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# Understanding financial system efficiency in New Zealand

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This article examines the concept of financial system efficiency in the New Zealand context. The primary function of the financial system is to facilitate the allocation of society's scarce resources, both across the economic system and over time, in an environment of inherent uncertainty. If the financial system performs this role well, then it will be contributing to economic growth and prosperity in a positive way. The article develops a conceptual framework for evaluating financial system efficiency and applies this to the New Zealand financial system. In particular, we focus on whether the high return on equity enjoyed by the New Zealand banking system, relative to other jurisdictions, is indicative of a banking system that is any less competitive and efficient than elsewhere. Our research to date suggests these high relative returns can be explained by a number of factors including relatively high cost of capital in New Zealand and the implicit support the major banks receive from their Australian parents.

## 1 Introduction

The financial system plays several critical roles in any modern economy, which include providing facilities to make and settle financial transactions, channelling funds from savers to borrowers, and providing a means for households and firms to manage financial risk and uncertainty. If these functions are performed well, the financial system will contribute positively to economic development and prosperity. If the functions are performed ineffectively, however, additional costs will be imposed on society, potentially undermining economic performance. Symptoms of inefficiency could include high transaction costs, limited or poor quality financial services and products, a lack of responsiveness to customer needs and a misallocation of resources throughout the economy over time.

The Reserve Bank has a specific concern for the performance of the financial system, given the legislative requirement to promote a "sound and efficient financial system". The soundness objective is about promoting resilience in individual financial institutions and in the financial system at large so as to minimise any disruption to economic activity. The efficiency criteria relates to the financial system's ability to perform its functions in a cost-effective way, while helping to allocate scarce resources to their most productive uses. Over the past year, the Reserve Bank has been developing a more systematic framework for analysing and reporting on efficiency-related issues across the financial system.

A focus on financial system efficiency is pertinent for two reasons. First, there has been an ongoing concern about New Zealand's economic performance over the past two decades. A key question is whether there may be something in the structure or operation of the financial system that could help explain why the economy may have underperformed relative to other advanced economies.

Second, the global financial crisis has highlighted the potential for problems in the financial system to cause wider economic instability. It has also demonstrated how inefficiencies in the financial system can contribute to vulnerabilities and imbalances over time. In the US, for example, financial innovation in housing lending appears to have led to a fundamental misallocation of resources and a general mis-pricing of risk. Moreover, financial systems in many countries have grown markedly relative to the size of the economy, amplifying the negative effect when problems in the financial sector arise.

In the aftermath of the crisis, policy makers around the world are endeavouring to make their financial systems safer and more resilient to shocks. The global reform agenda, now commonly known as Basel III, has seen policy makers confront not just the benefits of improved financial stability, but also the various costs of the reforms, suggesting there

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may be a trade-off between soundness and efficiency in certain circumstances.<sup>1</sup>

Efficiency concerns have also been prompted by changes in the competitive environment in a number of countries following the global financial crisis, which has seen some mergers and closures of financial institutions and reduced willingness to compete for new business. This has driven the recent Senate Inquiry into Banking Competition in Australia, a response to the increased dominance of the big four banks within the Australian financial system.<sup>2</sup> Similar issues are also to the fore in the UK Independent Commission into Banking.<sup>3</sup> In New Zealand, the banking system is also highly concentrated and competition across the financial system may have declined as a result of contraction in the finance company sector.

In section 2 of this article, we briefly review the Reserve Bank's legislative mandate as a basis for considering our approach to the efficiency objective. Section 3 provides a conceptual framework and definition of financial system efficiency as well as a guide to how we can potentially evaluate or measure efficiency. We argue it is not possible to measure financial system efficiency with a single quantifiable metric. Rather, analysis must be undertaken across a number of different levels – from the economic system as a whole right down to the level of individual financial products or services. Section 4 discusses the relationship between financial system efficiency and stability as the two key set of criteria to evaluate financial system performance. Section 5 provides some observations on financial system efficiency in New Zealand based on existing research. Section 6 details some of the Reserve Bank's internal work focusing on specific aspects of New Zealand banking system efficiency, centred on explaining why our banks appear to be particularly profitable relative to other banking systems.

## 2 The central bank mandate for efficiency

The Reserve Bank Act 1989 (as amended) requires the Reserve Bank to exercise its prudential powers to promote the maintenance of a sound and efficient financial system. The Act requires the Reserve Bank to promote efficiency in its statutory duties related to banks, non-bank deposit takers, and the oversight and designation of the payment system.<sup>4</sup> In addition, the Reserve Bank must have regard to efficiency in relation to the conduct of monetary policy. The Reserve Bank is obliged to report in its semi-annual *Financial Stability Reports* on both soundness and efficiency matters. More generally, section 33 of the Act states that the Reserve Bank has a role in providing advice to the Minister of Finance on any matter related to its responsibilities.

