Guy Debelle: Liquidity in Australian fixed income markets

Speech by Mr Guy Debelle, Assistant Governor (Financial Markets) of the Reserve Bank of Australia, to the 4th Australian Regulatory Summit, Sydney, 21 June 2016.

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Thanks to Jon Cheshire for his work locally and globally on this topic.

Fixed income markets in many jurisdictions have been going through a period of change, resulting in a debate as to whether they are continuing to function effectively and, in particular, function effectively in times of stress. Changes in dealer business models and increased use of electronic trading platforms are influencing the nature of liquidity in bond markets. However, these changes are not as prevalent in Australia as they are in some markets overseas, and that is what I am going to talk about today.

Globally the debate on bond market liquidity has been ebbing and flowing over the past couple of years. You can hear that it is simultaneously the best of times and the worst of times for liquidity in the bond market. Or to stick with the water analogy that is so prevalent in such discussions, the market is awash with liquidity at the same time as the tide is going out. As an aside, the water references in liquidity discussions are as pervasive as they are in Pixies' songs.

I discussed some of these issues in a speech last year[1] and there have been two recent publications from two BIS Committees that I am a member of that provide a comprehensive account of recent developments in bond market liquidity globally.[2] Rather than recount the global discussion, instead I will try and make it more directly relevant to this audience and run through some of the factors affecting Australian fixed income markets, drawing on work done by my colleague Jon Cheshire published in the RBA *Bulletin* last week.[3] The assessment that Jon makes, which I share, is that liquidity in most segments of the physical bond market in Australia is lower than it has been in the past. That is, it is generally a little more costly to transact in the same volumes, with immediacy, in the Australian bond markets than it used to be. These changes are partly a response to regulation and partly a reassessment of business models by banks. But, given that liquidity was oversupplied and underpriced in the years prior to the global financial crisis, these changes in liquidity are broadly desirable and, to date, have not presented any significant issues in the Australian market.

Measuring liquidity

What do we actually mean by bond market liquidity? Often participants in this debate talk at cross purposes using different metrics of liquidity, so let me explain how we are assessing bond market liquidity. Market liquidity is the ability to execute transactions in size, immediately, at low cost and with limited price impact. As you can see, there is both a quantity and time element to liquidity which is often conflated in discussions about it.

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1 Debelle G (2015), 'Bond Market Liquidity, Long-term Rates and China', Speech at the Actuaries Institute 'Banking on Change' Seminar, Sydney, 16 September.

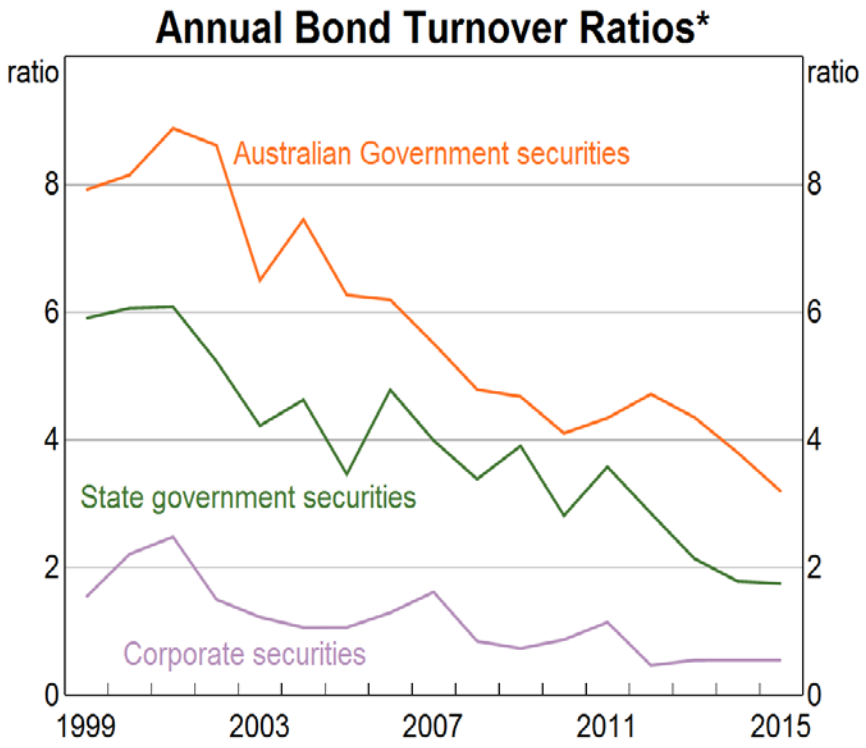
2 Markets Committee (2016), 'Electronic Trading in Fixed Income Markets', Markets Committee Publications No 7 Available at <http://www.bis.org/publ/mktc07.htm>, Bank for International Settlements, Basel. CGFS (Committee on the Global Financial System) (2016), 'Fixed Income Market Liquidity', CGFS Papers No 55, Bank for International Settlements, Basel Available at <http://www.bis.org/publ/cgfs55.htm>. Jon Cheshire made a significant contribution to both of these papers.

