Repo: guilty notwithstanding the evidence?

Richard Comotto, Senior Visiting Fellow, ICMA Centre

Last week, Lord Turner, head of the FSA and chairman of the Financial Stability Board's Standing Committee on Supervisory and Regulatory Co-operation, delivered a speech in Washington DC in which he offered his views on how financial innovation had spawned the recent financial crisis and whether financial innovation contributes to the welfare of society. (The answer to the former was leverage and maturity transformation: the answer to the latter was no.)

If this speech reflects the direction of the debate within the FSB, then the wholesale financial markets can expect severe restrictions to be imposed by the G20. And special attention can be expected by the market in repos (which are agreements to lend in exchange for collateral, typically government bonds, which can be readily liquidated if a borrower defaults).

The concern expressed about repo and other forms of secured financing is that they create ostensibly low-risk 'money-equivalent' assets by means of collateralisation and the safeguarding of collateral coverage through the mechanisms of haircuts and of margining in response to the frequent mark-to-market revaluation of collateral. (Haircuts are discounts applied to the value of collateral in order to provide a buffer against unanticipated falls in the value of collateral. Margining is the periodic adjustment (up or down) of the amount of collateral held against a loan in response to changes in its market value in order to ensure that it more or less equals the value of the loan.)

The perceived fly in the collateral ointment is that haircuts and margining "can turbo-charge the inherent procyclicality of any credit and money creation process". When confidence is high and perceived risk is low, buoyant asset values, supported by low haircuts and inflows of margin, means that each piece of collateral can generate lots of cash, which fuels asset purchases and further price rises, causing haircuts to be reduced and generating inflows of margin, and so on. But when a shock damages confidence and perceived risk increases, sinking asset values, reinforced by higher haircuts and outflows of margin, choke off liquidity, which forces asset sales and further price falls, causing haircuts to be raised and margin to be called, and so on. Collateralisation thereby amplifies the financial cycle.

The principal driver of the procyclicality of collateral is seen to be changes in haircuts. The proposed regulatory solution is the imposition of a substantial minimum haircut on collateral. This should be high enough to act as a brake on credit creation in an up-cycle and to preclude banks having to raise their own haircuts in a down-cycle. In the latter case, the argument goes: if the loan-to-collateral ratio is low enough, falls in the value of collateral will not need to be translated by banks into higher haircuts, margin calls and asset sales because the collateral will still be worth more than enough to cover a potential default.

In support of a mandatory minimum haircut, regulators cite a paper by Gary Gorton and Andrew Metrick, two academics from Yale, who have argued that changes in haircuts were the main cause of the crisis and titled their paper, "The Run on Repo".[1] They sought to empirically validate their thesis using a database, provided by a US broker-dealer, of haircuts over the first two years of the crisis (2007-09). In the presentation accompanying his speech in Washington, Lord Turner included a slide with a chart taken from Gorton and Metrick showing "average repo haircuts" in the "US bilateral repo market" rising

[1] Gorton, Gary, & Andrew Metrick, *Securitized Banking and the Run on Repo*, Yale University (November 2010)

from 0% before July 2007 to 45% by September 2008. Conclusive evidence, surely, of the procyclical nature of haircuts?

In fact, there is a serious flaw in this haircut-driven run on repo thesis. The haircut data on which Gorton and Metrick based their conclusions was only for collateral in the form of structured securities (CDOs, CLOs, etc). Such collateral was a modest proportion of the US repo market even before the crisis. They also ignored the tri-party segment of the repo market (where third-party custodians manage the collateralisation and settlement of repos on behalf of banks). This accounts for 60% or more of US repo and is largely collateralised by US Treasuries, Agencies and MBS, for which haircuts are much lower and asset values were not impacted by the crisis to anything like the degree as structured securities. Moreover, the Fed-sponsored Taskforce on Triparty Repo Infrastructure reported that haircuts in that sector did not change much during 2007-09. By trying to use their data on structured securities to explain the systemic crisis, Gorton and Metrick took what may well be a valid scenario within a narrow segment of the repo market and speciously extrapolated it across the rest of the repo market in the face of the evidence.

