

Market Making in Bond Markets

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In November 2014, the Committee on the Global Financial System (CGFS) published a report on developments in market making and proprietary trading in fixed income and related derivative markets (CGFS 2014). The aim of the report was to facilitate a better understanding of how ongoing changes in these activities may affect liquidity in markets and to assess whether these changes are driven by market or regulatory forces. The report found that there have been changes in liquidity conditions across markets, including in Australia, with market activity becoming more concentrated in the most liquid instruments and declining in less liquid ones. These changes in market-making activity have been driven by both market-based developments and regulatory change. To the extent that liquidity risks were underpriced in the period prior to the global financial crisis, many of the subsequent changes in market structure and the increase in liquidity premiums are welcome. However, with the changes still ongoing, bond issuers and investors will be likely to have to make further adjustments to the way in which they operate in fixed income markets and manage liquidity risks.

Introduction

Market makers are providers of liquidity in financial markets, serving as the intermediary to facilitate transactions between buyers and sellers. In performing this role, they contribute to the efficient functioning of financial markets, which is critical for the allocation of capital in the economy. Changes in liquidity conditions in these markets can have implications for the transmission of monetary policy and financial stability.

The CGFS report on market making and proprietary trading provides a framework for understanding the role of market makers as liquidity providers in fixed income markets (CGFS 2014). The report outlines the trends and drivers of changes in the supply of, and demand for, market-making services and the implications of these changes for the functioning of markets. It draws on information

from all major financial markets, and was informed as well by interviews and an informal survey of market participants. This article summarises the main observations highlighted in CGFS (2014) and provides an Australian perspective.

Market Makers in Bond Markets

Most bond trading takes place in over-the-counter (OTC) markets rather than on exchanges. One of the main reasons for this is that the large number of different bonds issued means that there is only a small chance of finding matching orders to buy or sell a particular security, unlike equity or currency markets where products are more standardised. The role of matching demand and supply orders is performed by market makers – typically the fixed income units of banks and securities trading firms. These firms fill orders either by finding matching orders or by acquiring the position themselves. If they do the former they are acting like an agent or broker, whereas if they assume the position, they are

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committing their own capital and taking on risk for which they expect to earn an appropriate return.¹

Most countries have regulations defining market making.² A core element of these definitions is that market makers simultaneously quote prices at which they are prepared to buy and sell securities (i.e. two-way prices) on a regular basis. There are often more detailed contractual arrangements between market makers and trading venues or issuers. Some countries (although not Australia) restrict access to central government debt issuance markets (primary markets) to primary dealers (PDs). PDs must meet specific requirements, which include making markets in these securities. In return, PDs have preferential access to debt auctions and other debt management operations. This arrangement typically results in market makers competing strongly in secondary markets, and in some cases these operations can be loss making. Other issuers may have similar but less formal arrangements with market makers in order to ensure that there is a sufficiently active secondary market. However, smaller issuers, such as most corporations, are generally more concerned with ensuring that they can issue in the primary market and typically do not make arrangements to promote secondary market liquidity.

An operating model

There are a number of requirements to be a market maker in a bond market including: capital and other types of funding; an appropriate risk management framework, which, among other things, details the amount of risk that a market-making desk can assume; access to hedging instruments; expertise in quoting prices and managing financial risks in all market conditions; and a sufficiently large client base. The market maker's interaction with the various internal units and the market more generally

is illustrated in Figure 1. A market maker generates income from facilitating transactions and earning revenue on the inventory of securities it holds.

Facilitation revenues are based on the difference between the price at which a market maker is prepared to buy a security and the price at which they are prepared to sell that security (the bid-ask spread), net of the cost of transacting. Transaction costs include trading fees (such as broker fees, custodial fees and clearing costs) and funding, hedging and capital costs. A market maker's bid-ask spread will be narrower, and quoted volumes larger, in markets where they can offset the position quickly with a high degree of certainty and if funding costs are low. During times of heightened volatility, the risk of a given position increases and market makers tend to quote wider spreads, or smaller quantities, in order to reflect this. A market maker's bid-ask spread may also change in response to shifts in underlying factors, such as market conditions in funding or hedging markets, internal governance arrangements, capital costs, and their client base. Regulation and compliance costs will also have an influence on these factors.

