

AUSTRALIAN DEBT SECURITIES AND CORPORATE BONDS

Infrastructure Bonds: A Missing Market For Retail Investors?

An independent report prepared for NAB Private
by the Australian Centre for Financial Studies.

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1. INTRODUCTION

Australian Debt Securities and Corporate Bonds: Infrastructure Bonds: A Missing Market for Retail Investors?

This is the sixth in a series of reports prepared by the Australian Centre for Financial Studies for National Australia Bank aimed at explaining the potential role of corporate bonds in retail investor portfolios and promoting growth of the corporate bond market. Previous reports have noted the small size of the retail corporate bond market in Australia, but have also highlighted a range of factors including government legislation to ease issuance of “simple” corporate bonds likely to contribute to its future growth. In this report, we focus on the potential for growth of and access to a market in bonds linked to infrastructure provision. Established infrastructure is long-lived with regular revenue streams and thus potentially suited for financing by issue of long-term bonds suitable for long-term investment portfolios of retail investors (such as self-managed superannuation funds).

Infrastructure operators are generally well known to retail investors through the services they provide to the economy. They include operators of gas pipelines, electricity distribution networks, telecommunications, railways, airports, toll roads, hospitals and water companies. In some cases households may be direct customers buying services (such as in the case of some telecoms and toll roads). In other cases, such as gas and electricity, households are indirect customers buying these services from retailers who, in turn, purchase access to the infrastructure assets to enable delivery of those services.

Many retail investors will have either direct or indirect equity investments in infrastructure operators listed on the ASX, such as Transurban (ASX Code:TCL), AGL Energy (AGL), or Sydney Airports (SYD). (Some such listings are *infrastructure funds* which use a stapled security structure involving a joint investment in a company share and a unit of a trust). Other infrastructure operators are government owned entities.

However, it is less common for retail investors to have investments in bonds issued by infrastructure operators, despite those operators having significant reliance on debt financing. Rather than attempting to issue corporate bonds to retail investors they have generally relied upon bond issues into both domestic and international wholesale markets as well as bank loan finance.

There are a range of factors emerging to suggest that this situation may change in the not too distant future such that retail investors (and sophisticated investors) should and may need to consider the role of “infrastructure bonds” in their portfolios. These factors include both supply and demand side factors. On the supply side, the infrastructure financing pipeline remains strong; changes in bank regulation are expected to encourage medium to longer term bond financing relative to bank lending; legislative changes such as the simple corporate bond legislation should encourage growth of the retail corporate bond market; and digital developments are expected to provide greater access to this asset class. On the demand side, the prevailing low interest rate and low growth environment suggests higher yields available on corporate debt versus deposits would be attractive to retail investors with fixed income investments generally warranting greater attention in the investment portfolios of an ageing demographic vis-a-vis other asset classes such as equities. (It is noted that well rated corporate bonds, including infrastructure bonds, generally displayed less volatility than equities during the past 6 months).

However, education about this asset class is needed. Therefore, the report commences by outlining the defining characteristics of infrastructure, traditional financing arrangements in both bond and loan markets, and details some of the challenges in financing greenfield assets in the bond markets vis-a-vis the loan markets. It will then outline some of the opportunities currently available to sophisticated investors and suggest further developments which will take this market to the next stage.

2. INFRASTRUCTURE CHARACTERISTICS

Infrastructure can be defined as those physical assets which are needed for the effective operation of an economy and society. *Economic Infrastructure* includes assets such as roads, railways, water supply, telecommunications, airports and ports which are used by private and public businesses in the production and distribution of goods and services to consumers or other entities. The ownership of such assets may be in government or private hands (perhaps under some form of concession arrangement which involves transfer of ownership back to government at some future date). Use of the assets could require payments by users and/or be subsidised by government bearing the construction and operating costs. *Social Infrastructure* also includes physical assets, such as hospitals, prisons and schools, used for the provision of social services where private or government ownership/operation are alternatives, but where government pays for, or subsidises, usage by consumers. Box 1 provides more details.

