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December 8, 2016

U.S. House Subcommittee on Capital Markets
and Government-Sponsored Enterprises.

Good morning Chairman Garrett, Ranking Member Maloney, and members of the Committee. It is an honor to be invited to testify at today's hearing: ***The Impact of Regulations on Short-Term Financing***. This is a timely hearing that goes to the heart of the health of the U.S. economy and I am pleased to be able to contribute to the discussion.

I am Anthony J. Carfang, a managing director of Treasury Strategies, a division of Novantas, Inc. We are a leading consultancy in the area of treasury management, banking, payments and liquidity. Our clients include large and medium-sized corporations, and financial institutions as well as state and local governments, hospitals and universities.

I am here today on behalf of the hundreds of businesses, state and local governments and financial institutions to whom we consult.

Overview

Let me first state that Treasury Strategies and our clients fully support well-thought-out efforts to improve economic efficiency and to reduce the likelihood of another systemic failure. We advocate pro-growth measures that stabilize and strengthen the financial system. The regulatory objectives of improving accountability and transparency, reducing systemic risk, ending "too big to fail," protecting consumers and putting an end to taxpayer-funded bailouts are laudable. We applaud you for tackling such important issues.

However, we feel strongly that several recent financial regulations such as Dodd-Frank, Basel III, Money Market Fund regulations and many more, both alone and in concert with each other, have triggered **regulatory and compliance cost burdens** that radiate through the economy. Ultimately, this is choking the U.S. economy and paralyzing American businesses and financial companies that had nothing at all to do with the financial crisis.

It is in this context that I frame my testimony today.

Adverse Impact of Post-Crisis Regulations

The rollouts of Dodd-Frank and its Volcker Rule, Basel III, and Money Fund Regulations are still ongoing. Most are in the midst of a phased implementation, so the full impacts and chain reactions of unintended consequences are only beginning to be felt. Yet we are already seeing a contraction in the availability of financial services and transaction services. Below is a partial listing of dislocations we at Treasury Strategies are already seeing; we learn of new restrictions and prohibitions almost weekly:

- **There are 1,489 fewer banks today** than when Dodd-Frank was passed. U.S. banks have decreased from 6,829 to 5,340 since 2010. The loss of nearly 1,500 commercial banks over six years has numerous consequences, some of which are less consumer and business choice, higher borrowing costs and less access to credit.

- **Only two new banks have been chartered in the six years since 2010**. In the ten years prior to the 2008 crisis, the FDIC averaged 157 new bank charters per year. Going back to the earliest FDIC statistics in 1934, there was never a year in which the FDIC chartered fewer than 15 new commercial banks. That is, until 2010, when it chartered only five and only two since then. Again, this dearth of new banks stifles innovation as well as reduces choice and competition for businesses and consumers.

- SEC regulations that went into effect in October 2016 have crippled the market for private sector and municipal money market mutual funds (MMFs). The regulations contain a number of provisions which make these funds less attractive to investors. The result has been a **$1.1 trillion dollar shift of capital out of the private sector and into government funds**, limiting capital availability and raising borrowing costs for America’s businesses and municipalities.

- Basel III is changing the profit and balance sheet dynamics of banks, essentially penalizing deposits. To comply, some banks must **discourage deposits by charging higher fees or paying lower interest**.

- Basel III is also requiring banks to hold a much higher proportion of government securities instead of traditional business loans. Many are **restricting credit to all but the highest quality borrowers**. As a result, many companies and municipalities are faced with higher borrowing costs or unable to borrow at all. The really perverse consequence is that such borrowers go "off the grid" entirely to unregulated or underground lenders.

- Many banks, to comply with Basel III's liquidity plank, are **cutting back on issuing lines of credit** to their customers. Since most companies rely on these backup lines for emergency liquidity, their alternative is simply to hold more idle cash on their balance sheet. That sidelines productive capital and also impairs economic efficiency.

- The combination of the Volcker Rule and increased capital requirements results in financial institutions scaling back their market making activities. This results in wider bid/ask spreads and ultimately less liquidity in the market. There have been sporadic **liquidity black holes in which markets completely freeze up** or prices gyrate wildly such as the U.S. Treasury flash crash. A study by Deutsche Bank estimates that dealers have cut their inventories by as much as 80%.

- The **higher costs of hedging risk** because of the Volcker Rule and other Dodd-Frank provisions are leading some businesses to not hedge at all. This means some businesses no longer have protection from cost gyrations in their supply chain and actually **take on more risk.** All that has been accomplished is to shift risk and made it less visible.

- Virtually all regulations discussed in this testimony require financial institutions and businesses to hold more government securities. These requirements hide

under names like “collateral,” “high quality liquid assets,” “liquidity buffers,” “segregated funds,” “risk retention” and other euphemisms. The net effect, however, is to **remove productive capital out of the real economy and leave it stranded in government securities**. A recent Treasury Strategies report, Collateral Scarcity: An Approach To Preventing Market Stress From Becoming Contagion, actually warns of a pending collateral shortage that could seriously exacerbate risk in times of financial stress.

Money Market Funds (MMFs)

A significant case in point

Our paper, "Dissecting the Financial Crisis, a Two Year Flight to Quality," dispels the myth that MMFs were a primary culprit in the 2008 financial crisis. We show that a rolling crisis unfolded beginning in 2007 in the real estate and asset backed commercial paper markets. Later that year it spread to the enhanced cash funds market and made its way to the auction rate securities market. Finally, several GSEs required support. In all these cases, assets fled those markets and went into Prime MMFs as the last bastion of safety. On September 15, after the Reserve Primary Fund 'broke the buck', asset outflows were contained. Not until September 17, the morning after the NY Federal Reserve Bank announced its shocking $85 billion rescue AIG, did the panic begin in all financial markets. Even then, Prime MMF assets did not drop below their mid-2007 pre-crisis levels. Rather than a cause of the financial crisis, Prime MMFs were actually a shock absorber. See Attachment A.

