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NEW ZEALAND SUPERANNUATION FUND AND ACCIDENT COMPENSATION CORPORATION SUBMISSION ON THE RESERVE BANK'S ISSUES PAPER: REVIEW OF THE CAPITAL ADEQUACY FRAMEWORK FOR LOCALLY INCORPORATED BANKS

Introduction

The Issues Paper: Review of the Capital Adequacy Framework for locally incorporated banks (the *Issues Paper*) published by the Reserve Bank of New Zealand (the *Reserve Bank*) covers some very important topics, and we welcome the opportunity to provide our submission in response to the Issues Paper.

Our interest in this topic is as investors in the broader financial sector and, in particular, as recent investors in Kiwi Group Holdings Limited (the parent company of Kiwibank Limited).

In general terms we support the scope of the Issues Paper and the need for a review. We think it is timely, particularly given the recent IMF New Zealand Country Report which provides its own guidance on aspects of these topics that we think are relevant (particularly the level of direct interaction by the Reserve Bank). However, we believe the Reserve Bank at the same time as carrying out the review needs to be cognisant of various international developments that could impact this review.

We have engaged the services of Pat Duignan (an appointed economist to the High Court and an independent expert member of the ACC Investment Committee), and Chapman Tripp in preparing this response.

We set out our responses to your four questions in the attached appendix.

Key points of our submission

- **Assessing all aspects of the New Zealand banking framework:** We believe the Reserve Bank needs to assess all aspects of New Zealand's banking framework when making comparisons with overseas jurisdictions and considering relative capital ratio levels. In particular, it should take into account the absence of a deposit guarantee scheme in New Zealand's prudential supervision framework and the inclusion of a fully implemented "open bank resolution" scheme. Both of these features are relatively unusual in an international context. They result in New Zealand banks having more powerful incentives than many overseas banks to manage risks themselves but involve a higher cost of deposit and bond funding for a level of capital ratios equivalent to standard international norms. If, as the Reserve Bank is currently arguing, the New Zealand banks should be subject to higher capital ratios than our international peers, this could result in a double-up in costs. We question whether this is a desired outcome. We also note that New Zealand is a small economy reliant on attracting global capital. Accordingly, flexibility in approach and the type of instruments capable of issuance are other factors to be considered;
- **Clarification of rationale for capital requirements:** Given the concerns above, we consider that the rationale for capital requirements being more conservative, relative than those of international peers, should be clarified, taking into account the offsetting factors noted above, as part of the Reserve Bank's review process;
- **Consultation recommendation to test assertions in respect of imposing conservatism:** The Reserve Bank has suggested that, in the context of the issue of the international comparability of New Zealand headline capital ratios, that "*imposing conservatism in ways other than restrictions on the denominator*" may help improve the international comparability of New Zealand banks' capital levels. While we encourage increasing the level of transparency between domestic and international capital ratios, we question whether "imposing conservatism" as suggested above will, in fact, assist with this, and suggest this should be a specific topic in the consultation;
- **Full review of BS16 procedure recommended:** We note that the Reserve Bank, as part of the consultation, will review the processes used to ensure capital instruments are compliant with the regulatory framework (i.e. the current BS16 procedure). We consider that this should be a full review that encompasses an assessment of the purpose of the non-objection process, the nature of the BS16 review carried out by the Reserve Bank, and what the outputs are to be from that process. In order to ensure that investors have confidence in the capital position of a bank, it is important that all stakeholders have a clear understanding of how the BS16 process applies and what the value of its outcomes are;
- **Capital instruments and complexity:** The Reserve Bank has raised concerns about the complexity of AT1 and Tier 2 instruments. However, it is not clear to us what these complexities are. Accordingly, we consider that the consultation paper should fully test those concerns, including whether, in context of the fifth of the Reserve Bank's six high-level principles, such instruments create "unnecessary complexity";
- **The optimal role of leverage in an economically efficient banking system:** Our submission is that, at this stage of the consultation, the "big equity" argument does not have the theoretical robustness nor the support in the literature that would justify setting it up as a "theoretical benchmark". We suggest that a superior process would be for the Reserve Bank to prepare a balanced analysis of the issues involved in determining the optimal role of leverage in an economically efficient banking system.

Submissions on such a paper would provide a much more robust basis for decisions on future capital ratio policy than the stated intention of adopting the "big equity" argument as a theoretical benchmark.

* * *

As a final remark, we believe that a key objective of the capital adequacy framework should be that the setting of capital ratios to reduce the risk of a systemically important failure in the New Zealand banking system is implemented in a way that sustains a competitively level playing field across the banking sector. In particular, we note the comments in the Issues Paper regarding the challenges that the internal models approach poses and are generally supportive of ensuring that a competitive advantage is not gained unduly through use of such models.

