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**Subject:** A Case for Reforming the Repo Market

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**Comment:**

The report does a good job of describing the tri-party repo market and especially flagging the issue of intra-day credit risk borne by the third parties in the repo. I also liked much the transparency related issues and proposed reforms on that front. I was however far less convinced that the report dealt adequately with the issue of systemic illiquidity in the repo market and associated risk of runs and fire-sales, in the context of riskier collateral. I propose below a possible way of thinking about this issue and some reforms to deal with it. It is excerpted from the chapter "The Repo Market" by Viral V Acharya and Sabri Oncu, in "Regulating Wall Street: A New Architecture for Global Finance", forthcoming, John Wiley & Sons, edited by Viral V Acharya, Thomas Cooley, Matthew Richardson and Ingo Walter.

A Case for Reforming the Repo Market  
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As Acharya and Krishnamurthy (2010) clarify, the primary issue with financing risky securities (such as mortgage-backed securities) through repo markets is that such financing is likely to freeze or experience stress in times of aggregate (economy-wide or financial sector-wide) stress, but privately, financial firms do not have the incentive to internalize the costs of such a freeze or stress. Elaborating further, by virtue of being secured and, typically, having short-term financing arrangements, repo markets by and large function smoothly. In other words, repos usually get rolled over. When underlying assets are essentially safe such as Treasury or agency debt, the repo lender is undeterred from rolling over the financing even in stress times. Indeed, Treasury and agency debt might even experience a flight to safety in such times.

In contrast, if the underlying collateral is a mortgage backed security and there is an economic downturn, and the risk of an already illiquid market for MBS is compounded as many financial institutions have portfolios crowded with MBS or have lost capital. In this scenario, repo lenders run the real risk of being forced to sell their collateral in illiquid markets. The repo lender may respond by raising the required haircut or simply refusing to roll over. The resulting fall in repo financing ability against the collateral is perverse as it sets up an adverse dynamic: the future buyers of assets anticipate that they are likely to face steep haircuts too and thus will not offer attractive prices for assets, and in turn, the collateral's ability to be financed with repo today falls even further. A complete market freeze can arise as witnessed during the crisis of 2007-09 and as theoretically modeled by Acharya, Gale and Yorulmazer (2008).

To summarize, unlike the liquidity risk that unsecured financing may become unavailable to a firm, a risk largely specific to the credit risk of the firm, the liquidity risk that secured repo financing may become unavailable to a firm is inherently a systemic risk, materializing in states of the world where other financial firms are also experiencing stress and the markets for assets held predominantly by the financial sector are rendered illiquid. Federal Reserve Chairman, Ben Bernanke, has also noted this important difference along with the fact that current practices for bank liquidity risk management do not take into

sufficient account the likely freezes in secured repo financing.

Excerpted from Ben Bernanke's remarks to the Risk Transfer Mechanisms and Financial Stability Workshop at the BIS, May 29, 2008: "[U]ntil recently, short-term repos had always been regarded as virtually risk-free instruments and thus largely immune to the type of rollover or withdrawal risks associated with short-term unsecured obligations. In March, rapidly unfolding events demonstrated that even repo markets could be severely disrupted when investors believe they might need to sell the underlying collateral in illiquid markets. Such forced asset sales can set up a particularly adverse dynamic, in which further substantial price declines fan investor concerns about counterparty credit risk, which then feed back in the form of intensifying funding pressures... In light of the recent experience, and following the recommendations of the President's Working Group on Financial Markets (2008), the Federal Reserve and other supervisors are reviewing their policies and guidance regarding liquidity risk management to determine what improvements can be made. In particular, future liquidity planning will have to take into account the possibility of a sudden loss of substantial amounts of secured financing."

As such, this leads to the problem that while in good times, financial firms may not fully internalize the costs imposed on the system by being excessively financed through short-term repo markets, in bad times they charge excessively high haircuts on repo financing, and do not internalize the pecuniary externalities imposed on other firms through the resulting fire-sales of assets. Indeed, to support financial firms facing repo freeze or the assets directly, the likely lender-of-last-resort would only accentuate a problem that firms ignore in good times i.e. the systemic risk associated with repo financing. Viewed this way, in good times, there is a case for subjecting repo-financed risky securities to a capital charge, effectively a regulatory haircut, which takes account the security's systematic risk and maturity mismatch relative to the repo tenor. Equally important, there is a case for a better design of the bankruptcy of a repo-financed debtor than simply granting its repo lender the full right to seize the collateral and liquidate it at will in an illiquid market.

