Guy Debelle: Bond market liquidity, long-term rates and China

Speech by Mr Guy Debelle, Assistant Governor (Financial Markets) of the Reserve Bank of Australia, at the Actuaries Institute "Banking on Change" Seminar, Sydney, 16 September 2015.

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I am going to talk about three key current issues in financial markets, namely bond market liquidity, long-term interest rates and China's exchange rate regime. All three are having an important bearing on financial market prices round the world, including here in Australia, both now and probably for quite some time to come. They may not sound that interrelated but I will tie them together at the end.

Bond market liquidity

I will start with bond market liquidity.

If you have read any financial market media over the past year, you would have been hard-pressed to avoid reading an article on bond market liquidity. Indeed, one of the best financial market commentators, Matt Levine, devotes a section of his column to "people are worried about bond market liquidity".[1] Notwithstanding the fact that his column is published daily, he has little problem in finding material to write about on this issue.

So today, I would like to provide Matt Levine with some more material and throw my hat into this crowded ring. Though not for the first time, as about a year ago I talked about this very issue.[2] So why revisit this issue again today? Here are a few reasons:

First, one year on, there have been a few noteworthy liquidity "events" in the bond market, including the awkwardly named "Flash Rally" in US Treasuries on 15 October 2014, the day after I gave the speech last year. Second, the much anticipated first increase in the Fed funds rate has been designated as a critical test case of the state of liquidity in the bond market. Third, while equity markets experienced a volatile month in August, bond markets were, somewhat surprisingly, relatively stable (as for that matter, were major foreign exchange rates). That serves to highlight the fact that liquidity and volatility are related but are not the same thing.

So what exactly do I mean by bond market liquidity? Generally I would take it to mean the ability to transact in the bond market without having a material influence on the price. For example, if I want to sell some of my holdings of Australian Government securities, how much will I be able to sell, and over what time period, without having a significant impact on market pricing?

This question highlights two points: there is both a quantity dimension and a time dimension to liquidity. If I try to sell all my securities at once, my impact on the market is likely to be larger than if I break my order up into smaller pieces and sell it over a period of time. However, if I do the latter and sell gradually, there is a risk that the market price moves against me over that period of time, because of news or other people's transactions and I don't get as good an overall price.

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[1] See for example, <http://www.bloombergview.com/articles/2015–06–03/people-are-worried-about-bond-market-liquidity>. Of late, there has also been the occasional column on people who are *not* worried about bond market liquidity.

[2] "Volatility and Market Pricing", speech to Citi's 6th Annual Australian and New Zealand Investment Conference, Sydney, 14 October 2014.

The quantity and time element of liquidity is often conflated in the discussion of bond market liquidity. Hence you can hear that it is currently simultaneously the best of times and the worst of times for liquidity in the bond market. Bond market liquidity at the "top of book" is, on a number of metrics,[3] as good as it has ever been. That is, my ability to sell a small parcel of bonds very close to the current market price is very good. But the "depth of book", my ability to sell a large parcel of bonds, is nowhere near as good, and worse than its been for quite some time.

How can it be that we have both of these two developments? This outcome reflects the evolution of the market over recent years in response to technological changes, regulatory changes as well as institutional appetite for this activity.

In terms of technology, there has been a significant increase in the share of electronic trading in bond markets. In the Australian market, we estimate that electronic trading accounts for around one-third of trading in the Australian government securities market (though it is considerably less in other domestic bond markets). In the US, the share of electronic trading is much higher, more than half of turnover. With the increased electronification of the market has come high-frequency trading firms. These firms are providing increased liquidity at the top of the book, but are not necessarily contributing to the depth of the book, given their preference to trade in small size, as well as in many cases, inability to trade in large size because of balance sheet constraints. They have contributed to lower transaction costs (in terms of the bid-ask spread) for small orders. But there are question marks around their resilience in times of market stress. The key structural change is the shift in market share from those who provide immediate and continuous liquidity and have the ability to warehouse risk to those who do the same but don't have the capacity to warehouse risk.