However, efficiency is not explicitly defined in the Act, nor is there any specific guidance as to how the Reserve Bank might interpret the efficiency objective along the lines of that contained in the Policy Targets Agreement (PTA) governing monetary policy. This raises the question of how the Reserve Bank should interpret the legislative mandate for efficiency, and in particular, the relationship between efficiency and soundness.

In practice, the Reserve Bank has tended to view the pursuit of soundness through prudential regulation as the key objective, whilst viewing the efficiency mandate chiefly in terms of minimising or avoiding excessive compliance costs for financial institutions (Morrell 1990, p. 272). Efficiency in this regard can be seen more as a behavioural constraint on a primary objective, in the same way the Reserve Bank must have due consideration for the volatility of output, interest rates and the exchange rate in the pursuit of price stability.

This interpretation is one that accords with the priority other central banks assign to financial stability, relative to any consideration given to the promotion of financial system efficiency. Indeed, a review of other central bank legislation and objectives reveals that efficiency is usually very much a second order concern. In short, no central bank places

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<sup>1</sup> For a flavour of the costs and benefits of Basel III, see Angelini *et al* (2011). This paper examines the possible impact of the Basel III reforms on longer-term economic performance.

<sup>2</sup> See [www.apf.gov.au/senate/committee/economics\\_committee/banking\\_comp\\_2010/index.htm](http://www.apf.gov.au/senate/committee/economics_committee/banking_comp_2010/index.htm) for a copy of the Inquiry's report released May 6.

<sup>3</sup> The Commission released an interim report on April 11, which can be found at [bankingcommission.independent.gov.uk/](http://bankingcommission.independent.gov.uk/)

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<sup>4</sup> The Insurance (Prudential Supervision) Act 2010 contains similar wording with respect to licensed insurance companies.

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financial system efficiency on a par with stability, which explains, in part, why there is not an equivalent 'financial efficiency report'.

Nevertheless, the Reserve Bank takes an ongoing interest in matters affecting the broader efficiency of the financial system aside from the direct impacts of its prudential regulation and regularly addresses such issues in its semi-annual *Financial Stability Reports*. For example, the Reserve Bank has recently given considerable attention to whether the financial system has been able to provide credit on acceptable terms to businesses, while under pressure related to the global financial crisis. However, the Bank's recent efficiency research programme has sought to provide a more coherent framework within which to understand and evaluate financial system efficiency.

The Reserve Bank shares its concern for financial sector performance in general, and efficiency in particular, with a number of other public sector agencies. These include the Commerce Commission, whose task is to address anti-competitive behaviour across the business sector and promote efficiency, where possible, in those industries that are heavily regulated. The newly created Financial Markets Authority also contributes to financial system efficiency by enforcing clear and transparent rules for financial market conduct.

### 3 Defining financial system efficiency – a conceptual framework

Merton and Brodie (1995) state that the primary function of the financial system "is to facilitate the allocation and deployment of economic resources, both across borders and across time, in an uncertain environment" (p. 12). As figure 1 highlights, the financial system has a number of more specific functions, including facilitating trade through clearing and settling payments, intermediating funds between borrowers and lenders, and providing products to manage risk.

Efficiency, broadly speaking, is how well the financial system performs these various functions. The criteria used to assess

this performance involves whether the financial system is helping to allocate resources to their best use (allocative efficiency); doing so in a cost-effective manner (technical efficiency); and whether it is responding to both changing demand and uncertainty over time through the development of new financial processes, services and products (dynamic efficiency).

#### Efficiency criteria

The *allocative* criterion refers to the degree to which the financial system helps direct an economy's scarce resources towards sectors with high returns and withdraw them from sectors with poor prospects. In principle, financial markets and institutions help this process and hence contribute to economic growth. Financial markets (such as equity markets) identify good investments directly through the price information contained in financial products that are traded in secondary markets, while financial intermediaries (banks and other financial institutions) provide an important screening and monitoring function as they lend out funds to borrowers.

In an advanced economy, prices generally provide the signalling mechanism that facilitates (re)allocation of society's resources. Prices that incorporate all available information, including risk, are more likely to produce allocatively efficient outcomes. However, as the global financial crisis has underlined, market prices can at times under-price risk, thereby distorting allocation. This appears to have been the case in the US in the subprime housing market in the lead-up to the crisis and in parts of New Zealand's property development sector serviced by finance companies in recent years.

