

MEMORANDUM FOR FSO Committee

FROM Financial Policy (Author: Charles Lilly)

MEETING DATE 7th November 2018

SUBJECT **Capital requirements for sovereign, bank and externally rated corporate exposures in the IRB approach**

FOR YOUR Decision

It is recommended that the Committee:

1. **Note** that the Committee made an in principle decision to require internal ratings based (IRB) banks to apply the standardised approach for all credit exposures to externally rated counterparties (sovereigns, banks, local authorities, large corporates).
2. **Note** that the main arguments in support of this decision relate to the difficulty of modelling these portfolios, the often unjustified differences in capital outcomes we observe across IRB banks, and the limited 'value add' by the IRB process beyond what information is already captured in credit rating agency's assessments.
3. **Note** that the main counterpoints raised against the proposal relate to the additional information banks are party to when making their credit assessments, the low prevalence of external ratings in the New Zealand context (adding complexity to the framework with little practical benefit), alignment with APRA, and the relatively crude standardised approach onto which these exposures would move.
4. **Note** that the Quantitative Impact Study (QIS) results show that while external ratings are common for the sovereign, bank and local authority categories, only around 10% of banks' exposures to large corporates by value are to entities with external credit ratings.
5. **Note** that the QIS results also show that more often than not, banks' IRB models assign different internal credit ratings than the equivalent external rating (i.e. there is some 'value add' from the IRB process), with a tendency to assign more conservative ratings than what is implied by the external grade.
6. **Agree** to reverse the Committee's in principle decision to require IRB banks to apply the standardised approach to externally rated large corporate exposures (i.e. all large corporate exposures will still use IRB in the revised framework). Based on our assessment of the data captured in the QIS, Financial Policy considers that the additional complexity that would be added to the capital framework by continuing with the in principle decision would outweigh any practical benefit.
7. **Agree** to proceed with the in principle decision to require IRB banks to apply the standardised approach for the sovereign, bank and local authority exposure categories. For these categories, Financial Policy considers the arguments about low modellability and unjustifiable differences in capital outcomes still outweigh the arguments for retaining the IRB approach.

Background

1. The Bank made the in-principle decision to retain the internal ratings based (IRB) approach to determining credit risk capital requirements in our capital framework, subject to three key risk mitigants:
 - IRB banks disclose their capital requirements under a full standardised approach ('dual reporting');
 - IRB banks will be subject to a floor on their credit risk weighted assets (RWA) that is linked to the standardised approach ('output floor'); and
 - The IRB approach will not be available for exposures to counterparties that have an external rating (e.g. sovereigns, banks and some large corporates).
2. This paper discusses the third of these in-principle decisions. Confirmation of the in principle decision is needed to finalise the details and calibration of the output floor between the IRB and standardised approaches. We present information collected as part of the Quantitative Impact Study (QIS) on the prevalence and use of external ratings for the IRB banks' exposures to support a final policy position.

To standardise or not?

3. To recap, under the current IRB approach, banks use an internal estimate of the probability of default (PD), loss given default (LGD) and exposure at default (EAD) of each counterparty to determine capital requirements for the sovereign, bank and large corporate asset classes.¹ The standardised approach for these exposures is simpler, slotting exposures into risk weight buckets that depend on the credit rating of the counterparty. Table 1 below summarises the two approaches:

Table 1: Comparison of standardised and IRB approaches

		Sovereign	Bank	Local authorities	Large corporate
Risk weight under standardised approach	AAA to AA-	0	20	Linked to rating of sovereign	20
	A+ to A-	20	50		50
	BBB+ to BBB-	50	50		100
	BB+ to BB-	100	100		100
	B+ to B-	100	100		150
	Unrated	100	50		100
Current average IRB risk weight		2.1	23	12	50
Average standardised risk weight (from QIS)		1.6	36	30	92

4. Table 2 below summarises the current, proposed RBNZ, and future Basel III/APRA approaches for the sovereign, bank and large corporate asset classes. The finalised Basel III framework, and APRA's proposed implementation, see more constraints on the IRB approach for these categories than the status quo. Banks would no longer model EAD, nor LGD for unsecured exposures. Decisions are yet to be made for the sovereign asset class.

