

Australian Debt Securities and Corporate Bonds

Trends and prospects

An independent report prepared for National Australia Bank by the Australian Centre for Financial Studies. The principal authors of this report are Professor Kevin Davis, Research Director and Martin Jenkinson, Research Officer at the Australian Centre for Financial Studies.



more give, less take

1. Introduction

This is the fourth in a series of reports on the Australian debt securities and corporate bond market, prepared by the Australian Centre for Financial Studies (ACFS) for NAB.

The series to date has covered why corporate bonds can be an important component of a well diversified portfolio, the range of fixed income securities available to investors along with the risks they may contain, and the many methods by which investors may gain access to the asset class.

In this final report we investigate recent developments in the Australian corporate bond market, place the Australian market in an international context and speculate on what the future holds for the asset class. We first consider recent regulatory changes and the trend toward increased flexibility and reduced cost for corporate debt issuers before exploring a number of arguments as to why a strong corporate debt market can be beneficial to the nation's financial system.

The third section of this report benchmarks the Australian corporate bond market against other countries in the region and also considers the likelihood of continued reliance of Australian corporates on international debt markets rather than the domestic market.

The concluding sections of this report identify barriers that have played a role in impeding growth in the market to date and assesses how many of these barriers may be overcome in the future.

Ultimately, the creation of a strong corporate bond market requires that (a) issuers perceive that this is a cheaper way to raise funds than via other means, (b) investors find the yields offered attractive for the risks involved, and (c) issuers also get further funding diversification via a growing investor market. The findings in this report suggest that there are a number of factors already in play that have increased the desirability of corporate bonds in both of these regards and that current trends indicate potential for development of a strong retail corporate bond market.

2. Initiatives to promote Australian corporate bonds

The Australian Government, in common with many of its overseas counterparts, has a policy objective of developing a deep and liquid corporate bond market which is attractive to both institutional and retail investors. The benefits of a strong corporate bond market, which are investigated further in section 3 of this report, include the potential for companies to have broader access to funds and for individual investors and superannuation funds to benefit from greater access to fixed interest investments for portfolio diversification purposes.

Recent regulatory and legislative changes which promote development of the Australian corporate bond market have focused on three key areas:

1. Encouraging the increased issuance of debt securities by Australian corporations
2. Increasing the range of eligible debt securities issuable by Australian banks
3. Increasing retail investor participation in bond and debt securities markets.

Government initiatives aimed at encouraging Australian corporates to increase issuance of debt securities have included two initiatives aimed at reducing the regulatory red tape and costs associated with corporate debt issuances. These changes include:

- a) Abolishing the requirement for a firm issuing 'vanilla' corporate bonds to provide an accompanying full disclosure prospectus and
- b) Allowing Australian corporations to lodge a base prospectus that remains valid for a period of three years which allows the firm to subsequently raise debt capital under a short-form transaction specific prospectus.¹

The *Banking Amendment (Covered Bonds) Act 2011* released in October 2011 increased the range of eligible debt securities which Australian banks could issue by permitting the issue of covered bonds. Covered bonds,² are collateralised by an underlying portfolio of loans (the "cover pool") placed by the issuing bank into a special purpose vehicle but, unlike standard asset-backed securities, also offer holders recourse against the issuing entity should the cash flow from the underlying loans prove insufficient to meet the promised payments. While covered bonds have been prominent in Europe for many years, prior to this amendment Australian banks had been prohibited from issuing covered bonds. The introduction of covered bonds was not without some controversy because of the implications for depositor priority. Covered bond holders have a priority of claim on the underlying loans collateralising the bond before all other creditors, including depositors. The net effect on deposit safety is, however, with one exception, relatively minor, because covered bond issuance means that there are less deposits financing the remaining bank assets outside the cover pool. Only if the "best" bank assets are used to back covered bonds, which would reduce the quality of loans financed by deposits, is this a potential problem.³ The legalisation of covered bond issuance by Australian banks both broadens the sources of funding available to banks but also assists corporate bond market development by increasing the range of securities available in the market.

1. The implications of these changes were discussed in the third report in this series.

2. A more detailed explanation of covered bonds can be found in the second report in this series.

3. Another potential problem would be if covered bond holders had a priority claim on other bank assets if the cover pool proved inadequate to meet their claims. However, covered bond holders rank as unsecured creditors of the bank, behind depositors, in the event of any such deficiency.

The final category of government regulation aimed at promoting the Australian corporate bond market has focused on increasing retail investor participation in the fixed income markets. This goal was made explicit when in December 2010, as part of the Government’s *Competitive Sustainable Banking Sector* package the government announced its wish to promote retail investment in government bonds and corporate bonds. In pursuing the development of the retail government bond market, there has been consultation with industry, leading to the Commonwealth Government Securities Retail Trading Bill introduced to Parliament in mid-2012. The subsequent legislation has allowed for beneficial interests in Australian Government Bonds to be bought and sold by retail investors via a listed exchange in a manner similar to that of listed equities.⁴ One of the expressed intentions of this legislation has been to increase retail investor engagement in the bond market to “over time, encourage companies to diversify their funding sources and offer opportunities for retail investor participation.”⁵

Table 1: Timeline of recent government initiatives aimed at promoting corporate bonds

Regulatory change	Date implemented
Listed companies allowed to issue “vanilla” bonds under either a short-form prospectus or a two-part prospectus model	May 2010
Australian banks allowed to issue covered bonds	October 2011
Two-part prospectus model extended to “vanilla” bonds issued to retail investors and length of base prospectus eligibility raised from 2 to 3 years	March 2013
Listing of beneficial interests in Australian Government Bonds	May 2013

4. Beneficiary interests are essentially indirect claims on some portion of a parcel of bonds via a third party who has placed those bonds into a trust (or other) structure and issued claims against them.

5. Bill Shorten (2013), Launch of Australian Government Bonds, Media Release, <http://ministers.treasury.gov.au/DisplayDocs.aspx?doc=pressreleases/2013/032.htm&pageID=&min=brs&Year=&DocType=0>

3. The benefits of a strong corporate bond market

There are a number of reasons why a strong retail corporate bond market is a desirable feature of a country's financial system. These include:

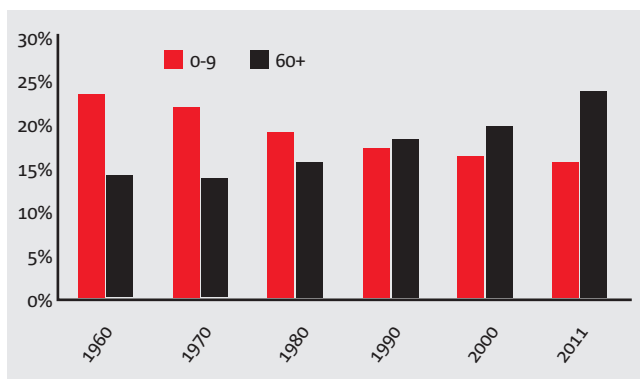
- Providing an increased set of Australian dollar fixed income investment options for domestic investors.
- Increased funding sources (and competition amongst debt capital providers including banks) for local businesses.
- Potential to reduce systematic risk through reduced reliance on banks for debt funding.

3.1 Investment options for ageing Australians

The global trend away from defined benefit (DB) pension schemes toward defined contribution (DC) has shifted investment risk from the corporate sector to the individual. In the Australian context, the move to compulsory superannuation which was first legislated in 1992 has probably been an even more important factor in this regard. Now most Australian adults have superannuation and almost 90 percent of all Australian pension assets are held in DC accounts.

Given Australia's ageing population (Figure 1) and the impending retirement of the baby boomers, investment risk has been brought sharply into focus as a matter of concern for the wellbeing of Australian retirees whose standard of living in retirement is adversely affected by poor investment performance and for the Australian Government who must make up at least part of any investment shortfalls through provision of the age pension.

Figure 1: Australian population changes 1960 – 2011 (Population of total population in each age bracket)



Source: ABS CAT 3105.0.65.001 and CAT 3235.0.

