
The global financial crisis and its transmission to New Zealand – an external balance sheet analysis

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Recent global events have underscored how instability in the international financial system can have a pervasive impact on the world economy. Starting in the middle of 2007, deteriorating credit quality in the US residential mortgage market served as the catalyst for a systemic financial crisis that has spread far beyond its original source, including to New Zealand. This article aims to shed light on the channels through which these global developments have affected the domestic financial system and real economy, principally by examining the scale and composition of the international assets and liabilities that comprise New Zealand's external balance sheet.

1 Introduction

The international financial system has been under extreme strain over the past 18 months. As described in recent editions of the Reserve Bank's *Financial Stability Report*, rising credit losses on US residential mortgages during the first half of 2007 triggered a sustained period of disruption in financial markets across most of the developed world. Having narrowed to historic lows in recent years, credit spreads widened sharply and equity prices declined as investors reassessed the price of risk.² Measures of market volatility reached record highs and a number of prominent financial institutions in the US and Europe encountered severe balance sheet distress, especially as the cost and availability of new equity capital and wholesale debt funding became increasingly restrictive.

The international policy response to the financial crisis has been unprecedented in scale and scope (see RBNZ, 2008a, for a more detailed discussion). Among other things, several governments have injected capital directly into distressed institutions and offered to guarantee eligible banks' wholesale debt, typically for a fee. Retail deposit insurance

schemes have also been extended or established in a number of countries. Central banks have significantly extended their market operations in response to increased liquidity demands. These actions have helped to restore a degree of market stability, but credit spreads remain at elevated levels and there is mounting evidence of substantial impairment of financial intermediation in the major economies, leading to weaker economic activity. Global growth forecasts have been revised sharply downward, prompting substantial cuts in official interest rates and proposals for fiscal stimulus programmes in many countries.

Strains in international financial markets have also affected New Zealand's financial system and real economy. The New Zealand banks did not invest in the US mortgage assets that have been at the centre of the current financial crisis, allowing them to avoid the substantial credit losses incurred by many of their international counterparts. Nevertheless, the disruption in global credit markets has placed significant pressure on the major New Zealand banks' funding and liquidity. Access to offshore debt markets has become increasingly difficult and expensive for the banks and other borrowers, ultimately leading to tighter credit conditions in the real economy. This article explores the transmission channels in more depth.³

¹ An earlier version of this analysis was prepared for the Bank for International Settlements (BIS) Autumn Economists' Meeting held in Basel in October 2008. The article has benefited from input from several Reserve Bank colleagues, including David Hargreaves, Bernard Hodgetts, Chris Hunt and Tim Ng.

² The compression of risk premia over several years prior to 2007 can be traced to the accumulation of large current account imbalances between major economies and the ensuing cross-border flow of capital, as described in, for example, Hunt (2008) and Bean (2008).

³ The focus of the article is on *direct* transmission channels. To the extent that a global financial shock adversely affects economic activity in New Zealand's key trading partners, there will also be an *indirect* effect through reduced export demand and lower international commodity prices.

Figure 1

The external balance sheet

International assets	International liabilities
Outward foreign direct investment	Inward foreign direct investment
Portfolio assets	Portfolio liabilities
<ul style="list-style-type: none"> • Equity securities • Debt securities 	<ul style="list-style-type: none"> • Equity securities • Debt securities
Other international claims	Other international obligations
Foreign exchange reserves	

Note: Other international claims/obligations include (non-tradable) loans, deposits, trade credit and derivative positions.

The following section outlines a framework for analysing the channels through which a global financial shock of the type observed recently can affect a small developed economy such as New Zealand, focusing in particular on the scale and composition of the external balance sheet. Section 3 examines New Zealand’s international assets and liabilities from this perspective, while section 4 discusses the central role of the banking system as an intermediary for capital flows into the country and highlights the associated risks, some of which have crystallised over recent months. Section 5 briefly summarises the steps taken by the Reserve Bank and the government to mitigate these risks and identifies some longer-term analytical and policy challenges stemming from recent events. Section 6 concludes.