¹ In the IRB framework the "Bank" category includes exposures to banks, local authorities such as councils, multilateral development banks, and potentially other institutions (e.g. shadow banks, funds management companies, central counterparties). In our analysis below, we separate this category into "Bank" and "Local authorities". "Large corporate" under IRB covers corporate exposures where the consolidated corporate group has annual sales of \$50m or greater.

Table 2: Consultation proposal and Basel III / APRA position

Category	Current approach	% of current credit RWAs	RBNZ consultation document	Basel / APRA position
Sovereign	IRB	0.3	Standardised	Undecided pending further deliberation
Banks and Local Authorities	IRB	2.5	Standardised	IRB (only PD and secured LGD modelled)
Large Corporate	IRB	13.1	Standardised if externally rated, otherwise IRB	IRB (only PD and secured LGD modelled)

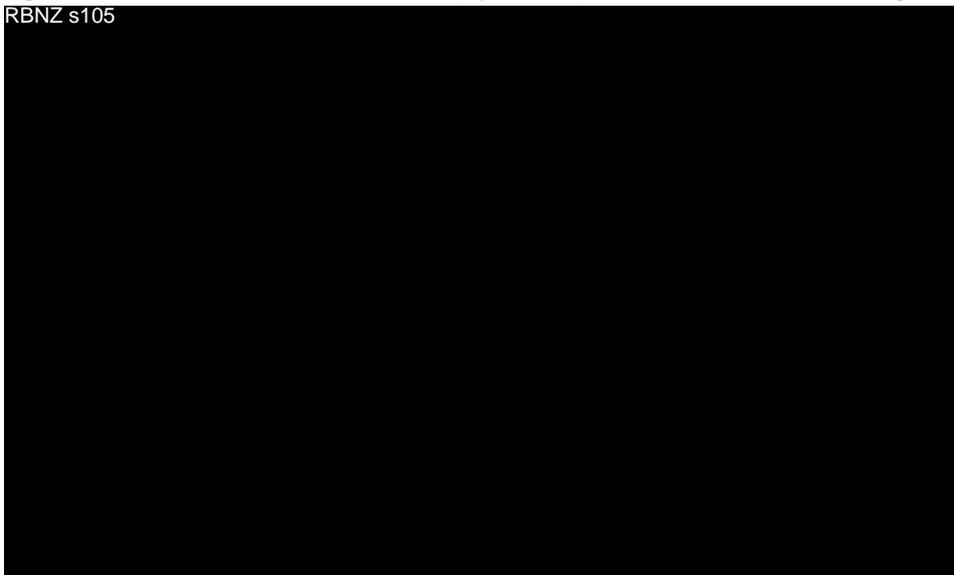
5. The arguments we put forward in favour of requiring the use of the standardised approach for these categories are as follows:
- Evidence from overseas studies shows that banks' internal ratings of exposures to common obligors (e.g. sovereigns, named corporates) can result in widely varying outcomes, even if the underlying risks are the same.
 - The default and loss data history on sovereign, bank and large corporate portfolios is sparse, particularly in New Zealand, making modelling difficult. Differences in model outcomes we observe across banks are driven more by modelling assumptions than by objective evidence of differences in risk.
 - External credit ratings capture a third party's assessment of a counterparty's creditworthiness, using a combination of public and private information. Our assumption was that these assessments are at least as good as the assessments banks make using their models.
 - In many cases, the NZ banks' models are actually just a transcription of a counterparty's external credit rating to the bank's equivalent internal rating. If there is no 'value add' by the bank in the IRB process, it's hard to justify a different capital requirement to what a standardised bank would face.
 - The Basel Committee had indicated its intention to require standardisation of bank and large corporate exposures in its 2016 consultation on revisions to the IRB framework for similar reasoning to the preceding points (though it subsequently backtracked and allowed modelling in the final version).
6. Counterarguments to support the retention of IRB for these categories include:
- The standardised approach applies fixed risk weights, in very broad buckets (0%, 20%, 50%, 100%), with insufficient risk differentiation or accounting for common types of collateral, levels of subordination, or other particular contractual aspects of banks' actual exposures. This is particularly relevant for corporate exposures where there may be greater heterogeneity.
 - Banks have more of an incentive to accurately assess the creditworthiness of their counterparties than ratings agencies, given it is the banks carrying the credit risk.
 - Banks are more able to quickly update their assessment of a counterparty's risk profile than an annual external credit rating, given they will be among the first to observe a counterparty experiencing liquidity or debt servicing problems.
 - There is nothing stopping us from requiring IRB banks to apply common estimates where we perceive there to be modelling deficiencies or unjustified variation in banks' modelled outputs ^{OIA s9(2)(ba)(i)}
 - The standardised approach assigns a 0% risk weight to sovereigns with an AA- or higher rating, and highly rated international organisations (e.g. World Bank), which may not make sense from a risk perspective. As applied by the New Zealand banks, the IRB approach generally produces risk weights in the 1-3% range for the highest rated counterparties.