#### Proposed Reforms

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Somewhat surprisingly, the House as well as the Senate Bills are both quiet on how to reform the repo markets. The only concrete proposal has come from the FDIC Chairwoman Sheila Bair who has proposed that repo counterparties of FDIC-regulated banks be subject to a 10 cents per dollar (originally proposed as 20 cents per dollar) haircut in case of a bank being taken over by the FDIC. The Federal Reserve Bank of New York and the Bank for International Settlements have both taken on the issue squarely on its head and are in touch with industry and academia to devise a better architecture for their functioning. Below, we discuss the proposed reforms and also propose an alternative, both from an ex ante as well as an ex post perspective, that addresses the issues raised above.

Possible reforms of the repo market can be put into three categories: first, a full government guarantee scheme; second, a full market-discipline scheme; and third, a combination of the two. Our preferred alternative is the latter one.

At one extreme, some (most notably, Gorton 2009) have proposed that repo financing is akin to demandable deposits in many ways and thus also vulnerable to the information-sensitive panics when

adverse information about underlying collateral (or counterparties) hits markets. The proposal is thus to treat them in a similar way, which is to offer federal deposit insurance to the repo contracts, at least against securities that are relatively “safe”, such as the super-senior tranches of securitization pools. Under this proposal, it is recognized that repo financing has the inherent systemic fragility akin to demandable deposits and it is perceived that in all likelihood the government would end up backing up the repo counterparties were the fragility to materialize. Hence, by explicitly recognizing the guarantee upfront, it becomes possible to charge repo financiers for the guarantee. As with any insurance premium, the objective is not just to collect fees for ex post guarantee, but also to get repo financiers to internalize the systemic fragility inherent in repo contracts.

At another extreme, others (most notably, Roe 2009) have proposed that repo financiers should not be allowed unrestricted access to collateral even in case of default of the counterparty. That is, there should be some sort of an “automatic stay” on repo financier claims and they should join the bankruptcy of the defaulting counterparty as a secured creditor, as in the case of corporate bankruptcies. The rationale is two-fold; first, it prevents the fire-sales of the repo collateral by the financiers and avoids the adverse dynamic we highlighted before, and second, by exposing the repo financiers to credit risk of the counterparty (and not just that of the collateral), the borrowers in repo contracts would be subject to much greater market discipline from the financiers. In particular, financiers would opt for safer counterparties, all else equal, or charge higher haircuts to riskier ones, either way discriminating ex ante between safer and riskier borrowers.

The advantage of the government guarantee scheme is that it resolves virtually all ex post uncertainty by transferring the risk of repo contract away from financiers to the government agency for an upfront fee. However, its disadvantages are more subtle and somewhat pernicious. The charging of FDIC premiums has been heavily influenced by the banking industry and no premiums are charged to most banks when the FDIC’s reserve fund is capitalized above 1.25% to 1.35% of the insured deposits. This kind of a fee structure gives rise to a highly pro-cyclical risk-taking incentive since the fees are back-loaded as far as the risk-return tradeoff is concerned. There is no guarantee that repo insurance premiums would work any differently. Perhaps, and somewhat more disturbingly, such a guarantee scheme effectively amounts to transferring the credit risk of virtually most parts of the securitization market to the government’s balance-sheet. While “conforming” mortgages in the U.S. are already being backstopped by Fannie Mae and Freddie Mac, the proposed guarantee scheme would extend such a backstop to sub-prime securitized pools, corporate loans, auto receivables, credit-card receivables and so on. Given the inability of the government to control the urge to get Fannie and Freddie to engage in other kinds of activities, and the inclination of Fannie and Freddie in turn to undertake greater and greater risks at the expense of taxpayers, one should view the idea of extending guarantees to practically all risks of the economy with caution. Such caution would be even more necessary for governments other than the U.S. whose balance-sheet is already heavily stretched.