3 Cheshire J (2016), 'Liquidity in Fixed Income Markets', RBA *Bulletin*, June, pp 49–58.

Given these different dimensions to liquidity, measuring it precisely is not a straightforward exercise. This is particularly the case in Australia, where much of the secondary market activity is not conducted on electronic platforms and so the trade data is less readily available. It would be good to see more trade data on transactions in the market, although, in saying that, it is possible to have too much transparency in this regard. This is particularly so in a relatively small fixed income market like that in Australia, where the revelation of market participants' positions in close to real time can be problematic.

The first metric I will use to illustrate developments in liquidity is turnover; that is, the quantity dimension. I will discuss the price aspect below. A smaller share of the stock of outstanding bonds is being transacted relative to the past (Graph 1). The turnover ratio (the ratio of the value of transactions undertaken in bond markets over the course of a year relative to the average outstanding stock of bonds on issue over the year) for government bonds has declined from an average of around five in the decade prior to 2012, to a little above three over the past four years. However, over the same time, the supply has grown significantly, so that the absolute amount of turnover hasn't changed all that much. The turnover ratio of corporate securities has declined to a little above one in the decade prior to 2012 to its current level of about a half.

Graph 1



Looking at this another way, the share of the government bond market that used to turnover in an average month now takes a bit over six weeks, while the average share of the corporate securities market that used to turnover in one month now takes closer to two months. We also hear from market participants that it is, in general, a bit more difficult to transact in size.

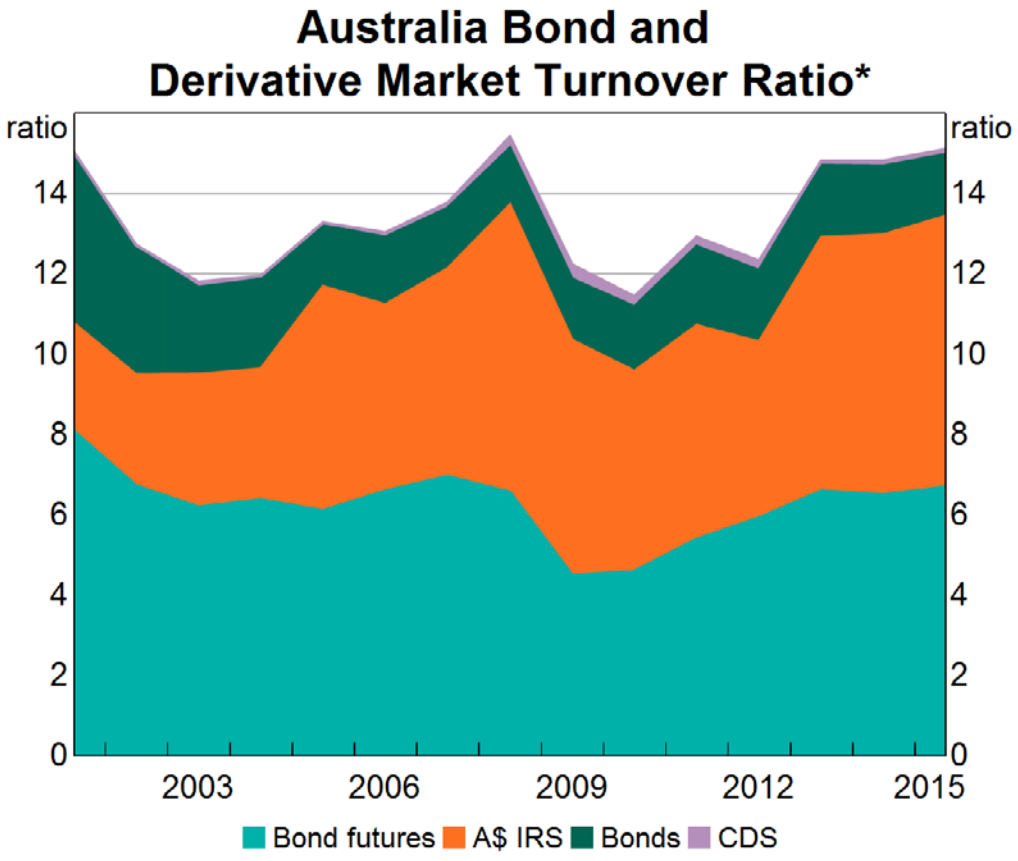
Should we be concerned about this? Not necessarily. The corporate bond market in Australia has never had a highly liquid secondary market. It has always been predominantly a buy and

hold market, and most participants are well aware of this. More generally, bond market activity in Australia has been structurally declining over a long period. In the mid 1990s, the turnover ratio for government bonds was around 10, by the late nineties this had fallen to around 7. A decade later in the mid 2000s, it had fallen to around 5 and now it is 3. There are number of explanations for this decline in turnover which I will now turn to.

