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OTC DERIVATIVES IN A POST-GFC WORLD: *Australia's commitment to the G20*

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With the over-the-counter (OTC) derivatives market being identified as a key contributor to risk in the global financial crisis (GFC), this paper explores the implications of the regulatory response for the Australian OTC derivatives market. It highlights that the benefits of the proposed new institutional framework need to be considered relative to their potential costs. An earlier version of this paper was presented to the 2012 Australian Centre for Financial Studies' Melbourne Money and Finance Conference.¹

Trading in over-the-counter (OTC) derivatives markets² exceeds derivatives trading on organised exchanges, and is concentrated in interest rate, foreign exchange, commodity and credit derivatives. The market offers customised (or bespoke) contracts which are negotiated privately and are traded directly between counterparties. Because OTC derivatives are not traded on an exchange, the parties to a contract are subject to bilateral counterparty risk. Historically, this market has been largely unregulated with respect to disclosure of information between the parties, since it is primarily made up of banks and other highly sophisticated financial institutions. Because trades occur in private, there is low visibility of trades executed.

One of the consequences of the GFC has been a sharply increased focus on regulating OTC derivative markets. The lack of adequate information on OTC derivatives exposures is widely seen as having exacerbated a number of corporate distress situations; highlighting shortcomings in the functioning of the global OTC derivatives market and bringing it to the forefront of regulatory attention. Key areas of increased regulatory focus have included:

- > the need for improved trade transparency for regulators and market participants;
- > counterparty credit risk mitigation by moving towards centralised counterparty clearing for OTC derivatives; and
- > the need for improvements in operational risk management in the execution, management and reporting of OTC trades.

In April 2008, in response to a request from G7 Ministers and central bank governors, the Financial Stability Forum (FSF)³ undertook an analysis of the causes and weaknesses that had produced the turmoil

and set out recommendations for increasing the resilience of markets and institutions. In relation to OTC derivative markets, the FSF recommended:

Authorities will encourage market participants to act promptly to ensure that the settlement, legal and operational infrastructure for over-the-counter derivatives is sound.

The regulatory response to the GFC by Australian financial market regulators has occurred within a framework of, and with regard to, the activities of international regulatory bodies such as the Bank for International Settlements, the Financial Stability Board, the International Accounting Standards Board and national financial market regulators in G20 member countries. This reflects the fact that to avoid regulatory arbitrage and possible creation of systemic risk it is necessary that regulatory reform involves some degree of consistency across markets and national boundaries.

Australian OTC derivatives regulatory response

At the Pittsburgh G20 summit in September 2009, Australia along with all other G20 countries made the following commitment:⁴

All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central clearing counterparties by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories. Non-centrally cleared contracts should be subject to higher capital requirements.

This commitment was reaffirmed at the Toronto G20 summit in June 2010 where the G20 countries strengthened their commitment as follows:

We agreed to strengthen financial market infrastructure by accelerating the implementation of strong measures to improve transparency and regulatory oversight of ... over-the-counter derivatives in an internationally consistent and non-discriminatory way.

The G20's commitment was further reaffirmed⁵ at the Cannes G20 summit⁶ in November 2011, when data and regulatory framework requirements for trade repositories and the treatment of margining for non-CCP contracts were added to the G20 members' commitment. In summary, the key areas of emphasis identified by the G20 were in relation to:

- > market transparency of OTC derivative transactions;
- > central counterparty (CCP) clearing;^{7,8}
- > capital and margining requirements for non-CCP derivative contracts;
- > standardisation of contracts; and
- > exchange and electronic platform trading of OTC derivative contracts.

Given that the Australian market represents only 2 per cent of the global notional value of OTC derivatives, it is not surprising that to date Australian regulators' response to the 2009 Pittsburgh G20 commitments has been cautiously protracted. This is because regulatory outcomes in Australia also need to consider regulatory responses being implemented in the United States, Europe and other G20 member countries,⁹ as well as continuing considerations being reported by the Financial Stability Board, Basel Committee on Banking Supervision and other regulatory bodies.

