Macro-prudential Policy in New Zealand: Issues Related to Governance

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Executive summary

Macro-prudential policy is defined in the international context as the set of policies that (a) concern prudential regulation, and (b) are primarily intended to provide system-wide benefits regarding a reduction of systemic financial instability.

This paper considers the appropriate governance arrangements for macro-prudential policy and compares them to the arrangements that are currently in place within New Zealand. It does not specifically evaluate the changes proposed in the consultation papers (C2A and C2B). Instead, the paper has been used as background to inform the options developed in those papers.

Systemic financial instability emerges in an economy when financial institutions, households, or non-financial firms make decisions that may have optimal results for themselves but create sub-optimal levels of excessive risk in the aggregated financial sector. The intensity of these sources of financial instability can vary over time due to changing pressures tied to the economic cycle, or can be static across time and more related to structural or country-specific factors.

The objective of macro-prudential policy is to address these levels of excessive risk and to thereby ensure financial stability within an economy. Financial stability is achieved by ensuring that there is a stable provision of financial services to the economy by financial institutions. The intermediate objectives of achieving financial stability can be defined as ensuring that (a) there is a low (but not usually zero) probability of financial institution default, and (b) financial institutions are as resilient to systemic shocks as possible, and can continue to provide financial services in the event of a crisis. These objectives differ from those of micro-prudential policy in the sense that where micro-prudential policy is executed with the intention of safeguarding a single financial institution (or safeguarding all individual institutions against institution-level risks), macro-prudential policy is executed with the intention of safeguarding the *system* of financial institutions against risks that accumulate outside the purview of institution-level considerations.

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There are two primary operative roles in regard to macro-prudential policy: the role of monitoring economic conditions and identifying systemic risks; and the role of executing macro-prudential strategy by deploying macro-prudential tools alongside wider prudential policy such that the intermediate objectives are achieved. Macro-prudential tools can be delineated between (a) aggregate balance sheet tools, which place conditions on the aggregate asset, liability, or capital requirements of financial institutions, and (b) transactional tools, which place conditions on the individual transactions between financial institutions and households, corporations, or other financial institutions.

These macro-prudential tools can have both baseline and time-varying components. In New Zealand currently, only time-varying tools have specific macro-prudential governance arrangements following the 2013 Macro-prudential Memorandum of Understanding (MoU) signed by the Governor of the Reserve Bank of New Zealand and the Minister of Finance. Other prudential tools that are executed in order to provide system-wide benefits continue to be executed under the provision of broader prudential powers given to the Reserve Bank in the Reserve Bank of New Zealand Act 1989 (the Act).

In regard to the current governance arrangements for macro-prudential policy in New Zealand, the sole legal macro-prudential decision-maker is the Governor of the Reserve Bank, although the Governor may informally make macro-prudential decisions on the advice of a consensus by the Governing Committee of the Reserve Bank. The Act provides the legislative basis for the power of the Governor to execute macro-prudential policy, and the use of these powers in time-varying ways is supported by the non-legislatively binding MoU.

The discussion regarding the independence of macro-prudential policy should separately consider political independence and operational independence. Political (or institutional) independence concerns (a) the ability of a decision-maker to select its intermediate objectives without political control, and (b) the extent to which there is political control of the decision-maker's appointment or dismissal. Operational (or regulatory) independence concerns the extent to which a decision-maker can (a) choose the tools of macro-prudential policy without political control and (b choose the calibration of these tools without political control.

As compared to monetary policy, this paper shows that macro-prudential policy in New Zealand has a *greater* degree of political independence on account of the difficulty of providing quantifiable macro-prudential objectives, and on account of the limited ministerial ability to dismiss the Governor in the event of the non-achievement of these objectives. On the other hand, macro-prudential policy appears to possess a slightly *lesser* degree of operational independence relative to monetary policy, on account of the legislative limits on the powers the Governor has to impose macro-prudential policies on registered banks, and on account of the MoU, which shapes the likely choice of tools and agrees that the Reserve Bank will consult the Minister before the use of these tools.

Macro-prudential policy is governed in a similar manner to monetary policy in the sense that the policy has been delegated by democratically elected officials to an authority that possesses a greater degree of political and operational independence than is seen for most other economic policies, such as fiscal policy.

Monetary policy was delegated on the basis of evidence that the economy would benefit from a delegation to an independent authority. There are also established benefits of delegating wider prudential policy to an independent authority (Hunt, 2017). However, there is limited work on, and evidence of, the appropriate governance of macro-prudential policy that is distinct from the broader umbrella of "prudential" policy. The absence of this economic evidence is, in part, due to the fact that macro-prudential policy has only been defined as a separate policy area for a short period of time, too short to assess the benefits and costs of different arrangements (especially since many of the benefits and costs are long term and hard to measure). The delegation of macro-prudential policy was made on the assumption of independence benefits, which in part arise from an assumption that macro-prudential policy and monetary policy are similar enough to imply that the benefits of monetary independence are comparable to the benefits of macro-prudential independence.

However, macro-prudential policy and monetary policy are sufficiently different in regard to the nature of their objectives, the number of policy tools, the manner of policy engagement with the economy, and the distributive impacts of the policy tools, that the results of economic inquiry regarding the ideal degree of independence for monetary policy governance should not be assumed to follow automatically for macro-prudential policy governance. The delegation of macro-prudential policy to an independent macro-prudential authority should be evaluated on the characteristics of macro-prudential policy itself, and not on the merits of delegation of monetary policy.

Separate implications for the governance arrangements for macro-prudential policy are considered with respect to four issues.

The first issue, that the incentives of the macro-prudential authority may not align with the interests of the delegating official due to a lack of strict and measurable objectives and a resulting inability to hold the authority to account, implies that macro-prudential policy should have limited independence in regard to the definition of the intermediate objectives of macro-prudential policy. The lack of ability to hold the macro-prudential authority to measurable account also implies that there should be a role for elected officials in regard to the selection of macro-prudential decision-makers, or a degree of political representation within the macro-prudential decision-makers, in order to ensure that the macro-prudential authority maintains its societal legitimacy.

The second issue, that executing macro-prudential policy can have significant distributional impacts on individuals within the economy, implies that there may appropriately be a role for elected representatives in influencing the selection of tools that can be used by the macro-prudential authority, and in regard to the calibration of these tools, in order for macro-prudential policy to be executed in a manner that aligns with the preferences of the public.

The third issue, that the existence of a time horizon mismatch could incentivise politically motivated macro-prudential authorities to delay the execution of macro-prudential tools, implies that macro-prudential policy should have a low degree of political control in regard to the calibration of macro-prudential tools, in order that macro-prudential policy is executed in a timely and efficient manner. However, economic literature examining this issue, which could provide an evidence base for the benefits of delegation, does not contain sufficient theoretical evidence to provide a convincing supporting argument regarding the ideal degree of political oversight of this policy.

The fourth issue, that the technical difficulty of executing macro-prudential policy means that non-technocratic officials may delay and distort macro-prudential implementation, implies that macro-prudential policy should have a low degree of political control in regard to the selection of macro-prudential tools and the calibration of these tools, in order that macro-prudential policy is executed in a timely and efficient manner.

On balance, in regard to the current macro-prudential governance framework for New Zealand, the discussion of these issues implies that there are benefits to be had from a greater degree of political control than is currently legislated regarding the selection of objectives. On balance, these issues also imply that there are benefits to be had from a discussion regarding the degree of political control in the selection of macro-prudential decision-makers, and regarding the degree of political control of the scope of tools that can be used by the macro-prudential authority in its pursuit of its objectives. This discussion should have a particular focus on ensuring that transactional tools (e.g. loan-to-value ratios) are only delegated to the decision-maker when the distributional impacts have been evaluated by representatives of Parliament. The MoU was effectively an informal way of achieving this, but in the context of the Reserve Bank review more formal arrangements can be considered.

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Purpose

The purpose of this research paper is to explore the institutional arrangements regarding macro-prudential policy in New Zealand, with a focus on the political and operational independence of this policy. The question to be answered is: how politically and operationally independent should macro-prudential policy be, and what does this imply in regard to the appropriate direction of change in New Zealand governance arrangements?

The paper is written as background to the current Reserve Bank of New Zealand Act Review, and includes an outline of the nature of macro-prudential policy, a discussion regarding the ideal degree of political and operational independence of macro-prudential policy, a review of the current governance of macro-prudential policy in New Zealand, and a comparison of the delegation treatments of macro-prudential policy and monetary policy.

Part One: What is Macro-prudential Policy?

The current, ongoing discussion around macro-prudential policy was prompted by the global financial crisis (GFC) of 2008, which demonstrated that price stability and existing financial regulation were not sufficient to achieve financial stability. Subsequent policy development focused on sources of systemic financial instability.

Systemic financial instability emerges in an economy when financial institutions, households, or firms make decisions that may have optimal results for themselves but also create sub-optimal levels of risk in the aggregated financial sector (De Nicolò *et al*., 2012; Baker, 2015). These "externalities" are sources of financial instability that can vary over time, as cyclical pressures encourage certain decisions that generate systemic risk, and can also be static over time, due to the structural characteristics of a financial system (Bank of England, 2011; Blancher *et al*., 2013).

The most extreme realisation of systemic financial instability in an economy is the failure of one or more of the key financial institutions, typically large and complex banks, resulting in a financial crisis. Financial crises have real economic costs to society, and minimising these costs provides the necessary motivation for macro-prudential policy to target systemic financial instability in an economy.

A key problem surrounding the recent implementation of macro-prudential policies across the world is that there are variations between countries regarding how macro-prudential policy is defined, what its objectives are, and what tools are available to target those objectives. There has been some degree of consensus on the definition and management of macro-prudential policy in discussions led by the Bank for International Settlements, the International Monetary Fund, and other internationally recognised organisations. However, even more than with prudential policy more generally, there is significant diversity currently seen in macro-prudential governance structures.

The purpose of Part One is to outline these differences in interpretation of the definition, objective, and toolkit of macro-prudential policy.

What is the Definition of Macro-prudential Policy?

It is widely agreed that macro-prudential policy can be defined as the set of policies that address systemic sources of financial instability. However, the application of this definition varies in outlining the perimeters of macro-prudential policy.

Macro-prudential policy comprises prudential regulations that are imposed on financial institutions.[2] These prudential regulations are in turn concerned with the prudent conduct of business in the financial sector, and the manner in which this conduct can generate excessive systemic risk in the form of broader financial instability. This core definition is important in separating macro-prudential policy from other policies that can indirectly affect the accumulation of systemic risk, such as monetary policy and fiscal policy.

However, in further defining what constitutes macro-prudential policy, much of the academic literature distinguishes between macro-prudential and micro-prudential measures, where both are prudential policies but the former targets the *system-wide* conduct of business in the financial sector and the latter targets the conduct of individual *institutions* in the financial sector (e.g. Galati and Moessner, 2011; Osinski *et al*., 2013). A key issue here lies in the distinction between the financial system and the financial institution.

The regulation of the financial system is achieved by regulating the institutions that comprise the financial system (Duncan and Nolan, 2015). Any prudential policy that affects an institution therefore affects the system, particularly if the institution is systemically significant. This can make it hard to use the distinction above to decide if a particular policy is micro- or macro-prudential.

A better distinction between macro-prudential and micro-prudential policies could be made by the intent behind the policies (Ellis, 2012). A *macro-prudential* policy can be defined as a prudential policy that regulates financial institutions for the purposes of generating greater systemic benefits, while a *micro-prudential* policy can be defined as a prudential policy that regulates a financial institution for the safety of private agents, such as the creditors and stakeholders of the institution in question. This differs from the academic definition of macro-prudential policy in the sense that this definition allows for institutional prudential policies to be macro-prudential in nature rather than micro-prudential, if these policies are enacted for systemic reasons.

