



***Towards Greater Financial Stability  
in Short-Term Credit Markets***

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***Remarks at the Global Interdependence Center's  
Conference on Capital Markets in the Post Crisis Environment***

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I am very happy to be with you for this substantive conference on capital markets in the “post-crisis” environment. It is vital for policymakers and practitioners to study and apply the recent lessons of financial interdependence, given the obvious effects on public wellbeing. So I am glad to be able to join you in these discussions. And I commend the Global Interdependence Center for organizing this event, and others like it.

I should note, of course, that the views I express today are my own, and not necessarily those of my colleagues on the Federal Reserve’s Board of Governors or the Federal Open Market Committee (the FOMC). That is a standard disclaimer for Fed officials, but I really do mean it. My comments should not be construed as official Fed perspectives or policy, but rather one person’s carefully considered perspectives, based on much study. Let me also mention that my charts, and the analysis I will share with you today, are all built on publicly available data.

My intent today is to offer up some constructive observations that I believe will help us move towards greater financial stability, to the benefit of all. We need to create a more stable financial infrastructure and I believe we can, in a thoughtful manner.

For the second time in four years, problems with financial institutions have captured the attention not only of economists, but also the mainstream press and the public at large. Given the importance of credit to economic performance, we should reflect on why our financial system seems so susceptible to shocks, and on how we can strengthen its resilience so government intervention is no longer necessitated by such shocks. My hope is that bankers and central bankers can once again be relegated from the front pages of our newspapers to the business sections.

Yesterday I had an opportunity to participate in an economic outlook forum and discuss some of the challenges in the real economy – specifically in housing – that we are trying to address in the United States. Today I'd like to shift somewhat from the real economy directly, and focus on more underlying financial-market challenges.

It goes without saying that this is an important time to be discussing financial markets. Global financial markets are being buffeted by concerns about the challenges facing various financial institutions, in part as a result of issues with fiscal imbalances in a number of countries. This heightened uncertainty is occurring despite the aggressive monetary policy actions taken in response to the recent recession – actions that at first blush would seemingly mitigate some of these challenges.

Consistent with our mandate, the Federal Reserve acted aggressively when financial disruptions emerged and the economy faltered. After cutting the federal funds rate essentially as far as possible, the Fed took less traditional policy actions, again to pursue our mandate. **Figure 1** shows that bank reserves in the United States have increased dramatically. We have increased the size of the Federal Reserve balance sheet, providing over a trillion dollars in additional bank reserves – yet even so, dollar funding markets have experienced strains.

**Figure 2** highlights that interbank markets are showing more strains as the spread between the 3-month London Interbank Offered Rate (LIBOR) and the overnight index swap rate has widened. This is happening even though most banks are loath to post higher rates for fear of signaling financial challenges.

Also reflective of the current strain is **Figure 3**, which essentially shows the cost of utilizing derivatives contracts to secure dollar funding. It shows the spread between the 3-month dollar cash rate implied by a 3-month euro-dollar FX swap, and 3-month dollar LIBOR. Under normal conditions the line should be quite close to zero, but during periods of dollar funding problems, the spread can widen. As the chart shows, the spread is now at the widest it has been in the past several years.

So how can there be a shortage of dollar funding at a time when there are so many bank reserves? One answer lies in the structure of short-term funding markets – a structure that has evolved to a state that is, unfortunately, particularly sensitive to liquidity shocks.

Today I will highlight that the structure of the U.S. money market mutual fund (MMMF) industry<sup>1</sup> -- and the practice of many financial institutions to fund long-term dollar assets with short-term dollar liabilities – have both helped make the global financial system susceptible to liquidity shocks and (relatedly) to changes in the perceived credit risk of market participants.

I will first discuss the role that MMMFs play in providing short-term funding, including serving as an important source of short-term financing for European banks. I will highlight that the current structure makes MMMFs particularly susceptible to credit shocks that can turn into liquidity problems for the whole industry – and will suggest some ways that the industry could be made more resilient.

And I will then turn to the practice among some European banks of funding long-term dollar assets with short-term paper purchased by MMMFs. This too, has proved to be a structure that makes short-term credit markets susceptible to liquidity shocks.

I will conclude with some general observations about the current stresses in financial markets.

### **The Role of Money Market Mutual Funds in Short-Term Credit Markets**

MMMFs are mutual funds that provide investors the ability to invest in a diversified set of short-term credit-market instruments. Because MMMFs generally invest in highly liquid, high quality, short-term credit instruments they are *not* required to alter their net value to reflect small movements in underlying asset values. The resulting stable (versus floating) net asset value makes the investments attractive to investors looking for a transactional account that generally has paid a somewhat higher return than comparable bank products.

Like other mutual funds, MMMFs are not required to hold any capital as protection against adverse movements in the value of the assets they hold. This absence of capital, together with the stable net asset value, results in a structure that despite its appeal in other ways is prone to shareholder “runs” during times of financial stresses.

MMMFs have been viewed as appealingly safe investment vehicles for investors seeking highly liquid investment opportunities. As a condition of transacting at a stable net asset value, the MMMFs, which are regulated by the Securities and Exchange Commission (SEC), are required to maintain significant liquidity ratios and are limited in the duration and credit ratings of the financial instruments they can hold.<sup>2, 3</sup>

MMMFs are critical players in short-term credit markets. They have been very significant buyers of commercial paper, asset-backed commercial paper, and certificates of deposit. MMMFs have provided an important source of financing for organizations dependent on wholesale financing,

including branches of foreign banking organizations operating in the U.S. – I will discuss them in a moment – and others that issue short-term credit instruments to finance longer-term dollar-denominated assets.

As **Figure 4** illustrates, MMMFs are sizeable participants in financial markets with about \$2.5 trillion of assets under management. They grew rapidly for much of the last decade, but encountered significant problems in the wake of the failure of Lehman Brothers. One MMMF, the Reserve Primary Fund, had a position in Lehman Brothers and was unable to maintain a fixed net asset value (“broke the buck”) after Lehman failed and the value of its commercial paper plummeted. This led to rapid withdrawals from many MMMFs (a “run”) as investors became concerned that other MMMFs would not be able to maintain their stable net asset value.

In response to the rapid withdrawals, the U.S. Treasury announced a temporary insurance program for MMMFs. The Federal Reserve Bank of Boston administered on behalf of the Federal Reserve System a lending facility that was designed to address the short-term liquidity needs of MMMFs and help stabilize short-term credit markets that were disrupted by the rapid liquidation of investments by many MMMFs.<sup>4,5</sup> These efforts proved successful at restoring stability and avoiding further harm, and all of the loans were repaid with interest.<sup>6</sup>

Since then, balances at MMMFs have gradually declined – by more than a trillion dollars from their peak – over the past three years in response to the historically low interest rate environment and corresponding returns.

**Figure 5** shows the three major categories of MMMFs, determined by the assets in which they invest. The prime money market funds are the largest category, with approximately \$1.5 trillion in assets. The prime funds have the most flexibility in investing and are allowed to hold commercial paper, jumbo CDs,<sup>7</sup> and asset-backed commercial paper as well as government-backed securities. The second largest category, with approximately \$850 billion in assets, involves MMMFs that invest

in U.S. Treasury and agency securities. These funds have lower credit risk, but also generate lower returns. The smallest category involves MMMFs that provide tax-free returns to investors.

At the time of the Lehman Brothers failure, prime MMMFs that had credit-sensitive investors and exposure to large financial institutions experienced the largest and most rapid redemptions.<sup>8</sup> Many investor outflows from prime funds were redirected to MMMFs that were government-only funds.