The *technical efficiency* criterion refers to the provision of financial products and services at least cost. A competitive and efficient financial system will be one where financial services and products are produced at the lowest cost with these low costs passed on to consumers. However, as discussed later, there may well be a trade-off between technical efficiency and financial system stability. A competitive dynamic that results in razor-thin profit margins for financial institutions might not be optimal for financial stability if institutions

Figure 1

A framework for understanding financial system efficiency

### Functions of a modern financial system

*Facilitating the allocation and deployment of economic resources across time and space, in an uncertain environment*

- Providing ways of clearing and settling payments to facilitate trade
- Mechanism for pooling resources
- Mechanism to transfer economic resources through time, across borders, among industries
- Way of managing risk
- Means of providing price information for decentralised decision making
- Means of dealing with incentive problems that make financial contracting difficult and costly



Mediated by various market imperfections, frictions and failures.

**Contribution of the financial system to sustainable economic growth and welfare.**

### Assessing the financial system's contribution to economic growth and welfare – criteria.

#### Financial system efficiency

- Allocating resources to their 'best use' (allocative efficiency)
- Performing functions in a cost effective manner (technical efficiency)
- Responding to changing consumer preferences and uncertainty through the development of new financial services and products (dynamic efficiency)



#### Financial system stability

- Smooth and sustainable allocation of resources across time and space
- Resilience to economic shocks
- Minimal disruption to the real economy from any impairment in the functioning of the financial system

### Assessing financial system efficiency – analytical levels.

- Economic system – relationship between the financial sector and the real economy
- Financial system – relationship between financial institutions and markets
- Financial institutions or markets – eg, comparing individual banks and banking systems across countries
- Financial activity – examining intermediation, or payments functions etc
- Financial products – eg, residential mortgage lending margins, credit card interchange fees etc

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have little in the way of financial buffers to absorb negative shocks. Moreover, cost-savings that compromise the quality of the financial services or products supplied by financial institutions may not be desirable.

The *dynamic efficiency* criterion refers to improvements in allocative efficiency and cost effectiveness over time, or innovations in the way the various functions of the financial sector are performed. The development of new products and services in the finance sector can be an engine of economic growth (Lerner and Tufano 2011). However, financial innovation does not always improve welfare or contribute to sustainable economic growth, particularly if it is motivated by short-term profit-seeking behaviour. The repackaging of subprime housing mortgages into tradable financial products in the US, and sold to investors all around the world, is one example of an innovation that may have ultimately undermined sustainable economic growth.

If a financial system was genuinely *fully* efficient across each of these three dimensions it would be making its maximum contribution to sustainable economic growth and welfare. However, economic theory reminds us that the conditions required for the socially optimal outcome are very stringent and unlikely to hold in practice. For example, the lack of perfect competition among the providers of financial products and services may see them extract economic rents from consumers through their market pricing, a form of social cost or inefficiency. While regulatory interventions could be employed to increase the competitive environment or to curb other market failures, the outcomes are likely to fall short of the theoretical ideal. Thus, the analytical challenge is to assess the degree of financial system efficiency, the factors that may be hindering it, and the steps that might be taken to produce incremental improvements.

### Assessing financial system efficiency – levels of analysis

The conceptual framework outlined above can help us to think about financial system efficiency in the New Zealand context but does not provide a single quantifiable metric to assess how efficient the financial system might be.

Ideally, the assessment of efficiency would be conducted at the level of the *economic system* as a whole. This would focus on the relationship between the financial sector and the real economy and the extent to which the financial system might be helping to maximise economic performance. Economists have for many years focused on the relationship between a country's *financial development* and its economic growth and, in the mid-1990s, an empirical literature began to emerge.<sup>5</sup>

This cross-country literature has found a clear positive correlation between the basic level of financial system development – proxied by a number of banking system and stock market metrics related to size, activity and efficiency – and long-run economic growth. Underdeveloped banking and capital markets appear to retard economic growth, as the financial system is not able to effectively perform the six functions listed in figure 1. This empirically-based literature usually concludes that the basic channel is through improved allocative efficiency, as more developed financial systems do not necessarily have a higher level of investment or capital accumulation relative to less developed systems (Wurgler 1998). Alas, whilst relevant for the study of developing economies, the relatively crude approach adopted in the financial development literature provides limited insights into the complex issues influencing efficiency in advanced economies.

The next level down is an assessment of efficiency at the *financial system* level. This can include an examination of the efficiency outcomes from different institutional arrangements such as bank-dominated systems rather than systems that rely more heavily on securities markets. This approach is of relevance to New Zealand, where the financial system is bank-dominated with small and underdeveloped equity and corporate bond markets. Typically, the “capital markets provide low cost arms-length debt or equity finance to a smaller group of firms able to obtain such finance, whereas financial intermediaries such as banks offer finance at a higher cost reflecting the expenses of uncovering information and ongoing monitoring” (Claus, Jacobsen, Jera 2004, p. 6). However, banks and capital markets are

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<sup>5</sup> See for example: Beck and Levine (2000), Demirgüç-Kunt and Levine (2008) and Wurgler (1998).

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not pure substitutes for one another, as large banks often underwrite debt issuance in corporate bond markets and provide a range of other services for financial market participants not necessarily directly available from the capital markets themselves.

