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The importance of market discipline in the Reserve Bank's prudential regime

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The Reserve Bank's prudential framework is based on a three pillar approach that relies on self-discipline from regulated entities, market discipline provided by market participants, and regulatory discipline. Since the global financial crisis, the regulatory pillar has been bolstered in line with international regulatory developments. This article discusses the role of market discipline in the current framework and its on-going importance to the Reserve Bank's prudential regime. It proposes that market discipline is more likely to be effective if three conditions are met:

- market participants have useful information and the ability to process it;
- market participants have incentives to monitor financial institutions; and
- market participants have the right mechanisms to exercise discipline.

The article argues that the Reserve Bank encourages market discipline by supporting these conditions, and that the added emphasis on the regulatory pillar has not diminished the importance of market discipline. Market discipline remains a central and robust component of the Reserve Bank's regulatory approach.

1 Introduction

This article explains how market discipline continues to form an integral part of the Reserve Bank's prudential regime. Market discipline refers to the influence that investors have on firms by adjusting the rate of interest they demand or amount of funding they are willing to provide to the firm depending on its behaviour and level of risk.

The Reserve Bank regulates banks, non-bank deposit takers and insurance companies to promote the soundness and efficiency of the financial system or to avoid significant damage to the financial system from the failure of an institution.[1] Its regulatory regime is based on the three pillars of regulatory, self and market discipline. The global financial crisis (GFC) has led to increased emphasis on regulatory discipline both

1 See Section 68, Reserve Bank of New Zealand Act. For the purpose of regulating the insurance sector, the Reserve Bank also has the mandate of promoting confidence in the sector.

internationally and in New Zealand. In recent years, the Reserve Bank has implemented most of the 'Basel III' measures to strengthen banks' capital,[2] a liquidity policy for banks, and has been an early adopter of a coherent macroprudential policy framework. However, this has not happened at the expense of market discipline. While the Reserve Bank acknowledges that market discipline requires effort and support to work effectively, it continues to view it as a key building block of its prudential framework in New Zealand.

The article argues that market discipline is more likely to work effectively if three conditions are met, namely:

- markets have useful information at their disposal;
- market participants are incentivised to act upon that information; and
- mechanisms are in place for market discipline to be exercised.

The Reserve Bank has taken active steps to promote these conditions, and some of the policies it has put in place are unique to New Zealand.

Section two introduces the Reserve Bank's prudential regime and explains how market discipline relates to the other key regulatory pillars of self and regulatory discipline. Section three identifies the three criteria that are conducive to market discipline working effectively. Section four raises some of the questions that have been asked about the role of market discipline since the GFC and discusses why the Reserve Bank continues to view market discipline as an important pillar of its prudential regime. Section five concludes.

2 See Basel Committee on Banking Supervision (2010).

2 The three pillars of the Reserve Bank's prudential regime

The Reserve Bank regulates banks, insurers and non-bank deposit takers to promote a sound and efficient financial system or to avoid significant damage to the financial system from the failure of a regulated institution. In the case of insurers, the Reserve Bank also has the task of maintaining confidence in the sector. To achieve these objectives, the Reserve Bank uses a three pillar approach consisting of self discipline, market discipline and regulatory discipline.[3] All three pillars are supported by requirements set by the Reserve Bank. In devising these requirements, the Reserve Bank assesses the extent of market failures, i.e., the reasons why market mechanisms might fail, and the net cost/benefit of regulatory intervention.

Self discipline concerns an institution's own processes and risk frameworks, the responsibility for which lies primarily with its senior managers and directors. It comprises the risk management an institution would ordinarily rely on in the absence of any rules set by the regulator.

Market discipline, the topic of this article, is about the way in which market participants influence a financial institution's behaviour through their monitoring of its risk profile and financial position. Anybody providing funds to a financial institution in whatever form is an investor, from depositors to professional investors in more sophisticated debt instruments. Investors can exercise market discipline through the price they charge financial institutions for supplying them with funds, or by

3 See also Fiennes and O'Connor-Close (2012).

withdrawing their funding, especially in the case of depositors. If one institution's risk profile is such that it carries greater risk than another, *ceteris paribus*, economic theory suggests that investors should charge a higher interest rate to that first institution.