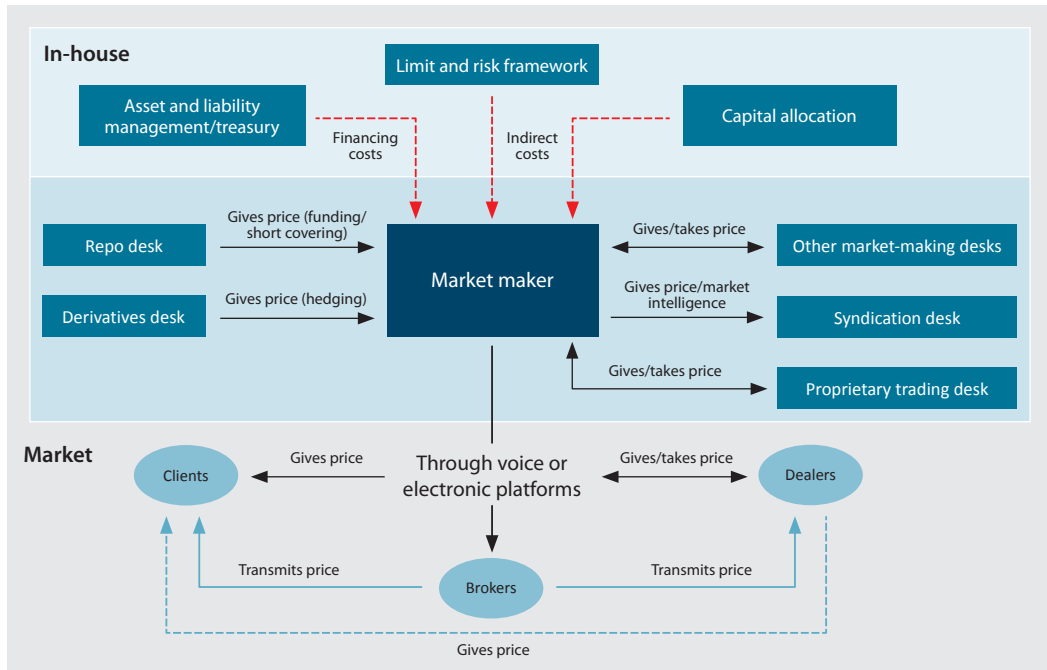
Revenue generated by holding inventory results from changes in the value of a position, reflecting movements in the market price of the warehoused asset as well as accrued interest. This revenue is offset by the cost of holding a position in a security, including funding costs such as the cost of borrowing or lending a security in a repurchase agreement and costs associated with hedging risks in derivative markets.

In the past, many global banks ran large internal proprietary trading teams that were closely tied to market-making teams. Market making and proprietary trading activities may be distinguished by their different objectives. Market making is based around providing a service to customers (for a fee) and the importance of the client relationship. This means that intermediaries continue to provide market-making services in less profitable markets or conditions. In contrast, the objective of proprietary

1 Typically, market makers look to hedge most of the credit and market risks from the positions acquired. Acquired positions may also partially or fully offset another position on their books.

2 In Australia, a market maker is defined in the *Corporations Act 2001*. For other countries, see Appendix 2 in the CGFS report (CGFS 2014).

Figure 1: Market Making – Internal and External Linkages



Source: CGFS (2014)

trading activities is to make profits for the firm’s own account. As such, they do not need to protect a client relationship and are more likely to withdraw from markets if conditions are unlikely to deliver a profit to them. Despite this distinction, the two activities may appear fairly similar including in their risk profiles, particularly in less liquid markets where market makers may hold positions for an extended period of time.