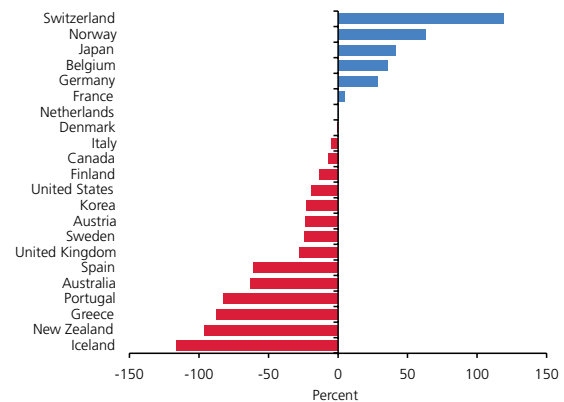
2 Potential transmission channels

Global financial shocks can have a significant impact on small developed economies. The way in which different countries are affected will naturally depend on specific national circumstances and the nature of the original shock. A convenient framework for analysing potential transmission channels is to examine a country’s external balance sheet, which comprises international assets (claims on non-residents) and international liabilities (obligations towards non-residents). Figure 1 provides a stylised representation.

The difference between the recorded value of international assets and liabilities defines the net international investment position (IIP), which can be either positive or negative. Across developed economies, for example, the balance between international assets and liabilities varies substantially (figure 2), ranging from net assets of more than 100 percent of gross

domestic product (GDP) in Luxembourg and Switzerland to net liabilities of around 125 percent of GDP in Iceland.⁴ New Zealand is also relatively heavily indebted by international standards (see section 3).

Figure 2
Developed economies’ net international investment positions
(percent of domestic GDP, end-2006)



Source: IMF Balance of Payments Statistics and World Economic Outlook.

A small developed economy can maintain a positive net IIP indefinitely, but the same is not necessarily true for a negative position. The sustainability of a large stock of net international liabilities rests critically on the willingness of international investors to hold claims on the country concerned (Edwards, 2006). Traditional IIP analysis maps this sustainability condition to the ability of the country to generate sufficient trade surpluses to prevent net

⁴ To facilitate cross-country comparison, figure 2 is constructed using annual IMF balance of payments data, for which the latest available data point is end-2006 for most developed economies. According to national sources, Iceland’s net international liabilities had increased to approximately 160 percent of GDP by the second quarter of 2008.

international liabilities from growing indefinitely.⁵ A limitation of this analytical approach, however, is that it focuses primarily on the fundamental creditworthiness of the country, with little explicit consideration of how exogenous developments in the global financial system can affect international demand for the country's assets. A more granular analysis is required to uncover how global financial shocks will affect the external balance sheet, even where the sustainability of the net IIP is not in doubt.

Episodes of global financial instability are typically associated with reduced risk appetite, increased market volatility, widening credit spreads, and declining asset prices. One productive avenue for investigating the impact on a small developed economy such as New Zealand is to examine how the value of gross international assets and gross international liabilities will be affected. It is also worthwhile to consider the overall size (or leverage) of the external balance sheet.

International assets

Declining asset prices will have an immediate effect on the market value of international portfolio investment, with the potential downside generally greatest for equity assets. The impact on outward foreign direct investment (FDI) and other non-tradable instruments (such as loans and trade credit) will typically be less significant, since these assets are typically recorded on the external balance sheet at book value rather than being 'marked-to-market' in the same way as portfolio securities. However, recent experience has clearly demonstrated that global financial shocks can have a malign impact on the world economy, which will ultimately depress the 'true' value of outward FDI and may increase default risk on non-tradable debt assets.

Valuation effects can also stem from the sharp exchange rate adjustments that tend to accompany wider episodes of financial market turmoil. By definition, foreign exchange

reserves will not be denominated in the local currency, and the same is likely to be true of most other international assets (especially for smaller economies such as New Zealand). A depreciation of the local currency will therefore increase the recorded value of international assets, with an appreciation having the opposite effect.

International liabilities

The liabilities side of the external balance sheet is subject to similar valuation effects. Assuming that global market developments are broadly mirrored in local debt and equity markets, declining asset prices will erode the value of international portfolio liabilities. It is also possible that the value of inward FDI will be marked down if the outlook for the domestic economy deteriorates significantly.

Exchange rate depreciation will not generally affect the recorded value of international equity liabilities (denominated in local currency), but will increase the local-currency value of international debt liabilities issued in foreign currency.⁶ Adverse valuation effects of this kind can, however, be hedged by matching the currency composition of international assets and liabilities – an increase in the local-currency value of international debt liabilities would then be offset by a rise in the recorded value of international assets. An alternative hedging option is to use financial derivatives such as foreign exchange (FX) swaps, although this strategy may be less than fully effective if derivatives markets become impaired during episodes of wider financial instability (Woolford *et al.*, 2001).