Regulatory discipline supports and complements the previous two pillars. It refers to prescribed and mandatory requirements in areas such as capital, liquidity, outsourcing arrangements, governance or market disclosure. These requirements are in place in all the sectors the Reserve Bank supervises, but their stringency differs depending on the systemic importance of the sector or of a group of institutions within a sector. The prescribed regulatory requirements supplement institutions' own risk frameworks and those imposed by market expectations.

These three pillars have formed the basis of the Reserve Bank's prudential regime since the 1990s. Back then, the Reserve Bank's prudential regime was characterised by heavy emphasis on market discipline backed up by comparatively simple regulatory requirements. As is still the case today, market discipline was supported by detailed disclosure rules backed up by director attestation, which requires a bank's senior directors to attest to the accuracy of the disclosed information, with potentially severe penalties for the disclosure of false or misleading information. The information available to the Reserve Bank was largely also available to the market, although the Reserve Bank had the right to require institutions to provide it with additional information. Regulatory requirements were primarily focused on minimum capital ratios.

Since the 2000s, regulatory discipline has been bolstered, particularly following the introduction of Basel II, and then Basel III after the GFC. In line with these international standards, New Zealand has implemented new capital and liquidity requirements for banks, although these have been tailored to New Zealand circumstances. The insurance and non-bank deposit taking sectors have also come within the remit of the Reserve Bank's prudential regime in the past few years. The Reserve Bank now collects more private data, although still much less than is required under comparable regimes internationally. This is to provide the Reserve Bank with data to inform its supervisory activities that is more timely, but as a result has typically undergone less quality assurance than the published data.

It is important to recognise that the three pillars work together and often support one another. Boosting one pillar does not necessarily mean weakening the other two and indeed can have a strengthening effect on them.

An example of this is the interaction between the disclosure regulations and market discipline. The disclosure framework supports market discipline by requiring an institution to provide relevant information to the market on the risks it faces.

Financial institutions are incentivised to provide information to the market that would allow investors to more accurately assess their riskiness, if the absence of such information would lead to investors demanding a higher interest rate.

Recent empirical studies provide evidence that disclosures have a significant impact on a bank's cost of debt.[4] Although these studies did not use data from regular quarterly disclosures, this evidence supports the conclusion that disclosure provides important information that allows investors to exercise market discipline.

4 For discussion of these studies, see Kleymenova (2014) and Peristian et al (2010).

However, gathering the relevant information and processing it is costly. Not every investor is likely to have the most sophisticated tools with which to analyse it. A financial institution might also have an incentive to withhold information if disclosing it would lead to an increase in its funding cost. Alternatively, excessive disclosure of information could be used to swamp important information, making it more difficult for market participants to assess an institution's risk profile.

The Reserve Bank's disclosure requirements for banks are aimed at addressing these concerns. The disclosure requirements deal with asymmetry of information by requiring banks to disclose certain information, and by specifying the way this information must be presented to ensure it is clear and manageable, and addresses the needs of investors who might have varying degrees of financial literacy.[5] The Reserve Bank's information disclosure requirements aim to give the market reasonably timely and useful information so that all market participants can assess the risk of the institution in which they want to invest.

3 Key conditions for market discipline

Three criteria are necessary for market discipline to be effective.[6] First, market participants need to have timely and useful information about the operations of financial institutions, and the ability to process that information. Second, market participants need to have the right incentives to actively monitor and evaluate risk/return payoffs. Finally, market participants need to have the mechanisms to impose market discipline on financial institutions. These criteria are discussed below, along with the regulatory mechanisms that the Reserve Bank has implemented to support them.

5 This minimises the risk that relevant information is obscured through irrelevant information dumping.

6 These characteristics are similar to the criteria identified by Crockett (2001).

Market participants need to have useful information and the ability to process it.

Disclosure has long been at the heart of the Reserve Bank's regulatory regime, with the first bank-specific requirements of the current disclosure regime introduced in the 1990s.[7] Adequate and timely disclosure is essential so market participants can monitor banks' financial performance, assess the quality of their risk management, and compare the performance of one bank with another. According to the efficient market hypothesis, market participants are expected to reflect the information available about a bank in the price, i.e., the interest rate, they charge for holding its debt. Disclosure is also necessary to address some of the information asymmetries that arise between the investors and creditors of a financial institution, and its managers, given that the managers have far greater access to information on the business activities and risks that it is taking on, and also day-to-day understanding of its business.

