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Shadow Banking and Systemic Risk Regulation

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As illustrated, quite literally, by a chart that New York Fed staff produced a few years ago, the term "shadow banking system" encompasses a wide variety of institutions that engage in credit intermediation and maturity transformation outside the insured depository system.[1] In my remarks today, I want to concentrate on short-term wholesale funding and, especially, the pre-crisis explosion in the creation of assets that were thought to be "cash equivalents." Such assets were held by a range of highly risk-averse investors, who were in many cases not fully cognizant that the "cash equivalents" in their portfolios were liabilities of shadow banks--the institutions depicted in the memorable graphic.

In some cases, the perception of claims on shadow banks as cash equivalents was based on explicit or implicit promises by regulated institutions to provide liquidity and credit support to such entities. In other cases, the perception came about because market participants viewed the instruments held on the balance sheets of shadow banking entities--notably highly rated, asset-backed securities--as liquid and safe. While reliance on private mechanisms to create seemingly riskless assets was sustainable in relatively calm years, the stress that marked the onset of the financial crisis reminded investors that claims on the shadow banking system could pose far more risk than deposits insured by the Federal Deposit Insurance Corporation (FDIC). Once reminded of their potential exposure, investors engaged in broad-based and sometimes disorderly flight from the shadow banking system.

This experience of the run on the shadow banking system that occurred in 2007 and 2008 reminds us that similar disorderly flights of uninsured deposits from banks lay at the heart of the financial panics that afflicted the nation in the late nineteenth and early twentieth centuries. The

[1] See Zoltan Pozsar, Tobias Adrian, Adam Ashcraft, and Hayley Boesky (2010), "Shadow Banking," Staff Report No. 458 (New York: Federal Reserve Bank of New York, July), www.ny.frb.org/research/staff_reports/sr458.pdf.

most dramatic of these episodes were the bank runs of the early 1930s that culminated in the bank holiday in 1933. Just as it was necessary, though not sufficient, to alter the environment that led to those successive deposit runs by introducing deposit insurance in order to create a stable financial system in the early-twentieth century, today it is necessary, though not sufficient, to alter the environment that can lead to short-term wholesale funding runs in order to create a stable financial system for the early twenty-first century.

As I will describe in a few moments, the Federal Reserve has taken some steps toward this end over the past few years. However, as I will also contend, completion of this task will require a more comprehensive set of measures, at least some of which must cover financial actors not subject to prudential regulatory oversight. Before turning to these points, I want to develop briefly the comparison between deposit runs of the pre-FDIC period and contemporary short-term wholesale funding runs in order better to explain the nature of the regulatory challenge.

Vulnerabilities Created by Short-Term Wholesale Funding

There are notable similarities between the bank runs that periodically afflicted the U.S. banking system before the creation of federal deposit insurance and the dramatic short-term wholesale funding runs that began in 2007. Each had a cascading, self-reinforcing quality, fueled by questions concerning the solvency of borrowing entities--whether deposit-taking banks or dealers seeking credit in repo markets. And, in each case, the opaqueness of the balance sheets of the borrowing entities led lenders to fear that an institution holding assets similar to, or interconnected through counterparty relationships with, another, troubled institution might itself be in trouble. Significantly, though, in each case, at least some of the lending actors were interested not just in eventually recovering the full amount of the funds they had extended, but in

having access to those funds more or less immediately. Some depositors in 1932 needed their money in order to meet the requirements of daily life, while many repo counterparties in 2008 needed their money to meet other short-term obligations. Thus the issue was not just a matter of solvency--whether the firm would ultimately be able to pay all the claims even after the run--but also a matter of the short-term liquidity of the bank or broker.

The dynamic unleashed by short-term wholesale funding runs in 2007 and 2008 directly exacerbated financial stress. Many assets funded through the shadow banking system were traded assets, which could be liquidated rapidly, though often at distressed prices, to reduce the funding needs of the borrowing firms. The resulting fire sales recalled the asset liquidations by some trust companies during the Panic of 1907 and by some securities firms in the 1930s. In 2008, these fire sales created adverse feedback loops of mark-to-market losses, margin calls, and further liquidations. The unwinding of the risk illusion--that is, the assumption that lending to shadow banks was essentially risk-free--helped transform a dramatic correction in real estate valuations into a crisis that engulfed the entire economy.

