

# 1. CORPORATE BOND MARKET

The chair of the Financial System Inquiry (FSI) flagged that a number of themes will attract the attention of the FSI, including dynamic efficiency of the financial system.<sup>1</sup> Further, the terms of reference asks the FSI to consider how Australia will fund its growth in the future, as well as identify strengths of the financial system and potential gaps and deficiencies.

In this section, I argue that the marginal benefits of improving access to the corporate bond market by non-financial corporations outweigh the marginal costs and risks. It is reasonable to think that the development of the corporate bond market has fallen short of expectations at the time Wallis Inquiry delivered its final report in 1997.<sup>2</sup> I seek to address five key questions relating to Australia's corporate bond market in this section.

- What is the size of Australia's corporate bond market relative to other countries?
- Why has Australia's corporate market failed to grow and develop as had been anticipated fifteen years ago?
- Has it mattered for funding Australia's growth? That is, has the inability for many non-financial companies in Australia to raise corporate debt imposed a constraint on their ability to invest and grow?
- Does the development of a larger, more active and liquid corporate bond market matter for Australia's funding requirements going forward?
- What are the costs and benefits of achieving this?

## **Size (and Composition) of Australia's Corporate Bond Market**

There are a range of sources of corporate funding: retained earnings, bank lending, syndicated lending, trade finance, corporate debt, equity capital and other forms of hybrid capital. According to RBA estimates, the stock of Australia's corporate bond issuance outstanding is no less than 60% of the country's annual flow of GDP. At present, private corporations and financial institutions account for the lion's share of corporate debt, but this hasn't always been the case. At times over the past century, government owned enterprises were the primary issuers of corporate debt.<sup>3</sup>

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<sup>1</sup> Murray, D., 2014, Keynote lunch address, Economic and political overview conference, CEDA.

<sup>2</sup> Lowe, P., 2014, RBA, Opportunities and challenges for market based financing, Speech to the ASIC Annual Forum.

<sup>3</sup> Black, S., Kirkwood, J., Raj, A., Williams, T., 2012, A history of Australian corporate bonds, RBA Research Discussion Paper, 2012-09.

Given that Australia's large financial institutions – notably the major banks – have relatively easy access to both onshore and offshore bond markets, our focus here is the extent to which non-financial corporations can access debt markets. According to the Bank for International Settlements (BIS), the stock of Australia's non-financials corporate debt issuance was less than 20% of GDP in 2013.<sup>4</sup> This is lower than the other major Anglo-Saxon economies; estimates for the United Kingdom and Canada are between 20% and 30% of GDP, while the United States has the largest non-financials corporate bond market relative to its GDP of over 40%.<sup>5</sup> Amongst other large and developed economies, the size of Japan's non-financials corporate debt market is comparable to Australia's, while Germany's is less than 5% of GDP and France's is above 20%.

When benchmarked against the United States, Australia's non-financial corporations do not appear to enjoy the same access to debt capital markets. But the United States appears to be the outlier; most corporate bond markets are smaller and not as active or liquid relative to the United States.<sup>6</sup> Nonetheless, Australia's non-financials corporate bond market relative to GDP is smaller than the average amongst a small sample of large, developed economies.

### **Why has the growth and development of Australia's corporate bond market failed to meet expectations over the past fifteen years?**

#### Limited Supply of Corporate Bonds

Since the Wallis Report was delivered in 1997, investors and companies have favoured equity share capital over bank lending and corporate debt. The ratio of Australia's stock market capitalisation to GDP has lifted from 60% to around 90% in 2013, while the stock of business credit relative to GDP has experienced a more modest rise to 47.5% from 43.7% in 1997 (see **Exhibit 1**).

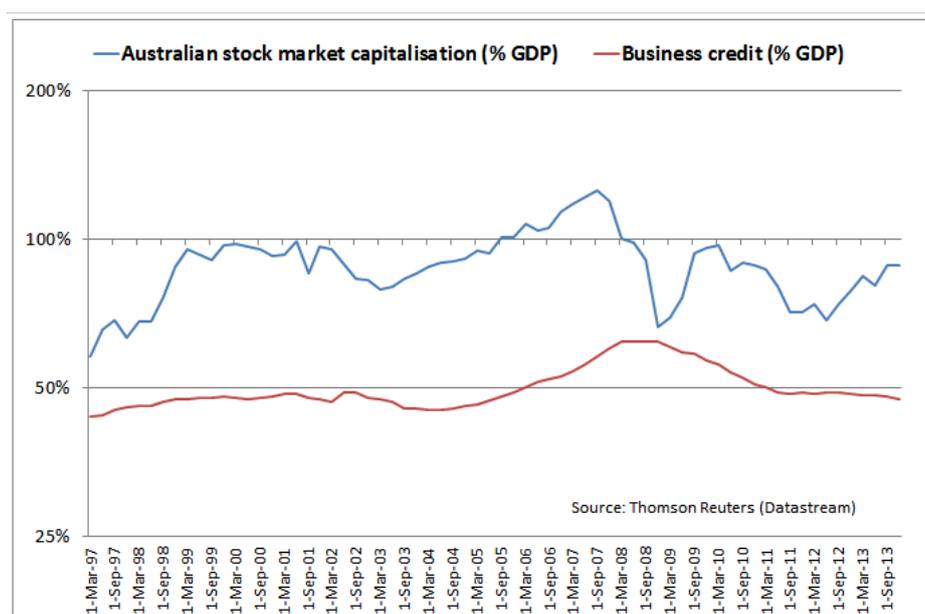
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<sup>4</sup> BIS Quarterly Review, March 2014, Statistical annex: detailed tables.