In 2010, as part of its overall response to the financial crisis, the SEC successfully enacted liquidity and transparency requirements for money market mutual funds (MMFs). These requirements improved resiliency through several subsequent market stress events such as the European debt crisis and the U.S. debt downgrade of 2011 and the debt-ceiling impasse of 2013.

However, despite this success, the commission went much further and proposed extensive additional rules in 2014 for implementation in October 2016. Unfortunately, some of the additional regulations significantly reduced utility for investors who are not "natural persons" and have crippled Prime and Municipal MMFs.

Under the new regulations, "non-natural persons" such as corporate treasurers and institutional investors are prohibited from investing in Prime or Municipal MMFs that have a stable net asset value. Instead, to receive a stable net asset value, they would have

to invest in Government or Treasury funds. That $1 stable net asset value (NAV) has been the primary driver of investor utility since MMF inception over 40 years ago. The “floating” NAV effectively kills the money market fund as a cash management vehicle.

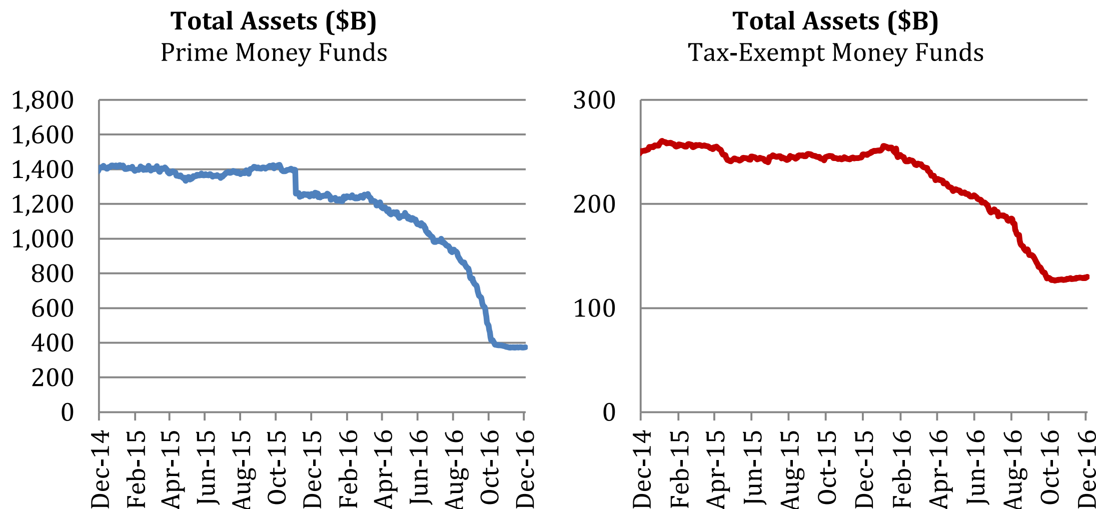
- The new regulations make impractical and non-operational distinctions between “natural persons” and “non-natural persons” which push large investors out of Prime and Municipal MMFs and into Government/Treasury MMFs, thereby taking capital out of the private sector.
- The new regulations impose onerous accounting and recordkeeping activities on *de minimis* daily fluctuations for corporations and institutional investors, but exempt their investments in Government/Treasury MMFs.

Thus, all investors other than “natural persons” are forced to leave any stable value, dollar per share, Prime or Tax-Exempt money market fund. The resulting exodus is now more $1.1 trillion.

In addition to the floating NAV, the new regulations also stipulate that all Prime and Municipal money funds impose liquidity fees or exit gates under certain high market stress scenarios. These two restrictions also greatly diminish investor utility.

Consider the following Treasury Strategies analysis:

- Prime funds, a key source of funding for corporations and banks, have seen a **74% or $1.04 trillion decline**, since January 2015, from $1.41 trillion to $0.37 trillion on December 1, 2016**.**
- Tax exempt funds, a key source of funding for municipalities, universities and hospitals, have experienced a **51% or $132 billion decline**, from $260 billion to $128 billion.
- These assets have moved into Government and Treasury money funds, which combined have **grown by $1.16 trillion in assets** since January 2015. This amount is almost identical to the amount that has exited Prime and Tax Exempt funds.



To put that in perspective, the $1.1 trillion that has left the private sector in the past several months is:

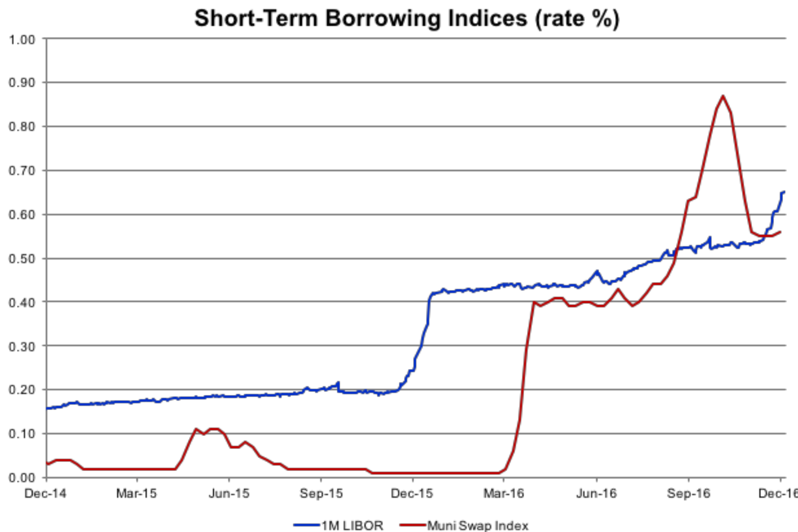
- More than the expected increase in **infrastructure spending** now being proposed in Washington
- Much more than the several hundred billion dollars **of overseas U.S. corporate** cash that is targeted for repatriation
- Greater than the entire **TARP** program of 2008
- More than the **stimulus** program of 2009

Simply stated, the new SEC regulations on MMFs have created a drag on the U.S. economy as large as any of the highest profile economic stimulus programs to date. Reversing some elements of these regulations as proposed in the bipartisan H.R.4216, The Consumer Financial Choice and Capital Markets Protection Act, cosponsored by Rep. Gwen Moore (D-WI), Steve Stivers (R-OH), and many others, could have a profound economic impact exceeding all those listed above.