MMMFs have substantially increased their liquidity over the last year. In part this reflects a tightening of liquidity requirements by the SEC, but it also reflects the realization among MMMF managers that during times of significant liquidity risk, they need to maintain a more defensive posture. As **Figure 6** shows, prime funds have been increasing their holdings of short-maturity assets of late – in part, one assumes, as a result of the debt ceiling concerns in the U.S. and the funding worries related to governments and financial institutions in Europe.

Since MMMFs have increased liquidity in an environment of very low returns on short-term credit instruments, their returns to investors have been squeezed further. **Figure 7** illustrates the impact on MMMF returns. The first line in the table provides the average yields for the five highest yielding MMMFs, and the second line provides the average yields for the next five highest yielding funds. The table highlights that while the *gross* yield averages about 40 basis points for the five highest yielding MMMFs, investors are only getting a *net* yield of only five basis points.

MMMFs have purchased a large amount of foreign-bank securities. But as **Figure 8** shows, most MMMFs have been reducing their exposure to European banks that the market may see as posing more significant credit risks. Some of the reductions have been quite dramatic, and MMMFs are no longer holding short-term credit instruments issued by institutions headquartered in the most financially strained countries. They have greatly reduced the size of their overall exposure, and have also significantly reduced the maturity they are willing to hold.

However, one of the challenges for the MMMF industry is that, just as in the fall of 2008, a very few aggressive MMMFs – maybe even one – could under certain circumstances encounter trouble that ends up ratcheting up redemption requests across the industry.

No one wants to see a repeat of 2008, nor should we. The industry and all participants can get to a better place. For example, an examination of the publicly available monthly reports on portfolio holdings of MMMFs highlights that a few MMMFs hold financial paper that has not been downgraded but nonetheless is seen by the market as posing more credit risk than could seem appropriate for entities that are allowed to maintain a fixed net asset value.

MMMFs have been required to provide a monthly report of holdings and have increased their liquidity. Still, we are passing the three-year anniversary of the failure of Lehman and the run on the MMMFs and it remains important to explore the ways that the industry, which plays a pivotal role in short-term credit markets, can address its susceptibility to a credit shock that could in turn be transmitted to short-term financial markets. I am not saying anything that has not been expressed before, but want to highlight the opportunities we all have to move thoughtfully but expeditiously to a more stable place.

Given all this, I believe a more proactive regulatory approach may be necessary. While the monthly reporting has been helpful, given the very short maturity of many of the assets, I believe the reporting should be more frequent to avoid the possibility of “window dressing” at the end of the month. Also, reducing a fund’s maximum permissible exposure to any one firm could reduce the potential loss that would occur from a credit event involving only one counterparty. Consideration might also be given to whether the assets of riskier firms (for example those with very high market credit default swaps (“CDS”) prices are appropriate investments for MMMFs, which are expected to maintain a low risk profile.

There have been a variety of proposals recommending more substantial changes in this arena. However, three years after a systemically significant episode, no one proposal has been settled on.

My own preferred approach would be to require MMMFs to have a meaningful capital-like buffer that exceeds, for example, their single-issuer concentration exposure limits – perhaps on the order of 2 to 3 percent – that, if violated, automatically leads to a fund’s conversion to a floating net asset value. Examples of how to structure such a buffer include having the MMMF’s sponsor directly fund the creation of the buffer, or creating a separate class of loss-absorbing shares that could be marketed to investors willing to bear some risk in exchange for a higher return than that provided by the stable value shares. If in some appropriate period of time a satisfactory plan for such a capital buffer is not produced and accepted, then those prime funds would be required to float their net asset value.

All in all, though, given the systemic importance of the MMMF industry, it is critical that one way or another we make the industry less susceptible to credit shocks and liquidity runs. While many in the MMMF industry have been reducing their exposure to troubled financial institutions, some continue to take what some observers might consider oversized credit risks. The experience of 2008 showed the potential for a MMMF’s problems to precipitate redemptions that are ultimately destabilizing to short-term credit markets, and contribute to economic difficulties. I am certainly not predicting any such outcome but noting that policymakers, market participants, and the industry can and should make steady progress on these matters.

### **Foreign Branches and Agencies in the United States**

The consideration of MMMFs is intertwined with another issue of systemic risk that I would like to discuss – the dependence, to a large degree, of foreign branches and agencies in the U.S. on short-term wholesale funding.



Let me first note that while I will raise some concerns in this arena, we are beginning to address them within the existing statutory framework. However, over time other structural remedies may be warranted and possible.

Unlike domestic banks or foreign bank subsidiaries in the U.S., foreign branches and agencies are not allowed to have U.S. deposit insurance and thus cannot rely on insured retail deposits as a funding source. In addition, foreign banks are ineligible for membership in, and receiving secured funds from, the Federal Home Loan banks – which have been an important source of liquidity for many domestic banks. As a result, they are especially reliant on wholesale funding – that is, raising funds by issuing jumbo certificates of deposit, commercial paper, and repurchase agreements; all of which during times of stress are less stable than typical retail deposit accounts.<sup>9</sup>

Parenthetically, I would note that foreign branches are not required to directly hold any capital with their U.S. operations. I will say more on this in a moment.

While wholesale funding is an important part of a bank's liability structure, an excessive reliance on short-term wholesale funding to finance long-term assets can be problematic. In particular, in situations where wholesale financing is not available, foreign branches can find it difficult to raise required dollar funding and the foreign parent may not be able to fill the funding gap effectively. This is one of the reasons why foreign banks were among the most aggressive users of the Fed's liquidity facilities and Discount Window in the wake of the run on MMMFs in the fall of 2008.

Foreign branches and agencies utilize wholesale dollar deposits for two main purposes. First, they use the short-term wholesale deposits to fund longer-term U.S. dollar bank loans and securities holdings. They frequently fund large corporate borrowing needs. Second, the branches are often used to raise dollar funding for their global parent. Thus, branches frequently provide longer-term funding to their parent to fund dollar assets the parent is holding outside of the branch.

I will say a fair amount about foreign branches today, so I want to stress that the focus stems from the important and useful function that they serve as a source of finance in our global economy.

**Figure 9** provides the major components of foreign branch assets. These are principally loans and leases and securities holdings such as high-grade corporate securities. In addition, you can see that foreign banks have been attempting to increase their liquidity in case their access to wholesale funding becomes constrained – as reflected in the sharp increase in cash and bank reserves.

**Figure 10** provides the major components of foreign branch liabilities. Roughly 75 percent of branch liabilities are generated by jumbo deposits, commercial paper and other borrowing, including financing through repurchase agreements. One of the primary sources of these funds are the MMMFs.

Using shorter-term wholesale funding (in branches) to fund longer-term assets held by the branch or the parent proved problematic in the fall of 2008. The investor run on money market funds forced the funds to stop acquiring new (and “rolling over” existing) jumbo deposits and commercial paper, causing a serious funding problem for the issuing entities. Short-term credit markets became severely stressed, requiring significant government intervention to restore liquidity to the market.

Concerns over problems in Europe are once again posing a problem for the strategy of short-term wholesale funding of longer-term U.S. dollar assets. Despite the large supply of bank reserves I mentioned earlier, a reduction in MMMF financing has once again resulted in a problem for wholesale dollar funding. The recent announcement of several central banks that they would provide longer-term dollar financing has once again highlighted that short-term credit markets are, in my own opinion, overly dependent on structures that are highly sensitive to credit and liquidity conditions. Over time it will be important to get to a place where adequate funding flows do not require official intervention during times of stress.

