Discussion

1. Bernd Schwaab

This is a welcome addition to the literature on the interaction between bank financing choices and financial stability. The main objective of the paper is to investigate the implications of the observed increase in collateralisation of financial transactions, such as over-the-counter (OTC) derivatives, and bank funding, such as repo funding and covered bond issuance. To this end, the paper presents a simple model of secured and unsecured bank funding to analyse the impact of increased asset encumbrance on liquidity risk, solvency risk and changes in collateral value. The main point is easily understood: collateralisation is not a panacea. Instead, increasing levels of collateralisation of bank funding may increase the procyclicality of credit provision and may even increase the probability of a sudden withdrawal of unsecured funding; also known as a bank run.

The paper by Gai, Haldane, Kapadia and Nelson distinguishes nicely the microprudential benefits from the macroprudential concerns stemming from high levels of asset encumbrance. From the perspective of a supervisor that is most concerned about the stability of a single financial institution in isolation, increased levels of secured funding are a positive: secured funding is less likely to be withdrawn during times of crisis and it is cheaper than unsecured funding. Also, the mere diversification of funding sources provides some insurance against adverse developments in any single funding market. Policymakers, however, need to weigh these microprudential benefits against the threats to the stability of the system as a whole.

In this discussion I'll focus on five comments.

First, the idea that giving preference to one group of market participants (the secured creditors) automatically discriminates against the others (the unsecured creditors), and that the latter then have an incentive to act (either by charging higher rates or withholding funding), is so intuitive and fundamental that it cannot be entirely new to the financial stability literature. And indeed, bank supervisors appeared to have learned that lesson during the Great Recession in the United States as early as 1933. In a recent paper, Calomiris *et al* (2012) describe how until March 1933, the Reconstruction Finance Corporation (RFC) rescued troubled Michigan banks mostly with secured loans, for which they required the best high-quality collateral. This de facto subordination of existing bank depositors did not eliminate funding risk and was soon abandoned. After March 1933, troubled banks were instead recapitalised with purchases of preferred stock, which only subordinated the common stockholders, and no subordination of existing unsecured debtholders occurred. Calomiris *et al* (2012) report convincing empirical evidence that troubled banks that received assistance after March 1933 were indeed more likely to survive, while no such effect is found for the banks assisted with subordinated debt before March 1933. Interestingly, the recapitalised banks increased lending, conditional on survival. The discussion and empirical evidence from Calomiris *et al* (2012) are wholly in line with the main idea of Gai *et al* that subordination leads to the withholding of unsecured funding.

Second, increased asset encumbrance due to secured funding may be problematic for reasons in addition to the ones put forward in the paper. Duffie and Skeel (2012) weigh the benefits against the costs of exceptions to automatic stays at bankruptcy for repo collateral. Currently, collateral from repo financing and OTC derivatives is usually exempt from such automatic stays. Duffie and Skeel explain that such safe harbour regulation could potentially raise social costs through five channels: lowering incentives for counterparties to monitor the firm; increasing the ability of, or incentive for, the firm to become 'too big to fail'; inefficient substitution away from more traditional forms of financing; increasing the market impact of collateral fire sales; and lowering the incentives of a distressed firm to file for bankruptcy in a timely manner. As a result, they recommend abolishing the safe harbour regulation for illiquid collateral (such as asset-backed securities) and OTC derivatives that are not centrally cleared. Upon reflection, each of these five arguments applies also in the current critique of increased asset encumbrance. In particular, the 'information economics' argument that unsecured markets provide an incentive for monitoring the borrower's activities, while secured markets do not, appears to be a first order concern.

Third, and as pointed out by the authors, there is some scope for a system context and for 'endogenising' a set of model parameters. For example, the interest rate $r = D_2/D$ that is paid on unsecured debt is currently a parameter and not an equilibrium outcome. In this regard, one may wonder whether a Modigliani-Miller funding irrelevance result (for the bank, possibly not for the system) should hold once this rate is allowed to increase with asset encumbrance. In such a setting, each bank would need to minimise its 'all-in' cost of funding.

Fourth, in the model the secured creditors stay put, while the unsecured depositors run. Repo runs, however, were a real phenomenon during the financial crisis. Conversely, the unsecured depositors often stayed put. For example, Figure 2 in Cornett *et al* (2011) reports growth in aggregate US core deposits at commercial banks after the Lehman Brothers bankruptcy. These data suggest that exploring the reverse situation, in which secured lenders withhold funding (i.e. by imposing a high haircut on repo collateral) while the core depositors stay with the bank, may be a worthwhile extension.