Banks are currently required by law to publish a quarterly disclosure statement. These statements have to be signed by the bank's directors, who attest to the accuracy of the information disclosed and that the bank has sound risk management systems and processes. Directors can face criminal charges under the Reserve Bank of New Zealand Act 1989 ("the Reserve Bank Act") if they have signed a disclosure statement that has been published containing materially false or misleading information. The attestation by directors is a special feature of New Zealand's disclosure

7 For discussion see Mortlock (1996).

regime. The serious consequences that can result from releasing false or misleading information strongly incentivise directors to ensure that the disclosed information is accurate.

The amount of information that banks publish differs depending on the reporting period covered by the disclosure statement. Nevertheless, all disclosure statements contain the important information necessary for investors to assess a bank's riskiness across a number of indicators, including its financial condition, concentration risks, liquidity position and capital ratios.[8]

New Zealand was an early proponent of good market disclosure. The Reserve Bank recognises that creditors' expertise and ability to effectively use the information varies and there are limits on the amount of market analysis one can expect from, for example, depositors. Depositors represent a broad spectrum of financial participants, from those who have a high degree of financial literacy and actively monitor a bank's position, to others who might have little financial knowledge and rely on banks primarily for transactional services. However, that does not mean that banks can simply ignore the market discipline that small or relatively uninformed depositors might exercise. While those investors might be more influenced by price than risk when they deposit their funds during normal times, they can react very quickly and perhaps irrationally in volatile times, with the most extreme reaction being that of a bank run. Banks should want to guard against the risk of triggering such an outcome by making sure that their less informed depositors do not panic and start withdrawing their funds en masse. Banks minimise the risk of a bank run by remaining sound, and appearing to remain sound, at all times. That in itself is a form of market discipline.

8 The Reserve Bank web page "Your bank's disclosure statement: what's in it for you?" has more detail on the key components of disclosure statements and a discussion of why each is of interest for investors. See http://www.rbnz.govt.nz/regulation-and-supervision/banks/your-bank-s-disclosure-statement-what-s-in-it-for-you.

The number of small depositors who are motivated to become better informed about their bank and to exercise market discipline should increase if information is provided in a comprehensive and accessible manner. One way of achieving this is to make easy-to-understand information available in summary form so that depositors can compare it across banks. The Reserve Bank's G1 and G2 summary tables provide such summary information. At the time of writing, the Reserve Bank is planning to consult on a new "dashboard" of summary information to be disclosed quarterly to the market.

On the other hand, for market discipline to be effective, it might often be sufficient that experts interpret the information provided and translate it into a useful form for investors. An easy way for retail creditors to obtain an analysis of an institution's relative strength is a credit rating. The Reserve Bank requires that banks, insurers and non-bank deposit takers above a certain size hold a credit rating[9] from a recognised rating agency. A credit rating provides an independent opinion of the capability and willingness of a financial institution to repay its debts. These credit ratings are expressed on a simple alphanumeric scale that allows investors to interpret them easily.

Market commentators and financial advisors also play an important role in interpreting the information provided by financial institutions. The nature of the information available to the different types of investor, from small depositor to sophisticated institutional investor, is therefore of real importance. It needs to be of good quality, comprehensive yet targeted and accessible. Too much information can confuse investors, while publishing information that no-one uses is merely a compliance cost.

9 Financial strength rating in the case of insurers.

Following the GFC, international regulatory bodies have recommended enhanced disclosure requirements be implemented to provide more relevant and comparable information to the market. In particular, the Basel Committee on Banking Supervision issued revised standards on disclosure requirements aimed at improving the comparability and consistency of bank information to help market participants better assess a bank's overall capital adequacy and risk profile.[10] These revisions are based on five key requirements for disclosures: that they be clear, comprehensive, meaningful to users, consistent over time, and comparable across banks.

The Reserve Bank's disclosure requirements have been amended and refined over the years to enhance their readability and usefulness, while also minimising the costs associated with their preparation. The Reserve Bank's last stand-alone review of the disclosure regime was completed in 2011, although further refinements to the disclosure requirements are planned arising from its 2015 Regulatory Stocktake.[11]

The 2011 review[12] targeted information that had become largely redundant, imposing a compliance cost but no longer providing any clear benefit. The Regulatory Stocktake has proposed revisions with the objectives of enhancing market discipline and reducing unnecessary compliance costs. The main change is the proposal to introduce an easy to understand and accessible "dashboard" that facilitates comparability across banks. At the time of writing, this proposal is still being developed. Disclosure continues to be a key component of the Reserve Bank's prudential framework.