<sup>5</sup> Estimates on the size of national corporate bond markets vary depending on the source and definition used. The BIS measure for the size of a country's corporate bond market encompasses all maturities and is expressed in US dollars, presumably at market exchange rates.

<sup>6</sup> The size of and well developed corporate bond market in the United States reflects institutional and historical factors. The railroad boom of the late 19th century raised significantly the demand for external funding and regulatory restrictions constrained the ability for commercial banks to lend outside of their home state. This reduced the capacity for commercial banks to meet the financing requirements of companies expanding nationally which contributed to growth and development of alternative funding sources, including corporate debt markets. See Endo, Tadashi, 2000, The development of corporate debt markets, International Finance Corporation, World Bank Group.

## Exhibit 1



### Low Retail and Institutional Demand for Corporate Debt

Retail investors in particular appear to have shunned the corporate bond markets in favour of the stock market. Direct retail investors account for less than 5% of the ownership of Australia's corporate bond market.<sup>7</sup> This has not always been the case; direct household ownership accounted for up to 50% of the corporate bond market prior to the 1980s.<sup>8</sup>

A number of developments have contributed to the decline in household ownership of Australia's corporate debt market and increased the participation of institutional investors: compulsory superannuation, and onerous disclosure requirements designed to protect consumers.

- Compulsory superannuation has reduced direct household participation due to an additional layer of intermediation, notably the funds management industry.<sup>9</sup> A growing share of household savings is now channelled through institutional investors.
- A number of recent changes have reduced the burden of disclosure requirements of corporate debt issues, including streamlining and simplifying prospectus requirements for retail bonds and reducing the personal liability of company directors.<sup>10</sup> The International Capital Market Association notes that onerous disclosure requirements are a global

<sup>7</sup> Black, S. et al, op. cit.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Lowe, P., 2014, op. cit.

phenomenon which has discouraged retail participation in corporate bond markets across many countries.<sup>11</sup>

The fact that the development of Australia's corporate bond market has failed to meet expectations reflects not just low direct household participation, but also low institutional ownership relative to other asset classes. According to the OECD, the latest data available for 2012 show that Australian pension funds devote around 10% of their total assets to government and corporate debt which represents the lowest allocation to fixed interest in a sample of thirty countries examined.<sup>12</sup> A number of factors can account for the low institutional appetite for Australian corporate debt.

- The flipside of the low fixed interest allocation is that Australia has the second highest allocation to equities of 46% (behind the United States). It is reasonable to expect institutional participation to allocate a larger slice of their assets to equities than corporate debt. Institutional research of stocks benefit from economies of scale that are not shared by corporate bond markets because corporate issuers typically have one class of equity only but multiple classes of bonds with different terms and maturities.
- The low liquidity of the corporate debt market might have deterred institutional participation relative to stocks markets. In contrast to stocks, the lion's share of trading in corporate bond markets occurs in the primary market or at the time of listing. Anecdotal evidence suggests that institutional investors tend to hold corporate bonds to maturity to fund expected future cash flow liabilities.<sup>13</sup> In Australia, the introduction of Choice of Fund legislation in 2005 which allows fund members to switch between funds, and within a fund's own strategies or plans, might have increased the attractiveness of liquid asset classes at the expense of their illiquid counterparts such as corporate debt.
- Bid-ask spreads in both the primary and secondary markets for corporate debt have probably widened since the financial crisis, which would have further dampened their already low liquidity. The low level of liquidity in the secondary market means that market makers – typically large banks – take on the inventory risk when an investor wants to sell their bonds. Given the large and lumpy nature of these trades, the market maker's key source of competitive advantage is their balance sheet size. Against the backdrop of the increase in banking sector capital requirements in recent years, banks are presumably

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<sup>11</sup> International Capital Market Association (ICMA), 2013, Economic importance of the corporate bond markets.

<sup>12</sup> OECD Global Pension Statistics.

<sup>13</sup> ICMA, 2013, op. cit.

charging higher premiums for taking on inventory risk in the secondary market for corporate debt.

**Has the lack of access to corporate debt issuance for many non-financial companies in Australia imposed a constraint on their ability to fund investment and grow over the past fifteen years?**

It is difficult to formally test the hypothesis the relatively small size of Australia's corporate bond market has been associated with financing constraints that have impacted adversely on the investment intentions and growth prospects for non-financial corporations.

Over the sweep of the past fifteen years, the evidence suggests that on balance, the small size of Australia's corporate bond market has not imposed a binding constraint on investment intentions and growth. Private business investment as a share of GDP rose to a record peak of over 18% as recently as early 2013, and while it has declined to 16% since then, it remains well above historical trends.

The commodities boom has underpinned rapid growth in business investment in the past decade. Outside a small number of large mining and energy firms, the long tail of resource firms have limited access to the corporate debt market due to their small size, low profitability and very risky growth prospects. Consequently, they rely predominantly on external equity for funding their operations.<sup>14</sup> Despite most resources firms not having access to corporate or bank debt, the strength in resource sector business investment suggests that these firms have not faced a binding financing constraint.