Trends in Market Liquidity and Market Making

The CGFS report presented analysis of recent developments in market liquidity and the demand for, and supply of, market-making services based on a variety of metrics and feedback from market participants.³

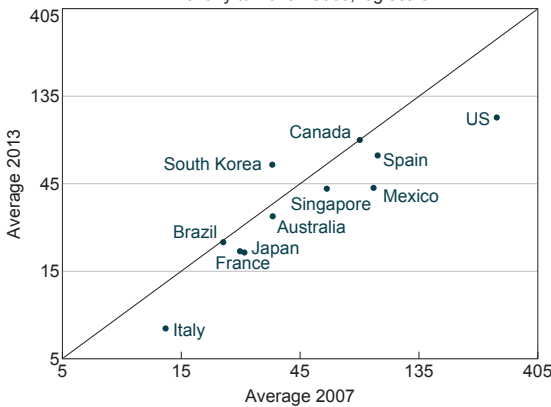
³ The CGFS report looked at a selection of market liquidity measures including bid-ask spreads, trade and quote sizes, market depth, yield spreads, price impact coefficients and turnover ratios (CGFS 2014). Dealer data included measures of gross and net positions, leverage and capital ratios, and value-at-risk limits.

Market liquidity

The analysis confirms a picture of lower market liquidity in many bond markets during crisis periods in the United States and Europe, followed by a recovery. This is evident in many of the measures of market liquidity, including turnover ratios and bid-ask spreads. Liquidity in sovereign bond markets, as measured by turnover ratios, has now generally recovered to the levels seen prior to the global financial crisis (Graph 1), unlike liquidity in many corporate bond markets (Graph 2). Of note, the US corporate bond market, which is the largest in the world, has seen a marked decline in its turnover ratio. Feedback from many market participants emphasised a general theme of market activity becoming more concentrated in more liquid instruments and deteriorating in less liquid instruments.

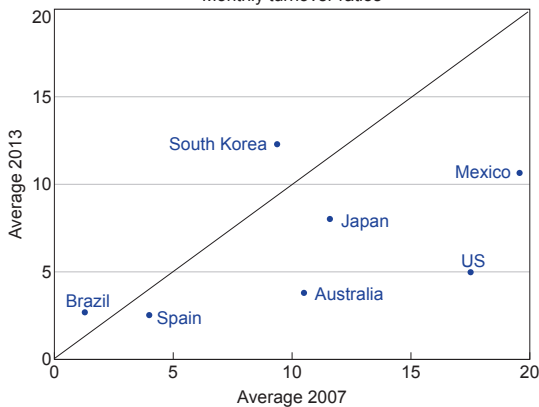
Developments in Australian markets have been consistent with this picture, with liquidity in the Commonwealth Government securities (CGS)

Graph 1
Sovereign Bond Market*
Monthly turnover ratios, log scale



* Turnover ratios are calculated by dividing the monthly aggregate trading volume by the amount of outstanding issues; yearly average of monthly ratios; the diagonal black line represents the bisecting line
Source: CGFS members

Graph 2
Corporate Bond Market*
Monthly turnover ratios



* Turnover ratios are calculated by dividing the monthly aggregate trading volume by the amount of outstanding issues; yearly average of monthly ratios; the diagonal black line represents the bisecting line
Source: CGFS members

market recovering more strongly after the peak of the financial crisis than activity in the semi-government or corporate bond markets.⁴ Local dealers report that the CGS market remains highly competitive in comparison to semi-government and corporate securities markets, where liquidity has generally deteriorated. While there are several reasons

for this, some market makers indicate that the securities markets receiving lower levels of support from market makers are those with a relatively undiversified or concentrated investor base.⁵

In derivative markets, market makers in Australia suggest that activity has been increasing in instruments that are centrally cleared, and falling in many bilateral derivative markets that face higher capital charges and margin requirements. A comparison of activity in interest rate swaps markets (which have been moving to centrally cleared solutions) with cross-currency swap markets (which remain bilateral) is consistent with this, with turnover in interest rate swaps above pre-crisis levels and turnover in cross-currency swaps slightly below. The cross-currency swap market is particularly important for the Australian financial system and the Reserve Bank continues to monitor developments in this market (see Arsov *et al* (2013)).