As with MMMFs, a greater focus on financial stability should cause a re-evaluation of structures with no direct capital and a clear reliance on rolling over short-term liabilities to fund longer-term assets. The foreign branch system is important because of the role it plays in U.S. credit markets and also because of the dollar funding it facilitates for foreign banks, facilitating global commerce. However, it does suffer from some of the same problems as the money market funds.

There are a number ways to try to reduce these liquidity problems associated with the current branch structure. Clearly this issue requires much careful thought and analysis, so what I'll suggest today should be viewed only as *examples of possible approaches* that could be taken.

One supervisory approach could be to preserve the current branch structure but take steps to reduce funding risks in various ways.<sup>10</sup> It may be advisable to require greater liquidity from global parents. And I would note that several of the Basel III Capital Accord's liquidity measures will make reliance on wholesale funding less attractive.<sup>11</sup>

Secondly, regulatory approaches that have been taken in some countries require foreign branches to hold capital, or require all bank operations to be under a separate holding company structure with capital to support the entirety of domestic operations in the country. Requiring capital for all domestic operations of foreign banks has costs.<sup>12</sup> But it is one option, worthy of study.

Both of these approaches would in all likelihood cause firms to reconsider whether a more stable funding model – for example a more stable mix of funds including wholesale, insured, and longer-term debt – could be superior to purely wholesale funding.

While we should actively consider a variety of options, my personal preference would be to move towards all foreign banking operations requiring some form of bank capital. This approach could reduce the liquidity crises that have occurred episodically, and could also address the possibility that as some banks have become large relative to the size of their countries, it could be difficult for parents to back up branches during a crisis.

All in all, I would suggest that the financial stability issues raised in 2008, and which have become increasingly prevalent of late, require a reexamination of issues that influence the stability of short-term credit markets.

### **Concluding Observations**

In sum and in conclusion, short-term credit markets have become increasingly susceptible to rapid shifts in sentiment – shifts that can create global liquidity problems. The structure of MMMFs, even with improvements that make them less at risk of runs, can still cause problems – for example if MMMFs move assets quickly out of certain segments of wholesale funding markets. This could happen because of increased credit concerns on the part of either money-market investors or money-market managers.

And foreign banks that have become dependent on MMMFs and other sources of wholesale funding are another concern. As in 2008, now in 2011 we are seeing dollar shortages as MMMFs shun some financial institutions with various exposures to troubles in Europe – a situation that is having a negative impact on short-term credit markets.

All in all, the global banking system currently remains more vulnerable than it should and could be. And more than just the liquidity structure is problematic. Some global banks appear to have lost the confidence of more than the MMMFs. Share prices have fallen dramatically for some bank stocks, and credit default swap prices for some global banks are at elevated levels.

Bank supervisors worldwide may do more to utilize these market signals when deciding whether banks should be allowed to issue dividends or make share repurchases. Using *market* triggers as well as *capital* triggers to prevent capital from leaving the banking system (or to bolster it as necessary) during times of stress should be revisited. Should market assessments be wrong, banks would only have deferred dividends or share repurchases. They could be resumed at a higher level

once the problems are resolved. Furthermore, using publicly observed signals to trigger a cessation of dividends may have less of a market impact than dividend reductions based on management judgment.<sup>13</sup>

Allowing dividends and share repurchases to occur when the risk of a crisis is high allows scarce capital to leave the banking system at a time when it is most needed. Such a policy risks that taxpayers, debt holders, and the economy will suffer should bank capital be insufficient to weather the crisis.

If market triggers were hit and bank supervisors became concerned about credit availability from the financial system, in certain circumstances they could choose to suspend dividends and stock repurchases for all systemically important banks. This would retain capital in the banking system and allow the stronger banks to continue their important role as financial intermediaries at a time when some of their peers are constrained by their financial problems. While Basel III has proposed dividend reductions as capital becomes depleted, I suspect that is likely to be too late, given the slow pace at which accounting losses are realized.

It has become clear that financial stability is too central to the performance of economies not to explore options for moving forward and reducing instability. We need to move constructively and prudently to a better place, and I believe we can and should.

Thank you.

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<sup>1</sup> The analysis presented here includes 2a-7 funds but, in fact, a broader definition of money funds can be considered when discussing the structure and the sensitivity to liquidity shocks.

<sup>2</sup> Under section 2a-7 of the Investment Company Act – that is, under Securities and Exchange Commission Rule 2a-7 (17 CFR 270.2a-7) issued pursuant to the Investment Company Act of 1940 (Rule 2a-7).

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<sup>3</sup> They cannot hold securities with a maturity greater than 13 months, and the average maturity of their assets cannot exceed 90 days. The securities have to be of low credit risk, and a fund can have no more than 5 percent of its assets with any one issuer.

<sup>4</sup> Given the disruptions, the Federal Reserve System announced an asset-backed commercial paper MMMF liquidity facility. The facility, operated for the System by the Boston Fed, allowed money market funds to sell asset-backed commercial paper to banks – the MMMFs could use the sale proceeds to meet redemption requests – and the asset-backed commercial paper was pledged by the banks to the Fed as part of a loan from the Fed, which was ultimately paid back with interest.

<sup>5</sup> For more on this episode see my remarks at the Stanford Finance Forum in June:  
<http://www.bostonfed.org/news/speeches/rosengren/2011/060311/index.htm>

<sup>6</sup> See “How Effective Were the Federal Reserve Emergency Liquidity Facilities? Evidence from the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility” (QAU Working Paper No. QAU10-3 by Burcu Duygan-Bump, Patrick M. Parkinson, Eric S. Rosengren, Gustavo A. Suarez, and Paul S. Willen). The working paper explains that following the failure of Lehman Brothers in September 2008, short-term credit markets were severely disrupted. In response, the Federal Reserve implemented new and unconventional facilities to help restore liquidity. Many existing analyses of these interventions are confounded by identification problems because they rely on aggregate data. Two unique micro datasets allow us to exploit both time series and cross-sectional variation to evaluate one of the most unusual of these facilities—the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF). The AMLF extended collateralized loans to depository institutions that purchased asset-backed commercial paper (ABCP) from money market funds, helping these funds meet the heavy redemptions that followed Lehman’s bankruptcy. The program, which lent \$150 billion in its first 10 days of operation, was wound down with no credit losses to the Federal Reserve. Our findings indicate that the facility was effective as measured against its dual objectives: it helped stabilize asset outflows from money market mutual funds, and it improved liquidity in the ABCP market. Using a differences-in-differences approach we show that after the facility was implemented, money market fund outflows decreased more for those funds that held more eligible collateral. Similarly, we show that yields on AMLF-eligible ABCP decreased significantly relative to those on otherwise comparable AMLF-ineligible commercial paper.

<sup>7</sup> Some funds restrict their investments to FDIC insured CDs. The foreign branch CDs tend to be jumbos.

<sup>8</sup> These are shareholders *redeeming* their equity investments.

<sup>9</sup> During times of stress it may also be more difficult to rely on the foreign parent organization for support, as it may be under stress as well.

<sup>10</sup> Steps could include increasing liquidity concentration; limiting the level of receivables from related entities; requiring that any such receivables be collateralized by high-quality assets held at the parent; increasing diversification in third party funding; establishing funding tenor limits, so that branches hold less shorter-term wholesale funding; requiring that branches collateralize some of their third party funding with high-quality collateral; and requiring branches to better match the tenor of assets with the tenor of liabilities they hold.