**Does the development of a larger, more active and liquid corporate bond market matter for Australia's funding requirements going forward?**

Although the size of Australia's corporate bond market does not appear to have been a binding constraint on corporations' financing and investment needs, Australia's future funding requirements could benefit from a well developed and liquid corporate bond market that is more open to non-financial corporations. A more sophisticated and active corporate bond market would achieve three broad goals: help to diversify funding sources available to corporate Australia, including at times when the bank sector is under stress; offer a steady and sustainable source of income to an ageing population with a preference for income over capital growth; and reduce the large dependence on stocks that superannuation funds have in their asset allocation.

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<sup>14</sup> Williams, T., 2012, Exploration and the listed resource sector, RBA Bulletin.

### Corporate Bond Market as a 'Spare Tyre'

Do corporate bond markets offer companies important sources of diversification when other funding sources such as bank lending dry up? The evidence lends some equivocal support to corporate bond markets acting as a spare tyre.<sup>15</sup> Over the past 150 years, the correlation in the timing of banking crises in the US and corporate default crises is close to zero, suggesting that they are distinct phenomena.<sup>16</sup> While bank lending substitutes for corporate debt issuances during corporate default crises, the reverse does not appear to hold during banking crises; on average, corporate debt issuances have not increased materially in bank crises.

The evidence during the financial crisis of 2008 more strongly supports the spare tyre benefits of a developed and liquid corporate bond market; US corporations have been able to easily raise finance from debt capital markets since the financial crisis, at a time when growth in bank or intermediated lending has remained anaemic.<sup>17</sup>

### Population Ageing and the Investors' Growing Appetite for Corporate Debt

Investor demand for corporate debt (and other sources of stable income) should be expected to grow in Australia as the process of population ageing continues. This would be attractive to retail investors and superannuation funds that require long dated and predictable cash flow streams to meet their liabilities over the long term. Against this backdrop, the appetite for longer duration and less liquid assets like corporate debt should grow strongly. The major banks might emerge as natural investors in corporate debt markets. Population ageing could fundamentally reduce asset growth and change their liability mix, by reducing their reliance on short-term and long-term wholesale debt markets.

### Reduce Pension Funds' Heavy Reliance on Stock Markets

Further development of Australia's corporate bond market would help to reduce the pension fund industry's heavy reliance on stock markets. As noted above, according to the OECD, Australia ranks second only behind the United States in terms of pension fund allocation to stocks. A larger allocation to fixed interest and especially corporate debt would deliver powerful diversification benefits to Australia's pension funds given that the starting point is so low.

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<sup>15</sup> The spare tyre analogy has been borrowed from Lowe (2014) and ICMA (2013).

<sup>16</sup> Gieseke, K., Longstaff, F.A., Schaefer, S., Strebulaev, I.A., 2014, Macroeconomic effects of corporate default crisis: A long term perspective, *Journal of Financial Economics*, 111 (2).

<sup>17</sup> Lowe, P., 2014, op. cit.

## **Marginal Benefits of a More Active and Liquid Corporate Bond Market to Outweigh the Marginal Costs**

It is reasonable to think that a well-developed corporate debt market might be associated with a higher frequency of corporate default crisis that could pose a spill-over or contagion risk to the broader economy. But the long run evidence in the United States shows that corporate default crises in the United States have had significantly smaller real effects than banking crises, due to the absence of credit and collateral channels in a corporate default crisis.<sup>18</sup> In contrast, the credit and collateral channels propagate a banking crisis through the broader economy. Collateral does not play as important role in corporate debt markets as it does in bank lending. In the case of Australia, where households hold a high share of assets in the form of housing, an active corporate bond market could offer important diversification benefits in the event that a bank crisis is associated with large declines in the value of commonly held collateral, notably housing.

On balance, the marginal benefits of further development of Australia's corporate bond market are likely to outweigh the marginal costs and risks. Lowe (2014) implies that the marginal costs would be low given that Australia already has the requisite financial infrastructure in place. As noted above, a number of measures have been taken in recent times to remove some of the regulatory road blocks to the corporate bond market's further growth, development and appeal to retail investors, including streamlining the process of preparing a corporate debt issuance prospectus for households. This should also help to encourage further participation in the corporate debt market from self-managed super funds.

A better understanding of the limited institutional investor appetite for corporate debt is necessary to encourage and grow wholesale participation. Growth in institutional demand for corporate debt should in turn encourage more companies to diversify their own sources of funding and cater to the growing institutional appetite for corporate bonds.

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<sup>18</sup> Ibid.

## 2. CAPITAL REGULATION

The chair of the FSI flagged that the Government has asked the FSI to consider a number of issues, including what developments since the final report of the Wallis Inquiry was delivered in 1997, mean for Australia's financial regulatory philosophy.<sup>19</sup> Further, the terms of reference asks the FSI to assess various issues relating to Australia's regulatory framework.

- Identify strengths of the financial system and potential gaps and deficiencies.
- How is financial risk allocated and systemic risk managed?
- Assess the efficacy and need for financial regulation, including impact on costs, flexibility and innovation.
- Practical suggestions for improving regulatory settings.

Drawing heavily on the academic research of Anat Admati, Peter Hellwig and their co-authors, I argue in this section that Australia's financial institutions – with a focus on the major banks given their size – have inadequate capital ratios at present.<sup>20</sup> Consequently, I conclude that the marginal benefits of raising regulatory capital or common equity that banks should hold in their liability mix – notably a safer financial system that is less vulnerable to crises of confidence - outweigh the marginal costs. In this section, I address the key questions below.

