>2</sup>).
- We are consciously wanting to reduce complexity: removing capital instruments that may not perform as expected in times of stress; removing redundant areas of complexity in our rules; removing complex and uncertain operational risk capital modelling.
  - Internal models are opaque and extremely difficult to monitor and supervise. This was the reason given for a floor in the Basel proposals, and accords with our own experience. If we can implement a framework that mitigates model risk by putting in place floors, then monitoring becomes far more tractable.
  - Moreover, properly specified and calibrated floors mean that we can move away from the pillar one type interventions on internal models, which have caused issues with industry, as they see it as meddling in their models. Much more importantly, it also means that with a far less interventionist approach, model change requests can be much more efficiently dealt with, which is something we can expect industry to welcome. (As this is likely to be a significant selling point to industry, we can come back to FSO on options, such as whether we could consider moving away from the model approval process altogether, subject to retaining some ability to intervene as necessary, but not by default).
  - RBNZ s105  


<sup>2</sup> See FSO Paper: 'A Monkey on our back' (#6475710)  
 Ref #7571859 v1.10

## Conceptual approach to setting minimum capital requirements

25. In addition to the information we will obtain from undertaking the QIS, we have presented FSO with various papers that consider 'optimal' or empirical estimates of capital:
- Optimal capital models literature review
  - Cross country studies (the S&P Risk-Adjusted Capital model, PWC analysis, banks' own estimates)
  - The RB 'optimal' capital model
  - Loss avoidance studies
26. Figure 1 (overleaf) illustrates that – on the basis of most of the literature reviews at least – there is a range of CET1 ratios whereby there are negligible impacts on output spanning 10 to 20 percent. This is interesting, but not particularly helpful for determining the 'right' number for New Zealand because of a) the range is broad, and more importantly, they don't explicitly factor in New Zealand conditions or risk appetite.

**Figure One: Conceptual framework to determining the optimal level of capital**



27. For the purposes of setting capital policy, we interpret a sound and efficient financial system to be one where:

- Bank failure is rare;
- Where bank failure occurs, the economic fallout is contained; and
- Minimum bank capital requirements are not set so high as to excessively dampen economic activity.<sup>3</sup>

28. Bank capital impacts beneficially on the probability and severity of a banking crisis, and the volatility of output following moderate shocks. It also impacts adversely on the supply of credit (through a potential impact on the cost of capital). Hence there is an inevitable trade-off facing regulators – the more capital that is required of banks, the safer the financial system, and the less volatile the economy, but the greater the potential dampening effect on credit and hence output. What constitutes enough capital but not too much?

29. This section recommends a way to approach the final calibration exercise. We (and for the most part the literature) focus on CET1 capital because we believe it is the most important, both in terms of preventing bank failure and in potentially driving bank costs.

### The analytical framework

30. Firstly, the policy problem can be interpreted technically, in a framework that is well established in the literature. The probability of bank failure and the severity of any ensuing crisis are inversely related to the level of CET1 capital, and the supply of credit is positively related to CET1 capital. Because bank failure, crisis severity and the supply of credit all impact on output, a relationship can be mapped from CET1 capital to output. The technical challenge is to identify the CET1 capital ratio beyond which no further net output gains can be made (the ‘optimal’ CET1 ratio).

31. Secondly, however, there is a practical problem. The relationship between output and CET1 capital cannot be known precisely because it is indirect, dependent on other underpinning relationships that are uncertain. As well, the underpinning relationships are likely to vary from country to country. Not surprisingly, then, there is a wide range of views about the optimal CET1 ratio (as illustrated in Figure 1).

32. Thirdly, there is a political economy or ‘risk appetite’ dimension to the problem. Politicians (ultimately) need to decide what level of risk are prepared to accept – is it one crisis every decade or one every thousand years, or something in between. That risk appetite decision ultimately dictates the level of CET1 capital that is required in the system (and other policy settings).

33. Figure 1 couches this in terms of “Recourse to the taxpayer”. That is, if capital is insufficient in the face of stress – individually or in the system – the political choice becomes one of accepting a failure, bailing out an institution, or resolving the bank (by way of OBR for example). Bailing out has direct recourse to the taxpayer and an immediate fiscal impact. Resolving by way of OBR is different in nature, it is more indirect and uncertain, but in a sense is also a recourse to the taxpayer either because the haircut is insufficient to cover the net asset deficiency, or because the government guarantee underpinning OBR is called on.

