AUSTRALIAN CENTRE FOR FINANCIAL STUDIES

FUNDING AUSTRALIA'S FUTURE

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FINANCING THE AUSTRALIAN BUSINESS SECTOR

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Funding Australia's Future

The Australian Centre for Financial Studies (ACFS) instigated the project Funding Australia's Future in late 2012 to undertake a stocktake of the Australian financial system, and analyse its role in facilitating economic growth within the wider economy.

In an economy which has enjoyed 21 years of consecutive economic growth and shown a resilience through the Global Financial Crisis (GFC) which is the envy of many nations, the financial sector has played a strong and pivotal role. The past decade, however, has been one of significant change. The growth of the superannuation sector, the impact of the GFC and the subsequent wave of global re-regulation have had a profound effect on patterns of financing, financial sector structure, and attitudes towards financial sector regulation. Identifying the extent to which these changes are transitory or likely to be more permanent is crucial to understanding how financing patterns and the financial sector will develop over the next decade or so.

Stage Two of Funding Australia's Future drills down into the key issues identified in Stage 1 of the project culminating in a set of recommendations aimed at placing Australia's financial system in a position to best meet the challenges presented by a rapidly changing and increasingly globalised economy.

In undertaking this analysis, ACFS has worked with a group of financial sector stakeholders, including the Australian Bankers Association (ABA), the Australian Finance Conference (AFC), the Australian Financial Markets Association (AFMA), the Association of Superannuation Funds of Australia (ASFA), the Australian Securitisation Forum (ASF), the Australian Securities Exchange (ASX), Challenger Limited, the Customer Owned Banking Association (COBA), the Financial Services Council (FSC), the Financial Services Institute of Australasia (Finsia), the Insurance Council of Australia (ICA), KPMG, National Australia Bank (NAB), the SMSF Professionals' Association of Australia (SPAA) and Vanguard Investments, as well as Treasury and the Reserve Bank of Australia (RBA).

This paper is one of four in Stage Two, which include:

1. Financing Australian Business:
   Associate Professor Sam Wylie, Melbourne Business School and the University of Melbourne
2. Australian Household Sector Finances:
   Professor Michael E. Drew, Griffith University and Drew, Walk and Co
   Dr Adam N. Walk, Griffith University and Drew, Walk and Co
3. International Linkages: Financial Markets and Technology:
   Professor Deborah Ralston, Australian Centre for Financial Studies and Monash University
   Mr Martin Jenkinson, Australian Centre for Financial Studies
4. Regulating the Australian Financial System
   Mr Alex Erskine, Erskinomics Consulting

All Funding Australia's Future papers can be accessed through the Funding Australia's Future Website: www.fundingaustraliasfuture.com

Notes on the Authors

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Dr Wylie has worked with Australian superannuation funds, Merrill Lynch, Franklin Templeton, AMP, Moss Ledge Capital, Resource Capital Fund, Johnson Fry, Greenway Capital, and others. His commentary appears regularly in the Australian Financial Review and on national radio and television.

Dr Wylie was an Assistant Professor at the Tuck School of Business at Dartmouth College from 1997-2004 (rated the world's best business school by the WSJ in 2011 and 2012). He obtained his PhD from the London Business School. He also has a Master of Economics degree from the Australian National University and a Bachelor of Engineering degree from the University of Western Australia. From 1986-1992 Dr Wylie was an Intelligence Officer with the Australian Security Intelligence Organisation.

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Executive Summary

This paper is one of four papers that comprise Stage 2 of the Funding Australia's Future (FAF) project. The Australian Centre for Financial Studies (ACFS) launched the FAF project in December 2012 to better understand the role of the financial system in facilitating long term economic growth in the Australian economy.

The three papers of Stage 1 reviewed the infrastructure of Australia's financial system and assessed the issues that are likely to affect the supply of and demand for finance in Australia in the medium to long term. Stage 2 asks how well Australia's financial sector serves the economy (especially households and business), and how effectively it links the sources and users of finance for the benefit of Australian society.

This paper analyses the supply of finance to the Australian business sector. It attempts to identify problems in the provision of finance to Australian business in terms of constricted volume of finance or high cost of finance. The paper then analyses the causes of these problems. The finding of the paper can be summarized in 6 points.

1. **Competing channels**

The public and policy discussion of the channels for financial capital in Australia should be more comprehensive – considering all the competing channels at once -- and less particular to one channel.

The stock market, bank corporate lending, the corporate bond market and securitisation are all channels that compete to carry financial capital from savers to Australian businesses. Regulation, legislation and policy making in general has a major influence on the amount of capital that flows through the respective channels.

Unfortunately, the public and policy discussion of these channels often treats them separately rather than holistically. A more comprehensive approach would consider the major capital channels of business funding as a whole; with the competing channels as its parts.

Requests for rebalancing of the amount of capital that flows through the competing channels by tax remedies have little merit. In particular, proposals for the reduction of taxation on interest income to 'level the playing field' for debt channels relative to the equity channel should be rejected.

2. Support for banks in the GFC

Government support for commercial banks since September 2008 has fortified the Australian banking system during an ongoing global financial crisis, but it has not been fully matched by greater obligations on Australian banks. The Federal Government's favoured treatment of banks over other capital channels may damage the future financing of Australian business by inhibiting the natural development of non-bank channels; especially the corporate bond channel and the securitisation channel.

Central governments have to give more support to their banking system than they give to the other capital channels because banks are inherently unstable but nonetheless crucial to the proper functioning of the economy.

At the same time central governments want a set of capital channels that efficiently allocate capital across firms and investment risk across savers. But, that requires government policy that is neutral across capital channels. Central governments can support the banking channel and maintain channel neutrality by balancing the support for banks with matching obligations on those banks.

The job of balancing support and obligations is made easier for policy makers by the well established deal that exists in all developed countries between central governments and their commercial banking sectors. Banks get liquidity support at all times and funding support in a crisis. The central government gets capital adequacy and heavy monitoring of risk taking by banks.

Unfortunately, the Australian Federal Government's policy support of banks in the GFC contains elements that are not part of this implicit deal. Support for Australia's banks has been large and support of the four major banks has been especially large.

Too much support for one channel ultimately will be detrimental to the financing of Australian business. Excessive support for the banking channel will eventually distort the allocation of capital and risk and also inhibit the growth of other channels that have a very important role to play – the bond channel and securitisation.

3. Quantitative easing

Australian business, in aggregate, is less exposed than its global counterparts to the disruptions that are likely to result from the unwinding of quantitative easing (QE) by central banks around the world. However, scenarios in which capital flows to Australian businesses are significantly disrupted during the unwinding of QE are plausible and should be the starting point for planning by regulators and policy makers that is based on stress testing.

Disruption of the supply of capital, and liquidity, is a danger faced by the business sector at all times. However, severe disruption of capital markets will be more likely than normal during the slow unwinding of quantitative easing (QE).

The Australian business sector suffered refinancing difficulties in 2008/9 when the bond market closed and banks tightened their lending conditions. A return to those conditions during the unwinding of QE is a live danger. A second danger is that a fall in asset prices – especially real estate prices -- reduces the security that borrowers can provide to lenders. Real estate is the collateral used in most bank lending to Australian small businesses. If the withdrawal of QE is accompanied by a precipitous fall in property prices in Australia, then Australian banks will be forced to either reduce the provision of credit to small businesses or raise loan margins or both.

Policy makers should plan for how credit to small businesses will be maintained in the event of large falls in real estate prices that are caused by the unwinding of QE.

4. Structural liquidity problems in infrastructure investment

There is a fundamental structural problem in the financing of infrastructure in Australia. Very long term infrastructure assets are being financed by relatively short term capital, which builds in the potential for refinancing problems. Policy makers should aim to move financing of infrastructure to longer term debt financing and listed equity.

A balance sheet that finances long term, illiquid assets with short term capital has built in liquidity risk. If the funding is withdrawn then the illiquid assets, by definition, cannot be sold at their fundamental value (discounted cash flows). If a whole industry sector is made up of balance sheets like that, then there is the potential for a destructive fire sale of assets in which the withdrawal of funding causes forced sales across the sector and a collapse of asset prices.

Australia's infrastructure sector owns assets with very low asset liquidity that have cash flows stretching out 40 years or more. The stability of the sector's cash flows allow it to have high leverage. But most of the debt is 1-5 year bank debt. Moreover, a considerable part of the equity financing of infrastructure is through channels that are open ended: Investors who provide equity funding for infrastructure through defined contribution superannuation funds can withdraw their equity at short notice.

The infrastructure sector in Australia therefore has a structural liquidity problem. It has been suggested that the RBA might extend a liquidity guarantee to infrastructure funds to eliminate this problem. A better policy would be insistence that Australian superannuation funds only hold equity in listed infrastructure funds.

Listing of currently unlisted infrastructure funds would have an added benefit in relation to self managed super funds (SMSFs). If there were more listed infrastructure investment options then there would be more investment in infrastructure by SMSFs. That would help connect the largest new source of capital (SMSFs) to the fastest growing demand for capital.

5. The public equity channel and dividend imputation

Australia's public equity market functions well in efficiently allocating capital to Australian firms and risk to savers. The dividend imputation system is central to that role and should be preserved in its current form.

The public equity channel in Australia functions well in terms of allocating capital to Australian firms and risk to investors. It has the properties of a well functioning equity market. The equity channel is large at 105% of GDP and it is open to global capital with about 45% of the ASX being owned by foreign residents.

Most importantly listed Australian firms can raise a large amount of new equity. New share issuance by ASX listed firms raised capital equal to 2.85% of GDP per year from 2007-2013. The same figure in the US at 1.45% is little more than half the Australian figure.

Australian firms need to raise a lot of new equity because dividend imputation induces them to pay large dividends with franking credits attached. Firms then have to make the case to the market for why equity capital should be returned to their firm for new investment rather than being invested in another firm. Because of dividend imputation Australian firms have to subject their investment plans to more objective scrutiny by outside investors than firms in many other countries. This arrangement is very healthy in terms of efficient allocation of capital and risk.

Dividend imputation is not perfect but the problems it causes are small compared to its benefits. It does not need a substantial policy overall.

6. Size of the Australian domestic corporate bond channel

The small size of the corporate bond channel relative to the equity channel or bank corporate lending channel is often cited as a structural weakness of the Australian financial system. However, apart from the need to avoid additional support of the bank channel, there is no need for policy action to promote the Australian corporate bond market.

In July 2014, Australian businesses have issued approximately $50 billion of bonds into the Australian domestic corporate bond market and $175 billion in the global bond markets. Growth in domestic issuance of corporate bonds has stalled; the total volume of domestic issues is no higher than it was in December 2006. In contrast, the volume of issuance into global bond markets by Australian businesses has nearly doubled in those 7.5 years.

Australian businesses are opting to issue bonds into global markets rather than domestic markets. There are structural reasons for this. However, there does not appear to be any first order distortion of the Australian bond market. Australia has a bond market that matches its position as a small, open economy with large commodity and service sectors, a dominant domestic banking sector and a substantial and persistent current account deficit. No major policy initiative is needed to support the domestic corporate bond market. But is important the policy makers avoid providing additional support for the banking channel at the expense of the bond channel.

1. Introduction

This paper is one of four papers that comprise Stage 2 of the Funding Australia's Future (FAF) project. The Australian Centre for Financial Studies (ACFS) launched the FAF project in December 2012 to better understand the role of the financial system in facilitating long term economic growth in the Australian economy.

The three papers of Stage 1 reviewed the infrastructure of Australia's financial system and assessed the issues that are likely to affect the supply of and demand for finance in Australia in the medium to long term. Stage 2 asks how well Australia's financial sector serves the economy (especially households and business), and how effectively it links the sources and uses of finance for the benefit of Australian society.

This paper analyses the supply of finance to the Australian business sector. It attempts to identify problems in the provision of finance to Australian business in terms of constricted volume of finance or high cost of finance. The paper then analyses the cause of these problems.

The ultimate concern of the study is with the engagement of Australian business in the real side of the economy. Australian businesses conceive productive projects and then compete for the resources to enact those projects. Part of that competition is for financial capital. It is the role of the financial system to allocate the capital formed by saving to the most productive projects. Further, to distribute the risk of those projects to where it can be born at lowest cost.

Capital is carried from savers to Australian businesses through capital channels. The largest capital channels are the equity market, bank corporate lending, the bond market, leasing and securitisation. These channels compete to carry the capital to businesses using their particular financing instruments: shares, bank loans, corporate bonds, lease contracts and asset backed bonds.