As a general rule, equity liabilities (inward FDI and portfolio securities) are considered to be a relatively stable source of international capital, principally because they are not subject to the same rollover risks as debt liabilities.⁷ An

⁵ Edwards (2006) and, more formally, Obstfeld and Rogoff (1996) note that, in equilibrium, the net IIP-to-GDP ratio must stabilise at some level. Abstracting from valuation effects, this is achieved when net export earnings cover any shortfall between GDP growth and the average interest rate payable on net international liabilities.

⁶ Exchange rate depreciation and the impact on the local-currency value of foreign-currency denominated debt played a central role in a number of emerging market financial crises during the late 1990s and early part of the present decade.

⁷ It is, however, plausible that, in some circumstances, long-term debt liabilities may actually be more stable than portfolio equity liabilities (Woolford *et al.*, 2001). For example, sharp shifts in international investors' appetite for local equities could create significant volatility in the local market.

international debt liability will, by definition, mature on some defined date, at which time it must be refinanced through new debt issuance on terms dictated by conditions in global credit markets. If the latter deteriorate along the lines observed from the middle of 2007 onward, the cost of the new debt will increase, ultimately leading to tighter domestic credit conditions. The effect is likely to be particularly pronounced for countries, such as New Zealand, that are heavily reliant on international capital by virtue of a negative net IIP. For these countries, the global financial system is effectively the *marginal* source of debt and equity finance to the real economy. The impact will also be greater where the average maturity of international debt is relatively short, thus requiring the country to refinance maturing debt on a regular basis and ensuring that increases in the marginal cost of new international borrowing will be more quickly reflected in the average interest rate payable on all international liabilities. The pass-through to domestic credit conditions will also be faster.

Heavy reliance on short-term international debt also entails substantial rollover risk. Although a remote possibility in normal circumstances, the recent financial market turmoil demonstrates that, in the event of an especially severe global financial shock, even a fundamentally creditworthy country may not be able to refinance maturing international debt at *any* price. The resulting net capital outflow would place downward pressure on the exchange rate and likely trigger significant economic disruption. It is critically important, therefore, to conduct rigorous analysis of the potential for rollover risks of this kind to crystallise and also develop contingency arrangements to cater for the effective closure of key international credit markets.

International financial leverage

The extent of a country's exposure to global financial shocks is also influenced by the absolute size of its external balance sheet, as measured by the sum of gross international assets and liabilities relative to domestic GDP. Figure 3 illustrates how a balanced or positive net IIP can disguise very large gross positions. In particular, a number of small developed economies (including Iceland, Belgium and the Netherlands) have accumulated sizeable stocks of international assets

funded in large part by international liabilities. These countries' external balance sheets can be described as highly leveraged.

Figure 3
Developed economies' net indebtedness and international financial leverage
(percent of domestic GDP, end-2006)



Note: Country sample as in figure 2, excluding extreme outliers Luxembourg and Ireland.
Source: IMF Balance of Payments Statistics and World Economic Outlook.

A more leveraged external balance sheet entails increased exposure to global financial shocks through at least two channels (Whitaker, 2006). First, fluctuations in the average yields on international assets and liabilities will have a larger impact on net investment income and the current account, possibly with implications for the sustainable level of the net IIP. The second channel concerns the valuation effects discussed previously – a larger balance sheet will mean that falling international and domestic asset prices and/or sharp exchange rate adjustments will have a greater impact on the value of international assets and liabilities (relative to GDP).

Summary of transmission channels

The preceding analysis identifies a variety of channels through which instability in the international financial system can affect the external balance sheet and the net IIP – falling asset valuations, higher cost and/or reduced availability of international credit, and the impact of movements in the exchange rate. An effective hedging strategy can, in principle, offset the effect of the third of these channels, and shifting the composition of international liabilities towards equity instruments and longer-term debt can help to minimise

the impact of the second channel. Moreover, the impact of declining asset prices on the net IIP is ambiguous, since both sides of the external balance sheet will be affected.