Municipal MMFs and Infrastructure Investments

The problem is particularly acute in the municipal market where MMFs have historically provided 70% - 80% of the short-term funding needs of state and local governments,

hospitals, secondary schools and universities. Borrowing costs have skyrocketed as fund assets have been halved. Municipalities recently borrowing at less than 0.05% are now paying ten times as much (0.50%) since the beginning of 2016, even though there have been no Federal Reserve rate increases this year. Alternatives such as bank borrowing, if available, are even more expensive.

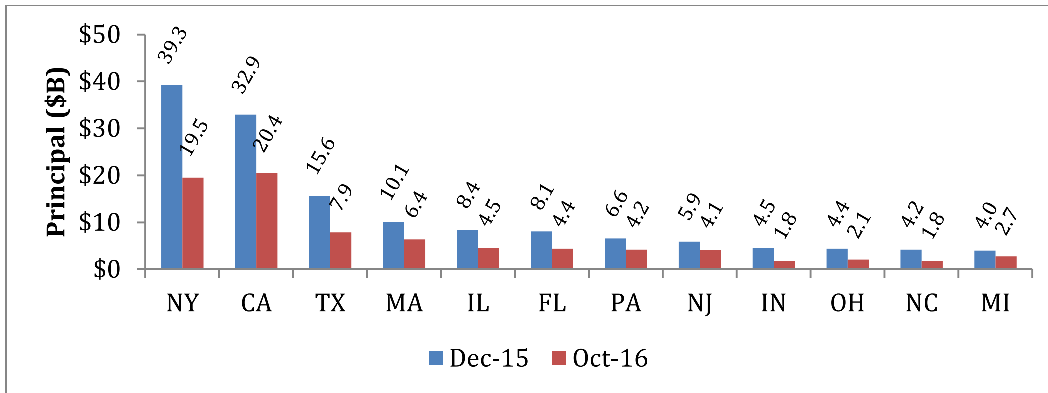


This raises the costs for infrastructure projects and eliminates some projects at the margin. Current federal plans to expand **infrastructure investments** will require state and local governments to seek funding from the capital markets. Yet the pool of available capital has been halved. H.R.4216 will help increase that pool of available funding.

Attachment B (Maintaining Municipal Funding Access) describes the specific impact of these most recent MMF regulations on municipal finance. Municipalities in almost all states are impacted. For example, as of the end of 2015, Municipal MMFs were providing $39.3 billion in funding for NY municipalities. By October 31, 2016, that number plunged by 50%. $19.8 billion in funding dried up for NY municipalities, who had to replace that debt at higher rates, if indeed it could be replaced.

The states shown below have experienced the largest drop in funding from Municipal MMFs.

Tax-Exempt Money Fund Holdings of Short-Term Municipal Debt – Top 12 States ($B), Source: CraneData.com, December 2016



II. Change in Assets Held by Tax Exempt MMFs, Top 15 by Impact ($MM)

State	Principal - 12/31/15	Principal - 10/31/16	$$$ Change	% Change
NY	39,263	19,500	(19,763)	-50%
CA	32,910	20,443	(12,467)	-38%
TX	15,633	7,861	(7,773)	-50%
IL	8,439	4,541	(3,898)	-46%
MA	10,123	6,394	(3,729)	-37%
FL	8,093	4,392	(3,701)	-46%
IN	4,491	1,787	(2,703)	-60%
NC	4,204	1,787	(2,416)	-57%
PA	6,576	4,180	(2,396)	-36%
OH	4,362	2,083	(2,279)	-52%
NJ	5,900	4,135	(1,765)	-30%
WI	3,184	1,512	(1,672)	-53%
MN	2,696	1,040	(1,656)	-61%
MS	2,169	585	(1,584)	-73%
CT	3,125	1,592	(1,533)	-49%
VA	2,891	1,462	(1,430)	-49%

At the local level, hundreds of issuers have seen their funding from Municipal MMFs evaporate. They have likely replaced that funding with higher cost debt from banks or other sources. In some cases, infrastructure projects may have been delayed or cancelled.

I. Changes in Debt Held by TE MMFs, (Select Entities, $MM)				
Municipal Entity	**Principal - 12/31/15**	**Principal - 10/31/16**	**Change**	**% Change**
New York				
Metropolitan Transportation Authority	$2,324	$847	($1,477)	-64%
Port Authority Transportation	$1,207	$852	($355)	-29%
Nassau Healthcare	$157	$55	($102)	-65%
California				
California Health Facilities	$2,048	$1,279	($769)	-38%
Bay Area Toll Authority	$421	$166	($256)	-61%
California Infrastructure and Econ. Dev.	$374	$196	($178)	-48%
Texas				
Harris County Cultural and Educational Faciliti	$1,103	$579	($524)	-48%
Lower Neches Industrial Development	$414	$74	($340)	-82%
Dallas Area Rapid Transit	$133	$73	($60)	-45%

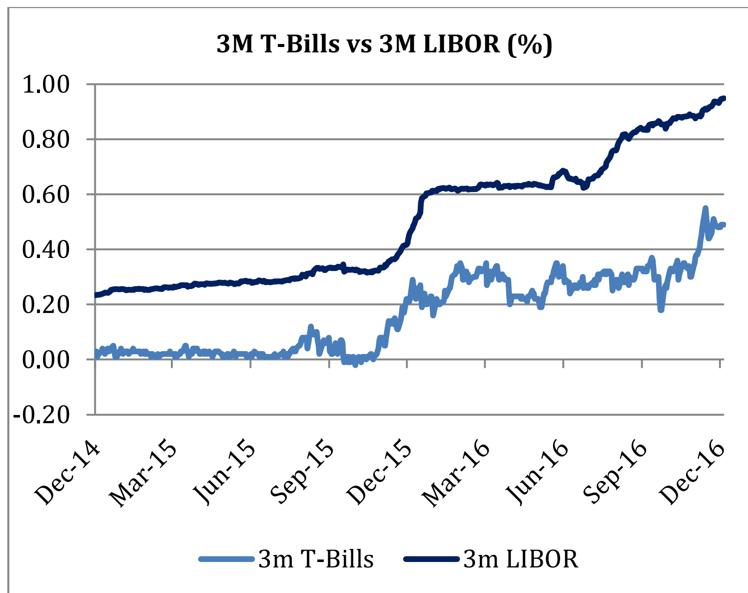
Capital Markets Impact of MMF regulations