- f. External credit ratings are not commonplace in New Zealand, even for the largest corporates. This reflects the relatively limited role of public debt markets in financing New Zealand firms (or that firms do not need to access public debt markets given the availability of bank finance). In practice, standardising externally-rated exposures would increase the complexity of banks' internal processes and capital calculations for a policy that affects a very small population of obligors.
 - g. Differences in the capital outcomes between the IRB and standardised approaches could have the unintended consequence of discouraging borrowers from seeking external credit ratings, in cases where applying the standardised approach would require more capital.
7. In our July response to submissions we announced the 'in principle' decision to proceed as indicated in the consultation document (table 2), subject to our analysis of QIS data.

Outcomes from the QIS

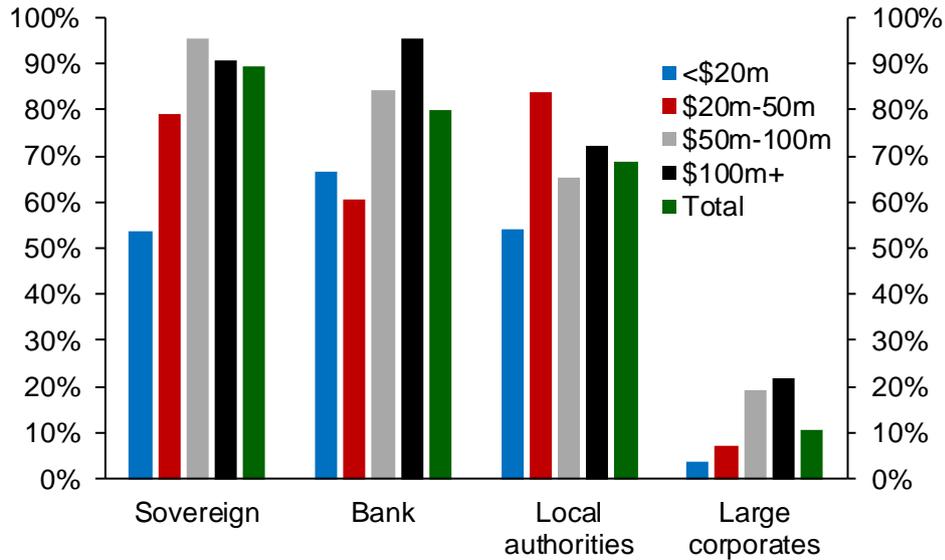
8. We collected information on the prevalence of external ratings for the sovereign, bank and large corporate IRB asset classes to better understand the impact of the in principle decisions to move to the standardised approach.
9. Figure 1 below shows the proportion of each bank's portfolios where an external rating was available, by value. In total, banks reported that external ratings were available for approximately 90%, 80%, 70% and 10% by value of their sovereign, bank, local authority and large corporate portfolios respectively. ^{RBNZ}§105 and ^{RBNZ}§105 generally had lower shares of externally rated counterparties in their portfolios, although this may reflect limitations of the QIS (e.g. difficulty sourcing external rating information from data systems) rather than differences in their underlying portfolios.