As mentioned in the first report in this series, diversification across asset classes and individual securities can reduce total portfolio risk.⁶ Furthermore, including a higher proportion of fixed income investments will generally result in a

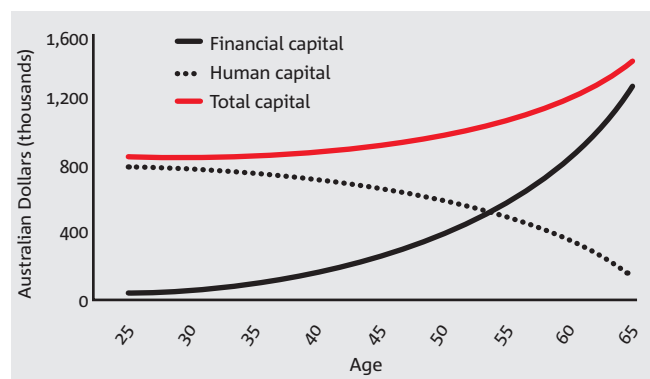
portfolio lower down the risk return spectrum.⁷ For the average investor, it is generally considered prudent to reduce the portfolio share of risky investments as the investment horizon shortens. Jack Bogle, founder of the world's largest mutual fund Vanguard, famously stated that in order to manage investment risk it is prudent to hold your age in bonds.⁸ For example, someone that is 40 years old should have a 40% allocation to fixed income securities.⁹ While Jack's rule of thumb was based neither on empirical or theoretical evidence (and by some critics is considered too conservative), there are at least two key factors that support this shift to lower volatility assets as we age:

1. The percentage of future earning capacity generated by an individual's human capital reduces as we age.
2. Increased portfolio balance coincides with increased sequencing risk and therefore greater risk of adverse retirement outcomes.

The human capital argument

Human capital, in this context, is the value of an individual's future income earning capacity and is determined by a number of factors including age, education and experience. As we age the future value of our earning capacity through human capital is reduced. To the extent that a portion of the past income earned through human capital is invested, human capital is replaced by the earning capacity of an individual's financial capital as they age. Figure 2 illustrates how financial wealth accumulation for retirement, non-working, years replaces labor income earning capacity)

Figure 2: Financial capital, human capital and total wealth over an Investor's Life Cycle



Source: Derived from Ibbotson et al. (2007) *Lifetime Financial Advice: Human Capital, Asset Allocation and Insurance*.

6. As measured by return volatility.

7. This concept was covered in the first report in this series and refers to the fact that in an efficient market, higher asset returns must come at the expense of higher risk.

8. John Bogle (2010), *Common Sense on Mutuals Funds*, pp.87-88, Wiley.

9. Bogle also suggested that the present value of any pension benefits should be included as part of the fixed income allocation.

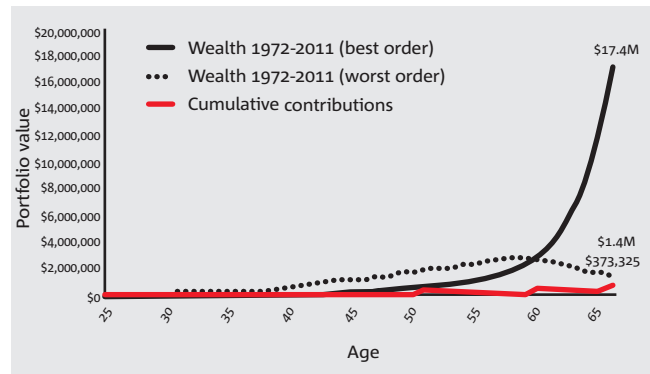
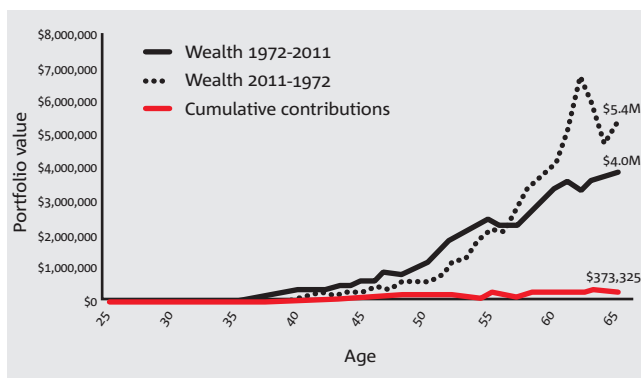
For most people, the earnings capacity of human capital is much less volatile than that of financial capital, which when invested in growth assets like stocks is largely determined by the movement of stock markets. Therefore, as a larger proportion of an individual's total wealth is made up of financial capital and the individual becomes more reliant on this as a source for funding one's lifestyle an investor should reduce their exposure to risky assets.¹⁰

The sequencing risk argument

Sequencing risk refers to the interaction between order of returns and investment contributions. Basu et al. show that in a situation where there is a single lump sum contribution to an investment (and a single lump sum withdrawal at the end of the investment horizon) the ordering of returns has no impact on the final balance. However, once ongoing contributions are introduced, the importance of the ordering of returns increases significantly.

Figure 2 from Basu et al. shows the impact of ordering of returns on a superannuation account that is held for 40 years with an average 2012 salary of around \$41,000 growing at 4% and an annual contribution of 9% of salary into the account. The figure shows that by simply reversing the order of returns from 1972-2011, the ending account balance is reduced by almost \$1.5 million. Furthermore, the discrepancy between the maximum and minimum ending account balances based on all possible ordering of returns is \$16 million. This is because the impact of negative returns on the portfolio balance increases as the size of the account balance and contributions increase.

Figure 3: The effect of sequencing risk on retirement wealth



Source: Basu, A., B. Doran and M. Drew (2012), *Sequencing Risk: A Key Challenge to Sustainable Retirement Incomes*, Finsia, Sydney.

Basu et al. (2012) suggest that one strategy for reducing sequencing risk is to shift a greater weighting of asset allocation into less volatile assets as an investor ages and their superannuation account balances increase.

3.2 Diversified sources of capital for Australian Corporations

Corporate bond markets provide Australian businesses with a broader range of potential sources of debt financing than is available when debt financing is provided solely through banks. This allows corporations to diversify funding sources and can provide greater flexibility in the term and tenor of debt capital. Furthermore, if competition amongst providers of debt capital is increased through larger participation in debt capital provision, the cost of debt capital for Australian businesses may also be reduced.

Critics may argue that while this will benefit mid-tier firms who are unable to access international debt markets, larger Australian corporations are already achieving these goals through access into international corporate debt markets. However, Gozzie et al. find that even companies that have access to and have issued into international corporate debt markets continue to utilise domestic debt markets. The same study also finds that the structure of fixed income issues differs depending on the market in which the security is issued.¹¹ This suggests that international corporate bond markets do not completely substitute for a strong domestic corporate bond market and that local corporations benefit from the ability to issue domestic debt.

10. Ibbotson, R.G., Milevsky, M. A., Chen, P. (2007) *Lifetime Financial Advice: Human Capital, Asset Allocation and Insurance*, The Research Foundation of CFA Institute.

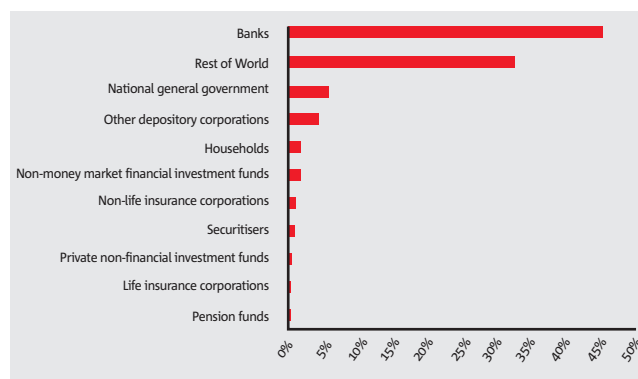
Some potential consequences of corporate bond market absence

A number of academic studies have suggested adverse consequences which can arise in economies where there is excessive reliance on short term bank loans for company financing. One is that, compared to the case where there is longer term financing available from debt markets, corporate investments in assets and projects will tend to have a shorter term focus in order to reduce risk.¹² Another is that dominance of bank financing may contribute to less venture capital expenditure, because exit mechanisms for venture capitalists are less flexible and banks may extract rents from their financing component.¹³ (Black and Gilson, JFE, 1998)

3.3 Potential to reduce systemic risk

In the aftermath of the global financial crisis that began in 2008, there has been an increased focus by regulators on systemic risk– the potential for failure of one financial institution to significantly disrupt the workings of the financial system resulting in businesses losing the ability to access debt finance. This situation known as a ‘credit crunch’ has occurred on a number of separate occasions throughout history, most famously in the Great Depression of the 1930s and the recent global financial crisis. Researchers have noted that a strong corporate bond market can provide an alternative source of debt capital in such crises. For example following the Russian financial crisis of 1998, Alan Greenspan, former Chairman of the US Federal Reserve famously observed that it is important to have a number of alternative methods for converting a nation’s savings into capital as they can act as a ‘spare tire’ when the primary form of intermediation fails.¹⁴ With this in mind it is interesting to observe the debt funding composition of Australian non-financial corporations. Australian domestic debt financing is dominated by bank lending with international funding providing the only real source of diversification or ‘spare tire’ (Figure 4). Given that international investors may exhibit increased home bias, or flee to safety, in times of crises and reduce financing and refinancing opportunities for foreign issuers, there is an argument that a strong Australian corporate bond market could play a key role as a stabilizing mechanism in the event of a future credit crunch.

