

Discussion

1. Kevin Davis

The paper by Alexandra Heath, Gerard Kelly and Mark Manning does an excellent job of extending existing models of the effects of requiring use of CCPs for OTC derivatives on counterparty risk and implications for collateral demand. The innovations include: first, considering a particular market structure where there are core institutions in the OTC markets that also trade with and provide services to a periphery of other participants; second, allowing for differential involvement of the core and periphery in CCPs; and third, introducing the role of collateral requirements for initial and variation margins.

The results of the stylised model reinforce and extend a number of themes coming out of recent literature. First, the benefits from netting exposures via CCPs are offset to the extent that there is a loss of netting available under bilateral arrangements. In the core-periphery model, netting benefits from CCPs accrue primarily to the core. Second, collateral implications are important and depend upon a variety of factors including the mix of CCP and bilateral clearing, and upon the way in which initial and variation margins are determined. Third, illiquidity and the inability to meet margin calls due to assets being encumbered and not convertible into liquid assets, are a potential source of bank failure in addition to insolvency. And while higher collateral requirements reduce the risk of failure by reducing counterparty risk, they increase the risk of illiquidity. Fourth, if banks in the 'core' provide collateral transformation services to other investors (essentially a securities lending agreement involving provision of high-quality liquid assets (HQLA) in return for illiquid assets), new linkages and sources of failure arise.

As with any stylised model, questions arise about how much the results depend on particular assumptions, and whether they are generalisable to a more realistic depiction of the real world. (And it should, of course, be noted that even modelling the hypothetical 'simple' world of the paper is far from being a simple task. In that regard, I should commend the authors for their success in presenting their modelling and results in a way which should be accessible to even those readers without particular expertise in these arcane and complex features of modern financial markets.)

As regards the modelling, I have only a few comments and suggestions. First, the authors assume that investors in the periphery cannot become insolvent because they are all equity financed and thus unlevered. But, to the extent that they are entering derivative contracts they are *de facto* levered. I think, however, that the calibration of the model makes this a good debating point, but not important to the results.

Second, they assume that should an investor in the periphery default on a derivatives obligation to a counterparty (either a bilateral counterparty or a CCP), the bank that has provided it with HQLA may suffer a loss. This arises if the value of collateral is less than the HQLA the bank had provided for the investor – and occurs if an adverse move in the price of the collateral (the illiquid asset) has occurred which is greater than the safety margin arising from the initial haircut required on the collateral. There are, I think, two issues here. First is the question of why the bank would

not have incorporated margin calls into the collateral transformation arrangement to prevent this outcome. Second, why would the bank not have some recourse to the illiquid assets of the investor in this case – I wouldn't have thought that the banks would be that charitable!

A third issue relates to the modelling (or lack thereof) of the HQLA market and the specification of eligible collateral. The authors at some point refer to variation margins being paid in 'cash' but in general assume the HQLA used as collateral are securities. Two comments may be relevant here. First, why wouldn't CCPs (or others) accept illiquid assets as collateral, subject of course to suitable haircuts and margining? If such assets are good enough for the Reserve Bank in its repo transactions, why aren't they good enough for the CCPs?

The authors do address the issue of HQLA supply considerations in their policy discussion. But missing from that discussion (and more generally) is an analysis or description of the business model and objectives of the CCP and how they might affect decisions such as acceptability and quantum of various assets as collateral. I do note that there is a comment (see p 58, footnote 11) that banks in the core may bear losses as the mutual owners of a CCP if there is inadequate variation (and initial) margin held by the CCP. (As a digression, that perhaps suggests that in the discussion of who benefits most from netting of exposures, banks or investors in the periphery, perhaps the exposures of the CCP should be treated as bank exposures. If so, the conclusion that banks benefit more than the periphery is no longer so apparent). The second comment relating to collateral is to ask whether it could be the case that the CCP might take as collateral 'cash' in the form of payments into an account it has with the central bank? Is that feasible, and what implications might it have?