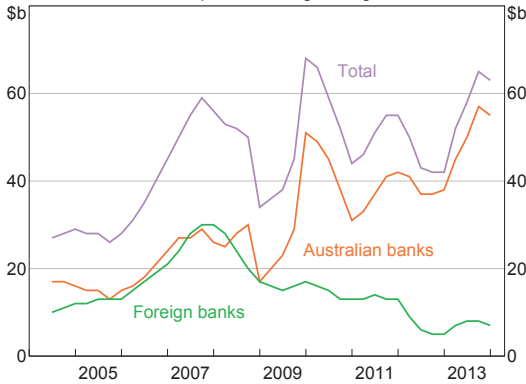
Supply-side developments

Market makers in many developed markets have changed their business models in the past few years, effectively reducing the supply of market-making services. This reduction is reflected in some metrics, including estimates of dealer inventories and warehoused risk positions. These show a steep decline in inventories held by US and European banks in the crisis years. Inventories remain below their pre-crisis levels, in part because of the closure of several proprietary trading desks. In contrast, there has been strong growth in inventory levels held by emerging market banks. In Australia, an estimate of the aggregate level of inventories has been broadly steady over this period, although there has been a fall in the level of corporate bond inventories and in the share held by foreign institutions (Graph 3). While some foreign market makers have scaled back operations in some Australian markets, other foreign and local participants have seen this as an opportunity to expand.

4 See Lien and Zurawski (2012) for a discussion of developments in the bond futures market.

5 See Debelle (2014) for a discussion of developments in the investor base of the Australian bond market.

Graph 3
Net Debt Trading Securities*
 Four-quarter moving average



* RBA estimates
 Sources: APRA; RBA

Feedback from market participants provides more detail on how market makers have changed their business models. These changes have seen market makers allocate less capital, risk and balance sheet capacity to market-making activities. Market makers have focused their activities in core, often domestic, markets and in less capital-intensive markets. Many are also tiering the level of service they offer across clients to better reflect the cost of resources allocated to the client. This has required a more granular assessment of the value of a transaction, often on a per trade per client basis. Many participants are also less willing to hold large inventory positions, particularly in illiquid securities or derivatives. Market makers are turning over their inventory more rapidly and operating more brokerage and order-driven business models. This will be likely to result in dealers earning less from inventory revenues than they have in the past.

One feature of this change highlighted by many Australian market makers is that the liquidity offered by a market maker is now more dependent on its client base than its risk warehousing capacity. As a result, there has been a general move by market makers to broaden their client bases and enhance their connectivity. This has contributed to growth in the use of electronic trading platforms in many bond markets, although overall use of these

platforms remains low compared with foreign exchange and equity markets. Part of the reason is that the electronic platforms are only used for a limited range of standardised and smaller-sized transactions. However, multi-dealer electronic trading platforms generally improve price transparency and competition by allowing market participants to access pools of liquidity. This competition can lower the cost of transacting in a security. Furthermore, the move toward greater electronic trading enables market makers to lower the cost of providing their services, potentially offsetting the need to earn greater returns through, for instance, wider bid-ask spreads.

Demand-side developments

In contrast to the fall in supply of market-making services, the demand for such services appears to have been rising. This is particularly evident in countries where there has been a rapid expansion in the size of their government and non-government bond markets, and is the case in Australia. Globally, much of the increased issuance has been absorbed by investment funds, which offer investors daily liquidity and depend to at least some degree on market liquidity to fulfil this commitment. The CGFS report also highlighted that the increasing concentration of global bond market assets under management would bring greater sensitivity of market liquidity conditions to investment decisions of these market players (CGFS 2014).