Derivatives

Market participants have been increasingly transacting in derivative instruments rather than the cash bonds. Since the mid 1990s, activity in bond futures and interest rate swaps, relative to bonds outstanding, has increased sharply (Graph 2). In 2015, the value of turnover in bond markets was around $A2½ trillion whereas the value of turnover in both the Australian dollar interest rate swaps and bond futures markets was each around $A9 trillion.[4] Growth in activity in these markets in recent years has significantly outpaced growth in issuance of Australian dollar bonds. Overall, the increase in derivative activity has more than offset the decline in bond market activity.

Graph 2



* Annual bond, interest rate swap, bond futures and credit default swap turnover divided by government bonds and bank, corporate and mortgage-backed securities outstanding

Sources: AFMA; ASX; RBA

[4] These figures are sourced from the AFMA. I'm only referring to interest rate and tenor basis swaps turnover here.

There is a clear preference for bond issuers and investors in Australia to manage the risk associated with their bond issuance or bond holdings by transacting in the derivative instruments rather than in the physical instruments.[5] This has resulted in a further concentration of liquidity in the derivative instruments and a decline in liquidity of cash instruments. This development is likely to continue to occur, particularly for less liquid segments of the bond market.

This is occurring because these standardised derivative instruments can be significantly cheaper to transact than the physical instruments. One of the reasons for this is simply that a physical transaction has a larger cash component than a derivative transaction. This cash component has to be funded. If the cost of funding is relatively high, market participants are likely to shift activity into other instruments. That said, fixed income derivative markets cannot act as a perfect substitute for bond markets because they are not a funding source for the seller nor do they represent an investment for the buyer. The underlying bonds still have to be issued!

Electronic trading

The share of derivative market transactions relative to cash transactions is larger in Australia than in European and North American fixed income markets. This presents a challenge for local bond markets to compete for business with the derivative markets. How could this come about? One way is to look to lower the cost of transacting in bond markets. This could happen if a greater share of transactions were conducted via electronic trading platforms. Electronic platforms typically offer a lower cost structure than traditional phone dealing.

The share of electronic trading in government bond markets in Australia is around a third. But in European and US bond markets the share of electronic trading is considerably greater at over fifty per cent. In the bond futures markets most trades are conducted via an electronic platform while around 25 per cent of interest rate swap transactions occur via electronic platforms. There appears to be scope for a greater share of trading in Australia's government bond market, at least, to take place on electronic platforms.

The price of liquidity

Having talked so far about the stock of liquidity, I will now turn to developments in the price of liquidity. While turnover appears to be lower in bond markets, the price of transacting doesn't appear to be much different from where it has been in the past. This is apparent from bid-ask spreads, which is a measure of the difference between the price that a buyer is willing to pay for a typical amount of an asset and for which a seller is willing to sell. Bid-ask spreads have been narrowing or are around their narrowest in domestic government bond markets. Part of the explanation is that there has been a decrease in the volume that can be transacted at these spreads, as a consequence of both increased electronic trading and decreased principal-based market-making. So spreads are narrower but how much you can make use of these narrower spreads when trading larger volumes is not so clear, and this is often at the root of the divergence in opinion about the current health of markets.

Other measures of the price of liquidity also paint a positive picture. For instance, spreads on risky bonds over government bonds are above levels that prevailed in the years leading up to the financial crisis, but significantly lower than the average or extreme levels seen during the crisis years. Volatility too has been a bit higher in the past six to twelve months, but has not reached levels seen in the crisis.