The empirical evidence suggests that, for a given level of financial development, differences in financial structure do not help explain cross-country differences in long-run economic performance. Beck and Levine (2000) argue that firms that are heavy users of external financing (from banks or borrowing from capital markets) grow faster in countries with higher overall financial development, but the structure of the financial system per se does not explain any differences in new firm formation and patterns of industrial growth. The legal system and the ability to protect property rights might be more important for economic development than whether the financial system is either bank or capital markets based.

Drilling down further, efficiency can also be evaluated through an *institutional or sectoral* lens. For example, individual New Zealand banks can be compared to each other, or the New Zealand banking system can be compared with other jurisdictions. Likewise, one can assess the efficiency of non-bank deposit-takers, the insurance sector or particular markets. Indeed, most financial sector efficiency research appears to be of this type, with numerous studies aimed at assessing the efficiency of individual banks or sets of banks. These studies use techniques ranging from simple balance sheet ratios to more sophisticated statistical and econometric techniques.<sup>6</sup>

Another approach in assessing efficiency is to examine the various *financial activities or functions* provided by the financial system. For example, one could look at the wedge between what financial institutions and markets pay for funding and what they charge borrowers in the form of lending rates – the cost of financial intermediation. A lower wedge would usually suggest a more competitive environment and a more efficient outcome.

Finally, one could compare the cost, availability and quality of individual *financial products and services* in New Zealand,

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<sup>6</sup> See, for example: Banker and Cummins (2010) and Berger and Humphrey (2000).

or in a cross-country perspective. From a dynamic viewpoint, we might ask whether the financial system is missing any particular financial products that might be necessary to improve the system's contribution to economic performance. All else equal, specific products and services (eg home loan lending products, credit cards, internet banking services etc) that are provided at least cost may be consistent with more efficient outcomes. However, as noted above, a relatively 'cheap' product may not be socially optimal if it arises due to unsustainable competition, or a subsidy of some kind.

## 4 Competition, efficiency and stability – theory and evidence

### Competition and efficiency

A key assumption that is usually made when discussing the structure and efficiency of the financial system (or indeed most markets in general) is that a more competitive environment will produce the preconditions necessary for efficiency – that is, improved allocative efficiency; products and services being produced at lower cost; and a dynamic financial system that is able to innovate over time.<sup>7</sup> This basic premise has guided financial deregulation based on lowering entry and exit barriers in any given market, the liberalisation of product markets and the removal of restrictive trade practices across most industries, including the finance sector since the mid-1980s.

The assumed link between competition and efficiency provides a rationale for policies to improve financial system performance by enhancing the competitive environment, particularly in financial systems that are characterised by a high degree of concentration, such as New Zealand's. High profits and a concentrated market structure are often viewed as markers of an uncompetitive market and an inefficient outcome. High or 'supernormal' profits are usually seen as imposing higher costs on customers relative to the case under more competitive conditions.<sup>8</sup>

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<sup>7</sup> For a useful overview of the relationship between competition and financial system efficiency see: Amel *et al* (2004) and Claessens (2009).

<sup>8</sup> The generation of these supernormal profits or rents based on market power might also reduce the incentive for firms to manage operating costs – the so-called 'quiet-life hypothesis'.

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However, there are several possible objections to this viewpoint. First, a market may be dominated by a few large firms simply because they are the best at what they do and have out-competed their rivals, gaining market share as a result. Second, the 'natural monopoly' argument suggests that large firms can generate cost savings and efficiency gains through economies of scale, by engaging in a broad range of activities or by operating across borders (economies of scope). Paradoxically, policies that break up these large firms, or policies preventing mergers and acquisitions, may actually reduce efficiency in a given industry.<sup>9</sup> Third, there is an argument that dynamic efficiency – the ability of a firm to innovate – requires a degree of market power to compensate these firms for the large costs typically associated with innovation and product development.

Moreover, it is possible that market structure is less important for efficiency than the various barriers to entry and exit to that market. The threat of entry to the market by potential new players may influence the behaviour of incumbents. These barriers include not only formal regulatory barriers but informal ones related to switching costs, for example. Switching costs are the range of costs associated with transferring banking or financial relationships (Matthews, Moore and Wright 2008). These costs, which can have both financial and non-financial dimensions (such as breaking a long-standing personal relationship with a financial provider) may be an important barrier to entry. New entrants may be unable to spur an increase in competition if customers are unwilling to switch. This issue has been one point of focus for the Australian Senate Inquiry into Banking Competition. The Australian Government is currently examining the feasibility of full bank account number portability to reduce switching costs and enhance competition.

Thus, competition can potentially exist in heavily concentrated markets if these markets remain contestable,

as might be the case for New Zealand's banking system, which is dominated by four large banks. Conversely, a market with many institutions need not be competitive if switching costs remain high.