Some asset managers have reduced their demand for market-making services by adopting more medium-term portfolio management strategies that require less turnover. These strategies include adjusting their portfolio composition to reflect changing liquidity risks, becoming more opportunistic in the timing of trades and seeking to facilitate trades by leveraging inventory data provided by market makers. Furthermore, longer-term investors, such as pension funds and life insurers, remain well positioned in many markets to mitigate the effects of reduced market-making capacity. This reflects the fact that increased volatility may provide these investors with more

opportunities to take advantage of mispriced deals. However, it is likely that not all asset managers have adjusted their portfolio allocations or modified their internal liquidity risk management strategies to take account of the reduced market liquidity and changing market structure.

Market and Regulatory Drivers of Change in Market Making

The financial crisis revealed that liquidity risks had been underpriced. Also, funding models for many market makers proved vulnerable to changes in market liquidity conditions and capital requirements for many trading activities were insufficient to absorb losses. The next section discusses how the change in supply of market-making services reflects the reaction of market makers to developments in markets and new regulatory standards.

Market drivers

According to feedback from market participants, a reassessment of the risk-return trade-off as a result of market turbulence during the financial crisis has been a key driver of the decline in the provision of market-making services. This reassessment of risk has seen dealers seek higher returns from operating in some markets, reflecting increased funding costs and a desire to earn a higher and more stable return on equity. The focus on generating an appropriate return has come from shareholders, creditors and internal management. Where returns are insufficient to compensate for the risk incurred, banks have scaled back their activity.

One of the key ways in which market forces weighed on market-making capacity was through a rise in funding costs. This rise contributed to a weakening in the relationship between many derivative and physical markets and a deterioration in the effectiveness of hedging strategies. This led many banks to reassess the size of the positions they could hold. For instance, market makers continue to show a greater reluctance to sell bonds that are difficult or costly to source, such as those issued by

supranationals and corporations. Another constraint on market makers' capacity to operate is their ability to hedge or net off positions through other markets. The decline in liquidity in some derivatives markets, and certain credit default swap (CDS) markets in particular, affected the ability of dealers to redistribute risks, further increasing the cost of warehousing positions.

For some banks, the reassessment of risk has resulted in an overall reduction in risk tolerance through tighter risk limits. This is likely to have been the case for some European and US banks, including their operations in Australia. These institutions have scaled back their operations through smaller capital and balance sheet allocations, tighter and more binding value-at-risk (VaR)⁶ limits and increased charges for holding inventory. However, even for banks that have not reduced risk limits, the focus on generating an appropriate return from market-making activities has seen their tolerance for warehousing risk reduced if a return hurdle is not achieved. As indicated above, many banks are focusing on assessing the return from each trade or from each customer to ensure a market-making business is generating an appropriate return on equity. The data on bid-ask spreads show that market makers have generally been unable to generate wider spreads (at least for small volumes), and instead have reduced or rationed levels of activity (see CGFS (2014, Section 3.1)).

Regulation

Just as banks have adjusted their exposures to market risks through their market-making businesses, regulators have initiated a range of reforms to improve the robustness of the financial system. Table 1 outlines how various regulations are likely to affect market-making activities, based on information gathered from feedback with market participants.

⁶ Value at risk (VaR) is a measure of the level of risk that is tolerated and can be expressed at a firm or trading desk level. If a trading bank has a VaR limit of \$1 million with a confidence level of 5 per cent then it expects to lose \$1 million or more once every 20 days.