In response to the GFC, and as part of Australia's G20 commitments, Australia's financial regulators have been consulting with stakeholders and have issued several reports¹⁰ covering the following issues:

- > reporting of trades in prescribed derivatives to eligible trade data repositories;
- > clearing of trades in prescribed derivatives through eligible CCPs;
- > the treatment of non-CCP contracts; and
- > execution of trades in prescribed derivatives on eligible trading platforms.

The latest report¹¹ recommended that:

- > The government consider a broad-based mandatory trade reporting obligation for OTC derivatives.
- > Mandatory clearing obligations through CCPs for Australian dollar-dominated interest rate derivatives not be required at this time. However, should substantial industry progress towards central clearing in this class of derivatives not be evident in the near future, the regulators should revisit

this recommendation. It is generally considered that the size and cross border nature of the Australian OTC market might pose a challenge to the success of any domestic regulatory incentive. This recommendation requires the government to adopt a 'wait and see' approach to allow market participants to voluntarily migrate to central clearing, with a view to reconsidering the need for mandating central clearing, at least for A\$ interest rate derivatives, if the migration does not happen soon enough.

- > Improvements should occur in relation to the use of adequate credit support arrangements for all OTC derivative transactions. Collateralisation practices should be improved to facilitate daily collateralisation of exposures using amounts of collateral in excess of the daily mark-to-market amount of derivative transactions and in relation to enhanced trade compression and portfolio reconciliation practices. These recommendations directly impact on those transactions that are not subject to central clearing and are currently either managed via bilateral ISDA Master Agreements and the use of ISDA Credit Support Annexes (CSA).
- > No recommendations be made in relation to the trade execution obligations until further research is conducted to clearly identify the benefits of mandating all trades to be exchange traded.

Implications of Australia's G20 commitment

The full extent and timing of regulatory change in Australia is still subject to further consultation. However, the broad intentions of the proposed framework are beginning to emerge: to increase the transparency of OTC transactions and reduce counterparty credit risk, and thereby reduce systemic risk. The Australian Government's proposed framework appears designed to allow Australia to comply with its G20 obligations, while also providing flexibility for the mandatory obligations to be tailored to local market requirements and international regulatory developments. Increased transparency will be achieved through the standardisation of contractual terms and operational processes for OTC contracts, use of trade repositories for data collection for all trades and the introduction of a requirement to use CCPs for nominated OTC derivative products. Counterparty credit risk will be managed by significantly increasing the amount of collateral that will be held against OTC transactions whether they are centrally cleared on CCPs or otherwise.

Increased transparency of trading

Under bilateral OTC trading, the characteristics of trading activity, financial innovation and, most importantly, exposures arising from trading, are regarded as being opaque to regulators and market participants. In the GFC, regulators and

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market participants were not fully abreast of all of the exposures, the interconnections between counterparties arising from trading, and the levels and timing of exposure concentration by counterparty. They were thus constrained in their ability to effectively supervise the OTC market and monitor trading activity. By requiring all OTC derivative transactions to be reported to trade repositories, comprehensive data regarding all OTC derivatives can be made available publicly and to regulators. Increasing the transparency of trading goes some way to addressing the above issues and simultaneously decreases both the moral hazard and information asymmetries involved in trading. For the data collected by trade repositories to be useful to authorities, ongoing work needs to be completed on the scope of data needed by authorities and on technical issues, such as reporting formats, the legal entity identifier (LEI) and data aggregation.¹²

To date, similar to other G20 members¹³ consultation in Australia regarding trade data repositories has identified concerns about data confidentiality, costs of implementation and concerns about the identification of proprietary trading strategies. It can be expected that there will be some resistance to this initiative and hence a legislative framework will need to be introduced. Despite these concerns, increased information regarding trading activity will undoubtedly assist regulators and other market participants in understanding the OTC derivatives being traded and potential sources of credit concentration risk.

The FSB also identified increased standardisation of contracts as another core element of meeting the G20 commitments relating to central clearing, organised trading and reporting to trade repositories. However, as markets move towards contract standardisation¹⁴ and instantaneous data reporting, the incentives for financial innovation will change as any significant or sustained first-mover advantages will be affected. Foreign exchange and interest rate OTC derivative contracts traded in the Australian market are primarily non-exotic in nature and therefore are perhaps less impacted by this proposal, although a significant benefit of using the OTC market is its ability to accommodate bespoke

transactions, so there will be general reluctance to move to a standardised product market.