This study seeks to identify problems in these channels or their financing instruments that are preventing Australian businesses from undertaking productive projects in the economy. The study does not focus on sectors of the economy and the individual problems of those sectors – the mining sector or agribusiness or biotech or construction -- but instead the competing capital channels and their instruments.

Australian businesses

The funding of the Australian business sector within the Australian economy is the subject of this study. The Australian business sector is defined in this paper as all firms that operate in the Australian economy and are either listed on the Australian Securities Exchange (ASX) or are privately owned firms that are majority Australian owned. Commercial banks are excluded from this definition to avoid an overlap of business with the channels that carry capital to Australian business.

The funding of foreign owned firms that operate in the Australian economy, but raise most of their capital from foreign capital sources, is not the concern of this study. So, the narrow definition of 'Australian business' used here excludes firms with majority foreign ownership that operate in Australia but are not listed on the ASX.

Discussion of issues

The issues that are identified and discussed are in four categories. First, the need for a more comprehensive view of capital channels in the public and policy discussion of business financing problems in Australia. The capital channels are usually analysed and discussed separately from their competing channels. This problem seems to be most acute in terms of the support that has been offered to commercial banks by the Federal Government since the beginning of the GFC. That support is seldomly discussed in terms of the overall effect on Australia's capital channels.

Second, the need to understand how future disruption in the GFC will affect Australian business financing, and in particular disruption caused by the unwinding of quantitative easing. Two areas are of particular concern. One is the fragility of relatively short term bank financing of long term infrastructure assets. The other is the use of real estate as collateral in small business lending.

Third that, there is a structural liquidity problem in the financing of infrastructure in Australia. Policy makers should encourage unlisted infrastructure funds to move to longer term debt funding and listed equity.

Finally, that the equity and bond markets are functioning well and do not need substantial policy change to dividend imputation or the taxation of interest income.

The paper proceeds as follows. The background section sets out the concepts that are needed in the study: a framework of competing channels; the special role of commercial banks; the deal between banks and the Federal Government; and the Modigliani-Miller concept of the irrelevance of capital structure.

2. Background

This section develops concepts that are used in the remainder of the paper.

2.1 Financial capital as an input to production

Financial capital is an input to economic production, just as labour, physical capital, and intellectual property are inputs. Financial capital shares the following properties with those other inputs to production.

- the non-financial corporate sector has diversified funding sources primarily through the issuance of fixed interest securities offshore;
- When the cost of capital goes up good investment projects become unviable.
- Different types of financial capital are substitutes for one another (the Modigliani-Miller principal).
- Financing of the assets used by firms can be done inside the firm (on-balance sheet with bank loans, corporate bonds or equity) or outside the boundary of the firm (off-balance sheet through leasing, franchising, project finance or securitisation).
- Channels for financial capital can become inefficient, uncompetitive and over-regulated.

2.2 Competing channels for capital

Capital is created by saving (within households, firms and governments) and is demanded by firms, households and governments for investment and consumption.

Capital flows from savers to businesses through a set of competing channels:

- Intermediated channels: Banks, other authorised depository institutions (ADIs) and finance companies.
- Capital market channels: The stock market, private equity markets, the bond market.
- Structures: Securitisation trusts.[1]

Corporate financing channels compete to carry capital from where it is created by saving to where it is used in corporate investment. The amount of capital that flows through the aggregate of all the channels depends on both the economy wide supply and demand for capital but also the aggregate characteristics of the capital channels, such as total taxation and protection of property rights.

2.3 Intermediation

The relative amount of capital flowing through individual channels depends on the relative costs of the channels. When more capital flows through markets and less through intermediaries, then

[1] Wealth management firms and insurance firms fit the definition of being financial intermediaries – both their assets and liabilities are financial instruments – but they are not channels for capital in the conception of channels used here. Instead, they are 'aggregators' of capital.

disintermediation is said to have occurred. The reverse is *reintermediation,* which most recently occurred in the months after September 2008.

Why do intermediated channels even exist? Why don't the parties that supply capital (savers) and the parties that demand capital (firms and others) simply meet in the capital markets and exchange cash for capital market instruments, such as shares and bonds? That is, if businesses want capital then why don't they just sell claims on their future cash flows directly to investors through markets? They do, of course. But, how is value created by households putting money into banks which then make loans to firms?

Intermediaries, such as commercial banks, exist because even though market exchange has big advantages it can also have big problems, such as:

- Mismatches in the scale, maturity and liquidity of how savers want to supply capital and how firms want to acquire capital;
- Large information asymmetry problems; especially the problem that insiders of firms know more about the workings and prospects of the firm than outside suppliers of capital know;
- Difficulty in writing complete contracts;
- Difficulty in defining and enforcing property rights;
- Higher taxation; etc.

2.4 The balance between market channels and intermediated channels

To the extent that intermediaries can solve some of those market problems (transaction costs) then intermediaries are creating value. When the cost of transacting through capital markets goes up then there is less exchange of capital through markets (share market, bond market) and more through intermediaries (banks, finance companies, securitisation trusts). The volume of capital that flows through the competing channels depends on their relative costs, as stated previously. Those relative costs change through time and are especially driven by changes in technology and regulation.

There is a great variation across different economies around the world in the level of intermediation in the financial system. The most important determinant of this cross-country variation in depth of intermediation is the variation in the protection of property rights.

In general, more financial transactions taking place through markets and less through intermediaries is a result of better protection of property rights. In economies where property right protection is extremely weak (in failed states) financial transactions only take place within kinship groups. Where property rights are stronger, but still not highly developed, transactions take place through intermediaries, such as banks, that are strong enough to protect their own property rights. Each party that is supplying or demanding capital contracts with the bank. Where property rights protection is very strong, individuals can transact with other individuals and be confident that the contract can be enforced, and most transactions then take place through markets rather than intermediaries.

Securitisation is a form of intermediation, but it is 'light intermediation'. In contrast, commercial banking is a form of 'heavy intermediation'. Banking is highly transformative. The liabilities of banks (mostly deposits) are short term, risk free and liquid, whereas their assets (mostly loans) are almost the opposite; being long term, risky and illiquid. Banks are highly transformative of cash flows, transforming maturity, riskiness and liquidity.

Securitisation is not so transformative as banking, but it is still intermediation because it interposes a balance sheet (the securitisation trust) between the suppliers and demanders of capital. Securitisation should be thought of as being half way between bank lending and bond markets.

2.5 The special role of commercial banks

Commercial banks have a special role within the financial system. A role that is more important than that of other financial intermediaries such as investment banks, insurance firms and wealth management firms. Commercial banks are special for the following five reasons. The first two reasons are the most important.

1. **Banks play a pivotal role in normal monetary policy by converting liquidity into credit.** (Quantitative easing is a radical departure from the normal course of monetary policy that is discussed in a later section.)

   In advanced economies the central bank (the RBA in Australia) does not transact directly with the households and firms of the real economy. Instead, the central bank transacts with commercial banks and those banks transact with households and firms. That is, the banking system lies between the central bank and the real economy.

   The central bank can stimulate aggregate demand in the real economy by cutting short term interest rates, but it cannot directly create the credit needed to support higher levels of consumption and investment. The central bank can only inject liquidity into the banking system and then rely on the banking system, and shadow banking system, to convert that liquidity into credit. Banks collect liquidity in the form of deposits (and money market instruments) and convert it into credit in the form of loans.

   The pivotal role of the banking system in receiving central bank liquidity and multiplying it into a much larger amount of credit for the real economy gives the banking system an importance in the proper functioning of the economy that is greater than any other part of the financial system.

   But, performing their crucial role of converting liquidity into credit makes banks critically unstable. Banks have short term, liquid liabilities (mostly deposits) and long term, illiquid assets (mostly loans). Banks always face the danger of loss of confidence in the bank's solvency and a 'run' on their deposits. This fragility of banks is not a design flaw in the banking system; it is the simple consequence of banks having the role of converting liquidity into credit.

2. **Banks act as conduits for central bank liquidity in a crisis.**

   In a financial crisis asset liquidity evaporates as market participants withdraw in the face of

uncertainty and funding liquidity is hoarded.[2] Central banks always react to a liquidity crisis by promising to supply more than adequate funding liquidity to the economy. This promise prevents fears of a crisis becoming self-fulfilling as liquidity dries up.

When the Central Bank releases emergency payments liquidity into the economy through its discount window, that liquidity flows directly into the commercial banks (nowhere else). It is then channeled to households and firms as they draw down on the lines of credit supplied by banks or withdraw deposits.

3. **Banks provide a location where funds can be stored risklessly.**

   Households and small and medium size firms cannot easily access treasury securities. Therefore, banks' deposits are the risk free asset for households and small and medium size enterprises (SMEs). Bank deposits are made risk free by the guarantee of deposits by the Federal Government (deposit insurance).

4. **Banks dominate the payments system.**

   Banks collect and disburse cash for most households and firms. Banks run the cheque clearing system and most of the credit card and other electronic payments systems. Banks facilitate most payments between corporations.

5. **The specialness of bank loans.**

   When publically listed firms raise new capital, equity analysts make inferences from the type of capital that is raised. When firms announce a capital raising through the issuance of new shares the share price typically *falls* by 1-2%.[3] When corporate bonds are issued the share price is typically unchanged. However, when a firm announces the renewal of a large existing bank loan the share price typically *rises* by 0.5-1%.

   Equity analysts recognise that the renewing bank has information that equity analysts do not. Most of that renewing bank's extra information comes from the provision of payments and cash management (transactions) services by the bank to the firm. So, the renewal of a large existing loan signals the bank's confidence in the firm, where that confidence is based partially on information that other parties cannot see.

2.6 The fundamental deal between commercial banks and central government

Central governments give commercial banks protection against the critical risk that banks cannot manage for themselves – the liquidity risk of a run on the bank.

1. **Deposit insurance**

   Depositors do not withdraw their deposits from banks in a financial crisis (either systemic or bank specific) because they know that deposit insurance makes their deposits risk free. In fact money flows into large commercial banks in a financial crisis.

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[2] An asset has *asset liquidity* if it can quickly be bought or sold at close to its fundamental value. An instrument has *funding liquidity* if it can be used to immediately discharge a liabilitiy. Asset liquidity and funding liquidity are related but separate. For instance, BHP shares have very high asset liquidity, but cannot be used to pay a taxi driver.

[3] Becketti and Morris (1992)

2. **Access to the central bank discount window in a liquidity crisis**

   Commercial banks can take high quality long term assets to the discount window to obtain the liquidity they need to weather any liquidity crisis.

In return for solving the critical instability of banks that results from them having one foot in the money markets and one foot in the credit markets, the central governments demands two things in return.

1. **Capital adequacy**

   Banks must hold an amount of capital that matches the amount of credit risk, interest rate risk, and operational risk that is born by the bank. The Basel III agreement sets out the rules for how much capital must be held.

2. **Monitoring**

   Banks are heavily monitored by their regulators to ensure that they are not taking on too much credit risk, liquidity risk, interest rate risk, market price risk or operational risk.

To summarise, the fundamental deal between banks and the Central Government: banks get what they need to solve their critical instability – deposit insurance and access to the discount window; the Central Government gets what it needs to ensure that banks will be able to fulfil their role in monetary policy and financial crisis management – capital adequacy and heavy monitoring of banks. Banks want liquidity protection and central governments want financial system stability.

2.7 Modigliani-Miller framework

The study of the financing problems in the Australian business sector, which this paper outlines, is organised around funding instruments rather than the types of organisations that need funding. The study progresses from bank loans, to equities, to corporate bonds, to securitisation, etc. rather than progressing from listed industrial companies, to listed property trusts, to listed financials, to privately owned enterprises, to subsidiaries of foreign firms, etc. This distinction between instruments and organisations is not absolute but it is a deliberate approach.

This study looks at the right hand side (RHS) of the aggregate balance sheet of the Australian business sector. It considers the instruments that are being used to finance the productive capacity of the nation. Understanding problems with those instruments and the channels in which they move capital is the object of the study.

The intuition of Modigliani-Miller

The Modigliani-Miller (MM) intuition about the funding of firms begins with the observation that the cash flows of firms are generated on the left hand side (LHS) of the balance sheet. The assets and operations of firms generate the operating cash flows of the firm. On the RHS of the balance sheet we see how those operating cash flows are divided up and sold. Everything on the right hand side of balance sheets of firms is a claim on the operating cash flows of the firm (except for trade credit, which is the delayed payment of operating costs).

The MM intuition is that how the cash flows of a firm are divided up and sold does not affect the value of those cash flows, unless that division solves a real economic problem. In the MM framework the cash flows of businesses 'are what they are'. The form in which they are sold – mostly in debt contracts, or mostly in equity contracts, or some combination of the two such as convertible bonds -- is irrelevant.