Table 1: International Market Participants' Feedback on the Impact of Regulatory Reforms^(a)

Area	Regulation	Impact on P&L ^(b)	Potential impact on market making
Solvency	Basel 2.5 market risk framework	Capital costs	Reduction in banks' inventories, in particular for traded credit instruments (e.g. corporate bonds, bespoke credit derivatives).
	Basel III and global systemically important banks capital regulation	Capital costs	Decline in banks' inventories, particularly for assets with high risk weights and limited hedging/netting options.
	Basel III, Leverage Ratio (LR)	Capital costs	Reduction in low-margin/high-volume business, such as market making in highly rated sovereign bonds and repo. Shift towards riskier activities or businesses exempted from LR exposure measure (e.g. central counterparty).
Liquidity	Basel III, Liquidity Coverage Ratio	Funding costs	Reallocation of inventory in favour of eligible high-quality liquid assets at the expense of non-eligible assets.
	Basel III, Net Stable Funding Ratio	Funding costs	Rise in the relative cost of short-term funding reduces the incentive to trade in securities and derivatives.
OTC derivatives reform	Central clearing of standardised derivatives	Clearing costs, other fixed costs (e.g. central counterparty membership fees, compliance)	Shift in market-making activity from non- to centrally cleared derivatives as well as from OTC to exchange-traded derivatives, reinforcing liquidity bifurcation.
	Margin requirements	Capital and hedging costs	Decline in inventories given higher cost of hedging. Reduced market making in derivatives, in particular for non-centrally cleared instruments.
	Market transparency ^(c)	Pricing, compliance costs	Reduction in market making in less liquid instruments if firm quotes need to be made available to multiple parties (pre-trade) and large transactions require timely disclosure (post-trade).
Structural reforms	Prohibition of proprietary trading (e.g. US Volcker rule)	Compliance costs	Impact on desks where banks see risks of failing to prove near-term client demand for market-making activities.
	Separation of banking activities (e.g. EU, UK, US)	Capital and funding costs	Withdrawal from less profitable market-making activities due to rise in cost of doing business at the unconsolidated entity level.
	Short-selling restrictions on government debt and CDS (EU)	Hedging costs	Decline in inventory as hedging costs rise; potentially mitigated by exemptions for market makers.
Taxation	Financial Transactions Tax (e.g. part of EU)	Facilitation revenue	Cascading effect of taxation risks depressing trading volumes in low-margin market-making transactions.

(a) Summary of feedback from interviews conducted with the private sector

(b) Only lists the regulation's expected primary impact on market makers' profit and loss statement – that is, does not account for changes in general cost factors (e.g. compliance, IT infrastructure investment) or feedback effects (e.g. reduced leverage could lower banks' funding costs by reducing the risk of default)

(c) These include US rules for swap execution facilities and EU rules for markets in financial instruments

Source: CGFS (2014)

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Participants in the CGFS survey were also asked about the impact of the regulatory reforms on their overall profit from market-making activities, inventory levels, facilitation activities and hedging activities. The survey indicated an expectation that there would be a moderate decline in overall market-making activity as a result of regulations.

There was significant variation in responses across countries and markets. The impact of regulations on market makers in developed markets was expected to be larger than on those in emerging markets. In Australia, the impact appears to lie in between these two groups. This may reflect the fact that Australian banks do not have large trading operations in comparison to some US and European banks, so there is less scope for them to be affected. On the other hand, a significant proportion of market-making services in Australia are supplied by foreign banks, which have faced greater pressures from some regulations. Furthermore, Australian financial markets are more integrated into global capital markets than many emerging markets, meaning that changes in conditions in overseas markets are more likely to be transmitted into domestic markets.

The responses to the CGFS survey are summarised below.

- **Leverage ratio:** Survey respondents indicated that the leverage ratio, which limits the build-up of excessive leverage in the banking system, would have the largest impact on their fixed income business. This was also true in Australia, although the size of the impact was expected to be much smaller with Australian banks indicating that the impact would be moderate whereas some foreign banks with operations in Australia indicated that the impact on them would be significant.
- **Capital requirements:** More stringent capital requirements were seen as having a moderate impact on market-making activity overall but with a more pronounced impact on inventory levels of more risky assets and derivatives. A similar impact is expected in Australia and this is

consistent with the reduction in inventory levels of riskier securities such as corporate bonds and some derivatives.

