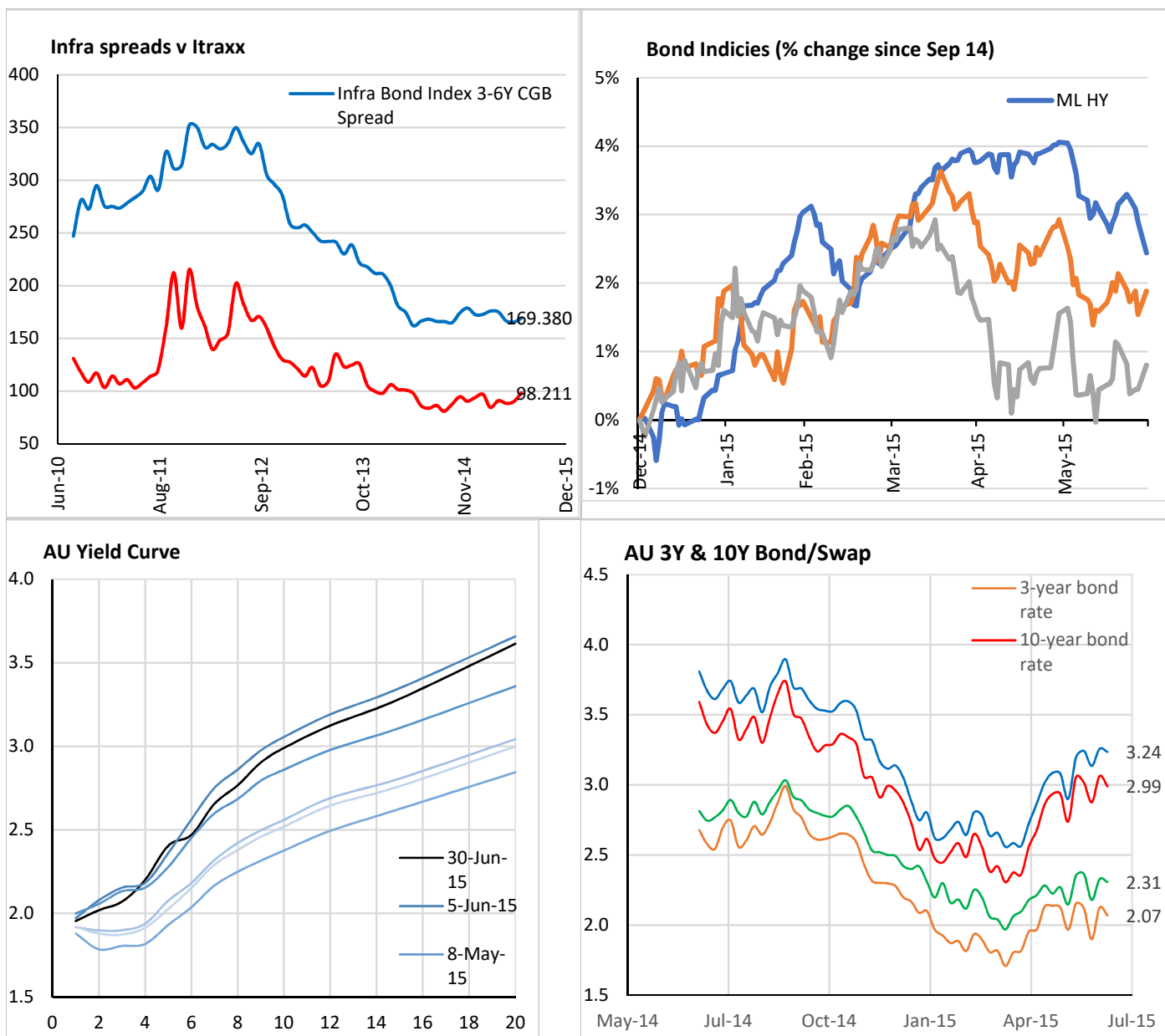


Introduction

Another financial year comes to an end! The NSW Government has now passed legislation for the sale of the State’s Transmission and Distribution (Poles and Wires) businesses. With the decision of the Victorian government to delay the sale of the Port of Melbourne until Q1 2016, TransGrid will most likely be the only large asset sale this calendar year. Presumably the sale of partial stakes in AusGrid and Endeavour will follow in short order. With the network businesses in mind, we have two articles that discuss issues investors (debt or equity) may wish to consider. The first article considers the impact of technological disruption in the broader context of infrastructure investment, the second article relates specifically to the impact of solar and storage on network businesses. The final article, discusses the concept of the illiquidity premium and the continuum in which it should be viewed.

Markets update

Greece, China and expectations regarding Fed Rate decisions have all contributed to volatility across markets during the last quarter - Bond yields widened significantly, with the Australian 10 year bond rate moving from 2.33% to 2.99% – a move of 28%!



New issuance and refinancing

The table below provides a list of publicly available deals.

Date	Borrower	Instrument	Size (m)	Term (Yrs)	Curr.	Pricing
Mar-15	NSW Ports	USPP	191	10	USD	140
Mar-15	NSW Ports	USPP	191	12	AUD	150
Mar-15	NSW Ports	USPP	250	15	AUD	180
Mar-15	SA Power	USPP	235	12	USD	115
Mar-15	Hallet Hill Wind Farm	USPP	98.8	10	USD	175
Mar-15	Hallet Hill Wind Farm	USPP	76	10	AUD	185
Apr-15	Transurban	Loan	200	15	AUD	
Apr-15	Aquasure	USPP	152	12	AUD	147
Apr-15	Aquasure	USPP	450	12	USD	145
Apr-15	NSW Ports	Bank Loan	1,425	1-5	AUD	150
Apr-15	Sydney Airport	Bond	500	10	USD	152
May-15	Port of Portland	Bank Loan	55	5	AUD	
May-15	Perth airport	USPP	100	10	USD	155
May-15	Perth airport	USPP	150	12	USD	165
May-15	Perth airport	USPP	280	15	AUD	180
May-15	Transurban	Bond	500	10	EUR	103
May-15	Adelaide airport	USPP	71	10	USD	155
May-15	Adelaide airport	USPP	87	12	USD	165
May-15	Adelaide airport	USPP	67	15	USD	180
May-15	Adelaide airport	USPP	25	10	AUD	165
May-15	Adelaide airport	USPP	25	15	AUD	190