But for a few idiosyncratic instances since the introduction of deposit insurance in 1933, bank runs have been rendered a thing of the past. Deposits below the amount of the federal insurance cap are fully and explicitly guaranteed. Access to the Federal Reserve's discount window for depository institutions complements the deposit insurance system by helping to relieve liquidity pressures in solvent banks. In practice, failing banks usually merge into healthier ones, so that depositors do not lose access to their funds and deposits exceeding the amount of the federal insurance cap are effectively protected. In the relatively few instances of depositor payouts, the FDIC has reimbursed depositors expeditiously. Of course, the explicit and

de facto extension of federal guarantees created moral hazard problems, which the safety-and-soundness regulation of insured depository institutions was strengthened to address.

The similarities between deposit runs and short-term wholesale funding runs have suggested to some that the policy responses should also be similar. Those taking this position argue for providing discount window access to broker-dealers, guaranteeing certain kinds of wholesale funding, or both. Others, myself included, are wary of any such extension of the government safety net and would prefer a regulatory approach that requires market actors using or extending short-term wholesale funding to internalize the social costs of those forms of funding. Unlike deposit insurance, the savings of most U.S. households are generally not directly at risk in short-term wholesale funding arrangements. And, also unlike insured deposits, there is an argument in the short-term wholesale funding context that counterparties should be capable of providing some market discipline in at least some of the contexts in which such funding is provided.

In thinking about how to regulate shadow banking, we must be mindful that it is not really a single system. It is immeasurably more complicated than the bank deposit system of either the 1930s or today. Even with the reduction in activity following the crisis, the scale of shadow banking activity remains very large. Banks and broker-dealers currently borrow about $1.6 trillion, much of this from money market funds and securities lenders, through tri-party repos, leaving aside additional funds sourced from asset managers and other investors through other channels.[2] The banks and broker dealers, in turn, use reverse repo to provide more than $1 trillion in financing to prime brokerage and other clients. While the volume of this activity has

[2] Federal Reserve Bank of New York, "Tri-Party Repo Statistics as of 10/09/2013," Tri-Party Statistical Data file, www.newyorkfed.org/banking/pdf/oct13_tpr_stats.pdf.

fallen considerably since the crisis and the haircuts and other conditions associated with current securities financing transactions are considerably more conservative than during the pre-crisis period, there is every reason to believe that the amount of this activity could increase, and the conservatism of the terms of the lending could be eroded, as economic conditions improve.

Let me turn now to some of the specific vulnerabilities, steps that have been taken thus far to address these vulnerabilities, and the work that remains.

Regulated Institutions and Shadow Banking

While the term "shadow banking" implies activity outside the purview of regulatory oversight, regulated institutions are in fact heavily involved in these activities, both in funding their own operations and in extending credit and liquidity support to shadow banks beyond the regulatory perimeter.

Support provided for shadow banking activities may be either explicit or implicit. In some cases, there are explicit contractual provisions for credit enhancements and liquidity support. In other cases, the support is implicit, based on a bank's historical pattern of providing support or a belief among investors that a bank will provide support to maintain the value of its franchise. In the lead-up to the crisis, explicit and implicit commitments by regulated banking firms to shadow banks often combined to create the assumption that the liabilities of such entities were risk-free. This perception led to an underpricing of the risks embedded in these money-like instruments, making them an artificially cheap source of funding and creating an oversupply of these instruments that contributed to systemic risk.

Contractually committed credit and liquidity support lends itself more readily to regulation than does implicit support. Basel III reforms have strengthened the regulatory requirements for situations in which there is contractual support for shadow banking activities.

For example, the Basel III capital requirements increase from 0 percent to 20 percent the credit conversion factor for commitments with an original maturity of one year or less that are not unconditionally cancellable. In addition, the Basel III Liquidity Coverage Ratio (LCR) assigns a 100 percent drawdown rate to undrawn amounts of credit and liquidity facilities extended by banks to a special purpose entity (SPE), effectively requiring a bank to hold $100 in high-quality liquid assets (HQLA) for every $100 it commits to a SPE.