Figure 1: Proportion of portfolio (by value) with an external rating available, by bank

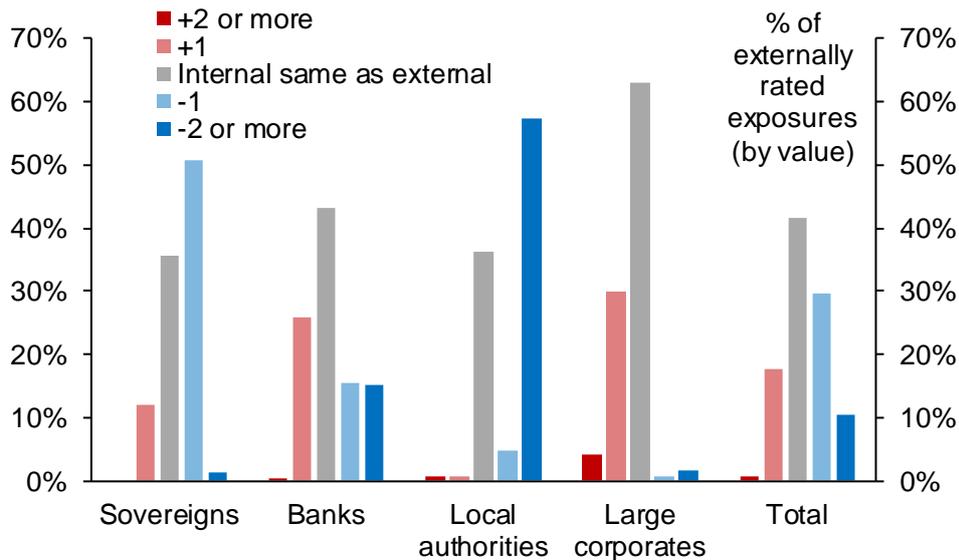


10. Figure 2 shows the proportions of banks' portfolios within each category that have an external rating available, split into exposure size buckets. The prevalence of external ratings generally increases with the size of banks' exposure to a counterparty, suggesting that entities with larger balance sheets are more likely to have an external rating. This effect is strongest for large corporates.

Figure 2: Proportion of portfolio (by value) with an external rating, by size of facility/exposure



11. For those exposures where banks reported an external rating was available, we compared the external rating to the internal rating the bank ultimately assigned to calculate its capital requirements. We use a mapping between banks' internal ratings and S&P's rating scale to assess the 'notch difference' between internal and external ratings. A notch difference of +1 means that the internal rating a bank applied to an exposure was one notch higher than that exposure's external rating (e.g. an internal grade equivalent to AA+, when that exposure's external grade is AA). The notch difference can be interpreted as the degree to which a bank's assessment of its counterparties' risk differs to the external rating agency's assessment. This may reflect particular contractual circumstances that are not factored into the external rating grade, additional information available to the bank, and potentially different assessments of the counterparty's underlying risk profile.
12. Figure 3 plots notch differences for each of the four asset classes on which we collected data in the QIS, and where an external rating was available. The QIS data show that around 60% of the time banks assign a different rating grade to their obligors than that assigned by the external rating agency. This suggests that banks' models do in fact take account of additional information beyond the external rating, contrary to our earlier assertions about the limited 'value add' of some IRB models. Moreover, banks do not show a bias towards more optimistic ratings than the external agencies. While 20% of banks' exposures received higher internal ratings than the external rating, 40% received lower internal ratings than external ratings. Banks tended to make more favourable assessments than the rating agencies for large corporate exposures, and more conservative assessments for the other three categories. Overall, 90% of banks' exposures received an internal grade within one notch of the corresponding external rating grade, with the remaining 10% being rated down by two or more notches.

Figure 3: Notch difference between internal and external ratings

Note: “+2 or more” means the internal grade the bank assigns to the exposure is 2 or more notches better than the external grade

13. Table 3 summarises the estimated capital impacts of standardising each of the sovereign, bank and externally rated large corporate portfolios. In total, the QIS results show the IRB banks’ aggregate CET1 ratio would fall by approximately 17 basis points were these categories standardised. Some of this capital uplift would also take place were the IRB approach retained, because of the proposed output floor linked to standardised outcomes.