- What is the key function of a bank?
- What is capital regulation?
- Why do banks hold dangerously low levels of capital?
- Is debt really cheaper than equity?

### **The key function of a bank: Maturity transformation**

Consider the basic function of a bank as 'maturity transformation'. On the right side of a bank's balance sheet are its liabilities: common equity that it raises from shareholders, wholesale debt funding and customer deposits. A bank uses these funds to lend to businesses, households and governments. The loans that a bank writes are its assets that obviously sit on the left side of its balance sheet.

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<sup>19</sup> Murray, D., 2014, Op. cit.

<sup>20</sup> Admati, A., Hellwig, P., 2013, *The bankers' new clothes: What's wrong with banking and what to do about it*, Princeton University Press.

There is a mismatch in maturity between a bank's assets and liabilities; its assets are typically long term and illiquid. There is no transparent price mechanism that reflects and conveys the market value of loans. In contrast, a bank's liabilities are short shorter term and liquid; for instance, customer deposits are either at call or have a term of up to three years, while funds borrowed from wholesale debt markets have a similar short-term maturity.

The key function of a bank is to manage the mismatch in maturity between its assets and liabilities. It does so primarily by carefully evaluating prospective borrowers' ability to make their loan repayments. To this end, a bank might demand some form of collateral from the borrower. A mortgagee pays a minimum deposit or down-payment, while banks typically impose debt covenants on business borrowers that allow the bank to re-negotiate the terms of the loan if those covenants are breached.

### **Demystifying capital regulation**

Capital regulation is concerned with a bank's mix of liabilities. In banking, capital refers to the amount of common equity raised from shareholders and used to fund a bank's lending activities. Why would a prudential regulator wish to impose constraints on a bank's funding or liability mix? It gets back to the bank's delicate task of managing the maturity mismatch between its long dated illiquid assets (ie. loans) and short-term liquid liabilities. A bank that is heavily reliant on short-term funds borrowed from wholesale debt markets can easily become vulnerable to a crisis of confidence if a large enough number of business and housing loans it has written have defaulted.

Capital regulation simply forces banks to have a minimum amount of common equity (relative to total assets or risk weighted assets) in their liability mix. A crisis of confidence is less likely if a bank has secured a larger share of its funding from equity or shareholder capital, which Admati and Hellwig describe as un-borrowed money or loss absorbing capital.<sup>21</sup> As residual claimants to a bank's cash flows, a bank can cease dividend payments to shareholders in the event that it gets into trouble. Common equity acts as a buffer or shock absorber in the same way that a large deposit or down-payment better shields a mortgagee in the event that the value of her house declines.

Bankers continue to propagate the myth that that capital regulation constrains a bank's ability to lend and make credit available. Capital requirements do not require banks to set aside capital to sit idly in their vaults; the need to have a minimum amount of common equity in their funding mix does

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<sup>21</sup> Admati, A., DeMarzo, P.M., Hellwig, P., Pfleiderer, P.C., 2010, Fallacies, irrelevant facts, and myths in the discussion of capital regulation: Why bank equity is not expensive, Working paper.

not affect the asset side of a bank's balance sheet, notably its loans. A bank retains complete discretion as to whom it lends to, how much and on what terms.

### **Why do banks hold dangerously low levels of capital?**

Even though five years have passed since the collapse of US investment bank, Lehman Brothers, banks' capital ratios remain woefully inadequate. Basel III has imposed more onerous capital requirements than its predecessors. Some national prudential regulators – including the Australian Prudential Regulatory Authority (APRA) - have imposed even higher capital ratios than recommended by Basel III. Nonetheless, the leverage ratio (common equity to assets) for Australia's bank sector is less than 10%. That is, for every \$100 worth of loans written by the sector, banks hold less than \$10 of common equity. In contrast, the leverage ratio for non-financials sector listed on the ASX200 is around 50%, comparable to the resource sector (see **Exhibit 2**).

Banks that fund a greater share of their loans with common equity are safer and should be able to better withstand a run or a financial crisis. There are three key reasons why banks hold so little equity and so much debt: deposit insurance, fire sales of financial assets and intense level of competition in the provision of banking services.

- Taxpayer funded guarantees on deposits for Authorised deposit taking institutions (ADIs) encourage these institutions to take on excessive risk. Such government guarantees allow banks to borrow funds from wholesale debt markets at cheaper rates. In Section 3 below I discuss that the strengthening and clarification of deposit insurance during the financial crisis has conditioned the community to expect continued strong future government support for depositors. This further weakens incentives for depositors to engage in monitoring banks' lending standards and exacerbates the moral hazard problem of banks taking on too much risk when writing loans.
- The tendency to hold insufficient levels of common equity is not confined to financial institutions subject to deposit protection. A fire sale of a financial asset associated with a bank shrinking its loans can impose negative externalities on other financial institutions that hold the same financial asset.<sup>22</sup> The price of collateral can fall sharply in a fire sale, particularly if the asset in question or securities being dumped are illiquid. Fire sales can force other financial institutions to re-value their assets at artificially depressed prices, thus