In this regard, the bond market has followed the well-trodden path of the equity market and later the foreign exchange market of increased electronic trading and increased participation by high-frequency traders (HFT). Not all would regard the "equitisation" of the bond market (or foreign exchange market for that matter) as a good thing.[4]

The report recently released by the US authorities examining the "Flash Rally" in the US bond market on 15 October 2014 highlights some of the issues.[5] To remind you briefly what happened on that day. About an hour after a slightly weaker than expected US data release, 10-year US Treasury bond yields fell rapidly by 16 basis points in six minutes (that is the price went up, hence a flash rally) before reversing course and almost retracing that move over the next six minutes. If you had taken a well-timed coffee break over that 12 minutes, you would have been none the wiser that anything much had happened.

The report was not able to come to any conclusions about what caused this to occur, though investigations are ongoing. But it does provide information about the structure of US treasury market through that time, including the share of high-frequency firms, or proprietary trading firms (PTFs) as the report calls them, in the market. One interesting fact is that one firm had a relatively high share of both sides of the market, in part because a sizeable share of trades was being done with itself. That is, it was buying and selling US treasuries with itself. Another noteworthy fact is that the price adjustment was smooth throughout, there was no gapping in

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[3] See "Market-making and proprietary trading: industry trends, drivers and policy implications", CGFS report no. 52, November 2014, for a discussion and analysis of various liquidity metrics. Available at <http://www.bis.org/publ/cgfs52.htm>.

[4] Michael Lewis's 'Flash Boys' brought high-frequency trading in equities into popular discourse. For the role of HFTs in the foreign exchange market, see 'High-frequency trading in the foreign exchange market', Markets Committee Publications No 5, September 2011. Available at <http://www.bis.org/publ/mktc05.htm>.

[5] See Joint Staff Report: The U.S. Treasury Market on October 15, 2014. Available at <http://www.treasury.gov/press-center/press-releases/Documents/Joint_Staff_Report_Treasury_10–15–2015.pdf>.

prices. So this event does not fit neatly into the category of a liquidity event. There was no prolonged dislocation where the price gapped rapidly and stayed there, which is often what people have in mind when thinking about the consequences of lower liquidity. Nevertheless, the fact that such events can occur in arguably the most deep and liquid market in the world does mean that we need to understand what is going on here.

As well as the impact of technology, regulation has also had a significant effect. Regulatory changes have increased the cost to banks of intermediation, and hence liquidity provision, in many markets, and particularly the bond market. This has seen a number of participants withdraw completely and others scale back their activities. Bond desks at banks hold less inventory than they have done historically, given the increased cost of doing so. This contributes to less "depth of book" liquidity, though not necessarily less "top of book" liquidity.

The regulatory changes were intended to have this effect. Liquidity provision was under-priced previously and was over-supplied. Regulation has increased the cost of providing liquidity and hence decreased the quantity supplied. So the direction of change should not be the issue, rather the extent of the change should be the focus of debates about bond market liquidity. That is, has regulation increased the cost of liquidity provision too far with the result that liquidity in the bond market is now too low?

That is certainly a discussion worth having. But in the meantime, liquidity in the bond market today is what it is. It continues to evolve but it is not going back to what it was any time soon. So participants in the bond market need to adjust to the current situation rather than simply complain about it.

If transaction costs are higher, particularly for transacting in large size, then asset managers and other bond holders need to take account of that in the way they execute their transaction in the market. For example, as discussed above, one solution may be to execute more slowly in smaller parcel sizes. Execution certainly needs to be more nimble and considered than in the past.

But perhaps more importantly, the increased transaction costs in terms of liquidity and execution should also be taken into account in the way an asset manager constructs its portfolio. The differences in transaction costs across various classes need to be taken into account. If transaction costs are higher, then perhaps I should be transacting less. Do I really need to be selling? In some cases, I might not have much choice, because the need to transact may be driven by the mandate I have been given. But in that case, a discussion should at least be had with the provider of the mandate highlighting the higher transaction costs and the implications that has for the portfolio. Or maybe I need to transact because of redemption flows out of my fund. In that situation, I may need to think about holding a higher liquidity buffer than I did in the past.