Market participants need to have incentives to monitor financial institutions.

Disclosure of all relevant financial information cannot result in effective market discipline unless interested parties feel incentivised to read it.[13] Market participants have the incentive to monitor their investment when they believe that failure to do so may result in loss. If investors view themselves as insulated from any loss, moral hazard arises as banks are incentivised to assume a socially sub-optimal level of risk to increase their returns. For this reason, guaranteeing the claims of investors on financial institutions can take away the incentive for investors to do their research and demand interest rate returns commensurate with the firm's risk profile.

The Reserve Bank does not guarantee against failure any institution it regulates, irrespective of its size or systemic importance. The disorderly failure of any of the larger banks would have wider systemic and economic impacts. This might lead to the perception that the Government would intervene to prevent the failure of such a systemically important financial institution (SIFI). The resulting 'implicit guarantee' might be viewed as protecting creditors from losses while enabling the SIFI to assume a greater level of risk (in pursuit of a higher reward) without having to pay the higher cost for its funding that would be commensurate with that risk. The Reserve Bank addresses this issue by making available a credible alternative to a bank bail-out. Through its Open Bank Resolution (OBR) policy, which was implemented in 2012, the Reserve Bank has a tool to manage the failure of even the biggest banks in a way

10 See Basel Committee on Banking Supervision (2015).

11 See Reserve Bank of New Zealand (2015).

12 See Reserve Bank of New Zealand (2010).

13 Except to the extent that one believes that the threat of being actively monitored (and therefore able to impose market discipline) is sufficient to exert discipline à la Panopticon (Foucault (1975)). Of course, even if banks cannot observe whether they are being monitored, if market pricing becomes misaligned with risk it will become clear that they are not, which would be expected to cause further misalignment until market participants begin monitoring again.

that minimises the disruption to the payments system, other financial institutions, and the economy more widely.

Under the OBR, a distressed bank is closed overnight and placed into statutory management. This decision is made by the Minister of Finance on recommendation from the Reserve Bank. Upon reopening the following day, a portion of the creditors' (including depositors') funds are frozen to cover anticipated losses. Access to the remaining funds and other critical banking services would be made available from the next business day, and the Government would provide an explicit guarantee on the unfrozen portion of creditors' funds to minimise the risk of a mass withdrawal of funds by depositors (a bank run). This would allow the bank to continue playing its role in the financial system and thereby minimise disruption to critical functions such as the payment and settlement system.[14]

Unlike a bail-out, this resolution mechanism limits the Government's (and therefore taxpayers') support to the provision of the guarantee on unfrozen funds. The Government would only face a loss on the guarantee if final losses exceeded the amount initially frozen. By retaining critical functions for day-to-day business and operations, this resolution mechanism guards against some of the negative externalities associated with a bank failure. However, as creditors are not insulated from a loss in the event of failure, OBR also preserves the incentives for creditors and investors to monitor the bank and impose market discipline upon it.

In many countries, banks benefit from better credit ratings as a result of perceived government support. The more systemically important banks receive the bulk of this implicit subsidy.[15] However, where the cost of funding is still significantly higher than the government cost of funding, it has been argued that investors still have uncertainty about the likely scale of government support.[16]

In New Zealand, the efficacy of OBR in reducing market perception of the likelihood of government bailout is reflected in rating agencies' assessment of New Zealand banking risk. For example, a recent Banking Industry Country Risk Assessment report by Standard and Poor's (S&P) rating agency[17] states that it believes the likelihood of extraordinary support being provided to the New Zealand banks by the New Zealand Government has reduced following the implementation of the OBR policy.[18] S&P notes the system creates "strong incentives for banks' management and their shareholders to prevent a bank from getting into a crisis in the first place".

The Reserve Bank Act also provides other resolution mechanisms that could be employed depending on the circumstances of a particular distressed bank.[19] Likewise for insurers, the Insurance (Prudential Supervision) Act 2010 (IPSA) provides that the Reserve Bank may apply to place an insurer into liquidation or voluntary administration if certain requirements are met.