We welcome further engagement

We would be happy to discuss any of these matters further, and look forward to participating in this discussion further as the Reserve Bank's review unfolds.

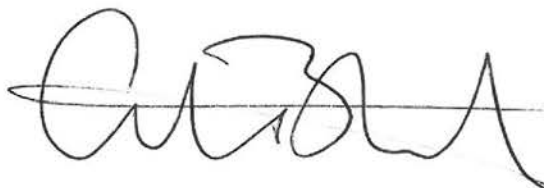
We have included in our submission specific references to research that we think is highly relevant to the topics covered, in particular the discussion of appropriate levels/cost of equity, and would welcome the opportunity for further dialogue with the Reserve Bank during its consultation process. In particular, we would be willing to meet in person with the Reserve Bank if that would be beneficial to the review process.

Yours faithfully



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Appendix

NZ Superannuation Fund and ACC submission response to Reserve Bank's questions

Question 1: *For each of the three sections (numerator, denominator, ratio), are there any important topics relating to capital adequacy that we have left out entirely?*

We generally believe the scope of the review, as laid out in the Issues Paper, is comprehensive and will provide a good framework for the Reserve Bank's review.

However, one topic that we consider should be explicitly included within the scope of the review is the impact of the fact that New Zealand's bank regulation framework differs from standard international norms in several key ways, namely the fact that:

- New Zealand does not have a deposit guarantee scheme; and
- New Zealand's "open bank resolution" (OBR) scheme explicitly provides for "haircuts" for deposit and bondholders.

Benefits from New Zealand's differences would suggest lower capital levels

The key benefits achieved by the policy decisions to depart from standard international norms are:

- the reduction in moral hazard as regards bank management risk taking; and
- the lower level of taxpayers' contingent liabilities compared to the situation under the international bank regulatory norms.

The reduction in moral hazard implies that bank boards, management, depositors and bond investors in New Zealand banks have greater incentives to manage balance sheet risks than their overseas counterparts. Arguably, therefore, the New Zealand regulatory framework means there is less need to impose stringent regulations to counteract moral hazard, compared to countries with deposit guarantee schemes.

New Zealand's differences create higher costs

Among other effects, the legislative provision, and the legal implementation, of arrangements involving haircuts for depositors and bondholders creates a barrier to government bailouts. If a government was to consider providing a bailout to a bank, it would face the difficulty of justifying that action to taxpayers given the availability of OBR, an alternative that would not involve taxpayer cost.

The absence of a deposit guarantee scheme, and the obstacle to the provision of bailouts created by OBR, logically imply that New Zealand banks face a higher cost of deposit and bond funding than they would under the standard international norms for bank regulatory frameworks.

Depositors and, particularly, bond investors in New Zealand banks would expect, and will obtain, higher returns from New Zealand banks as compensation for the absence of any deposit guarantee scheme and the obstacles to bailouts.

The obstacles to bailouts are particularly significant for bondholders, who have often been protected from losses in overseas bailouts. While some overseas governments have

publically disavowed the intention to bailout bondholders, the fact that New Zealand goes further than this through the development of a formalised OBR regime increases the likelihood that, relative to the position overseas, bondholders assume that they would not receive a bailout.

The higher cost of funding is likely to be at least partially passed on to borrowers. In terms of the distinction in paragraph 122 of the Issues Paper, the higher cost borne by borrowers is a social cost not a private cost. That cost has to be weighed against the benefit of avoiding taxpayer exposure to the potential cost of a deposit guarantee scheme.

In summary, compared with the situation under standard international norms for bank regulation, New Zealand borrowers face higher costs. While this is especially true for borrowers dependent on bank financing, even borrowers with access to other funding sources will face higher costs, given the higher cost of alternatives to bank financing.

It is also relevant that the absence of a deposit guarantee scheme and the existence of a developed OBR regime result in New Zealand banks' competitive advantage, as compared to non-banks, being smaller than under standard international norms. It could be further argued that the introduction of the OBR regime for banks and the willingness of the New Zealand Government to support certain finance companies during the GFC, means this competitive advantage is in fact minimal. While we note the finance company sector's size has been temporarily reduced by the failure of a number of such companies during the global financial crisis, past history suggests that such institutions will again compete with banks for business. The public's memory of the global financial crisis fades with the passage in time.

Implications for capital review

The conclusions of the above analysis have a number of implications for decisions regarding capital ratios for New Zealand banks. Firstly, the "big equity" advocates' argument that any costs associated with higher capital ratio requirements improve efficiency by correcting for moral hazard and taxpayer subsidisation relating to deposit guarantee schemes, do not apply to New Zealand banks. Secondly, the fact that the New Zealand regulatory framework results in domestic borrowers facing higher costs, justified by the reduction in moral hazard and in the contingent liability of taxpayers, needs to be taken into account in the cost-benefit analysis of any proposed higher capital ratios.