Figure 4: Debt funding sources of Australian non-financial corporations: March 2013*



* In this chart debt includes: bonds, long-term loans, short-term loans, one-name paper and accounts payable.

Source: ABS CAT 5232.0 Australian National Accounts: Financial Accounts.

Further to acting as a stabiliser during a crisis, research has shown that a strong corporate bond market can accelerate subsequent recovery. For example, Allen et al. (2012) find that while a corporate bond market is no substitute for banks, a well balanced financial system which incorporates both intermediated and disintermediated forms of capital recovers more quickly from a crisis.¹⁵

Despite the aforementioned initiatives to promote a strong corporate bond market and expected benefits, the Australian market remains relatively underdeveloped when compared to those of comparable countries internationally. As noted in the preceding report in this series, when analysing the corporate bond market it is important to look at both the aggregate market and the listed market. This is because for many countries, including Australia, the over-the-counter (OTC) market for fixed income securities is much larger than the listed market.

An analysis of the listed market is best conducted via a comparison of the depth and activity of other bond markets in the region. In regards to depth, South Korea’s Korea Exchange has the most individual bond listings in the region with more than 10,000 while the Singapore Exchange against which the Australian Stock Market is often compared lists 1,317 bonds. (Figure 5) In comparison, as of July 2013, the Australian Stock Exchange listed a total of 77 debt securities of which the majority are hybrid securities. (Figure 6)

11. Gozzie, J. C., Levine, R., Peria, M. S. M., Schmukler, S., (2012), How Firms Use Domestic and International Corporate Bond Markets, NBER Working Paper No. 17763, 2012.

12. Caprio, G and Demiguc-Kunt, A (1997), The Role of Long Term Finance: Theory and Evidence, Policy Research Department, The World Bank, February 1997.

13. Gilson, R and Black B (1998), Venture Capital and the Structure of Capital Markets: Banks Versus Stock Markets, Journal of Financial Economics, Vol. 47, pp. 243-277, 1998.

14 A. Greenspan., (1999). Do efficient financial markets mitigate financial crises? Before the 1999 Financial Markets Conference of the Federal Reserve Bank of Atlanta, Sea Island, Georgia.

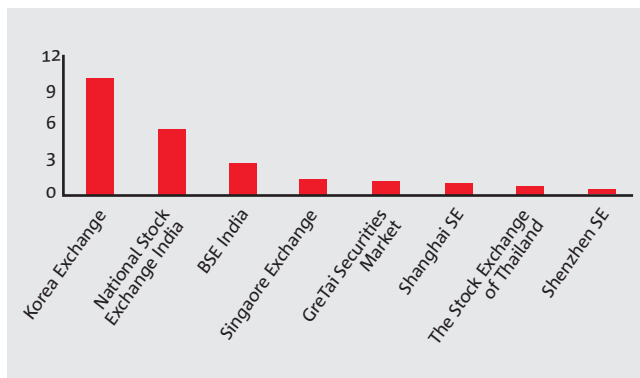
15. Franklin Allen,, Xian Gu, Oskar Kowalewski (2012). Financial crisis, structure and reform, Journal of Banking and Finance, Vol 36.

4. The Australian bond market in an international context

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Figure 5: Number of bonds listed on exchange (000's)



Source: World Federation of Exchanges, accessed 28th August 2013.

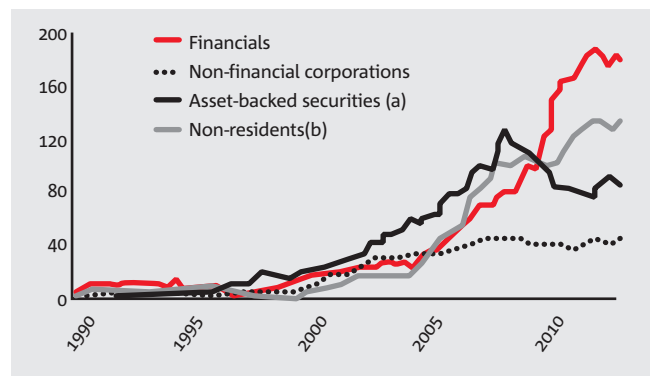
Figure 6: Australian listed fixed income securities

Type of fixed interest security	Number of issues	Market capitalization (\$billion)
Corporate Bonds	4	.3
Hybrids	32	21.6
Convertible Notes	17	1.9
Floating Rate Notes	24	13.4
Total	77	37.17

Source: ASX, Interest Rate Market Monthly Update – July 2013.

The relatively low number of listed fixed income securities in Australia does not appear to be a result of Australian corporates being unwilling to issue corporate debt securities. In June 2012, the value of debt securities issued by Australian financial corporations offshore doubled domestic issuance while the value of debt securities issued by Australian non-financial corporations overseas was three times that issued domestically. (Figures 6 and 7) The international markets most utilised by Australian corporates are the US, Canada and Europe.¹⁷ It is interesting to note that while financials and non-residents have been active in issuing fixed income securities into the Australian market post-GFC, the total value of outstanding non-financial corporate bonds has remained flat.

Figure 7: Australian onshore non-government bond issuance: 1993-2012 (billion)

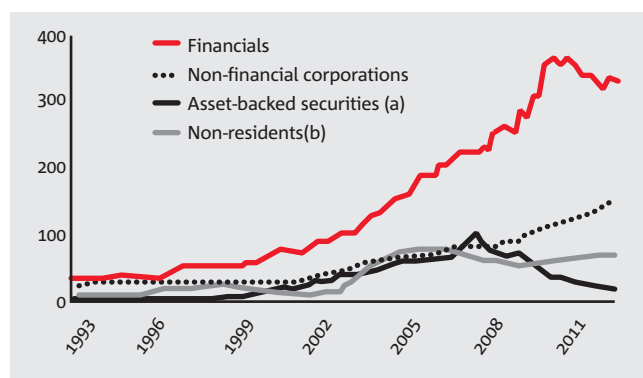


Source: RBA, Chart Pack 2013.

16. Appendix 1 provides an overview of ASX listed fixed income securities issued in the last two years.
17. See Appendix 2 for a breakdown on 2011 international bond issuance by Australian corporates.

5. Barriers facing Australian corporate bonds

Figure 8: Offshore AUD non-government bond issuance: 1993-2012 (billion)



Source: RBA, Chart Pack 2013.

Compared to other countries, Australia has relatively less international debt issued by corporates relative to financial institutions (banks).¹⁸ While there are significant variations internationally, reflecting different institutional characteristics, it is also noticeable that in many of the Asian regional financial centres and nations, with which Australia is competing for recognition, international borrowing by corporates is relatively more important.

This pattern of relatively less bond issuance by corporates than by financial institutions when compared to international experience can also be observed in the Australian domestic debt market (see Table 3.2). While, again, there is significant variation internationally, the question these statistics raise is why Australian debt issuance is so heavily dominated by financial institutions. The high credit rating and relative size of the major Australian banks is one potential explanation, but there is also merit in examination of whether there are factors which inhibit corporate issuance – particularly in the domestic market.