May-15	Melb. Airport	Bank Loan	1,000	3/5	AUD	
May-15	Eithad Stadium	Bank Loan	165.7	5	AUD	
Jun-15	Multinet Gas	Bond	230	5	165	165
Jun-15	Envestra	USPP	65	12	USD	130

Jun-15	Envestra	USPP	90	15	USD	145
Jun-15	Oaklands Hill Windfarm	Bank Loan	206	7	AUD	
Jun-15	Transmission Holdings	Bank Loan	33	5	AUD	
Jun-15	Dampier to Bunbury	Bank Loan	245		AUD	

Equity and other news

- The Northern Territory has shortlisted four companies to potentially construct a pipeline connecting the Northern Territory with the East Coast, including APA Group, DUET Group, Merlin Energy and Jemena.
- APA Group has confirmed its purchase terms for the QCLNG pipeline. The final price will only be confirmed at financial close (est. \$4-5 billion), expected to be before the end of 2Q, 2015.
- The Commonwealth Government has approved an agreement between Moorebank Intermodal Company and SIMTA (a consortium 33% owned by Aurizon and 67% by Qube) for the development and operation of Moorebank Intermodal (freight terminals/warehousing)
- NT Prisons – BBGI has acquired CBA’s interest 50% in the project, taking its equity interest to 100%.
- TransGrid – the NSW Government has announced the sales process is to commence, market estimates value the transmission business at circa \$7 billion. Unlike the distribution businesses (AusGrid and Endeavour), 100% ownership via a long-term lease will transferred to the successful consortium.
- Port of Melbourne – the much anticipated sale of Australia’s largest port has been pushed back until Q1 2016. The reason for the delay is to ensure the Government has legislative certainty for the sale.
- Ararat Wind Farm – It has been announced that Partners Group, together with other consortium partners GE, RES and Downer EDI will fund this \$450 million, 75 wind turbine (240MW) project. The project has a partial offtake from the ACT government.
- Crown Castle – Macquarie Infrastructure and Real Assets, UniSuper and the UBS International Infrastructure Fund II successfully acquired this asset for circa \$2 billion.
- Melbourne Metro – the Victorian Government has announced planning for a rail project which will see the construction of a rail tunnel under the Melbourne CBD. The project value is estimated at \$8-\$11 billion.