Box 1 Infrastructure Characteristics

Economic infrastructure is distinguished from *social infrastructure* by the former being assets constructed as potentially commercially viable projects, and the latter involving construction and use of physical assets for the provision of social services.

The assets are long lived, and investment generally involves significant sunk costs. Planning, construction and development times can be lengthy, involving a range of risks which are resolved over time, with sometimes several years before positive operating cash flows and eventual profitability are realised.

The traditional model of government ownership and operation has been supplemented over recent decades by a range of models including private operation (or ownership) and responsibility, such as in various types of Public Private Partnerships.

Decisions to proceed with new (greenfields) infrastructure projects are made by the Federal and/or State governments. Existing (brownfields) projects owned by government for which many of the risks have been resolved may be sold to the private sector.

Many infrastructure projects will be developed under a project finance model in which the project is legally separate from the project sponsors with returns to financiers and investors depending solely on the project outcomes with no recourse to the sponsors.

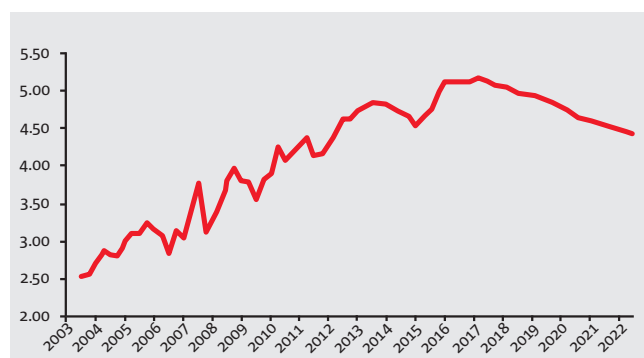
Because many infrastructure projects involve monopoly or network characteristics, their operation is often subject to government regulation of prices aimed at ensuring efficient levels of production and “fair” pricing for consumers generating “fair” returns for operators.

3. INFRASTRUCTURE IN AUSTRALIA

In 2014 the Productivity Commission¹ estimated that the stock of infrastructure assets as at 2013 was \$991 billion, of which \$432 billion was owned by general government, with ownership of \$520 billion approximately equally shared between public and private non-financial corporations, and \$39 billion owned by financial corporations (for example listed infrastructure trusts) and others. (To put those figures into context, at that time, Australian bank assets were just over \$3,000 billion and superannuation funds around \$1,250 billion). Investment in infrastructure assets is significant, with more than half a trillion dollars invested in Australian infrastructure (excluding the sale of assets from public to private sectors) in the last decade, with the strongest growth in private investment, which now exceeds public investment.²

Australia’s infrastructure needs are substantial and well recognised. A growing population, the need to replace or upgrade existing ageing capital stock, and new opportunities for efficiency gains from introduction of new technology (exemplified, at least in principle, by the NBN project) all contribute to forecasts of a need for substantive investments over the coming decades. Figure 1 shows recent forecasts which provide estimates of required infrastructure spending to meet demands of the growing population.³ The Business Council of Australia projects a need to maintain infrastructure funding at 4 per cent of GDP, amounting to \$760 billion over 10 years.⁴

Figure 1: Infrastructure investment as per cent of GDP (real spending, projections from 2013–14 onwards)

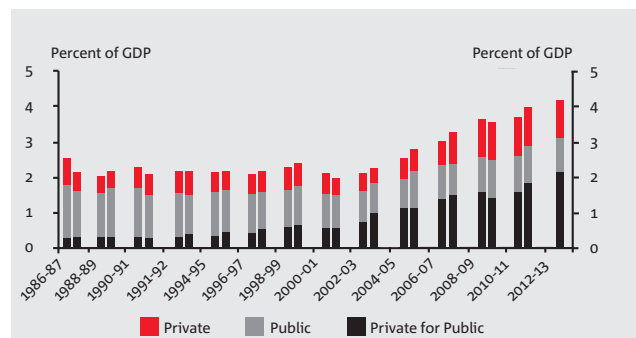


Source: Deloitte Access Economics, projections prepared for BCA. See BCA, 2013, *Securing Australia’s Investment Future: Managing the Economic Transition*.