This low corporate debt financing is made even more stark by the following figures. According to the World Economic Forum (2011) Australia had the 3rd highest number of listed companies per head of population in 2009, behind Canada and Hong Kong, but well ahead of the UK and the US. In contrast, the ranking for local issues of corporate bonds relative to GDP was 28th, those for international debt and domestic debt issues by financial institutions and corporates were 14th, and 12th respectively.

It is evident that the domestic listed corporate bond market, remains underdeveloped when compared to those internationally. Given the active involvement of the Australian Government in boosting the market the question must be asked, what has been holding the Australian corporate bond market back?

Any market requires buyers and sellers, a product in which both parties have interest, and arrangements for bringing the parties together in a way which overcomes information deficiencies, risks, transactions costs and other impediments to mutually beneficial trade. In considering the lack of corporate bond market development, it is thus appropriate to look at issuer-side and investor-side considerations, the nature of issuing and trading arrangements, and the possibility that there are superior substitutes for corporate bonds.

5.1 Issuer-side considerations

Taxation

Issuing bonds is one way in which Australian companies can raise debt finance, with the main alternative being use of loan facilities from banks. One potential reason for relatively limited development of the corporate bond market might thus be found in a low appetite for use of debt finance by Australian companies.

Compared to overseas countries, this could occur because the Australian taxation system significantly reduces the incentive for Australian companies to use debt rather than equity finance. The “classical” tax system common overseas provides an incentive for firms to take on leverage because interest paid can be expensed against taxable income while dividend income is taxed twice, once at the company level and once in the hands of the investor. In contrast, the dividend imputation system used in Australia taxes all forms of capital only once in the hands of the investor.¹⁹ This means that unlike in countries that operate under a classical tax system, there is no (or little) advantage from a tax perspective for companies to issue debt over equity.²⁰ A 2012 study on the median leverage ratio across listed firms in 40 countries from 1991-2006 did indeed find that Australian listed firms had the lowest median leverage ratio of the countries included in the sample.²¹

18. Appendix 3 provides comprehensive statistics on corporate debt issuance relative to debt issuance by financial institutions.

19. If we assume that the tax paid initially by a company to claim the franking credit is really a withholding tax, with an additional payment of tax or reimbursement due come tax return time.

20. This is assuming that the marginal investor in the issuing company is an Australian resident and eligible to claim the franking credit.

21. Fan, J. P. H., S. Titman, et al. (2012). “An International Comparison of Capital Structure and Debt Maturity Choices.” *Journal of Financial and Quantitative Analysis* 47(1): 23-56.

While dividend imputation may be a factor in the limited supply of corporate debt securities relative to countries that provide an incentive for companies to take on leverage, it is important to remember that investors should always compare investment returns on an after-tax basis. Box 1 provides a brief example of how to compare after tax returns on corporate bonds and equities. For simplicity it is assumed that neither instrument provides any capital appreciation or capital loss.

Box 1: Comparing after-tax returns

Dividend imputation was introduced in Australia in 1987 in order to remove the double taxation of dividend payments. Dividend imputation is uncommon internationally and can cause confusion amongst investors when comparing alternative investment options.

A key rule to remember when assessing a potential investment is that it is the after-tax returns that are important. Therefore, when analysing the relative performance of investments, gross returns must be adjusted for tax payable and any deductions or refunds.

The brief example below shows why the form of capital has no impact on either total tax paid or investor returns.²² The example compares only returns from dividends and interest and ignores possible capital gains or losses.

Case: 1 Marginal tax rate 45% Corporate bond		Case: 2 Marginal tax rate 30% Corporate bond		Case: 3 Marginal tax rate 15% Corporate bond	
Coupon rate	6%	Coupon rate	6%	Coupon rate	6%
Par value	100	Par value	100	Par value	100
Coupon	6	Coupon	6	Coupon	6
Tax paid by company	0	Tax paid by company	0	Tax paid by company	0
Tax paid by investor	2.7	Tax paid by investor	1.8	Tax paid by investor	0.9
After-tax return	3.3	After-tax return	4.2	After-tax return	5.1
Stock		Stock		Stock	
Fully franked dividend	4.2	Fully franked dividend	4.2	Fully franked dividend	4.2
Stock price	100	Stock price	100	Stock price	100
Franking credit	1.8	Franking credit	1.8	Franking credit	1.8
Grossed up dividend	6	Grossed up dividend	6	Grossed up dividend	6
Tax paid by company	1.8	Tax paid by company	1.8	Tax paid by company	1.8
Tax paid by investor	0.9	Tax paid by investor	0	Tax returned to investor	0.9
After-tax return	3.3	After-tax return	4.2	After-tax return	5.1

As the example shows, because the company pays interest to debt holders from pre-tax income, the tax liability for debt securities falls on the investor. In the case of fully franked dividends, tax is first paid by the company before the dividend is received by the investor. The investor receives a franking credit for this tax paid and then will either pay additional tax or receive a tax refund depending on the difference between the investor's tax rate and the company tax rate. In both cases, the total tax paid and after tax are the same.

22. It can be argued that the difference in timing of tax payments between both options can have a slight impact on investor returns.

The statistics suggest that the imputation tax system may play some role in reducing corporate demand for debt finance, of which corporate bonds are a component. However, limited use of bond financing was apparent before the introduction of the imputation system in 1987, while the heavy reliance on bank loan finance relative to bond finance suggests that this is, at best, only a part of the story.

Financing and issuance costs

The relative cost of bonds compared to accessing bank loans may also be a determinant. This has several aspects. First, because banks may have better knowledge about a corporate's financial health, they may be better able to assess the risk involved. Investors, without that knowledge may require a higher rate of return. Notably it is typically companies with strong name recognition and high ratings which are the main issuers of bonds. For companies that are not well known or highly rated, one option is to purchase a guarantee of repayment to the investor from a third party such as a bank – a process known as credit-wrapping or credit-enhancement. This is attractive if the reduction in yield required is less than the fee paid for the guarantee.

A second factor is the specific costs of making a bond issue. Regulatory costs relating to prospectus requirements, and fees charged by investment banks for managing an issue are relevant in this regard. Because a rating will also be required, costs are also incurred on this front. Since some part of these costs is independent of the scale of issue, they decline in relative importance for large companies able to make large scale issues. And because large scale issues have potential benefits for investors in terms of secondary market liquidity, this tends to reduce the ability of smaller companies to access the market. The recent legislation related to prospectus requirements outlined in section 2 of this report are a first step in bringing the regulatory requirements associated with corporate debt issues in line with those for listed equity.

Liability and governance

A third issue is director concerns about liability and governance implications. Directors can be liable if information disclosed as part of a bond issuance program is subsequently found to be inaccurate or misleading. Moreover, the conditions of the bond issue will provide for the bond-holders to have certain control rights should the company be in financial distress or not meet conditions. One such condition is inability to meet a required payment of interest or principal. If, instead, debt finance has been raised through a bank loan, there is likely to be more scope for confidential negotiations to effect an agreed solution to the problem.

Timing of funding

A final issue relates to timing of cash flows. Whereas a borrower can generally drawdown a bank loan as funds are required, a bond issue generates the entire cash proceeds at one time. Since it is unlikely that the borrower will need all the funds at that precise time, there is then a cash-management requirement of investing surplus funds until required – which may potentially be costly if the interest rate available for short term investment is low relative to the borrowing cost.

5.2 Investor-side considerations

Liquidity

A problem that faces any developing market is liquidity. Liquidity refers to the price impact that occurs when selling an asset and is generally related to the number of market participants, activity in a given market and demand for a particular asset. Having a security listed on a market exchange such as the ASX generally increases the liquidity of a security as it provides a central, visible trading place for potential buyers and sellers.

While there is no single accepted measure of liquidity for a security two commonly used approaches are volume based measures and price based measures. Volume based measures can look at either the total number of trades in a given security over a selected time period or the total dollar value of transactions over a given period. (Referred to as volume in Figure 9).