For most developed economies, however, lower international asset prices can be expected, *a priori*, to have a negative impact on the net IIP, since these countries' external balance sheets are typically "short debt, long equity" (Lane and Milesi-Ferretti, 2006).⁸ That is, international liabilities are biased towards debt instruments, while international assets are relatively more concentrated in equity investments, for which valuation effects are likely to be larger. As discussed in section 3, New Zealand is a notable exception to this pattern, along with a handful of other developed economies (including Australia and Spain) with large negative net IIPs.

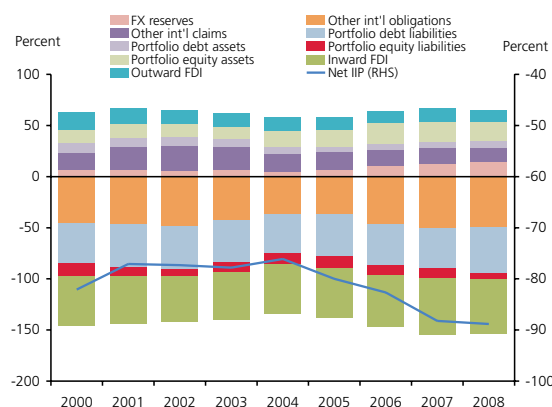
Most small developed economies have ample capacity to absorb a deterioration of their net IIP, even where the impact of a global financial shock is amplified by leverage and a "short debt, long equity" international investment strategy. Greater economic costs may arise, however, where a country is both heavily indebted and highly leveraged, particularly if a large proportion of international assets are held in relatively illiquid equity investments and most liabilities are in the form of short-term debt. From this starting point, even a relatively small negative shock to the asset side of the external balance sheet could increase net international liabilities beyond sustainable levels and present significant rollover risks. This logic is consistent with recent experience in Iceland, which has been severely affected by the dislocation in global credit markets over the past 18 months, culminating in a systemic banking and currency crisis in October this year.⁹

3 New Zealand's external balance sheet

Figure 2 shows that New Zealand is one of the most heavily indebted developed countries in the world and, consequently, heavily dependent on international capital, although the level of financial leverage is relatively low by developed economy standards (figure 3). This section takes a closer look at the scale and composition of the external balance sheet.

New Zealand's net international liabilities reached nearly 90 percent of GDP in the second quarter of 2008 – a record high.¹⁰ Large and persistent current account deficits have driven a trend increase in international indebtedness through most of the decade, with the net IIP declining by more than 15 percent of GDP since 2004 (figure 4). Unlike most other developed economies, New Zealand has net international liabilities in both equity and debt instruments (approximately 10 percent and 80 percent of GDP respectively).¹¹ A similar situation is evident in Australia.¹²

Figure 4
New Zealand's international assets and liabilities
(percent of GDP, June years)



Source: Statistics New Zealand.

⁸ As noted by, among others, Kubelec *et al.* (2007), this type of international investment strategy can be likened to the business models of hedge funds and venture capitalists.

⁹ See Svavarsson (2007) for an analysis of the composition of the Icelandic external balance sheet prior to the crisis, and IMF (2008) for a brief summary of how the crisis developed.

¹⁰ The data reported in this section are sourced from Statistics New Zealand (SNZ). Owing to different statistical conventions, there are small discrepancies between the SNZ data and IMF data used to construct figures 2 and 3 in section 2.

¹¹ A significant factor in New Zealand's net international equity liabilities is large-scale inward FDI from Australia, due largely to parent-subsidiary relationships, notably in the banking sector. Edwards (2006) reports that around 50 percent of inward FDI originates in Australia.

¹² See Lane and Milesi-Ferretti (2006).

The composition of New Zealand's external balance has remained relatively static through time, although the share of equity securities and foreign exchange reserves in total international assets has increased slightly over recent years. On the liabilities side, inward FDI consistently accounts for roughly one-third of the gross stock of international capital in New Zealand. The remaining two-thirds comprises mostly debt instruments, encompassing a mixture of securities and non-tradable credit instruments (including loans and trade credits) captured in the 'other international obligations' category. Offshore investors' holdings of New Zealand equity securities are relatively limited and currently account for less than five percent of gross international liabilities.

Another relative constant is New Zealand's financial leverage. The sum of gross international assets and liabilities has fluctuated between 200 and 220 percent of GDP since 2000 – low by international standards (figure 3). Despite being heavily indebted, New Zealand is not, therefore, exposed to global financial shocks to the same degree as Iceland and some other highly leveraged developed economies. Nevertheless, the relatively high debt-to-equity ratio on the liabilities side of the external balance sheet implies a significant potential vulnerability to adverse developments in international credit markets.