Doubling-up of costs

In this context, we note that the Reserve Bank proposes that:

*"One of the principles of the capital review is that the regulatory capital ratios of New Zealand banks should be seen as conservative relative to those of their international peers, to reflect New Zealand's current reliance on bank-intermediated funding, New Zealand's exposure to international shocks, the concentration of our banking sector, the concentration of banks' portfolios, and a regulatory approach that puts less weight on active supervision and relatively more weight on high level safety buffers such as regulatory capital."*¹

While we agree that many of these factors need to be considered in relation to how regulatory capital ratios are set in New Zealand, we do believe that a specific argument that higher capital ratios are required because of the New Zealand "regulatory approach that puts less weight on active supervision and relatively more weight on high level safety

¹ Paragraph 85 of the Issues Paper

buffers such as regulatory capital" needs to be balanced against other offsetting aspects of New Zealand prudential policy.

As discussed above, for a level of capital ratios that is **equal** to that of international peers, the absence of a deposit guarantee scheme and the obstacles to a bailout created by the New Zealand regulatory approach results in a higher cost of borrowing for domestic borrowers. Based on the above statement, the Reserve Bank is then arguing that, given New Zealand's regulatory approach of less active supervision (together with the other factors noted), higher capital ratios are required than our international peers.

This creates a double-up in costs – a higher cost of borrowing for capital ratios equal to standard international norms and, on top of that, an asserted need for higher capital ratios.

There is a related question, namely whether the policy decision to put less weight on active supervision than is the international norm is national welfare enhancing. Specifically, New Zealand regulatory authorities are generally highly regarded, particularly for their independence. The New Zealand monetary policy framework was viewed as leading the way in the past and it is important this is retained.

In this context it is relevant that the IMF New Zealand Financial System Stability Assessment report recommends:

"The approach of the RBNZ to supervision should be strengthened by increasing the weight of regulatory discipline in its three-pillar framework. The RBNZ approach to supervision relies on three pillars: self, market, and regulatory discipline. The authorities have strengthened regulatory discipline since the last FSAP, but the three-pillar framework should be improved by adopting a more intensive approach to supervision."²

and:

"The crisis resolution framework needs to be enhanced further. The Open Bank Resolution (OBR) framework, which aims to avoid the use of public funds when resolving systemically important banks, is a step in the right direction. To enhance its credibility and strengthen the financial safety net, the introduction of deposit insurance would be the best option. Absent support for deposit insurance, a second option is to legally establish a de minimis exemption from freezing and haircutting deposits in OBR, set at an appropriate level."³

The IMF's (and other international) observations regarding New Zealand capital ratio requirements need to be read in this context (i.e. the IMF bases its assessment of the benefit-cost analysis of higher capital ratios on a scenario in which a deposit guarantee scheme or exemption from haircuts is in place).

The New Zealand authorities' rejection of the IMF's view that a deposit guarantee scheme would be beneficial, implies that the reduction in moral hazard achieved by the absence of a deposit guarantee scheme is judged to be substantial. Policy consistency requires that this judgement - that the reduction in moral hazard is substantial - is also applied in considering capital ratio requirements.

² IMF Country Report No.17/110 – New Zealand Financial System Stability Assessment: Page 6 – Executive Summary

³ *Ibid* Page 7 – Executive Summary

In light of the above, we consider that the rationale for capital requirements being more conservative, relative than those of international peers, needs to be clarified as part of the Reserve Bank's review process.

Question 2: For each of the three sections (numerator, denominator, ratio), have any important and relevant issues been omitted from the topics that have been discussed?

There are three areas that we suggest need to be addressed in more detail in the review.

International comparability of New Zealand headline capital ratios

The Issues Paper notes that:

*"On a headline basis our capital ratios look lower because we take a more conservative position than other countries in the denominator, but after adjusting to get a more like for like comparison, ratios are about the median."*⁴

It further comments:

*"By imposing our own additional restrictions on the denominator our banks might appear to be more thinly capitalised than those elsewhere, because observers focus on the headline ratio more than the way its components are determined. Imposing conservatism in ways other than restrictions on the denominator may help improve international comparability of New Zealand banks' capital levels."*⁵

We generally encourage increasing the level of transparency in the determination of capital ratios to aid comparability between domestic and international banks, and believe the differences are not necessarily well understood. However, we consider that further assessment is needed as to whether "imposing conservatism in ways other than restrictions on the denominator" will, in fact, help improve the international comparability of New Zealand banks' capital levels.

This issue, and the ways in which this may be achieved, need to be investigated thoroughly, and should be elevated to be a specific topic in the consultation.