<sup>11</sup> However, in this regard it depends upon how the rules for “significant currencies” are enforced.

<sup>12</sup> For example, banks would have less flexibility to move liquidity and capital across borders, and maintaining separate risk analysis by country could raise costs for global banks.

<sup>13</sup> Since by construction the public trigger approach conveys no negative information about the bank’s earnings prospects beyond what the market already knows.



# Towards Greater Financial Stability in Short-Term Credit Markets

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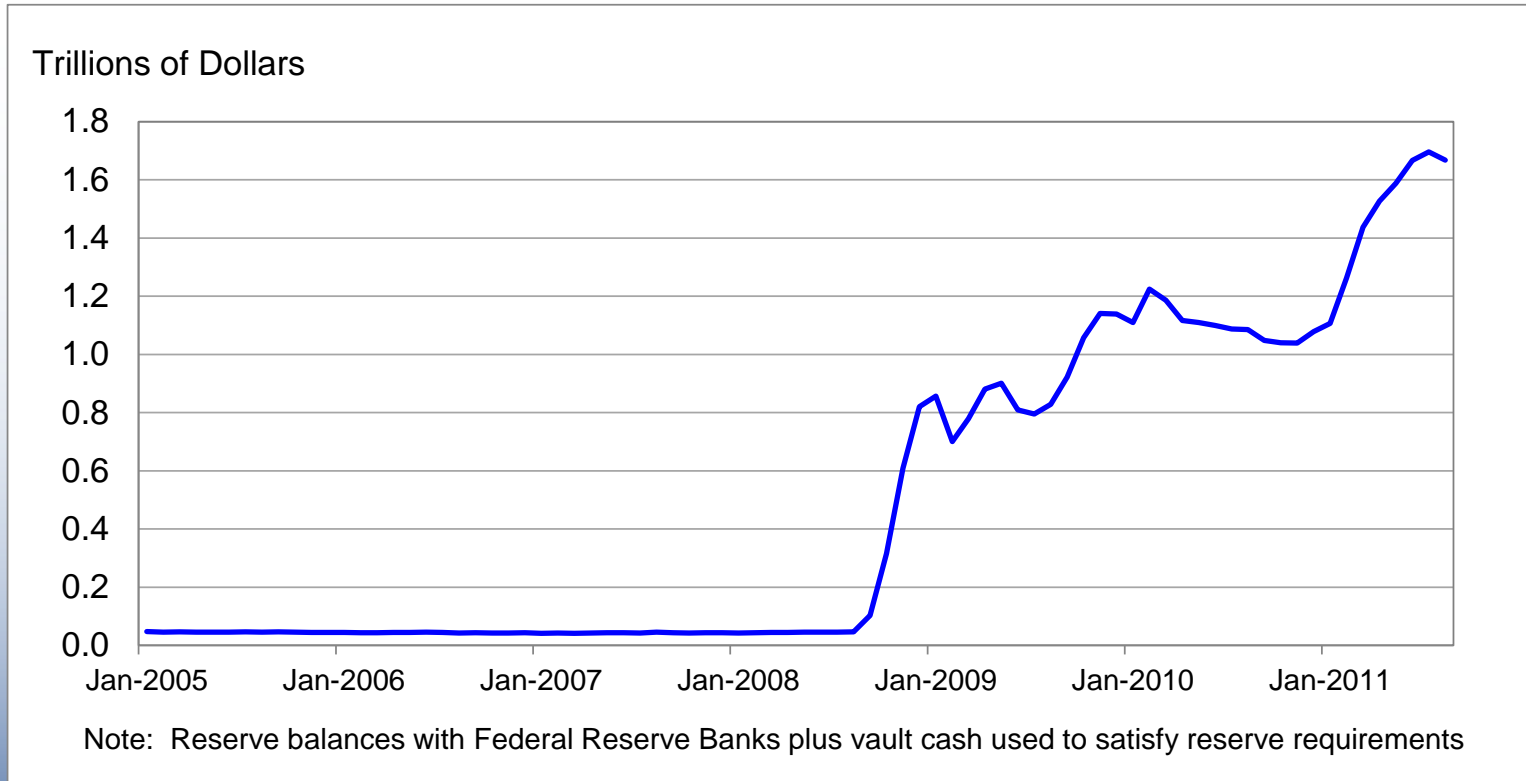
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GIC Conference  
Stockholm, Sweden  
September 29, 2011

# Figure 1

## Bank Reserves

January 2005 - August 2011



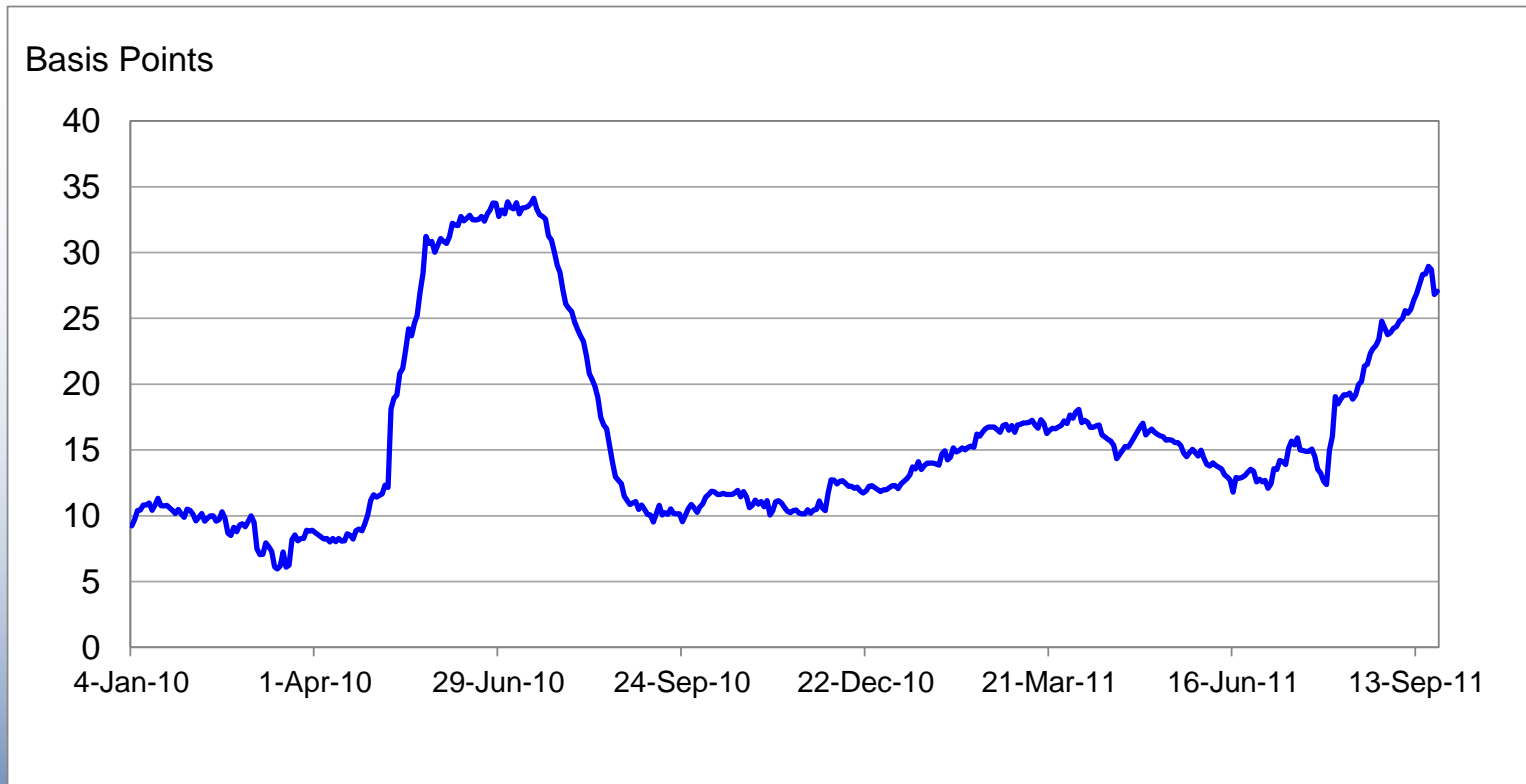
Source: Federal Reserve Board / Haver Analytics