In the MM framework the value of the business is not determined by how it is financed but rather by how strategy about the use of the resources of the business is conceived and executed. This is the notion of the irrelevance of capital structure – with the proviso that capital structure is relevant if it solves a real economic problem. Of course, the biggest economic problem that financing choices can affect in most firms is the amount of corporate tax paid by the firm.

Another important intuition in the MM framework is that division of the operating cash flows of a firm does not by itself eliminate any of the risk of those cash flows. If more of the cash flows are sold as debt, which is less risky because of its senior claim, then the remaining equity of the firm must be more risky. Slicing and dicing the cash flows may help to allocate the risk to parties who can bear it at lowest cost, but it does not eliminate any of the risk.

The irrelevance of instruments and channels

If MM is accepted as a valid framework for considering questions about financing of businesses, then an immediate and central question arises[4]. '*What does it matter how businesses are financed so long as capital, risk and liquidity are allocated throughout the economy in an efficient way?'*

This is a question that advocates of any particular instrument or channel have to address. For example, in the discussion of the size of the corporate bond market, the question is '*what does it matter that the RHS of the balance sheet of the Australian business sector has a lot more equity than corporate bonds?'* Why would it be better if there were less equity financing and more corporate bond financing, or less bank lending and more corporate bond financing? If corporate bonds are substituted for equity in the aggregate balance sheet of the business sector, then equity will be riskier. Why is that a better outcome?

In the MM framework, which is adopted in this paper, the starting point is that it does not matter how firms are financed unless a real economic problem can be solved by the choice of capital structure. It is incumbent on the advocates of particular instruments and channels for funding Australian businesses to show what economic problems would be solved by policy support for that policy instrument or channel.

Bank capital adequacy requirements in the MM framework

Capital adequacy constraints on banks can be understood in an MM framework. The MM notion of the irrelevance of capital structure when applied to banks says that the amount of capital that a bank holds is a matter of indifference to the shareholders of the bank. Shareholders want the management of the bank to choose the capital structure of the bank to maximize the value of the

4 Franco Modigliani and Merton Miler were awarded the Nobel Prize for Economics in 1991 for their insights into the capital structure of firms. The MM intuition is at the centre of corporate finance theory.

shareholders' claims on the firm (the share price) and that does not depend on how the bank is financed.

The statement that equity is an 'expensive' form of capital is wrong in the MM framework. If a bank issues shares to pay off debt, then the expected future cash flows from the bank's shares (dividends) will fall, but the required return of investors in the bank's shares will also fall. These two effects will be perfectly off-setting and the price of the bank's shares will not change as a result of the increased capital adequacy of the bank.

Of course, the conditions for irrelevancy of capital structure do not hold in banking. One departure from the MM conditions is corporate tax. Dividend imputation is not perfectly effective, even in the case of Australia's banks which pay out most of their earnings as dividends (so few franking credits are trapped in the bank) and are owned mostly by Australian residents (so few franking credits go unutilised by shareholders). Because the effective corporate tax is not zero for Australian banks, increasing debt and reducing equity shields some bank cash flows from corporate tax, which transfers value from the Government to bank shareholders.

But tax is not the main issue. The main departure from MM capital irrelevancy conditions is Government guarantees of bank liabilities. If a bank issues shares to repay debt then it reduces the value of the guarantees that the Federal Government is providing to debt holders. That reduction in the value of guarantees transfers value from bank shareholders to the Government.[5]

Consider an insurance analogy to illustrate this idea. Imagine an employee receives free insurance from an employer against damage or theft of a vehicle, but the employee must pay the first $5,000 of damages. If the employee's insurance 'excess' was increased from $5,000 to $10,000 then the employee is clearly worse off. The value of the free insurance has fallen.

In the banking context, the free insurance is the explicit insurance of deposits of all banks and the implicit insurance of the bonds of too-big-to-fail banks. The 'excess' is the shareholder's equity in the bank. If a bank issues shares to pay-off debt, then the value of the Government's guarantee's of the bank's liabilities falls. The increase in equity reduces the size of the Government's contingent liability and in this zero sum game the Government's gain is the bank shareholders' loss.

The resistance from bank management to an increase in the amount of equity banks must hold is completely rational. The management of banks, like any corporation, are the agents of their shareholders and an increase in bank capital reduces the value of Government guarantees and hence it transfers value from bank shareholders to the Government.

2.8 Payments liquidity, risk and long term financing

The financing of firms involves the provision of funding, the provision of liquidity and the absorption of risk. There is never a perfectly clean separation of funding, liquidity provision and risk absorption. As we move from senior claims on a firm (secured loans and bonds), then to mezzanine claims, then to equity, the balance between funding and risk absorption moves towards risk absorption. Likewise, as we move from long term claims of term loans and notes, to shorter term facilities, to

[5] See Admati, DeMarzo, Hellwig and Pfleiderer (2010)

commercial paper, then the balance moves from funding and risk absorption to the provision of payments liquidity.

When it is said that businesses in Australia face problems financing their operations we need to consider whether the main problem is with funding, liquidity provision or risk absorption.

3. Capital channels

3.1 Competing channels

The public and policy discussion of the channels for financial capital in Australia should be more comprehensive – considering all the competing channels at once -- and less particular to one channel.

The stock market, bank corporate lending, the corporate bond market and securitisation are all channels that compete to carry financial capital from savers to Australian businesses. Regulation, legislation and policy making in general has a major influence on the amount of capital that flows through the respective channels.

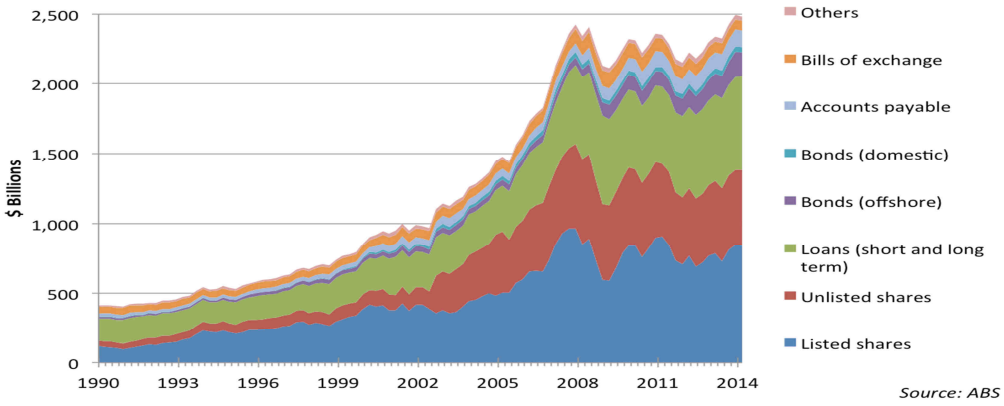
Unfortunately, the public and policy discussion of these channels often treats them separately rather than holistically. A more comprehensive approach would consider the major capital channels of business funding as a whole; with the competing channels as its parts.

Requests for rebalancing of the amount of capital that flows through the competing channels by tax remedies have little merit. In particular, proposals for the reduction of taxation on interest income to 'level the playing field' for debt channels relative to the equity channel should be rejected.

3.2 Funding sources and capital channels

Business capital channels connect the right hand side (RHS) of the balance sheet (liabilities and equity) of the Australian business sector to the LHS of the balance sheet of savers. Figure 1 below shows the aggregate liabilities and equity of Australian businesses over the period 1988-2014.

Figure 1 RHS of the balance sheet of Australian non-financial corporations: 1990-2014



Source: ABS, 2014

Figure 1 exhibits the relative scale of the channels carrying capital to Australian business; not in flows but in the market value of the stock of capital. The equity channel is by far the largest capital channel, followed by the bank debt channel and then the corporate bond channel, which is smaller than the equity and bank channels.

3.3 The role of capital channels

Different channels have different roles

The reason that there are several large channels competing with one another to carry capital to Australian businesses, rather than a single dominant channel, is that the different channels perform very different roles in funding Australian businesses.

The equity channel differs markedly from the other channels in terms of risk and corporate control. All of the capital channels carry capital to firms for funding, as their name suggests. But they also carry risk out of firms and back to the providers of capital. Most of the risk carried back to investors flows through the equity channel to shareholders, because shareholders have the riskiest claim on the cash flows of businesses. Another defining feature of the equity channel is that it contains the market for corporate control. Australian corporate law puts the governance of solvent corporations entirely in the hands of shareholders.

The banking channel is differentiated from other channels by its pivotal role in monetary policy. The bank channel performs the crucial function of transforming liquidity in the form of deposits into capital in the form of loans. The corporate bond channel in general provides longer term debt financing than the bank channel. The securitisation channel separates (tranches) debt claims on firms into low risk claims and higher risk claims.

The different capital channels have different roles in the funding of Australian business. In the absence of market distortions the relative size of capital channels is reflective of the functions they are performing.

3.4 Effective capital channels

This paper is concerned with the question of how *effective* these channels will be in carrying capital to Australian businesses in the next 10-15 years. Effective capital channels are characterised by efficiency and stability. The properties of efficient and stable capital channels are considered in the next two sections.

Efficiency of capital channels

There are three principal properties that effective capital channels have in relation to economic efficiency.

Allocative efficiency: Capital channels allocate capital and risk. Economic efficiency requires that financial capital is allocated to the businesses in the economy that can use it most productively. It is the job of capital channels to identify the businesses that have the most productive projects and to carry financial capital to them. Capital channels must also allocate risk to the investors who can bear that risk at the lowest cost.

If there is a complete set of capital channels, then in the absence of market distortions, price signals will achieve an efficient allocation of capital to businesses and allocation of risk to the providers of capital.

Low transaction costs: The carrying of capital from savers to the productive projects of businesses is not an end in itself. It is a costly transaction that leads to production in businesses. Economic efficiency requires that capital channels perform their role at the lowest cost.

But, capital channels are costly to operate. Accumulating capital from savers is costly. The combined resources of bank branch networks, superannuation fund administration and the underwriting and distribution networks of the equity and bond markets are used in accumulating savings to pass to businesses.

Analysis of investment opportunities is costly. Equity analysis and credit analysis is resource intensive – but that is what is required to price capital and allocate it across businesses.

The dynamic management of the risks of intermediation is costly. Intermediation can create a lot of risk -- credit risk, liquidity risk, interest rate risk – which is managed and born at considerable cost by the owners of intermediaries.

Competition within capital channels is crucially important for low transaction costs. If competition between banks is too low then interest rates will be too high. Likewise, if there is too little competition in the primary distribution of equity or bonds, or in the secondary trading of those securities, then equity and debt capital will be too expensive. In each of these cases the overall cost of capital of Australian businesses will be too high.

Matching needs: Often there is not a natural match between the form in which capital is demanded by business and the form in which it is supplied by savers. The level of efficiency of capital channels depends on how well they resolve this mismatch.

Capital markets respond to changing needs of savers by designing and issuing securities that are tailored to savers' needs. But even more important in matching business needs to savers' needs is the transformation of claims that takes place within intermediaries, especially banks; but also to a lesser extent in securitisation trusts.

The mismatch between business funding needs and household saving needs changes through time. Innovation in security design and intermediation is the key to maintaining the match.

Stability of capital channels

The business sector always faces the danger of disruption of the supply of funding from capital channels because capital channels are inherently unstable. Banks can be forced to curtail lending when they suffer either insolvency problems (from write-down of their assets) or liquidity problems (from a run on the bank). The bond channel may close for periods of time with savers simply refusing to put capital into the channel in a financial crisis. The stock market does not cause rollover problems but it can close to new issuance of shares for lengthy periods and the high volatility of stock prices can also create problems in the funding of businesses.

There are two principal properties that effective capital channels have in relation to stability.

Withstanding shocks: Effective capital channels are robust to shocks from the real economy. They continue to operate properly when the economy turns down sharply. Also, effective channels are robust to contagion from shocks to other channels and channels in other countries.

Diversity of channels: The whole set of capital channels is more effective and stable if there is diversity across the channels that allow at least one channel to continue functioning properly when other channels are distressed. For instance, if the bond market closes to new issues of bonds or rollover of existing issues, but the bank channel and equity channel remain robust, then the disruption to business funding will be much smaller.

That scenario actually played out in Australia in 2009. The global bond channel closed but Australian firms were able to refinance maturing bonds with bank debt and the issuance of equity. Moreover, the banks were able to shore up their own capital by issuing $20 billion of new shares in that year.

Diversity across channels is important, but diversity within channels can also be important. In a financial crisis the first steps in managing failing banks is to merge them into healthy banks.