There is arguably an “infrastructure gap” between that level of infrastructure spending which can be justified on social cost-benefit grounds and the current and projected levels of spending. Government budgetary constraints (at both Federal and State levels) inhibit direct financing of projects, while unsatisfactory outcomes from some projects involving private sector collaboration have taken some of the gloss and attraction away from the largely successful public-private partnership models of funding.

Figure 2 illustrates the size of infrastructure investment (relative to GDP) over recent years and the share of government, private sector, and “private for public” (ie Public Private Partnerships) expenditure over recent years. The Public Private Partnerships (PPPs) framework has been one of the main approaches used for private sector provision of funding for public infrastructure. In one example of this approach, a private sector entity (such as a Special Purpose Vehicle established by a consortium) is selected to build, own, operate and eventually transfer ownership of an infrastructure asset back to the government – recouping its construction and other costs and return on investment from user-charges (or government payments on behalf of users). The funding of the project would involve equity contributions from the sponsors, together with various types of debt financing.

Figure 2: Total infrastructure investment



Source: Business Council of Australia “*Securing Investment in Australia’s Future: Infrastructure Funding and Financing*, November 2013

1. <http://www.pc.gov.au/inquiries/completed/infrastructure/report> (chapter 5)

2. “Re-establishing Australia’s Global Infrastructure Leadership” authored by Garry Bowditch, Better Infrastructure Initiative

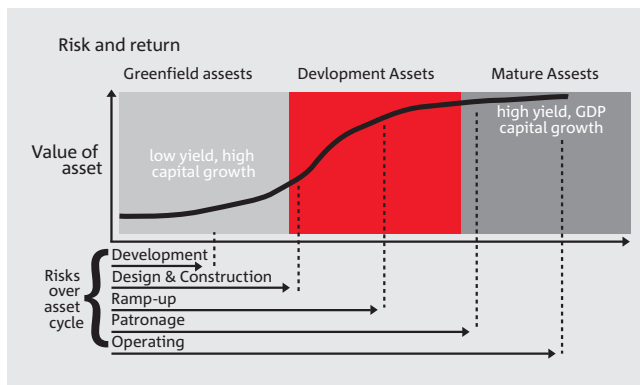
3. Existing and planned projects (with committed funding of \$20 million or more) can be found at <https://www.nics.gov.au/Timeline>

4. BCA *Securing Australia’s Future: Infrastructure Funding and Financing*, 2013

4. INFRASTRUCTURE RISK PROFILE

Infrastructure projects are long term and involve substantial financial risks for those providing funding for new “greenfields” projects – although the risk declines over time as projects mature (to become “brownfields”) and construction and development risks are resolved. Much “brownfields” infrastructure provides relatively stable annuity-type revenue streams, and in a significant number of cases, where monopoly and network features are relevant, revenue streams are determined by access pricing regulation.

Figure 3: The evolution cycle of infrastructure project risk and return



Source: AMP Capital http://www.ampcapital.com/ampcapitalglobal/media/contents/campaign/real/understanding_infrastructure_a_reference_guide.pdf

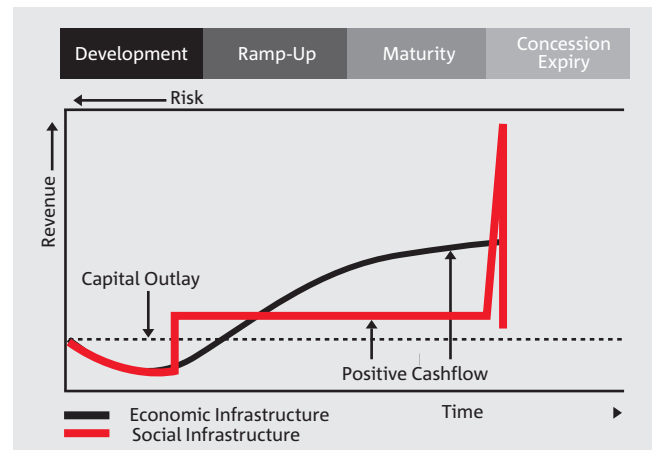
Risks and potential returns to financiers of infrastructure depend on both the nature of the project involved (and the stage of its lifecycle) and the way in which risks and expected returns are allocated amongst different types of financing. Figure 3 illustrates the evolution of risk and return over the lifecycle of a hypothetical project.

