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"Broker-Dealer Finance and Financial Stability"

Eric S. Rosengren
President & Chief Executive Officer
Federal Reserve Bank of Boston

Keynote Remarks:
Conference on the Risks of Wholesale Funding
sponsored by the Federal Reserve Banks of
Boston and New York

New York
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Good morning. I would like to thank President Dudley and all the conference organizers for putting together such a substantive agenda on the risks of wholesale funding.

As always, the views I express today are my own, not necessarily those of my colleagues on the Board of Governors or the Federal Open Market Committee (the FOMC).

I appreciate the context that Bill Dudley just provided for my remarks, and more generally for the presentations and discussions at today's conference. Bill has crisply sketched out for us the structural vulnerabilities and institutional weaknesses that evolved over time, and erupted into full view during the crisis.[1]

Today's conference continues the vital work of studying and applying the lessons of the financial crisis. One of the most important lessons is simply that financial institutions are susceptible to being the targets of runs by their depositors or lenders.

That, of course, is a lesson no one should have needed to learn. Long ago, the Depression-era bank runs resulted in major regulatory changes and the creation of federal deposit insurance – which was designed to remove the motivation for future runs by limiting the risk of loss for insured depositors during periods of financial turmoil.[2]

However, as Bill Dudley just highlighted, many of the most significant runs that we saw in 2008 involved financial institutions *other than banks*. For example, the failure of one money market mutual fund spawned fear of losses on investments in such funds generally. The result was a run on financial services providers more broadly, stemmed only by an extension of the federal insurance safety net, the creation of a new Federal Reserve facility – one designed to lend funds to buyers of the assets that money market mutual funds needed to sell, in order to meet redemption demand during the run[3] – and several other new Federal Reserve lending facilities created to prevent a collapse of financial market functioning.

That experience led to regulatory reforms by the Securities and Exchange Commission, including new liquidity requirements for money market mutual funds and recently issued rules that, among other things, will result in the fluctuation of net asset values of shares for some of these funds.[4] While I would have preferred even more protection against financial runs on money market mutual funds, this element of the recent rulemaking does represent a meaningful improvement.[5] Still, I am certainly on record as questioning whether the imposition of withdrawal restrictions ("gates") and fees will help to stabilize money market mutual funds in crisis situations.[6]

Considering Broker-Dealers

Obviously I am placing a heavy emphasis on whether funding is "runnable," to focus on the essential vulnerability we should be concerned about. The most dramatic runs of the financial crisis affected security brokers and dealers. "Broker-dealers" are intermediaries that effect general transactions in securities – primarily the buying and selling of securities – and are critical to market infrastructure.[7] Many of these broker-dealers were part of larger independent investment banks prior to the financial crisis – including Lehman Brothers and Bear Stearns, which failed; and Goldman Sachs and Morgan Stanley, which are now part of bank holding companies.

Importantly, these broker-dealers fund their holdings in uninsured short-term credit markets, which makes them inherently more subject to runs than institutions that finance their holdings with longer-term or insured borrowing. As the crisis showed, when investors lose confidence in broker-dealers, short-term funding "runs" from them, and as a consequence the broker-dealers lose their ability to effectively serve as middlemen in markets, which in turn can impair the ability of investors to buy or sell a wide variety of stocks and bonds.[8]

Perhaps the defining event of the 2008 financial crisis was the failure of Lehman Brothers, one of the largest broker-dealers in the United States. However, the collapse of Lehman was not an isolated failure of a single broker-dealer – but rather one of a string of crises for multiple broker-dealers. Bear Stearns had failed earlier that year, Merrill Lynch experienced significant funding difficulties and was eventually acquired, and Goldman Sachs and Morgan Stanley opted to become bank holding companies. Foreign broker-dealers did not fare much better: several large foreign broker-dealers operating in the United States experienced very substantial losses that required a significant rebuilding of capital.

While there have been significant reductions in some broker-dealers' holdings of highly risky assets, and some improvements in capital and liquidity positions (and collateral quality), their reliance on a wholesale funding model that is subject to runs remains surprisingly unchanged.

Broker-dealers played a dramatic role during the crisis – and extensive government support for them was necessary to prevent further market breakdowns and repercussions across the economy. However, there have been significant structural changes in the industry. Many of the largest domestic former investment banks are now in bank holding companies, and many foreign broker-dealers will now be included in intermediate holding companies. While such holding companies have enhanced regulations, including being subject to stress tests and higher capital requirements, the dependence on unstable short-term funding may necessitate further increases in capital requirements relative to holding companies that do not include a major broker-dealer.