Technological disruption and Infrastructure

Innovation and technology tends to be more the focus of venture capital and private equity, rather than infrastructure, but increasingly, infrastructure investors need to be worried about the potential for future technological changes to adversely (or positively) impact their investments.

Infrastructure investors should be focused on technological change, not just because of the current rapid pace of progress, but also because today’s infrastructure pricing (with extremely high price multiples). These multiples mean that today’s investors, more than previous generations, are attaching high valuations to cash flows that won’t be received for decades.

History is littered with historical examples of disruptive technological change impacting infrastructure assets.

Shannon Airport, in Ireland, with its 3,200 metre runway, was the busiest airport in Europe in the 1950s and 1960s. The concept of duty free shopping – a major profit centre for Australian airports – was ‘invented’ at Shannon.



However, the invention of the 747 and other longer range aircraft, reduced the need for refuelling stops, and spelt the end of Shannon's commercial standing as the primary gateway to Europe for transatlantic travel.

Canals in the 18th and 19th centuries were a major part of inland transport infrastructure for the UK, Europe and US. They are another example of infrastructure laid waste by technological progress. Canals used to be one of the dominant transport modes, but now, with the exception of the Panama and Suez Canals, have largely been relegated to economic irrelevance.

While the monopoly characteristics of these assets would have appeared strong at their peak – this would have been of little comfort as competition from new technologies sentenced them to long-term decline.

Today's infrastructure investors need to keep a weather eye for potential technological disruption. This isn't easy, as technological progress is not smooth or linear, and spill-overs from new technologies into markets are hard to predict.

I won't try and predict the major technological disruptions of the new next twenty or thirty years – if the last twenty or thirty years are anything to go by – there will be changes that we can't possibly conceive. However, here are a few things that I think infrastructure investors should be thinking about:

- Driverless cars. If the rumours about Google testing driverless cars are anything to go by, driverless cars might be mainstream earlier than we think. Driverless cars have the potential to radically reshape traffic patterns and, hence, impact assets such as toll-roads. However, in my view the more significant impact will be on carparks. If you can park your car at home for free (and, what's more that's the natural time for it to recharge its battery from your roof-top solar panels!) why would you pay to park at work or the airport? For airports, car parking is a very significant source of returns.
- Cheap batteries. Cheap batteries have the potential to transform electricity networks as we know them (discussed in detail below). Rather than needing to generate electricity when it is demanded, electricity from cheap (and environmentally friendly) sources such as solar and wind could be stored for later use. Batteries have the potential to transform how energy, both for home/business/industrial use as well as for transportation, is sourced. This has extremely widespread potential implications – think of the scale of the supply chains built around the coal, oil and gas industries. If cheap batteries trigger a further shift to renewable energy this will impact ports, pipelines, storage facilities as well as electricity transmission and distribution networks.
- Telecommuting. A substantial proportion of the workforce work in offices. This necessitates substantial public and private transport infrastructure to move people to and from CBD offices each day. It also underpins the value of inner city real estate (as people highly value the time saved on commuting). If people were able to productively work remotely, there would be significant time and cost savings. However, a wholesale shift to telecommuting would have substantial impacts on many infrastructure assets where value is dependent on commuter activity, business travel, or whose value is underpinned by land.