Implicit support presents more of a regulatory challenge. Identifying implicit forms of support requires a supervisory judgment that, despite sometimes stern warnings in offering documents, a banking organization bears some of the risk associated with that investment. Regulators must decide how much of the risk the banking organization retains and make context-sensitive judgments about the financial stability implications of various remedies. These challenges notwithstanding, regulators have made some progress in addressing instances of implicit support that played a major role in the last crisis. Let me mention two examples.

The first involves the implicit support associated with the provision of intraday credit by clearing banks in the tri-party repo market. In a repurchase agreement or "repo," the cash borrower agrees to sell a security to a cash lender, and to repurchase the security from the cash lender at a later date. In a tri-party repo transaction, a clearing bank handles settlements through accounts held at that financial institution by the parties to the transaction. To allow broker-dealers who borrow in the tri-party repo market to have access to their securities for routine trading purposes, the market developed an operational feature known as the "daily unwind." Before the crisis and for some time afterwards, the clearing banks unwound all tri-party repo trades each day--even those with a significant term, which in theory represented longer-term financing commitments--returning securities to borrowers and cash to lenders. However,

because the securities still required financing during the day, cash borrowers relied on uncommitted secured credit, backed by their overall portfolio of securities and provided by the clearing bank. Transactions were re-wound at the end of the day, with specific securities allocated as collateral to each lender at that time.

Cash lenders in the tri-party repo market thus came to expect that the two clearing banks would always unwind their maturing trades in the morning, returning cash to their account, despite the absence of a contractual provision requiring them to do so. As a result, they grew comfortable in the belief that they held a cash-equivalent asset that was perfectly safe and liquid. But as the crisis deepened, cash lenders became aware of the fact that the clearing banks were not contractually obligated to unwind repo trades and that the dealers that were the primary borrowers in the tri-party repo market could fail, leaving lenders with collateral that they had little or no capacity to manage at a juncture when its value and liquidity was open to doubt. This resulted in several distinct episodes during the crisis when cash lenders, despite holding collateral, quickly withdrew financing from dealers perceived to be facing potential financial distress. The tri-party repo market might have suffered a full-scale run in the absence of public-sector intervention.

Since the crisis, the Federal Reserve has led an effort to reduce reliance on intraday credit in the tri-party repo market. Work to date has reduced the amount of intraday credit provided by the clearing banks from 100 percent of the tri-party repo market to approximately 30 percent, and commitments by market participants suggest that this amount will fall to 10 percent by the end of next year. This operational change, in addition to enhancing the resiliency of the settlement process, should help limit the likelihood that tri-party repo lenders return to believing that lending in the tri-party repo market is a risk-free proposition. As a result, tri-party repo lenders

are likely to conduct more thorough due diligence on their counterparties and exercise more care in considering the types of collateral that they will lend against than was the case before the crisis.[3]

The second example involves the implicit support provided by bank sponsors of certain securitization SPEs. Before the crisis, the interplay between bank capital requirements and accounting rules created a significant incentive for banks to shift assets off-balance sheet through the use of various SPEs. Under the capital requirements that applied at the time, a bank that sold assets to a conduit or other SPE it sponsored was required to hold capital only against its contractual exposure to the SPE. Yet because a bank that failed to support SPEs it sponsored might irreparably damage the value of its franchise, banks often provided credit and liquidity support in excess of contractually obligated amounts to asset-backed commercial paper (ABCP) programs, credit card securitizations, and other structured finance vehicles. Recognizing this incentive, pre-crisis lenders were willing to hold commercial paper and other liabilities issued by bank-sponsored SPEs at yields only slightly higher than those on liabilities issued directly by the bank. In effect, the bank was able to hold less capital and reduce its funding costs without decreasing its economic exposure.

Post-crisis reforms have reduced the opportunity for banks to exploit this regulatory arbitrage. In 2009, the Financial Accounting Standards Board (FASB) adopted FAS 166 and 167 to modify the accounting treatment of structured finance transactions involving certain SPEs. Under the new accounting guidance, a company is required to consolidate those SPEs for which the company has the power to direct matters that most significantly impact the entity as well as the obligation to absorb losses or the right to receive benefits. Securitization sponsors have

[3] This work is explained on the website of the Federal Reserve Bank of New York, www.newyorkfed.org/banking/tpr_infr_reform.html.

generally interpreted the new guidance as requiring a sponsor to consolidate a SPE under circumstances in which the sponsor retains loan-servicing obligations and exposure to the equity tranche of the securitization.