### Efficiency and stability

There is no clear and unambiguous relationship between financial system efficiency and stability in either the theoretical or empirical literature.<sup>10</sup> At times, stability and efficiency appear to conflict with one another, whereas in other circumstances a more efficient financial system is associated with greater financial stability.<sup>11</sup>

Central to the view that more competition will produce greater financial system instability is the argument that financial institutions have franchise or charter value based on their market share and underlying profitability. Banks endeavour to protect this implicit value by not engaging in riskier lending. High profits serve as a buffer against potential losses. Anything that increases competition erodes the market power of incumbent institutions, reducing profit margins and hence franchise value. When this franchise value is low, banks have greater incentive to engage in potentially riskier activity to increase their rate of return – behaviour that may undermine the stability of the financial system.

Empirically, the higher incidence of financial crises since financial deregulation and liberalisation in many countries in the mid-1980s supports the view of a trade-off between greater competition and financial stability. This trade-off also works the other way. Efforts to maintain or enhance the safety and soundness of the financial system may reduce competition and efficiency, by adding to the costs faced by financial institutions, which they may pass on to their customers through higher fees or higher lending rates.

Conversely, efficiency and stability could move together in some circumstances. For example, in a market characterised

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<sup>9</sup> However, this argument might be overstated. Many empirical studies find that economies of scale may be exhausted at an early stage, given the inherent difficulty in managing large and complex organisations or if the geographical scope of operations is large (Amel *et al.*, 2004). Haldane (2010) makes a similar point, arguing that the alleged costs (from diseconomies of scale) from reducing the size and complexity of large financial institutions to improve financial system stability are overstated.

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<sup>10</sup> For a review of this literature see: Beck (2008), Beck *et al* (2010), Berger, Klapper and Turk-Ariss (2008).

<sup>11</sup> See Berger, Klapper and Turk-Ariss (2008) for a discussion of the competing *competition-fragility* and *competition-stability* hypotheses, used to describe the complex relationship between stability and efficiency.

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by a few large banks that are widely considered 'too-big-to-fail', the owners and managers of those banks may engage in risky lending behaviour under the expectation that such activities will be underwritten by the government in the form of a future bailout. This is likely to be both inefficient, since these banks have a competitive advantage over their rivals, and potentially destabilising for the system as a whole. Periods of financial distress and crises are likely to be inherently inefficient, since the economy is likely to be operating below capacity, with financial institutions deleveraging and restricting their lending to creditworthy firms and households. Moreover, the boom that invariably precedes the bust is typically associated with over-investment and over-borrowing when risk is under-priced, indicative of a fundamental misallocation of resources.

## 5 Assessing the efficiency of the New Zealand financial system

As emphasised above, explicitly measuring financial system efficiency is challenging, given its multifaceted nature, and it is not possible to arrive at one definitive measure. At best, we can hope to glean a mix of qualitative insights and some quantitative measures across a number of analytical levels described in section 3.

Most existing studies of New Zealand financial system efficiency have been fairly piecemeal, focusing mainly on issues surrounding the banking sector, given its dominant role within the financial sector.

At least prior to the crisis, these studies painted a fairly sanguine picture of the efficiency of the banking sector. Analysis by NZIER (2002) found that the markets related to lending and borrowing were more or less competitive, while the markets for some transaction services (surcharge rules on credit cards, for example) did have some competitive issues. NZIER (2004) found that the New Zealand banking market was fairly competitive despite a high level of concentration, a finding supported by Chan, Schumacher and Tripe (2007).

Using quantitative techniques to assess the relative efficiency of New Zealand's banks, Tripe (2004 and 2007) found that the major New Zealand banks were at least as efficient as

their Australian parents. However, this analysis was based on a ranking of individual banks against one another and thus does not necessarily reveal much about the efficiency of the banking system in an absolute sense.

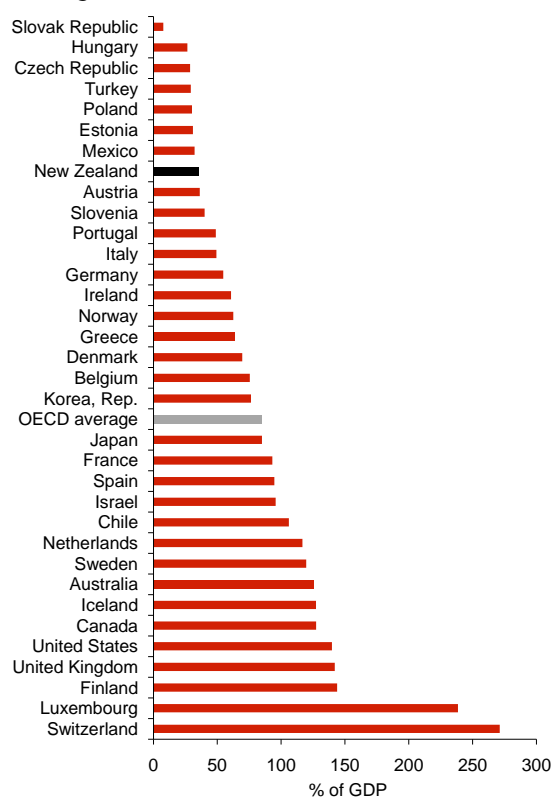
The results of such analyses, moreover, relate only to the time period over which they are conducted. Thus, although OECD (2006) concluded that formal regulatory barriers to entry and exit are low in New Zealand, contestability within the financial system could well have changed since the financial crisis and as a result of the contraction that has occurred within the domestic finance company sector. The predominant position of the big four banks in the New Zealand financial system has arguably increased as a result of these events.