Centralised counterparties

Contracts traded in the Australian OTC derivatives market are currently dominated by bilateral OTC agreements, typically under ISDA Master Agreements, with many also having Credit Support Annexures (CSAs). As noted by The Council of Financial Regulators, CSA coverage varies widely in the Australian market depending on the particular OTC product, with buy-side market participants tending to have lower levels of CSA coverage than sell-side banks. In the Australian OTC derivative market when trading is conducted with CSAs, variation margins in the form of collateral are paid (mostly in cash), at a frequency determined by the contract to reflect mark-to-market losses following a change in prices. A CSA may allow for some flexibility in mark-to-market payments, by setting an unsecured threshold, i.e. a threshold below which a mark-to-market variation margin need not be paid. The calibration of unsecured thresholds and minimum transfer amounts typically reflects the financial standing of the counterparty. Usually there is no requirement for an initial margin to be charged.

One crucial characteristic of a CCP¹⁵ is that it mutualises credit and market risk, spreading credit risk among all of its participants. But the capacity of a CCP to absorb risk is determined by the equity capital, the margin it collects and the practice of marking positions to market. The money held will present its own problems as the CCPs seek to reinvest cash held as collateral. It is important to note that CCPs do not eliminate counterparty credit risk, can lead to credit risk concentration and may not be default-free. In the event of a default by a counterparty, the CCP will settle the obligations to close out existing contracts. Losses in excess of the margin held by a CCP will be met from the CCPs own financial resources, external risk capital and a risk layer in which members of the CCP cover losses arising from defaulting members. To manage the exposure to the counterparties if netting is limited between the counterparties, the CCP will need to impose larger margin requirements, larger contributions to the default funds or stricter position limits for counterparties. Duffie and Zhu¹⁶ noted that clearing different classes of derivatives in separate CCPs always increases counterparty exposures relative to clearing the combined set of derivatives in a single CCP. Further, the flow of collateral to CCPs will require the CCPs to have very efficient and effective cash flow management systems and capital backing.

The transition to CCP clearing of OTC derivative contracts will require a significant change to current Australian market practice and structure as there are currently no CCPs operating in Australia. Under a CCP

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framework, the initial contract will still be negotiated between the counterparties and dealt in the OTC market. Once confirmed, the trade will be reported to the CCP by each counterparty. The CCP replaces the original bilateral contract with two contracts and becomes the sole counterparty to each of the bilateral contract counterparties. Once accepted by the CCP, the counterparties will each be required to post an initial margin. Subsequently as the contract is marked-to-market each day a variation margin will be passed between the counterparties via the CCP after accounting for any netting. Transition from CSA contracts to CCPs is expected to result in an increase in collateral requirements due to the cost of the initial margin, and variation margins without thresholds which will need to be paid by both parties to their respective CCPs.

Collateral requirements will cause challenges due to the restricted supply and potential high demand for high-quality collateral.¹⁷ As noted by Singh,¹⁸ large banks active in the OTC derivatives market typically do not hold collateral against all the positions in their trading book; they can be under-collateralised and often allow re-hypothecation to others. For example, government securities received by one bank as collateral for a particular trade could be transferred by it to another bank to meet collateral obligations for another trade, and so on. Since CCPs would require all positions to have collateral against them, off-loading a significant portion of OTC derivatives transactions to CCPs would prevent such re-use of the same collateral and require large increases in posted collateral (adding to the increased demand for high-quality assets for collateral purposes associated with initial margins), possibly requiring large banks to raise more capital or to reduce their trading activity. The resulting costs suggest that most large banks will be reluctant to offload their positions to CCPs.

Operationally, in the event that there is more than one CCP used by market participants in a particular market, it is important that interoperability is permitted and that multilateral cross-guarantee agreements¹⁹ be established between CCPs. As noted by JPMorgan,²⁰ as the cost of collateral increases, collateral management and collateral optimisation will become the new battleground for efficiency. Those institutions which can efficiently manage

collateral across cleared and non-cleared positions will enjoy a significant competitive advantage. The total net effect on a firm's collateral, liquidity and reliance on short-term funding markets depends on their specific OTC derivative product mix and the number of counterparty relationships under which it operates, and also whether the CCP will allow bilateral or multilateral netting.