14 As one of the purposes of the OBR policy is to minimise the systemic cost of a bank failure, it currently only applies to New Zealand incorporated banks with retail deposits of more than $1 billion.

15 See Haldane (2010).

16 See Min (2015).

17 Standard and Poor's Rating Services (2015).

18 In particular, S&P's assessment of government support of major banks has been reduced from 'supportive' to 'uncertain' to reflect its belief that the OBR framework would allow the Reserve Bank to manage a failure without being compelled to intervene to save the system. This can be contrasted with the position in Australia where the Government is viewed as 'highly supportive', with the major banks provided with a rating 'uplift' as a result.

19 These include the power to give a bank directions and the power to make a recommendation to the Minister of Finance that a bank be placed in statutory management if the Reserve Bank believes that a bank may have triggered one of the grounds specified in the Act.

With the breadth of these resolution regimes, the Reserve Bank can credibly state that it does not operate a zero-failure regime. This helps to reduce the moral hazard to which financial institutions would otherwise be prone.

In many jurisdictions, if depositors lose money as a result of a bank or non-bank deposit taker (NBDT) failing, deposit insurance provides automatic cover to make good losses up to a pre-determined amount. However, deposit insurance also increases moral hazard and gives banks incentives to pursue added risks because they can capture any profits on the upside without having to incur funding costs that are fully commensurate with this higher risk. Depositors will not necessarily require the full risk premium because they know their deposits are insured up to the specified amount.[20] Empirical research at the World Bank finds that explicit insurance lowers banks' interest expenses and makes interest payments less sensitive to bank risk and liquidity, although some market discipline remains.[21]

New Zealand does not have a deposit insurance scheme and the Reserve Bank does not favour compulsory deposit insurance; it is difficult to price and can blunt incentives for both financial institutions and depositors to monitor and manage risks properly.[22] Nor is there any policyholder protection scheme for insurance firm customers.

The combination of a credible non-zero failure regime and the realistic prospect of creditors incurring a financial loss in a failure should give them ample incentives to monitor the profitability and risk-taking behaviour of the institutions in which they invest.

20 For a review of the literature, see McCoy (2006).

21 For discussion see Demirgüç-Kunt and Kane (2002).

22 See English, B (2011).

Market participants need to have the right mechanisms to exercise discipline.

Even if appropriately incentivised, market participants will not be able to exercise discipline on financial institutions without appropriate mechanisms to do so. These mechanisms involve market participants having choice in the financial products and the financial institutions in which they can invest.

There are essentially three main ways in which one can invest in a bank. The first is by becoming a shareholder, the second is by depositing money with a bank and the third by buying a bank's debt issuances. New Zealand banks issue debt in the domestic market as well as offshore. The funding composition of the New Zealand banking system as at June 2015 is shown in Table 1.

Table 1
Banking system funding
(% of total funding, as at June 2015)

	Short term	Long term	Total
Equity	-	-	7.9
Deposit funding, < $5m	48.0	2.7	50.6
Deposit funding, > $5m	12.5	0.7	13.1
Domestic market	7.1	5.8	12.9
Offshore market	7.8	7.7	15.5

Source: Registered banks' *Disclosure Statements*, RBNZ *Liquidity Survey*.

Table 1 shows the three main types of investor in New Zealand banks: shareholders, depositors and those purchasing bank bonds. New Zealand's biggest banks are foreign owned, and most investors in banks' debt issuances are domestic and foreign institutional investors. This leaves traditional depositors as the main New Zealand based retail investors. Although those with more substantial savings might be relied on more to exercise market discipline given their greater incentive to protect their funds, the sheer number of smaller depositors means that they cannot be ignored. As discussed above, while small retail depositors generally care little about the relative riskiness of their bank in good times, any perception on their part that a bank is not sound could trigger a run, however irrational. Banks will want to protect themselves against such a perception, creating a form of ex ante market discipline whereby banks are focused on maintaining a strong perception of safety.

The Reserve Bank's regulatory regime fosters competition in a number of ways. It provides for a level playing field in terms of the regulations faced by similar institutions within the same sector and across sectors, avoids any unnecessary barriers to market entry, and requires disclosure.