It is important to note that through the definition employed in this discussion, a prudential policy employed with the intention of strengthening both a single financial institution and the financial system simultaneously could be seen as both macro-prudential and micro-prudential in nature. In this case, it may be better to evaluate the policy in terms of primary and secondary objectives; for example, if the prudential policy aims to achieve systemic financial stability through the improvement of a single private agent or institution, the policy may be better categorised as micro-prudential than as macro-prudential. If, however, the prudential

[2] As well as performing its regulatory role, the macro-prudential authority will undertake tasks like supervision and monitoring, which are necessary to gather sufficient information for effective policymaking. These aspects of macro-prudential policy are discussed below, but this paper largely focuses on the core regulatory tools.

policy intends to strengthen the position of individual institutions through the execution of a systemic change, the policy would be better categorised as macro-prudential.

As a summarising definition, macro-prudential policy is defined here as the policies that address systemic financial instability in an economy, when (a) the policies concerns prudential regulations and (b) the policies are primarily intended to provide system-wide benefits. This definition places macro-prudential policy and micro-prudential policy as distinct policies under the broader category of prudential regulation.

It is worth noting that, by this definition, the Reserve Bank of New Zealand (Reserve Bank), which has been charged with prudential regulation in New Zealand as per the Reserve Bank of New Zealand Act 1989 (the Reserve Bank Act, and the Act), has historically executed both macro- and micro-prudential policies in its use of broad prudential tools, such as capital and liquidity tools, for both institutional and systemic purposes. However, the key official document that discusses macro-prudential policy – the 2013 Macro-prudential Memorandum of Understanding (MoU) signed by the Governor of the Reserve Bank and the Minister of Finance – uses the term "macro-prudential policy" to describe time-varying tools only, which is an unusually narrow definition.

What is the Objective of Macro-prudential Policy?

Policies require well defined objectives in order to establish the legitimacy of the policymaker, to create a benchmark against which to measure performance, and to therefore design a platform for accountability. This accountability improves both the ability of the authority to achieve its desired outcome, and the likeliness of the authority achieving its desired outcome (Goodhart, 2011; Svensson, 2018).

The objective of macro-prudential policy is generally defined as financial stability (or something similar). However, financial stability has a variety of definitions, and these definitions can often inform the accepted or legislated scope of macro-prudential policy that is used in the pursuit of financial stability within a country. The definition of financial stability can in turn be influenced by the experiences, exposures, and politics of the country in question (Gadanecz and Jayaram, 2008). It is worth noting that in most countries detailed specifications of financial stability objectives exist *outside* legislation. While the relevant legislation can require "financial stability" in general, this is generally not greatly expanded upon within the legislation itself.

The United States Federal Reserve, for example, defines financial stability as the ability of financial institutions and markets to provide households, communities, and businesses with sufficient financial services for growth, which requires resilient financial institutions and a reduced incidence of banking crises (Federal Reserve Board, 2017). This definition focuses heavily on the role of savers and lenders, and on the ability of financial institutions to promote growth in the wider economy. The Bank of England has a similar definition of financial stability, with an additional focus on the role of the financial system in absorbing and dispersing shocks itself, and in ensuring that this function remains robust across time (Bank of England, 2017).

The Bank of Canada approaches financial stability with the identification and reduction of vulnerabilities, which are defined as pre-existing conditions (such as linkages, imbalances, and time horizon mismatches) that can amplify shocks to the real economy rather than mitigate them (Bank of Canada, 2018). The US Federal Reserve has recently adopted this approach, distinguishing between external shocks to the market (such as those that the financial system is designed to disperse) and vulnerabilities *of* the market, which can be identified and addressed by macro-prudential policy (Federal Reserve Board, 2018).

In slight contrast, the Australian Prudential Regulation Authority (APRA) defines its mandate of financial stability as ensuring that financial promises made within supervised institutions can be met under "reasonable conditions", and therefore maintaining a stable, efficient, and competitive financial system (Australian Government Department of the Treasury, 2017; APRA, 2019). This is a more institution-level approach than is seen in other macro-prudential institutions, and is possibly the result of APRA being a distinct authority from the Reserve Bank of Australia, as compared to the authorities discussed above, which have wider responsibilities.

Nonetheless, a common understanding across nations is that achieving financial stability relates to ensuring that the provision of financial services to the economy remains as stable as possible, and is not negatively affected by adverse conditions (and, therefore, the financial stability of households and firms is facilitated through the steady provision of such services). A financial stability objective can therefore be seen to have two primary intermediate objectives (Committee on the Global Financial System, 2010).

The first intermediate objective is ensuring that there is a low probability of default in financial institutions, thereby reducing the incidence of banking crises.[3] In this respect, macro-prudential policy is concerned with reducing the likelihood of future crises by identifying and minimising sources of excessive systemic risk as they emerge.[4]

The second intermediate objective of financial stability is ensuring that financial institutions are resilient to financial crises, and can continue to provide financial services in the event of negative financial shocks (such as the failure of another financial institution). In this respect, macro-prudential policy is concerned with enhancing the robustness of financial institutions against periods of financial distress.

The ultimate motivation for targeting financial stability, either by keeping the probability of institutional default low or by ensuring institutional resilience to financial crises, is to minimise the costs to the real economy. These costs are well explored in the literature, which finds that financial crises have strong negative impacts on real economic activity (Drehmann *et al*., 2012; Schularick and Taylor, 2012). The literature also finds that there are output (and therefore welfare) gains to be had both from decreasing (or minimising) the likelihood of financial crises

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[3] This intermediate objective concerns itself with a "low" probability of default, rather than a "zero" probability of default, in recognition that financial institutions do possess an inherent degree of "normal" institutional risk that is not a consequence of excessive systemic risks (Stulz, 2016). Therefore, this objective could be interpreted as the macro-prudential policymaker minimising *excessive* systemic risk in the economy.

[4] Thereby taming the medium-term financial cycle (Schuler *et al*., 2015), although many (such as Gai, 2017) argue that this should not be an objective of macro-prudential policy. Rather, the financial cycle could act as an indicator of financial conditions and related pressures, which inform appropriate macro-prudential policy.

and from improving the resilience of financial institutions to financial crises (Basel Committee on Banking Supervision, 2010a; Macroeconomic Assessment Group, 2010; Macroeconomic Assessment Group on Derivatives, 2013; Jimenez *et al*., 2017; Jorda *et al*., 2017).[5]

The operative roles of macro-prudential policy in achieving financial stability can be separated into the execution of macro-prudential strategy – that is, the selection and calibration of the appropriate tools – and the identification and monitoring of systemic risks in order to inform the appropriate strategy. It is important to note that this second role does not necessarily need to be undertaken by the body responsible for macro-prudential strategy; both Australia and the European Union, for example, have at least partially separated oversight and execution between institutions. The discussion in this paper regarding the independence of macro-prudential policy therefore refers to independence in the *execution* of macro-prudential strategy, rather than independence in the identification and monitoring of systemic risks.

The operative roles of macro-prudential strategy in the selection and calibration of the appropriate tools change before and after a financial crisis is realised, and can be seen as *ex-ante* "crisis prevention" and *ex-post* "crisis management" strategies (Svensson, 2018).

The crisis *prevention* aspect of macro-prudential policy requires monitoring the economy and providing input to strategy that minimises the likelihood of financial crises and builds resilience in financial institutions (and through these institutions, the households and firms that engage in financial activity), in order that the real economic cost of future crises is minimised (as described above). The crisis *management* aspect of macro-prudential policy requires that macro-prudential strategies be updated to address any new sources of financial instability revealed by an unanticipated crisis (to minimise Horvath and Wagner's [2010] Lucas critique of macro-prudential policy), and to allow financial institutions to operate normally through the crisis period (to reap the empirical benefits described by Jorda *et al*., 2017).

As an example of macro-prudential policy in action, the objective of ensuring that financial institutions continue to operate normally through a crisis period specifically involves ensuring that these institutions can continue to provide financial services to the wider economy, which may require a relaxation of standard prudential limits, as lenders may otherwise be constrained by these limits in the event of a financial crisis (Carlson *et al*., 2013). A countercyclical capital buffer, for example, would require that a financial institution hold an additional level of capital on hand during financially robust times, a requirement that can then be eased during a crisis period so that the institution's lending levels can remain stable even in the event of falling asset values, without breaching regulations.

A summary of the *ex-ante* and *ex-post* operative roles of macro-prudential policy, as described above, can be seen in the table below.

[5] Behn *et al*. (2016) note that the transition by which financial institutions become more resilient is also important. For example, when stricter capital requirements are imposed on financial institutions, the economy will experience a net *positive* outcome if these requirements are met by raising fresh capital, as opposed to a net *negative* outcome if these requirements are met by deleveraging assets.

	Financial Stability		
	Risk Identification and Monitoring	**Macro-prudential Strategy**	
		Keep Probability of Default Low	**Increase Resilience to Crisis**
ex ante	Assess macroeconomic and financial conditions; identify imbalances as they emerge and thereby inform strategy	Reduce imbalances and keep probability of future default low	Increase resilience of institutions to future unknown crises; build buffers
Crisis realisation: new source of imbalances revealed			
ex post	Assess macroeconomic and financial conditions; recognise emerging problems as imbalances crystallise and update strategy accordingly	Not a key *ex-post* macro-prudential focus	Recalibrate time-varying tools to encourage institutions to continue operating normally; release buffers

The key lesson from these *ex-ante* and *ex-post* roles is that the macro-prudential policy strategy of the relevant authority must be flexible enough to satisfy the roles as outlined in the table above, while still having a clear enough objective to ensure accountability. This particularly means that risk identification and monitoring must be timely and thorough, and that strategy execution must be able to be re-calibrated in an equally timely manner.

Another aspect of macro-prudential policy that implies the necessity for a flexible and dynamic decision-maker is the incentive for regulatory arbitrage by financial institutions. This arbitrage could occur at the domestic level, with agents shifting their activities into unregulated markets or financial intermediaries in order to avoid stricter capital requirements during non-crisis times, and thus potentially shifting high-risk activities into these unregulated markets (Hellwig, 2014).[6] This arbitrage could also occur at the international level, with agents shifting their activities into less regulated countries, leading to volatile capital flows from more regulated economies (Aiyar *et al*., 2014).[7] A flexible macro-prudential authority must therefore be able to identify sources of arbitrage as institutions shift systemic risks into unregulated sectors of the economy, and must also be able to adjust its macro-prudential strategy accordingly.

[6] Regulations can be put in place in an attempt to minimise these spill-overs; for example, the Reserve Bank's framework on loan-to-value ratios directly specifies that banks should not engage in this "avoiding behaviour" (Reserve Bank of New Zealand, 2018).

[7] This international effect suggests a welfare-improving role for international discussion and cooperation regarding macro-prudential design. The Basel III Accord, for example, requires mandatory reciprocity agreements regarding countercyclical capital buffers (Basel Committee on Banking Supervision, 2010b).

What are the Tools of Macro-prudential Policy?

Macro-prudential policy uses a broad toolkit in its strategy to achieve the objective of financial stability. This toolkit is deployed by identifying the causes of instability, and addressing these causes directly through the regulation of the financial institutions that comprise the financial system.

Macro-prudential tools have been divided into two main categories for the purposes of this discussion: aggregate balance sheet tools; and transactional tools.

Aggregate balance sheet tools are defined here as the prudential tools that place limits on the aggregate asset, liability, and capital compositions of financial institutions. These compositions include considerations for liquidity requirements and institutional exposures. Capital requirements are a key balance sheet tool, while examples of other aggregate balance sheet tools are the core funding ratio, reserve requirements, and sectoral capital requirements.

Transactional tools are, in contrast, defined as the prudential tools that place conditions on the individual transactions between financial institutions and households, corporate clients, and other financial institutions. Examples of these transactional tools are the loan-to-value ratio, the debt-to-income ratio, and limits on the minimum margin requirements of, for example, derivative transactions.

The usefulness of distinguishing between aggregate balance sheet tools and transactional tools is that the former address financial instability by only affecting decisions regarding the composition of financial institutions' balance sheets, while the latter address financial instability by affecting both the decisions of financial institutions *and* the decisions of households, firms, and other financial institutions in their interactions with the regulated financial institutions.