If the cost of obtaining liquidity in the market from my bond portfolio is higher than it used to be, then I need to think about weighing that up against the cost of holding more liquidity on my own balance sheet to accomodate potential redemption flows.

Let me now turn to another concern that is often expressed around bond market liquidity, namely that, with the decline in intermediation by the banks, the likelihood of market dislocation is higher. This often comes up in discussions around the consequences of the Fed tightening monetary policy resulting in a large sell-off in bond markets. The "taper tantrum" of 2013 is often invoked as an example. This saw a rapid rise in bond yields in a number of emerging markets following indications that the Fed was going to wind down its quantitive easing program.

As I said last year, I think the issue is not so much one of a decline in liquidity as much as a decline in the capacity to warehouse risk. In the past, when there was a large sell-off in bond markets, liquidity was never that great. A bank has no more desire than any other investor to catch a falling knife. Bid-ask spreads widen considerably and the depth of book deteriorates. That has always been the case.

However, in addition to a decline in liquidity provision, banks now have less risk-warehousing capacity than they did in the past. They are less able to be nimble buyers of assets whose prices they believe have overshot. In the past, while the banks may have pulled back for a while as prices fell, they were generally among the first to step in and buy when they felt that the price had overshot. This is one important aspect of what I mean by warehousing or absorbing risk. As a result of regulatory changes as well as their own risk tolerances, they are less willing and able to do this today.

Many real money investors are not able to move so quickly to take advantage of overshooting prices. The degree of discretion is generally not as large. Mandates often impose the constraint of not straying too far from benchmarks, and it takes a long time to change mandates to respond to changes in market circumstances. Are there other participants in the market who are able to move so rapidly and agilely to perform that function today? I'm sure they exist but I'm not so sure that there are enough of them. I suspect we will soon find out.

If there is less capacity to do this, then prices will move by larger amounts and remain away from equilibrium values for longer. Volatility will be higher. In itself, this is not necessarily a bad thing. It is what it is. But with higher volatility, the distribution of price movements will have fatter tails. Overshooting will be more likely and that can have long-lasting and more deleterious consequences.

Given that, some have recommended that central banks step in and play the role of market-maker of last resort. Without debating the merits of that proposal today, it is worth pointing out that the term "market-maker of last resort" is misrepresenting the role being played here. A market-maker makes two-way prices, both buying and selling. In a dislocated market, with most of the trading one-way, the central bank would only be buying, it wouldn't be selling the asset to anyone else anytime soon. A more appropriate description is buyer of last resort, with the risk to the central bank's balance sheet that comes from performing that role.

Long-term yields

I will now talk a bit about an issue that is of direct relevance to actuaries. Is the government bond rate still the appropriate risk-free yield? Is it lower now than it used to be and will it stay there?

On the first question, in my opinion, the answer is still yes. Ultimately the risk-free yield should be something that approximates the growth rate of the economy. On that basis, the government bond yield is still doing a pretty good job. Yes, policy actions in some of the major economies might have pushed the yield lower than it might otherwise have been. But those policy actions reflect the growth circumstance in which we find ourselves. In Australia, partly as a result of those policy actions, we have seen foreign holdings of Australian government securities increase to over 75 per cent at its peak, though it's a bit lower than that now. Again, I don't see these purchases as distorting the Australian government bond yield, but rather reflecting the reality of the world we live in.

So with government bond yields around historical lows in recent years, should that be reflected in the discount rates used in actuarial calculations? How long is this period of low rates going to last? I'm not going to answer the question directly. But again it's useful to think of it in terms of economic growth rates. Secular stagnation is often put forward as a reason why growth rates will be lower than they used to be. There are various theories of secular stagnation around, but a number of them boil down to the proposition that the rate of innovation and technological progress will be lower now and in the future than it has been in the past. Personally I find that very defeatist, and ultimately speculative. We simply don't know what the future will bring. There have been quite a number of times in the past where such a claim has been made which has subsequently been proven wrong. Maybe it's right this time, but I don't see any reason to give up yet.