There are currently 25 registered banks in New Zealand, not all of which offer retail banking services. In addition to these banks, NBDTs offer consumers deposit taking and related services as an alternative to banks. The Reserve Bank's risk-based regulatory framework allows for ample flexibility so that smaller institutions that are of less systemic importance are not necessarily subject to the same standards and requirements as their bigger, more systemically important, competitors. This flexibility exists within a sector and between sectors. The requirements for NBDTs, for example, are different from those that apply to banks. Within the NBDT sector, some smaller institutions do not have to have a credit rating. Likewise, smaller banks are not required to preposition for OBR, for example.

Competition and choice are also further enhanced by having comparatively low barriers to market entry, including for foreign entities. Foreign banks may apply to be registered as a bank in New Zealand, potentially as either a branch or a locally incorporated bank.

Evidence of the contestability and attractiveness of the New Zealand market are the nine banks from a range of countries that have entered the New Zealand market in the past 10 years.[23] Although not all of these new entrants are currently full-service banks, with more banks operating there is the potential for greater competition and more choice for consumers. Both are conducive to retail depositors' ability to exercise market discipline.

The two other important investor groupings are institutional investors from New Zealand, and those from abroad. These investors tend to be more sophisticated and are likely to spend more time analysing a bank's risk profile. Domestic institutional investors account for roughly one-eighth of the banking system's funding. In deciding which institutions to invest in, these investors are likely to also consider alternative investments available in the New Zealand market. This process should encourage market prices to accurately reflect risk and reward trade-offs.

Foreign investors are particularly helpful in providing market discipline as they continually compare New Zealand banks to other international banks. The price they charge a bank for funding will reflect the relative and absolute riskiness of the New Zealand bank compared to other domestic and overseas banks, and also alternative non-financial investment options.

23 It should be added that two banks have left the sector.

While market discipline is exercised through several mechanisms, New Zealand funding markets are not as deep as those in bigger economies. The range of investment options for institutional investors is limited, as is the number of institutional or professional investors. Moreover, New Zealand bank debt will often form only a small proportion of an overseas investor's portfolio. All of these factors might affect the level of scrutiny that the market applies to New Zealand banks and hence weaken market discipline. However, while these limitations should be acknowledged, the core mechanisms for market participants to exercise market discipline are present in the New Zealand market.

4 Evolution of market discipline

New Zealand's prudential regime was built around market discipline as the key element in the late 1980s and early 1990s.[24] However, it was always necessary to support market discipline through appropriate regulatory and self-discipline, such as disclosure and sound corporate governance requirements.[25]

Since the GFC, there has been skepticism regarding the ability of markets to appropriately assess and price risk. The Turner Review in the UK following the GFC, for example, found that "a reasonable conclusion is that market discipline expressed via market prices cannot be expected to play a major role in constraining bank risk-taking, and that the primary constraint needs to come from regulation and supervision". The Reserve Bank is less pessimistic on the role of market discipline, instead viewing the GFC as evidence of the need for regulatory supervisors to monitor systemic risks. Markets are often better at distinguishing relative risk, but might not be so good at reflecting absolute risk where the whole market misperceives risk in a particular industry. This points to the need for regulatory discipline to reinforce market discipline, but it does not negate the value of market discipline.

Market discipline has been strongly linked to the efficient market hypothesis which says that prices will reflect all available information. If that is taken to mean that prices will always be correct, financial bubbles and busts such as the GFC are indeed difficult to explain. This has led to questions being asked about the role of market discipline.

A popular example is the failure of the market to respond to indicators of risk in the US housing and subprime mortgage markets[26] until the credit rating downgrades of more than 1000 AAA-rated subprime securities in July 2007. The mass downgrade contributed to the emerging sell-off in credit markets. Unable to distinguish between good and bad securities, investors demanded over-collateralisation or refused to roll over short-term debt, eventually leading to a broad-based liquidity crisis.

This over-exuberance followed by a corrective panic has led some commentators to question the ability of markets to respond appropriately to risk and information. Commentators have distinguished different forms of debt and noted that some (for example, securitised asset classes and uninsured deposits) are less sensitive to market information until a sufficiently large systemic shock causes them to become sensitive to information.[27]

24 For discussion see Morrell (1990).

25 For a discussion of market discipline, see Mortlock (2002).

26 For a full exposition see Min (2015).

27 For discussion see Gorton (2009).

However, the way market discipline works is a function of the framework in which it operates and these frameworks differ across countries. If the right conditions are not in place, for example if the incentives on market participants are blunted due to other features within a given framework, then any problems that arise might be a reflection of not having the right conditions in place rather than an indictment of the effectiveness of market discipline. Some characteristics prevalent in many countries' regulatory regimes, such as deposit insurance and an acknowledged too-big-to-fail problem, are not conducive to effective market discipline.