Following the publication of FAS 166 and 167, the federal banking agencies adopted new rules requiring banking organizations to hold risk-based and leverage capital against assets of the newly consolidated SPEs.[4] These rules eliminated a provision in the bank capital requirements that permitted a banking organization to exclude from the calculation of its risk-weighted assets the assets of an ABCP program that the banking organization sponsored and was required to consolidate. As a result, bank sponsors of ABCP conduits and certain other securitizations must now hold levels of regulatory capital commensurate with the exposure arising from the implicit support they provide.

Collateralized Borrowing Arrangements and Financial Stability

Turning now to financial stability concerns raised by short-term wholesale funding more generally, I want to focus on collateralized borrowing arrangements. These collateralized borrowing arrangements consist largely of securities financing transactions (SFTs), a term that generally refers to repo and reverse repo, securities lending and borrowing, and securities margin lending. Lenders are willing to extend credit on a secured basis because these transactions are usually short-term, over-collateralized, backed by reasonably liquid securities, subject to daily mark-to-market and re-margining requirements, and exempt from the automatic stay in insolvency proceedings. In the most common practice, a broker-dealer uses SFTs to finance

[4] See Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, and Office of Thrift Supervision (2010), "Agencies Issue Final Rule for Regulatory Capital Standards Related to Statements of Financial Accounting Standards Nos. 166 and 167," press release, January 21, www.federalreserve.gov/newsevents/press/bcreg/20100121a.htm.

either securities inventory or a back-to-back SFT loan to another financial firm (SFT matched book).

The financial stability risks associated with a dealer's use of short-term SFT funding to finance its inventory are relatively straightforward. If a broker-dealer loses access to financing and is forced to sell securities at a depressed price, fire sale externalities may result because other market participants may be less able to borrow against the same securities. And if the broker-dealer fails due to runs by short-term SFT lenders, post-default fire sales by the firm's creditors or contagious runs on other financial intermediaries may ensue. Because broker-dealers generally do not internalize the externalities that arise in these cases, they may use more than the economically efficient level of short-term funding.

The financial stability risks associated with SFT matched books are somewhat less obvious. Even if the outflows and inflows associated with a dealer's SFT positions are perfectly maturity-matched, reputational considerations may inhibit a dealer from reducing the amount of SFT credit that it provides its customers, exposing the dealer to considerable liquidity stress. If the dealer does reduce the amount of credit that it provides to its customers, those customers may be forced to engage in asset fire sales of their own. Particularly in situations in which the customers are highly leveraged, maturity-transforming entities that lack access to a liquidity provider of last resort may pose a significant risk of contagion.

Post-crisis financial regulatory reform has taken some steps to address the financial stability risks associated with a dealer's use of short-term SFT funding to finance inventory. For example, the liquidity coverage ratio requires firms to hold a buffer of high-quality liquid assets when they use SFT liabilities that mature in less than 30 days to fund many types of securities. New risk-based capital rules have substantially increased the amount of capital that dealers are

required to hold against assets in the trading book. But these reforms are limited: The LCR does not require firms to hold any liquidity buffer against SFT liabilities that mature in more than 30 days or that are backed by very liquid assets. There continues to be a need for standardized capital requirements for market risk to back up model-derived risk weights.

Moreover, the current regulatory framework does not impose any meaningful regulatory charge on the financial stability risks associated with SFT matched books. The Basel III risk-based capital rules require banking organizations to hold relatively little capital against SFT assets, which are assumed to pose little microprudential risk. Because leverage requirements do not take into account the fact that SFTs are collateralized transactions, leverage requirements have the potential to impose higher charges on SFT assets. But leverage requirements have traditionally been calibrated at non-binding levels and, to the extent they do bind in the future, are unlikely to bind evenly across firms. As a result, the leverage ratio may simply cause SFT assets and liabilities to migrate to those firms with stronger leverage ratios.

Similarly, the LCR and, at least at this stage of its development, the Net Stable Funding Ratio (NSFR), both assume that a firm with a perfectly matched book is in a stable position. The LCR assumes a bank can call in reverse repos and other SFT assets that mature in less than 30 days or reuse the collateral that secures those assets for purposes of its own borrowing. Thus, reverse repos and other SFT assets generally are treated as completely liquid instruments. Under the initial version of the NSFR, firms would not need to hold any stable funding against reverse repos, securities borrowing receivables, or other loans to financial entities that mature in less than one year. Again, this may be a reasonable position from a microprudential perspective, geared toward more or less normal times. But here is where we need an explicitly

macroprudential perspective that forces firms to internalize the tail-event financial stability risks associated with SFT matched books.