Figure 9: Fixed income liquidity July 2013

Security type	Trades per day	Daily volume (million)
Hybrids	675	8.26
Convertible Notes	31	1.13
Corporate Bonds	2	0.12
Floating Rate Notes	326	7.50
Equity	791,375	2,948,000*

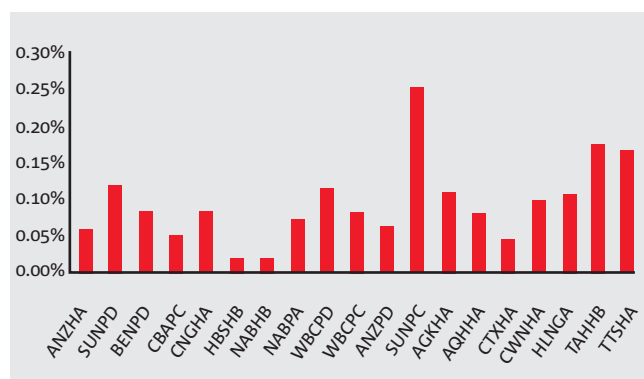
Source: ASX, Interest Rate Market Monthly Update – July 2013 and ASX trading volume statistics.

*Statistic from ASIC's Equity market data for the quarter ending June 2013.

As Figure 9 shows the number of daily trades across the listed classes of fixed income and debt securities is considerably less than that in equities which suggests that at the class level listed fixed income securities are generally less liquid than listed equities. It is important to note that the table provides statistics at the aggregate class level and the liquidity of individual securities within the broader class may diverge significantly from what is suggested by

the table. Figure 10 below shows the liquidity of individual fixed income securities shows the average daily turnover for the month of November for ASX listed corporate bonds and floating rate notes issued in the last two years.

Figure 10: Average daily volume as a percentage of total market value: 25 October – 25 November, 2013



Source: Derived from NAB data.

A second measure which provides an indication of the actual cost of illiquidity is the bid-ask spread or the spread between what investors are willing to pay for a security and what an investor is willing to accept for selling a security. Tighter bid-ask spreads are indicative of more liquid securities.²³ The following tables provide some recent statistics on bid-ask spreads for individual securities listed on the ASX.

Table 2: Bid-ask spreads listed corporate bonds: 18 September 2013²⁴

Corporate bonds	Buy	Sell	Spread (%)
HBSHA – Heritage Bank Limited	108	108.3	0.28%
HBSHB – Heritage Bank Limited (status – xi) ²⁴	105.8	106	0.19%

Source: ASX, September 2013.

Table 3: Bid-ask spreads selected listed floating rate notes: 18 September 2013

Floating rate notes	Buy	Sell	Spread (%)
BENHB – Bendigo and Adelaide Bank Limited	73.5	76.45	4.01%
SBKHB – Suncorp – Metway Limited	71.05	71.75	0.99%
PRYHA – Primary Health Care Limited (status – xi)	102.1	102.95	0.83%
TTSHA – Tatts Group Limited	104.25	105	0.72%
CTXHA – Caltex Australia Limited (status – xi)	105.75	106.5	0.71%
LEPHC – Ale Property Group	101.6	102.15	0.54%
CNGHA – Colonial Holding Company Limited (status – xi)	102	102.49	0.48%
TAHHA – Tabcorp Holdings Limited (status – xi)	102.55	102.95	0.39%
MBLHB – Macquarie Bank Limited	75.8	76	0.26%
CBAHA – Commonwealth Bank of Australia	100.001	100.25	0.25%
NABHA – National Australia Bank Limited	72.77	72.9	0.18%
WBCHA – Westpac Banking Corporation	102.9	102.98	0.08%
WBCHB – Westpac Banking Corporation	100.2	100.21	0.01%

Source: ASX, September 2013.

23. These spreads are typically presented as a percentage of current price.

24. XI refers to ex-interest and is a similar concept to ex-dividend for stocks. The holder of a bond on the ex-interest date is entitled to the current payment even if the bond is sold subsequent to the payment. As a result, if an investor purchases a bond "XI", they will not receive the current interest payment. The XI status is removed on the next payment date.

**Figure 11: Bid-ask spreads selected listed equities:
18 September 2013**

Corporate bonds	Buy	Sell	Spread (%)
JET – Jetset Travelworld LTD	0.42	0.43	2.38%
CTD – Corporate Travel Management Limited	4.77	4.81	0.84%
SGH – Slater & Gordon Limited	3.61	3.62	0.28%
ALL – Aristocrat Leisure Limited	4.49	4.5	0.22%
DMP – Domino's Pizza Enterprises Limited	12.63	12.64	0.08%
ANZ – Australia and New Zealand Banking Group Limited	30.52	30.53	0.03%
RIO – Rio Tinto Limited	62.32	62.34	0.03%
WBC – Westpac Banking Corporation	32.58	32.59	0.03%
WOW – Woolworths Limited	34.68	34.69	0.03%
NAB – National Australia Bank Limited	34.78	34.79	0.03%
BHP – BHP Billiton Limited	36.16	36.17	0.03%
FLT – FLIGHT Centre Limited	47.88	47.89	0.02%
CBA – Commonwealth Bank of Australia	73.75	73.76	0.01%

Source: ASX, September 2013.

It is clear from the range of bid-ask spreads between securities in the preceding tables that the characteristics of the individual security plays a much larger role in determining liquidity than the class of security. Investors should be warned however that the liquidity of individual securities and the broader market is not constant and can fluctuate with both investor sentiment and macroeconomic conditions.

Competing investments

It is important to consider the alternative investment products available to investors. Investing in a corporate bond creates an exposure to that company's future – the risk of possible failure and default. In Australia, investors such as superannuation funds have preferred to create exposures to a company's future by investment in its equities – which provide both upside and downside exposure. While that may have partly reflected an absence of corporate debt securities, it has been interpreted by some as an inherent equity bias in

investor portfolios.

Another alternative investment product is bank term deposits which may have become more attractive since the introduction of the Financial Claims Scheme (Box 2). Furthermore, bank funding and capital regulatory requirements have induced competition amongst banks for retail deposits which have resulted in historically high yields on these risk-free term deposits.

Box 2: The Financial Claims Scheme: impacting competition?

The Financial Claims Scheme (FCS) was introduced in response to the Global Financial Crises in October 2008 to uphold confidence amongst Australian deposit holders. The FCS is a government guarantee on deposits held in APRA regulated Authorised Deposit Taking Institutions which assures depositors that even in the unlikely event of bank failure, their deposits will be honoured in full and in a timely manner.

The FCS was established in order to promote stability in the Australian financial system. However, the existence of a government guarantee up to a \$250,000 cap per investor in a failed bank effectively makes this type of investment risk free. This is in contrast to the default risk associated with corporate bonds. Retail investors can build up a very large portfolio of such guaranteed deposits by investing across a number of banks. While yields on term deposits should be lower than those on corporate bonds in reflection of the lower risk, it is far from clear whether the gap accurately reflects the risk differential and does not inhibit investment into corporate bonds.

Ability to diversify

It is important for investors to be able to diversify the credit (default) risk associated with investing in bonds. Particularly for retail investors, minimum allowable (or efficient) parcel sizes may make it impossible to invest in a large enough number of corporate bond issues to reduce credit risk to a desired level. Where mutual funds, or other investment vehicles, are available which enable an investment in a pool of corporate bonds, this provides a vehicle for indirect diversification. While there are many bond funds available to investors in Australia, the limited number of Australian corporate bonds on issue means that these typically involve investments in other types of fixed income products. Some industry participants have begun to innovate in this space by offering minimum parcel sizes as low as \$10,000 in selected fixed income securities.

Investor education

Another possible barrier is lack of investor knowledge about, and inability to assess the default risk of, the corporate issuer. It is only reasonable to assume that the issuing company (and its advisers) will be seeking to issue debt at the lowest possible yield and not necessarily commensurate with the risk profile of the company – about which they have better information than potential investors. Reputational concerns may inhibit such exploitation of investor information deficiencies. However, the fact that a company makes bond issues (at best) infrequently, and risk implications only surface if the company gets into financial distress, can diminish the role reputation can play. Large companies with established businesses involving significant amounts of physical/tangible assets are potentially able to overcome the problems of investor uncertainty about losses due to credit risk (since such assets can be sold in the event of failure of the company). Partly for this reason, railroad companies were among the earliest successful issuers of corporate bonds in countries such as the USA.