An additional dimension to macro-prudential policy is the timeframe in which these tools are enacted. Sources of excessive systemic risk in an economy can be both time varying and time invariant in nature, which means that the tools to address these risks can (or should) also be time varying or time invariant as required. The primary difference between a time-varying and a time-invariant tool is the understanding that one is subject to future change while the other is understood to be "permanent". The distinction can be subtle – for example, capital requirements may be "permanently" tightened during a boom, but the regulator may then allow some temporary breaches in a downturn (forbearance). This is very similar to the imposition of temporarily higher requirements. A more significant difference in impacts is more likely to arise from the distinction between aggregate balance sheet tools and transactional tools than that between time-varying and time-invariant tools.

A key difference between international definitions of macro-prudential tools is whether the time-invariant or "baseline" component of the macro-prudential toolkit is recognised as being partly macro-prudential in nature by the relevant authorities.

Many macro-prudential tools, such as capital requirements and margin requirements, have both time-varying and baseline components. A capital requirement, for example, is a prescribed level of capital that must be held by a financial institution, and could include both a

baseline component that is not intended to be changed substantively, and a time-varying buffer that is explicitly intended to be imposed during periods of excessive systemic risk, and removed during periods of financial distress (Caruana, 2010; European Systemic Risk Board, 2017). Furthermore, the baseline capital requirement could include a micro-prudential capital requirement (deemed sufficient to keep the institution safe in isolation from a systemic crisis) and further macro-prudential overlays (often buffers, added to help the institution survive a crisis or because it is itself systemically important and thus its failure could cause a crisis). Examples of other macro-prudential tools with both baseline and time-varying components include margining requirements (Bank of England, 2011), systemic risk buffers (European Systemic Risk Board, 2017), and loan-to-value ratios (Lim *et al*., 2011).

A summary of how a particular tool may be considered micro-prudential, baseline macro-prudential, or time-varying macro-prudential, is provided in the table below.

Example breakdown of prudential policies:	**Aggregate Balance Sheet Tools**		**Transactional Tools**
	Capital Requirement	**Liquidity Requirement**	**Loan-to-Value Ratios**
Baseline Micro-prudential *Ensures the stability of an individual financial institution*	**Standard Capital Minima** *Regulated institutions are required to have minimum capital ratio as per Basel institutional requirements* Example: RBNZ, 8% total capital requirement	**Short-Term Mismatch Ratio** *Regulated institutions are required to have minimum mismatch ratio for short-term cash inflows and outflows* Example: RBNZ, one-week and one-month bank requirements	*(Loan-to-value ratios could be used for micro-prudential purposes, but generally are not motivated in this sense, at least since the GFC)*
Baseline Macro-prudential *Ensures the stability of the financial system against risks that do not vary with the financial cycle*	**Capital Conservation Buffer** *Regulated institutions are required to have a minimum fixed capital ratio in excess of the standard capital minima, or else suffer penalties* Example: RBNZ, 2.5% buffer	(The boundary between macro- and micro-prudential liquidity policy is hard to define) **Static Core Funding Ratio** *Regulated institutions are required to have a minimum fixed mismatch ratio for medium-term cash inflows and outflows* Example: RBNZ, 75% one-year core funding ratio	**Static Loan-to-Value Ratio** *Regulated institutions are restricted in issuing loans exceeding a fixed ratio of the value of the underlying asset for certain categories of assets* Example: Sweden, maximum 85% loan-to-value ratio for residential mortgages
Time-Varying Macro-prudential *Ensures the stability of the financial system against risks that vary with the financial cycle*	**Countercyclical Capital Buffer** *Regulated institutions are required to have a varying capital ratio in excess of the standard minima* and *the conservation buffer.* Example: RBNZ, 0-2.5% buffer range	**Countercyclical Core Funding Ratio** *Regulated institutions are required to have a varying mismatch ratio for medium-term cash inflows and outflows* Example: RBNZ, intentions for core funding ratio variation against the credit cycle	**Countercyclical Loan-to-Value Ratio** *Regulated institutions are restricted in issuing loans exceeding a varying ratio of the value of the underlying asset* Example: RBNZ, loan-to-value ratio rules adjusted 2013, 2015, 2016, 2019

Part Two: Implications for the Independence of Macro-prudential Policy

A key discussion point surrounding macro-prudential policy is the extent of independence in the governance of this policy (delegation) that would be beneficial for society.

For the purposes of this section, society is assumed to benefit from delegation to a politically or operationally independent authority if the authority is subsequently more likely to be successful in achieving financial stability in an effective and efficient manner than if macro-prudential policy were not delegated. In discussing the ideal degrees of independence, the arguments below ask whether the delegation of macro-prudential policy can be considered successful in resolving each of the identified issues, and also considers the emergence of other costs surrounding the implementation of macro-prudential policy, in order to discuss the extent to which these costs could cause additional problems for the macro-prudential authority's responsibilities.

The issues discussed in this section in regard to the independence of the macro-prudential authority are:

- the principal-agent accountability problem between the macro-prudential authority and the delegating elected official;
- the distributional impacts of macro-prudential policy;
- the time horizon mismatch and potential inaction bias of politically inclined officials, and the related time inconsistency literature; and
- the degree of technical difficulty in operating macro-prudential policy.

What is Political and Operational Independence?

An authority is subject to a form of political control when they require approval or non-objection from a politically elected official before proceeding with a desired course of action. A lack of political control can be delineated between "political independence" and "operational independence". The definitions of these form of independence, as outlined below, are drawn from Balls *et al.* (2016).

"Political independence" is defined for the purposes of this discussion as the ability of the macro-prudential authority to (a) select intermediate macro-prudential objectives or strategic goals regarding financial stability without political control, and (b) be selected or dismissed as a macro-prudential decision-maker independently from the influence of elected officials (or, similarly, to not be a political representative).

"Operational independence" is defined as the ability of the macro-prudential decision-makers to execute autonomous macro-prudential strategy. For the purposes of this discussion, this concerns the breadth of discretion the relevant decision-makers have in (a) choosing the *tools* of macro-prudential policy without political control and (b) choosing the *calibration* of those tools without political control. The operational independence of the calibration of macro-prudential tools can be usefully delineated between the selection/execution of tool calibrations, and consultation on these calibrations prior to announcement.

Once these definitions of political and operational independence have been established, it is useful to consider what could constitute a "strong" or "weak" degree of political control within each of the relevant sub-categories. Of course this is a subjective imposition of political values, and an example of "strong" political control for one country could easily be considered "weak" by another. The table following, which posits a scale of strong to weak political control for the governance of macro-prudential policy, should therefore be taken as a very broad overview of potential positions.

Dimensions of Independence		High Political Control	Mild Political Control	Low Political Control
Political	*Selection of objectives*	Elected officials choose objectives; objectives are bound in legislation	Elected officials only set high-level objectives	Elected officials have no input to objectives; objectives are not bound in legislation
	Selection of decision-makers (appointment)	Elected officials can appoint decision-makers, or are decision-makers themselves	Elected officials can appoint decision-makers with process requirements (e.g. on advice or recommendation)	Elected officials cannot appoint decision-makers
	Selection of decision-makers (dismissal)	Elected officials can dismiss decision-makers; grounds for dismissal are clear and outlined in legislation or a legislative document	Elected officials can dismiss decision-makers on some grounds; grounds for dismissal are unclear	Elected officials cannot dismiss decision-makers; grounds for dismissal are undefined
Operational	*Selection of tools*	Elected officials select tools; the tools are outlined in legislation or a legislative document	Elected officials provide input to the selection of tools; the tools are loosely outlined in legislation or a legislative document	Elected officials cannot select tools; the delegated powers are very broad
	Calibration of tools (execution)	Elected officials select the calibration of tools	The potential calibration of tools is outlined in legislation or a legislative document	The macro-prudential authority has full autonomy in the calibration of tools
	Calibration of tools (consultation)	Elected officials must be consulted before public communication of calibration; requirements are outlined in legislation or a legislative document	There are some requirements for consultation in legislation or legislative documents	There are no requirements for consultation in legislation or legislative documents

Issue 1: Principal-Agent Accountability

The principal-agent problem emerges when a principal delegates a certain responsibility to an agent, but the subsequent actions of the agent do not visibly align with the best interests of the principal. This problem primarily arises when (a) the agent acting on behalf of the principal has an incentive to deviate from the principal's interests, and (b), the principal is unable to observe the agent's actions, or the outcomes of the agent's actions, and is therefore unable to hold the agent to account in fulfilling the principal's preferences. The latter point (b) is particularly problematic if preferences in an area are difficult to define (as well as measure).

In regard to point (a), it is not immediately obvious whether an incentive exists for a macro-prudential authority to deviate from the preferences of the delegating elected officials, although there are some theoretical papers that suggest a macro-prudential authority that has dual objectives of financial stability and price stability may have an incentive to sacrifice the achievement of one objective in order to achieve the other (Smets, 2014; Aikman *et al*., 2018).[8]

In regard to macro-prudential policy, a resolution of the principal-agent problem requires that the elected delegating official is able to observe the activities and subsequent outcomes of the macro-prudential authority, and is thereby able to conclude whether the authority has achieved financial stability to the principal's satisfaction. This ability to hold a macro-prudential authority to account is essential in maintaining this principal-agent relationship between the delegating official and the macro-prudential authority, as it prevents the actions of the macro-prudential authority from deviating from the best interests of the delegating elected official, which is directly accountable to the public.

The objective of macro-prudential policy concerns achieving financial stability by reducing the probability of institutional default and by ensuring the resilience of the financial system. However, it is difficult to ascertain whether the macro-prudential authority has achieved these objectives on account of the difficulty in establishing causality between macro-prudential calibrations and financial stability outcomes, and also the difficulty in establishing causality between *ex-ante* indicators and financial stability outcomes.

In regard to reducing the probability of institutional default, success cannot be reliably measured or confirmed except in the very long term (Committee on the Global Financial System, 2010). *Ex-ante* indicators that can provide forewarning of episodes of financial distress can often be unreliable, and may give the macro-prudential authority the false appearance of having avoided a crisis in the event of a "false alarm" (Edge and Meisenzahl, 2011; Babecky *et al*., 2011). In regard to the second objective of ensuring the financial system is resilient to financial crises, again long runs of data are needed for monitoring. Furthermore, the objective can only be quantified by comparing the observed outcome to a robust counterfactual where macro-prudential policy had never been implemented. However, there is no consensus on how such a counterfactual would be measured, and therefore the quantification of these resilience benefits is difficult to outline convincingly (Duncan and Nolan, 2015).

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[8] It is worth noting that in comparison to financial stability objectives, which are relatively difficult to confirm (as discussed later in this section), price stability objectives are much more identifiable, and it is therefore easier for a dual-mandate authority to be held to account for its performance on the latter than on the former. This could provide an incentive for the authority to deviate towards price stability objectives, and sacrifice the less obvious financial stability objective.

The inability to measure reliably the outcomes of the macro-prudential authority has two implications. The first implication is that delegating officials cannot hold the authority to an enforceable threat of dismissal in the event of its not achieving the *ex-ante* objective expected of it, as it will only become indisputably obvious that the macro-prudential authority has failed in its objectives upon the realisation of a financial crisis (Tucker *et al*., 2013). This complicates the ability to hold the macro-prudential authority to account during "good times", and implies that a costly crisis (which society would rather avoid) is necessary before a non-performing macro-prudential authority can be held to account. This reduces the likelihood of achieving financial stability in the short to medium term.

The second implication of not being able to hold a macro-prudential authority to account is that delegating officials and the general public cannot uniformly ascertain the performance of the macro-prudential authority, and the authority may therefore lose the societal legitimacy required. This loss of support could result in the public or elected officials lobbying to undermine the legislative foundation of the macro-prudential authority by decreasing the extent of delegated powers or otherwise altering the principal-agent framework (Goodhart and Lastra, 2017). This loss of powers in turn has the potential to reduce the *ability* of the macro-prudential authority to achieve its objective of financial stability, in contrast to the first implication that only affects the *likelihood* of its achieving this objective.

In regard to the resulting implications for the governance arrangements of macro-prudential policy, the nature of these issues suggests that there are benefits to be had from a high degree of political control in regard to the *political* independence of macro-prudential policy. The political independence aspects of macro-prudential policy involve (a) political control in the determination of macro-prudential objectives, and (b) political control in the selection of, or political representation within, the decision-makers for macro-prudential policy.