# Figure 2

## Spread: Three-Month London Interbank Offered Rate (LIBOR) to Overnight Index Swap (OIS) Rate

January 4, 2010 - September 22, 2011

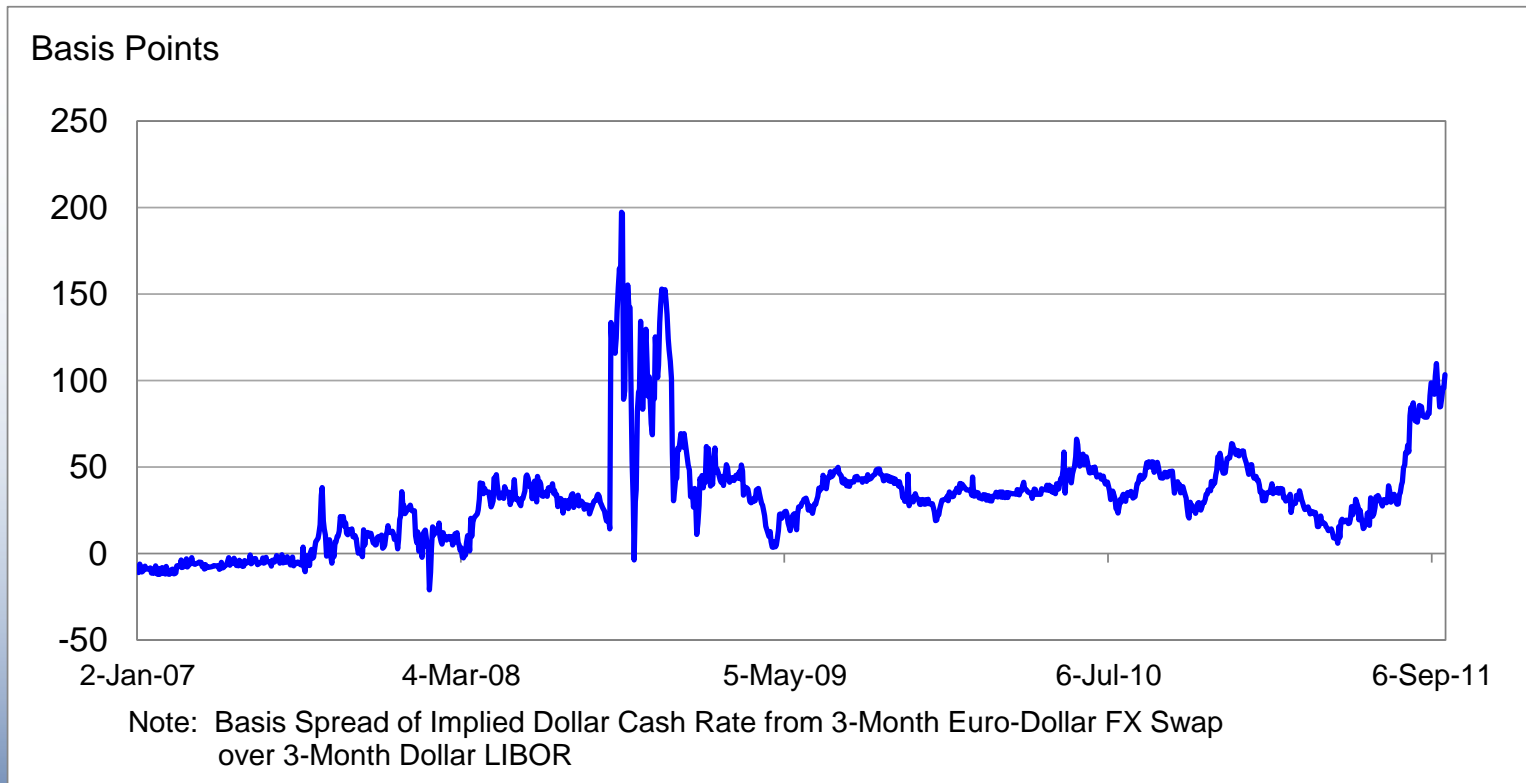


Source: Financial Times, Bloomberg / Haver Analytics

# Figure 3

## Dollar Funding Pressures

January 2, 2007 - September 22, 2011

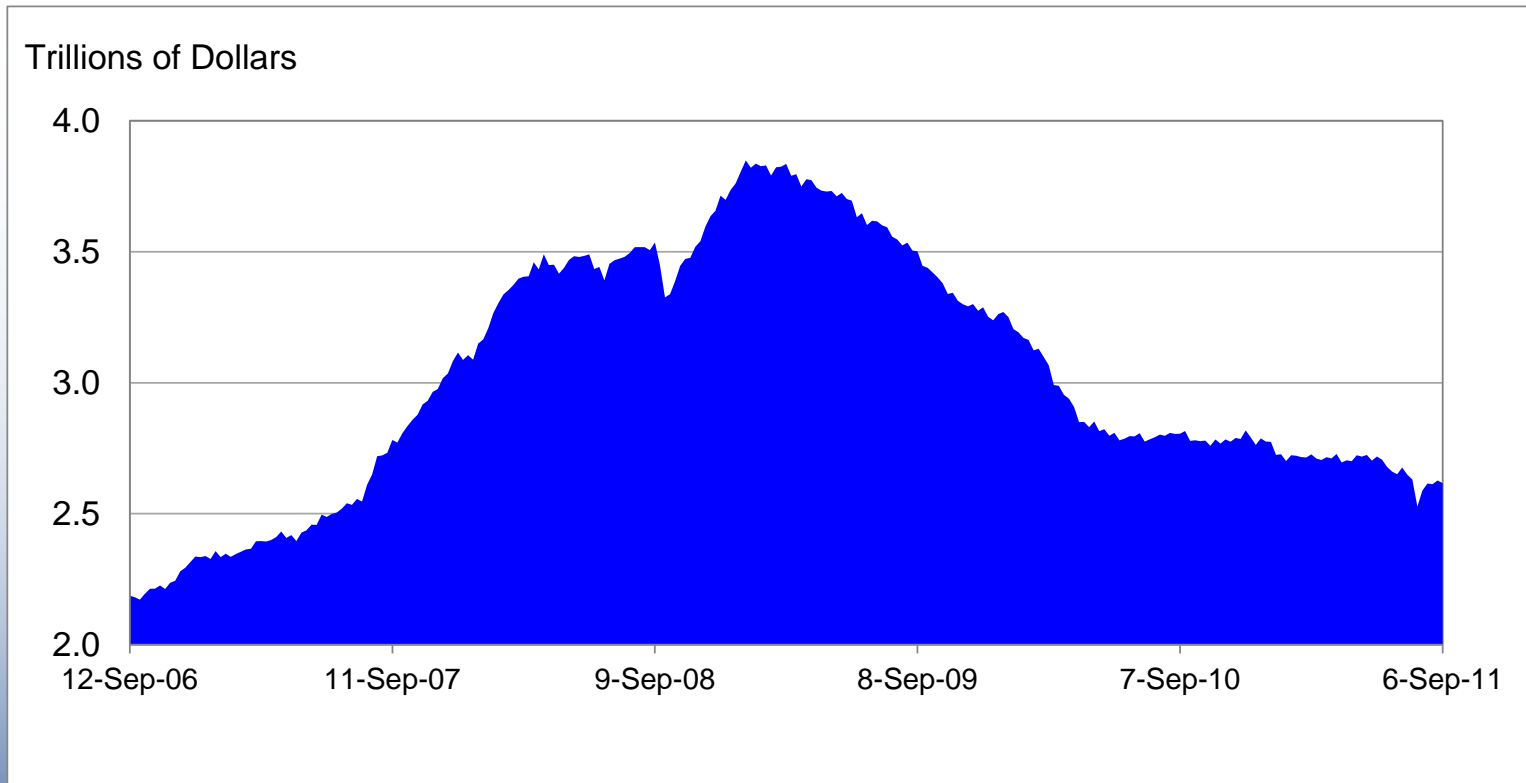


Source: British Bankers' Association, Deutsche Bundesbank, Financial Times / Haver Analytics