Once construction and development risks of new infrastructure projects have been resolved, the nature of the activities is generally such that long-term annuity style cash flows are generated. These can reflect either the provision of services to users on a commercial user-pays basis or under a contract with government where it reimburses the operator for providing facilities needed for provision of social services. Construction, maintenance and operation of hospital buildings is an example of the latter. The operation of a toll road or an electricity distribution company are examples of the former.

Some infrastructure arrangements may involve arrangements where risks are shared between commercial operators and government. For example, in the Victorian government’s Mornington Peninsula road project an “Availability Payment PPP model” was adopted. The company operating the project receives revenue as a regular payment from government. Any tolls levied on motorists go to government which applies them towards its obligation to pay the availability payment.

The trajectory of cash flow will depend on the type of infrastructure. As illustrated in Figure 4, the typical infrastructure return profiles for infrastructure financed through the PPP framework is noticeably different for economic and social infrastructure. The latter is flat following the development phase until the concession expires and the asset ownership transferred to government, and the former is described as a j curve reflecting the increasing revenue associated with higher anticipated demand but flattens at maturity with stable demand or users of the infrastructure.

Figure 4: The Typical Infrastructure Public Private Partnership Return Profiles



Source: Infrastructure Partnerships Australia *The Role of Superannuation in Building Australia's Future*, 2010. <http://www.infrastructure.org.au/Content/TheRoleofSuperannuation.aspx>

5. THE ROLE OF INFRASTRUCTURE IN INVESTOR PORTFOLIOS

Infrastructure as an asset exhibits properties of a natural monopoly with a large upfront capital cost and is often subject to government regulation to ensure equitable outcomes for society including “fair” returns for private sector operators. Nevertheless, the risk and return attributes of infrastructure becomes an attractive proposition for investors seeking long-term investment opportunities as its performance over time tracks the characteristics of both equity and debt like assets. Infrastructure assets are generally classed as an alternative investment to equity and fixed income assets, with qualities matching both a growth and defensive asset depending on the timing of the infrastructure. Institutional investors, such as superannuation funds, often invest directly in infrastructure assets as owners/syndicate members, where the long term, illiquid nature of the asset matches characteristics of their liabilities to members.

For other investors, direct investment in infrastructure assets can generally only occur via vehicles such as listed infrastructure trusts. While the assets themselves are illiquid, financial claims on those assets are made liquid by the stock market listing. For retail investors, such investments (often in the form of stapled securities) have some similar characteristics to longer term debt securities since the underlying assets are typically mature “brownfields” infrastructure. Distributions from the trusts generally involve some return of capital component as well as a relatively stable income component, but the stapling involves some type of equity investment (usually via a trust structure) such that there is greater market price variability than would be associated with a straight debt security.

This paper will move beyond “equity” style investments described above to explore investor access to infrastructure based fixed income securities.

6. INFRASTRUCTURE FINANCING

Greenfields projects involve a considerable range of risks and complexities, and contracts and financing arrangements are structured to share risk and provide appropriate incentives to the parties involved. When undertaken by government, funding will generally come from general revenue and thus ultimately tax revenues or government general borrowings – although there is nothing, in principle, to prevent governments issuing project-specific bonds where investor returns depend solely on the ultimate revenues from the project. (In practice, governments may have difficulty in avoiding the perception that investors in a failed project will have recourse to the government).

The involvement of the private sector in greenfields projects under PPP arrangements is widely seen as having the potential to provide efficiency gains due to different incentive structures and financing possibilities. Where private developers and operators are involved, a hierarchy of financial instruments will typically be issued involving sharing of the various risks associated with construction, development, ultimate demand (including unexpected obsolescence due to technical change) etc.