Furthermore, the SEC's capital and liquidity requirements for broker-dealer entities have not materially changed since the crisis – leaving broker-dealers that are not in bank holding companies under a similar regulatory environment as before the crisis. I would note that senior SEC officials have publicly discussed enhancing capital and liquidity for broker-dealers.[9]

In short, the dependence on unstable short-term funding may in my view necessitate further increases in capital requirements. Certainly I am not alone in this view, which has been expressed by Fed Chair Janet Yellen[10] and Governor Daniel Tarullo,[11] among others.

The Broker-Dealer Funding Model

I would like to focus the balance of my comments today on the broker-dealer funding model. Broker-dealers have large balance sheets, which can include long-duration – and potentially risky – assets. Short-term collateralized loans called repurchase agreements are a major source of funding for these large balance sheets.[12] Because the loans are short-term and fully collateralized, the interest rates on repurchase agreements are normally quite low.

However, during stressful times, that low-cost funding may quickly evaporate. During the financial crisis, we saw that many of those who traditionally lent to broker-dealers feared default by a broker-dealer – and did not want to risk having to take possession of the collateral associated with the repurchase agreement in the event of a default. In fact, money market mutual funds, one of the largest sources of lending to broker-dealers, are prohibited from purchasing the kind of long-term or high-credit-risk assets that are sometimes pledged as collateral for loans to broker-dealers.[13]

The result is that broker-dealers can experience significant funding problems during times of financial stress. Unfortunately that potential for problems has not been fully addressed since the crisis. So I would like to discuss some possible responses to this problem, which I suggest should include a major re-examination of how broker-dealers are regulated, and an increase in the capital required for any holding company with significant broker-dealer operations.

The Evolution of Broker-Dealer Financing

Over the past 50 years, the framework for financing has shifted – traditional bank lending has decreased in importance relative to broader market financing of financial assets. As **Figure 1** shows, the traditional financing sources for depository institutions – checking, savings, and time deposits – have declined as a share of total credit-market instruments over the past 50 years. While this ratio has trended slightly upward since the onset of the crisis,[14] it currently stands at roughly half of what it was in the early 1970s.

In contrast, **Figure 2** shows that the assets of broker-dealers grew markedly as a share of total credit-market instruments over the past 50 years – from less than one percent in the early 1960s to almost 10 percent in 2007 – although they remain a modest share, hovering around six percent and perhaps trending downward in recent years.

It is striking how much broker-dealer balance sheets grew during the time leading up to the financial crisis, as shown in **Figure 3.** Indeed, at their peak in March of 2008, broker-dealers had assets of $4.9 trillion – roughly a third the size of U.S. GDP. In addition, broker-dealers became increasingly more leveraged, an expansion that was aided by the relatively light capital requirements that applied to them.

In the aftermath of the financial crisis, many broker-dealers have reduced their risk by paring back their assets, as is clear in the figure. Some of this decline reflects a choice to reduce leverage by shrinking assets, in part reflecting the new capital regulatory requirements that many broker-dealers inherited when they made the shift to become part of bank holding companies, or the fact that they are now required to form intermediate holding companies if they have a foreign banking parent.

The Importance of Repurchase Agreements for Broker-Dealer Financing

Asset growth on the scale seen over the last 50 years required significant increases in funding. Broker-dealers funded this increase in assets by using their securities holdings as collateral for low-cost, short-term financing – an approach that was quite economical – allowing the funding stream to grow easily and cheaply as the securities needed for market-making increased. **Figure 4** shows that financing with repurchase agreements grew quite dramatically and in step with the asset growth of broker-dealers.

While the scale of broker-dealer funding has risen dramatically, **Figure 5** highlights that the use of repurchase agreements to fund their activities is nothing especially new — the figure shows that repos as a share of liabilities at broker-dealers have in fact exceeded 50 percent since the early 1980s.[15]

While many financial institutions use repurchase agreements to fund their asset holdings, **Figure 6** shows that the degree of dependence on repurchase agreements at broker dealers is dramatically higher than that of other large, regulated financial intermediaries.

For example, life insurance companies make relatively little use of repurchase agreements. Given their desire to match the maturities of assets and liabilities, they tend to finance their long-term insurance obligations with long-term assets. While there are insurance products that can be subject to runs, the overall liability structure is much less dependent on short-term financing.

Similarly, repurchase agreements are a relatively unimportant source of financing for most U.S. depository institutions, because they benefit from deposit insurance, which provides an alternate low cost (and stable) way of financing assets.

