

# Discussion

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## 1. Jason Wu\*

The paper by Manmohan Singh covers a lot of ground, and lays out a number of very interesting issues about the nature of the shadow banking sector, and the extent to which the activities of banks and non-banks are interrelated. In particular, it points out that, in addition to deposits, a significant share of bank lending is ultimately funded by non-banks. This funding can be described as 'indirect' deposits managed by 'asset managers'. Banks and non-banks are also linked through the process of collateral intermediation, which is a major form of shadow banking activity.

The paper highlights the importance of collateral for the financial system, and its money-like properties. The analogy between collateral and money is drawn out by comparing the haircut in a collateralised transaction to a reserve ratio, and the amount of rehypothecation of collateral to the money multiplier. The paper shows that the 'velocity' of collateral, defined as the value of collateral transactions divided by the stock of collateral, has decreased by one-third since 2007. The paper goes on to suggest that one way of satisfying the increasing demand for high-quality collateral could be to increase collateral velocity rather than expand the issuance of collateral assets by either the private sector or the government.

The paper draws out the significant role played by central banks in the collateral market by focusing on the example of the United States, where collateralised lending through repo markets is important. In particular, it demonstrates the impact that the payment of interest on excess reserves (IOER) has had on repo rates, and makes the point that quantitative easing (QE) has largely removed good collateral from the market. This has pushed repo rates down. Presumably, the 'unwinding' of QE should lead to an increase in rates, although the net effect of unwinding on the economy will depend on whether unwinding involves central banks giving up 'possession' of collateral or giving up 'ownership'.

The paper considers potential issues for policymakers arising from the collateral intermediation process. On the fiscal side, the paper highlights that the interconnections between banks and institutions in the shadow banking sector that engage in collateral intermediation (e.g. hedge funds, money market funds, agents in derivatives and tri-party markets) raise potential concerns for taxpayers, despite the fact that they do not have an official backstop and are now more subject to regulations. Collateral intermediation also has a number of macroeconomic implications that are of potential concern to policymakers, including the highly procyclical behaviour of collateral values and haircuts, and the interaction between collateral markets and the implementation of monetary policy.

Finally, the paper asks how changes to financial regulations are likely to affect shadow banking activity and collateral markets. In particular, it asks whether changes to regulations around

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short-term wholesale funding are likely to push collateral intermediation even further into the shadow banking world, and whether an increase in demand for liquid assets driven by regulatory initiatives such as the Liquidity Coverage Ratio (LCR) are likely to increase the prevalence of ‘collateral transformation’ type services.

I have a number of suggestions for improving the paper, and a few questions.

First, I would suggest that the title of paper should match the content of the paper. Perhaps the most satisfying way of doing this would be to have a discussion that includes some other aspects of shadow banking. For example, Pozsar *et al* (2012) focuses on a number of other important aspects of shadow banking, including particular institutions and instruments such as conduits, special investment vehicles (SIVs), and asset-backed commercial paper (ABCP), as well as other forms of maturity and liquidity transformation. Alternatively, the paper could stay focused on collateral intermediation, but the title could be changed to reflect this.

My second suggestion is that it would be good to see the benefits of collateralised borrowing laid out against the costs. One of the central points of the paper is that if we view collateral as a form of money, the circulation of collateral benefits the economy. However, others have suggested that the reliance of levered institutions on the collateralised lending market and the procyclicality of haircuts amplified the financial crisis (see, for example, Duffie (2010)).

More generally, the paper could benefit from some streamlining, while maintaining many of its key points, perhaps in the following three-part format.

Part 1 could be a quantitative and qualitative discussion of the costs and benefits of collateral intermediation, and potential cost mitigants. For example, the quantitative discussion could consider whether the equation  $\Sigma_i y_i = \Sigma_i e_i z_i (\lambda_i - 1) + \Sigma_i e_i$  can be used in a ‘mean-variance’ way to provide insights into the costs and benefits. The qualitative discussion could be captured in a table of the form:

Benefits	Costs	Cost mitigants
More credit in the real economy – more productive projects	Procyclical nature of collateral leads to financial instability	Limit the exposure of individual entities, particularly systemically important financial institutions
Monetary policy transmission becomes more effective (?)	Counterparty risk becomes more complex as chains get longer (?)	Strengthen rehypothecation rules; alter ‘Master repo agreements’
More complete financial markets (?)	Activity drawn outside of regulated entities (?)	Impose regulation on these entities (e.g. floating net asset values for money market mutual funds)
Flatter yield curve, counters froth in financial markets	Encourages the creation of more complex or opaque assets, e.g. securitisation tranches	Limit collateral types that can be used in certain transactions

It would also be useful for the paper to elaborate on or compare the types of collateral intermediation in these terms. For instance, is tri-party repo less desirable than bilateral repo from a financial stability standpoint, given concentration risks (e.g. clearing banks pulling intraday funding from Lehman Brothers)?

If the benefits from Part 1 are sufficiently large, Part 2 could discuss how the supply of collateral might be increased – either by expanding the volume of collateral assets that are available to private markets or by increasing the ‘velocity’ or re-use of collateral – in a world where central banks have absorbed large amounts of collateral. Relevant issues include:

- the types of central bank facilities that could be effective (e.g. reverse repos or securities lending)
- the extent to which exchanging good collateral for excess reserves is central to achieve the intended real economy goals of QE. I think this point should be made to balance the argument.

Part 3 could then discuss the implications, and intended and unintended consequences for collateral intermediation, of proposed regulations such as limits on banks’ short-term funding. Questions of particular interest include whether under-regulated entities will play a bigger role, and the extent to which collateral transformation/optimisation services will take place. Some empirical evidence on these two questions would be great.

## References

**Duffie D (2010)**, ‘The Failure Mechanics of Dealer Banks’, *The Journal of Economic Perspectives*, 24(1), pp 51–72.

**Pozsar Z, T Adrian, A Ashcraft and H Boesky (2012)**, ‘Shadow Banking’, Federal Reserve Bank of New York Staff Report No 458.

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## 2. General Discussion

Much of the discussion of Manmohan Singh’s paper focused on the normative implications of the reduction in collateral in the global financial system from pre-crisis levels. One participant asked about the extent to which the reduction in collateral velocity was a correction from excessive levels, suggesting that the financial crisis had led to the removal of risky, short-term capital from the system. Since such short-term capital could have negative implications for macroeconomic stability, this development could be positive. Other participants noted that there was a trade-off between efficiency and stability in any normative analysis of the reduction in collateral velocity. It was noted that since differing regulatory institutions faced competing objectives, there was an inherent difficulty in ascertaining a jointly optimal velocity of collateral. This led to comments around the importance of choosing which regulators were responsible for identifying excessive velocity, and the range of policy mechanisms that they could use to control this variable. Dr Singh responded to this discussion by commenting that in his view, the shortage of collateral was not only due to a reduction in collateral velocity since the financial crisis from three to two, but also due to a reduction in the size of the collateral base.

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One participant argued that the characteristics of collateral remaining in the financial system reflected the effects of the financial crisis, and noted that collateral had exhibited procyclicality, rapid growth, and a general lack of transparency. Another participant expanded on this line of discussion by suggesting that the financial crisis had demonstrated that banks were excessively reliant on short-term unsecured liquidity, and asked how far the financial system should move towards more collateralised funding. Dr Singh indicated general agreement with this view, and suggested higher interest rates on retail savings as a measure that would increase the stickiness and stability of funding to banks. In response to the discussant's comments, Dr Singh also emphasised that his paper was focused on future trends in shadow banking markets, rather than on those that existed in the run-up to the crisis.

Some participants disputed the argument that there was an aggregate shortage of collateral within the financial system. Specifically, they noted that both demand and supply should be responsive to price, and that this endogeneity made claims of a collateral shortage difficult to verify. More generally, they noted that the inability to identify any robustly exogenous factors made causal analysis difficult. Another participant suggested that the accumulation of public sector safe assets by central banks as a by-product of quantitative easing had in effect 'locked' this collateral away from being used by private sector banks, and had therefore contributed to any potential shortage of collateral. These comments led another participant to ask if the fall in high-quality collateral was necessarily bad, given that the initial large liquidity shock had been offset by an injection of central bank reserves. Another participant responded that while short-term liquidity provision was widely supported, it would be undesirable for central banks to replace the private sector as the provider of collateral in a new steady state.