7. GREENFIELDS VS BROWNFIELDS AND WHERE BONDS PLAY A ROLE

While bond finance can have a place in this hierarchy, it is unlikely that there would not be some exposure to some of the project specific risks. Because most infrastructure development is generally done via special purpose vehicles, bond-holders would generally have no recourse to the project operators.

Moreover, the time-pattern of cash flows involved in bond financing adds complexity for use in a greenfields project. Conventional bond financing involves a one-off receipt of funds from investors, while funds are needed gradually over the construction/development period. Interest payments to investors also commence (in a standard bond) virtually immediately – even though the project is unlikely to be cash-flow positive for some time. While that can be overcome by injections of other types of financing (eg equity) to meet those outflows, this highlights the complication of issuing securities with cash flow patterns which are not correlated with those of the underlying activity.

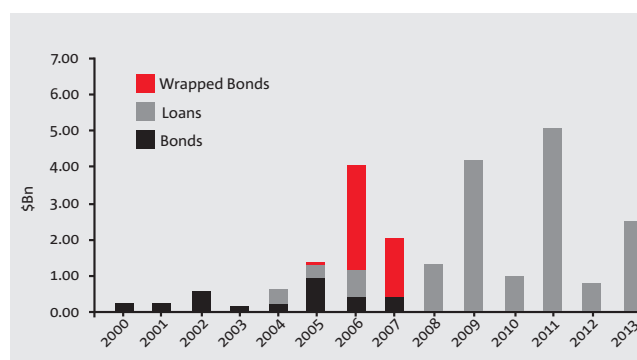
Another major complication with bond financing of greenfields projects is the exposure to construction delays etc which delay project revenues and thus the ability to meet contractual obligations on the debt and create potential of being in a default situation. While caveats could be incorporated which provide some repayment flexibility to the issuer, such complexities mean that the resulting debt instruments are unlikely to be suitable for many investors. Bank lending is thus often preferred because of potentially greater flexibility in dealing with the need to adjust terms and conditions to reflect unforeseen events.

For brownfields infrastructure, the risk issues are much less substantial. Indeed, companies operating such assets (airports, gas/electricity/telecom utilities, toll roads) have operating and revenue characteristics which make them well suited to use of long term debt finance. For such companies, there is little to distinguish bonds they might issue from normal corporate bonds, although the nature of the business gives them more flexibility to issue longer term, possibly inflation-linked, bonds.

An important distinction should be drawn between debt securities issued to finance infrastructure developments by corporate entities and special purpose vehicles (SPVs). In the latter case, sponsors of an infrastructure project establish an SPV which is legally separate from their other activities such that debt/bonds issued by the SPV are non-recourse to the project sponsors. Risk of such “project bonds” depends solely upon the success of the project (although the structure might involve some form of credit risk insurance being provided by monoline insurance companies). In contrast, where a corporate entity operates an infrastructure asset as a part of a broader range of activities, the risk of debt issued to fund the project will generally reflect the overall fortunes of the company.

Prior to the Global Financial Crisis, a number of large infrastructure projects obtained part of their debt financing through the wholesale bond market through the use of wrapped and unwrapped project bonds. (Wrapped project bonds are backed by the credit rating of the monoline insurers providing credit insurance and thus with a higher credit rating than unwrapped project bonds based on the project credit with no guarantor). Since the GFC there has been more reliance on bank loan funding as illustrated by Figure 5.