- **OTC derivatives reforms:** Mandatory clearing of standardised OTC derivatives was expected to have a limited impact on market-making activity. Some banks indicated that these reforms would have a mildly positive effect on facilitation and hedging activities because banks faced reduced costs from operating in these markets. Regulations on margin requirements for non-centrally cleared derivatives were expected to have a moderately negative impact on overall market-making activity and have caused some pricing fragmentation.
- **Liquidity regulations:** The impact of these regulations is seen to be modest for most banks, although more complicated in Australia due to the limited supply of high-quality liquid assets (HQLA) and the introduction of a committed liquidity facility. Banks noted that the effect of these regulations was for banks to hold higher levels of HQLA in their home jurisdictions.
- **Proprietary trading:** Whereas around half of global respondents indicated a moderate impact on market-making activity from regulations restricting proprietary trading, Australian banks indicated that there would be very little impact. Since the financial crisis, some regulatory effort has gone into distinguishing market making from proprietary trading in order to limit the amount of proprietary trading undertaken by banks. Large proprietary trading desks have not been a feature of the Australian dealer market for some time, with a few ceasing operations in the past few years.

Participants were also asked to indicate how much progress they had made in adjusting their market-making business to the various regulatory reforms. Reflecting the different pace at which regulatory reforms are being implemented in different jurisdictions and differences in the amount of adjustment required by banks across jurisdictions, there is some variation in the progress Australian

banks have made compared with that of overseas banks. For instance, liquidity coverage ratio arrangements came into effect on 1 January 2015 in Australia, ahead of the United Kingdom, United States and many European countries, although some banks in these jurisdictions are also already compliant. Fewer banks globally and in Australia have fully adjusted their businesses to the leverage ratio, which banks are required to disclose this year but only fully comply with from 2018. However, some global banks have made significant adjustments in order to comply with this measure by the disclosure date whereas most Australian banks indicated that less adjustment was necessary. Meanwhile, most banks have made progress in adjusting to the new risk-weighted capital requirements and proprietary trading rules, and at least some progress in moving to mandatory clearing arrangements. Most global and Australian banks indicated that there is more work to do to adjust to the rules on margin requirements. Overall, this indicates that there may be further effects on market-making businesses from the new regulations.

Market Implications

Cost of transacting and issuing debt

A steady increase in demand for market-making services and flat or falling supply could cause both trading costs to rise and market liquidity to fall. The evidence compiled in the CGFS report suggests that there has not been a widespread increase in the cost of trading, although there have been at least some changes in market liquidity across instruments (CGFS 2014). It is likely that there has been an increase in the time taken to trade large amounts, particularly in less liquid instruments. There has also been some rationing in the supply of market making across customers. In some markets, the rise in trading costs has been constrained by the level of competition among market makers and lower operating costs that have been achieved through rationalisation of business models and greater use

of electronic platforms. In Australia, for instance, CGS and centrally cleared derivatives markets have remained more competitive than some other bond and non-centrally cleared derivatives markets. Unlike the CGS market, where market-making capacity lost through the withdrawal of some players has been replaced by the entry or expansion of others, the corporate bond market has seen an overall decline in market-making capacity and an increase in transaction costs. The CGFS report also notes that the current stance of monetary policy in some jurisdictions is contributing to compressed liquidity premiums and is likely to be delaying some of the adjustments that could be made (CGFS 2014). As such, greater trading costs may only be revealed as monetary policy is normalised in some countries.