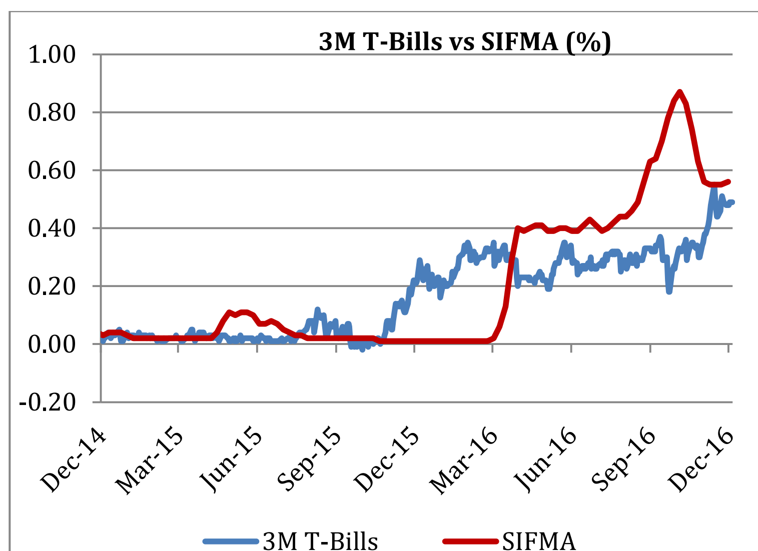
As stated earlier, Prime MMF assets have declined by over $1 trillion since the regulations were announced. Prime funds invest in corporate commercial paper, asset backed securities and short-term bank debt. Since assets in Prime MMFs have been decimated, corporate borrowers have had to look elsewhere to fund working capital, payroll and capital investments. This has put enormous pressure on the entire global debt market.

LIBOR is the global reference interest rate. Approximately $7-10 trillion of mortgages, auto loans, business loans and other debt is based on LIBOR.

As assets moved out of Prime and Municipal funds and borrowers sought funding elsewhere, LIBOR increased by 25 basis points over its historical spread against U.S. treasury securities. This increased the borrowing costs for businesses and consumers by a similar amount, which translates to $25 billion per year in additional interest cost. Clearly, this is a drag on economic growth.

Furthermore, the International Swaps and Derivatives Association estimates that over $300 trillion of derivatives are indexed off LIBOR. Business who thought they were hedged against interest rate risk and currency risk learned that some of their hedges were ineffective. Simply put, the $1 trillion flow from private sector funds to government funds has the **double barreled negative impact of increasing borrowing costs and increasing business risk**.





Impact of MMF regulations on repatriation of overseas cash

U.S. corporations currently hold significant amounts of cash overseas. Plans are being made to invite that cash back onshore to spur economic growth. Cash that could be repatriated is estimated at several hundred billion dollars.

Clearly, businesses will be encouraged to deploy that cash into U.S. growth and expansion. However, the most efficient channel for immediate private sector investment, Prime MMFs, is unattractive to investors because of the new regulations. Corporate treasurers are likely to sideline that cash in Government/Treasury MMFs until their expansion plans roll out.

It is quite ironic that the economic growth objective of repatriating corporate cash should be constrained by these new regulations. Money that was stranded in foreign jurisdictions will now be stranded in government securities. Either way, the U.S. businesses and consumers lose.

Impact of MMF regulations on systemic risk

The rationale of the 2010 MMF reforms was to improve the safety and soundness of the financial system – which they did. Prime and Municipal MMFs proved themselves quite resilient by successfully weathering the European debt crisis and the U.S. Treasury debt downgrade in 2011, the debt ceiling impasse of 2013, the U.S. Treasury and Swiss Franc flash crashes of 2014, and 2015 and Brexit in 2016. The 2010 MMF reforms passed the test with flying colors over and over again.

Yet the additional MMF regulations implemented in October 2016 have proven to be a bridge too far. $1.18 trillion has fled the market. Another way to view this is that the market has lost a $1+ trillion shock absorber. This is yet another irony in which over-regulation to limit systemic risk has actually increased it.

Summary

Recent financial regulations such as Dodd-Frank, Basel III, Money Market Fund regulations and many more, both alone and in concert with each other, have triggered **regulatory and compliance cost burdens** that radiate through the economy. Ultimately, this is choking the U.S. economy and paralyzing American businesses and financial companies that had nothing at all to do with the financial crisis.

Some of the unintended consequences include:

- Impaired market liquidity
- Higher costs and less certainty for borrowers
- Reduced access to credit for businesses
- Reduced access to capital for state and local governments
- Reduced capacity for economic growth

Well-thought-out efforts to mitigate the adverse consequences of these regulations and restore the smooth flow of capital in the U.S. economy are essential.

We strongly encourage Congress to put America's businesses back on the right track by allowing/restoring the free flow of capital. That means instituting protection for those businesses, municipalities and financial institutions that had nothing to do with causing the crisis.

One place to start is to dial back the most recent MMF regulations, which have caused $1.1 trillion in assets to flee the private sector. Legislative proposals such as the bipartisan H.R.4216, The Consumer Financial Choice and Capital Markets Protection Act, cosponsored by Rep. Gwen Moore (D-WI), Steve Stivers (R-OH), and many more are required to restore the efficient flow of capital that makes America's capital markets the broadest and deepest in the world. These are small but important steps to ensure that Main Street businesses, municipalities and banks have access to the growth capital that they and their customers require.