Figure 5: Infrastructure Debt Financing Composition

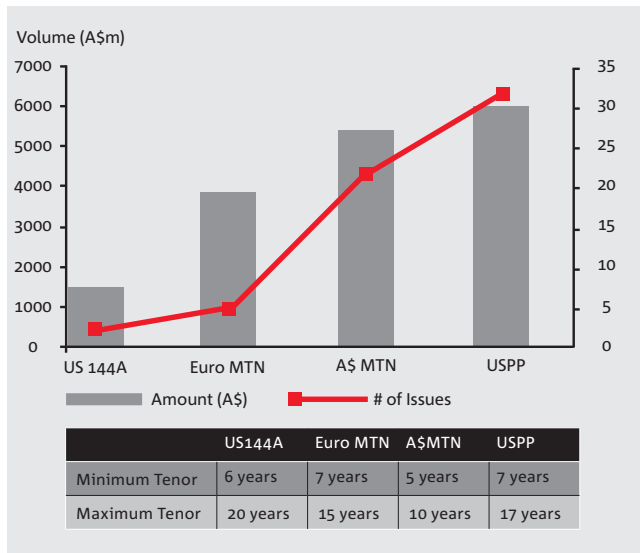


Source: Infrastructure Australia Review of Infrastructure Debt Capital Market Financing February 2014 http://infrastructureaustralia.gov.au/policy-publications/publications/files/Review_of_Infrastructure_Debt_Capital_Market_Financing_2014_03_28.pdf

Notwithstanding the significant use of bank loans, particularly in the “greenfields” stage of new projects, a significant number of infrastructure corporate style issuers have accessed the domestic and offshore bond markets.

Figure 6 shows the amount of new bond issues by infrastructure operators in calendar years 2013 to 2015, which was almost the equivalent of \$A17 billion across a range of international markets. Issuers included Australian Rail Track, Perth Airport Pty Ltd, ConnectEast, Aurizon, and many more. Many of the issues were in USD and sometimes Euro, which would be “swapped” back into an Australian dollar equivalent, such that the issuer receives AUD and has repayments effectively determined in AUD independent of future exchange rate movements. Three years was the shortest maturity with most issues in the 6-10 year maturity range (particularly domestically) with some going out to 15 years (generally in the offshore markets). Many were floating rate issues where the coupon interest rate is a specified fixed margin above some specified indicator rate and resets in line with movements in that rate every quarter or half yearly.

Figure 6: Australian Infrastructure Bond Issues: 2013-2015



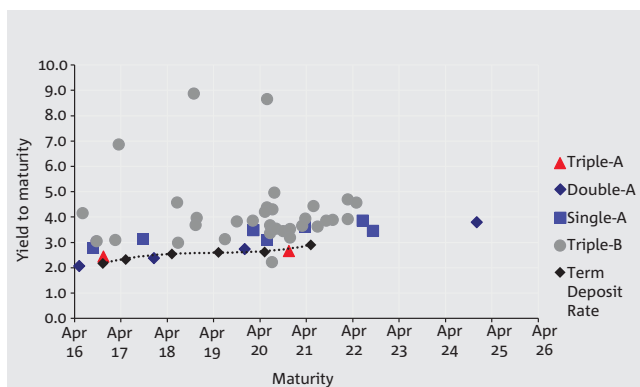
Source: National Australia Bank

It is noted that the primary issues outlined above were issued into the wholesale markets and were not accessible to retail investors (other than those classified as “sophisticated”).

To further understand what might currently be available to “sophisticated” investors in the broader domestic secondary market, we have analysed a number of infrastructure type issues which display some liquidity.

In early 2016, there were 47 such bonds on issue meeting this criteria with a face value of approximately \$11.5 billion. Figure 7 illustrates the yields at which they were trading, plotted against maturity. There is some evidence of higher yields for longer term bonds but the main variations in yields reflect differences in credit rating of the issuer.