A high degree of political control over the determination of macro-prudential objectives, as in respect of (a), would specifically involve embedding appropriate and agreed-upon intermediate objectives for financial stability in legislation or in legislatively founded agreements, and could also involve ensuring that these intermediate objectives are quantifiable or measurable in a timely and efficient manner. This would resolve the principal-agent incentive misalignment by ensuring that the general public and elected representatives have grounds for the dismissal of the macro-prudential authority in the event of poor performance. This thereby reduces the likelihood of a legislative reform that could undermine the powers of the macro-prudential authority.

A key problem with exerting political control over macro-prudential objectives, is that this is difficult to do robustly through existing *ex-ante* indicators, as discussed above. The most obvious indicator of financial instability (a costly financial crisis) leads to undesirable output and welfare losses. Instead, it might be more appropriate (and less costly to the economy) to use other quantified sub-objectives that relate to the probability of financial crises and the resilience of the financial system. These sub-objectives may be best placed in a legislatively binding document (such as a remit, as with monetary policy objectives in New Zealand), rather than in legislation directly. This would allow a greater degree of flexibility in the event that these sub-objectives need to be altered over time.[9]

[9] This is further discussed in the C2A consultation document concerning the "remit for financial policy".

Issue 2: Distribution of Impacts

If a policy has major distributive impacts on individuals, enacting the policy may create conflict between the sectors of the public that are positively or negatively affected by these distributions. A non-democratically elected authority responsible for such policies could lose its ability to execute its policies effectively due to societal pressure to amend the authority's legislative foundation (Goodhart and Lastra, 2017). A controversial policy of this type must therefore be subject to a sufficiently high degree of political control, such that serious conflicts can be settled by democratically elected officials who represent the distributive interests of the public (Wyplosz, 2005).

The issue of whether major distributive impacts arise when various macro-prudential tools are enacted is therefore relevant to the discussion regarding the ideal degree of political and operational independence for macro-prudential policies. If there are excessive distributional impacts when certain macro-prudential policies are used, then macro-prudential policy could lose its societal support and legitimacy, which can potentially diminish the ability of the macro-prudential authority to achieve financial stability.

There is an emerging empirical and theoretical literature that establishes the existence of distributive impacts from the deployment of certain macro-prudential policies, although the distributive impacts are found primarily in transactional tools.

Transactional tools that generate distributive impacts on society are often *intended* to be distributional, on account of their restricting access to financial services for households and firms that are engaging in "excessive" risk-taking behaviour. These impacts are more consequential (e.g. being unable to borrow) than the core impacts of tools like monetary policy (which only affect the price of borrowing). Furthermore, there are some papers that find that other, likely unintended, distributional dimensions to macro-prudential policies (such as between firms, and households) can be generated by transactional or aggregate balance sheet policies.

- Ayyagari *et al*. (2018) find that the use of both aggregate balance sheet tools and transactional tools targeted to firms results in increased inequality for micro, small, and medium enterprises as well as young firms. The source of this inequality is reduced access to credit, which incidentally improves financial stability for the economy.
- Carpantier *et al*. (2018) find in a sample of 12 EU countries that the deployment of loan-to-value ratios is correlated with increased wealth inequality within the economy. This wealth inequality purportedly arises when stricter loan-to-value ratios decrease the number of households that can access credit, and in turn decrease the ability of households to finance the acquisition of homes. This restricts the ability of the households to accumulate wealth across their lives, and decreases the future Gini coefficient of the country as wealth inequality increases between generations. This distributive impact is found to be statistically significant in nine of the 12 countries surveyed, and is supported with a small theoretical overlapping generations model.
- Frost and van Stralen (2018) find in a sample of 69 countries that the use of concentration limits, reserve requirements, and interbank exposure limits is positively correlated with income inequality, while leverage ratio requirements are negatively

correlated with both income inequality and net inequality, and loan-to-value ratios and debt-to-income ratios are positively correlated with net inequality as reflected by a worsening Gini coefficient. The results of this paper therefore show that there can be both positive and negative distributional impacts from the use of aggregate balance sheet tools, while the use of transactional tools will generally create adverse distributional impacts on the economy in the form of increased inequality.

These empirical papers provide correlations, rather than causations, which means that the papers cannot robustly conclude that macro-prudential policy is the cause of wealth and income inequality. For example, it could rather be the case that a rising housing market leads to an increase in wealth inequality and a greater use of loan-to-value ratio policies, rather than loan-to-value policies *causing* inequality.

But there is some supporting theoretical modelling, which establishes a potential channel of causality between the increased use of loan-to-value ratios and increased inequality. Huo and Rios-Rull's (2016) theoretical paper finds that an unexpected tightening of a loan-to-value ratio causes increased wealth inequality, with the greatest impact on poorer households, and also causes increased net inequality, with the greatest impact on highly leveraged (middle-class) households. Rubio and Unsal's (2017) theoretical paper also finds that time-invariant policies implemented during a time of uncertainty (either from an inability to observe economic conditions or from only being able to observe conditions at a lag) result in both an increase in inequality and a long-run output cost.

A summary of these empirical and theoretical positions can be seen in the table below.

Macro-prudential Tools		Empirical			Theoretical	
		Carpantier *et al*. (2018)	**Frost and van Stralen (2018)**	**Ayyagari *et al*. (2018)**	**Huo and Rios-Rull (2016)**	**Rubio and Unsal (2017)**
Transactional	**Loan-to-value ratio**	Increase in wealth inequality	Increase in net inequality	Increased inequality in firm growth	Increase in wealth inequality (in some conditions)	
	Debt-to-income ratio		Increase in net inequality			
Aggregate Balance Sheet	**Concentration limits; reserve requirements; exposure limits**		Increase in income inequality			
	Leverage ratio		Decrease in net and income inequality			
	Capital requirements					Increase in consumption inequality (in some conditions)

In regard to balancing these distributive impacts with the objective of macro-prudential policy in such a manner that satisfies the interests of all relevant parties, an argument can be made for macro-prudential decision-makers to take into account the inequality that arises from policy execution, possibly by imposing secondary or supporting objectives on the decision-makers. The incentive to account for inequality may even exist without an explicit mandate, as Kumhof *et al*. (2015) reveal that inequality can lead to financial instability within an economy, thereby potentially falling under the macro-prudential authority's primary mandate.[10] However, this means of encouraging macro-prudential policy to incorporate inequality without an external directive is not guaranteed to provide preferred outcomes, as this source of inequality can be seen as an "externality" of macro-prudential policy, and not as the primary intended outcome.

To summarise, the empirical and theoretical evidence outlined above has established the existence of distributive impacts from macro-prudential policy, where certain sectors of the economy are negatively or positively affected by the imposition of certain tools, particularly

[10] Indeed, the Reserve Bank of New Zealand has considered some short-term distributive impacts of certain macro-prudential policies. A 2017 consultation paper regarding potential macro-prudential policy tools in New Zealand included a consideration of the impact of debt-to-income ratios (a transactional tool) on the distribution of new loans between types of borrower (Reserve Bank of New Zealand, 2017).

transactional tools. There is therefore an argument for a higher degree of political control regarding the operational independence of those tools. Operational independence is further concerned with (a) the selection of macro-prudential tools free from political control and (b) the calibration of those tools free from political control.

A high degree of political control in regard to the selection of macro-prudential tools, as per (a), would involve reasonably tightly defining and restricting the tools the macro-prudential authority may independently use, either within legislation or within a legislatively binding document. This degree of political control could even involve defining specific tools, such as loan-to-value ratios, in legislation or documents required by legislation. This control would involve legislative change and thus involve democratic discussion, such that the public and the elected officials that represent the public may balance opposing interests and resolve which distributional impacts the macro-prudential authority is permitted to generate in its execution of macro-prudential policy.

Issue 3: Time Horizon Mismatch, Inaction Bias, and Time Inconsistency

The time horizon mismatch issue arises when the benefits of deploying a policy are accrued in a long-term duration, while the costs of deploying the policy are incurred in a short- to medium-term duration. If the authority is sensitive to these short- to medium-term costs, and if the authority is subject to a short timeframe in which to evaluate the costs and benefits of the policy, then the authority will be subject to an incentive to delay using the policy such that they avoid incurring these costs during their horizon of consideration (Nier *et al*., 2011; Hunt, 2017). These short- to medium-term horizons are particularly seen in authorities subject to an election cycle, which means that an authority with an increased degree of political control therefore possesses an "inaction bias" regarding the deployment of the authority's policy.

In regard to macro-prudential policy, the benefits of financial stability are realised in the medium to long term by a reduced (or "non-excessive") rate of financial institutional default, and by a stable provision of lending by financial institutions for the duration of a financial crisis. An additional benefit of long-term financial stability is the minimisation of fiscal costs associated with a financial crisis (Kamber *et al*., 2015).

In contrast, the costs of executing macro-prudential policy are substantially borne in the short term, in the sense that financial institutions are legislatively required to respond immediately to changes in macro-prudential requirements. A common definition of the cost of using macro-prudential policy is the output cost to the economy due to decreased lending during what would otherwise be a period of "exuberant" financial activity. Examples of the short-run costs of macro-prudential policy[11] are evaluated by Behn *et al*. (2016), Ayyagari *et al*. (2018), and Richter *et al*. (2018), while examples of the long-run costs of macro-prudential policy are evaluated by the Basel Committee on Banking Supervision (2010a) and the Macroeconomic Assessment Group (2010).

[11] However, an argument could be made that some of these short-term costs can be mitigated by the short-term benefits of macro-prudential policy, such as *increased* lending under the imposition of capital requirements through reduced costs of debt financing (Gambacorta and Shin, 2016).

The existence of longer-term benefits and short-term costs in the execution of macro-prudential policy therefore provides justification for the existence of a time horizon mismatch problem in the execution of macro-prudential policy. This implies that a macro-prudential authority that places too great a weight on short-term output costs is liable to inaction bias that would defeat the purpose of the financial stability objective, in the sense that the authority would not implement macro-prudential policy in a timely enough manner to address time-varying sources of systemic risk as they emerge (Knot, 2014; Balls *et al*., 2016).

As the time horizon mismatch is likely to be more serious for macro-prudential decision-makers that are exposed to political pressures regarding short-term costs, this issue provides an argument for a high degree of political independence, and a high degree of operational independence with respect to tool calibration, for the macro-prudential authority. The argument for political independence lies in ensuring that individuals who are subject to short-term political preferences cannot exert influence or control over the objectives of macro-prudential policy, or the decision-makers of macro-prudential policy, such that they may distort the macro-prudential authority from their directive. Similarly, the argument for operational independence lies in ensuring that this influence is not exerted directly over the execution of the macro-prudential tools themselves.

It is worth noting that although it is widely accepted that macro-prudential policy is subject to a time horizon mismatch, there is a growing theoretical literature that explores the issues of time horizon mismatches within the operation of macro-prudential policy specifically, and this literature is not definitive on whether this mismatch exists within the current models. The macro-prudential time inconsistency literature comprises theoretical examinations of whether or not macro-prudential policymakers can efficiently achieve the objective of financial stability if they are also subject to political objectives regarding, for example, short-term output gains (known in the literature as a "time inconsistency" issue). Papers in this area also specifically ask whether policymakers can have a time inconsistency issue when responsible for the dual mandate of macro-prudential objectives (financial stability) and monetary objectives (price stability).

Kydland and Prescott (1977) support the theoretical existence of time inconsistency for all policies insofar as any government has the incentive to renege on an unfavourable policy rule. However, not all economic policies are politically and operationally independent; fiscal policy, for example, remains under strong political control despite often concerning unfavourable or unpopular decisions, and despite possessing a long-term objective of general wellbeing that is often balanced against short-term costs or trade-offs. The independence of monetary policy became widespread after its own theoretical study by Barro and Gordon (1983) establishing the strong existence of specific time inconsistency problems. Therefore, macro-prudential policy should require its own, specific theoretical proof for the existence of time inconsistency, before an argument can be made for the existence of benefits of independence beyond what Kydland and Prescott outline.