I appreciate the opportunity to appear today on behalf of Treasury Strategies and our hundreds of business, municipal and financial services clients.

Respectfully,

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Appendix A

Dissecting The Financial Collapse of 2007-2008

A Two-Year Flight to Quality

Dissecting The Financial Collapse of 2007-2008

A Two-Year Flight to Quality
May 2012

Considerable resources are being expended to develop new regulations to prevent a repeat of the 2008 financial crisis. It is vital these new regulations are appropriately focused to encourage liquid money markets during any future period of financial stress. In support of that aim, Treasury Strategies (TSI) has prepared this analysis of the money markets prior to, during, and following the financial crisis that peaked in mid-September 2008.

Much of the analysis of the financial crisis repeats the myth that a run on money market mutual funds (MMFs) was a proximate cause of the financial crisis. We believe this is incorrect and misdirects focus away from more significant causal factors. In fact, a $1.2 trillion run on *non*-MMF asset classes had already occurred during the 15 months preceding the chaos of mid-September 2008.

Close examination of asset flows for the week of September 15 shows the firestorm was not triggered by the failure of MMFs, as is being widely cited. The firestorm was actually triggered by the surprise, late-night $85 billion government rescue of AIG.

On the morning of September 15, Lehman Brothers declared bankruptcy. That evening, aware of AIG's Lehman exposure, all three major rating agencies nonetheless issued investment grade ratings on AIG. Thus the 9 p.m.
September 16 surprise $85B rescue of AIG sent global markets into a tailspin. Investors were shocked, not only by the sudden collapse of AIG but also by the fact that all three rating agencies had been completely wrong, just 24 hours earlier. Hence, they assumed problems lurked around every corner.

That AIG rescue announcement panicked investors around the world, who then immediately fled all non-government guaranteed asset classes for the safety of government securities/government guarantees.

To further illustrate the distortions perpetuated by current conventional "wisdom," we note that the U.S. government guarantee of MMF holdings was capped at September 19, 2008 levels. Yet over the following weeks, investors poured $250 billion additional, non-guaranteed assets into MMFs, including $170 billion into prime funds. Thus, at a time the government was insuring virtually all corporate bank deposits, investors were choosing non-guaranteed prime MMFs instead![1]

Given the failures of various other asset classes, the widespread market chaos during this period, the flight to quality *into* MMFs, and the fact that 2010 MMF regulatory changes have already strengthened an already strong asset class, we must certainly question the fixation on pillorying MMFs and demanding they be further overhauled. In fact, MMFs have proved to be one of the most resilient asset classes throughout the financial breakdown.

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[1] In light of the flows into MMFs at this time, it is worth noting that MMF sponsors did not ask for or want the government guarantees. See ICI's commentary "MONEY MARKET FUNDS IN 2012***",*** February 27, 2012.

Background

The collapsed housing bubble triggered a tsunami that hit the shores of the general money markets in early 2007. From that time until markets were calmed by massive government intervention in late 2008, most money market asset classes experienced considerable stress. Investors sought progressively higher ground as problems escalated, with hundreds of billions of dollars fleeing riskier assets and moving to safer territory.

By the time the markets calmed at the end of 2008, several asset classes were decimated. The asset-backed commercial paper market experienced outflows of $487 billion, structured investment vehicles declined $400 billion, enhanced cash funds declined $225 billion, and financial commercial paper fell $49 billion. In addition, $330 billion was frozen in illiquid auction rate securities.

By December 2008, investors seeking the higher ground had moved $1.05 trillion into government and treasury MMFs, $170 billion into prime MMFs, $225 billion into insured bank demand deposits, and $176 billion into bank time deposits.

In evaluating how the crisis unfolded, it is helpful to dissect the collapse into three time periods, to consider significant market events and their impacts on money market instruments and asset movements.

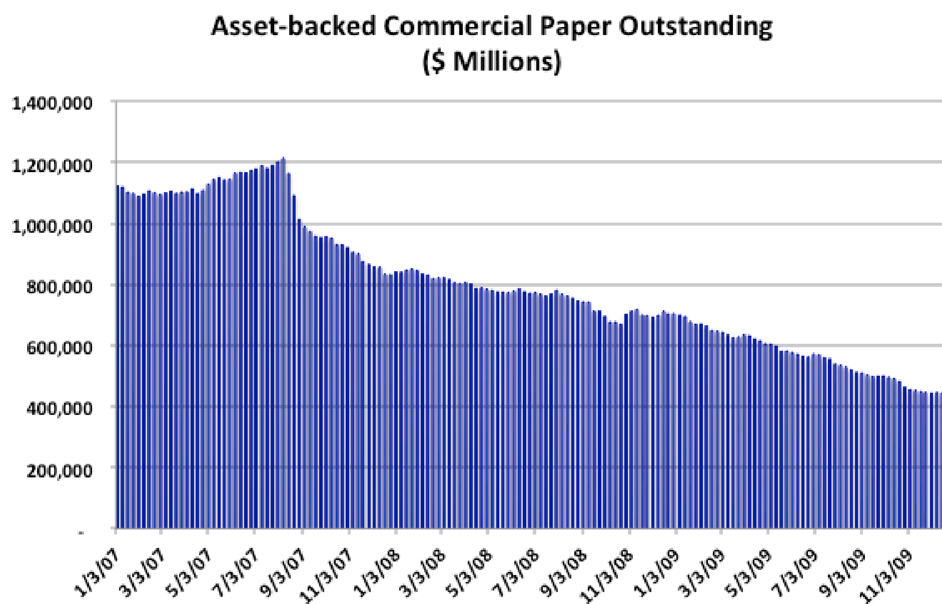
- Phase 1: Pre-Crisis (June 2007 – early September 2008)
- Phase 2: Collapse (mid-September 2008 – mid-October 2008)
- Phase 3: Stabilization (late October 2008 – December 2008)

Phase 1: Pre-Crisis (June 2007 – September 2008)

This time period was bookended by stress in the asset-backed commercial paper (ABCP) market, which started in June 2007, and the failures of Fannie Mae and Freddie Mac in September 2008.