3.5 Effective capital channel policy

Government intervention in capital channels has three main purposes. First, to help stabilize the inherently unstable channels. Second, to tax the income and capital gains that are earned by savers. Third to protect the property rights of savers who pass capital into the channels. Policy makers always face the challenge of achieving these policy goals without creating distortions and costs in the operation of the channels that damages their efficiency.

Taxation of channels

Capital flows to firms through capital channels and the income on the capital deployed by businesses either flows back to savers or is retained and reinvested in the firm. Ideally the income earned on an investor's capital is taxed at the marginal tax rate of the investor.

The tax system should be neutral to the form in which capital is provided (equity, debt, or a hybrid of the two) and the form in which income is received (dividends, retained earnings, interest, etc.). That is, the amount of income tax paid should depend only on the operating income of the firm and not on the way in which the firm is financed. The amount of tax paid on the income of financial capital should not depend on which channel the capital flowed through to get to the business. Income taxation should be capital channel neutral.

Corporate taxation in Australia is guided by this principal. Dividend imputation gives shareholders credit for corporate tax already paid in the calculation of their Australian income tax. There are, of course, a number of ways in which the principal of channel neutrality is not observed. For instance, corporate tax is not repaid to investors when a business suffers negative profits before tax. Nonetheless, corporate tax policy in Australia aims to be comprehensive of the capital channels and to be neutral in treatment of the channels.

Tax relief for bank deposits and corporate bonds

Proponents of individual capital channels often urge policy makers to reduce the taxation on the income in their channel. It has been suggested that the tax on bank deposits should be reduced so that more capital will flow through the bank channel. It has also been suggested that the bond channel should receive favourable taxation treatment to increase the volume of capital in that channel.

These proposals are without merit. They only seem to have merit when channels are considered in isolation. Proposals for the preferential income tax treatment of interest payments are asking the Federal Government to abandon the principal of neutrality in taxation of channels, which would be a backward step.

Stability policy

Government policy in relation to the stability of capital channels is very much focused on the stability of the banking channel. There is good reason for this as noted in the background section of this paper. Banks have special roles in the financial system; in particular their pivotal roles in the normal conduct of monetary policy and also the distribution of funding liquidity to businesses and households in a financial crisis. The Central Bank is absolutely reliant on banks in the execution of normal monetary policy and crisis management. Moreover, the good health of the banking system has a greater effect on consumer and business confidence than the state of the other capital channels.

It is therefore natural that the Federal Government is much more concerned with maintaining the proper functioning of the banking channel than any other channel. However, policy makers still need to maintain a comprehensive view of the capital channels. Too much support for the banking channel, especially support that does not have matching obligations on the part of the banks, will distort the balance between the capital channels.

In Australia the Federal Government has taken extraordinary measures to support the Australian banking channel since the collapse of Lehman Brothers in September 2008. The next section of the paper lists the support that banks have received and argues that the support has been only partially matched by obligations placed on banks. It is argued that unlike tax policy, channels are not being treated in a comprehensive and neutral manner in respect to stability policy.

4. Support for Australian banks in the GFC

Government support for commercial banks since September 2008 has fortified the Australian banking system during an ongoing global financial crisis, but it has not been fully matched by greater obligations on Australian banks. The Federal Government's favoured treatment of banks over other capital channels may damage the future financing of Australian business by inhibiting the natural development of non-bank channels; especially the corporate bond channel and the securitisation channel.

Central governments have to give more support to their banking system than they give to the other capital channels because banks are inherently unstable but nonetheless crucial to the proper functioning of the economy.

At the same time central governments want a set of capital channels that efficiently allocate capital across firms and investment risk across savers. But, that requires government policy that is neutral across capital channels. Central governments can support the banking channel and maintain channel neutrality by balancing the support for banks with matching obligations on those banks.

The job of balancing support and obligations is made easier for policy makers by the well established deal that exists in all developed countries between central governments and their commercial banking sectors. Banks get liquidity support at all times and funding support in a crisis. The central government gets capital adequacy and heavy monitoring of risk taking by banks.

Unfortunately, the Australian Federal Government's policy support of banks in the GFC contains elements that are not part of this implicit deal. Support for Australia's banks has been large and support of the four major banks has been especially large.

Too much support for one channel ultimately will be detrimental to the financing of Australian business. Excessive support for the banking channel will eventually distort the allocation of capital and risk and also inhibit the growth of other channels that have a very important role to play – the bond channel and securitisation.

4.1 Federal Government support for the banking system in the GFC

The Federal Government has acted in the GFC to protect Australia's banking system from real danger. After the collapse of Lehman Brothers on 15 September 2008, the Government implemented a coherent set of policies to shore up the banking system in the crisis. Unfortunately, after 2010, in the absence of a worsening crisis banks have received more government support which is unrelated to stabilising the banking system.

Seven Government decisions that have been beneficial for banks are discussed below. It becomes apparent in considering this list just how substantial the Federal Government's support for the major banks has been since the beginning of the GFC in July 2007.

1. Deposit insurance

On 12 October 2008 the Federal Government introduced a Federal guarantee of bank deposits. This was an essential preemptory move by the Government to ensure that the global financial panic that followed the Lehman Brothers collapse did not cause a run on deposits in Australia. The limit of insurance per depositor per bank was initially set at $1 million but subsequently reduced to its current level of $250,000.

Refusal to guarantee cash management trusts

The Government protected banks from a run of withdrawals in October 2008, but it did not protect other financial institutions. Cash management trusts (CMTs) compete with banks to store short term savings of households and firms. In the US CMTs (known in the US as money market mutual

funds) were guaranteed for the first time by the US Federal Government after the collapse of Lehman Brothers. That guarantee stemmed the flow of cash out of those funds. However, in Australia CMTs did not receive a Government guarantee and their aggregate funds under management fell from $52.9 billion in June 2008 to $22.4 billion in March 2014.[6]

Australia's $20 billion mortgage trust sector was forced to freeze redemptions in the last quarter of 2008 after funds started flowing out of these trusts and into the safe haven of guaranteed bank deposits.

When CMTs and mortgage trusts complained, in November 2008, that banks were receiving special treatment from the Federal Government they were invited by the Prime Minister to become banks.[7] The Government was making the point that with the benefits of being a bank (deposit insurance and Government support in a crisis) go the obligations (stringent capital adequacy requirements and heavy regulation). Trusts could not have the benefits without the obligations.

The Government's response to the complaints of the trusts was perfectly valid. Banks receive large benefits but they have large matching obligations.

2. Wholesale funding guarantee (ended March 2010)

The Federal Government announced a guarantee of bank bonds on the same day as the deposit guarantee, 12 October 2008. Australian registered banks were offered a financial guarantee of their bonds for a fee that varied from 70 basis points (bps) per annum for AA rated banks (the four majors) to 150 bps for BBB rated banks (most of the smaller banks).

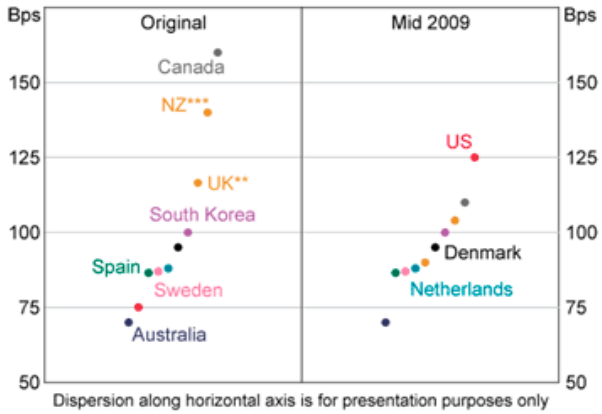
The wholesale funding guarantee was offered to Australia's major banks at very favourable terms. Figure 2 is reproduced from the RBA Bulletin (Schwartz, March 2010). It shows that the 70 bps guarantee fee for Australia's 4 major banks was lower than fees charged in any other developed country. Moreover, Schwartz shows that the Australian Government offered longer term guarantees (5 years) and kept the guarantee scheme going longer (until March 2010) than almost any other country.

It might be argued that because Australian banks rely more heavily on wholesale funding than their global peers, and because of the link between bank overseas borrowing and Australia's current account, generous terms were justified. Nonetheless, the wholesale funding guarantee is another clear example of how much Australia's 4 major banks have received from the Federal Government in the GFC.

6 ABS (2014)

7 Canberra Times, 29 October (2008)

Figure 2 Long term Debt Guarantee Fees for AA-rated issuers



Source: Schwartz (2010)

3. Short selling ban on financial firms (ended May 2009)

The ban on short selling of all stocks on the Australian Securities Exchange that was imposed on 22 September 2008 helped to stabilise the share price of banks and also helped banks to raise new capital.

The ban was lifted for most stocks by the Australian Securities Investment Commission (ASIC) on 18 November 2008. Financial stocks remained protected from short selling until 31 May 2009. Australian financials received this protection for a much longer period than financial firms in other countries. Short selling of financial firms ended in August 2008 for US firms (with catastrophic results) and in January 2009 in the UK.

In general, a ban on short selling damages the proper functioning of the stock market because short selling is a mechanism for incorporating views of market participants into stock prices. However, temporarily banning short selling of financial stocks during a financial crisis is sound policy. Banks are at greater risk of destabilisation by short selling attacks than industrial firms are. Large banks must seek reaffirmation from the financial markets every night when they go to those markets for short term funding. A plunging share price, as a result of heavy short selling, can lead to banks being shut out of money markets, which in turn leads to further share price falls.

Australian banks raised nearly $20 billion in new equity in 2009, at large discounts of up to 20 percent to the existing share price. The short selling ban was helpful in this process. It helped to prevent the share price being driven down before the share issue, which would have necessitated even larger discounts.

The extended ban on short selling of financial firms is another part of the package of the support for banks during the GFC. It was sound policy that had the incidental effect of creating value for bank shareholders.

4. Approved mergers of large regionals into majors (St. George & BankWest)

The GFC has seen substantial consolidation of the banking industry in Australia. The share of total resident assets of Australian banks held by Australia's four major banks rose from 63 percent in May

2008 to 80 percent in May 2014. The increased market share of the majors in part reflects their expansion into market share previously held by securitisation organisers and the foreign banks that have retreated from Australia.

The increased dominance of the four major banks also results from the takeover of mid-sized banks. The 5th largest bank, St George, and the 7th largest bank, BankWest, have been merged into the majors during the GFC; St George into Westpac and BankWest into CBA.

During a banking crisis it is natural, and desirable, for distressed banks to be merged into healthy banks. BankWest was put up for sale by its distressed foreign parent HBOS. St George was experiencing funding difficulties because it had relied on securitisation of assets for funding, and the securitisation channel collapsed.

The consolidation of banking has had the inevitable effect of decreasing competition between banks and increasing bank profitability.

5. Australian Business Investment Partnership Bill (blocked in the Senate)

Every banking crisis in Australia's history began with losses on commercial property loans. In early 2009 the Federal Government was conscious of the exposure of Australia's banks to commercial property and was concerned that foreign banks might withdraw from commercial property lending syndicates and cause a fire sale of Australian commercial property.

The Government's response to that danger was to table the Australian Business Investment Partnership (ABIP) Bill in the Federal Parliament, which proposed the creation of a $30 billion fund to shore up bank lending to the commercial property sector. ABIP was to be a fund that would make loans that replaced the loans of departing foreign banks in commercial property lending syndicates.

The ABIP legislation was voted down in the Senate because the Opposition parties were unconvinced of the urgency of commercial property lending support, and they also believed that the legislation was too favourable to the major banks.

Nonetheless, the ABIP Bill and the planning behind ABIP was ready to go in 2009 if foreign lenders did start to withdraw from the market en masse. The contingency planning of ABIP helped to calm fears about banks' exposure to commercial property in 2009. In that respect ABIP represents contingent support for the major banks, even though the ABIP plan has not been actioned.

6. Permission to issue covered bonds

In November 2011 the Federal Government amended the Banking Act to allow Australian banks to set aside assets as dedicated collateral for bonds issued by banks. The buyers of these 'covered' bonds have the first claim on those dedicated assets in the event of insolvency of the bank. Prior to the November 2011 amendment of the Banking Act, the Act was generally interpreted as prohibiting the issue of any claim on bank assets that was senior to the claim of depositors.

The first issue of covered bonds by Australian banks took place in November 2011 at yields that were approximately 50 bps less than equivalent unsecured bonds of the issuing banks. About one quarter of all bonds issued by Australian banks since then have been covered bonds. Banks are

permitted to pledge no more than 8 percent of their Australian based assets to the buyers of covered bonds.