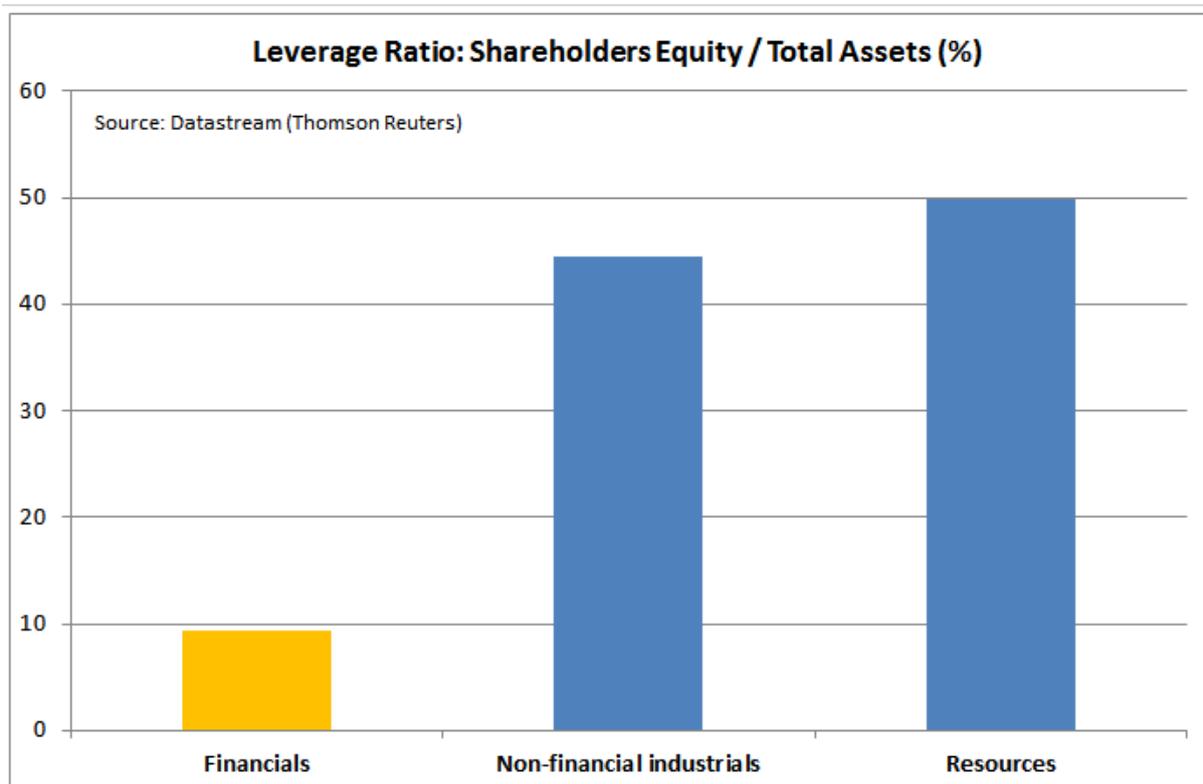
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<sup>22</sup> Shleifer, A., Vishny, R., 2011, Fire sales in finance and macroeconomics, *Journal of Economic Perspectives*, 25 (1). See also Hansen, S.G., Kashyap, A.K., Stein, J.C., 2011, A macro-prudential approach to financial regulation, *Journal of Economic Perspectives*, 25 (1).

inflicting large aggregate losses and a potential crisis of confidence. The lure of illusory cheap debt funding is far too tempting for most bankers and trumps any systemic concerns that high leverage could undermine the stability of the financial system.

- The key source of a bank's competitive advantage is access to capital and the ability to fund itself cheaply. Even a small increase in relative funding costs can cause a bank to lose significant market share due to the competitive provision of banking services.<sup>23</sup>

## Exhibit 2



<sup>23</sup> Kashyap, A.K., Stein, J.C., Hanson, S., 2010, An analysis of the impact of 'substantially heightened' capital requirements on large financial institutions, Working paper.

## Is debt really cheaper than equity?

As noted above, bankers continue to propagate the view that higher capital ratios can only be met by shrinking assets or the loans they write. Bankers are loathe to raise equity to restore capital ratios because of the widely held view that equity is more expensive than debt. Also, raising equity is typically associated with signalling effects, casting doubt on the bank's health and its future growth prospects.

A number of studies borrow from the Miller-Modigliani's irrelevance theorem - that under certain conditions financing does not matter for a firm's value - to debunk the view that debt is cheaper than equity.<sup>24</sup> The key insight is that raising equity de-levers the firm, reducing the riskiness of the firm's slice of equity. Investors demand less compensation for holding the firm's equity and its cost of equity declines. Of course, the assumptions that underpin the result are not met in practice. Specifically, the tax treatment for debt is more favourable than equity, leading to a lower after tax cost of debt; interest repayments are tax deductible while dividends are not. But various models show that the size of the tax benefit is not big enough to have a material effect; significantly higher capital requirements lead to modest increases in lending rates.<sup>25</sup>

If bankers are correct that equity is more expensive than debt because equity is more risky, then it is reasonable to expect a negative relationship between various measures of risk and a bank's leverage ratio; common equity/total assets. That is, as a bank is 'forced' to raise 'expensive' equity in its liability mix, its beta and volatility of stock returns should rise linearly. In contrast, the Miller-Modigliani theorem predicts a positive relationship; a higher capital ratio lowers a bank's leverage, the riskiness of its equity and the expected rate of return on equity.

The empirical evidence supports the implications of the MM theorem. There is a positive relationship between equity betas and leverage for the largest listed banks in the developed world, but the regression does not yield a statistically significant coefficient on the leverage ratio (see **Exhibit 3**). But the strongly positive relationship between the leverage ratio and absolute return volatilities provides stronger support for the MM theorem; the coefficient on the leverage ratio yields a t-statistic of 3.2, significant at the 1% level (see **Exhibit 4**).