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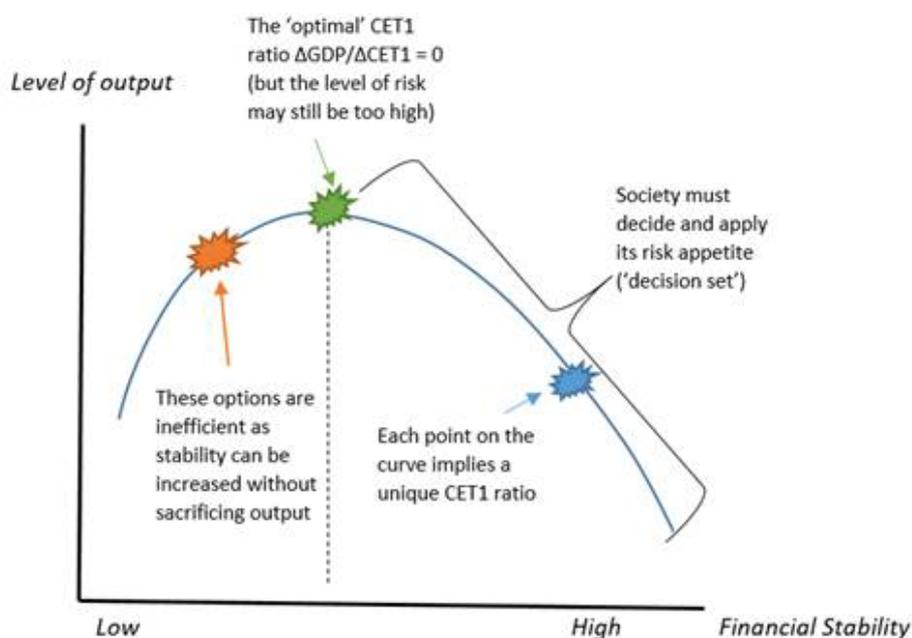
<sup>3</sup> It is taken as given that, if set privately, the level of capital held in banks would be inadequate capital from society’s perspective. Hence we assume there will always be minimum bank capital requirements. Capital requirements impact on bank costs and hence the supply of credit and economic activity.

34. Fourthly, the level of capital deemed appropriate for the system as a whole needs to translate to capital requirements applied to individual institutions. Some institutions will be more likely than others to have systemic effects and it will make sense to require relatively more capital of these institutions (“DSIBs”). This is something we aim to address in the ratio paper.<sup>4</sup>

### Our approach

35. We do not intend to reinvent the wheel in this area, but see good reasons for developing this analytical framework, as the range of ‘optimal’ estimates is very wide, and unique aspects of the New Zealand context must be factored into local capital settings.
36. We intend to develop a simple mathematical model of the technical policy problem, based on the conventional literature, and to use this as a tool for analysis. In particular, we will use the model to conduct sensitivity analysis of key assumptions related to the underpinning relationships. Our hope is that the range of implied optimal CET1 ratios will be relatively narrow across moderate variations in the underlying assumptions.
37. Having identified a range of CET1 ratios that are likely to optimal (or at least offer positive marginal benefits) we will map the ‘decision set’. The ultimate step will be to select a CET1 target ratio from this decision set. It won’t deliver the ‘right’ number, but it will provide a more unified way to consider the trade-offs given a particular risk appetite.

**Figure Two: The range of ‘optimal capital’ levels**



38. The minimum CET1 capital ratio requirement will be somewhat lower than the CET1 target ratio, as banks can be expected to hold a voluntary buffer above the regulatory minimum.

<sup>4</sup> It is also our intention to narrow the gap between the RWA outcomes of standardised banks and IRB banks, for similar portfolios (IRB banks are likely to be the only candidates for ‘DSIB’ status).  
Ref #7571859 v1.10

39. There is a large body of literature looking at the issue of optimal capital and the underlying relationships. We propose incorporating the findings from this literature in our analysis, alongside the results of a Quantitative Impact Study (QIS) done in conjunction with local banks and insights from the recent stress testing exercise.

### **Next steps**

40. Figure 3 (overleaf) illustrates the next steps.

41. In the short-term, we recommend that

- In-principle decisions are announced on the denominator paper
- A QIS is developed that reflects the in-principle decisions.

Figure Three: Timeline of next steps in the Capital Review