The introduction of centralised clearing of OTC derivatives will cause changes to legal and operational aspects, and also affect market participants' balance sheets and income statements due to changes in collateral management and the impact on OTC derivative pricing.

Treatment of non-CCP contracts

Not all OTC derivative contracts will be cleared via a CCP. Consistent with international regulators, Australian regulators have indicated the need for non-CCP contracts to be subject to higher capital charges and margining requirements. The higher capital and margining requirements for non-centrally cleared contracts relative to centrally cleared contracts are expected to provide incentives for use of CSA agreements and the central clearing of contracts.

Impact on OTC derivative pricing

The GFC has directly affected OTC derivative pricing.²¹ The classical pricing framework, based on a single yield curve used to calculate forward rates and discount factors, has been partially abandoned, and a new modern pricing approach is now prevalent among practitioners. This revised approach takes into account the market segmentation caused by different collateral and settlement mechanisms. The increased focus on credit risk has resulted in a multiple curve framework for OTC derivative contract pricing, to accommodate daily collateral rebalancing under CSA arrangements and the use of credit valuation adjustments.

Further, collateral arrangements require funding. The increased focus on credit in the post-GFC world has resulted in a time-varying differential between funding costs and the return on collateral. These differences will affect both the regulatory capital requirements for financial institutions and the pricing of derivatives. Finger²² noted that with the increased use of CCPs, risk management for market participants must shift from managing counterparty risk to the management of liquidity requirements for CCP margin needs. The management of these liquidity requirements will be reflected in derivative pricing via the liquidity (or funding) valuation adjustment. This adjustment reflects the cost of financing enough liquidity to support current and possible future margin requirements. To reflect the different levels of collateral and liquidity impacts, the introduction of CCPs to the Australian market will further complicate

the pricing of derivatives as there will also be a pricing differential between those contracts involving:

- > uncollateralised positions;
- > collateralised positions under CSA arrangements; and
- > collateralised positions cleared via a CCP.

Conclusions

The proposed regulatory framework arising from Australia's G20 commitments should lead to significant changes in the structure of the Australian OTC derivative market and its regulation. Any changes that increase informational efficiency or decrease the level of systemic counterparty risk should be seen as reasonable.

The proposed changes should assist with the management of systemic risk by providing important information about the operation of the OTC derivatives market and also address some concerns with regard to counterparty credit risk in this market. In Australia, the proposed changes are yet to be finalised and regulated and are therefore still to be tested in an operational framework. The proposed benefits of any regulatory change will need to be considered in light of their impact on: the creation of concentration of risk in central counterparty institutions; increased reliance on short-term funding due to collateral management requirements; potential increases in liquidity risk; legal and regulatory uncertainty arising from regulatory differences between countries; and derivative pricing and risk management. ■

Notes

1. Acknowledgement: The authors are grateful for feedback received and wish to thank Professor Kevin Davis and an anonymous referee for comments made on the paper.
2. In Australia, the Australian Financial Markets Association (AFMA) in its 2010-11 survey found that over the year ending June 2011, annual turnover of OTC derivatives was in excess of \$54 trillion, with OTC FX derivatives a little above \$33 trillion and OTC interest rate derivatives turnover was around \$20 trillion. Turnover of other OTC derivatives products was much lower; the next most active market was credit derivatives, with an annual turnover of around \$300 billion over this period. Australian Financial Markets Association, *2011 Australian Financial Markets Report*, available at http://www.afma.com.au/afmawr/_assets/main/lib90013/2011%20afmr.pdf
3. In November 2008 the FSF became the Financial Stability Board (FSB).
4. G20 Summit, Pittsburgh, Leaders statement, 24-25 September 2009, available at <http://www.g20.utoronto.ca/2009/2009communique0925.html>
5. G20 Summit 2010, *Final declaration*, 27 June, Toronto, available at <http://www.g20.utoronto.ca/2010/to-communique.html>
6. G20 Summit 2011, *Final declaration*, 4 November, Cannes, Article 24, available at <http://www.g20-g8.com/g8-g20/g20/english/for-the-press/news-releases/cannes-summit-final-declaration.1557.html>
7. A central counterparty (CCP) interposes itself between the buyer and the seller and, through legal novation, assumes the rights and obligations of both parties.
8. Culp, C.L. 2010, 'OTC cleared derivatives: benefits, costs, and implications of the "Dodd-Frank Wall Street Reform and Consumer Protection Act"', *Journal of Applied Finance*, no. 2, notes that the appeal of OTC clearing has varied historically across product types, regulatory jurisdictions and market participants.
9. It does appear that the EU and the United States are at a more advanced stage of implementing regulatory reform than their G20 counterparts, despite notable progress being recently reported in Canada, Hong Kong and Japan.
10. Australian Prudential Regulation Authority, Australian Securities and Investments Commission and Reserve Bank of Australia 2009, *Survey of the OTC derivatives market in Australia*, May, available at <http://www.rba.gov.au/payments-system/clearing-settlement/survey-otc-deriv-mkts/index.html>
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The Council of Financial Regulators 2012, *Ensuring appropriate influence for Australian regulators over cross-border clearing and settlement facilities*, July, available at <http://www.treasury.gov.au/ConsultationsandReviews/Submissions/2012/cross-border-clearing>