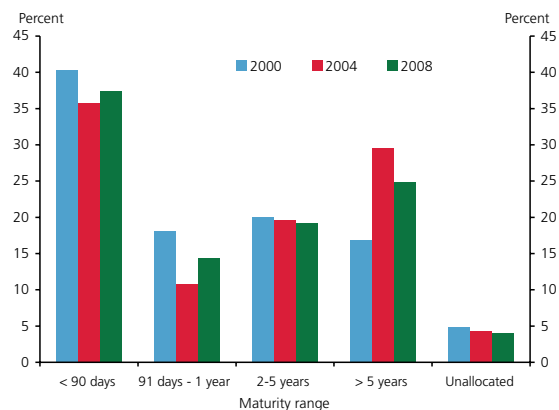
The extent of this vulnerability is determined by the composition, maturity profile and currency denomination of New Zealand's gross international debt. As discussed in section 4, the major New Zealand banks obtain a material amount of (non-tradable) debt funding directly from their Australian parents. These liabilities will generally be counted as 'other international obligations' on New Zealand's external balance sheet and can be considered a relatively stable form of international capital.¹³ However, the banks, the government and some New Zealand businesses also borrow externally by issuing debt securities in offshore credit markets (currently around 45 percent of domestic GDP) and through direct loans from international banks and other lenders. Both forms of borrowing are subject to the type

of rollover risks described in section 2, especially where the maturity profile of the debt is relatively short.

Given available data, it is not possible to examine the maturity structure of parental and non-parental debt separately. Across New Zealand's gross international debt as a whole, however, around 40 percent is scheduled to mature within three months, with substantially more than half due for renewal within a year (figure 5). These ratios have remained relatively static since 2000, although the fraction of international debt classified as long term (maturity more than five years) has fluctuated more significantly, reaching a high of 30 percent in 2004, before falling back to around 25 percent currently.

Around half of New Zealand's international debt liabilities are denominated in foreign currency (mostly US dollars), although this ratio has declined over recent years. The total stock of foreign-currency debt outstanding amounted to nearly 60 percent of GDP in the second quarter of 2008, with the banking sector accounting for a sizable fraction (see section 4). Most of the associated exchange rate risk is hedged using financial derivatives. The annual hedging survey conducted by Statistics New Zealand indicates that, in March 2008, more than 80 percent of gross foreign-currency debt was hedged using derivatives, with a further 11 percent hedged 'naturally' against assets or other receipts.

Figure 5
Maturity profile of New Zealand's gross international debt liabilities
(June years)



Source: Statistics New Zealand.

¹³ If, however, the debt is interpreted as 'permanent', it will be counted as inward FDI (that is, equity rather than debt). Examples of permanent debt (as defined by SNZ) include subordinated debt that is treated as eligible capital for prudential purposes.

4 Role of the domestic banking system in intermediating capital flows

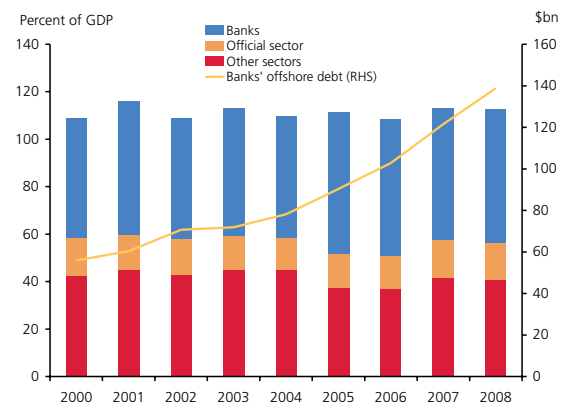
Analysis of the scale and composition of the external balance sheet can provide useful insights into the channels through which global financial shocks can affect a small developed economy such as New Zealand. However, it is also crucial to examine *how* international capital flows into and out of the country. Given New Zealand's negative IIP, a key factor is the distribution of gross international liabilities across sectors.