Figure 7: AUD Infrastructure Bonds yield v maturity

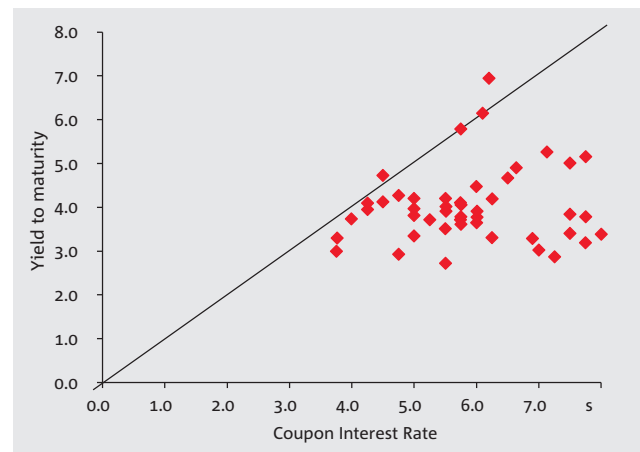


Source: National Australia Bank

MTN = medium term notes.
USPP = US Private Placement

Figure 8 illustrates how yields in the secondary market can differ from the coupon yields specified at the time of bond issue. In late 2015, most of these issues were trading at yields well below the coupon yields, reflecting the overall decline in market interest rates. Equivalently, these bonds were selling in the market at prices in excess of their initial issue price, because they offered higher interest amounts than available on new bond issues. But some were not, reflecting declines in the credit ratings of the issuer with the consequently higher credit spreads demanded by investors offsetting the lower general level of market interest rates.

Figure 8: Yield to Maturity v Coupon



Source: ACFS

As with the primary issues outlined above, these bonds are traded in the wholesale markets and are generally not accessible to retail investors other than those classified as “sophisticated”. While parcel sizes of \$500,000 limit the ability of even sophisticated investors to participate, various facilities (provided by banks such as NAB) discussed in the previous ACFS report “Improving access to the Corporate Bond Market for retail investors” can make smaller scale investments down to \$50,000 possible. In addition, direct digital access is continually evolving with platforms such as nabtrade now enabling direct access to bonds (in addition to mFunds) for investors.

However, despite the significant stock of infrastructure debt on issue, there is still little of it available to retail investors who are not classified as “sophisticated”. It is noted that many of the issues highlighted above provide yields significantly in excess of those available on, for example, government bonds which in late 2015 were offering around 2 per cent p.a. for maturities under 5 years. Were they available to retail investors, a diversified portfolio of infrastructure bonds could yield a margin of around 2 per cent p.a. higher than a government bond portfolio, with adequate diversification (and careful selection of issuers) significantly limiting the risk of default.

8. CONCLUSION

There is considerable scope for growth of an “infrastructure bond” market for retail investor participation. There exists a large stock of existing infrastructure operators of “brownfields” projects who have wholesale debt or bank loan financing who could either distribute to the sophisticated investor or who could potentially refinance through the issue of retail bonds. In the short term, new infrastructure “greenfields” projects are unlikely to be suited to issuance of retail corporate bonds, until they approach “brownfields” status when reduced risk and greater stability of cash flows makes such financing more feasible.

The “simple corporate bond” legislation passed in 2014 has reduced the impediments for issuance of “simple” retail infrastructure bonds. These changes relate to prospectus requirements and directors’ liabilities for bonds having certain characteristics. These include fixed maturity and either a fixed interest rate or a floating rate set at a margin above an appropriate indicator rate. They must be listed on an exchange such as the ASX, but this can be done via an institution (such as a bank) acting as a depository nominee and issuing listed depository interests in bonds held in trust for investors. This has the benefit of enabling issuers of bonds to issue into the wholesale market (where they face lower transaction costs of issuance) and arranging with depository nominees who have a retail investor client base to facilitate retail investment at lower transactions cost. The next stage of this development is to build a “bridge” between the retail and wholesale markets (as currently exists for Commonwealth Government Securities) to enable fungible securities between the two markets.

As well as this enabling change, bank regulation has moved significantly in the direction of altering the competitive balance away from longer term bank lending to companies and towards use of debt capital market funding. That can be expected to induce greater interest in bond issues into the retail bond market rather than simply an increase in issues into wholesale bond markets. One reason is the increased availability of these funds from growth in retail investor portfolios through self managed super funds. A second is the ageing of the investor population and consequent tilt of portfolios towards fixed interest investments more suited to the retirement phase.

While explosive growth in retail infrastructure bonds should not be expected, it is likely that substantial growth and investment opportunities will occur over the coming years. Retail investors should thus be aware of the characteristics of such securities and the appropriate role for them in their portfolios. This report has endeavoured to provide the requisite information to assist retail investors in that regard.

APPENDIX 1: INTERNATIONAL PERSPECTIVES

A recent update on infrastructure bond market development in international, and particularly Asian, markets is provided by Ehlers et al (2014)⁵, who note that in most jurisdictions, bank (particularly syndicated) loans significantly outweigh bond issues. The one exception is China, which has also been a leader in the volume of infrastructure investment in recent years.