11. Australian Prudential Regulation Authority, Australian Securities and Investments Commission and Reserve Bank of Australia 2012, *Report on the Australian OTC derivatives market*, October, available at <http://www.rba.gov.au/payments-system/clearing-settlement/otc-derivatives/201210-otc-der-mkt-rep-au/pdf/201210-otc-der-mkt-rep-au.pdf>
12. See also The Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) 2012, *Report on OTC derivatives data reporting and aggregation requirements – final report*, CPSS Publications, no. 100, January, available at <http://www.bis.org/publ/cpps100.htm>
13. 'New York Fed welcomes strategic roadmap to support global efforts in OTC derivatives markets', media release, available at: <http://www.newyorkfed.org/newsevents/news/markets/2011/an110405.html>
14. Increased standardisation can improve operational efficiencies, mitigate operational risk and increase the netting and central clearing potential for the appropriate products.
15. For an overview of the operation of CCPs see Cecchetti, S.G., Gyntelberg, J. and Hollanders, M. 2009, 'Central counterparties for over-the-counter derivatives', *BIS Quarterly Review*, September, available at http://www.bis.org/publ/qtrpdf/r_qt0909f.pdf
16. Duffie, D. and Zhu, H. 2011, 'Does a central counterparty reduce counterparty risk?', Stanford University Graduate School of Business Research paper no. 2022, April, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1348343##
17. ISDA 2012, 'Collateral damage', *derivatiViews*, indicates that 'the real elephant in the room is whether the market place will come up with all the collateral that is required, and if it does, what the liquidity implications for the real economy will be', available at <http://isda.derivatviews.org/2012/06/14/collateral-damage/>
18. Singh, M. 2010, 'Collateral, netting and systemic risk in the OTC derivatives market', *IMF working paper*, WP/10/99, available at <http://www.imf.org/external/pubs/ft/wp/2010/wp1099.pdf>
19. A multilateral cross-guarantee agreement provides a mechanism for sharing excess collateral after the closeout/bankruptcy of a market participant at a different clearing agency. This would allow CCPs to have legal priority over the collateral of a market participant if it should default.
20. JP Morgan 2012, 'Regulatory reform and collateral management: the impact on major participants in the OTC derivatives markets', *JP Morgan thought*, Winter 2012, available at http://www.jpmorgan.com/cm/BlobServer/Regulatory_Reform_and_Collateral_Managementpdf.pdf?blobkey=id&blobnocache=true&blobwhere=1320534213352&blobheader=application%2Fpdf&blobcol=urldata&blobtable=MungoBlobs
21. Bianchetti, M. and Carlicchi, M. 2011, 'Interest rates after the credit crunch: markets and models evolution', *Applied Finance*, August, pp. 35-48.
22. Finger, C. 2012, 'OTC derivatives under central clearing: risk measures for liquidity constraints', *MSCI Market Insight*, June, available at [http://www.investmenteurope.net/digital_assets/5538/Market_Insight_OTC_Derivatives_under_Central_Clearing_June_2012\[1\].pdf](http://www.investmenteurope.net/digital_assets/5538/Market_Insight_OTC_Derivatives_under_Central_Clearing_June_2012[1].pdf)