In Australia, one factor which does have a significant influence on real growth rates is the rate of population growth. That has slowed in Australia of late, which means there are some grounds to believe that the medium-term growth rate of the economy has slowed, in which case discount rates should probably be lower. But the orders of magnitude we are talking about are pretty small, of the order of a quarter of a per cent. That is well within the range of error around our knowledge of the longer term growth rate of the economy. That said, I realise a quarter of a percentage point can matter a lot actuarially when compounded over a number of years.

So to sum up, I continue to believe the government bond yield is the best measure of the risk-free yield in the economy. There are some reasons to believe that is now structurally lower than it used to be, but I find the proposition that the future rate of technological progress will be lower too pessimistic.

China's exchange rate

I will just say a few words about the recent developments in China's exchange rate, picking up on some of the points highlighted in the RBA Board minutes released yesterday, as well as my colleague Phil Lowe's speech last week.[6]

As you probably know, the Chinese authorities made a notable change to their foreign exchange rate regime on 11th August. On that day, the Chinese authorities moved the exchange rate regime further along the path to a more market-determined rate, a development which should be welcomed. The initial effect was for the Chinese exchange rate to depreciate by around 4½ per cent. This is not all that big in the general scheme of exchange rate moves (though it generated a very large amount of commentary). Moreover it comes in the context of a more than 15 per cent appreciation of China's exchange rate in trade-weighted terms over the past year as the RMB moved up in lock-step with the US dollar. I want to focus here on one aspect of the change in the regime.

As part of their efforts to limit the appreciation of the RMB over more than a decade, the Chinese authorities had accumulated US$ 4 trillion in foreign exchange reserves. This occurred in an environment of a sizeable current account surplus combined with significant flows of capital into China as well as stringent restrictions on the ability of Chinese citizens to invest abroad. However, that environment has changed, China still runs a current account surplus, though it is smaller than it was a few years back. Most importantly, China is now experiencing sizeable capital outflows as the easing of restrictions on capital flows has allowed Chinese citizens to invest abroad.

As a result, the Chinese authorities have of late, in the face of these capital outflows, been intervening to hold up their exchange rate, rather than hold it down. Consequently, China's foreign exchange reserves have declined by around half a trillion US dollars. We don't know what the Chinese are selling because we don't know the composition of their reserve holdings. But it probably involves some US treasuries and other sovereign bonds. Nor do we know what assets the private capital outflow from China is buying. But they are both huge orders of magnitude are most certainly having a first order influence on financial markets.

One can regard the Chinese reserve accumulation as reflecting the accumulation of foreign assets by the state on behalf of the private sector who couldn't invest abroad. Now the private sector can invest, there will be a switch as they accumulate assets while the public sector sells down its holdings. That is, a fair part of what is going at the moment is a shift in *who* is holding foreign assets in China, not necessarily a large change in the total quantity of

[6] "International and Domestic Adjustment", speech by Philip Lowe at a Committee for Economic Development of Australia (CEDA) event, Melbourne, 9 September 2015.

foreign assets being held by China. What matters for global financial markets is the difference in portfolio allocation between the public and private sector in China.

Conclusion

I have talked about three topical issues in financial markets today: bond market liquidity, long-term yields and China's exchange rate. All three issues are important to financial markets in Australia. They are currently quite interrelated, with the rundown in China's foreign exchange reserves probably in part comprising sales of US treasuries and other sovereign bonds, because of their greater liquidity, thereby affecting global long-term yields. We are seeing an unusual situation where a risk-off environment is associated with sales of the risk-free assets by a large market participant, rather than purchases.

On bond market liquidity, the decline in liquidity is, in part, a desired outcome of regulation. Whether it has fallen too far can be debated. But the situation isn't going to change any time soon. Market participants have to adjust their behaviour to deal with the current state of affairs. They have to consider carefully how their execution strategies will function in an environment of lower liquidity and they may also need to adjust the construction of their portfolios accordingly.

Whether the changed market environment is more conducive to temporary flash crashes or permanent dislocations remains to be seen. The latter is of significantly greater concern than the former, which can be avoided by a well-timed coffee break.

All three of these issues are going to be with us for a while to come. So it is important we adjust to the current environment rather than wish it was something else.