# Figure 4

## Total Money Market Mutual Fund Assets Under Management

September 12, 2006 - September 6, 2011

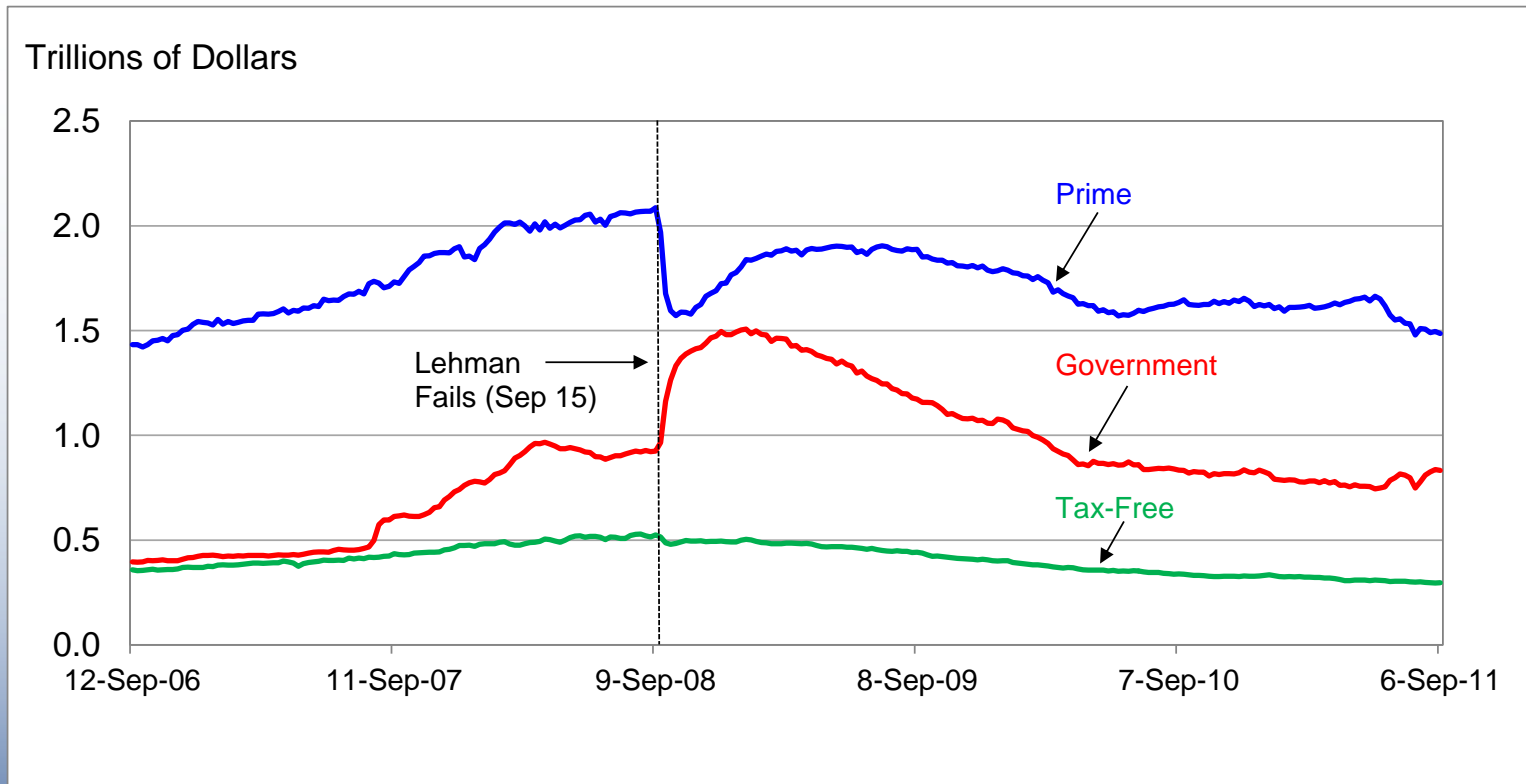


Source: iMoneyNet

# Figure 5

## Total Money Market Mutual Fund Assets Under Management by Type of Fund

September 12, 2006 - September 6, 2011



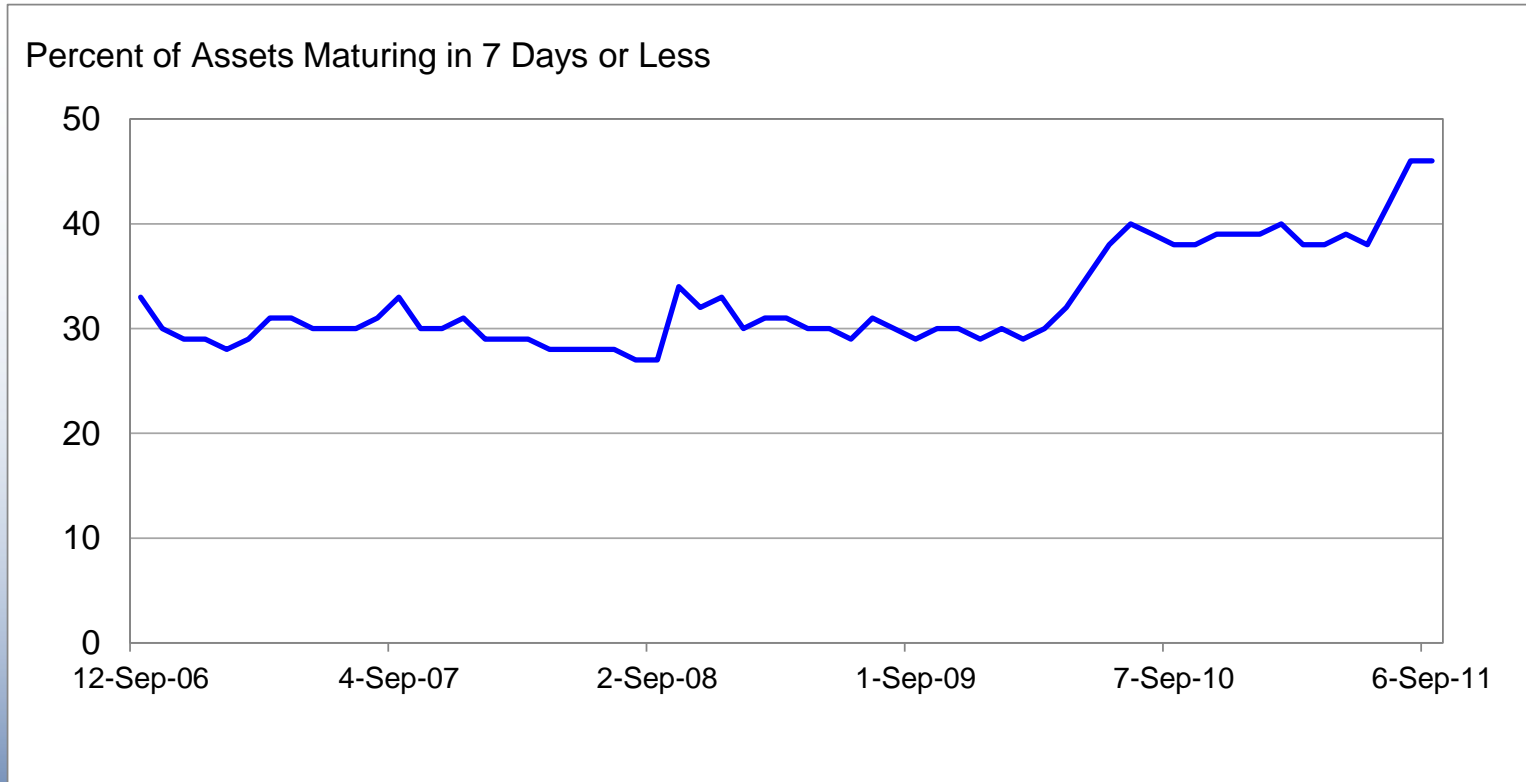
Source: iMoneyNet