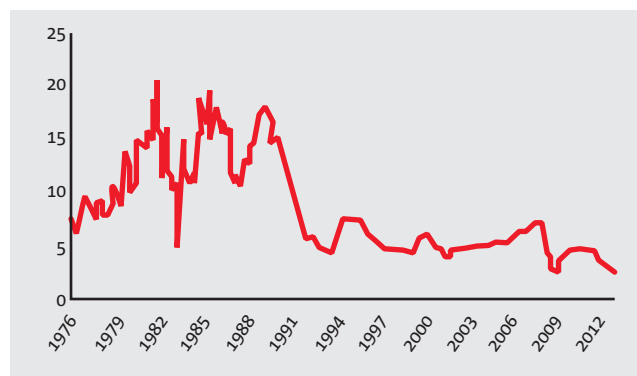
It is partly for this reason that investors have relied on the ratings provided by ratings agencies. However, in Australia, the major ratings agencies are not permitted to provide this information to retail customers because they have chosen not to acquire the required Australian Financial Services License needed for provision of financial advice to retail customers. For managers of institutional funds the existence of a rating is particularly useful because they can point to having invested using this guidance as a condition of having met prudent investor requirements and satisfying investment mandates.

For retail investors, reliance upon financial advisers has, in the past, led to problems where issuers of debt securities provided significant sales commissions to advisers promoting their securities to investors. Prohibitions on commission based remuneration for financial advisers and planners introduced under the Future of Financial advice (FoFA) reforms should make this less of an issue in the future. It does, however, raise the issue of how investors best become aware of such investment opportunities, and the role of advisers in that process.

Current economic circumstances

A final barrier, at least in the short-term, to increased demand for corporate bonds as an asset class are historically low real interest rates available both domestically and internationally. The cash rate, a benchmark from which other rates including corporate bond rates is derived is currently at its lowest point since being recorded by the Reserve Bank of Australia. (Figure 11)

Figure 12: Cash rate (1976-2013)



Source: Reserve Bank of Australia.

There is well documented concern that long-term interest rates will rise in the not too distant future resulting in a decrease in the value of long-dated fixed interest rate securities which is another factor that may make shorter term assets such as cash a relatively attractive substitute to corporate debt.

In a rising interest rate environment, investors should focus on floating rate securities to gain exposure and avoid capital loss.

6. What does the future hold for the Australian corporate bond market

While the barriers mentioned above have proven to be limiting factors in the development of a strong corporate bond market, there are a number of reasons to believe that the prospects for the future of the market are beginning to change.

Increased demand

As noted in Section 2 of this report, Australia's aging demographic should, gradually bring with it an increased desire for lower volatility assets to assist in portfolio diversification and to provide steady income flows for investors in retirement. Investor education also has a role to play in this regard and the devastating impact of the Global Financial Crisis on the quality of retirement for many Australians will serve as a harrowing real world example of the impact of sequencing risk and the risk reduction that can be obtained through a well diversified portfolio.

Increased demand for corporate bonds will of course also depend on the availability of substitute investments and relative returns both of which may in the short-term be impacted by distortionary regulatory arrangements and global macroeconomic factors. It is expected that over time these trends will reverse and Australian demand for corporate bonds will increase.

Regulatory change

Regulatory changes such as those implemented over the last five years are expected to promote increased issuance into the retail corporate bond market. Issuance costs, which have been cited as one of the key reasons why Australian corporates have refrained from issuing retail securities are gradually being reduced and flexibility in the nature of and time period over which fixed income securities can be issued have both been increased.

Global regulatory change may also indirectly play a role in the development of the Australian corporate bond market. For example, the International Regulatory Framework for banks commonly referred to as Basel III that is currently being phased in internationally is expected to increase the cost of bank lending to corporates and may encourage banks to take more of an advisory and management role in assisting corporates attract debt capital.

There remains scope for further regulatory changes to place debt and equity on an equal playing field from a compliance cost perspective however the recent trend in this direction is expected to continue.

Industry innovation and education

Industry has and will continue to play a key role in developing a stronger corporate bond market both through product innovation and investor and issuer education. The trend toward offering investors greater accessibility to direct investment through reduced minimum parcel sizes as well as more flexible and liquid managed vehicles suggest that industry are also preparing for and encouraging increased investor engagement with the asset class.

The Australian Securities Exchange is also scoping the potential for a market structure that facilitates greater retail investor access to the asset class while maintaining the current ease of issuance that is available through the wholesale market. One method for achieving this outcome is through creating a link between the wholesale and retail fixed income markets so that the same product can effectively trade concurrently in both markets at a similar price after being issued originally into the wholesale market. The benefit of connecting the two markets is the potential for increased liquidity and price discovery for retail investors as wholesale investors would could essentially act as market makers for 'mispriced' securities.

While the future for the Australian corporate bond market generally looks bright, a final hurdle that must be overcome before we can expect to see a major shift toward market based debt funding is a better understanding by investors on how to price fixed income and debt securities. This involves an ability to assess a reasonable risk premium for these securities. Unrealistically high premiums or margins over other forms of debt funding will deter corporates from issuing fixed income securities. Therefore, a final missing piece to the corporate bond market puzzle is investor education on where corporate bonds fit on the risk-return spectrum and improved credit risk assessment skills amongst investors and advisers. Both industry and government have a role to play in this regard.

7. Conclusions

This series of reports has shown that corporate bonds can be an important part of both an individual investor's portfolio and of a nation's financial system. There are a number of factors that have impeded the development of the Australian corporate bond market, however these appear to be diminishing both as a result of regulatory change and industry action. Access to corporate bonds has historically been restricted to wholesale investors, however this too is beginning to change with brokers now offering reduced minimum parcel sizes and innovation in managed fund structures. One major hurdle that remains is investor education on the opportunities that corporate bonds present as an asset class as well as their investment characteristics and risks.

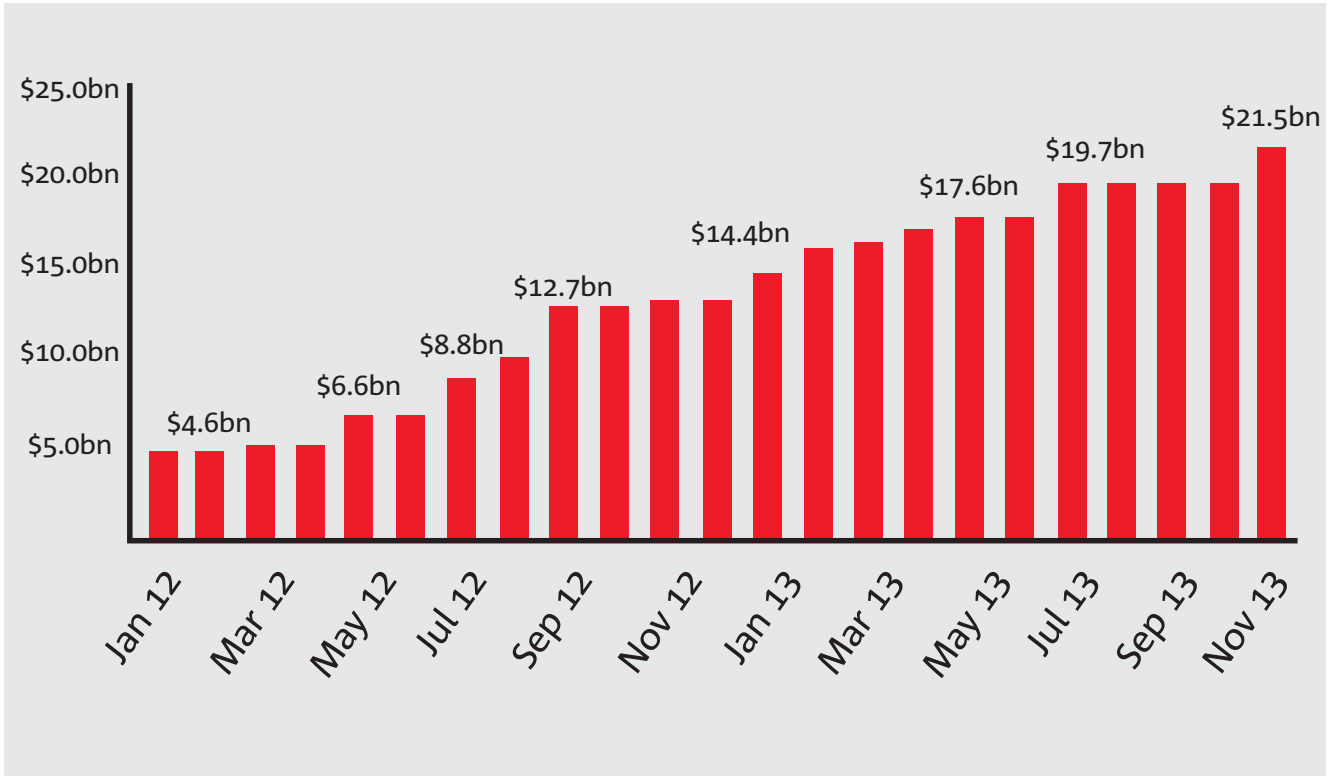
This series has demonstrated that corporate bonds, like many other investments, can be complicated and require specialist skills to properly evaluate. The skills and arguments presented in these reports are intended to increase awareness on the key areas to consider when investing in corporate bonds and to provide a basic reference from which questions can be asked to a trusted financial adviser. Through adding exposure to corporate bonds, the informed investor has the ability to improve investment outcomes.