Table 3: Impact assessment of applying standardised approach to sovereign, bank and externally rated large corporates (aggregate of four IRB banks)

Category	Exposure amount (\$b)		Risk weighted assets (\$b)		Change in RWA (\$m)	Impact on CET1 ratio (ppt)
	IRB	Standardised	IRB	Standardised		
Sovereign	26.6	26.5	0.6	0.4	-144	+0.01
Bank	19.4	19.3	4.5	6.9	+2,415	-0.10
Local authorities	6.2	5.2	0.8	1.6	+818	-0.03
Externally rated large corporate	6.4	5.3	1.9	3.0	+1,108	-0.05
Total	58.6	56.4	7.7	11.9	+4,198	-0.17

Analysis

Sovereign, local authorities and banks

14. The sovereign, local authority and bank portfolios are where the arguments for standardisation outlined above are most compelling. These exposures are difficult to model given a dearth of default and loss information, particularly for New Zealand, and where we typically see the lowest quality models – for example, where the outcomes are necessarily assumption driven (e.g. assigning a 5% LGD for exposures to the New Zealand government). The loss of risk sensitivity implied by moving these asset classes to the standardised approach is likely to be modest, as the differences

in capital outcomes we currently see across IRB banks are mainly due to these modelling assumptions, not differences in their underlying portfolios.

15. The QIS results confirm that external ratings for these portfolios are generally readily available, and the capital impacts of moving to a full standardised approach are within the ranges we expected ahead of the QIS. It remains open for debate whether a 0% risk weight for the highest rated sovereigns remains appropriate in the standardised approach, and this is a ‘small p’ policy issue that Financial Policy intends to address in 2019 or later. The Basel Committee has not yet finalised its views on the appropriate treatment of sovereign credit risk due to political considerations and the adverse impact that imposing non-zero capital requirements could have on many banks in Basel Committee member jurisdictions.

Externally-rated large corporates

16. On the other hand, the QIS results show that external credit ratings are not commonplace for the large New Zealand corporates banks lend to, with only 10% (\$6.4b) of banks’ exposures by value to large corporates having an external rating available. This lends some weight to the argument that including a standardised treatment for externally rated corporate exposures would add another layer of complexity to the IRB approach with limited practical benefit:
- Banks would need to establish processes and modify their IRB capital engines to ensure the correct switchover to the standardised treatment in the situation where counterparties move between unrated (IRB) and rated (standardised) status.
 - Creating dual capital treatments for large corporates in the IRB approach would be achievable as part of the restructure of the handbook. However, this would not be a trivial exercise, and would require us to add quite a lot more detail to the rulebook compared to the simpler situation where each asset class has only a single approach to determining its capital requirements.
 - For example, the IRB module of the handbook would need to spell out the different types of external credit ratings to which the policy applies, and the scenarios in which banks would be required to switch exposures over to the standardised treatment. (e.g., if a large corporate issues a convertible bond on the NZDX with an issue-specific external credit rating, but that corporate doesn’t have an issuer external credit rating for its other borrowings, should a bank apply the standardised approach to all of its claims on that counterparty, or only to its holdings of that convertible bond? If a corporate has a long term issuer rating, but a bank only has short term exposure to that corporate, does the bank apply the standardised approach?)
17. There is a significant uplift in capital required, with risk weights increasing from their current 30% to 57% were externally-rated large corporates moved to the standardised approach. However, externally-rated large corporates represent only 1.3% of banks’ total credit exposures, so the overall impact of the change is modest. Moreover, as we are simultaneously imposing an output floor on all exposures that remain on the IRB approach, linked to the standardised approach, a large part of this capital benefit would still be achieved were these exposures kept on IRB.

Recommendation

18. We recommend that the Committee reverse its in principle decision to require the standardised treatment for externally rated large corporate exposures, and instead

continue to allow the IRB approach for these exposures. This recommendation is based on the information from the QIS which shows that the practical benefits of the in principle policy position would be limited, given the low prevalence of external credit ratings for New Zealand corporates. The output floor will produce most of the capital benefit that requiring the standardised approach for externally-rated large corporate exposures would have delivered, without introducing new complexity to both banks' IRB calculation processes and the Handbook. From a relationship management perspective, reversing this decision would demonstrate that the Bank believes in the capital review principles (that the framework be practical to administer, and minimise unnecessary complexity and compliance costs), and show we are open to change as a result of the consultation/impact assessment process.