Looking beyond institutions raises broader efficiency questions for New Zealand. For example, there have been a number of policy-related papers questioning the role of the financial sector in facilitating economic growth and improvement in living standards (Cameron *et al* 2007, CMD Taskforce 2009, Savings Working Group 2011). Situated within the highest level of analysis described in section 3, this work has suggested that "among other factors, a lack of savings and financial development may be constraining growth and the productivity performance of New Zealand firms" (Cameron *et al* 2007, p. 2). Specifically, concern has been directed at New Zealand's small equity (figure 2) and corporate bond markets, which lack depth and liquidity and may be a factor impeding the formation of new firms and economic development in general.<sup>12</sup>

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<sup>12</sup> **Improving the functioning of New Zealand's capital markets has also been identified as a goal of the recently established Financial Markets Authority (FMA), primarily through ensuring investor confidence and the enforcement of a clear set of rules governing market behaviour. The Reserve Bank also contributes to the functioning of financial markets through its domestic market operations and foreign reserves management, aspects of which have helped to create liquidity in various markets.**

Figure 2  
Stock market capitalisation – OECD comparison  
(average 2000–09)



Source: World Bank Financial Structure database (updated November 2010).

## 6 The efficiency of the New Zealand banking system – a preliminary investigation

The concentrated nature of the New Zealand banking system raises questions over the level of competition in the New Zealand market. This concentration would be of concern if it allowed banks in New Zealand to maintain excessive margins on lending or high fees on other products. The Reserve Bank has recently been assessing the profitability of the New Zealand banking system and the cost of financial products. The first strand of this work has been to compare balance sheet data on the New Zealand banking system with that of other banking systems to get an idea of the various costs and profit margins that are built into banks' pricing of financial products. The second strand has been to directly compare the pricing on individual financial products across countries.

### Balance sheet ratio analysis

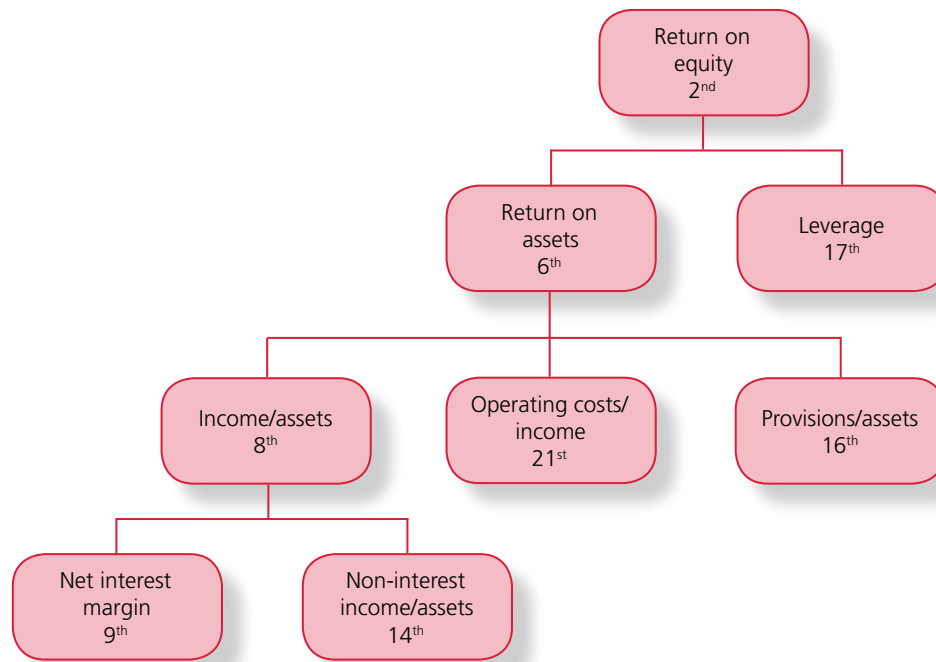
Comparing balance sheet ratios across countries can give some insight into the efficiency of the banking system and relative rates of return. However, such comparisons are fraught with difficulties. For example, differences in product mix and capital and funding structures can result in material differences in observed ratios that are unrelated to the efficiency of the system (see Vittas 1991 for a discussion of some of the factors that can affect these ratios). In addition, differences in accounting standards, particularly around the treatment of goodwill, can affect the measurement of various ratios.<sup>13</sup> At best, such analysis can merely point to differences between banking systems that may merit further investigation.