One way in which international capital can enter New Zealand is through offshore investors' direct purchases of domestic assets. As noted in section 3, inward FDI covers approximately one-third of New Zealand's external financing requirements. However, offshore investors' willingness and ability to purchase portfolio assets in New Zealand is restricted by the relatively small size of local corporate debt and equity markets. Moreover, fiscal surpluses over recent years have resulted in gross government debt declining to less than 20 percent of GDP – relatively low by international standards.¹⁴

Alternatively, capital inflows can stem from New Zealand borrowers (including the government) issuing debt in international credit markets. The major banks account for the majority of this issuance, principally because relatively few New Zealand firms have sufficient scale and 'name recognition' to access offshore markets directly on affordable terms. Overall, the banking sector currently accounts for approximately 60 percent of New Zealand's gross international debt liabilities, up from around 50 percent at the start of the decade (figure 6).¹⁵ In nominal terms, the banks have borrowed nearly \$140 billion (90 percent of annual GDP) from international investors.

This pattern is also evident in the New Zealand banks' funding profiles. Retail deposits account for less than half of total funding, with the remainder obtained from wholesale sources (RBNZ, 2008a). Although the banks are able to obtain some wholesale funding in local debt markets, by far the larger share (around 75 percent) is obtained from offshore – a natural corollary of the negative IIP and limited scope for capital to flow into New Zealand via alternative means. Moreover, the maturity profile of the banks' offshore funding is relatively short, consistent with the aggregate picture shown in figure 5, with more than 40 percent typically due to mature within 90 days.

Figure 6
Sectoral distribution of New Zealand's gross international debt
(June years)



Note: Official sector includes general government plus monetary authorities (the Reserve Bank).
Source: Statistics New Zealand.

The four largest New Zealand banks obtain offshore (debt) funding in two ways. First, as noted in section 3, they receive funds directly from their Australian parents, typically in the form of a 'loan' between the parent institution and its New Zealand subsidiary.¹⁶ Second, the banks issue substantial quantities of debt securities in international credit markets. Although these securities could, in principle, be denominated in New Zealand dollars (NZD), in practice the banks have been able to achieve a lower overall cost of

¹⁴ A substantial fraction (typically around three-quarters) of New Zealand sovereign debt is held by offshore investors.

¹⁵ Although statistical compilation methodologies differ somewhat, to a first approximation at least, the international liabilities captured in figure 6 correspond to the 'portfolio debt liabilities' and 'other international obligations' categories in figure 4.

¹⁶ The Australian Prudential Regulation Authority (APRA) places limits on the scale of these flows in order to prevent a detrimental impact on the financial condition of the parent institution. For similar reasons, the Reserve Bank limits 'connected lending' from a New Zealand bank to its Australian parent.

funding by issuing in US dollars or euros and subsequently swapping the proceeds into NZD. The counterparty to the swap transaction is typically a highly-rated supranational institution that has been able to use its strong credit standing to issue NZD-denominated bonds in, for example, the Japanese retail market (Drage *et al.*, 2005). The swap also ensures that the exchange rate risk associated with the banks' foreign-currency borrowing is hedged.

Parental funding flows should be relatively stable and insulated from market developments, at least provided there is no material deterioration in the aggregate financial position of the Australian banking system. By contrast, recent events underscore that the cost and availability of offshore funding obtained via debt issuance can be materially affected by global financial shocks.

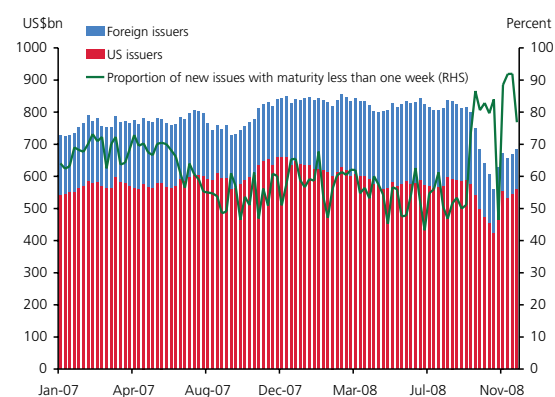
Impact of the financial crisis on New Zealand banks' funding

As noted previously, the generalised reassessment of risk from the middle of 2007 onward precipitated a sharp rise in credit spreads in international debt markets. The major New Zealand banks' marginal cost of offshore funding increased accordingly, at least relative to the level of the official cash rate (OCR) set by the Reserve Bank.¹⁷ The average cost also increased relatively quickly as the banks were required to roll over substantial amounts of maturing debt on less favourable terms.