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<sup>24</sup> Admati, A., Hellwig, P., 2013, op. cit. Kashyap, A.K., Stein, J.C., Hanson, S., 2010, op. cit.

<sup>25</sup> Kashyap, A.K., Stein, J.C., Hanson, S., 2010, op. cit. See also Miles, D., Yan, J., Marcheggiano, G., 2013, Optimal bank capital, *Economic Journal*, 123 (567).

## Summary and conclusions

Australia's banks have amongst the highest ratio of equity capital to risk weighted assets in the developed world, reflecting the (very) high share of mortgage lending in banks' assets. The Basel III framework assigns lower risk weightings to assets considered to be less risky, so mortgage lending attracts lower risk weights than business loans for instance. From a macro-prudential perspective on financial regulation, the system of risk weightings might encourage banks to favour writing housing over business loans. The high concentration of mortgage loans on the books of Australian banks might argue for an upward adjustment to those risk weights to better reflect the growing risk and size of negative externalities or flow on effects associated with a fire sale of mortgages if house prices decline or a bank is forced to shrink its mortgage book.<sup>26</sup>

An alternative leverage ratio that does not adjust for the individual risk of an asset class - equity to total assets - shows that Australia's major banks are mid-table against a peer group of large banks in the developed world – see **Exhibit 5**. Nonetheless, the capital ratios of Australian banks – and many banks worldwide – are too low. Forcing banks to hold significantly more loss absorbing capital would deliver a safer and more stable financial system, better protect taxpayers and make it easier for the RBA and APRA to manage systemic risk. While the evidence suggests that the costs of such action – notably higher lending rates – would be modest.

Given the risks associated with capital migrating to the shadow banking system if capital ratio requirements for ADIs are strengthened, Kashyap et al (2010) argue that financial institutions that do not benefit from deposit protection should be subject to greater oversight and supervision.<sup>27</sup> The risk of a migration of capital to the shadow banking system is not a valid argument for a light handed regulatory approach to banks and other ADIs.

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<sup>26</sup> Duffie, Darrell, 2014, A Bloomberg essay on the form of bank capital regulations.

<sup>27</sup> Kashyap, A.K., Stein, J.C., Hanson, S., 2010, op. cit.