In the relevant circle of literature, there are four key theoretical papers that discuss the time inconsistency problem of macro-prudential policy: Bianchi and Mendoza (2018), Laureys and Meeks (2017), Ueda and Valencia (2012), and Smets (2014). However, the papers do not agree on the appropriate mode of delegation to address this issue, with some arguing that macro-prudential policy should be delegated to discretionary decision-makers, and others arguing for a more rule-based approach. In addition, the latter two papers measure a successful

delegation by the inflation biases that arise during joint macro-prudential and monetary policy governance, and do not necessarily examine the financial stability biases that could arise from the delegation of macro-prudential policy specifically.

On balance, the known existence of a time horizon mismatch problem with macro-prudential policymakers, and a lack of compelling theoretical support in a young but growing circle of literature, suggests that a low degree of political control with respect to political and operational aspects of independence is appropriate.

If politicians are not heavily represented or overly involved in selecting macro-prudential decision-makers, this should ensure that the decision-makers responsible for macro-prudential policy are not overly subject to political pressures, and will thereby ensure that the time horizon mismatch problem is resolved. Operational independence, which ensures that macro-prudential decisions are not performed under the control of, or through consultation with, politically sensitive officials, is an alternative solution to the time horizon mismatch problem.

Issue 4: Technical Difficulty

The issue of technical difficulty concerns the degree of expertise that is required in order to execute a policy in a timely and efficient manner, and further concerns whether this expertise will be used in a governance arrangement where the policy is subject to high political control.

Macro-prudential policy has a diverse range of tools and objectives with complex interrelationships, and is also technically difficult in regard to the economic analysis necessary to support the decisions made in executing the policy (Nier *et al*., 2011; Kamber *et al*., 2015). Both of these elements imply that macro-prudential policy, as a technically difficult policy, needs to be operated by technically proficient decision-makers in order to provide an optimal strategy for achieving financial stability. In bringing this issue into the question of political independence, it is therefore relevant to ask whether high political control would diminish the technical proficiency of the relevant macro-prudential decision-makers.

In principle, decision-makers could be generalists that are advised by technical experts. However, an increase in political control by non-technocratic officials over a technically difficult policy can also result in a significant delay before this policy is implemented (Wyplosz, 2005). In the case of macro-prudential policy, a delay in the deployment of the appropriate macro-prudential tools would allow systemic risk to build in the absence of these tools, thereby undermining the objective of financial stability.

In addition, Wyplosz argues that political control over a technically difficult policy can result in distortions to the policy from its original intent, such that the policy no longer reflects the intended outcome of the technocratic officials. In regard to macro-prudential policy, a distortion in the application of the tools in question, such as could be seen in an increase of political control, would reduce the ability of the decision-makers to target financial instability. Therefore, a high degree of political control over the operation of macro-prudential policy could counteract the technical proficiency of the macro-prudential experts.

There is an argument to be made for a high degree of operational independence, or a low degree of political control, for macro-prudential policy, in order to avoid a delay in the deployment of the relevant strategy, and in order to avoid a distortion of the execution of technically difficult tools. This high degree of operational independence could involve (a) minimising political control in the selection of macro-prudential tools, and (b) minimising political control of the calibration of macro-prudential tools by the macro-prudential authority.

A lack of political control in the selection of macro-prudential tools would allow the macro-prudential authority to select and design tools that are technically sufficient to address sources of systemic risk as they arise. A greater degree of political control over tool selection would, in comparison, diminish this flexibility of the authority. Similarly, a lack of political control in the calibration of macro-prudential tools would allow the macro-prudential authority to recalibrate tools in response to a crisis situation or in response to changing systemic pressures in a timely manner that is not distorted or delayed by political interference.

Summary

The table below summarises the *general implications* of issues 1-4, as discussed above, and supports the discussion on the following page.

Dimensions of Independence		Issues and Implications				Balance
		Principle-Agent Accountability	Distribution of Impacts	Time Horizon Mismatch	Technical Difficulty	
Political	*Selection of objectives*	High political control				High control
	Selection of decision-makers	High political control		Low political control		Mild control
Operational	*Selection of tools*		High political control[12]		Low political control	Mild control
	Calibration of tools		High political control[13]	Low political control[14]	Low political control	Low control

Many of the issues above provide opposing implications regarding the political and operational independence of macro-prudential policy. This is indicative of a trade-off between opposing interests (for example, an increase in the political control of tool selection in order to resolve the distributive impacts of these policies would sacrifice the timeliness of the execution of macro-prudential strategies). The existence of these trade-offs implies that the ideal governance structure of macro-prudential policy should be set by a democratic forum in order to ensure that the preferences of the public, and therefore the preferences represented by the delegating official, are reflected in the resulting framework.

In the political independence of objectives, the relevant issues suggest the need for high political control of the selection of macro-prudential objectives, such that the principal-agent accountability issue is resolved and the incentives of the macro-prudential authority align with the incentives of the delegating official.

In the political independence of decision-maker selection, the relevant issues suggest the need for mild political control such that macro-prudential decision-makers maintain their societal legitimacy, and therefore that their legislative legitimacy is not undermined, while still maintaining enough separation from political pressures to reduce political interests.

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[12] The case for high political control in tool selection is stronger for macro-prudential tools that have proven distributive impacts e.g. loan-to-value ratios. Other macro-prudential tools that have less defined distributive impacts have no obvious implications on the optimal degree of political control.

[13] Ibid for tool calibrations.

[14] The case for low political control in tool calibration is stronger here for macro-prudential tools that are time varying as compared to baseline tools. Baseline macro-prudential tools that are not intended to be changed across time have no obvious implications for the optimal degree of political control.

In the operational independence of tool selection and calibration, there are arguments for both a high and a low degree of political control. The key argument for a high degree of political control regards concerns over the distributive impacts arising from macro-prudential policy, and the need to therefore restrict the macro-prudential authority's ability to execute certain tools. This argument is stronger for transactional tools than it is for aggregate balance sheet tools. The argument for the benefits of a low degree of political control regards the need to have technically skilled decision-makers, and the potential time horizon mismatch if decision makers are not politically independent. On balance, these issues suggest that there should be only mild political control in regard to tool selection and low control of calibration, although some additional control could be appropriate for the use of distributional tools.

In summary, the balance of issues explored in this discussion paper suggests that macro-prudential policy would be best served by a governance framework that provides a high degree of political control in regard to the selection of macro-prudential objectives, supported by a mild degree of political control in regard to the selection of the macro-prudential decision-makers and the selection of tools that decision-makers can use in pursuit of their objectives, and a low degree of political control in regard to the calibration of these tools. This means that a macro-prudential authority would be free to employ a selected range of macro-prudential tools with unrestricted calibrations, in order to achieve legislatively based objectives, with decision-makers that are appointed by elected representatives.

Part Three: Comparing Macro-prudential and Monetary Policies

Internationally, governance arrangements regarding macro-prudential policy are often similar to the governance arrangements of monetary policy in the sense that macro-prudential policy is generally the responsibility of an authority that possesses some degree of operational and political independence. This governance process specifically involves Parliament choosing to delegate responsibility for the strategy of the policy in question to an independent authority (which for the purposes of this section can be either a sole decision-maker or a decision-making committee), on behalf of the public.

Parliament will delegate responsibility for a policy to an independent authority if it believes that doing so will generate benefits for the economy, and therefore the public, or benefits for the delegating officials themselves (Lombardi and Moschella, 2017).[15] This delegation falls in the circle of principal-agent literature, where the principal (the elected officials) delegates decision-making to an agent (the independent authority) on the assumption that the agent will make optimal decisions for the principal. A widespread acceptance of the existence of gains from this delegation is necessary in order to achieve societal legitimacy, which in turn supports the legislative legitimacy of the independent authority, and therefore provides a platform for successful policymaking (Goodhart and Lastra, 2017).

There are two primary foundations from which one can establish that there are gains to be had from delegation to an operationally and politically independent authority.

The first foundation is one of "strategic calculation", where empirical and theoretical evidence explicitly demonstrates the existence of gains from delegation to an independent authority. The second foundation is one of "socialisation", where the belief that there are gains to be had from independence is established by widespread consensus rather than by evidence (Lombardi and Moschella, 2017).

In regard to monetary policy, at the time when monetary policy was delegated to independent central banks (the 1980s and 1990s) there already existed a prolific supporting literature, such as Kyland and Prescott (1977) and Barro and Gordon (1983), which provided the strategic calculation necessary to outline the welfare gains to be had from delegating monetary policy to an independent authority.

The primary argument for monetary policy independence, as identified by the literature, is the incentive of a non-independent authority to renege on promises of low inflation and allow a higher level of short-run inflation in exchange for a politically motivated and temporary boost to employment. This "time-inconsistent" incentive, along with the assumption that achieving price stability is a means of increasing societal welfare, means that it is optimal to have price stability targeted by a strict authority that is independent of the political cycle. In response to these arguments, the independence of monetary policy with respect to operation by non-

[15] Lombardi and Moschella further identify the latter point as the benefit of being able to "shift the blame" for undesirable outcomes.

elected officials was founded in legislation both in New Zealand, through the Reserve Bank Act, and globally.

Macro-prudential policy is a subset of wider prudential policy, as described above. Hunt (2017) describes how an independent regulator undertaking prudential policy came to be seen generally as best practice in the 1990s and 2000s, based partly on cross-country analyses of financial crisis prevalence. However, in regard to macro-prudential policy specifically, the empirical and theoretical literature regarding the benefits of delegation to an independent authority is much thinner, and was non-existent at the time that macro-prudential policy was in the process of being delegated to politically and operationally independent authorities around the world.

In New Zealand specifically, the legislative decision to delegate the current basis for broad prudential powers to the Reserve Bank was made in the Reserve Bank of New Zealand Amendment Act 1986, as updated by the Reserve Bank of New Zealand Act 1989, and macro-prudential policy later emerged as a separate category of this prudential policy (Hunt, 2016).

The lack of theoretical and empirical evidence on the benefits of macro-prudential policy independence at the time when macro-prudential policy was delegated to independent authorities, supports Lombardi and Moschella's argument that the delegation of macro-prudential policy was based on widespread assumptions that there were gains to be had from independence, rather than the delegation being based on a strong evidence set.

The assumption that there are gains to be had from the independence of macro-prudential policy with respect to operation by non-elected officials has in many cases emerged from the assumption that the benefits applying to monetary policy independence must also apply to macro-prudential policy. Examples of this justification can be found in Quintyn and Taylor (2002), Ingves (2011), Knot (2014), and Kamber *et al*. (2015).

However, monetary policy and macro-prudential policy are fundamentally different policies, and therefore the empirical and theoretical results that apply to one may not necessarily apply to the other.

The remainder of this section discusses the fundamental differences between macro-prudential policy and monetary policy. The purpose of this discussion is to emphasise that macro-prudential policy and monetary policy are sufficiently different as to warrant a separation of discussions regarding the delegation of the two policies to independent authorities.

Differences in Fundamentals

Macro-prudential policy and monetary policy have differences in their fundamental natures that mean the ideal governance arrangements for monetary policy should not be assumed to be relevant for macro-prudential policy. These differences include the measurement and nature of the policy objectives; the number of policy tools; the manner of engagement with the economy; and the distributive effects of the policy.

Measurement and Nature of Objectives

The primary objective of monetary policy is price stability, with many countries also having a mandate of employment stability. These objectives are relatively easy to measure in the consumer price index and in unemployment statistics, and are affected by monetary policy on a short- to medium-term basis. Both objectives are therefore specific, are relatively easy to communicate, are identifiable in a timely manner, and have the ability to be subject to numerical or qualitative targets. Monetary policy can therefore be held to account regarding whether the objectives have been met in an efficient and timely manner.

The objective of macro-prudential policy is financial stability, which is often further defined by the intermediate objectives of reducing the probability of financial institutional default, and increasing the resilience of financial institutions to financial crises. In comparison to the objectives of monetary policy, neither of these intermediate objectives has a clearly defined indicator, and they are also not immediately measurable as these conditions are largely satisfied in the medium or long term (Balls *et al*., 2016).