The New Zealand banks also encountered, from time to time, quantity constraints on the amount of debt they could issue in international credit markets, particularly following the failure of US investment bank Lehman Brothers in September 2008. As described in the November 2008 edition of the Reserve Bank's *Financial Stability Report* (RBNZ, 2008a), this event triggered a sharp contraction in the US commercial paper (CP) market as investors shifted into 'safe-haven' assets, principally government debt, amid concern over the

viability of other major financial institutions in the US and elsewhere. Financial issuers' CP outstanding declined more than 25 percent in the space of six weeks and new issuance became increasingly concentrated in short maturities (figure 7). Some other wholesale funding markets experienced similar levels of dysfunction.

Figure 7
US commercial paper outstanding and the maturity profile of new issuance (financial issuers only)



Source: Federal Reserve, Bloomberg and Reserve Bank calculations
Note: Weekly data, to end-November 2008.

The CP market is a key source of short-term funding for many US and international financial institutions, including the major New Zealand banks. The near-seizure of this market during October and November 2008 underscores the rollover risks inherent in heavy reliance on short-term international debt. For a period of several weeks, the banks' ability to issue CP was limited to very short maturities, meaning that rollover requirements increased steadily as longer-term debt issued prior to September 2008 started to mature. In this environment, a further deterioration in market conditions (possibly even precluding all new issuance) has the potential to create balance sheet liquidity pressures very quickly, emphasising the importance of identifying alternative funding sources wherever possible.

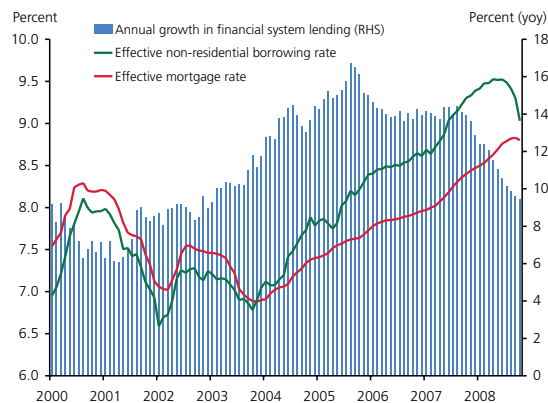
Higher costs and reduced availability of offshore funding naturally spurred increased competition among the New Zealand banks for domestic wholesale and retail funding. Aggressive pricing of retail products (together with investor concerns over alternative investments) helped the local banks to attract larger volumes of retail deposits through most of

¹⁷ Firm data on the New Zealand banks' actual cost of offshore funding are not available, but recent and expected future reductions in the OCR are likely to have more than offset the impact of widening international credit spreads. For example, Reserve Bank of Australia (2008) reports that Australian bank bond yields fell over 100 basis points between June and September 2008.

2008. At the same time, increased demand for domestic wholesale funding placed upward pressure on New Zealand bank bill yields. From a benchmark level of around 20 basis points prior to the onset of the financial market turmoil, the spread between 90-day bank bill yields and the expected level of the OCR climbed to more than 100 basis points during October 2008.

Overall, therefore, the ongoing disruption in global financial markets presented significant funding challenges for the New Zealand banks. The banks responded by tightening loan criteria (for example, by imposing a lower maximum loan-to-value ratio on new residential mortgages) and increasing lending margins, particularly for riskier borrowers. Despite substantial reductions in the OCR during the second half of 2008, average interest rates payable by households and businesses in New Zealand declined relatively slowly, while annual growth in financial system lending slowed from more than 16 percent in the middle of 2005 to less than 10 percent by October 2008 (figure 8).¹⁸

Figure 8
Effective interest rates and domestic credit growth in New Zealand



Note: Effective non-residential lending rate is estimated from data on average economy-wide interest rates.
Source: RBNZ.

5 Policy responses and future challenges

The New Zealand authorities responded to the impact of the global financial crisis by adopting a number of significant policy measures during 2008. The Reserve Bank, for example, implemented a series of changes to its domestic market operations designed to ensure the New Zealand banks have adequate access to central bank liquidity if required, including the introduction of a Term Auction Facility (TAF) and expanding the universe of eligible collateral to encompass residential mortgage-backed securities (RMBS). The article by Ian Nield in this edition of the *Bulletin* explains the new arrangements and the rationale behind them in greater detail (Nield, 2008). In addition, the Minister of Finance announced in early November that the government would guarantee the (new) wholesale debt of New Zealand's major banks and other investment-grade financial institutions. The guarantee facility aims to improve the banks' access to offshore debt markets (on affordable terms) and complements a similar arrangement guaranteeing retail deposits in New Zealand.¹⁹

These measures are primarily aimed at mitigating the near-term impact of adverse developments in the international financial system on New Zealand. Looking further ahead, the experience of the past 18 months highlights a number of important analytical and policy challenges.