Exhibit 3

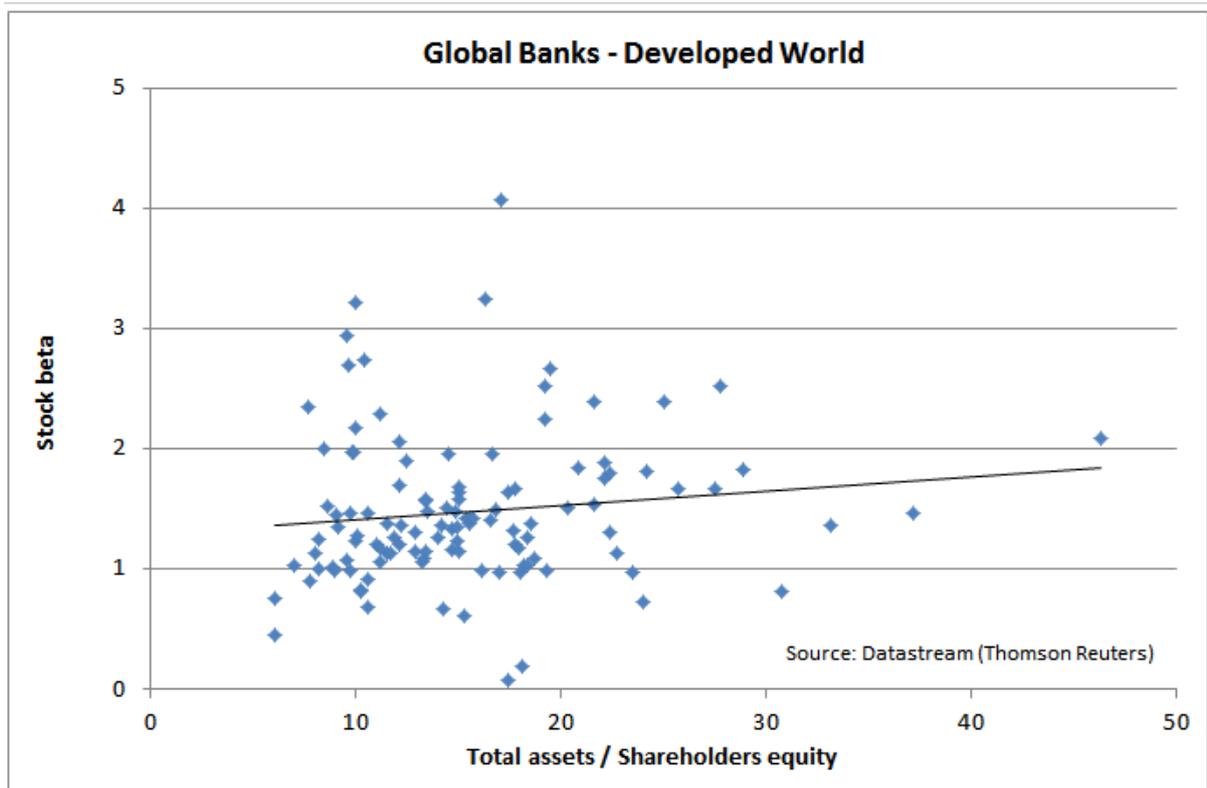


Exhibit 4

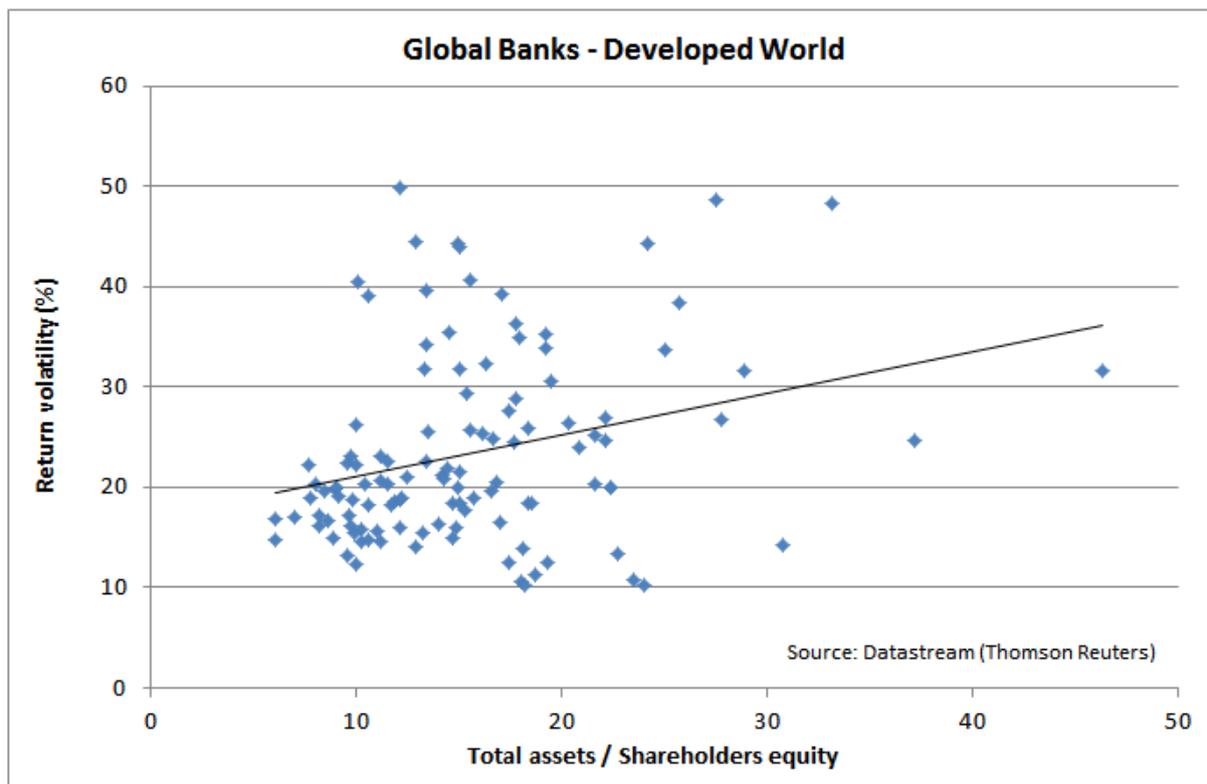
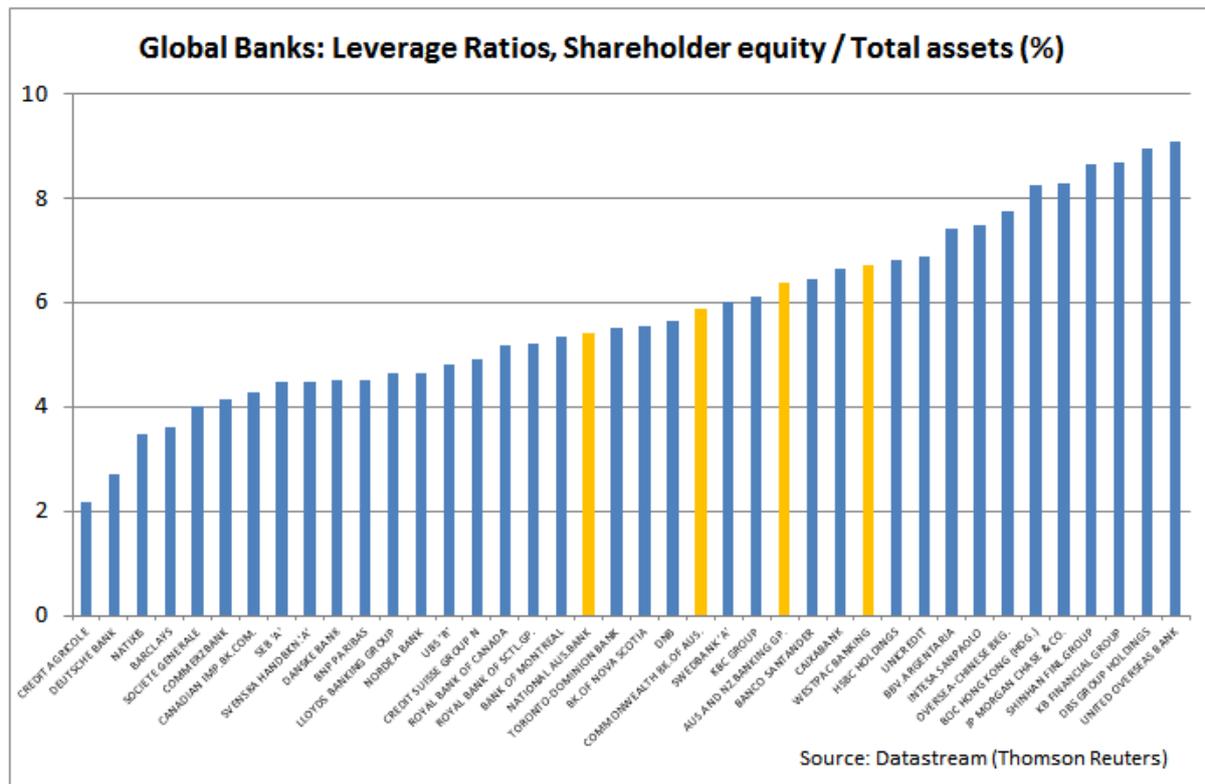