Higher liquidity costs could result in bond issuers, particularly corporate issuers, paying a higher liquidity premium at issuance. In Australia, credit spreads have compressed sharply over the past few years (though they remain above pre-crisis levels), mainly reflecting the repricing of credit and liquidity risk. In response, corporate issuers could structure issuance to enhance the liquidity of their securities by, for example, reopening lines of issuance rather than creating bespoke (i.e. non-standardised) securities to limit the number of distinct securities. They could also standardise maturity dates to align them with derivative expiry dates (though this could accentuate cash flow mismatches for the issuer). However, there is little evidence that corporate issuers have made any significant adjustments beyond making greater efforts to sell securities to 'buy-and-hold' investors that do not value secondary market liquidity.

Market robustness

A likely implication of a reduction in the supply of market-making services is that many markets are less liquid and more volatile, on average. To the extent that market liquidity was previously oversupplied and incorrectly priced, this is a desirable outcome. Furthermore, while both market and regulatory

forces have driven change, it was the intention of many regulations to reduce the risk of systemic stress by limiting the extent to which banks could be a source of contagion in markets. That is, in order for the markets to be more robust many banks need to play a different role.

While these developments should decrease the likelihood that banks will be a source of contagion in times of stress, it also means that banks are less likely to cushion large order imbalances that may cause market volatility.⁷ The role of absorbing these imbalances may therefore be taken on by other market participants. In effect, therefore, limits on the amount of risk that banks can or are willing to absorb has resulted in a transfer of liquidity and market risks to investors. Nevertheless, many of these investors are better placed to manage these risks because they are less sensitive to short-term price movements than banks.

That said, many markets and market participants are still adapting to the structural changes. For instance, the CGFS report noted that there is little overall evidence that asset managers and other institutional investors have raised their liquidity buffers or altered the redemption terms of their funds to better reflect their liquidity risks (CGFS 2014). A consequence of this is that funds that rely heavily on market liquidity (such as those that make explicit or implicit promises of daily liquidity) may contribute to a stressed market sell-off, rather than dampen it. The CGFS report also outlined other factors that could increase the probability of an order imbalance, including:

- the compression of liquidity premiums to very low levels in many markets, comparable to those prevailing prior to the crisis and insufficient to compensate for the risks
- a reduction in the diversification of bondholders through an increase in the market share of large

⁷ Analysis of dealer positioning and market liquidity in times of stress revealed that US dealers contributed to the bond market sell-off in May 2013 through a reduction in inventories. The analysis concluded that the reduction in inventories was caused by internal risk preferences, not regulatory constraints.

asset managers and greater correlation among investment strategies

- the increased concentration (and therefore less diversification) in the supply of market-making services in many markets.

Ongoing Developments

In emphasising that the markets are still undergoing a process of change, the CGFS report outlined a number of initiatives that should support more robust market liquidity conditions. Initiatives that market participants or industry bodies could adopt (supported by the relevant authorities) include:

- improving the transparency and monitoring of market-making capacity and market liquidity with a view to keeping track of the impact of regulatory and other structural changes
- improving liquidity risk management by other market participants such as managed and pension funds, and financial and non-financial corporations to ensure that their risk management frameworks account for the transfer of liquidity risk
- supporting the robustness of hedging and funding markets through, for example, the use of central counterparties or tri-party repo
- ensuring that market makers are resilient and can withstand stressed market conditions, and that capacity is not overly concentrated
- improving market-making arrangements by expanding incentive schemes for market makers and through greater standardisation of debt securities by less frequent non-sovereign issuers.

One of the most important issues for Australia is the transfer of liquidity risk from market makers to other investors. This is likely to result in increased volatility, although the current stance of monetary policy in major regions may be dampening this change. Nevertheless, liquidity risk management presents an ongoing challenge for market participants, particularly for managed and superannuation funds.

Another issue of importance for Australia is the cost of transacting in and access to non-centrally cleared derivatives markets, such as the cross-currency swap market. This has important implications for the financial and non-financial sectors that seek to hedge risks using these instruments. One element of controlling the costs of transacting in these instruments and improving market liquidity may be finding a centrally cleared solution for them. Work on this front is ongoing (see CFR (2014)). ❖

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