From figure 3, it can be seen that the return on equity (ROE) in the New Zealand banking system appears to have been very high by OECD standards (see figure 4 for a full ROE comparison by country). From an accounting point of view, the high New Zealand ROE appears to be explained by relatively low operating costs as a share of income, and relatively low loan losses. In many ways, this reflects the low risk profile of the New Zealand banks' loan books and the traditional nature of the New Zealand banking system. New Zealand banks mostly focus on core banking activities, with relatively less securitisation, insurance and investment banking activity than international counterparts. These less traditional activities tend to entail higher cost structures and correspondingly higher fees. It appears that the New Zealand banks have been able to earn relatively high net interest margins and non-interest income despite the low-risk, traditional nature of the banking system.

<sup>13</sup> Goodwill usually appears on the balance sheet of a bank following a merger or acquisition, and reflects the difference between the book value and the purchase price of the acquired firm. Where goodwill is recorded on the bank balance sheet, this will boost the measured level of equity, and hence lower observed returns on equity. In New Zealand, only ANZ National Bank Ltd has significant amounts of goodwill on their balance sheet, as a result of the merger between ANZ and National bank. For the purposes of this comparison, the goodwill has been removed from the ANZ National Bank Ltd numbers.

Figure 3

Decomposition of ROE: New Zealand banks' ranking relative to 22 OECD countries (2002–07 averages)



Source: OECD, Australian Prudential Regulation Authority, RBNZ calculations.

Note: ROE and return on assets are both expressed in after-tax terms. This produces slightly different results than presented in the May 2011 *Financial Stability Report*, which used pre-tax returns. The sample period of 2002–07 was chosen to reflect a recent period of stability. Over a longer sample, the ROE in the New Zealand banking system still looks exceptional, but the drivers have changed over time. For example, in the early 1990s, the New Zealand banking system had very high operating costs and net interest margins, but both of these metrics have declined over time – both in absolute terms, and relative to the OECD average.

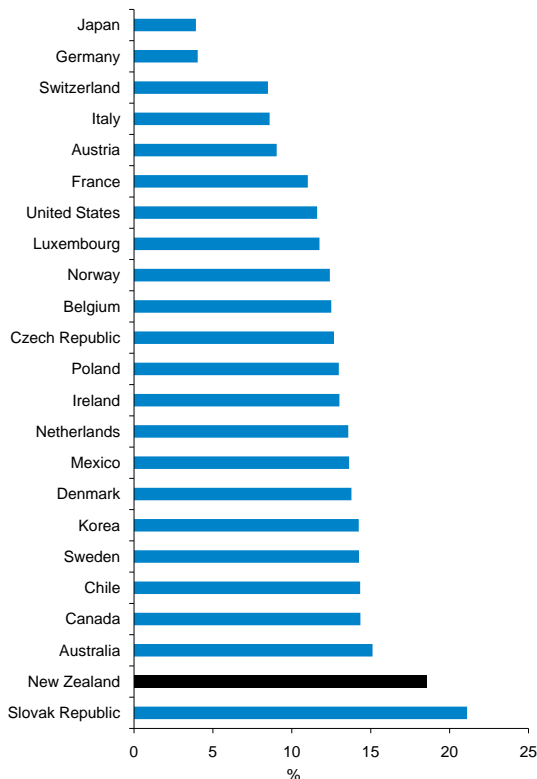
A potential explanation of the relatively high ROE in New Zealand is that it could relate to higher costs of capital facing New Zealand. Risk-free interest rates have been consistently higher in New Zealand than in most other countries, and this could account for part of the higher observed ROE in New Zealand.<sup>14</sup>

Measuring differences in the cost of capital across countries is difficult, and it is especially hard to compare cost of capital estimates with accounting measures of ROE, since many firms have unmeasured goodwill. Another way to determine whether high ROEs for the New Zealand banks are due to high costs of capital is to compare ROEs with other New Zealand companies.

Figure 5 compares the ROE of companies listed on the NZX 50 with those of the New Zealand banking system. Over the 2000–09 period, banks have earned ROEs around 2 percentage points higher than the NZX 50 average. However, many companies have achieved much higher rates of return than the banking sector, and both the goods (mostly manufacturers) and services industries have achieved higher average returns. Nevertheless, the average profitability of the New Zealand banking system does appear somewhat high, given the relatively low volatility of returns compared to other industries.