Aggressive lending practices and the collapse of the housing bubble began to manifest themselves in the general money markets during this period. Most of the defining events were well-telegraphed credit events. They played out in the form of prolonged runs from the impacted asset classes, which were primarily commercial paper and enhanced cash funds[2]. In addition, there was an unanticipated liquidity-driven freeze of the auction rate securities market.

Asset-Backed Commercial Paper
As the housing crisis spread, in June 2007 the ABCP market faltered and experienced a prolonged run. This market peaked at $1.2 trillion in assets on August 8, 2007. Following major asset downgrades, assets declined by $432 billion (-37%) during the first phase of the crisis.



Source: Federal Reserve

Structured Investment Vehicles (SIVs)
These complex debt instruments provided very high returns by making highly leveraged investments. Many SIVs ultimately defaulted, were repurchased by their sponsors, or simply unwound. According to the Financial Times[3], total assets fell from a high of $400 billion in July 2007 to virtually zero (-100%) by early 2009.

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[2] For a description of the three types and two durations of runs, see Appendix A.

[3] Hughes, Jennifer. "Completion of SIV asset disposal near." *Financial Times,* 7 July 2009

Enhanced Cash Funds
Enhanced cash funds (also called ultra-short bond funds) peaked at $250 billion in November 2007 and experienced a prolonged run down to $25 billion (-90%) during this first phase of the crisis. The run in this asset class was triggered when a GE-managed fund went from a fixed to floating NAV in November 2007 and then subsequently failed to maintain a $1 NAV.

Auction Rate Securities
Auction rate securities (ARS) gathered assets up to a peak of $330 billion in February 2008. Then, following several failed auctions, the entire $330 billion ARS market froze (-100%) and has been slowly liquidating since that time.

Other Events
Several market events contributed to the prolonged run on various money market categories in this timeframe.

- Failure of a Bear Stearns real estate hedge fund (6/2007)
- Countrywide Financial rescue (1/2008)
- Bear Stearns rescue (3/16/2008)
- Indy Mac Bank failure (7/13/2008)
- Fannie Mae and Freddie Mac failure (9/8/2008)

It is important to recognize that these failures developed over time, with their underlying credit difficulties having been clearly understood by the market. With the exception of the unanticipated ARS freeze, market participants were well aware of impending problems at Bear Stearns, Countrywide, Fannie Mae, etc.

Phase 1: Summary

	Assets as of 6/27/07 ($B)	Assets as of 9/10/08 ($B)	Change ($B)	% Change
Inst. MMFs				
Prime MMFs	1,705	2,153	447	26%
Treas/Gov MMFs	427	906	478	112%
Commercial Paper				
ABCP	1,173	742	(432)	(37%)
Bank/Finance CP	763	810	47	6%
Non Financial CP	196	205	9	5%
Bank Deposits				
Demand Deposits	326	292	(34)	(10%)
Large Time Deposits	1,743	2,121	378	22%
Other Instruments				
Enhanced Cash	250	25	(225)	(90%)
Auction Rate Sec.	330	0*	(330)*	(100%)
SIVs	400	0	(400)	(100%)

*$330 billion in assets were frozen/illiquid.

Phase 2: Collapse (September 2008 – October 2008)

The market events and failures of multiple asset classes during Phase 1 culminated in collapse during the week of September 15, 2008.

The prolonged run, already underway for some time, built and accelerated until it became a firestorm run across the whole financial system – a flight to quality. This continued until October 14, 2008 when the government intervened with an unlimited guarantee on all non-interest-bearing bank deposits.

Market Events Accelerate
One week following the bailout of Fannie and Freddie, rapid-fire shocks roiled the markets:

- Bank of America bailed out Merrill Lynch (9/14/2008)
- Lehman Brothers declared bankruptcy (9/15/2008)
- Federal Reserve lent JPMorgan $138 billion to assist Lehman (9/15/2008)
- Washington Mutual was downgraded and experienced a $16 billion run (9/15/2008)
- Reserve Fund lost $785 million on Lehman CP, broke the buck (9/15-16/2008)
- Unexpected Federal Reserve $85 billion bailout of AIG (9/16/2008, 9 p.m. EST)

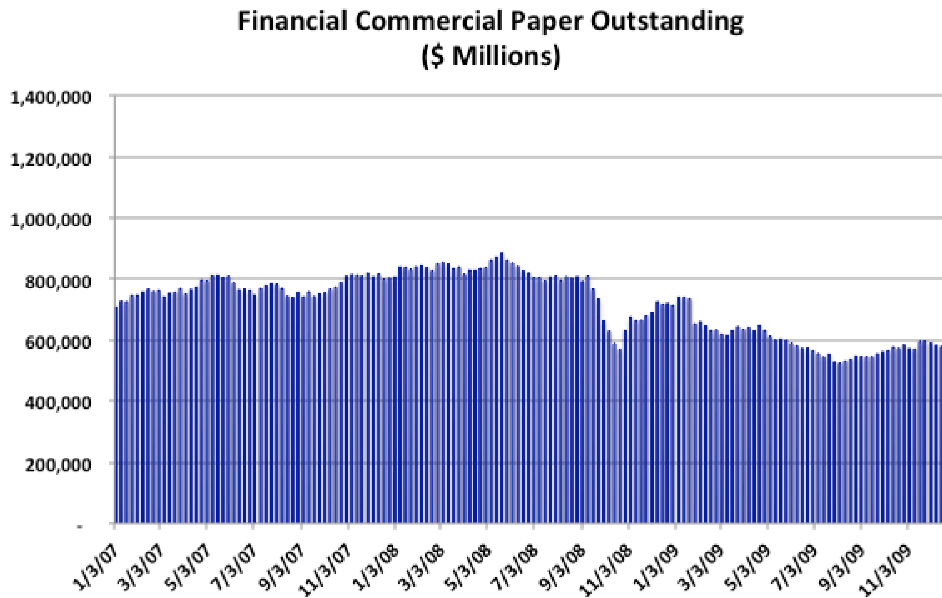
Market Surprises and Flight to Quality
The first phase of the crisis was characterized by prolonged runs on asset classes that were experiencing widely known credit-quality distress. The market digested these difficulties with equanimity. However, this second phase was distinctly different, and far more dangerous, because it was essentially the result of two seismic surprises:

- The government's decision to **not** rescue Lehman Brothers
- The shocking late-night bailout of AIG at 9 p.m. EST Tuesday, which was not anticipated by the marketplace.