Number of Tools

The primary instrument of monetary policy today is the interest rate, which in turn is manipulated through the use of short-term, open-market operations. In New Zealand for example, only short-term, open-market operations are used as monetary policy, via the Official Cash Rate.

In contrast, macro-prudential policy has a broad range of potential tools, and the mechanisms through which these tools achieve financial stability are varied. It is therefore relatively harder to identify the causality between a single macro-prudential tool and an observed outcome, and it is relatively more difficult to communicate these results to the public in regard to transmission mechanisms and tool justifications. There is also an increased potential for scope creep (or “regulatory creep”), where the regulating authority applies an increasingly broad interpretation of what constitutes macro-prudential policy (Borio, 2003; Duff, 2014).

Engagement

Monetary policy is a transactional engagement between deposit-taking financial institutions and the Reserve Bank, where these institutions can voluntarily choose to either enter into transactions with the Bank, or borrow and lend with another banking institution (although, in the interests of profit maximisation, a financial institution will generally choose to engage with the Reserve Bank). In contrast, macro-prudential policy is an administrative enforcement on these financial institutions, where the institutions in question are legislatively required to comply with the conditions specified by the Bank (Hellwig, 2014).

Monetary policy therefore places the impetus to engage with monetary policy on the financial institution itself, whereas macro-prudential policy does not allow financial institutions a choice in engagement.

Distributive Impacts

Although there is recent evidence emerging to the contrary (Ohlsson, 2017), at the time when monetary policy was delegated to an independent authority it was believed that achieving price stability would have minimal distributive implications (Hellwig, 2014). The minimal distributive implications would be achieved in the sense that price stability eliminates the "debt deflation" distortion between borrowers and savers, thereby encouraging intergenerational wealth equality.

In contrast, at the time when macro-prudential policy was delegated to independent authorities, there was discussion and acknowledgement regarding the distributive impacts of certain macro-prudential policies (Rogers, 2013a; Rogers, 2013b). These distributive impacts are most acute for transactional tools, such as the loan-to-value ratio and the impact this ratio may have on home ownership, for example, although other distributive impacts have been found to exist, such as impacts on firm growth rates.

In comparing the knowledge that elected officials had at the time that monetary policy and macro-prudential policy were delegated to independent authorities, the delegation of monetary policy was performed under the assumption that achieving its objectives would *minimise* distributive impacts, while the delegation of macro-prudential policy was performed under the knowledge that achieving its objectives could *create* distributive impacts. The policies are therefore different enough in regard to third-party impacts that the assumptions regarding the gains of monetary policy independence should not have been directly assumed for macro-prudential policy.

Summary

The objectives of macro-prudential policy and monetary policy are sufficiently different in regard to how they are achieved, and how they are measured, that the governance arrangements that are best for monetary policy should not be assumed to be relevant to the best outcomes of macro-prudential policy. In addition, macro-prudential policy has a greater number of tools that are more complex, and therefore more difficult to govern, and uses a stricter means of engagement with the financial sector compared to monetary policy. Finally, macro-prudential tools have a greater capacity for distributive impacts, which was known at the time these tools were assigned to an independent authority – unlike monetary policy, where a distributive outcome was unknown until recently. On the balance of these arguments, an assumption should not have been made that the best-practice governance of monetary policy is necessarily also best practice for macro-prudential policy.

Other Policy Comparisons

In regard to the similarity between macro-prudential policy and monetary policy, the above arguments outline that these are sufficiently different to warrant a separation of discussions regarding the governance arrangements of these policies. Macro-prudential policy could, however, also usefully be compared to other policy types, such as fiscal and tax policy (Goodhart, 2011). It is also useful to outline the differences between macro- and micro-prudential policies in regard to governance implications, beyond the differences in the fundamental nature of these policies.

Fiscal and Tax Policy

Macro-prudential policy resembles fiscal and tax policy in the sense that each of these policies have regulatory elements, and they also possess some degree of distributive elements in regard to who benefits from the deployment of the policy in question. Macro-prudential policy also resembles fiscal and tax policy in the sense that the primary "objective" of fiscal policy – which, within the New Zealand Treasury, is the general wellbeing of New Zealanders – is very difficult to measure beyond general output measures, and is achieved in the medium to long term. The objective of tax policy (to raise revenue at least cost) can be more reliably measured in the short to medium term, but the policy is still similar to macro-prudential policy in the sense that it is an administrative engagement rather than a transactional one, and one that carries significant distributional consequences.

A specific comparison could also be drawn between macro-prudential policy and, for example, environmental regulation. The objectives of both policies concern aggregate benefits that are achieved in the long term, with counterfactual intermediate objectives (e.g. performance based on what global temperatures would have been without regulation) and intermediate objectives realised by the absence of an event (e.g. performance based on whether there would have been an extreme weather event if it hadn't been for this regulation). Both concern a potentially large number of tools that can be administrative in nature, and both have the potential to create distributive impacts on the institutions, households, or corporations to be regulated.

In New Zealand, both fiscal policy and tax policy are under the direct supervision of Parliament, and environmental regulation is performed by the Environmental Protection Authority, which is a government agency within the Ministry for the Environment. Macro-prudential policy therefore has a greater degree of political and operational independence than each of these policies. Since it is difficult to delegate tax policy to an independent authority, some countries (including New Zealand in the Public Finance Act 1989) have sought to entrench responsible long-term fiscal policy via accountability and transparency requirements that encourage future governments to take long-term approaches.

Micro-prudential Policy

Although Part One of this paper discusses the differences in the fundamental nature of micro- and macro-prudential policy (where micro-prudential policy concerns institution-level objectives, and macro-prudential policy concerns system-level objectives), there are also some valid comparisons between these policies in terms of their appropriate governance.

Micro-prudential policies are, in general, more static than macro-prudential policies, and are not implemented with the intention of change across time. Changes in micro-prudential

policies within New Zealand, for example, have been the result of irregular evaluations, one-off events, and new international standards such as Basel II and III. In contrast, time-varying macro-prudential tools are implemented with the explicit intention for them to be changed over time, and unlike micro-prudential tools they are therefore tied to changing conditions in the financial system.

In addition, macro-prudential tools generally operate as additional requirements or restrictions beyond institution-level requirements, such that excessive, unusual, and systemic forces are accounted for. This necessarily requires macro-prudential tools to be additional to any micro-prudential policy. For example, while a micro-prudential capital requirement may stipulate that a financial institution have a 10% capital ratio, macro-prudential policy may require an additional 2.5%, for a total imposition of 12.5%. This additional magnitude means that the macro-prudential authority may be subject to closer scrutiny or disapproval from politically sensitive officials who will be affected by the short-term costs of macro-prudential policy, and may not experience the long-term benefits.

These two differences between micro- and macro-prudential policy suggest that macro-prudential policies are more susceptible to time-horizon biases, both through the increased frequency with which macro-prudential tools are changed and through the greater intensity of these tools. This implies that macro-prudential tools require a greater degree of operational independence than their micro-prudential counterparts, in order to avoid inactive or under-responsive policymakers.

In addition, macro-prudential policy has the potential to have far greater distributional impacts than micro-prudential policy. An obvious example can be seen in transactional tools such as loan-to-value ratios, which directly affect wealth accumulation and distribution within a country, and do not have obvious counterparts in the micro-prudential toolkit.

The implication of greater distributional impacts under macro-prudential tools, as compared to micro-prudential tools, is that macro-prudential policy could warrant a higher degree of political oversight in objectives or the selection of decision-makers, in order to ensure that distributional decisions are made under the observation of an elected official.

Part Four: Macro-prudential Governance in New Zealand

In New Zealand, the relevant legislative powers governing macro-prudential policy are outlined in part 5 of the Reserve Bank Act. The Act was originally designed for delegating the legislative powers necessary to execute monetary policy and the prudential regulation of banks, and does not explicitly refer to macro-prudential policy. Some additional procedures for macro-prudential policy in New Zealand were agreed in the 2013 MoU. This MoU is not legislatively binding, as it is not referred to within the Act itself.

As outlined in the legislation, the Governor of the Reserve Bank is the legal macro-prudential decision-making authority in New Zealand, although in practice the Governor often makes decisions on the informal consensus of the Governing Committee of the Reserve Bank. In addition, under the current review of the Reserve Bank Act, the current single decision-maker model is likely to become a collective responsibility of either a Financial Policy Committee or a similar policy board. The following assessment is therefore made regarding both the role of the Governor and the role of any surrounding committee.

Under current arrangements, the Governor has sole responsibility for the prudential decisions of the Bank, and has agreed to operate in accordance with the 2013 MoU in regard to macro-prudential decisions going forward. The Reserve Bank's Governing Committee was created to provide advice for and informal consensus on these decisions. The Committee was housed within the Reserve Bank and consisted of the Governor as Chair, the Deputy Governor(s), and the Assistant Governor of the Bank (Wheeler, 2013). This structure was a decision of the then-Governor and is likely to be reviewed as a result of the more formal governance changes likely in the Reserve Bank Act review.

Under new legislation prompted by Phase 1 of the Review of the Reserve Bank Act, the newly formed Monetary Policy Committee (MPC) is the decision-making body for monetary policy in New Zealand.

The remainder of this section explores the degrees of political independence and operational independence of macro-prudential policy in New Zealand, and discusses how these compare to the implications of optimal macro-prudential governance as discussed in previous sections. This section also compares the independence of macro-prudential policy in New Zealand to the degree of political and operational independence seen in monetary policy.

Current Macro-prudential Governance in New Zealand

The following sub-section discusses the existing arrangements concerning the political and operational independence of macro-prudential policy in New Zealand, with a specific focus on the four sub-categories of independence identified in Part Two of this paper.

Intermediate Objectives

The ability of the relevant decision-makers to select the intermediate objectives of macro-prudential policy without political control, and select how these objectives are measured without political control, contributes to the *political independence* of these decision-makers.

The directive of the Bank to act for the purposes of financial stability is found in section 68 of the Act, which states that the Bank's powers "shall be exercised for the purposes of (a) promoting the maintenance of a sound and efficient financial system; or (b) avoiding significant damage to the financial system that could result from the failure of a registered bank". These powers act as the legislative foundation for prudential regulation, and therefore relate to both macro-prudential policy and micro-prudential policy.[16]

The 2013 MoU defines further intermediate objectives for macro-prudential policy separate from the broad objectives for prudential policy. These specific intermediate objectives for macro-prudential policy are outlined as (a) targeting instability arising from credit, asset prices, or liquidity shocks and (b) increasing the resilience of the financial system. It is worth noting that this further specification of intermediate objectives for financial stability is in line with the idea of enhanced accountability for macro-prudential authorities discussed in Part Two, although these objectives do not identify explicit quantitative indicators (as is seen in, for example, the governance arrangements for monetary policy in New Zealand).

Thus, the macro-prudential decision-makers in New Zealand can be seen to have a mild degree of political independence. The intermediate objectives of macro-prudential policy are outlined in the MoU, as an agreement of definitions between the Governor and the Minister. The Governor therefore has a degree of input regarding the selection of macro-prudential objectives alongside the Minister, and in addition, these MoU objectives are not legislatively binding.

These intermediate objectives, however, are only relevant for the time-varying tools on which the MoU focuses. The Bank and the relevant macro-prudential decision-makers therefore have a greater degree of political independence regarding the interpretation of intermediate objectives for macro-prudential tools outside the MoU, as these other tools are only subject to the broader requirement of acting for the purposes of financial stability. The definitions of financial stability and of how financial stability is achieved are not provided in respect of a specific target within the MoU or within the legislation.

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[16] Note that these objectives loosely align with the intermediate objectives identified in Part One of this paper: (a) to ensure that there is a minimised probability of default in financial institutions (through the reduction in excessive systemic risk), and (b) to ensure that financial institutions are sufficiently resilient to financial crises.

Decision-Makers

The ability of the relevant decision-makers to not be selected by politically motivated individuals, to not be political representatives themselves, and to not be subject to political powers in regard to dismissal contributes to the *political independence* of these decision-makers.