The issuance of covered bonds lowered the cost of funding for Australia's major banks at the expense of Australian taxpayers. Deposit insurance gives the Federal Government a contingent claim on the assets of banks. In the event of a bank becoming insolvent the Federal Government will claim all of the assets of the bank and use them to meet the claims of all insured depositors. Any shortfall of assets over insured deposits is to be met by the Government. The exception to this procedure are the assets pledged to holders of covered bonds. The Federal Government does not have first claim on those assets.

Claims on the assets of a bank are a zero sum game. By allowing the issuance of covered bonds, the Federal Government allowed its claim on a pool of assets of the bank to be subordinated to the claim of the holders of covered bonds. The subordination increased the cost to the Australian Government of providing deposit insurance.

7. Committed liquidity facility with the RBA

The Committed Liquidity Facility (CLF) is a line of credit that will be provided to banks by the RBA from 1 January 2015. Banks can draw down on the facility by exchanging assets held on their balance sheets (including securitised mortgages) for payments into their accounts at the RBA. The RBA announced the program on 16 November 2011. The cost of the facility is 15 bps per year on the amount of lending committed by the facility.

The purpose of the CLF is to help banks meet the liquidity requirements that APRA has imposed on Australian banks in accordance with the Basel III rules. From 1 January 2015 banks are required to hold enough high quality liquid assets (HQLAs) to meet the expected cash outflows from the bank over the next 30 days. This rule is referred to as the minimum Liquidity Coverage Ratio (LCR).

APRA's definition of a 'high quality liquid asset' is more restrictive than required by the Basel III agreement. Only vault cash, bank reserves at the RBA and government and semi-government bonds qualify as HQLAs. Since vault cash and bank reserves are relatively small, most of the HQLAs would have to be bonds. However, the volume of AUD government and semi-government bonds is insufficient for the bank LCR requirements, so APRA has agreed that a line of credit from the RBA's CLF facility can fill the same role as HQLAs in the LCR calculation.

The provision of the CLF does not itself constitute support for Australia's banks, since the CLF is only intended to help banks to meet a new policy obligation that is being imposed on them (the LCR). Instead it is the pricing of the CLF that represents support for the banks. Many observers were expecting a considerably higher figure.

The RBA's choice of a price for the CLF was necessarily subjective because there is no precise, objective technique for pricing a liquidity facility. Unfortunately, the understanding of funding liquidity is not sufficiently advanced to allow accurate pricing. Not only are there no powerful models for pricing liquidity, but the absence of objective pricing of liquidity can be seen in the absence of liquidity derivatives. There are derivative instruments and markets for transferring most financial risks – interest rate risk, forex risk, equity price risk, bond price risk, credit risk, commodity

risk, etc. – but none for pricing liquidity risk.[8] The absence of funding liquidity derivatives does not reflect an absence of a latent demand for trading of liquidity risk, rather it reflects the inability of market participants to adequately define and properly price liquidity risk.

Even though access to payments liquidity cannot be priced in a close range it is clear that 15 bps is a low price because it is lower than the price paid for the provision of payments liquidity anywhere else. There is no situation in which liquidity is provided at less than 15 bps, or even close to that figure.

In choosing the CLF price the RBA faced a practical upper limit of 25 bps because that is the difference between the cash rate and the interest rate paid by the RBA on the reserves held by banks at the RBA. If the CLF price was higher than 25 bps then the normal functioning of monetary policy would be disrupted, as banks purchased RBA reserves at the cash rate and held them in their RBA accounts, rather than paying for a commitment under the CLF.

The RBA chose the 15 bps price for the CLF for a sound practical reason. But it still delivered to the Australia's banks guaranteed liquidity at a rock bottom price. Since provision of liquidity and capital are bundled in much of bank lending, it gives considerable support to the banking channel.

4.2 Increased obligations on banks

The increased obligations on banks since the beginning of the GFC are of two principal types: first, changes in the amount of equity capital banks must hold, and second, the new liquidity requirements.

Increased capital adequacy requirements

Australia is a signatory to the Basel Capital Accord and as such has agreed to implement the rules of the Basel Committee on Banking Supervision (BCBS). After the events of 2008/9 in the GFC, the new Basel III rules for capital adequacy and minimum liquidity requirements of the commercial banks were created.

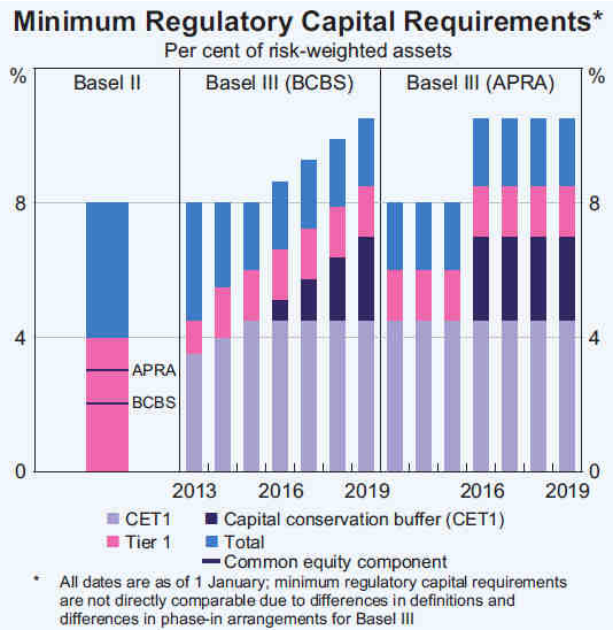
The Basel III rules have significantly higher minimum capital requirements than the Basel II rules. These are minimum requirements and member countries of the Basel Accord are free to impose greater capital or liquidity requirements, and many have done so. APRA has implemented capital adequacy rules for Australian banks that go beyond the Basel III BCBS requirements in four principal ways, as follows:

1. Domestically significant financial institutions (Australia's four major banks) are required to hold 1% more common equity capital.
2. The Basel III rules on not counting the ownership stake in subsidiaries and other financial entities have been made considerably more stringent by APRA.
3. APRA's guidelines for calculating the amount of Tier 1 capital held by banks has lead to lower capital figures for Australian banks than BCBS rules.

[8] Only overnight index swaps (OIS) have the price of funding liqudity as the underlying state variable (30 day BBSW - 30 day OIS rate). But even here liquidity and credit risk are mixed up, so the OIS rate is not a pure liquidity price.

4. APRA is implementing the capital adequacy rules more quickly than required by BCBS, as shown in Figure 3 below which is reproduced directly from the RBA's Financial Stability Review of September 2013.

Figure 3 APRA timetable for implementation of minimum capital adequacy requirements



Source: RBA Financial Stability Review (2013)

Increased liquidity requirements

The Basel III rules specify two new sets of liquidity requirements – one on each side of bank balance sheets.

1. The Liquidity Coverage Ratio (LCR) governs the minimum liquidity of the assets of banks. As discussed above, it requires banks to hold high quality liquid assets equal to the expected net outflows of cash over the next 30 days. The LCR start date is 1 January 2015.[9]
2. The Net Stable Funding Ratio (NSFR) governs the stability of the funding of banks. The rules have not been finalised and will not be implemented until 2018.

[9] LCR requirements will only be applied to the largest ADIs. The others can continue with existing liquid asset rules.

4.3 Comparing support and obligation for banks since October 2008

Ideally the support provided to banks should be matched by obligations imposed on banks. The major points in comparing the increase in support for banks since October 2008 to the increase in obligations are as follows:

1. The policy package of support for Australian banks in 2008/9 considerably raised the explicit and implicit guarantee of Australian banks by the Australian Government.

   Deposit insurance, the Wholesale Funding Guarantee and the ban on short selling was a comprehensive package of support for the funding of Australian banks. The funding guarantee and short selling ban were subsequently withdrawn, but the package establishes an expectation that the Australian Federal Government will act in a comprehensive way to shore up the funding of Australian banks in any future crisis.

   The Australian Business Investment Partnership (ABIP) was a demonstration of Australian policy makers' willingness to provide the asset liquidity needed to prevent an asset fire sale in a class of assets that Australian banks have large exposure to.

   Those explicit and implicit guarantees significantly reduce the cost of capital of Australian banks; especially Australia's major banks whose AA credit ratings rest on those implicit guarantees.

2. The obligations placed on Australian banks since October 2008 are modest and do not match the benefits of the implicit guarantees mentioned above.

   Australian banks are required to hold extra capital under the Basel III rules. But as discussed in the background section the main cost to banks of holding extra capital is that when bank shareholders can experience larger losses before guarantees are activated, the guarantees are less valuable. So, the cost of extra capital requirements should be thought of as a partial reduction in the value of the extra explicit and implicit guarantees that have been granted to banks.

   The LCR requirements might be onerous for banks, except banks have been granted a very low cost way of meeting the LCR requirements with the creation of the RBA's Committed Liquidity Facility priced at 15 bps.

3. When the Federal Government granted banks the right to issue covered bonds, it appears to have received nothing in return. This policy decision was unrelated to the stability package mentioned above. Almost all covered bonds are issued by Australia's largest banks. So, the covered bonds decision was simply extra Government support for the four major Australian banks that had no reciprocal obligation. Policy that favours the major banks in that way is not only distortionary across capital channels but within the banking channel as well.

Support for the banking channel since September 2008 has gone beyond what is needed to maintain system stability, without sufficient matching obligations. It is important that policy makers do not degrade the neutrality of policy toward capital channels by granting extra support for the banking channel absent a renewed banking crisis.

5. Quantitative Easing

Australian business, in aggregate, is less exposed than its global counterparts to the disruptions that are likely to result from the unwinding of quantitative easing (QE) by central banks around the world. However, scenarios in which capital flows to Australian businesses are significantly disrupted during the unwinding of QE are plausible and should be the starting point for planning by regulators and policy makers that is based on stress testing.

Disruption of the supply of capital, and liquidity, is a danger faced by the business sector at all times. However, severe disruption of capital markets will be more likely than normal during the slow unwinding of quantitative easing (QE).

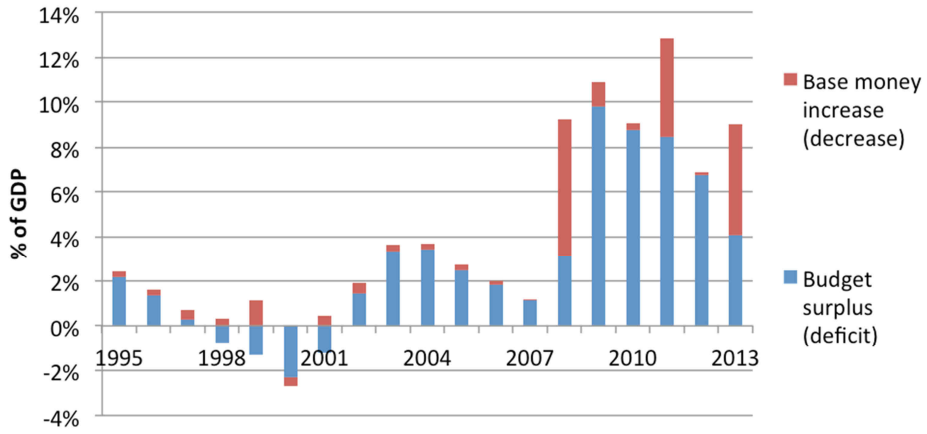
The Australian business sector suffered refinancing difficulties in 2008/9 when the bond market closed and banks tightened their lending conditions. A return to those conditions during the unwinding of QE is a live danger. A second danger is that a fall in asset prices – especially real estate prices -- reduces the security that borrowers can provide to lenders. Real estate is the collateral used in most bank lending to Australian small businesses. If the withdrawal of QE is accompanied by a precipitous fall in property prices in Australia, then Australian banks will be forced to either reduce the provision of credit to small businesses or raise loan margins or both.

Policy makers should plan for how credit to small businesses will be maintained in the event of large falls in real estate prices that are caused by the unwinding of QE.

5.1 Quantitative easing to fight deflation

Deflationary forces that were evolving in the global economy before the GFC were greatly magnified by the collapse of Lehman Brothers. There was a real threat after September 2008 of a downward deflationary spiral developing in the major global economies. That threat was met with extraordinary fiscal and monetary stimulus.