Finally, the paper adds value to the current policy discussion by reviewing several policy options in a separate section. These policy options, however, are either rather blunt (e.g. the fixed cap on asset encumbrance at x per cent of deposits) or involve a substantial amount of expert judgement (setting time-varying liquidity requirements, risk weights or caps). Perotti (2010) discusses some additional and interesting policy options. These are (i) a central repository, similar to a credit registry, for additional disclosure; (ii) a Pigou tax/levy, to make secured lenders pay for the 'super-priority' associated with safe harbour claims; and (iii) the idea of a cap-and-trade model for total asset encumbrance (Stein 2012). In particular, the idea of a central repository holds intuitive economic appeal.

In conclusion, it has been a pleasure to discuss this interesting and accessible paper on a relevant topic.

References

Calomiris CW, JR Mason, M Weidenmier and K Bobroff (2012), 'The Effects of Reconstruction Finance Corporation Assistance on Michigan's Bank Survival in the 1930s', NBER Working Paper No 18427.

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Duffie D and D Skeel (2012), 'A Dialogue on the Costs and Benefits of Automatic Stays for Derivatives and Repurchase Agreements', University of Pennsylvania, Institute for Law and Economics Research Paper No 12-2.

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Stein JC (2012), 'Monetary Policy as Financial Stability Regulation', *The Quarterly Journal of Economics*, 127(1), pp 57–95.

2. General Discussion

The discussion of the paper presented by Prasanna Gai largely focused on a range of potential ways to address the issues raised in the paper around encumbrance, and additional features to consider in broadening the model.

One participant suggested that the financial stability issues associated with the increase in the riskiness of unsecured debt as the level of collateralisation rose could be alleviated through greater use of unsecured debt instruments such as contingent convertible bonds (CoCos), which converted to equity when equity fell below a certain threshold. Since this writedown occurred while the institution was a going concern, and bolstered the liquidity position, the value of CoCo debt was independent of the level of encumbrance. It was suggested that, combined with greater use of deposit funding, which had proven to be less flighty during the financial crisis than might have been expected, more use of CoCos should mean that collateral encumbrance became less of a constraint on banks. Professor Gai suggested that a more detailed model could allow for multiple funding forms with endogenous rates of return, adding that he suspected CoCo bonds would tend to be an expensive option to utilise.

Relatedly, another participant noted that changes to the composition of funding outside the euro area since the financial crisis had been characterised by substitution towards deposit funding from unsecured retail sources, rather than an increase in asset encumbrance. They followed this with the interesting conjecture that implicit government guarantees of retail deposits were subsidising this shift in sources of funding for banks in a distortionary manner, suggesting that deposit insurance needed to be more sensitive to the funding structure.

Another participant took a broader view of which bank funding structures were likely to promote stability, suggesting that the optimal structure was endogenous to the type of stresses being faced and that encumbrance was not always the binding concern. As an example, the participant raised the Cypriot experience, where depositors had absorbed losses because the largely unencumbered, deposit-funded bank balance sheets lacked an unsecured debt component that could be subject to a haircut. This was contrasted with Greece, where senior unsecured debtholders were able to be haircut.

The importance of central bank liquidity policy in determining optimal funding structures was also raised. In particular, it was noted that increasing encumbrance reduced the collateral that could be presented to central banks to secure emergency liquidity provision. Furthermore, it was noted that the degree of encumbrance was irrelevant for LCR purposes. Professor Gai agreed this was an important point; a richer model with portfolio choice would allow some consideration of how different funding structures arose.

Another participant enquired about whether the model had anything to say about the optimal level of encumbrance. It was noted that the available evidence suggested that credit ratings increased with the proportion of covered bonds encumbered until approximately 15 per cent, while New Zealand regulatory authorities had set a maximum limit of 10 per cent encumbrance for covered bonds. Another participant asked if determination of this optimal level of encumbrance needed to consider the nature of the creditors providing funding and the potential benefits they received from providing funding on a secured basis. In particular, the participant suggested that long-term secured funding mitigated insolvency risk for the creditor. Professor Gai responded that his model sidestepped the question of optimal encumbrance, but indicated that this issue could also be addressed in a richer model with portfolio choice. He suggested that considering creditors would be more difficult because this involved analysing multiple global games that were played out contemporaneously.

Haircut policies were discussed by a number of participants. One participant suggested that it was maximum, rather than minimum, haircuts that were needed, because it was the increase in haircuts during stress periods that could lead to fire sales of unencumbered collateral and the adverse feedback loop discussed in earlier sessions. Another participant responded that both minimum and maximum haircuts were already in place where possible, and that remaining cases were best left alone because these provided a good mark-to-market pricing mechanism. Professor Gai said he was sympathetic to this latter view, and would personally err towards caps on encumbrance rather than on haircuts, but noted that his co-authors might have a different view. He concluded by stating that these two regimes would be likely to have substantially different implications.