The need for a full assessment of the Reserve Bank's capital review process

Ensuring that depositors and bondholders have confidence in the level of capital supporting a bank is central to their decision to invest. In the context of bank hybrid capital, if a situation arises where there is regulatory uncertainty, and an absence of well-funded, supportive, shareholders to allay investor concerns, sources of bank funding can be put at risk.

The Reserve Bank is responsible for ensuring market stability is maintained, and is, therefore, the only appropriate body to prescribe and enforce the rules on bank capital. Given this, the Reserve Bank should set out, and administer, a clear bank capital framework in which the market has confidence.

Of concern in the Issues Paper is that, it appears, to-date, the Reserve Bank has not undertaken a full review of all aspects of hybrid capital issuances and hence the market should not rely on the non-objection process.⁶ To ensure all stakeholders have confidence in the capital position of New Zealand's banks, we consider that the Reserve Bank needs to increase its resource to ensure full consideration of the terms of any form of hybrid capital issued in order to provide more of a "positive" assurance than a "negative" non-objection.

⁴ Paragraph 87 of the Issues Paper

⁵ Note 46 of the Issues Paper

⁶ See paragraph 42 of the Issues Paper

Furthermore, we consider that the Reserve Bank needs to provide clear guidance of its expectations as to how the non-objection process under BS16 is to operate, so that there is no ambiguity for banks making applications.

We also consider that the main focus of Reserve Bank's assessment of a BS16 application should be loss absorbing features of hybrid capital. Simply, hybrid capital should either convert into equity or be able to be written off. It is also critical from a market confidence perspective that there is no misunderstanding between the market and the Reserve Bank as to level of assurance that can be placed by issuing banks and investors on the non-objection letters issued by the Reserve Bank.

In summary, we consider that there needs to be a full review of the processes used to ensure capital instruments are compliant with the regulatory framework as part of the consultation. This should include an assessment of the purpose of the non-objection process, the nature of the review carried out by the Reserve Bank, and what the desired outputs are from that process from the perspective of the Reserve Bank, depositors, bondholders, shareholders and other stakeholders.

The need for a transparent assessment of the complexity issues

The Issues Paper states that:

*"A significant disadvantage of AT1 and Tier 2 instruments is that there is uncertainty about how they will work in practice. They are complex operationally, and interact with other non-prudential requirements (such as the tax regime) in potentially unclear ways."*⁷

While as investors ourselves we believe it is important that such instruments are capable of being clearly understood, this is a separate issue from ensuring that deposit holders and other more senior lenders to a bank are given the protection these instruments are designed to provide in the event of financial distress. In any event, we note that there are separate retail disclosure requirements for these types of convertible instruments governed separately by the Financial Markets Authority. These are designed to ensure that investors are aware of, and fully understand, the features of, and the risks associated with investing in, these types of instruments.

Given the above and our understanding that loss absorption is the key feature from a capital adequacy perspective, our view is that AT1 and Tier 2 instruments should be capable of being structured in a manner that successfully meet the Reserve Bank's objective of promoting the maintenance of a sound and efficient financial system in a clear manner, particularly when combined with a clearly defined non-objection process as discussed above. Furthermore, our understanding is that the ability to require the issuer to obtain and disclose an IRD ruling ahead of issuance should provide further comfort that the consequences of triggering the loss absorbing features of these instruments can be clearly understood.

Our view is that such instruments provide a useful function in providing this loss absorption function while offering investors the ability to participate in the capital structure of New Zealand banks in a range of forms. It would be unfortunate if AT1 and Tier 2 instruments were removed as an alternative for both banks and investors due to perceived concerns from the Reserve Bank around complexity and administrative difficulties which are addressed separately under the Financial Markets Authority's own frameworks.

⁷ Page 7 of the Issues Paper

We also note the sale of Banco Popular in Spain to Santander for €1 in Spain on June 7, 2017. We understand this sale occurred following a determination that Banco Popular was “failing or likely to fail” and the conversion of convertible instruments previously issued by Banco Popular for negligible value. The bank’s deposit holders appear to have essentially been unaffected and no government bail-out has been required. We see this as a good example of convertible instruments performing their intended role.

Global consistency is also an important factor to consider in this regard. For example, if the ability for New Zealand banks to issue convertible instruments is removed while these instruments are still capable of issuance offshore, this could put fully-New Zealand domiciled banks at a competitive disadvantage if their competitors are able to funnel capital issued via convertible instruments into their New Zealand subsidiaries at low cost.

In light of the above, we consider that the consultation paper should fully test the concerns that the Reserve Bank has with regard to the complexity of such instruments. In particular, it should transparently assess whether, in context of the fifth of the Reserve Bank’s six high-level principles, such instruments do, in fact, create unnecessary complexity.