19. We also recommend that the Committee confirm its earlier in principle decision to move exposures in the sovereign, local authorities, and bank IRB asset classes to the standardised approach.
20. Of these three types of exposure, the arguments for retaining the IRB approach seem strongest for exposures to banks. This is because in practice, OIA s9(2)(ba)(i) [REDACTED] and so differences in capital outcomes between the IRB banks more closely reflect genuine differences in underlying portfolio compositions (as reflected in PDs), and less so differing modelling assumptions. APRA will continue to allow IRB modelling of bank exposures in its revised framework. Contrary to our earlier assertions, the QIS results indicate that banks' IRB models often lead to different assessments of credit quality than the external rating agencies, with around 60% of exposures in the bank asset class receiving a different internal grade to the equivalent external grade, and a tendency towards assigning more conservative ratings than the rating agencies. Moreover, there is a curious outcome in the current standardised approach whereby exposures to unrated banks receive the same risk weight as exposures to A+ rated banks.²
21. While the decision is more finely balanced, we still recommend requiring the standardised approach for the bank asset class. This would support our objective of simplifying the capital framework, and reduce the number of IRB models that banks need to maintain and validate.
22. Table 4 summarises the initially proposed and recommended final policy position for the capital treatment of sovereign, bank and large corporate exposures.

Table 4: Options consulted on and recommended final policy position

BS2B asset class	Current approach	Consultation paper / in principle decision	Recommended final position
Sovereign	IRB	Standardised	Standardised
Bank (incl. local authorities)	IRB	Standardised	Standardised
Large corporates	IRB	Standardised if externally rated, otherwise IRB	IRB

² APRA's proposed adoption of the finalised Basel III standardised approach modernises the treatment of exposures to regulated and non-regulated banks and covered bonds, increasing some risk weights for unrated entities. Financial Policy will consider adopting these revisions as a 'small p' policy issue in 2019.

Appendix: Assessment against capital review principles

	Status quo	Consultation proposal	Recommended option
	IRB for sovereign, bank, local authority, large corporate	Standardised for sovereign, bank, local authority, externally rated large corporate IRB for unrated large corporate	Standardised for sovereign, bank, local authority IRB for large corporate
1. Capital must readily absorb losses before losses are imposed on creditors and depositors	N/A (to be addressed by capital definition and setting of capital ratios)		
2. Capital requirements should be set in relation to the risk of bank exposures	Most risk sensitive, but some of this risk sensitivity may be spurious given low modellability of these portfolios.	Least risk sensitive given broad risk weight buckets under standardised approach.	Preserves risk sensitivity where modelling is more feasible (large corporate).
3. Where there are multiple methods for determining capital requirements, outcomes should not vary unduly between methods	Status quo leaves a gap between IRB and standardised banks' outcomes, though the output floor will close it to an acceptable level.	IRB removed as an option, so no longer relevant.	Gap between capital requirements under IRB and standardised will persist for large corporate exposures, but will be addressed by output floor.
4. Capital requirements of New Zealand banks should be conservative relative to those of international peers, reflecting the risks inherent in the New Zealand financial system and the Reserve Bank's regulatory approach	N/A (to be addressed by setting of capital ratios)		
5. The capital framework should be practical to administer, minimise unnecessary complexity and compliance costs, and take into consideration relationships with foreign-owned banks' home country regulators	Consistent with APRA.	Reduces complexity by reducing stock of models banks need to develop and maintain. Adds complexity by having multiple capital treatments for large corporates.	Reduces complexity by reducing stock of models banks need to develop and maintain.
6. The capital framework should be transparent to enable effective market discipline	We currently require IRB banks to disclose model information and outputs (PD, LGD etc.), but this information may not be meaningful nor intelligible. However, IRB banks will be required to dual report in future.	Standardising helps with like-for-like comparisons to BS2A banks, but less information would be disclosed than under IRB. Two capital treatments for large corporates could be confusing.	Avoids the need to explain or reconcile why some large corporate exposures are standardised, and others are on IRB.