In contrast, branches of foreign banks are quite dependent on runnable wholesale funding (including repurchase agreements) because they generally cannot offer insured deposits. While their exposure to repurchase agreements is large compared to domestic banks and life insurance companies, it is three times smaller than the very large exposure of broker-dealers.

The largest domestic net suppliers of repurchase agreement financing are money market mutual funds. **Figure 7** shows that as money market mutual funds have grown, so have their holdings of repurchase agreements.

The repurchase agreement is a particularly attractive form of lending for money market mutual funds, because such funds are explicitly limited to holding short-term, low-credit-risk assets. So while money market mutual funds cannot purchase long-term securities or high-credit-risk assets, they can provide short-term collateralized loans to broker-dealers *based on such assets* through repurchase agreements – allowing broker-dealers to use money-market funds to finance assets that cannot be purchased directly by those same money market mutual funds.

When there is confidence in a broker-dealer and its ability to repay their repurchase agreements, the broker-dealer enjoys a very low-cost way of financing securities. However, when – as in a crisis – the investing institution loses confidence in the broker-dealer, they may refuse to conduct repurchase agreements any longer, or they may limit the scope of acceptable collateral – either due to risk aversion or to explicit investment restrictions that they face.

As an example of the latter case, money market mutual funds may refuse to conduct repurchase agreements on securities of the sort they could not purchase by rule (securities they would be entitled to assume as repayment, in the event of default). This type of institutional constraint can cause a run on a broker-dealer even though the financing is secured. Other risk-averse investors, including cash management products with similar investment mandates to money market funds, will likely behave in a similar fashion.

During the financial crisis, deteriorating confidence in broker-dealers was compounded by the fact that investors were also fleeing money market mutual funds, after the failure of Lehman Brothers caused the Reserve Primary Fund to "break the buck." This made repurchase financing particularly problematic. The crisis in short-term funding caused the Federal Reserve to establish a variety of short-term credit facilities to relieve some of these market pressures and avert additional economic damage stemming from problems in credit markets – on which nonfinancial businesses depend.

Given the lessons learned from the crisis, one might have expected less reliance by broker-dealers on repurchase agreements, and a significant increase in capital required of broker-dealers. **Figure 8** shows the liabilities and capital mix of broker-dealers from 2007 to 2013. What is striking is the lack of change – while there has been some improvement in capital, the 2013 liability structure looks surprisingly similar to the structure that prevailed before the financial crisis.

Reducing the Risk of Runs

Generally speaking, highly capitalized institutions are much less likely to be subject to runs. Because broker-dealers do not have deposit insurance, or access to the Federal Reserve's Discount Window, the risks inherent in their funding model should result in higher capital requirements than would be the case if they, like domestic depository institutions, could fund their assets with insured deposits.

Perhaps the most direct way to reduce runs related to unstable funding is to require financial organizations dependent on unstable funding to hold significantly more capital than they would if they used stable sources of funding. This should be true for large independent broker-dealers, foreign broker-dealers now required to form intermediate holding companies in the United States, and major broker-dealers within bank holding companies.

To reduce run risk, a larger share of long-term subordinated debt could also be utilized to finance securities positions. Long-term financing reduces the need for short-term and more "runnable" funding. While some broker-dealers have utilized long-term financing to reduce run risks, paradoxically, other broker-dealers have been *reducing* their use of more stable sources of financing.

Another way to minimize run risks would be to limit the amount of maturity transformation that can be done with repurchase agreements specifically. This would call for limiting the extent to which short-term repurchase agreements held by regulated financial intermediaries could be used to finance long-term assets or high-credit-risk assets. Alternatively, institutional investors such as money market mutual funds could, with new regulation, be prohibited from holding repurchase agreements secured by collateral that they, by rule, could not purchase.

Other remedies are possible and should be explored – and some will be discussed at today's conference. Allow me to mention a few possibilities. One would be regulation that specifies eligible collateral for a repurchase agreement and that mandates the "haircut."

To be sure, policy remedies would have an impact on the profitability of broker-dealers. But given recent history, that trade-off may be unavoidable and in the public interest from a financial stability perspective.

Allow me to mention one other possibility – a complex and likely controversial one, to be sure. In my view, the Federal Reserve's Discount Window could theoretically provide a way of reducing liquidity risk, by providing a standing liquidity facility for broker-dealers like the primary dealer facility that was established during the financial crisis. The rationale for such a step would be rooted in the notion that market-making is as important as lending in today's economy.