Figure 4 Fiscal and monetary stimulus to the US economy (as % of nominal GDP)



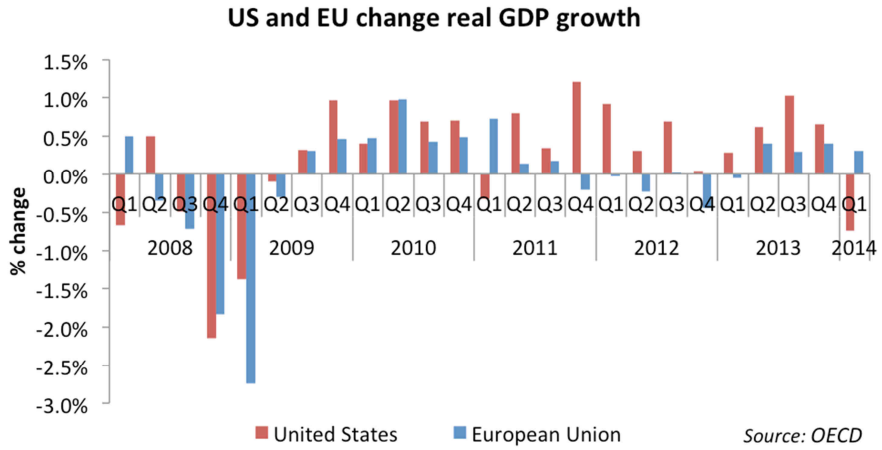
Source: Federal Reserve (2014)

Figure 4 above shows the stimulus to the US economy from deficit spending and expansion of base money since 1990. Combined fiscal and monetary stimulus since 2008 is more than 55 percent of

GDP. That level of sustained stimulus to the economy is unprecedented in US history outside of wartime.

Despite the magnitude of this stimulus the US economy has grown at well below its long term trend rate in every year since 2008 and average US inflation has been below the US Federal Reserve's target figure of 2 percent since Q1 2009. This slow growth and low inflation in the face of massive fiscal stimulus and expansion of the monetary base shows the magnitude of deflationary forces acting on the US economy.

Figure 5 US and EU quarterly real GDP growth since January 2008



Source: OECD (2014)

5.2 Quantitative easing and asset prices

How does QE inflate the price of long term assets, such as stocks, bonds and real estate? In answering this question, the ability of economics to explain the connection between monetary volumes and asset prices should not be exaggerated. Nonetheless, a principal mechanism is as follows.

Money and asset prices

Start by giving money a broad definition. Broad money is the sum of bank deposits plus the shares of money market mutual funds (MMMFs) plus physical cash circulation. Households, firms and institutional investors balance their holdings of (broad) money against holdings of capital assets (stocks, bonds, real estate, etc.). Investors have a preference for the low risk and high liquidity of money and will only hold capital assets if the expected returns on those assets give sufficiently high compensation for their extra risk and lower liquidity.

Each individual household, firm or institutional investor makes their own decisions about their relative holdings of money versus capital assets. But all the money (M3) in the economy has to be held by someone. If the volume of money grows at approximately the same rate as nominal GDP then the balance between money holdings and the capital asset holdings of investors is maintained. But if the volume of money grows rapidly compared to GDP then upward pressure on capital asset prices is induced. This is because investors will only hold the extra money if the alternative of

holding capital assets has become less attractive. That is, investors will only hold the extra money in equilibrium if the expected return on assets has fallen because asset prices have risen.

Rapid growth in credit is often accompanied by rapid growth in asset prices. What is the connection?: rapid growth in the volume of money. Credit (loans and bonds), on the LHS of the balance sheet of the banking system (and the shadow banking system) is matched by money (deposits, MMMF shares, repo lending) on the RHS. Credit growth and money growth must occur together in the real and shadow banking systems. Then the money growth causes asset price growth because investors will only hold extra money if expected returns on capital assets have fallen (and prices have risen). Therefore rapid credit expansion and rapid asset price growth often occur together.

QE, money and asset prices

QE acts on asset prices in the same way as rapid credit growth. QE inflates asset prices because it increases the volume of broad money in the economy at a rate much faster than the growth in GDP. QE is the process of the central bank expanding its own balance sheet by purchasing bonds with new base money (bank reserves at the central bank and cash in circulation). In the QE process the increase in base money creates new broad money. An example will illustrate.

Imagine that the US Federal Reserve (the Fed) purchases $1 million of bonds from a dealer with a cheque against itself. The dealer then deposits the cheque with its bank and the bank deposits the cheque in its account at the Fed. In this example each of the following quantities increases by $1 million: The assets of the Fed (the purchased bonds); the liabilities of the Fed (the bank's reserves at the Fed – base money); the assets of the bank (the bank's reserves at the Fed); and the liabilities of the bank (the new deposits – broad money).

The Fed's purchase of bonds causes the Fed's liabilities (base money) and the banking system's deposits (broad money) to rise by the amount of the purchase (unlike normal monetary policy where a $1 increase in base money causes about an $8 increase in deposits in the US banking system). Some of the new $1 million of new deposits will flow out of the banking system into money market mutual funds (MMMFs), which increases broad money, and some will become increased cash in circulation, which does not increase broad money.

QE expands broad money which must then be held

The Fed's holdings of bonds have risen by $3.3 trillion in the GFC through its three rounds of QE. The concomitant increase in US dollar liquidity (broad money) is difficult to determine because some of the new money has been transferred to banking systems outside the US and then multiplied in those systems through expansion of US dollar credit. It suffices to say that the increase in US dollar broad money is a small multiple of the $3.3 trillion of Fed bond purchases.

The creation of those extra trillions of USD liquidity (broad money) puts upward pressure on asset prices – and not just in the US. Investors will only hold that extra money for two reasons: because they want the security of US Government insurance of US bank deposits, or because the alternative of holding capital assets has become less attractive as asset prices rise with the expansion of broad money.

This influence of QE on asset prices explains two quizzical facts:

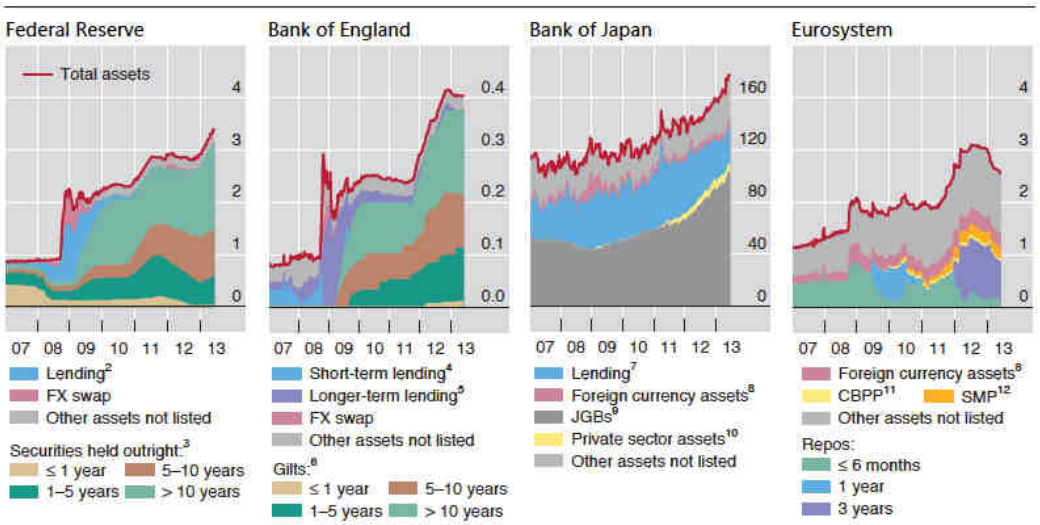
1. Why global stock and bond prices are at record levels even though the US economy has grown over the last 4 years at well below trend growth and the Eurozone economy is still smaller in real terms than it was in 2008.
2. Why the major asset classes are at record levels at the same time. Ordinarily the low upside correlation of stocks and bonds mitigates against the stock market indexes and bond market indexes simultaneously being at record levels. But not when they are both being driven up by QE.

The expansion of central bank balance sheets has put considerable upward pressure on asset prices. Central banks are fighting deflation with QE, so they want it to create consumer and producer price inflation, but QE also creates asset price inflation. The unwinding of QE will have the opposite effect on asset prices of the expansion of the monetary base – sustained downward pressure.

5.3 Unwinding quantitative easing

A global end to QE is some way off – Japan continues its radical experiment in monetary expansion and the European Central Bank is expected to begin a program of QE if inflation continues to fall in the Eurozone. But QE is at least being tapered, if not yet unwound, in the US. The US Federal Reserve's monthly purchases of bonds is expected to be cut to zero before the end of 2014 (from $85 billion per month throughout 2013).

Figure 6 Term structure of central bank debt: balance sheet size and composition



Source: BIS Annual Report (2013)

Once the US Federal Reserve stops buying bonds QE will begin to unwind itself naturally. The bonds that were purchased by the Fed will mature. The repayment of principal upon the maturity of bonds will be the reverse process of the purchase of bonds by the Fed. Base money will flow back into the Fed. The balance sheet of the Fed and the US banking system will shrink and the broad money holdings of households, firms and institutional investors will fall commensurately.

With positive short term interest rates on money holdings and less money to be held, investors will demand risk and liquidity premia on long term assets, putting downward pressure on asset prices. Unwinding will not be quick. If the Fed takes no proactive measures to speed up the process, then the unwinding of US dollar QE will take place over a long period because over half of the bonds purchased by the Fed have a time to maturity of more than 10 years, as shown in Figure 6 above.

A bullish scenario is that the unwinding of QE reduces asset returns over a 10-15 year period as QE unwinds, but does not induce a collapse in asset prices, because investors adopt permanently lower expected risk and liquidity premia. A bearish scenario is that at some stage in the tapering or unwinding process, the market acknowledges that long term expected returns must rise as liquidity is withdrawn, and at that point asset prices jump downwards, creating a panic in capital markets.

The speed of unwinding cannot be known. It is quite possible that QE will ultimately ignite significant consumer price inflation, in which case the Fed may be forced to withdraw liquidity more quickly. Or, alternatively, deflationary fears may return as QE is unwound necessitating a halt to unwinding and a fourth round of QE. The uncertainty about the long term direction of monetary policy is itself a possible cause of market disruption.

5.4 Capital market disruption and Australian business sector financing

The panic in global capital markets in 2008/9 created some disruption of financing of Australian business, but did not result in a funding crisis for the Australian business sector.

A crucial factor in the resilience of Australia's capital channels, especially the banking channel, was that even though the ASX capitalisation fell by over 50 percent between November 2007 and June 2009, and commercial property prices fell by over 20 percent in 2008/10, the value of residential property did not fall. Property prices were held up by growth in labour income and the low unemployment of the mining boom, low supply of new housing, easy credit and high population growth.

However, during the unwinding of QE there is a danger of large falls in the stock market, commercial property AND residential property prices. How would financing of the Australian business sector hold up in those circumstances?

1. Bank profits would be squeezed by large loan losses and increased cost of funds, but banks would be able to widen their net interest margins in the short term as they did in 2008/9. That would increase the cost of funding for Australian businesses.
2. Even if bank capital was not reduced by net income falling below dividend payments, the increased riskiness of mortgages would decrease bank capital ratios. Banks may be able to raise new equity, but their business lending capacity would be reduced.
3. The corporate bond market is 56% larger in July 2014 ($220 billion) than it was in September 2008 ($140 billion) so a weakened banking sector could not be expected to refinance maturing bonds, if the bond market closed, as well it did in 2008/9.
4. Australian banks would have less capacity to replace departing foreign banks in lending syndicates.

5. Residential property would lose its value as collateral. So, bank lending to SMEs would require a lot more bank capital at a time when bank capital would be highly constrained.

Policy planning for asset price falls induced by QE unwinding

The period of unwinding of QE is not business as usual in terms of contingency planning for keeping capital channels open for funding of business. The expansion of QE has inflated global asset prices. The withdrawal of QE will have the opposite effect and the effect may come suddenly.

If a QE induced collapse of asset prices causes house prices to fall substantially, along with equity values and commercial property values, then the ensuing disruption of business financing will not be a repeat of 2008/9. Severely weakened banks will not be able to replace the capital flows of a closed bond market. Lending to small business will be expensive and in short supply. Australian banks will not be able to easily replace lending by departing foreign banks.

Policy makers should plan for how the Government can provide the capital and guarantees that would be required in these circumstances to keep capital flowing to businesses that cannot role over corporate bonds, and small businesses that lose bank funding.

6. Funding Infrastructure

There is a fundamental structural problem in the financing of infrastructure in Australia. Very long term infrastructure assets are being financed by relatively short term capital, which builds in the potential for refinancing problems. Policy makers should aim to move financing of infrastructure to longer term debt financing and listed equity.