# Figure 6

## Liquidity Measure

### Prime Money Market Mutual Funds

September 12, 2006 - September 6, 2011



Source: iMoneyNet

# Figure 7

## Highest-Yielding Prime Funds Average Gross and Net Yields

August 30, 2011

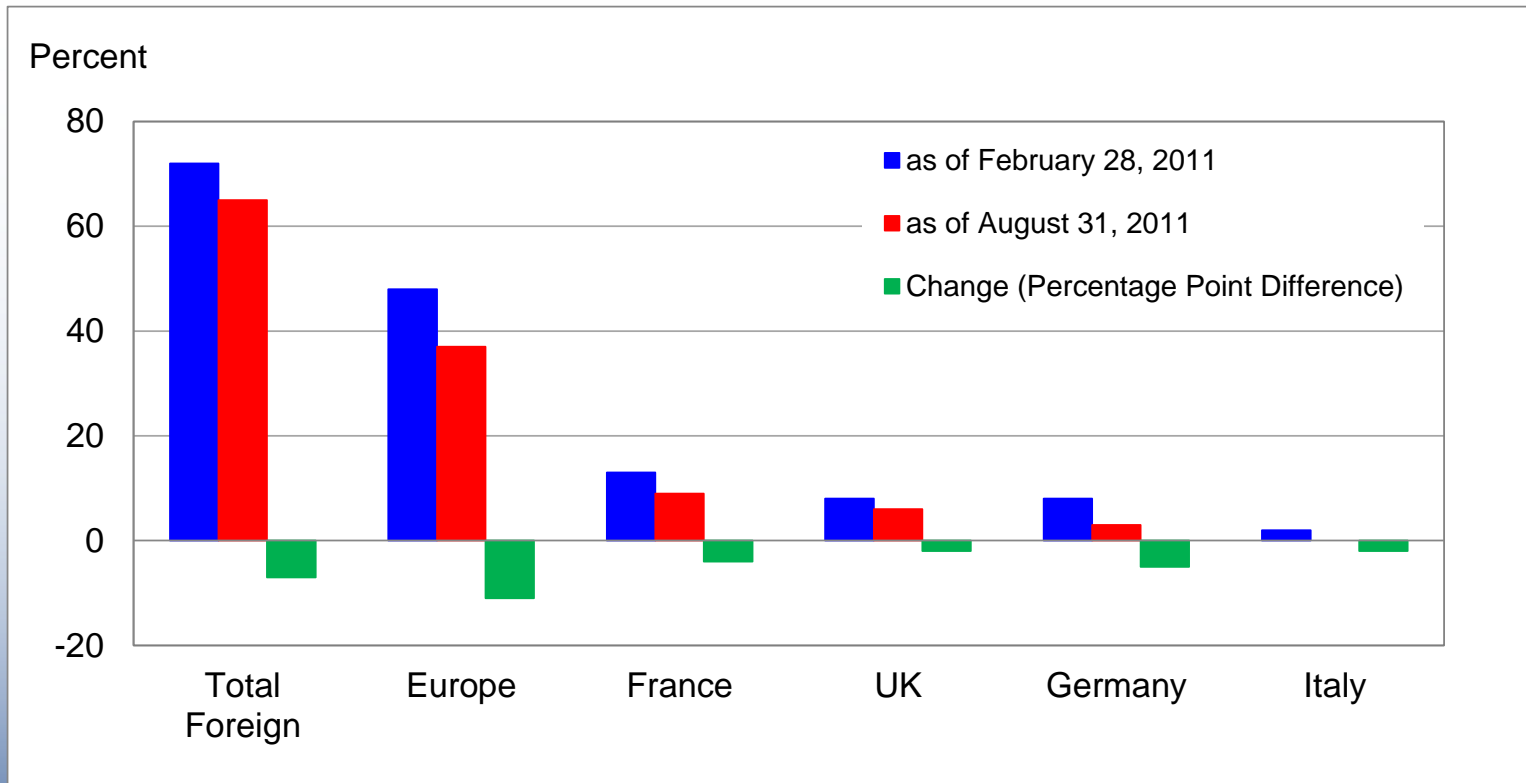
Funds	Average 7-Day Yield Gross (Basis Points)	Average 7-Day Yield Net (Basis Points)
Five Highest-Yielding Money Market Mutual Funds	38.4	5.0
Next Five Highest-Yielding Money Market Mutual Funds	33.8	2.6