To try extrapolating this thesis across the European repo market is even more implausible. In contrast to the US, haircuts have not been a standard feature of the European repo market, at least outside triparty and CCP-cleared transactions. In a recent paper, I attempted to calibrate the likely impact of the Gorton-Metrick model in Europe. Using a survey of haircuts in 2007 and 2009 by the Committee on the Global Financial System (CGFS), [2] weighted by data on the size and composition of the European repo market from the survey conducted semi-annually by the International Capital Market Association ICMA), I demonstrated that changes in haircuts could explain less than 3 percentage points of the 28% deleveraging of the repo market between 2007 and 2009.[3]

It is also noteworthy that the CGFS reported that haircuts on both sides of the Atlantic did not increase much in aggregate over 2007-09 and that the drop in liquidity was driven by traditional reactions to heightened risk perceptions: the withdrawal or contraction of credit lines. Clearly, a minimum mandatory haircut would not stop this type of response, a point conceded by the CGFS.

Further insight into what actually happened in the US repo market is provided by a masterful piece of research published by US academics, Krishnamurthy, Nagel and Orlov.[4] They ploughed, among other things, through regulatory returns to the SEC by US money market mutual funds and drew on other data to include securities lenders re-investing cash collateral. These investors have supplied about two-thirds of the estimated funding of the shadow banking sector (some USD 940 billion in Q2 2007). Some 15-20% of their investments were in repo. Only 3% of non-Agency MBS and ABS (a wider definition of structured securities than Gorton and Metrick) were taken as repo collateral. While these securities eventually became ineligible as collateral, their disappearance accounted for only about 10% of the loss of financing suffered by issuers of these securities and only happened in the latter stages of the crisis. There was no contraction in repo volumes in Treasuries and Agencies, and no increase in the haircuts for these securities. Even the haircuts demanded for non-government collateral in the triparty market only

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[2] BIS Committee on the Global Financial System (CGFS) Paper No.36 on *The role of margin requirements and haircuts in procyclicality* (March 2010).
[3] Comotto, Richard, *Initial margins and haircuts in the repo market*, ICMA (February 2012).
[4] Krishnamurthy, Arvind, Stefan Nagel and Dmitry Orlov, *Sizing Up Repo*, NBER and Stanford University (November 2011).

rose from 3-4% in 2007 to 5-7% in 2009. This paints a very different picture to the one implied by Gorton and Metrick, and is clearly inconsistent with idea that a “run on repo” played a central role in the crisis.

But notwithstanding the plentiful evidence to the contrary, regulators appear to have made up their minds and seem determined to push the idea of a minimum mandatory haircut on all repo collateral. We do not know what numbers they may have in mind. Andrew Haldane at the Bank of England has mentioned a figure of 20%. Certainly, if regulators are trying to preclude banks having to increase haircuts or call margin in response to falls in collateral value, they will have to be substantial. The consequences could therefore be dire. The outstanding value of the combined US and European repo markets may be in the range EUR15-20 trillion. A number like 20% would take EUR 4 trillion of liquidity out of the repo market, four times more than the ECB’s 3-year LTROs.

The sheer scale of the potential consequences throws up a whole raft of questions. How can banks replace such a dramatic loss of funding? The unsecured market is hardly a desirable alternative. How can the penalisation of collateralised funding be squared with the regulators’ other agenda to encourage greater collateralisation of financial transactions, directly and through the mandated use of CCPs? What would such a drain on the liquidity of the primary and secondary securities markets do to the funding of the real economy? Would hard-pressed governments be prepared to accept such a loss of liquidity and increase in cost in their own bond markets? And how can such a flawed policy, with such seismic implications, be seriously considered in the face of so much contrary evidence?

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