The speed and extent of the above changes is impossible to predict. But for investors that attach substantial value to cash flows decades from now, they are impossible to ignore

Solar + Storage = long-term cap on electricity prices

Potential bidders for the NSW 'poles and wires' privatisations are likely spending their days and nights pouring through regulatory decisions and developing plans to adjust to the recently imposed cuts to capital expenditure, operating costs and allowable returns over the period to 2019. However, they might be better served looking a bit further over the horizon.

Electricity distribution and transmission networks have historically been an attractive regulated monopoly business. They don't generate electricity and they don't deal directly with 'pesky' customers. Instead, they provide the



transmission and distribution networks that transport electricity that someone else has generated to end-users. Their customers are the electricity retailers – which pass on the cost of network charges to users.

Their revenue model is reasonably straightforward. The regulator estimates the cost of efficiently running the network, which forms the allowable revenue base. These costs include both operating expenditure, as well as a ‘fair’ return on the capital cost of the network. In simplistic terms, this revenue is then divided by the amount of electricity that flows through the network to give the charge for use of the network. For residential customers these charges account for around half of their total bill.

Under this model, on the surface, the network businesses don’t care how much power flows through their networks, how much it cost to generate, or even what retail customers pay for it. Rather, their main focus is on what revenue does the regulator allow them to charge.

While the recent AER decisions are painful, and involve large cuts to allowable operating expenditure and the weighted average cost of capital (WACC), potential bidders probably see these effects as transitory. That is, it will take time to reduce the network’s cost base to match the regulator’s requirement, but once this is done, it won’t have an ongoing impact on returns.

Similarly, while the regulator’s decision to adopt a return on equity of 7.1% is unappetising – particularly given that most infrastructure investors have return targets closer to 10% - they will take comfort that this estimate is based on a risk free rate of 2.55%. They would also hope that the next regulatory reset, in 2020, would occur in a period of more ‘normal’ interest rates and, hence, the WACC would be revised up.

Under the current framework, higher interest rates at a future regulatory reset mathematically feed into higher network charges. For example, if interest rates were 2% higher, which is quite possible, this would push network charges up by around 15%. In theory, the networks have a monopoly over an essential asset, and while there is much gnashing of teeth by the public, the networks would get to boost their returns. However, as the old saw goes, in theory there is no difference between theory and practice. In practice there is.

The absolute monopoly enjoyed by electricity networks is under threat. Solar generation and battery storage systems have fallen in price such that they are increasingly competitive with grid-based electricity. For example, Origin has a solar as a service offering where they install solar panels on your home/business and sell you the power generated at 11 cents per KWh under a 15 year contract. This is 30-70% below grid-based retail tariffs. This pricing would be below the network charges in some jurisdictions.

While I don’t think that the majority of households will disconnect from the grid, an increasing proportion of customers will source a large fraction of their electricity usage from solar. Increasingly, this will include afternoon/evening use through stored solar power. This won’t be because of government subsidies, but rather because the cost of solar has fallen such that, for day-time use, it is now fundamentally cheaper than grid provided power.

This creates a medium-term challenge for the networks. While they enjoy a monopoly over their component of the supply chain – the entire supply chain is under threat from new technology. Solar and storage will place an effective cap on electricity prices. A cap that will fall as the technology continues to scale up and system costs fall. This cap will place a practical limit on future electricity price rises.

While there is potential for networks to mitigate this impact through higher connection and other fixed fees (allowing them to reduce per KWh charges) – so called tariff reform – this will not be easy. Higher connection charges will be unpopular with the community – they will disproportionately affect the elderly and the poor. Furthermore, existing solar PV costumers, whose ‘savings’ would be undermined by an increase in fixed charges, would powerfully resist wholesale changes. For example, the AER has just rejected a plan by SA Power Networks to charge solar PV customers higher fixed connection fees.