Indeed, the panic-fueled firestorm run out of virtually all non-government-insured asset classes and into insured deposits and securities reached a momentous stage on Wednesday, September 17, 2008.

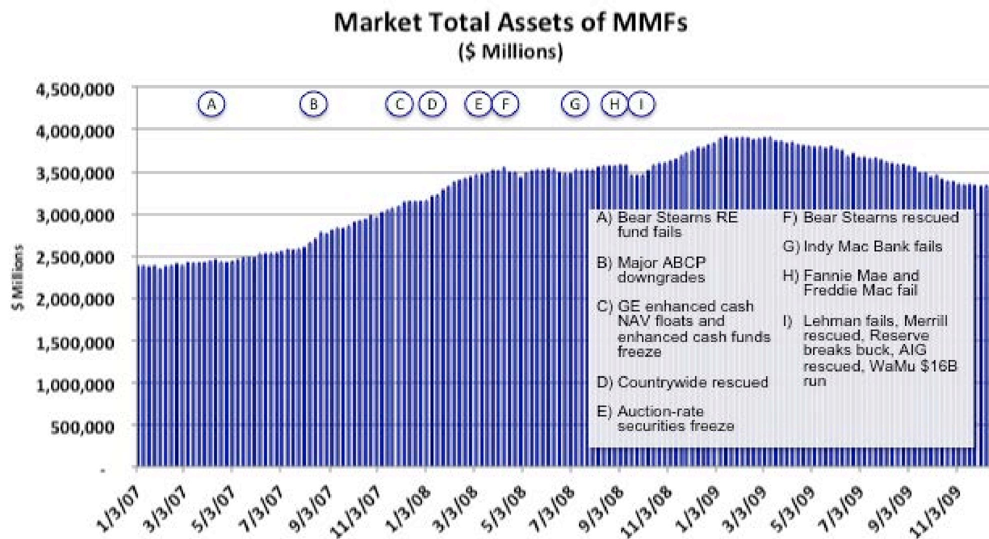
The Federal Reserve's announcement of the $85 billion AIG bailout completely blindsided the market. Although there had been market rumors of AIG problems, on Monday evening Standard & Poor's issued an "A-" long-term rating and an "A2" short-term rating on AIG. On Tuesday evening, the Fed initiated the first of three AIG bailouts or restructurings. That bailout announcement shattered the markets, shaking investor confidence in virtually all investments. They continued their flight to quality by moving into government securities and government-guaranteed instruments.

The "Run" on Bank/Financial Commercial Paper
Events during this phase, such as the collapse of Merrill Lynch, Washington Mutual, Lehman Brothers and AIG, led to a run on financial commercial paper of $221 billion.



Source: Federal Reserve

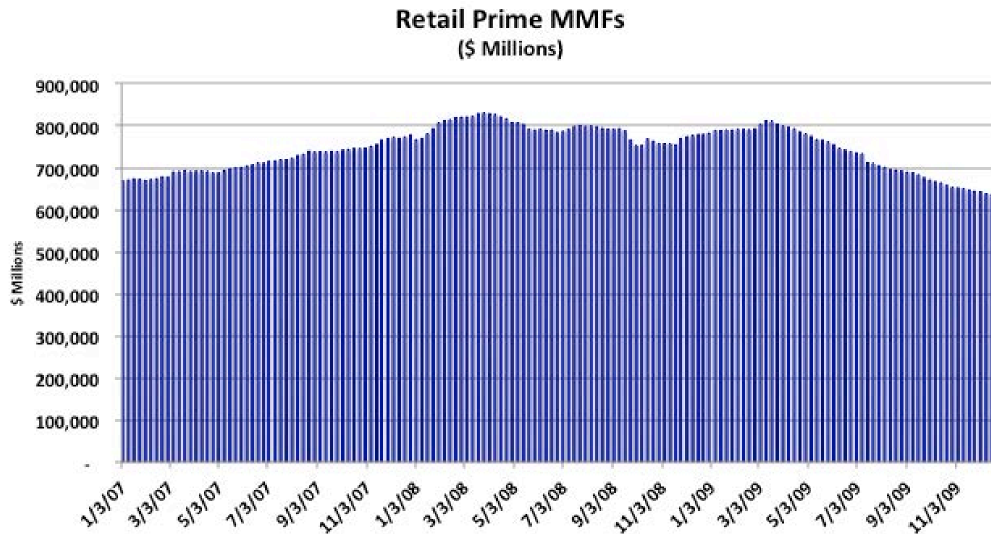
The "Run" on MMFs
There has been much spirited debate on the role of MMFs in the crisis. Specifically, it has become conventional wisdom that MMFs are susceptible to runs as evidenced by their asset levels during this time period. However, the data tell a different story.