Question 3: Do you have any information (e.g. empirical data) that is relevant to the issues discussed in the paper?

The Issues Paper states in paragraph 116 that *"the Reserve Bank is conscious of potential trade-offs between the soundness of the financial system and economic efficiency"*.

The Issues Paper then states in paragraphs 121 to 123:

"The Modigliani-Miller theorems in finance imply that there is no increase in a bank's overall funding cost, because equity holders are willing to accept a lower rate of return when the bank has less debt. But the theorems are weakened if investors think there is an implicit government guarantee of obligations to bank creditors or if there is a preferential tax treatment of debt, and might also be affected by the degree of competition in the banking sector.

It is mostly accepted that funding costs are modestly higher when the capital ratio is higher, at least in the short term. Debate centres on the incidence of those higher costs i.e. whether they are private costs (a transfer from bank owners to other parties) or social costs (net reductions in national welfare).

... proponents of 'big equity' emphasise that governments subsidise lending because they implicitly guarantee bank's obligations ... Increasing capital requirements removes the subsidy. This makes bank shareholders worse off but because the subsidies are inefficient, society as a whole is better off."

The Issues Paper states in paragraph 135:

"It is likely that we will rely somewhat on quantitative cost-benefit studies of the type we have seen already, but we will take into account those studies' limitations. It is likely that the Reserve Bank will also use the big equity argument as a theoretical benchmark, but one that should be considered cautiously and in the light of empirical evidence."

Our submission is that, at this stage of the consultation, the "big equity argument" does not have the theoretical robustness nor the support in the literature that would justify setting it up as a "theoretical benchmark". We suggest that a superior process would be for the Reserve Bank to prepare a balanced analysis of the issues involved in determining the optimal role of leverage in an economically efficient banking system. For example, the list of factors that weaken (or render inapplicable) the Modigliani-Miller theorems are wider and more profound than those noted in the second sentence of the above quotation from the Issues Paper.

The Issues Paper references (in footnote 66) the 2013 paper by Admati et al as representative of the "big equity" viewpoint. A 2015 paper, *Testing the Modigliani-Miller Theorem of Capital Structure Irrelevance for Banks*, by William R. Cline, published by the respected Peterson Institute for International Economics, rebuts the Admati et al paper, both in terms of a survey of the literature and empirically.

The Cline paper is notable for its empirical methodology as opposed to more theoretical discussion documents. It directly tests the relationship between the cost of capital and leverage implied by the Modigliani-Miller paper rather than utilising the Capital Asset Pricing Model via calculations of beta. An extract from the Cline paper setting out its main arguments is attached as Annex One to this submission.

The current position regarding the issues is summarised in a March 2016 IMF Staff Discussion Note entitled "Benefit and Costs of Bank Capital"⁸ as follows:

"Few issues in the postcrisis policy debate have been more contentious and elicited a wider range of firmly held views than the appropriate level of bank capital. On one side, proponents of stricter regulation emphasize the risks and inefficiencies associated with high leverage and point to the exorbitant costs of the crisis (Admati and Hellwig 2014). On the other, opponents of higher capital requirements believe that these would significantly increase the cost of financial intermediation and hinder economic activity (Institute of International Finance 2015). Further, they argue, they might push intermediation out of the banking system and into unregulated entities, possibly increasing systemic risk.

According to the prevalent view, prior to the crisis relatively stable regulatory bank capital ratios masked increasing risks from off-balance-sheet activities, securitization, and housing-related credit. In response, Basel III raised minimum bank capital requirements from 8 percent to up to 15.5 percent of risk-weighted assets, when all surcharges are activated (see Table 1). It also introduced a leverage ratio requirement and raised the quality of capital by requiring a larger fraction of capital to consist of tangible common equity and by tightening eligibility requirements for instruments that count as capital. Some jurisdictions opted for even higher standards. For example, Switzerland is enforcing 19 percent capital ratios for its largest banks. The impact of these changes is already visible in the evolution of capital ratios for large banks in advanced economies in America, Europe, and Asia (Figure 1).

Against this background, a key policy question for bank regulation is whether these reforms have gone too far or not far enough. Put differently: what is the socially optimal level of bank capitalization? Providing an answer to this question would require defining a social welfare function and estimating the effect of bank capital on the cost and availability of credit, the probability and severity of banking crises, and the impact of banking crises on output and output volatility. The results of this type of exercise (discussed in Section IV) can be precise but highly dependent on the models and parameters chosen."⁹

The challenges of empirical analysis are well summarised later in the IMF Staff Discussion paper:

"The literature on the steady-state costs of capital is relatively thin, reflecting the difficulty in estimating such costs. In particular, because of relatively stable capital regulation over the past few decades, there is a dearth of data that could help identify the exogenous effect of a change in capital requirements. Most studies have relied on calibrated general equilibrium models or exploited the cross-sectional and time series variability of bank capital within a given regulatory framework. However, since this variability reflects banks' endogenous choices (how much capital to hold in excess of regulatory minima) rather than regulatory changes, we can expect the impact of a regulatory mandated increase in capital to be larger than the estimates obtained in such studies.