For myself, there is no doubt that substantial regulatory reform will be required in order to ensure the sustainability of the network. However, whether this reform will be pragmatic and strategic, and thus occur sufficiently in advance



of market structural change, is a key question. If the network is considered too large relative demand/customers at some point in the future, another question is who bears this cost – network owners through a write –down or customers through excessive charges? The lag time between the announcement of the need for reform, and the actual reform itself, will also have a dramatic impact on valuations in the intervening period.

All of this highlights the challenges of valuing a 99 year lease in the context of declining demand and technological disruption.

Liquidity isn't Binary

According to Gary Weaven there are only two proven ways to outperform in investment markets. "One is to be able to forgo liquidity and get a premium for that," he says. "The second way is to be in investment markets that are not over-populated; that is, where there is not a whole lot of other players (Jimenez 2012). At one level this sage advice may sound simple, but in reality, the true complexity lies in judging whether you are truly being adequately compensated for illiquidity.

The idea that unlisted and alternative assets might offer higher risk adjusted returns, compared to their liquid/listed peers, is both broadly accepted and widely misunderstood.

The basic premise of the illiquidity premium is that illiquid assets need to offer their owners a higher return to compensate for their illiquidity and, hence, offer a higher long-term return.

While the concept is widely accepted, I am not aware of agreed estimates of how much this illiquidity premium is (or should be).

What is Liquidity?

Liquidity is the ability to convert an investment into cash in a short time at 'fair' value. That is, can you sell it quickly and realise its value. Investments that are not liquid cannot be sold quickly, involve significant selling costs, or require the vendor to discount the value of the asset in order to achieve a quick sale.

What Causes Liquidity (or Illiquidity)?

Liquid assets are those with a deep market, with a wide range of well-informed potential buyers/sellers of the asset, who are able to execute transactions quickly and in a low cost manner.

While it is easy to identify a liquid market – it is useful to think of the characteristics that promote liquidity. These are helpful for both assessing the liquidity of a potential investment, but also when structuring investments, as it is often possible to improve the liquidity of an investment through the contractual rights attaching to the investment.

Drivers of liquidity:

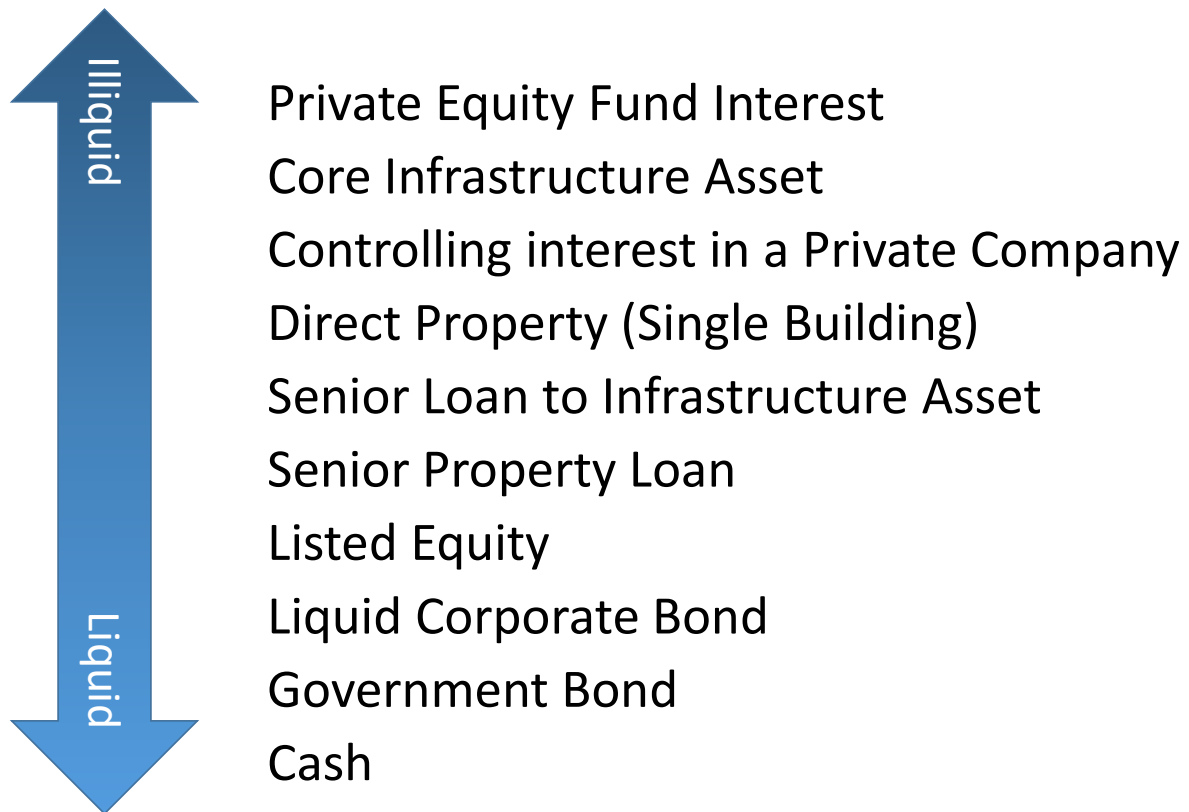
- Time. Can the investment be bought or sold quickly?
- Cost. This includes both direct costs (stamp duty, transactions costs, other tax impacts etc.) as well as market impact costs. Even in listed markets, for institutional size stakes, these market impact costs (ie the amount your own trading moves the market) are often significantly larger than the direct transactions costs.
- Information/Governance rights/Complexity/Subjectivity. What information does a buyer need to assess an investment? Is that information freely available (for example, in listed markets through continuous disclosure obligations) or does a vendor need to arrange for time consuming and costly due diligence (datarooms, technical reports, etc)? How long does it take a vendor to assess this information? Is the material complex or subjective? Can the asset be easily benchmarked against other similar assets?
- Current Income/yield. Does the asset have current income or yield? Assets that pay an income tend to be more liquid. This may be because assets that pay an income tend to be less risky, or because the yield provides a yardstick for pricing (i.e. a benchmarking effect). An extreme opposite of yield are assets with outstanding



capital commitments (for example, interests in private equity funds). These assets are extremely illiquid in adverse market conditions.

As you can see from the above, liquidity isn't binary – assets aren't either liquid or illiquid – there is actually a continuum of liquidity.

The following illustrates my view of the typical liquidity ranking of superannuation fund asset classes.



There are a few other points worth noting about liquidity:

- The liquidity premium – that illiquid assets earn higher returns – arises because illiquid assets are cheaper. That is they have lower prices that allow higher returns. It is not because something is illiquid that it magically gets higher earnings growth - it is because you paid less for it. This point seems lost on many market participants.
- The liquidity premium is likely to vary over time, with the discount narrow when there is a lot of capital seeking illiquid assets and wide in times of crisis and when capital is scarce. Some would argue that the illiquidity premium might actually be negative for some highly sort after sectors. For example, unlisted ports seem to be trading at higher EV to EBITDA multiples than their listed compatriots. This might be because the recent unlisted port sales have much better earnings growth prospects or risk profiles, or it might be the case that too much capital (which is restricted to unlisted assets) is chasing too few deals.
- Size matters – what is liquid for a small investor will not be liquid for a large investor. With the growth in \$50+ billion “mega funds” in Australia, I would question whether active holdings in any Australian asset – whether listed or unlisted – would really be that liquid.

Debt investments have free liquidity at maturity. For equity and other perpetual investments – realising your investment necessarily involves selling it. For debt investments, you are repaid in cash at maturity. This is free liquidity. It also means in a debt portfolio, by carefully planning your maturities, you can program in liquidity (even if the individual loans may not be that liquid).



Contact Us

We're always happy to chat (and learn new things!) if you want to know more, contribute more on a particular topic, or wish to discuss any of the above topics in greater detail feel free to drop us a line. Also, please don't hesitate to send us ideas for future articles.