Source: iMoneyNet

# Figure 8

## Foreign Exposure of Five Largest Prime Money Market Mutual Funds

As of February 28, 2011 and August 31, 2011

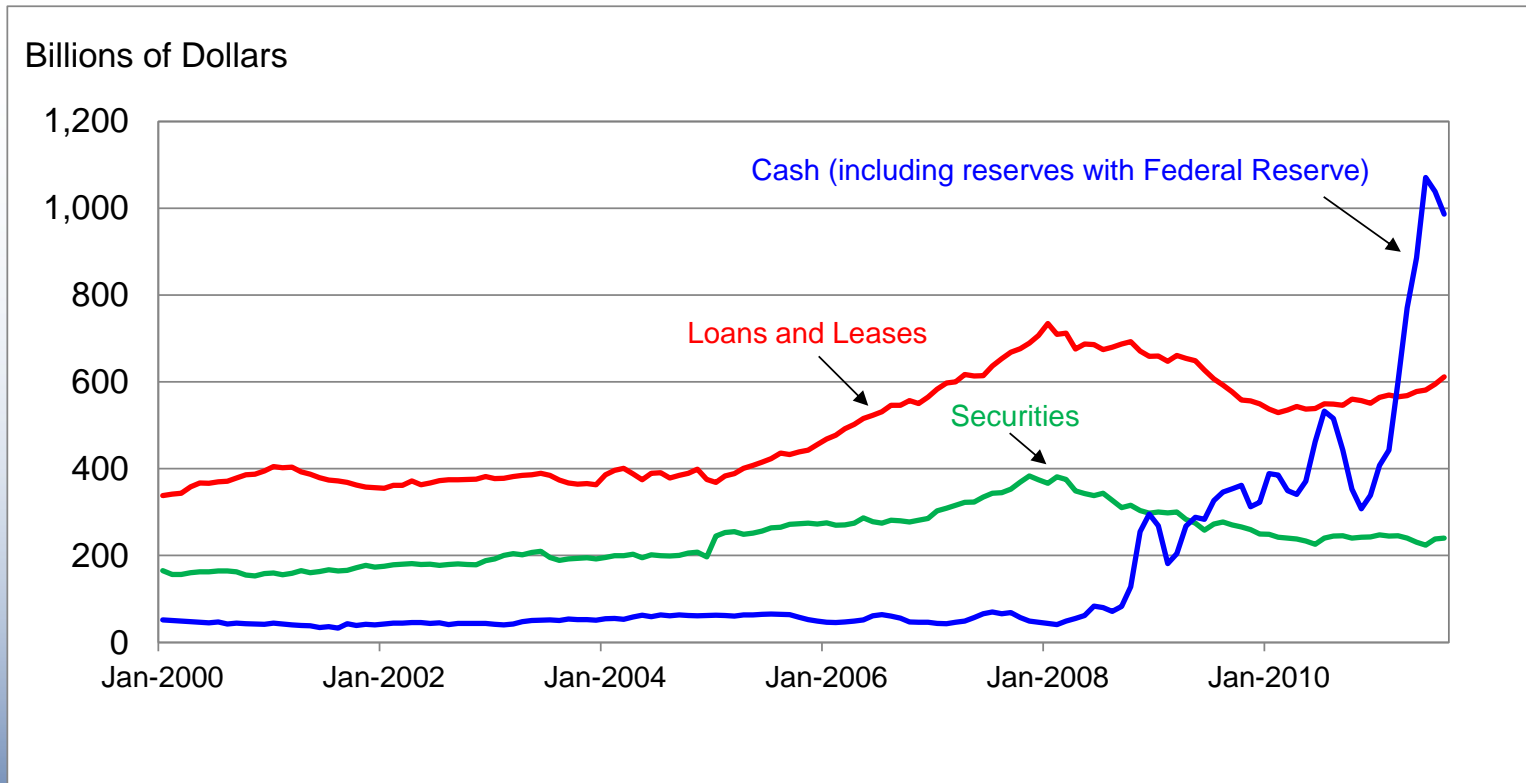


Source: Crane Data, Mutual Fund Company Websites

# Figure 9

## Selected Assets of U.S. Branches and Agencies of Foreign Banks

January 2000 - August 2011



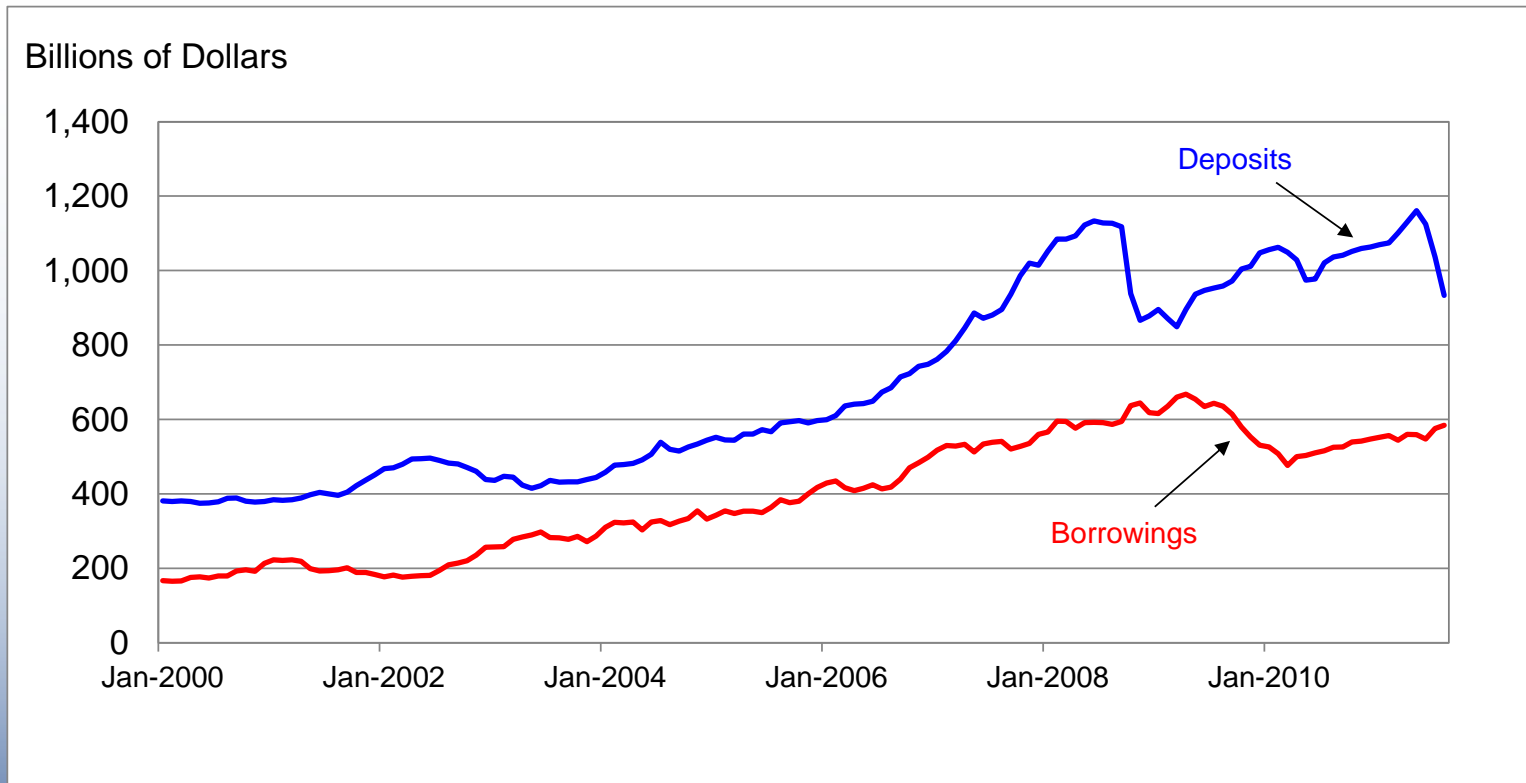
Note: Includes foreign-related Edge Act and agreement corporations, excludes International Banking Facilities  
Source: Federal Reserve Statistical Release H.8 / Haver Analytics



# Figure 10

## Selected Liabilities of U.S. Branches and Agencies of Foreign Banks

January 2000 - August 2011



Note: Includes foreign-related Edge Act and agreement corporations, excludes International Banking Facilities

Source: Federal Reserve Statistical Release H.8 / Haver Analytics