However, I realize that such an outcome seems unlikely. And at any rate a number of other steps I have mentioned – such as a significant re-evaluation of broker-dealer regulatory requirements and, particularly, much-higher solvency standards that would reduce the risk of runs – would seem to be prerequisites for such a path.

Concluding Observations

In summary and conclusion, I would first observe that broker-dealers were at the epicenter of the financial crisis. Their reliance on collateralized borrowing in the form of repurchase agreements was assumed to insulate them from runs, perhaps because many viewed collateralized lending as providing little default risk.

This proved wrong. Many of their creditors did not want to take possession of the collateral backing the repurchase agreements in the event of default of a broker-dealer. As a result, there were widespread runs on broker-dealers, particularly those experiencing acute financial problems.

This was not, however, just a problem for broker-dealers. Because of broker-dealers' crucial role as market-makers, liquidity in markets was severely impaired.[16]

The Federal Reserve created special lending facilities to mitigate some of these broker-dealer funding problems. As shown in **Figure 9**, two of the facilities were directly related to broker-dealer financing and lent extensively to broker-dealers, particularly after the failure of Lehman Brothers.

A challenge to the broker-dealer financing model is that repurchase agreements are a very low cost financing method – in fact the costs are lower than those that banks face with many of their core deposits, as shown in **Figure 10**. However, unlike core deposits at banks, the absence of deposit insurance means there is a run risk – a financial stability concern – when broker-dealers become (or are perceived to be) financially impaired, or when uncertainty about their financial soundness rises.

In sum, given the widespread support provided to broker-dealers and the difficulties they encountered during the crisis, a comprehensive re-evaluation of broker-dealer regulation is overdue.

Thank you.

NOTES:

[1] http://www.newyorkfed.org/newsevents/speeches/2014/dud140813.html

[2] The Great Depression era, for instance, showed that a loss of confidence in commercial banks could lead to depositor runs. Such runs often result in "fire sales" of bank assets, entailing significant costs not only to borrowers and depositors, but also to equity holders.

[3] The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) was designed to provide a market for asset-backed commercial paper to be sold by MMMFs. This facility was administered by the Federal Reserve Bank of Boston. For a full description and analysis of the program see Burcu Duygan-Bump, Patrick Parkinson, Eric Rosengren, Gustavo A. Suarez, and Paul Willen, 2013, "How Effective Were the Federal Reserve Emergency Liquidity Facilities? Evidence from the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility" in the *Journal of Finance*, vol. 68(2), pages 715-737. The Temporary Guarantee Program (TGP) directly benefitted money market mutual funds by extending insurance provided by the U.S. Department of Treasury. For details, see U.S. Department of Treasury, "Treasury Announces Temporary Guarantees Program for Money Market Funds," September 2008.

[4] In 2010, the SEC made several changes to Rule 2a-7, including: tightened weighted average maturity limits; enhanced disclosure requirements; the ability to suspend redemptions to facilitate an orderly liquidation; and new weighted average life, stress-testing, and "know your customer" requirements. Last month, the SEC voted, among other things, to adopt a floating NAV requirement for certain prime funds and grant non-government MMMFs the ability to suspend redemptions or impose redemption fees if certain liquidity thresholds are breached. For more details on the new rules, see: http://www.sec.gov/News/PressRelease/Detail/PressRelease/1370542347679#.U-Tr4KMvjSg

[5] While the floating NAV for prime institutional funds and tightening of asset purchase requirements for government funds are helpful, retail funds still have a fixed NAV and the potential for imposing gates and fees could be destabilizing. I discussed these concerns further in a speech on September 27, 2013 at the Conference on Stable Funding sponsored by The Federal Reserve Bank of New York and the Office of Financial Research: http://www.bostonfed.org/news/speeches/rosengren/2013/092713/index.htm. Also see the joint letter from the presidents of the 12 Federal Reserve Banks responding to the Securities and Exchange Commission's reform proposal on money market mutual funds (MMMFs): http://www.bostonfed.org/news/press/2013/pr091213.htm.

[6] See the joint letter from the presidents of the 12 Federal Reserve Banks responding to the Securities and Exchange Commission's reform proposal on money market mutual funds (MMMFs): http://www.bostonfed.org/news/press/2013/pr091213.htm. See also the joint comment letter from the Federal Reserve Bank presidents in response to the Financial Stability Oversight Council's proposed recommendations regarding MMMF reform: http://www.bostonfed.org/news/press/2013/pr021213.htm

[7] For more on the definition of a Broker-Dealer under SEC registration, see http://www.sec.gov/divisions/marketreg/bdguide.htm#II, reflecting the Securities Exchange Act of 1934 which "governs the way in which the nation's securities markets and its brokers and dealers operate."