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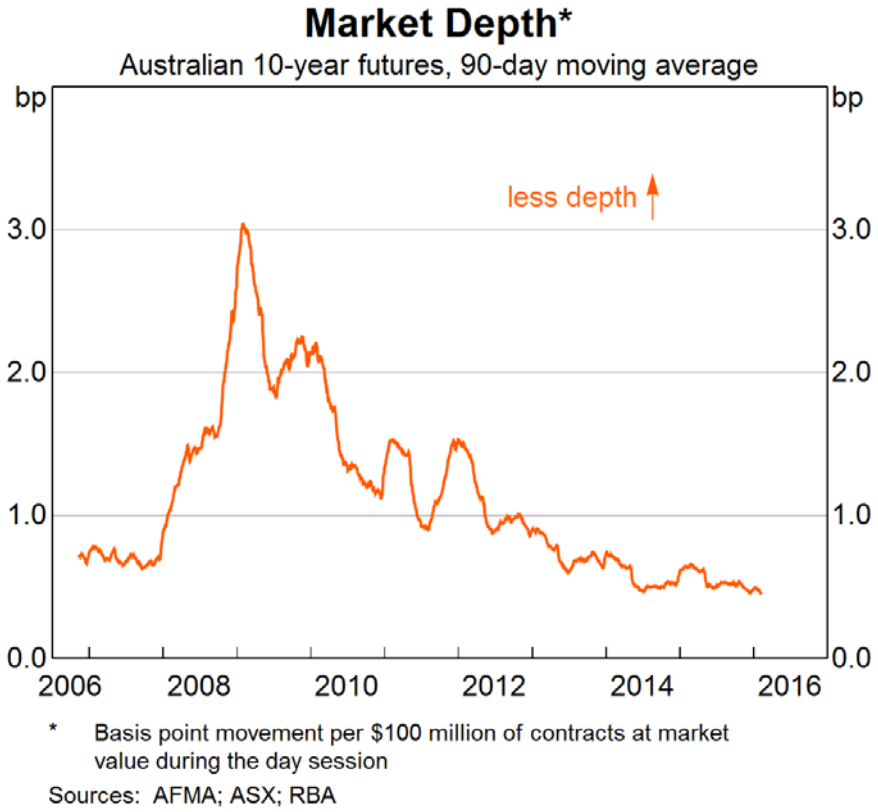
[5] For instance, bond dealers and issuers use exchange for physical transactions to manage interest rate risk. See Cheung B (2014), 'Trading in Treasury Bond futures Contracts and Bonds in Australia', RBA *Bulletin*, September, pp 47−52.

One reason why Australian fixed income markets continue to function smoothly is that the derivative markets have been operating effectively. For instance, the market depth (the size of a trade that can be executed for a given trade size) in the futures market appears to be similar to levels that prevailed prior to the financial crisis (Graph 3). As I mentioned, these markets account for the bulk of activity in Australian markets. As such, they play a key role in price discovery and in facilitating a transfer of risk among market participants. While part of the concern in global markets is over a withdrawal of market-making activity from bond markets, it is apparent that this issue has not been as important in Australia for some time.

Graph 3



The role of market makers

The Australian bond markets still rely relatively significantly on market makers who have a dominant presence in the markets. For instance, according to AFMA data, banks account for around 45 per cent of all trades in the Australian Government Securities (AGS) market, down from around 60 per cent in the decade to 2011. At 45 per cent, banks account for a slightly larger share of transactions in the semis market than they did in the past. Their share of transactions in non-government bond markets has declined slightly from 50 to 45 per cent.

While in aggregate, banks are still significantly involved, there have been some shifts in the composition of this activity. Australian bond markets have traditionally had a mix of both local and foreign banks, although the number of institutions involved in the bond markets has ebbed and flowed with the size of markets. There was an increase in participation by foreign banks in 2010 and 2011, partly in response to increased demand from their offshore clients, who sought to capitalise on the strength of fixed income markets in Australia relative to those in other jurisdictions. This led the domestic market to be oversupplied for a while in my opinion. More recently, we have seen some foreign participants leave again as it has become uneconomic for them to continue to provide market-making services. As a result, while bond markets are currently larger, relative to GDP, than in the past, the foreign bank presence is a little smaller than it has been at some times in the past.

The decline in the presence of foreign banks reflects both a change in business strategy and, in some cases, the effect of regulations. For many banks operating in Australia, the effect of regulations such as increased capital requirements and the leverage ratio have not been binding on their business models. Nevertheless, just as has happened in the larger fixed income markets offshore, banks operating in Australian bond markets have changed their business models. This has seen a lower level or greater rationing of principal-based market-making as a result of a decrease in appetite to warehouse risk, particularly bonds that are not very liquid.

This is evident in the bond inventories that banks hold in their trading books. Banks have decreased the stock of non-government bonds they hold in their trading books and increased the share of government bond holdings. This is partly driven by a decrease in willingness to warehouse bonds that do not trade actively in the secondary market. It also reflects the incentives for banks to hold government bonds to satisfy the Liquidity Coverage Ratio (LCR).