On the other hand the advantage of market discipline through the automatic stay approach is that it leaves the entire risk of the repo transaction to the repo financier – to some extent to the collateral but also to the borrower –. This way, other than through ex post forbearance, private markets are allowed to function – bear and price risks – and thereby provide incentives to take account of relevant risk-return tradeoffs. There are, however, several countervailing issues that arise. First, since the primary issue with repo

contracts is their systemic externality, it is unclear that private market outcomes would be necessarily efficient from a risk-return standpoint of the economy as a whole. Second, automatic stay introduces “basis risk” in the repo contract since its eventual payoff is linked not just to the underlying asset but to the whole pool of assets of the borrower and the rest of its capital structure. In general, this may create sufficient ex ante as well as ex post uncertainty to reduce the financier’s willingness to lend against certain assets to all types of borrowers. The result might be a significantly reduced liquidity in some parts of repo-financed securitized markets. Third, a rationale for the bankruptcy exemption of the repos has been that when the borrower defaults, counterparty risk transmission is reduced as far as the repo contract goes since it is protected from any spillover of the borrower’s remaining risks and liabilities.

Given this relative assessment, our preferred approach is one that facilitates a ready wind-down of the repo contracts and eliminates disorderly fire-sales of underlying assets. In particular, the approach consists of the following pieces:

1. In case of default of a borrower, its repo counterparties on Treasuries, and perhaps agencies (assuming the agencies are effectively government-backed), are allowed to take their collateral as under the current arrangements. However, repo counterparties on other kinds of risky collateral such as ABS and MBS are subjected to a “stay”.
2. Immediately upon default, repo counterparties of risky collateral are paid by a “repo resolution fund,” which could simply be within the FDIC or the Federal Reserve, a recovery amount that is based on a conservative value assessment of the collateral. Such a value assessment could be based on market intelligence, historical estimates, projected valuations obtained from a poll of dealers, etc. The important issue is that the assessment should be “conservative.”
3. The underlying repo collateral is taken over by the repo resolution fund and liquidated in an orderly manner over a pre-specified period, say, not more than six months. In case the eventual recovery on the collateral is above the conservative estimate paid to the repo lenders (see step 2 above), then the time-value adjusted difference is paid to the repo lenders. Conversely, if the eventual recovery is lower than the conservative estimate paid to the repo lenders, the time-value adjusted difference is “clawed back” from the repo lenders. The claw-back feature is explicitly legislated (as with the current mechanism used by FDIC to deal with uninsured depositors of failed FDIC-regulated banks).
4. In effect, steps 2 and 3 resemble a lender-of-last-resort operation whereby risky collateral in times of a systemic crisis would be provided liquidity albeit conservatively at a “haircut” or penalty rate. However, the claw-back feature implies that the repo resolution authority – the lender-of-last-resort – takes on the credit risk of repo lenders as well as of the underlying collateral (but limited to the difference between realized recovery and the conservative estimate at the time of the borrower’s bankruptcy). To manage this credit risk, the repo resolution authority should
  - a. include as eligible only relatively high-quality collateral;
  - b. charge repo lenders an ex ante fee for the lender-of-last-resort facility, commensurate with the residual credit risk borne by the facility;

c. require that eligible repo lenders for the lender-of-last-resort facility meet pre-specified solvency criteria; and

d. impose a concentration limit at the level of individual repo lenders as well as on its overall portfolio size.

Thus, our preferred approach provides ex post liquidity to the repo market rather than a complete guarantee of underlying risks. This approach also charges ex ante for this liquidity facility and ensures that the risks undertaken by the market participants do not expose the taxpayers to losses beyond a certain size. It combines the attractive features of full insurance and full market-discipline schemes without suffering from their weaknesses. Furthermore, in contrast to Ms. Bair's proposal of a fixed haircut for resolving all repo collateral, it allows the haircut to be determined ex post based on conservative value assessments at the time of the borrower's bankruptcy.

This approach – which is similar to our proposed reform for money market funds and orderly winding down of dealers and other financial firms – addresses the systemic externality of repo contracts on risky and potentially illiquid collaterals without overly compromising market discipline, market liquidity or taxpayer funds.

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Best wishes and regards,  
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Policy Recommendations from NYU Stern:

1. "Rewriting Financial Regulation: Evaluating the Congressional Proposals", Dec 2009

<http://govtpolicyrecs.stern.nyu.edu/home.html>

2. "Restoring Financial Stability: How to Repair a Failed System", Mar 2009

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