A larger literature (generally employing tighter identification strategies than the literature on steady-state costs) documents the transitional costs of changes in bank capital. This literature often exploits bank-level shocks to capital—resulting either from losses or idiosyncratic (banklevel) regulatory actions—to identify the exogenous effects of tighter capital regulation on the availability and cost of bank credit. The problem with these estimates is that they rely on sudden changes in bank capital, events that mostly

⁸ Prepared by Jihad Dagher, Giovanni Dell'Ariccia, Luc Laeven, Lev Ratnovski, and Hui Tong

⁹ See Introduction, page 5

*characterize banks that are in some state of distress. Many of the challenges associated with raising capital under these circumstances are not relevant for evaluating the effects of gradual changes in capital regulation that would affect an entire banking system. For instance, in the short term, distressed banks may be more likely to meet tighter regulatory requirements by reducing the asset side of their portfolios more than they would if they were fully sound and could raise capital gradually over time. Similarly, the stigma attached to a bank trying to raise capital in isolation is unlikely to apply in a context of systemwide regulatory reform. It follows that estimates based on short-lived bank-level shocks are likely to overestimate the steady-state costs of higher capital requirements. The literature also does not provide a guide as to how these transition costs vary depending on macroeconomic conditions and between rapidly growing emerging markets and advanced economies.*¹⁰

The following comment from Harry DeAngelo and René Stulz ("Why High Leverage is Optimal for Banks" University of Southern California, Marshall School of Business, 2013) provides an example of the theoretical challenges regarding the application of the Modigliani-Miller theorem to banks:

*"MM's leverage irrelevance Theorem is inapplicable to Banks ... given a material market demand for liquidity, intermediaries will emerge to meet that demand with high leverage capital structures (made possible by asset structures optimised to produce liquidity)."*¹¹

To elaborate on just one aspect, the intrinsic oddity of the "big equity" argument is that, taken to its logical conclusion, it effectively denies that the development of fractional reserve banking was a beneficial innovation. If there is no harm to national welfare from increased capital ratios why not require a 100 percentage ratio? That would of course eliminate the joint production of banking services (which depend on transfer of bank liabilities, ie deposits) and the provision of credit. That joint production is the central feature of the banking system.

As is well known, the Modigliani-Miller theorems, as set out by their authors, depend on an arbitrage argument. The argument is that if investors can by their action duplicate themselves the effect of a company raising debt finance, then the company's use of debt finance does not add any value. If that condition applies, replacing debt with equity will not change the enterprise value of the company. In other words the cost of capital would not change.

Any factor that undermines the assumption that investors can duplicate the effects of the company's raising of debt calls into question the applicability of the theorems. The typical preferential tax treatment of corporate interest payments as compared to dividends in principle invalidates the theorems¹².

Since no investor can duplicate bank's use of deposits as a method of raising finance¹³, the theorems' assumptions are violated in regard to a bank switching between use of bank deposits versus use of equity to finance provision of credit.

¹⁰ See pages 21 and 22

¹¹ See Abstract and page 3

¹² The theorems can be resurrected if it is assumed the preference is exhausted ie is not effective at the investor level in regard to the marginal corporate debt raising.

¹³ In particular banks compensate depositors with banking services in partial or full substitution for payment of interest - the bank's shareholders cannot do that.

This example of switching between deposit finance and equity finance demonstrates that deposits are “different” in regard to analysis of leverage.

Given that banking services are provided by use of deposits – a debt liability of banks – it is hardly surprising that banks rely more heavily on debt liabilities than non-financial firms. All financial intermediaries exhibit high leverage ratios including finance companies which in New Zealand were demonstrated to definitely not have any government guarantee. Deposits are a key input into banking services and so it is not surprising that banks have high debt to equity ratios.

We also note that the Admati et al paper referred to above draws conclusions that can be seen as quite radical with regard to the bank capital. For example, if implemented the following recommendation from their paper would have a material impact on attractiveness of the banking sector for equity investors and potential consequences on the level of equity capital support that could be sourced by banks in the future.