Moreover, investors can be expected to act only on the information available to them and their assessment of that information. The issue of having been overly reliant on credit ratings is not necessarily an indictment of market discipline. The fact that investors have followed the advice of credit rating agencies could be interpreted as market discipline having been effective since investors did use the available information. It was the information that was wrong or misleading. This might point to market discipline being less good at identifying systemic issues where, for example, they are due to a misconceived understanding of the underlying risk and a consequential mispricing of that risk. But market discipline can only be as good as the available information and the tools with which to analyse it. A better benchmark would be to assess whether markets are using the information and the tools at their disposal, and on that measure it is more difficult to argue that market discipline failed during the GFC.

The events of the GFC certainly demonstrated that severe market corrections, with serious follow-on effects on systemic stability and the real economy, can happen and are probably more likely to occur than often assumed. However, market discipline and the efficient market hypothesis should not be understood as assuming that prices will always and at any time be correct.

In practice, gathering data and processing that data is costly, and not every investor is likely to have access to the most sophisticated analytical tools or to have the same expertise to interpret the information when making decisions. Indeed, that is why financial markets exist and trading takes place. Market participants' diverse assessments of the risk and reward of products are what determine prices. These prices, however, can at times move away from their long term fundamental value, as the history of bubbles and busts demonstrates.

Sole reliance on market discipline is unlikely to solve the issue of financial bubbles. In fact, some commentators have suggested that the market is better at assessing relative risk across institutions rather than assessing the level of overall risk in a particular market or the broader economy.[28] Far from abandoning the idea of market discipline, more effective market discipline, coupled with better regulatory and self discipline, is likely to be more successful for enhancing long term financial stability.

In response to the GFC, both the Dodd-Frank Act in the US and Basel III[29] have explicitly called for enhanced market discipline. Dodd-Frank created a Financial Stability Oversight Council that has the objective of promoting market discipline, among others.[30] Likewise, Basel III seeks to enhance disclosure requirements, especially the transparency of capital, to improve market discipline.

The Reserve Bank, too, is always interested in enhancing the effectiveness of market discipline where it can do so cost-effectively. Recent work to improve market discipline includes the regular reviews

28 Crockett (2001).

29 See Basel Committee on Banking Supervision (2010)

30 For discussion see Evanoff and Moeller (2012).

of the disclosure regime (as discussed above) and prepositioning for the OBR framework.

The recent crisis emphasises the need for continued regulation and supervision, and the comparative advantage of each type of discipline. The market might be better at distinguishing the risk for a given return between entities, the regulated entity itself might be better at understanding and managing the risks of its own portfolio, and the regulator might be better at monitoring risks developing in the whole system and modifying prudential requirements to mitigate these. These pillars should operate together to enhance the stability and efficiency of the overall system.

5 Conclusion

This article has argued that market discipline continues to be a key pillar in the Reserve Bank's regulatory toolkit, alongside self and regulatory discipline. Recent events, especially following the GFC, have led to questions being asked about the role of market discipline and there has been significant emphasis on strengthening the regulatory pillar. In line with this international trend, the Reserve Bank has enhanced its prudential requirements and implemented macroprudential tools to mitigate the build-up of systemic risk. These new regulatory requirements, however, have not come at the expense of market discipline, or at least not in New Zealand.

The article has argued that three conditions in particular within a wider framework are needed for market discipline to be effective. First, markets must have useful information at their disposal and participants must have the ability to use that information. The Reserve Bank's disclosure regime aims to provide the information they require to a range of market participants, from small depositor through to sophisticated institutional investor. Second, market participants should be incentivised to act upon the information available to them. The absence of deposit insurance and the availability of OBR as a resolution tool are two reasons why all investors should be interested in understanding the risks they enter into when investing in a bank. Third, market participants need to have mechanisms or tools with which to exercise market discipline. The number of banks and NBDTs and new market entrants into the New Zealand banking sector are examples of the choice available to depositors and other investors.

The regulatory framework in New Zealand has traditionally emphasised market discipline. The Reserve Bank will continue to try to find ways of enhancing this important pillar within its regulatory framework.

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