Appendix 1

Australian ASX listed corporate bond issuance 2012-2013

Ticker	Issue date	Issue	Margin/Coupon
ANZHA	20-Mar-12	ANZ Subordinated Notes	2.75%
TAHNB	22-Mar-12	TABCORP Subordinated Notes	4.00%
WBCPC	23-Mar-12	WBC Convertible Preference Share	3.25%
CNGHA	29-Mar-12	Colonial sUordinated Notes	3.25%
AGKHA	4-Apr-12	AGL Energy Subordinated Notes	3.80%
IAGPC	1-May-12	IAG Convertible Preference Share	4.00%
NABHB	18-Jun-12	NAB Subordinated Notes	2.75%
HBSHB	20-Jun-12	Heritage Bank Retail Bonds	7.25%
TTSHA	29-Jun-12	Tatts Bonds	3.10%
WBCHA	23-Aug-12	Westpac Subordinated Notes	2.75%
CTXHA	5-Sep-12	Caltex Subordinated Notes	4.50%
AQHHA	18-Sep-12	APA Group Subordinated Notes	4.50%
CWNHA	14-Sep-12	Crown Subordinated Notes	5.00%
CBAPC	17-Oct-12	CBA Perls Vi	3.80%
BENPD	1-Nov-12	Bendigo & Adelaide Bank Convertible Preference Share	5.00%
SUNPC	6-Nov-12	Suncorp Group Limited	4.65%
BOQPC	24-Dec-12	Bank of Queensland Limited	5.10%
MYBG	20-Dec-12	MYOB Finance Australia Limited	6.70%
WBCPD	8-Mar-13	WBC Convertible Preference Share	3.20%
NABPA	20-Mar-13	NAB Convertible Preference Share	3.20%
HLNGA	27-Mar-13	Healthscope Notes Limited	3.20%
SUNPD	22-May-13	Suncorp Group Limited	2.85%
MQGPA	11-Jun-13	Macquarie Group Limited	4.00%
ANZPD	7-Aug-13	ANZ Capital Notes	3.40%
WBCHB	7-Aug-13	WBC Subordinated Notes	2.30%
AMPHA	18-Dec-13	AMP Subordinated Notes ii	2.65%
NABPB	17-Dec-13	NAB Convertible Preference Share ii	3..25%

Accumulated ASX listed fixed income issuance 2012-2013

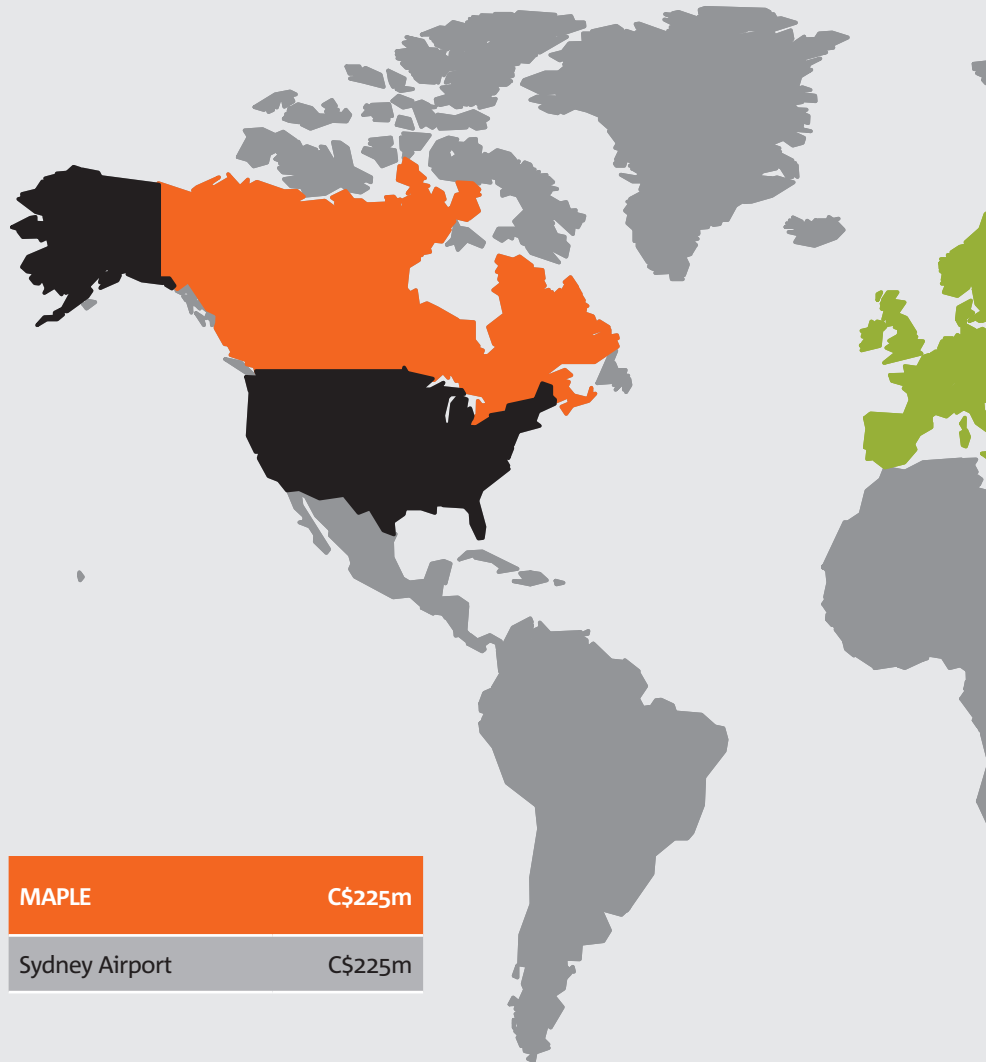


Source: NAB data.

Appendix 2

International debt comparative statistics

Australian corporates issued
 ~A\$5.6bn domestically and
 ~A\$27.3bn internationally*



USPP4	~US\$6.5bn
Australand	US\$170m
Bradken	US\$200m
Brisbane Airport	US\$400m
Centennial Coal	US\$225m
CSL	US\$750m
DBCT	US\$600m
Echo Entertainment	US\$460m
ElectraNet	US\$220m
Envestra	US\$360m
GAIF	US\$300m
Melbourne Airport	US\$600m
Metcash	US\$225m
OneSteel	US\$200m
Powercor US\$700m	US\$700m
Stockland	US\$175m
TRUenergy	US\$225m
Visy	US\$250m
Westrac	US\$325m
Worley Parsons	US\$207m

MAPLE	C\$225m
Sydney Airport	C\$225m

US 144A	~US\$15.8bn
Asciano	US\$1,000m
BHP Billiton	US\$3,000m
Boart Longyear	US\$300m
Dexus Diversified	US\$250m
Fortescue	US\$1,500m
Goodman Group	US\$500m
Newcrest	US\$1,000m

Origin Energy	US\$500m
Rio Tinto	US\$3,350m
Telstra	US\$1,000m
TFS Corp	US\$150m
Wesfarmers	US\$650m
Westfield	US\$1,000m
Woodside	US\$700m
Woolworths	US\$850m



Source: NAB (2012), Development of the Bond Market in Australia – a Global Perspective, presented at Melbourne Financial Services Symposium 2012.