A balance sheet that finances long term, illiquid assets with short term capital has built in liquidity risk. If the funding is withdrawn then the illiquid assets, by definition, cannot be sold at their fundamental value (discounted cash flows). If a whole industry sector is made up of balance sheets like that, then there is the potential for a destructive fire sale of assets in which the withdrawal of funding causes forced sales across the sector and a collapse of asset prices.

The commercial banking system is deliberately operated with that built in liquidity risk. Every bank has assets (mostly loans) that are long term and illiquid compared to their liabilities (mostly deposits). The Government addresses this problem directly with the most powerful liquidity policy instruments at its disposal – deposit insurance and access to the RBA's discount window. Banks receive that protection against liquidity shocks as part of their special deal with the Government. Any other sector of the economy that funds long term, illiquid assets with short term capital is a liquidity crisis waiting to happen. The listed property fund sector was in that condition immediately before the GFC began and shareholders in that sector suffered very large losses in 2008/9.

So it is in Australia's infrastructure sector. The sector owns assets with very low asset liquidity that have cash flows stretching out 40 years or more.[10] The stability of the sector's cash flows allow it to have high leverage. But most of the debt is 1-5 year bank debt. Moreover, a considerable part of

[10] An asset has *asset liquidity* if it can quickly be bought or sold at close to its fundamental value. An instrument has *funding liquidity* if it can be used to immediately discharge a liabilitiy. Asset liquidity and funding liquidity are related but separate. For instance, BHPB shares have very high asset liquidity, but cannot be used to pay a taxi driver.

the equity financing of infrastructure is through channels that are open ended: Investors who provide equity funding for infrastructure through defined contribution superannuation funds can withdraw their equity at short notice.

The infrastructure sector in Australia therefore has a structural liquidity problem. It has been suggested that the RBA might extend a liquidity guarantee to infrastructure funds to eliminate this problem. A better policy would be insistence that Australian superannuation funds only hold equity in listed infrastructure funds. Public listing of infrastructure funds would have the additional benefit of making it easier for SMSFs to achieve low cost investment in infrastructure projects.

Trading off funding costs against liquidity risk

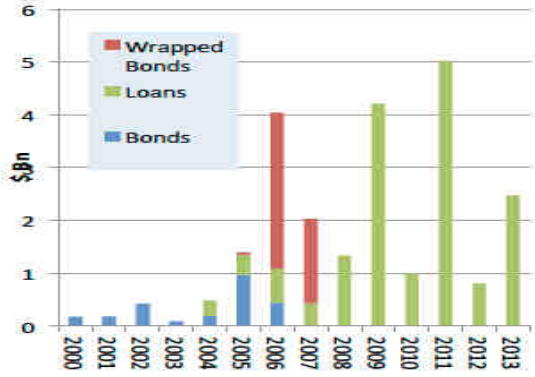
The refinancing risk in Australian infrastructure is not the result of a structural deficiency in the Australian financial system. Infrastructure could be funded with long term debt instead of short term debt and locked-in equity instead of equity that can be quickly withdrawn. The owners of the infrastructure assets are choosing to structure their financing in a way that lowers the cost of funding at the expense of high liquidity risk.

Debt funding of infrastructure

Short term debt nearly always has lower interest rates than long term debt. Moreover, long term, illiquid assets have higher expected returns than short term, liquid assets. Consequently, there is always a temptation for investors to finance long term, illiquid assets, such as real estate or infrastructure, with short term debt.

Infrastructure funds could use more long term debt; they could replace some of the their bank debt, which mostly has maturities of 1-5 years with corporate bonds that have tenors of 10 years or more. See Figure 7 below.

Figure 7 Debt funding of PPP infrastructure projects



Source: Infrastructure Australia's Review of Debt Capital Market Financing (2014)

Corporate bond markets do pose several problems for infrastructure funds. First, the corporate bond market closed in 2008/9. But the risk of market closure is less of a problem for long term debt because refinancing is infrequent.

Second, the domestic bond market is relatively small and most of the demand is for bonds with tenors of 5 years or less. Moreover, Australian superannuation funds that have equity holdings in

infrastructure funds don't want debt exposure as well. Nonetheless, Australian funds have access to global bond markets, particularly the US private placement market and could issue bonds into those market with longer tenors. They choose not to because longer term debt is expensive.

Third, greenfield infrastructure projects are not as well understood by the bond markets as by the banks, and mostly don't have credit ratings. But institutional investors are becoming more comfortable with greenfield infrastructure exposure and placements can be made without ratings, especially in the private placement market. In any case brownfield sector is the larger part of the infrastructure investment.

Super funds and illiquid assets

Most Australians can move their defined contribution superannuation balance from their existing fund to another fund of their choosing. Moreover, most members of retail and industry superannuation funds can change the allocation of their investments to different asset classes by moving from one investment option to another. These features of superannuation investment mean that retail and industry superannuation funds face potentially large liquidity problems if they invest in illiquid assets.

If retail or industry funds invest in bonds, directly owned real estate, hedge funds, infrastructure or private equity funds, then they face varying degrees of liquidity risk. If their members withdraw or move funds then they will need to realise those funds from the investments or other sources. Of the investments listed above the bond market is least problematic because investment banks make markets in corporate bonds. In a financial bond market makers may widen their spreads considerably but standard bonds remain tradable.

Directly held commercial property is much less liquid than the corporate bond market. Unlike the corporate bond market there are no dealers standing ready to buy and sell commercial property. But there are commercial property brokers, using well established valuation techniques and operating in a global market with the price discovery of relatively frequent comparable sales.

Infrastructure is even less liquid than commercial property. The assets are quite specific compared to commercial property and there are neither dealers, nor brokers, nor standardized valuation techniques, nor the price discovery of comparables sales. Consequently, superannuation funds that have large allocations to unlisted infrastructure funds are exposing themselves to liquidity risk. Those funds can sell their liquid assets such as shares to fund redemptions or transfers but that distorts asset allocations and introduces the problem of treating members differently.

Listed equity funds

If retail and industry superannuation funds invested in infrastructure funds that were listed on the stock market then there would be no liquidity problem. They could simply sell shares in the market if they needed to liquidate their investment. That is the value proposition of the stock market – continuous trading in shares that provides price discovery and asset liquidity.

Superannuation funds prefer unlisted infrastructure funds for several reasons. First, listed infrastructure acts like equity – moving up and down with stock market factors, rather than as a

separate asset class. Second, listed infrastructure vehicles often sell at a discount to their net asset value. Some listed infrastructure has been taken private because it is cheaper for infrastructure investors to buy up all the shares of listed infrastructure than to buy infrastructure elsewhere, such as in a sale of brown field infrastructure by state governments. Third, when governments sell brownfield infrastructure (such as the sales recent sales of ports in Eastern Australia) consortia that wish to buy the infrastructure assets and then list them on the ASX cannot compete on price with Australian superannuation funds and global defined benefit funds that want to hold them in unlisted vehicles.

Solution to the liquidity problem

Infrastructure as an investible asset class is small compared to stocks and real estate. But it is growing quickly. Infrastructure funds have funding structures (relatively short term debt and unlisted equity) and investors (industry superannuation funds and retail funds) that give them a potential liquidity problem. The systemic danger from this structure is that in a severe financial crisis superannuation investors may seek to withdraw or transfer their holding of risky assets – stocks, real estate and infrastructure – en masse and a sector wide sell down of infrastructure assets may be needed. At the same time funds may experience difficulty rolling over debt, especially if a forced sell down triggers debt covenants.

It has been suggested that this systemic liquidity risk could be eliminated by the RBA providing superannuation funds with a liquidity guarantee in the form of a committed lending facility that was collateralised by the illiquid assets of the funds. That would allow funds to hold more infrastructure assets and therefore assist in the funding of Australia's infrastructure agenda.

However, that is not sound policy. The central bank should only be lender of last resort to the banking system in a deal with banks that involves well understood reciprocal obligations. There is no need to distort the RBA's role by granting liquidity guarantees to non-banks. Infrastructure funds can solve their liquidity problems by borrowing long term and listing their equity on the stock market, or alternatively having equity investors that do not suffer redemptions (such as global defined benefit pension plans).

Policy makers should consider how superannuation funds can be encouraged to only invest in listed infrastructure funds. This would have added benefit in relation to self managed super funds (SMSFs). If there were more listed infrastructure investment options then there would be more investment in infrastructure by SMSFs. That would help connect the largest new source of capital (SMSFs) to the fastest growing demand for capital.

7. The Equity Channel

Australia's public equity market functions well in efficiently allocating capital to Australian firms and risk to savers. The dividend imputation system is central to that role and should be preserved in its current form.

7.1 The public equity market

The public equity channel in Australia functions well in terms of allocating capital to Australian firms and risk to investors. The equity channel has the following properties which are characteristic of a well functioning equity market.

- The equity channel in Australia is large. The market capitalisation of the ASX is 105 percent of Australian GDP[11]. A market capitalisation to GDP ratio of more than 1 is descriptive of 'large' equity channels.
- The equity channel is open to global capital, with about forty five percent of the ASX being owned by foreign residents.[12]
- Listed firms can raise a large amount of new equity. New share issuance by ASX listed firms raised capital equal to 2.85% of GDP per year from 2007-2013. The same figure in the US at 1.45% is little more than half the Australian figure.[13]
- The initial public offering market has reopened in 2014 to listing of new firms, after having been essentially closed since the end of 2007.
- The forward price-to-earnings ratio of about 14 is very close to global price-to-earnings ratio. This does not suggest that the cost of equity capital in Australia is higher than global equity channels.

In 2009, when Australian businesses faced a potential funding crisis because of the closure of the global corporate bond markets and tighter lending conditions of banks, the Australian equity channel took up the slack. In the five quarters following the collapse of Lehman Brothers, $135 billion of new equity was raised by listed Australian firms. Nearly $20 billion of that new equity was raised by Australia's banks. The equity channel provided an extraordinary amount of capital to deleverage balance sheets of listed Australian firms and to shore up the capital of Australia's banks.

7.2 Dividend imputation

Dividend imputation was introduced in Australia in 1987 to undo the double taxation of corporate earnings. Dividend imputation does not perfectly fulfil that function. If it did work perfectly then the effective corporate tax rate in Australia would be zero. As soon as the Federal Government received a dollar in corporate tax then that dollar would be used as a credit against income taxes due. Shareholders would then be indifferent to whether the legal corporate tax rate was 30% or 40%; the *effective* corporate tax rate would be zero.

But dividend imputation is not perfectly effective for two main reasons. First, a large proportion of Australian shares are held by non-residents who cannot use the franking credits of dividend imputation. Second, most firms do not pay all of their net profits as dividends, so franking credits become trapped inside the firm.

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[11] ABS, ASX figures (2014)

[12] ASX, RBA figures (2014)

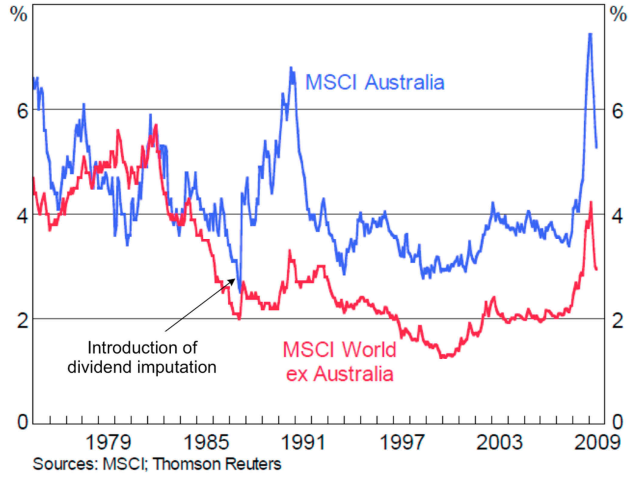
[13] RBA, SIFMA and Federal Reserve Flow of Funds figures (2014)

Dividend imputation also creates a problem for Australian firms because it differentiates the expected after tax returns of resident and non-resident shareholders. The question then arises as to which after tax return should be used as the firm's cost of equity capital? If a project has a return that is higher than the expected return of residents, but lower than the expected return of non-residents, then what should the firm do? These difficult questions introduce uncertainty into the project selection process of Australian firms.

Despite these deficiencies the introduction of dividend imputation has been a great success. It removed the preferential tax treatment of debt channels over the equity channel, at least for Australian residents. Making the tax treatment of capital channels more neutral improves the efficiency with which capital and risk are allocated in the economy, as discussed in an the Capital Channels section of this paper.

Dividend imputation has another large benefit for the Australian economy -- it forces Australian firms to pay larger dividends than firms in other countries. Franking credits are valuable in the hands of shareholders, but the only way to get them to shareholders is to attach them to dividends. Figure 8 below shows that since the introduction of dividend imputation Australian firms have paid higher dividend yields than their global counter-parts.