Policy Options

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 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.

Among the first set of options, the idea that seems most promising is to tie capital and liquidity standards together by requiring higher levels of capital for large firms that substantially rely on short-term wholesale funding. The additional capital requirement would be calculated by reference to a definition of short-term wholesale funding, such as total liabilities minus regulatory capital, insured deposits, and obligations with a remaining maturity of greater than a specified term. There might be a kind of weighting system to take account of the specific risk characteristics of different forms of funding. The capital requirement would then be added to the Tier 1 common equity requirement already mandated by the minimum capital, capital conservation buffer, and globally systemic bank surcharge standards. However, this component of the Tier 1 common equity requirement would be calculated by reference to the liability side, rather than the asset side, of the firm's balance sheet.

The rationale behind this policy option is that, while solid requirements are needed for both capital and liquidity, the relationship between the two also matters. For example, a firm

with little reliance on short-term funding is less susceptible to runs and, thus, to the need for engaging in fire sales that can depress capital levels. A capital surcharge based on short-term wholesale funding usage would add an incentive to use more stable funding and, where a firm concluded that higher levels of such funding were nonetheless economically sensible, the surcharge would increase the loss absorbency of the firm. Such a requirement would be consistent with, though distinct from, the long-term debt requirement that the Federal Reserve Board will be proposing to enhance prospects for resolving large firms without taxpayer assistance.

The second kind of policy option is to address head-on the macroprudential concerns arising from large matched books of securities financing transactions. A capital surcharge is in some respects an indirect response to the problem of short-term wholesale funding runs and, as earlier noted, current versions of capital and liquidity standards do not deal with matched book issues. One might choose either to increase capital charges applicable to SFT assets or to modify liquidity standards so as to require firms with large amounts of these assets to hold larger liquidity buffers or to maintain more stable funding structures. It is not clear how much appetite there may be internationally for revisiting agreements that have been completed, such as the LCR and the Basel III capital rules. However, with the NSFR still under discussion, and with the Basel Committee in the process of reconsidering the standardized banking book risk weights and capital regulations associated with traded assets, there are opportunities to pursue these options.

Requirements building on any of the foregoing options would by definition be directly applicable only to firms already within the perimeter of prudential regulation. The obvious questions are whether these firms at present occupy enough of the market that standards applicable only to them would be reasonably effective in addressing systemic risk and, even if

that question is answered affirmatively, whether the imposition of such standards would lead to a significant arbitrage through increased participation by those outside the regulatory perimeter. It does not seem far-fetched to think that, with time and sufficient economic incentive, the financial, technological, and regulatory barriers to the disintermediation of prudentially regulated dealers could be overcome. Indeed, there have already been reports of some hedge funds exploring the possibility of disintermediating dealers by lending cash against securities collateral to other market participants.

For this reason, there is a need to supplement prudential bank regulation with a third set of policy options in the form of regulatory tools that can be applied on a market-wide basis. That is, regulation would focus on particular kinds of transactions, rather than just the nature of the firm engaging in the transactions. To date, over-the-counter derivatives reform is the primary example of a post-crisis effort at market-wide regulation.[5] Given that the 2007–2008 financial crisis was driven more by disruptions in the SFT markets than by disruptions in the over-the-counter derivative markets, comparable attention to SFT markets is surely needed. Over the past two years, the Financial Stability Board (FSB) has been evaluating proposals for a system of haircuts and margin requirements for SFTs. In its broadest form, a system of numerical floors for SFT haircuts would require any entity that wants to borrow against any security to post a minimum amount of excess margin that would vary depending on the asset class of the collateral. Like minimum margin requirements for derivatives, numerical floors for SFT haircuts would be

[5] Although the Dodd-Frank Act gives the Commodity Futures Trading Commission and the Securities and Exchange Commission primary responsibility in this area, a broad range of federal financial regulators (including the Federal Reserve) is responsible for developing margin requirements for over-the-counter derivatives transactions. These requirements will limit the amount of leverage that market participants can take on through the use of derivative instruments. In addition, by requiring margin to be posted at the outset of a transaction and mark-to-market gains and losses to be continually offset through transfers of additional collateral, these requirements will help to avoid situations in which firms face margin calls only when they are most pressed for liquidity.

intended to serve as a mechanism for limiting the build up of leverage at the security level, and could mitigate the risk of procyclical margin calls.