Two further issues regarding the modelling warrant mention (and would require much more work to follow up on). First, it would be interesting to see some attempt at calibrating the model to real world parameters. While the model outlines the sensitivity of risk and failures to particular features of the model, what is the economic significance of these in a more realistic setting? Second, how well does the model generalise to the case of many derivatives rather than just two as assumed?

The authors address a number of policy issues in Section 5 of the paper including: network structure; optimal collateral coverage; and collateral shortages. Some of my earlier comments relate to the last of these issues, and my only other comment directly related to those policy issues is to ask the question: why, if some variants of the CCP arrangements are Pareto improving as the paper seems to suggest, they don't arise naturally more often? Perhaps it's because even in this stylised world it's hard enough to fully understand the intricacies and outcomes of such arrangements, and even more difficult in the arcane and complex world of modern finance.

I do have one other policy issue. The model involves banks failing, due to insolvency or illiquidity, but the paper does not discuss how that actually takes place. What role is there for the regulator in managing the exit of the banks and how should the regulator take into account the default and illiquidity risks arising from the OTC exposures and collateral transformation activities? And I suspect that all of the institutions in the core are systemically important financial institutions (SIFIs), so what does this imply about potential failure arrangements or other regulatory requirements? Or will use of CCPs remove some of these institutions from SIFI status?

In conclusion, I think this paper makes a valuable contribution to helping us understand some of the implications of current trends and policy issues in the structure of clearing and collateral

arrangements. It is a complex, and developing, area and the authors have done a good job in highlighting some of the important issues in a clear and understandable way.

2. General Discussion

The discussion began with a participant noting that the model appeared to be in partial equilibrium and that incorporating general equilibrium dynamics could substantially alter the model's implications. Specifically, they noted that reductions in risk from the implementation of CCP clearing could encourage banks to substitute into higher risk, higher return activities, such that the overall effect on risk may wash out. Alex Heath confirmed that the model was not in general equilibrium, and agreed that this was an interesting direction to consider in future work.

Further discussion stemmed from Kevin Davis's question about why CCPs had not arisen organically but had largely come about only as the result of regulatory intervention. One participant postulated that this observation suggested that individual financial institutions might not have an incentive to join a CCP if this increased transparency because core banks might be able to use informational advantages in a more opaque environment to increase their profits. This participant also suggested that policymakers should want some lending to remain uncollateralised because this encouraged interbank monitoring.

Another participant raised the potential for agency issues to arise with CCPs, and inquired about their incentive structures and business models. In particular, it was noted that much of the reduction in individual risk was achieved by transferring exposure onto the CCP, which potentially created systemic risk. Another participant suggested there was no prospect of a CCP becoming insolvent when haircutting variation margin was an option. Mark Manning agreed, observing the model mimicked variation margin haircutting because CCP exposures and losses were allocated back to banks, so the CCP itself could not actually fail. From a normative policy perspective, he stated that the optimal CCP business model was unclear at present, and that progress on this front would require the CCP to be modelled more explicitly.

Several other participants suggested further scope for the development of the model. A few participants commented that it would be interesting and useful to use real data to calibrate the model. This would provide clearer guidance on the economic importance of some of the mechanisms highlighted by the stylised model in the paper. Another participant suggested that it would be worthwhile to investigate whether clearing only a limited range of swap types might actually increase exposure. Yet another participant suggested that the results in the paper could be interpreted as suggesting that the stability gains from central clearing were much smaller for countries such as Australia, with most of the benefits accruing to parties in the core. They concluded that the efficiency versus stability trade-off was much less clear-cut for Australia. This was followed by a suggestion that the core-periphery model could be extended to include a sub-core on the basis that this would make the policy implications of central clearing for non-core countries like Australia clearer. Mr Manning concurred that Australian banks were core in their own market, and that the relevant peripheral institutions in this case were non-dealers, or investors. The authors generally agreed that a more detailed model would need to be developed before it could be used to underpin policy recommendations, and confirmed that further work along these dimensions was planned.