"A clear recommendation that emerges from our analysis is that prohibiting, for a period of time, dividend and other equity payouts for all banks is a prudent and efficient way to have banks build up capital. If done under the force of regulation in a uniform manner, these payout suspensions would not lead to any negative inference on the health of any particular bank. In addition, as mentioned above, in transitioning to higher equity requirements, regulators should also require banks to issue specific amounts of equity on a pre-specified schedule. If a bank cannot raise equity at any price, it may be insolvent or nonviable without subsidies, in which case it should be unwound."¹⁴

We have also included the abstract from a 2013 paper by Malcolm Baker (Harvard Business School and NBER) and Jeffrey Wurgler (NYU Stern School of Business and NBER) as Annex Two. This suggests there is empirical evidence that the cost of capital for banks increases significantly as capital ratios are increased.

The above observations cannot do justice to the analysis. Their purpose is just to make the case that the analytical issues justify a much fuller consideration than is proposed.

In summary, our submission is that the consultation should include a paper comprehensively summarising the available theoretical and empirical analyses on the issue of the effect on banks cost of capital of higher capital ratios, including the associated disintermediation of the banking system. Submissions on such a paper would provide a much more robust basis for decisions on future capital ratio policy than the stated intention of adopting the “big equity” argument as a theoretical benchmark.

¹⁴ See page 4

Question 4: *Are there particular areas of the review that should be prioritised?*

While all of the main topics proposed to be covered in the Reserve Bank's review are generally high priority in our view, from a timing perspective we believe that the aspects of the review that touch on the use of AT1 and Tier 2 instruments should potentially be prioritised.

Given there is currently uncertainty in the market as to the Reserve Bank's approach to these instruments, we believe that an early view from the Reserve Bank on this topic would be valuable in ensuring market stability.

Annex One

Extract from "Testing the Modigliani-Miller Theorem of Capital Structure Irrelevance for Banks" William R. Cline, Working Paper 15-8, Peterson Institute for International Economics" 2015.

"At the outset it is useful to address in qualitative terms the question, "Why is banking different?" For the nonfinancial sector, shareholder equity capital typically accounts for about one-third of total assets, whereas debt and other liabilities amount to about two-thirds (see, e.g., Rajan and Zingales 1995, 1428). In contrast, in the postwar period US commercial banks have had equity-to-asset ratios (book value basis) of only 4 to 6 percent up to the 1970s, rising to 6 percent in the late 1980s and 9 percent by 2007 (Berlin 2011, 5). Leverage on the order of 10 to 1 (or higher) instead of 3 to 1 has meant that the literature in this area has tended to treat the financial sector as "different," typically excluding it from empirical tests.

It seems intuitively appealing that the sector of financial intermediation should rely more heavily on debt financing than nonfinancial sectors. The intensity of inputs in a sector should depend on the nature of the output of the sector. One would not expect oil refining to have the same ratio of crude oil to total output as, say, the computer industry. Financial intermediation is a sector that by definition involves as its main input debt in the form of deposits by households and corporations. The main product provided by the bank is a store of value that has a high degree of safety and liquidity: bank checking and saving accounts. The sector also is based on acting as the intermediary that transforms short-term claims (deposits) into long-term claims (e.g., mortgages). Deposits are financial liabilities. Replacing them entirely with equity would require that the public be told that henceforth bank deposits are not available and instead households and corporations must hold liquid assets in the form of equity shares (e.g., in mutual funds). Considering that deposits amount to about one-half of assets for the large banks and much more for smaller banks, the deposit-taking nature of the banking sector inherently means that the ratio of "debt" (including "debt" to depositors) to assets will tend to be higher than in most sectors.

There is a considerable tradition in the literature that debt/equity characteristics of banking are likely to be different from those of other firms. Thus, in their analysis of equity returns Eugene Fama and Kenneth French (1992, 429) "exclude financial firms because the high leverage that is normal for these firms probably does not have the same meaning as for nonfinancial firms, where high leverage more likely indicates distress." In a recent survey, Mitchell Berlin (2011, 8) essentially adopts the proposition that financial intermediation is inherently levered when he states: "Since liquid liabilities are a primary output of the banking firm, we should expect banks to be highly levered." Similarly, Richard Herring (2011, 9) observes that "Since some liabilities are really a product supplied by the bank rather than simply a means of funding the bank, we know that a 100% equity-to-asset ratio cannot be the correct answer." Although Miller (1995) himself informally discussed whether M&M applies to banking, his answer was an ambivalent "Yes and No."

One key reason that has been given for observed high leverage in banking is that deposits are subsidized by publicly provided deposit insurance (e.g., Admati and Hellwig 2013). However, it turns out that nonbank financial firms that do not enjoy deposit insurance also have high leverage. Thus, in 2001–07, the median ratio of total assets to shareholder funds was 19.1 for banks, and 12.1 for nonbank financial firms, but only 3.0 for nonfinancial sectors (Herring 2011, 17). Once again the implication is that something is different about leverage for the financial sector even after removing the influence of deposit insurance.