[8] Other damaging impacts of a broker-dealer failure include fire sales resulting from having to quickly liquidate assets.

[9] SEC Chair Mary Jo White talked about enhancing capital and liquidity under "critical initiatives in 2014" in this Feb speech: http://www.sec.gov/News/Speech/Detail/Speech/1370540822127. She notes that "We will also increase our oversight of broker-dealers with initiatives that will strengthen and enhance their capital and liquidity, as well as providing more robust protections and safeguards for customer assets." Also see the comments of SEC Commissioner Kara Stein from June of this year, available at http://www.sec.gov/News/Speech/Detail/Speech/1370542076896. Additionally, see a Bloomberg press account from March of this year: http://www.bloomberg.com/news/2014-03-20/shadow-banking-deals-prompt-sec-plan-to-cap-leverage-for-brokers.html

[10] Chair Yellen noted on July 2, 2014:

"… The Basel III framework also includes liquidity requirements designed to mitigate excessive reliance by global banks on short-term wholesale funding.

"… In addition, measures are being undertaken to address some of the potential sources of instability in short-term wholesale funding markets, including reforms to the triparty repo market and money market mutual funds – although progress in these areas has, at times, been frustratingly slow.

"Additional measures should be taken to address residual risks in the short-term wholesale funding markets. Some of these measures – such as requiring firms to hold larger amounts of capital, stable funding, or highly liquid assets based on use of short-term wholesale funding – would likely apply only to the largest, most complex organizations. Other measures – such as minimum margin requirements for repurchase agreements and other securities financing transactions – could, at least in principle, apply on a marketwide basis." [http://www.federalreserve.gov/newsevents/speech/yellen20140702a.htm]

She also noted, on April 15, 2014:

"…let me highlight one data point that suggests that there may be net social gains from introducing further reforms to address short-term wholesale funding risks. In 2010, the Basel Committee assessed the long-term economic impact of stronger capital and liquidity requirements for global banks. Factoring in the Basel III capital requirements and the NSFR, the Basel study suggested that tightening risk-based capital and liquidity requirements would, on net, provide economic benefits, and that benefits would continue to accrue at even higher levels of risk-based capital than are part of Basel III.

"While it would be a mistake to give undue weight to any one study, this study provides some support for the view that there might be room for stronger capital and liquidity standards for large banks than have been adopted so far."
[http://www.federalreserve.gov/newsevents/speech/yellen20140415a.htm]

[11] Governor Tarullo noted on November 22, 2013:
"There are two kinds of policy options that can be considered, individually or together, in responding to the financial stability vulnerabilities inherent in firms with large amounts of short-term wholesale funding – whether loaned, borrowed, or both. The first would impose a regulatory charge calculated by reference to reliance on [securities financing transactions (SFTs)] and other forms of short-term wholesale funding, whether the firm uses that funding to finance inventory or an SFT matched book. The second would directly increase the very low charges under current and pending regulatory standards attracted by SFT matched books."
[http://www.federalreserve.gov/newsevents/speech/tarullo20131122a.htm]

He also noted on May 3, 2013:
"…existing bank and broker-dealer risk-based capital rules do not reflect fully the financial stability risks associated with SFTs. Accordingly, higher, generally applicable capital charge applied to SFTs might be a useful piece of a complementary set of macroprudential measures, though an indirect measure like a capital charge might have to be quite large to create adequate incentive to temper the use of short-term wholesale funding."
[http://www.federalreserve.gov/newsevents/speech/tarullo20130503a.htm]

[12] While repos are the largest source of such funding, runs were also experienced on commercial paper and prime brokerage assets. Also, the run on repos was differentiated based on the quality of the underlying collateral.

[13] Upon default, a fund would have to liquidate an ineligible security unless the board determines it is in the best interest of shareholders not to sell the asset. But they cannot buy more of such a position.

[14] Part of the recent step up would be the result of the increase in the size of the covered portion of insured bank accounts.

[15] Furthermore, the quality of assets held in trading inventory was much better in the 1980s and 1990s versus immediately prior to the financial crisis of 2008. Today's quality has improved from the crisis but is not back to the quality level of the 1980s and early 1990s.

[16] The structured products and leveraged finance capital markets, for example, completely shut down for a short period.