The only (current) legal decision-maker for macro-prudential policy in New Zealand, the Governor of the Reserve Bank, is appointed for a five-year term by the Minister of Finance on the recommendation of the Board of the Reserve Bank (the Board), as outlined in section 40 of the Act. This implies a small degree of political influence over the Governor that is somewhat mitigated by a term length longer than the minimum election term of three years, and by the fact that the Governor must be nominated by the politically independent Board.

There is no specific legislation or agreement that outlines the selection process for a macro-prudential committee, which means that the Governing Committee (described in Wheeler, 2013) can only provide input to the Governor's macro-prudential policy decisions in an unlegislated and informal sense. There are no political representatives on the Committee, such as a representative of the Treasury. Overall, macro-prudential decision-makers possess a high degree of political independence (or a low degree of political control) in New Zealand.

The relevant powers of dismissal for macro-prudential policy instead reside in section 49, subsection (2)(a) of the Act, which specifies that the Governor may be dismissed if the Bank is found to be inadequate in "carrying out its functions". This is not further clarified in respect of macro-prudential policy in a subsequent agreement, other than by the broad objectives identified in the MoU. There are therefore subjectively loose arrangements surrounding the dismissal of the Governor in regard to achieving financial stability due to the lack of quantifiable targets within the intermediate goals,[17] and the Governor possesses a high degree of political independence in their role as the macro-prudential decision-maker.

Tool Selection

The ability of the relevant decision-makers to select the macro-prudential tools used in the pursuit of their specified objectives free from political control contributes to the *operational independence* of these decision-makers.

The power of the Bank to execute prudential tools is found in section 74 of the Act, which stipulates that the Bank may impose conditions on registered banks relating to certain matters. These include the matters referred to in section 81 regarding the public disclosure of information by registered banks, and also include the matters referred to in section 78 regarding the conduct of business by registered banks in a prudent manner.

The Bank's conditions regarding the conduct of business of registered banks (section 78) is restricted by the legislation to considerations regarding:

- capital in relation to the size and nature of the business;

[17] Other than the realisation of a financial crisis, which (while undisputable) represents a failure of the *ex-ante* decision-maker to achieve their objective of financial stability, and which is therefore undesirable.

- loan concentrations and risk exposures;
- internal controls and accounting systems;
- risk management systems and policies; and
- "such other matters as may from time to time be prescribed in regulations".

These provisions that give the Bank the legislative power to execute prudential policy can be applied for micro-prudential or macro-prudential purposes (and indeed were primarily intended for the provision of micro-prudential policies at the time of the Act). However, the legislation is written in a broad way, which has allowed the Bank to regulate the banks in new ways over time. For example, the legislative power to impose conditions regarding "risk management systems and policies" has allowed the Bank as the relevant power to employ transactional tools such as loan-to-value ratios (Reserve Bank, 2013). This broadness of interpretation could lead to tool selection that goes beyond the original purpose of the legislation and provides the Bank with a high degree of operational independence in this regard (Every-Palmer, 2017).

In regard to further specificity on the selection of macro-prudential tools that may be used by the Bank, the MoU signed between the Governor and the Minister defines a set of tools that the Bank may operate as macro-prudential policy in pursuit of financial stability, under the governance arrangements outlined in the MoU. The MoU is only intended to cover time-varying tools, and those listed are the countercyclical capital buffer, the sectoral capital requirement, the core funding ratio, and the loan-to-value ratio (Dunstan, 2014).

The MoU's focus on time-varying tools means that the special arrangements agreed in the MoU do not apply to changes to baseline settings. However, as noted in Part One, many changes to baseline settings would be regarded as macro-prudential internationally. Specific elements of the baseline prudential framework in New Zealand that might have been considered macro-prudential in an international context include staggered changes in the core funding ratio beginning in 2010[18], a change to sectoral risk weights for rural lending portfolios in 2011[19], and the introduction of a conservation buffer in 2014[20]. These changes were made under the standard prudential governance arrangements (see Hunt, 2017). While these changes were appropriate, they may be confusing to the extent that they have led to the term "macro-prudential" being used in an unusually narrow way in New Zealand.

In addition to not considering the full range of macro-prudential policies that can be operated by the Bank, the MoU is not currently grounded in legislation and is therefore not legally binding. It is worth noting, however, that the MoU has appeared to slow the Bank's use of new macro-prudential policies such as debt-to-income ratios.

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[18] See Rogers (2013a). Bank of England (2011) and the joint report of the International Monetary Fund, Financial Stability Board, and Bank for International Settlements (2016) identify this change in New Zealand's core funding ratio as macro-prudential in their respective reviews of macro-prudential instruments.

[19] See Reserve Bank of New Zealand (2011). Bank of England (2011) refers to the use of sectoral capital requirements as macro-prudential in Australia (increasing risk weights on uninsured mortgages in 2004) and in India (increasing risk weights on commercial real estate lending in 2005 and 2006, and increasing risk weights on lending to non-bank financial corporates in 2007).

[20] See Barker (2015). The European Systemic Risk Board (2017) outlines the nine member countries (including Denmark, Sweden, and Finland) that use a time-invariant capital conservation buffer, which is considered to be a macro-prudential policy.

The current arrangements for macro-prudential policy therefore afford the macro-prudential decision-makers in New Zealand a high degree of operational independence in regard to macro-prudential tools that are executed outside the MoU, and a somewhat lesser degree of operational independence in regard to the introduction of new time-varying macro-prudential policies.

Tool Calibration

The ability of the relevant decision-makers to calibrate macro-prudential tools in order to target the decision-makers' specified objectives free from political control contributes to the *operational independence* of the decision-makers.

In regard to the actual calibration of macro-prudential tools, such as choosing the value of a loan-to-value ratio, there are no restrictions either in the legislation or in the MoU regarding the range of acceptable calibrations to be chosen by the Governor. However, the legislation and the MoU do outline some specifications regarding the Bank's conduct surrounding the deployment of macro-prudential tools.

The MoU states that the Bank shall be responsible for identifying and monitoring risks that inform the appropriate macro-prudential strategy, and also that the Bank will notify the Minister of Finance regarding any proposed changes to the macro-prudential framework and any potential use of macro-prudential instruments. As per section 74(3) of the Act, the Bank is also legally required to notify registered banks no less than seven days before the use of prudential instruments, therefore including both macro-prudential and micro-prudential policies. This is necessary in order to give registered banks the opportunity to submit responses to the changes in conditions, and also to give registered banks the time to adjust internal systems such that they adhere to the new conditions upon their execution.

In regard to justifying the calibration of macro-prudential tools to the public (and therefore maintaining some accountability to overcome the principal-agent delegation issue), the Bank is legislatively required to release a Financial Stability Report (FSR) twice a year as per section 165A of the Act. The purpose of the FSR is to communicate conditions regarding the New Zealand financial system, and to explain macro-prudential and micro-prudential policy decisions in light of these conditions.

The Act does not require the FSR to be released in conjunction with the timing of macro-prudential decisions. Rather, the FSR acts primarily as an *ex-post* transparency tool for all prudential decisions. In addition to producing the FSR, the Bank practises accountability through annual hearings with the Finance and Expenditure Committee, where the select committee considers whether Bank actions have been consistent with announced strategy, and the Bank is effectively required to justify relevant policy decisions.

In summary, the macro-prudential decision-makers in New Zealand can be seen to have a high degree of operational independence in their calibration of tools to execute the relevant macro-prudential strategy.

Summary of Macro-prudential Governance in New Zealand

The table below summarises the position of New Zealand macro-prudential governance in light of the degrees of political and operational independence identified in Part One. Overall, macro-prudential policy in New Zealand can be seen currently to have a mild degree of political and operational control.

Dimensions of Independence		Macro-prudential Policy	Degree of Political Control
Political	*Selection of objectives*	Loosely defined by the Act and the MoU; Minister and Governor have input to MoU	Mild
	Selection of decision-makers (appointment)	Governor appointed by Minister; other members selected by Governor; no political representatives	Mild
	Selection of decision-makers (dismissal)	Minister may dismiss Governor on "inadequate performance"; grounds of dismissal for financial stability are vague	Mild-low
Operational	*Selection of tools*	Loosely defined by the Act; some tools are loosely defined in the MoU	Mild-low
	Calibration of tools (execution)	No restrictions	Low
	Calibration of tools (calibration)	Notify Minister and registered banks before deployment	Mild-low

Comparison to Monetary Policy Governance in New Zealand

This sub-section briefly compares macro-prudential policy and monetary policy regarding the respective degrees of political and operational independence.

Intermediate Objectives

The arrangements regarding monetary policy outline an explicit objective within a constrained band of agreed inflation outcomes, which are currently decided by the Minister in the legislatively grounded remit. The Act also includes a consideration for "maximum sustainable employment", which is a less explicitly quantified objective than the objective of price stability.

Decision-Makers

The relevant decision-maker for monetary policy is the MPC, whose members are appointed by the Minister of Finance on the recommendation of the Board. Similarly, the Minister may dismiss members of the MPC for inadequate performance and non-achievement of the objectives outlined in the remit, which include an explicit numerical objective for price stability (and therefore explicit grounds for non-achievement) as well as the less explicit objective for employment.

Tool Selection

The relevant documents in regard to monetary policy (the Act and the remit) do not define what constitutes a monetary policy tool, and therefore give the Bank a high degree of discretion in regard to choosing these tools (Kamber *et al*., 2015). The Bank is somewhat restrained in its choice of tools on account of its operating as a bank, and therefore its need to execute monetary policy through financial transactions. The Bank cannot execute monetary policy through, for example, the implementation of new regulations.

Tool Calibration

Within the arrangements regarding monetary policy, the legislation and the remit do not require that the Bank consult the Minister before monetary policy is announced. The legislation and the remit also do not impose any numerical restrictions regarding the calibration of monetary policy, although the remit does stipulate that the Bank should select monetary policy with the aim of avoiding excessive volatility in output, employment, interest rates, and the exchange rate, and with regard to its financial stability objective.

Summary of Macro-prudential and Monetary Policy Governance

A summary of the discussion comparing the independence of macro-prudential policy to the independence of monetary policy in New Zealand can be found in the table below. On the balance of the current governance arrangements, it can be said that macro-prudential policy has *more political independence* than monetary policy, and *less operational independence* than monetary policy.

Dimensions of Independence		Macro-prudential Policy	Monetary Policy
Political	*Selection of objectives*	Loosely defined by the Act and the MoU; Minister and Governor have input to MoU Political control: Mild	Strictly defined by the Act and the remit; Minister controls remit Political control: High
	Selection of decision-makers (appointment)	Governor appointed by Minister; other staff involved selected by Governor; no political representatives Political control: Mild	Committee members appointed by Minister; no voting political representatives Political control: Mild
	Selection of decision-makers (dismissal)	Minister may dismiss Governor on "inadequate performance"; grounds of dismissal for financial (in)stability are vague Political control: Mild-low	Minister may dismiss MPC members on inadequate performance and non-achievement of remit Political control: Mild
Operational	*Selection of tools*	Loosely defined by the Act; some tools are further defined in the MoU Political control: Mild-low	Restricted to banking activities; otherwise unrestricted Political control: Low
	Calibration of tools (execution)	No restrictions Political control: Low	No restrictions, subject to remit stipulations to avoid volatility and ensure financial stability Political control: Low
	Calibration of tools (consultation)	Notify Minister and registered banks before deployment Political control: Mild-low	No *ex-ante* requirements Political control: Low

Implications for the Governance of Macro-prudential Policy in New Zealand

This sub-section discusses the issues raised in Part Two of this paper, and compares the implications for optimal macro-prudential governance as raised by these issues to the current governance structure seen in New Zealand.

Principal-Agent Accountability

The issue of principal-agent accountability suggests ensuring that delegating elected officials are able to align the incentives of the acting authority, and are able to monitor the authority effectively such that it can be held to account. A failure on these criteria could mean that a macro-prudential authority is unable to achieve financial stability effectively on account of weaker incentives, and on account of decreased societal support for the authority's delegated powers. Principal-agent accountability has clear implications for the *political* independence of macro-prudential policy, as this issue can be resolved with clearer objectives for the achievement of financial stability, and clearer terms for the appointment and dismissal of macro-prudential decision-makers (either to improve societal support through appointing elected officials, or to increase accountability through clearer threats of dismissal).