In what follows we provide a brief overview of infrastructure financing arrangements in a number of major countries.

USA: The United States preferred method of financing public infrastructure investments is the issuance of tax-exempt municipal bonds by state and local governments. The municipal bond market in the US is favoured over adopting Public Private Partnerships (PPPs) frameworks due to the favourable tax situation – where interest income from municipal bonds is free of income taxes. Given the varying political structures between state to state in the US, the attractiveness of federal concessions to help reduce borrowing costs is even more profound, with access to bonds that are either backed by Government, revenue stream or specific taxes that offset the costs of borrowing. However, the US is experiencing an infrastructure funding gap and alternatives means of issuing finance to municipal bonds are required as these are ultimately dependent upon the ability of state and local governments to issue debt. Programs such as the Transportation Infrastructure Finance and Innovation Act (TIFIA) where Government provides loans and loan guarantees, and Build America Bonds (BABs) offering the assistance of cash subsidies when issuing taxable bonds, are examples of trying to reduce the interest costs of borrowing to finance infrastructure.

UK: The United Kingdom was one of the early adopters of the PPP framework to procure infrastructure investment, with the Government introduction of the Private Finance Initiative (PFI) in early 1990s. The scheme attracted over 700 projects (55 billion pounds) and aimed to incorporate private sector expertise to design, build, finance and operate public infrastructure. However, the scheme was closed in 2012 reflecting issues around procurement process, cost and transparency in transaction. PFI was succeeded by Private Finance 2 (PF2) which sought to address previous issues by making it mandatory for bidders in the tender process for infrastructure projects to bid with long-term non-bank debt financing. This is to encourage raising capital through capital markets and less reliance on the bank loan market which favours short tenors. Similar to Australia, the UK's greenfield project bond market has been overtaken by the bank loan market, particularly since 2008

where previously bonds guaranteed by monoline credit insurers were the favoured option.

Canada: Canada's direct model of funding infrastructure projects is favoured by its large pension plans, which unlike Australia are predominantly defined benefit funds (95%). Infrastructure investing with its long-term characteristics is well suited to the long-term liabilities accrued by defined benefit plans, which makes directly investing into infrastructure projects a preferred model. For Canada's larger public-backed defined benefit funds, a greater allocation to infrastructure investing is possible due to investment expertise brought in-house to assess infrastructure project risk, particularly brownfield investments. Also prominent in Canada, but less favoured by the larger pension plans is a deep project bond market and well-functioning PPP framework. Unlike Australia and the UK which relied on wrapped bonds to boost the greenfield project bond market prior to its collapse following the GFC, Canada's project bond market has only operated with unwrapped bonds favouring the project's rating as opposed to a monoline insurer. With a robust project bond market, Canada has also less reliance on using the bank loan market, again favoured by Australia and the UK. The project bond market is also advantaged by a developed annuity market. Whilst Canada has favoured public funding over privatisation when funding infrastructure, it still has a well-functioning PPP framework with a large investor base when compared to Australia and the UK. These three channels help facilitate and attract a strong pipeline of infrastructure projects in Canada.

5. Torsten Ehlers, Frank Packer and Eli Remolona (2014) "Infrastructure and Corporate Bond Markets in Asia" in A Heath and M Read (eds) *Financial Flows and Infrastructure Financing*, Reserve Bank of Australia, pp 67-91. <http://www.rba.gov.au/publications/confs/2014/>

About the Australian Centre for Financial Studies

The Australian Centre for Financial Studies (ACFS) is a not-for-profit research centre of Monash Business School. It was established as the Melbourne Centre for Financial Studies in 2005, with seed funding from the Victorian Government. Today, ACFS receives funding from Monash University, a range of project partners and affiliated universities, and through research partnerships such as the one with National Australia Bank which has led to this report.

The mission of ACFS is to build links between academics, practitioners and government in the finance community in order to promote thought leadership in the financial sector.

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