Exhibit 5



### 3. DEPOSIT INSURANCE

The model developed by Diamond and Dybvig (1983) in which a solvent but illiquid bank can fail, provides the rationale for why governments offer deposit insurance schemes. A financial institution that has illiquid assets (ie. loans) funded from liquid liabilities (ie. customer deposits) is vulnerable to a deposit run in the event of a crisis of confidence, even when it is solvent.<sup>28</sup> Panic amongst depositors causes them to rush to withdraw their funds to avoid being the last in the queue, even if they believe that the bank's assets are worth more than its liabilities.

By offering a credible pledge to insure customers' deposits, the government can help to reduce the likelihood of a self-fulfilling bank run. Of course, deposit insurance reduces depositors' incentives to engage in bank monitoring, in the knowledge that the government will bail out depositors in the event of a deposit run. And deposit insurance introduces moral hazard by encouraging banks to take on excessive risks.

In a global survey of deposit insurance schemes, Demiguc-Kunt and Kane (2002) show that the efficacy of such schemes is greatest when strong institutional, regulatory and supervisory settings are already in place.<sup>29</sup> They argue that the evidence suggests that prudential regulation and supervision can help to mitigate any loss of market discipline associated with weaker private monitoring that stems from deposit insurance schemes. That is, deposit insurance shifts the burden of monitoring (and in some cases controlling) the level of bank risk taking to the regulatory system. The onus therefore falls to prudential regulators and supervisors to ensure that they have the systems, networks and processes in place to ensure that they can effectively carry out their monitoring activities on behalf of bank depositors and ultimately taxpayers.

Demiguc-Kunt and Kane (2002) warn that deposit insurance schemes that are introduced or strengthened during a bank crisis can further undermine market discipline and exacerbate the problem of moral hazard, and highlight the difficulty that governments face in scaling back public expectations of depositor protection following a crisis.<sup>30</sup>

Against the backdrop of the 2008 financial crisis, the rationale for even stronger regulatory and supervisory function has become more compelling. Prior to the financial crisis, there already appeared to be widespread community support and confidence that the government would bail out

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<sup>28</sup> Diamond, D., Dybvig, P.H., 1983, Bank runs, deposit insurance and liquidity, *Journal of Political Economy*, 91 (3).

<sup>29</sup> Demiguc-Kunt, A., Kane, E.J., 2002, Deposit insurance around the world – Where does it work? *Journal of Economic Perspectives*, 16(2).

<sup>30</sup> Demiguc-Kunt, A., Kane, E.J., 2002, op. cit.

depositors in the event of a bank failure or deposit run, even in the absence of an explicit deposit insurance scheme at the time.<sup>31</sup> It is reasonable to believe that public confidence in, and expectations surrounding depositor protection have further grown following the financial crisis. The government introduced the Financial Claims Scheme during the crisis in 2008, which represents explicit deposit insurance that guaranteed deposits up to \$1 million per ADI.<sup>32</sup> The cap was subsequently lowered to \$250,000 in 2012.

The international evidence suggests that when it comes to supervision of banks' risk taking activities, governments face two 'simple' choices. They can try to credibly offer no deposit insurance scheme and leave it to banks' creditors, shareholders and depositors to accept the burden and costs associated with monitoring banks' activities. Or they can choose to have a system of deposit insurance, but give prudential regulators the authority to undertake credible monitoring and supervision of banks' risk taking activities, with a view to reducing the ability for banks to take on excessive levels of risk when it comes to writing loans and force banks to hold a minimum amount of equity capital.

Consistent with Demigurc-Kunt and Kane (2002), I believe that the government cannot now credibly scale back depositor protection given the extent to which it was strengthened during the crisis. Consequently, I urge the FSI to strongly resist any calls for the supervisory and monitoring functions of APRA to be diluted. There is good reason why the focus of APRA and other global standard setters has been on stability rather than competition. Indeed, in the wake of the financial crisis, there is a compelling rationale to further strengthen APRA's supervisory and monitoring powers. Further, the performance, supervisory powers and benchmarking of APRA against other international regulators needs to take into account the cross sectional or country variation in deposit protection and the time variation in deposit protection during and since the crisis.

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<sup>31</sup> Davis, K., 2004, Australia's experience with failure and international experience with guarantees, in Study of Financial System Guarantees, Commonwealth of Australia, Canberra.

<sup>32</sup> Turner, G., 2011, Depositor protection in Australia, RBA Bulletin.