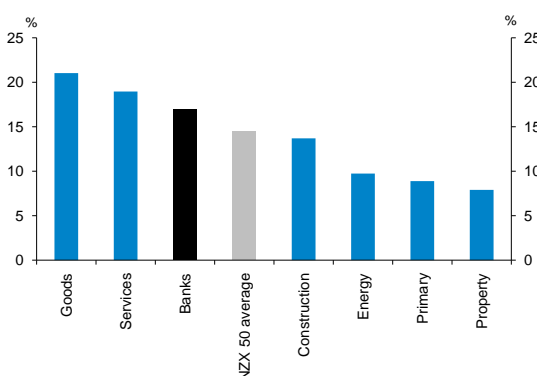
<sup>14</sup> Over this period five-year risk-free rates in New Zealand were 2.1 percent higher than the OECD average. Given that, on average, banks tend to have a market value of equity that is twice as large as their book value, this difference in risk-free rates can justify as much as a 4.2 percent difference in returns on book equity.

**Figure 4**  
**Post-tax ROE**  
**(average 2002–07)**



Source: OECD, Australian Prudential Regulation Authority, RBNZ calculations.

**Figure 5**  
**ROE across industries**  
**(average 2000–09)**



Source: Bloomberg, RBNZ calculations, OECD.

Note: Only firms that are listed on the NZX 50, based in New Zealand, and have data available for the full 2000–09 period have been included in this sample. The sample comprises 28 non-bank firms.

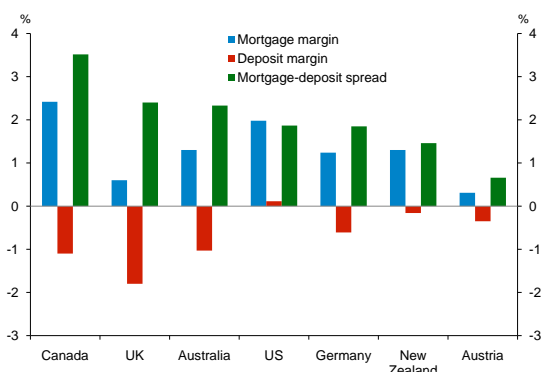
Another potential explanation of the high returns on equity in the New Zealand banking system is the degree of support that the major New Zealand banks receive from their Australian parents. This allows them to maintain lower capital levels than would otherwise be the case to maintain their credit ratings. Nevertheless, the capital ratios of New Zealand subsidiary banks are similar to those of the Australian parents, and it remains an open question why the Australasian banking system as a whole has been relatively profitable.

### Product level comparison

Given the difficulties of comparing balance sheet ratios across countries, an alternative is to compare the pricing of individual financial products. However, differences in financial services across countries, as well as a lack of data, make it difficult to perform comparisons for many products. The simplest products to compare are residential loans and retail savings, as these products tend to be relatively similar across countries and data are widely available. Figure 6 shows average mortgage and deposit rates for maturities of around two years relative to benchmark interest rates in a number of countries. On average, New Zealand mortgage interest rates have been priced at a similar margin to swap rates as in the other countries in the sample. However, New Zealand deposit rates have been more generous than average at only a small discount to swap rates. Overall, the margin between lending and deposit rates has been relatively low in New Zealand, which suggests that high profitability has not been due to banks earning excessive interest margins on either of these products.<sup>15</sup>

<sup>15</sup> Since 2009, there has been a major structural break in how both loans and retail deposits have been priced relative to swap rates in a number of countries, reflecting rising bank funding costs relative to benchmark rates. This has been particularly pronounced in New Zealand, with both products now being priced at a larger margin to swap rates than in most other countries. However, the spread between lending and deposit rates has remained relatively constant and comparatively low in New Zealand in the post-crisis period.

**Figure 6**  
**Mortgage and deposit interest margins**  
**(spread to swap rates)**



Source: Bloomberg, Interest.co.nz, Bank of Canada, Reserve Bank of Australia, Haver Analytics.

Note: Mortgage interest rates are for a standard mortgage with a fixed term of 2-3 years. Deposit interest rates are for a deposit roughly equivalent to NZ\$10,000 for 2-3 years. Data definitions vary slightly across countries.

## 7 Conclusion

The efficiency of the financial system can have an important bearing on a country's economic performance and can be influenced by a broad range of factors, including competition within the financial system. However, financial system efficiency is a complex economic concept and measuring it can be extremely challenging – both quantitative and qualitative analysis is required.

A simple cross-country comparison reveals that, over the past two decades, the New Zealand banking system appears to have achieved high rates of return on equity by international standards, which serves as a useful prompt for questions about the efficiency and competitive structure of the financial system. However, as noted, a fully convincing explanation of this result remains elusive.

Reflecting its legislative mandate, the Bank will continue to research matters relating to both the soundness and efficiency of the financial system and report on them in its regular *Financial Stability Reports* and future *Bulletin* articles.

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