Figure 8 Effect of dividend imputation on dividend yields



Source: RBA Chart Pack (2014)

Because Australian firms pay higher dividends they have to raise more new capital by share issues and dividend reinvestment programs. That is, Australian firms must rely less on retained earnings for funding their investments than their global counter-parts do. Australian firms are induced by dividend imputation to pay more equity capital out of the firm and then have to make the case to the market for why the capital should be returned to their firm instead being invested in another firm. Because of dividend imputation Australian firms have to subject their investment plans to more objective scrutiny by outside investors This arrangement is very healthy in terms of efficient allocation of capital and risk.

Dividend imputation has deficiencies that are small compared to its benefits. It does not need a substantial policy overall.

8. Corporate bonds and securitisation

The small size of the corporate bond channel relative to the equity channel or bank corporate lending channel is often cited as a structural weakness of the Australian financial system. However, apart from the need to avoid additional support of the bank channel, there is no need for policy action to promote the Australian corporate bond market.

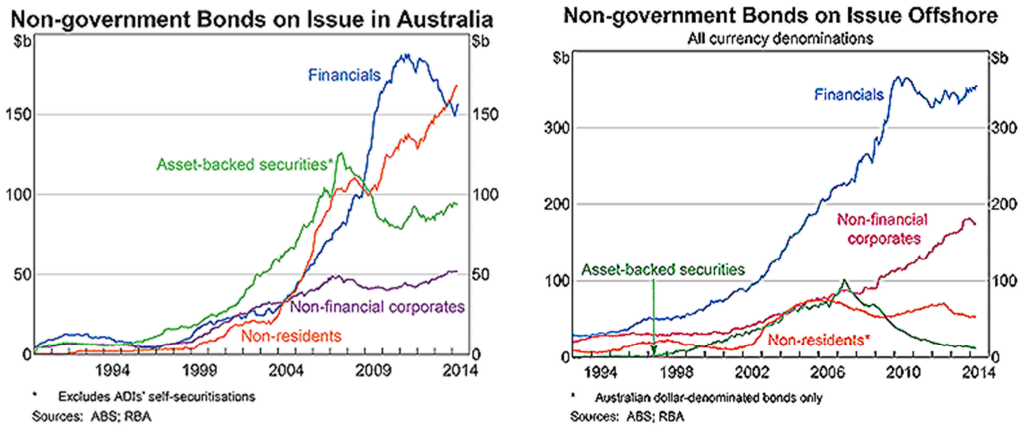
In July 2014, Australian businesses have issued approximately $50 billion of bonds in the Australian domestic corporate bond market and $175 billion in the global bond market. Growth in domestic issuance of corporate bonds has stalled; the total volume of domestic issues is no higher than it was in December 2006. In contrast, the volume of issuance into global bond markets by Australian businesses has nearly doubled in those 7.5 years.

Australian businesses are opting to issue bonds into global markets rather than domestic markets. There are structural reasons for this. However, there does not appear to be any first order distortion of the Australian bond market. Australia appears to have a bond market that matches its position as a small, open economy with large commodity and service sectors, a dominant domestic banking sector and a substantial and persistent current account deficit. No major policy initiative is needed to support the domestic corporate bond market. It is important the policy makers avoid providing additional support for banks at the expense of the bond channel.

8.1 Growth of the corporate bond market

The Australian domestic non-government bond market has grown immensely in the 15 years since 1999. Total non-government issuance – including bonds issued by banks and other domestic financials, securitisation trusts, foreign issuers and domestic businesses -- grew at a cumulative annual rate of 19.1% from $40 billion to $460 billion between January 1999 and January 2014.[14]

Figure 9 Non-government bond issuance



Source: RBA Chart Pack (2014)

The bond market is completely open, so Australian businesses, especially resource producers, issue into markets where there is the maximum demand for their bonds. There is also a large volume of

[14] ABS, RBA figures (2014)

issuance of $A bonds by non-residents in the Kangaroo market.[15] Much of this issuance is a consequence of the large issuance by Australian entities overseas.

But only $50 billion of the $460 billion of domestically issued, non-government bonds have been issued by Australian businesses. The size of the domestic corporate bond market and its lack of growth has been the cause of some concern.

Dominant role of banks

The bond market is partly shaped by the dominant role of Australia's four major banks in the Australian financial system. Most of the capital that flows from global bond markets to the business or households sectors in Australia flows through banks. In the domestic bond market, issuance by financials exceeds the combined issuance of the securitisation trusts plus Australian businesses, as shown in the in Figure 9 above. In the global bond market, issuance by Australian financials is nearly twice as large as Australian securitisation trusts plus Australian business combined.

Capital is flowing from the domestic and global bond markets through the banks to Australian households for mortgage borrowing and to Australian businesses as corporate loans. Much of that capital could instead flow through securitisation organisers to Australian households and flow directly from the bond market to Australian businesses that issue bonds. The highest volume of flow from the debt capital markets is through banks because that is the lowest cost channel. Banks have big advantages in raising debt capital and distributing it domestically, not the least of which is the Federal Government's implicit guarantee of the bonds of Australia's too-big-to-fail banks.

The issuance of bonds by banks would decrease if the loan to deposit ratios of Australian banks were lower. In many countries banks have more deposits than loans to fund with those deposits. Banks then become buyers of corporate bonds rather than sellers.

8.2 Size of the domestic corporate bond market

The bond market is a much smaller source of capital for Australian businesses than bank corporate lending or the private and public equity markets, but its issuance of bonds in the global bond markets is growing rapidly. It is worthwhile considering why the domestic issuance of bonds by Australian business is not larger and has not grown over the last 7 years. There is a range of reasons as follows.

Low relative historical return: Australian superannuation funds have high allocations to equity which squeezes out fixed income. This reflects the investment horizon of their investors. But also the history of much higher returns to equities and property in Australia than bonds. In the 112 years from 1900 to 2012 total pre-tax returns on a broad index of equities was 5.45% per year higher return than a broad index of government bonds.[16]

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[15] Much of the issuance in the Kangaroo bond market is foreign issuers taking advantage of the positive basis on $A for $US foreign currency swaps. That basis increases the cost of Australian entities issuing in $US, or another currency, and swapping back into $A. So, it decreases the cost of funding of issuers of $A bonds in Australia who swap back into foreign currencies.

[16] Dimson, Marsh and Staunton (2014)

Low liquidity: The small number of buyers and sellers of corporate bonds in Australia creates a relatively illiquid market. Industry and retail superannuation funds are required to have a credible plan for how they will manage substantial withdrawals of funds by members, or transfers to other investment options, in a financial crisis.[17] Consequently, most superannuation funds in Australia have an implicit asset liquidity 'budget'. If they want to hold more illiquid corporate bonds then they need to have lower holdings of other illiquid asset classes such as directly held property, infrastructure holdings or private equity.

Short tenor: There is a maturity mismatch between the bonds that Australian corporates wish to issue and the bonds that Australian superannuation funds want to buy. Australian superannuation funds are starting to buy more bonds with tenors beyond 5 years, but that is still well short of the 15 years or more that Australian businesses can get by issuing into the US private placement market.

Low cost of bank debt: Corporate bonds of relatively short tenor compete directly with bank corporate loans. In global markets bank debt is typically more expensive for firms by 30 to 40 bps but bank loans have several compensating advantages. Bank loans are bundled with payment liquidity – revolving loans can be drawn down and pay back with a flexibility that corporate bonds do not have. Moreover, other stakeholders in the firm, such as shareholders value the monitoring of firms that banks provide. Finally, banks loans are easier to renegotiate if the firm breaches its covenants.

In the Australian market banks have these advantages over the corporate bond market, but they don't face such a large difference between bank loan interest rates and bond interest rates. So, banks have over 90 percent of the domestic corporate lending market.

8.3 Policy measures

Australia appears to have the bond market that matches the characteristics of its economy and the structure of its retirement savings sector. Australian business does not appear to be constrained by relatively small size of the domestic bond market. Firms have equally good access to global bond markets, which are vastly deeper and more liquid.

There does not appear to be any need for Government policy to promote the growth of the bond market. Certainly not any change to taxation of bond income. The main issue for policy is that the bank channel should not receive any additional support that would favour it over the bond channel, absent a renewed financial crisis.

[17] APRA Prudential Practice Guides SPG 220 and 530

9. Concluding remarks

Overall the channels that provide funding to Australian businesses are functioning well. The Australian public equity market is a particularly well functioning channel that played a crucial role in keeping capital flowing to business in 2008/9. The equity channel is not in need of substantial policy change, and in particular the very positive role played by dividend imputation should be allowed to continue essentially unchanged.

The banking channel functions well in terms of stability, in part because of the substantial support that the channel has received from the Federal Government. Some of that support was not related to stability and cannot be justified in terms of the reciprocal relationship between the Government and the banking system. Policy makers should be very careful not to continually make more and more policy concessions to Australia's largest banks, because that unreciprocated support will damage the development of other capital channels.

Policy changes that may seem to have merit when capital channels are viewed separately are seen to be sub-optimal when a more comprehensive view of capital channels is taken.

Finally, the biggest single matter for considering the provision of finance to Australian business over the next 10 to 15 years is that the GFC is not over. In particular, monetary policy has not been restored to normal. Until the balance sheets of central banks, and especially the US Federal Reserve, are restored to normal there is significant danger of a panic in the capital markets.

Australia's capital channels held up well in the panic of 2008/9, but that was without a large fall in property prices in Australia. The bank channel is venerable to a large fall in property prices. Policy makers should plan carefully for the possibility that bond markets will close at the same time the property market and other asset markets fall substantially during the long period of unwinding of QE.

Reference List

Admati, A R, DeMarzo P M, Hellwig M F, and Pfleiderer P (2010). *Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Socially Expensive*, Stanford GSB working paper.

ASFA (2011). Challenges of Financing Infrastructure, ASFA Paper, May 2011.

AVCAL (2013). Yearbook 2013: Australian Private Equity and Venture Capital Activity Report – December 2013

Becketti S, Morris C (1992). Are bank loans still special, Federal Reserve Bank of Kansas City Economic Review, September 1992.

Borio C (2014). Monetary Policy and Financial Stability: What Role in Prevention and Recovery, BIS Working Paper 440, January 2014.

Cambridge Associates (2013). Australia Private Equity & Venture Capital Index and Selected Benchmark Statistics

DeBelle, G (2014). RBA Head of Financial Markets, The Australian Bond Market, Address to the Economic Society of Australia, April 2014.

Dimson E, Marsh P, Staunton M (2014). Global Investment Returns Yearbook, February 2014

Ellis L (2014). RBA Head of the Financial Stability Department, Why financial stability matters and what we can do about it, Address to the University of Adelaide, 4 June 2014.

Federal Reserve Board of Governors (2014). United States Flow of Funds Accounts, June 2014.

Ferrary and Granovetter (2009). The role of venture capital firms in Silicon Valley's complex innovation network, Economy and Society Volume 38 Number 2 May 2009: 326359

Feroli M, Kashyap A, Schoenholz J, Song Shin H (2014). Market Tantrums and Monetary Policy, Chicago Booth Working Paper 101.

Gambacorta, Tsatsaronis and Yang (2014). Financial structure and growth, Bank for International Settlements, March 2014.

Inderst G, Della Croce R (2013). Pension Fund Investment in Infrastructure: A Comparison between Australia and Canada, OECD Working Papers on Finance, Insurance and Private Pensions, No.32, OECD Publishing.

Infrastructure Australian (2014). Review of infrastructure debt capital market financing.

Lowe P (2014). RBA Deputy Governor, Opportunities and challenges for market-based financing, Address to the ASIC Annual Forum, 25 March 2014.

Mayers C, Schoors K and Yafey Y (2003). Sources of funds and investment activities of venture capital funds: Evidence from Germany, Israel, Japan and the UK. National Bureau of Economic Research, Cambridge, MA 02138, April 2003

Rajan R G (2014). Competitive Monetary Easing: Is it Yesterday Once More?, Address to the Brookings Institution Conference, Washington DC, April 2014

RBA (2013). Reserve Bank of Australia Financial Stability Review, September 2013

Rheinhart, C M and K Rogoff (2009). This time is different: Eight centuries of financial folly, Princeton University Press, Princeton.

Schwartz, C (2010). The Australian Government Guarantee Scheme, RBA Bulletin, March 2010.

Stein J (2014). Incorporating Financial Stability Considerations into a Monetary Policy Framework, Speech at the International Research Forum on Monetary Policy, Washington, March 2014.

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