Perhaps the most immediate 'lesson' is that analysis of external balance sheets should be enhanced, moving beyond the traditional approach of focussing on the sustainability of the *net* IIP. Regular examination of the scale and composition of *gross* international assets and liabilities (along the lines of this article) is required to assess how developments in the international financial system may affect the domestic economy.²⁰ For most small economies, including New Zealand, this will typically overlap assessments of the extent to which the local banking system is able to absorb a sudden deterioration in global financial market conditions and the likely degree of pass-through to domestic credit conditions

¹⁸ A further factor in the relatively slow pass-through of cuts in the OCR to average interest rates, particularly in the household sector, is the relatively high incidence of fixed-rate borrowing in New Zealand.

¹⁹ Further details on the guarantee schemes can be found in The Treasury (2008a, 2008b).

²⁰ Along similar lines, King (2006) advocates placing external balance sheet analysis at the centre of IMF surveillance activities.

and the real economy. The Reserve Bank conducts this type of analysis on an ongoing basis and reports key findings in the *Financial Stability Report* every six months.

From a policy perspective, one important issue stemming from the global financial crisis concerns the suitability of relying heavily on the banking sector to intermediate international capital inflows into New Zealand. The current situation offers both advantages and disadvantages. Managing financial risks is a core banking activity, suggesting that the major New Zealand banks should have a comparative advantage over other potential borrowers in understanding and, where possible, mitigating the risks associated with international debt issuance. The banks also possess strong credit ratings and have direct access to Reserve Bank liquidity facilities. At the same time, however, relying on a relatively small number of institutions to intermediate a large fraction of aggregate capital flows entails a degree of concentration risk and underscores the importance of proper risk management.

One way of reducing dependence on the banking system is to promote the development of larger and more liquid capital markets in New Zealand. Ongoing work by the inter-agency Capital Market Development Task Force established in July 2008 is expected to deliver some progress in this regard.²¹ The Reserve Bank supports these initiatives. Over time, the establishment of, for example, a more extensive corporate debt market should provide an additional channel for international capital to flow into the country. The eventual development of a secondary market in RMBS originated in New Zealand would achieve a similar outcome. More immediately, fresh issuance of Reserve Bank bills (as part of wider changes to domestic market operations) should provide offshore investors with increased opportunity to purchase portfolio assets in New Zealand.

Nevertheless, the banking sector is likely to remain the dominant intermediation channel for the foreseeable future. There is consequently an important role for prudential supervision in ensuring that the New Zealand banks manage the liquidity risk associated with offshore borrowing in a suitably prudent manner. The Reserve Bank issued in

October 2008 a consultation paper setting out proposals for enhancing liquidity regulation in New Zealand (RBNZ, 2008b), with the principal aim of encouraging the banks to diversify the sources and lengthen the maturity profile of their wholesale funding once global market conditions begin to normalise. As recent events have demonstrated, the terms on which the New Zealand banks are able to obtain offshore funding can have important macroeconomic effects; therefore calibration of the proposed policy will need to pay close attention to the impact on the real economy.

6 Conclusion

New Zealand, along with many other small developed economies, has been materially affected by the disruption in global financial markets over the past 18 months. This article has explored the transmission channels through the lens of the scale and composition of the international assets and liabilities that comprise the external balance sheet. As well as being heavily indebted in net terms, New Zealand's gross international liabilities comprise mostly debt (rather than equity), a large proportion of which is issued by the banking sector at relatively short maturities. Difficult conditions in offshore credit markets have consequently placed strain on the banks' funding and liquidity, ultimately leading to tighter domestic credit conditions.

The Reserve Bank and the Government have implemented a range of policy measures intended to ensure that global developments do not undermine economic and financial stability in New Zealand. Over the longer term, there are important questions to address regarding the role of the banking system in intermediating capital flows and the macroeconomic implications of how these institutions manage funding and liquidity risks. The Reserve Bank is actively exploring these issues.

²¹ The Task Force published an interim report in November 2008 (Capital Market Development Task Force, 2008).

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