A\$MTN	~A\$5.6bn
Australian Rail Track Corp	A\$300m
Brisbane Airport	A\$200m
Caltex Australia	A\$150m
CFS Retail Property Trust	A\$150m
Commonwealth Property Office Fund	A\$200m
ETSA Utilities	A\$250m
Fonterra Co-Operative	A\$300m**
GAIF	A\$175m
GE Capital Australia Funding	A\$750m
Investa Commercial Property Fund	A\$250m
QIC Shopping Centre Fund	A\$200m
SP AusNet	A\$250m
Sydney Airport	A\$100m
Telstra	A\$150m
Transurban	A\$200m
Wesfarmers	A\$500m
Westfield Retail Trust	A\$900m
Woolworths	A\$500m
Mirvac	A\$75m

EMTN	~A\$3.4bn
Amcor	€550m
Coca Cola	A\$280m
Optus Singtel	A\$75m
Origin Energy	€500m
SP AusNet	HKD400m
SPI Australia	GBP 250m
Telstra	€825m
Telstra	CHF225m

US\$ HY	~US\$1.1bn
Consolidated Minerals	US\$405m
Midwest Vanadium	US\$335m
Mirabella Nickel	US\$395m

Appendix 3

Table 3.1: International debt on issue – corporates/financial institutions^a

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Developed countries	15%	14%	13%	12%	12%	13%	14%	16%	19%
Australia	7%	6%	4%	4%	4%	5%	5%	6%	7%
Canada	87%	79%	63%	58%	45%	47%	47%	46%	44%
France	44%	36%	30%	26%	24%	24%	26%	26%	28%
Germany	5%	5%	5%	5%	5%	5%	5%	6%	6%
Spain	8%	6%	4%	3%	2%	1%	1%	1%	1%
United Kingdom	21%	17%	16%	14%	13%	11%	11%	11%	12%
United States	14%	14%	14%	14%	16%	20%	24%	31%	38%
Hong Kong SAR	49%	45%	41%	37%	34%	32%	31%	28%	29%
Singapore	66%	49%	40%	41%	45%	46%	54%	53%	37%
China	18%	9%	6%	11%	22%	22%	21%	16%	11%
India	128%	240%	211%	143%	136%	145%	162%	117%	100%
Malaysia	62%	41%	31%	25%	24%	23%	21%	18%	19%

a. At March of each year

Source: BIS Securities statistics and syndicated loans <http://www.bis.org/statistics/secstats.htm>

Table 3.2: Domestic debt on issue – corporates/financial institutions^a

	2004	2005	2006	2007	2008	2009	2010	2011	Dec 2011
Australia	11%	11%	11%	11%	7%	6%	7%	8%	8%
Canada	54%	49%	42%	38%	40%	46%	57%	61%	62%
China	8%	8%	20%	21%	23%	35%	50%	59%	56%
France	37%	36%	32%	29%	26%	21%	24%	22%	21%
Germany	11%	15%	17%	17%	20%	32%	43%	69%	78%
Hong Kong SAR	27%	22%	26%	32%	39%	56%	62%	49%	50%
India	205%	111%	29%	19%	22%	23%	22%	33%	33%
Malaysia	127%	109%	84%	68%	91%	118%	170%	141%	131%
Singapore	34%	34%	29%	28%	16%	20%	11%	8%	8%
Spain	7%	4%	3%	2%	2%	2%	3%	3%	3%
United Kingdom	10%	9%	7%	6%	5%	7%	7%	7%	8%
United States	27%	25%	24%	23%	22%	23%	27%	30%	32%

a. At March of each year

Source: BIS Securities statistics and syndicated loans <http://www.bis.org/statistics/secstats.htm>

Appendix 3

Glossary

Accrued interest

The amount of interest accumulated on a bond from the last coupon payment date.

Asset allocation

An investment strategy that attempts to balance risk versus reward by adjusting the percentage of each asset in an investment portfolio.

Asset class

A group of investments that display similar characteristics.

Bank bills

A short-term money market investment.

Bank Bill Swap Rate (BBSW)

The Australian benchmark reference rate. Calculated daily by AFMA as an average rate based on quotes supplied by banks regarding current market interest rates.

Basis point

A measure used to calculate interest returns. One basis point equals one hundredth of one per cent or 0.01%.

Benchmark

An index which measures the change in value of a market over a period of time.

Buy and hold strategy

A passive investment strategy whereby the investor intends to retain the investment until maturity.

Capital markets

A group of markets in which investors can buy and sell various debt and equity securities.

Commonwealth Government Securities

Debt securities issued and guaranteed by the Commonwealth of Australia. The Commonwealth guarantees the coupon payments and the return of the original capital at the maturity date.

Convertible bond

A traditional fixed income style security that gives the investor the right to convert into ordinary shares of the company at redemption.

Corporate bond

A debt security (bond) issued by a corporation, either senior secured, senior unsecured or subordinated.

Corporate bond market

A secondary market for investors to buy and sell corporate bonds.

Coupon rate

The rate of interest paid by the issuer of a bond. The rate is usually expressed as a percentage of the face value of the security.

Credit default swap

A form of insurance against the risk of default by the issuer of a specified corporate bond.

Credit rating

An assessment of an entity's credit worthiness.

Credit risk

Credit risk is an assessment of the likelihood that a company issuing a bond may default on its obligation to pay interest or repay principal.

Credit spread

A spread is the difference in yield between two securities. A credit spread generally measures the degree of risk between 'risk free' assets,

(i.e. Commonwealth Government Securities), and lower rated assets.

Debt securities

May have a fixed or floating rate of interest and are generally issued by governments, financial institutions, companies or securitization vehicles

Derivative

A financial instrument or contract based on (derived from) an underlying financial asset.

Duration (modified duration)

A measure of the sensitivity of a bond's price or market value to a change in interest rates.

Face value or principal

The amount that the issuer borrows which must be repaid to the investor at maturity. Also known as par value.

Fixed income investment

A financial instrument that can be bought and sold between secondary parties that has a defined rate of interest which must be paid on a specified date to avoid default.

Fixed rate bond

Bond on which the coupon rate has been set at the time of issue and will remain fixed for the life of the security.

Floating rate note

A debt security that has a variable coupon, equal to a money market reference benchmark plus a quoted margin.

Hybrid Security

A financial instrument that shares characteristics of both debt and equity securities.

Inflation-linked bond

A bond created to provide protection from the risk of inflation.

Issuer

Borrower (government, financial institution or company) that issues the bond (that is, borrows the money) and pays the interest.

Liquidity

The ease with which an asset can be bought or sold in the market without significantly affecting the price. A liquid bond can be bought and sold more easily than an illiquid one.

Maturity

The end of a bond's life, when capital must be repaid to the investor.

Over-the-Counter

Off-exchange trading that is done directly between two parties.

Perpetuals

A floating rate note with no specific maturity date.

Retail investor

An investor that does not meet the criteria of a wholesale investor.

Secondary market

A market in which previously issued financial instruments such as stock, bonds, options, and futures are bought and sold.

Secured debt

Secured debt is debt in which the borrower pledges some assets as collateral.

Sub-investment grade bond

A corporate bond rated below BBB- or Baa3 by the credit rating agencies or with no rating. Also known as high yield bond or junk bond.

Subordinated debt

Debt that ranks behind the liquidator, government tax authorities and senior debt holders in the hierarchy of creditors. It should be noted that in the case of liquidation or bankruptcy the holders of subordinated debt rank ahead of equity or shareholders.

Unsecured debt

Unsecured debt has no collateral backing from the borrower.

Wholesale investor

Generally either a professional investor/firm or an individual with more than \$2.5 million in assets and an income of more than \$250,000 over two years.

Yield

The coupon or interest payment on a bond expressed as a percentage of the bond's market value or price.

Yield curve

A line that maps the yields on comparable bonds (for example, bonds issued by the same borrower) of different maturities (1 year, 2 year, 10 years, etc).

Yield to maturity

The rate of return earned by an investor assuming that the bond will be held until maturity and that all coupon and principal payments will be made on schedule.

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