Specifically, this issue implies the necessity for *high* political control of objectives and decision-maker selection. Currently, New Zealand has a mild-to-low degree of political control in these areas.

The current governance arrangements regarding macro-prudential policy outline broad intermediate objectives in the MoU, which are not legislatively binding. A high degree of political control in this regard would therefore involve placing such intermediate objectives within the legislation or within a legislatively binding document, and would also potentially involve outlining sub-objectives (which can be more reliably measured than intermediate objectives) for the macro-prudential authority. These sub-objectives could concern for example, the credit, asset, and liquidity shocks that generate financial instability. For completeness, and to resolve the issue of definitions regarding what constitutes macro-prudential policy, these objectives could also be expanded to be relevant to both baseline and time-varying macro-prudential tools (or simply all prudential powers), as opposed to the current MoU, which only concerns time-varying tools.

There is also currently a low degree of political control of macro-prudential decision-makers, on account of a lack of political representation, and safeguards against political influences over the selection and dismissal of relevant decision-makers. A higher degree of political control could be achieved by outlining the existence of a macro-prudential decision-making group or committee within the appropriate legislation, and by then specifying that certain members of this committee be appointed by the Minister of Finance and/or appointing a representative of the Treasury as a member of this committee.

Distribution of Impacts

The issue of the distribution of impacts suggests ensuring that the interests of parties that may be negatively affected by the implementation of macro-prudential policies are properly taken into account by the decision-making authority. If these interests are not properly represented, the macro-prudential authority may lose societal support for its delegated powers, and may therefore experience a diminished ability to achieve financial stability in the future. The literature has found the existence of strong distributional impacts for transactional tools in particular. This issue has implications for the *operational* independence of macro-prudential policy, and could be resolved with high political control of the selection and calibration of tools.

Specifically, this issue implies it is appropriate to have *high* political control of tool selection and calibration. Currently, New Zealand has a mild-to-low degree of political control in these areas.

The current governance framework for the selection of macro-prudential tools is arguably confusing, with the legislation only providing broad descriptions of the prudential tools that the Bank may use, and with specific tools only outlined in the non-legislatively binding MoU. A higher degree of political control in this regard would therefore involve more specifically defining the tools the macro-prudential authority may use within a legislatively binding foundation.

In regard to the distributive impacts that *transactional* tools have, the process of defining legislatively founded macro-prudential tools in New Zealand could also involve a democratic discussion regarding whether the macro-prudential authority should have the power to use loan-to-value ratios and debt-to-income ratios in the pursuit of financial stability, given that the execution of these policies generates significant distributional imbalances. For certain powers, a compromise may be for the Bank to be required to consult a wider body (such as the Council of Financial Regulators) before using the tool, or even for the normal practice to be for the Bank to use certain tools only after the Council of Financial Regulators has explicitly recommended them (so-called “Comply or Explain” powers), as seen with Edge and Liang (2017).

A high degree of political control in regard to the calibration of macro-prudential tools could involve legislatively outlining the boundaries within which the macro-prudential authority may execute the tools it is legislatively permitted to use. This restriction could take the form of actual numerical limits – such as restricting the operation of a capital limit within a certain band – or could take other forms.

The current governance framework for the calibration of macro-prudential tools has no restrictions regarding calibration. A high degree of political control in this regard would involve defining in legislation or in a legislatively binding document the extent to which the macro-prudential authority in New Zealand has the ability to calibrate its macro-prudential tools in its pursuit of financial stability. This could, for example, involve a restriction regarding the specificity the macro-prudential authority is legislatively permitted to exhibit when applying certain macro-prudential tools, such as requiring calibrations to apply nationwide rather than regionally.

Time Horizon Mismatch, Inaction Bias, and Time Inconsistency

The issue of time horizon mismatch suggests ensuring that elected officials do not have undue influence over macro-prudential strategy. This is in order to ensure that these officials are unable to use macro-prudential tools to advance their political agendas, and are unable to delay the use of costly tools to avoid public backlash. As this issue concerns both the role of decision-makers and the calibration of tools, it has implications for the *political* independence of decision-makers and the *operational* independence of tool calibrations.

Specifically, this issue implies it is appropriate to have *low* political control of macro-prudential decision-makers, and *low* political control of the calibration of macro-prudential tools. Currently, New Zealand has a mild-to-low degree of political control in both of these areas.

The current governance framework for macro-prudential policy already satisfies the conditions for low political control in regard to operational independence, although the arrangements regarding the appointment of the Governor by the Minister (on the advice of the Board) does imply a small degree of political control for the appointment of New Zealand's macro-prudential decision-makers.

Technical Difficulty

The issue of technical difficulty suggests ensuring that non-technocratic officials do not have influence over the strategy of macro-prudential policy, in order to avoid untimely delays in the execution of this strategy (and therefore delays in the achievement of financial stability). This leads to implications for the *operational* independence of macro-prudential policy.

Specifically, this issue implies the necessity for *low* political control of macro-prudential operation. Currently, New Zealand has a mild-to-low degree of political control in this area.

The two sources of mild political control of macro-prudential operation in New Zealand are the descriptions of macro-prudential tools in the 2013 MoU, and the requirement for the macro-prudential authority to communicate impending changes in macro-prudential authority to the Minister and to the affected firms. The latter is an operative decision that allows these firms to adjust their activities accordingly, and is therefore a natural condition of macro-prudential policy. The former could be adjusted to allow low political control by removing from the MoU any mention of the specific macro-prudential tools that may be used by the authority. The macro-prudential authority in New Zealand does not possess any restrictions in regard to the calibration of macro-prudential policy, and so there are no further changes that could be made to reduce political control in this area.

Summary

The table below summarises the *specific implications for New Zealand* of the discussion of issues 1-4, as outlined above and in Part Two.

Dimensions of Independence		Current Framework	Proposed Framework	Implications
Political	*Selection of objectives*	Mild control	High control	Increase control
	Selection of decision-makers	Mild-low control	Mild control	Potential rebalancing
Operational	*Selection of tools*	Mild-low control	Mild control	Potential rebalancing
	Calibration of tools	Low control	Low control	No changes

This summary broadly suggests that the New Zealand macro-prudential framework would better resolve the issues arising from macro-prudential governance if it had a higher degree of political control for the selection of macro-prudential objectives, and if the framework were rebalanced to address issues arising from operational independence.

Specific Recommendations and Trade-Offs

Given the current framework for macro-prudential governance in New Zealand, there are a number of potential implications that arise from the governance issues outlined in Part Two. However, each of these proposed changes has its own trade-offs and risks. These changes and the associated risks are outlined in the table below.

To achieve ...	consider ...	subject to the risk that ...
Increased control of objectives	Specifically defining financial stability objectives within a legislatively binding document, to resolve the issue of **principal-agent accountability**	Financial stability objectives are difficult to define, and views are likely to change over time
Rebalanced control of decision-makers	Maintaining the independence of decision-makers in New Zealand, to resolve the issue of **time horizon mismatch**	A lack of control or accountability may reduce the political legitimacy of macro-prudential policymakers.
	Increasing political control over the appointment or dismissal of members of the decision-making body in New Zealand, to resolve the issue of **principal-agent accountability**	Short-term political interests may influence macro-prudential strategy and delay policy response
Rebalanced control for the selection of tools	Strictly limiting the tools available to the macro-prudential policymaker(s) in New Zealand within a legislatively binding document, to resolve the issue of **distributional impacts**	New or specific tools needed to address financial instability may not be available to regulators
	Increasing the requirement for consultation before the execution of macro-prudential strategy, to resolve the issue of **distributional impacts**	Policy response may be delayed, particularly during emergencies or times of uncertainty
	Maintaining operational independence in selecting macro-prudential tools in New Zealand, to resolve the issue of **technical difficulty**	A lack of control or accountability may reduce the political legitimacy of macro-prudential policymakers
Low control for the calibration of tools	Maintaining operational independence in calibrating macro-prudential tools in New Zealand, to resolve the issues of **Time Horizon Mismatch** and **Technical Difficulty**	A lack of control or accountability may reduce the political legitimacy of macro-prudential policymakers

Conclusion

Macro-prudential policy can be seen as the subset of prudential policies that are implemented for the purpose of generating broad systemic benefits through a reduction in financial instability. Financial instability can in turn be seen as the negative systemic risks that arise from the decisions of financial institutions, households, and corporations.

The macro-prudential tools that constitute macro-prudential strategy can be usefully separated into aggregate balance sheet tools and transactional tools. Transactional tools have greater distributional implications as they have more significant impacts on individual household and corporate transactions, while aggregate balance sheet tools merely impose conditions on financial institutions themselves.

The governance of macro-prudential policy in New Zealand has a high degree of political independence, and this degree of political independence is greater than the independence seen for monetary policy governance. This is on account of the objectives of macro-prudential policy in New Zealand not being defined in detail in legislation, which means that the macro-prudential authority in New Zealand, the Reserve Bank of New Zealand, has a broad degree of discretion in determining intermediate objectives. The high degree of political independence in macro-prudential governance in New Zealand is also due to the long term given to the Governor, who is appointed by the Minister of Finance on the recommendation of the Board. Additionally, as compared to monetary policy in this regard, macro-prudential frameworks provide fewer grounds for dismissal.

The governance of macro-prudential policy in New Zealand also has a high degree of operational independence, although less than the degree of independence seen for monetary policy governance. Legislation gives the Reserve Bank broad prudential powers that have facilitated tools such as loan-to-value ratios. In addition, although the MoU does endorse certain tools that can be operated as macro-prudential policy, it focuses only on time-varying policy, and is in any case not legislatively binding. The high degree of operational independence in macro-prudential governance in New Zealand is also due to a lack of political control of the calibration of macro-prudential tools, including a lack of specificity regarding geographical, numerical, or timing limits on calibrations.

Notwithstanding the differences described above, macro-prudential and monetary policy have both been delegated by elected officials to become the responsibility of an authority that possesses some degree of political and operational independence. This is in contrast to, for example, fiscal policy. This delegation has been made on the basis that society will benefit from governance by an independent authority. However, while evidence exists of gains from the independence of monetary policy, and some for wider prudential policy, there is no equivalent evidence regarding gains from the independence of macro-prudential policy specifically. This paper argues that care should be taken before concluding that the benefits of monetary policy independence are also applicable to macro-prudential policy independence. There are fundamental differences between these policies in the nature of their objectives, the nature of their tools and engagement with the economy, and the nature of their distributive impacts.

The ideal governance arrangements for macro-prudential policy should be evaluated with reference to those differences. Key issues that concern macro-prudential governance include

the principal-agent accountability issue, the issue regarding distributive impacts, the time horizon mismatch and the time inconsistency issue, and the technical difficulty of macro-prudential policy execution.

On the balance of arguments, these issues suggest that an ideal macro-prudential governance structure should provide a high degree of political control in the selection of macro-prudential objectives, alongside a mild degree of political control of the relevant decision-makers, a mild degree of political control in the selection of macro-prudential tools available to these decision-makers, and a low degree of political control in the calibration of these tools. These degrees of independence would ensure that the macro-prudential decision-makers can be held to account by the delegating officials; that society has some degree of input on the range of distributive impacts that these decision-makers are capable of creating; that politically motivated individuals are less capable of delaying macro-prudential execution on account of short-term incentives; and that the operation of macro-prudential policy is handled by officials in a timely manner and with the relevant technical expertise available.

Based on those arguments, this paper has made specific suggestions for changes to macro-prudential governance arrangements. Beyond the current public consultation, moving forward will involve legislative change, which will appropriately include a democratic process where the public can reveal their preferences regarding each of these issues. Ultimately, the governance structure of macro-prudential policy in New Zealand must be supported by the general public, and be operated in a way that builds public trust. This trust is essential going forward, in ensuring that the macro-prudential authority can not only achieve immediate financial stability objectives, but also continue to achieve financial stability in the future.

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