Perhaps the most explicit analysis finding that banking is different is that by Harry DeAngelo and René Stulz (2013, 1, 3), who conclude that "MM's leverage irrelevance theorem is simply inapplicable to banks. ... given a material market demand for liquidity, intermediaries will emerge to meet that demand with high leverage capital structures (made possible by asset structures optimized to produce liquidity)." In their model, with the bank choosing a portfolio of assets that is "not risky at the optimum" (p. 8), debt as a share of debt plus equity turns out to be the ratio $1/[1+q+\phi z]$. Here q is the "liquidity spread" that those purchasing liquidity from banks accept for assured future access to capital, and ϕ is the "loan spread" paid on bank loans by those with limited access to capital markets. With reasonable values for q and ϕ , this ratio will be high, relatively close to unity. Moreover, the contrast with lower bank leverage in earlier historical times can be explained by the bidding down of q over time as financial markets developed. Similarly to the analogy suggested above to oil refining, DeAngelo and Stulz (2013, 9) state that "Banks are different because financial flows are the inputs and outputs they utilize to generate value for their shareholders."

Charles Calomiris and Richard Herring (2011) also take issue with the notion that equity capital can be increased indefinitely without costs to the banks. They cite Anil Kashyap, Raghuram Rajan, and Jeremy Stein (2008) regarding the adverse influence of too much equity on agency problems, as reduced leverage could insulate bank managers from market discipline if leverage is low and stock ownership is more fragmented than borrowing. Calomiris and Herring believe that although an increase in capital is necessary, "... we recognize that there are negative, not just diminishing, social returns to achieving that higher amount of capital solely by raising equity capital requirements beyond some point" (p. 14). Their solution instead is to supplement the equity capital requirement with required contingent capital (CoCo) in the form of debt that would convert to common equity upon a trigger (based on 90-day average of bank stock prices). Their objective is to make the conversion so unattractive to the banks that managers would have an extreme incentive to issue more equity early in an emerging deterioration rather than wait too late. They propose a (book value) leverage ratio of 10 percent equity relative to assets, supplemented by required CoCo funding of 10 percent of book assets (Calomiris and Herring 2011, 29). Their equity capital requirement would thus be only one-third to one-half the level proposed by Admati and Hellwig (2013), although it would be about twice the Basel III level for SIFIs (9.5 percent of RWA, corresponding to about 5 percent of total assets).

...

A final introductory remark concerns the framework of M&M and its relationship to other frameworks of optimization. At its core, M&M is based on an arbitrage proposition. It is a logical syllogism that holds:

- (a) any debt-equity configuration chosen by the firm can be "unwound" by investors, who can sell shares of a highly leveraged firm and purchase shares in unleveraged firms using the proceeds plus borrowed funds, bidding down the share price of the leveraged firm and bidding up the share price of the unleveraged firm.
- (b) Market arbitrage will eliminate any profitability advantage of a more highly leveraged firm.
- (c) Therefore the capital structure (ratio of equity to debt) is irrelevant.

The authors do not formally introduce risk. It is telling that their equations do not include an investor utility function, and they do not posit a typical degree of risk aversion. Nor do

their equations set forth a probabilistic profile of returns in relationship to the debt to equity ratio, nor any hypothesized distribution function for returns. With such a function it would be possible to explore the optimal debt to equity ratio as a function of the risk aversion characterizing financial markets. Instead the authors appeal to "risk" only qualitatively and by implication maintain that any risk whatsoever will suffice to drive their arbitrage process and rule out superiority of one debt to equity ratio over any other."

Annex Two

Extract from "Would Stricter Capital Requirements Raise the Cost of Capital? Bank Capital Regulation and the Low Risk Anomaly" Malcolm Baker, Harvard Business School and NBER, and Jeffrey Wurgler, NYU Stern School of Business and NBER, 2013.

"Capital requirements for banks must balance a number of factors, including any effects on the cost of capital and in turn the rates available to borrowers. Standard theory predicts that, in perfect and efficient capital markets, reducing banks' leverage would reduce the risk and cost of their equity but leave the overall weighted average cost of capital unchanged. We test these two predictions empirically. We confirm that the equity of better-capitalized banks has both lower systematic risk (beta) and lower idiosyncratic risk. However, over the last 40 years in the United States, lower risk banks have higher stock returns on a risk-adjusted or even a raw basis, a pattern consistent with a stock market anomaly previously documented in other samples. A simple calibration using historical data suggests that a ten percentage-point increase in Tier 1 capital to risk-weighted assets would have increased the weighted average cost of capital by between 60 and 90 basis points per year. In competitive lending markets, a change of this magnitude would have doubled or tripled spreads, because bank asset betas implied an average risk premium of only 40 basis points above Treasury yields over that same period."