In August, the FSB released a proposal that would represent a first step in the direction of such a framework. However the FSB's proposal has some significant limitations. First, with respect to counterparty scope, the FSB's proposal would apply only to SFTs in which regulated entities provide financing to unregulated entities; the proposal would not cover SFTs between a regulated lender and a regulated borrower, between an unregulated lender and a regulated borrower, or between an unregulated lender and an unregulated borrower. Second, the proposal would apply only to lending against collateral other than sovereign obligations. And finally, with respect to calibration, the FSB's proposed numerical floors are set at relatively low levels--levels that are, for example, significantly below the haircuts that currently prevail in the tri-party repo market.

An alternative to the FSB's proposal would be to apply a system of numerical floors to SFTs regardless of the identity of the parties to the transaction. Such an approach would at least partially offset the incentive that will otherwise exist to move more securities financing activity completely into the shadows. Regarding calibration, there are at least three conceptually plausible bases for setting the level of the numerical floors above the low backstop levels contemplated in the current FSB proposal.

One approach would be to base the calibration of the numerical floors on current repo market haircuts. These haircuts have increased significantly compared to pre-crisis levels. Establishing numerical floors at around current levels could prevent the return of a less prudent set of practices as memories of the crisis fade. A second approach would be to set haircuts for a given asset class based on asset price volatility or haircut levels observed during times of stress

or long-term periods that include times of stress. While minimum haircut levels should not be set as high as the haircuts lenders demanded at the depths of the crisis, setting numerical floors in proportion to those levels might be reasonable. A third alternative would be to set numerical floors for SFT haircuts at levels that are commensurate with the amount of capital a banking organization would need to hold against the security if it held the security in inventory. Such an approach could be viewed as an indirect way of extending bank capital requirements to the shadow banking system, and would reduce the current bank regulatory incentive to lend against a security rather than hold it directly.

Finally, it is worth noting that, while a framework of universal margin requirements for SFTs could not be evaded through the disintermediation of regulated entities, it might be evaded through the use of alternative transactional structures. If margin requirements for cash SFT transactions are significantly higher than margin requirements for creating the same economic exposures using synthetic SFT transactions, a framework of minimum margins for SFTs could push market participants to rely more heavily on derivatives that are the functional equivalent of cash SFTs. Moreover, market participants might attempt to arbitrage margin floors through arrangements whereby the lender effectively lends the SFT borrower the minimum excess margin amount. These and similar issues will need to be addressed as options for minimum margins are further developed.

Conclusion

If we think back to the rapid growth of the shadow banking system in the pre-crisis period, we are reminded of some glaring vulnerabilities: Large firms that could themselves be considered shadow banks and that relied on the shadow banking system for a significant proportion of their funding--a group that included the “free-standing” investment banks--were

outside the perimeter of prudential regulation. The breaking of the buck by the Reserve Primary Fund following Lehman's collapse triggered a run on the shadow banking system that required unprecedented support by the Treasury Department and the Federal Reserve.

The process established by the Dodd-Frank Wall Street Reform and Consumer Protection Act for designation of systemically important non-bank firms has provided a means for ensuring that the perimeter of prudential regulation can be extended as appropriate to cover large shadow banking institutions. The proposals of the Securities and Exchange Commission on money market fund regulation are a response to continuing vulnerabilities as well as to the run in the fall of 2008. These are important initiatives that will contribute to a safer system of funding throughout the financial system. Yet the risk of contagious runs would persist even in the absence of individually systemic institutions. And with less vulnerable money market funds, other cash-rich entities could emerge as a source of inexpensive funding for the shadow banking system. Finally, as I have noted, the systemic risks associated with short-term wholesale funding in prudentially regulated institutions have not fully been countered by the important capital and liquidity standards adopted since the crisis. My purpose today has been to reinforce the point that a sounder, more stable financial system requires a more comprehensive reform agenda.