Banks' holdings of government bonds have increased to around 30 per cent of the market. The RBA's judgement is that a greater holding than 30 per cent may impair the functioning of the government bond markets. In coming to that assessment, one of the considerations is the sizeable share of government securities held by offshore investors. In the case of AGS, this currently amounts to more than 60 per cent of the stock. Many of these investors are buy-and-hold investors. They generally do not undertake securities lending. As a result, these bond holdings are not contributing to the liquidity of the market. Hence, a more relevant metric in considering the share of the government bond market that banks can hold to meet the LCR is the stock of bonds held by domestic investors.

Last week, the RBA published its latest assessment of the amount of AGS and semis that could be reasonably held by the domestic banks without impairing market functioning.[6] (APRA then sets the aggregate size of the Committed Liquidity Facility as the difference between the LCR requirements of the banks and the amount of AGS and semis that can be reasonably held.) We have maintained the assumption that the domestic banks can reasonably hold a quarter of the stock of AGS and semis in 2017. Foreign banks operating in the local market hold around another 5 per cent of the stock to meet their LCR requirement. So, in total, this remains at 30 per cent. Based on budget projections of the Commonwealth and State governments, we expect that the domestic banks could reasonably hold $220 billion without impairing the market, which would be an increase of $25 billion compared to the holdings in 2016.

High frequency trading

High-frequency trading is not as prevalent in the domestic bond markets as it is in some markets There are mixed views on the contribution of high-frequency trading to market functioning, particularly in terms of its contribution to flash events in the bond market such as occurred in the US Treasury market on 15 October 2014 and the German "bund tantrum".[7]

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6 See RBA (Reserve Bank of Australia) (2016), 'The Committed Liquidity Facility', rba.gov.au site, 16 June.

7 Joint Staff (US Department of the Treasury, Board of Governors of the Federal Reserve System, Federal Reserve Bank of New York, US Securities and Exchange Commission, US Commodity Futures Trading Commission) (2015): 'The U.S. Treasury Market on October 15, 2014', Joint Staff Report, July. Markets Committee (2016). Available at <https://www.treasury.gov/press-center/press-releases/Documents/Joint_Staff_Report_Treasury_10–15–2015.pdf>, 'Electronic Trading in Fixed Income Markets', Markets Committee Publications No 7, Bank for International Settlements, Basel, January. Available at <http://www.bis.org/publ/mktc07.htm>. See also ASIC (Australian Securities and Investments Commission) (2015), 'Review of High-Frequency Trading and Dark Liquidity', Report 452, October. Available at <http://asic.gov.au/regulatory-resources/markets/market-structure/dark-liquidity-and-high-frequency-trading/review-of-high-frequency-trading-and-dark-liquidity-2015/>.

High-frequency trading does not have a presence in the physical bond market while it has a modest presence in the bond futures market, growing to around 15 per cent over the past few years. That said, high-frequency trading activity in the domestic market is often concentrated around particular events, most notably the bond futures rolls. The share of high-frequency trading around the futures roll can be considerably higher.

The presence of high-frequency traders can reduce the costs, in terms of spread, of transacting small parcel sizes. There is evidence of that occurring in the domestic market. But, high-frequency trading firms do not hold trading positions for a long period of time. During periods when market prices are adjusting, the presence of market participants that have longer holding periods can be beneficial because these participants absorb some of the order imbalance. One possible concern for the future evolution of the bond market is that high-frequency firms reduce the return to market-making activities in normal (benign) times causing market makers to exit as such activity becomes uneconomic. This reduction in market-making then becomes problematic in more turbulent times exacerbating market disruption. This is a potential development we will be monitoring, although there is no evidence that this has been an issue to date in the local market.

Conclusion

In conclusion, Australian fixed income markets have continued to function satisfactorily, even while in some overseas markets there has been increased concern about the capacity of such markets to function effectively. As I've noted, part of the explanation for the difference is that the withdrawal of dealers from the bond market in Australia has not been as sizeable as it has been elsewhere. Regulatory change has contributed to the reduced capacity in the domestic market, but not to the detriment of market functioning. Indeed, the fact that the price of liquidity now more accurately reflects the cost of providing liquidity is a positive outcome.

Another development that has contributed to the satisfactory outcomes in the domestic market is that a large share of market activity is undertaken in derivative markets that don't rely as much on market-making capacity and are relatively low cost and efficient.

It is likely that fixed income markets in Australia will continue to evolve in coming years, which will require market participants to keep adapting. On our side, we will continue to monitor this evolution and its impact on the efficient functioning of the market.