Source: The Investment Company Institute

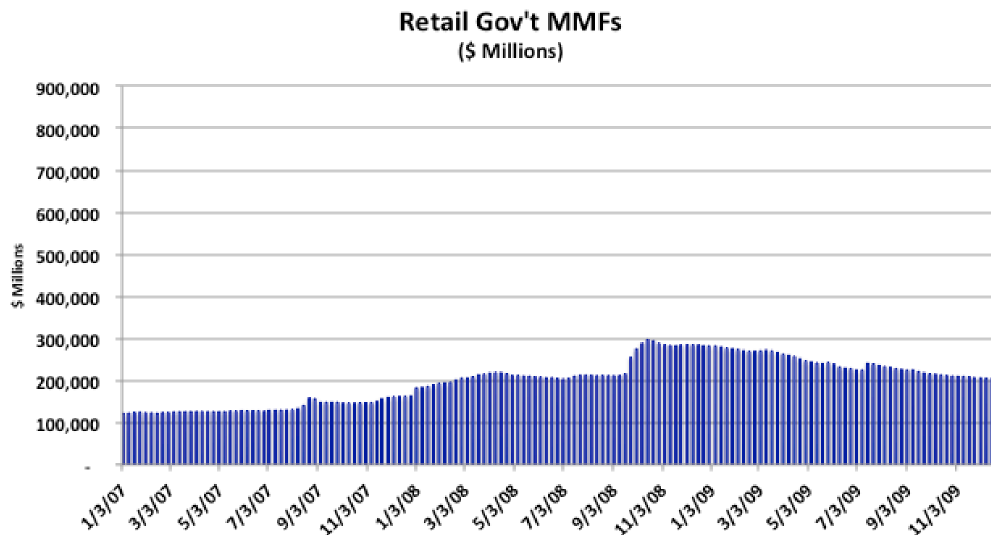
It is a challenge to find any widespread run occurring on the MMF asset class during any time period. That being said, there are different subclasses of MMFs for both retail and institutional investors, primarily prime MMFs and treasury/government MMFs. Prime MMFs invest largely in short-term commercial paper and other instruments. Treasury/government MMFs invest solely in T-bills and government securities.

Of these subclasses, the data reflect the flight to quality that was underway within MMFs during this time period.



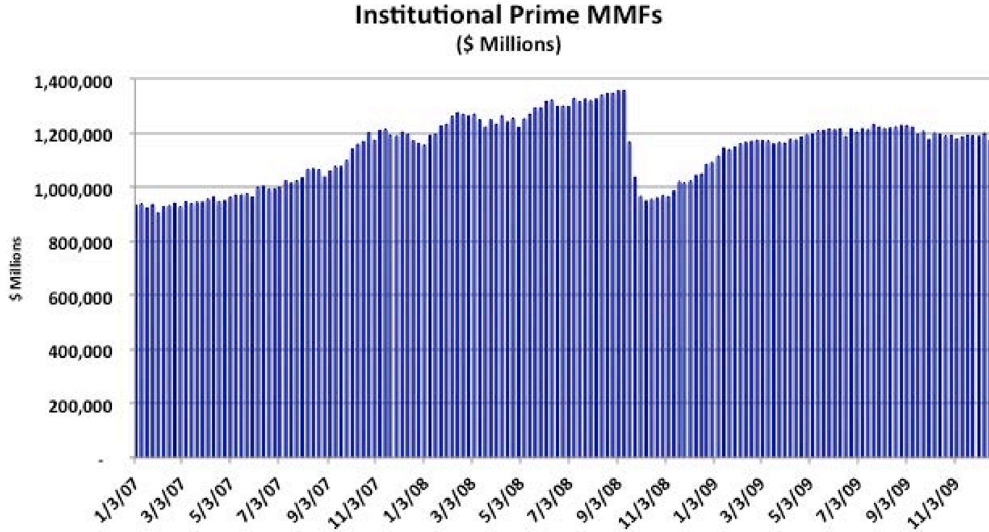
Source: The Investment Company Institute

As shown above, retail prime MMFs saw a slight 3% reduction in assets during this time period. Meanwhile, retail government MMFs experienced the flight to quality and increased assets of 40% during this same period.



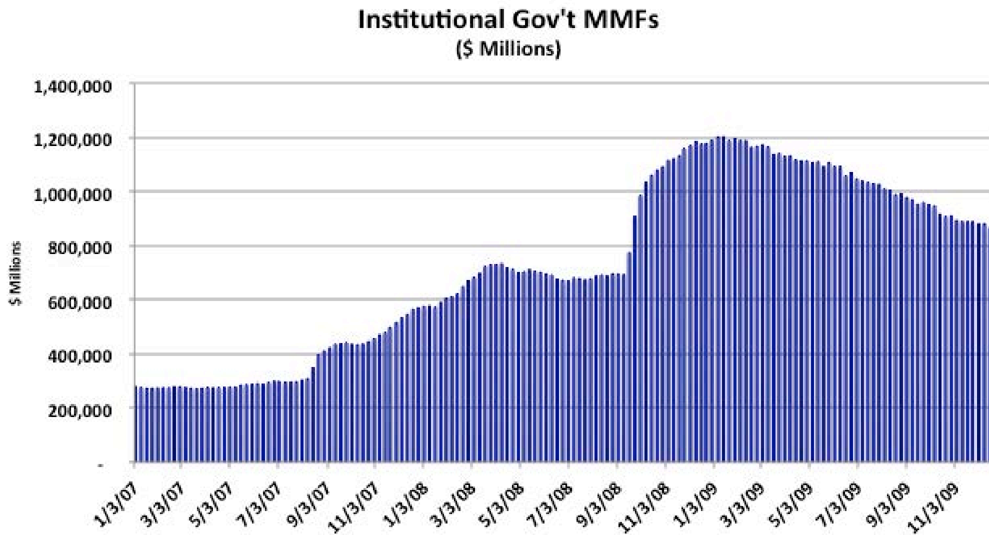
Source: The Investment Company Institute

The sophisticated investors within the institutional segment undertook a similar, albeit more pronounced, flight to quality.



Source: The Investment Company Institute

In the above graph, we see the Phase 1 *inflow* of assets followed by the pronounced reduction of assets as investors fled to quality during the week of September 15, 2008 fueled by the panic of the AIG bailout. This flight to quality is apparent in the graph below. Investors did not reject MMFs as an asset class, but rather sought the highest ground possible and moved into government MMFs.



Source: The Investment Company Institute

A detailed breakdown of the events of the week of September 15 provides further evidence that panic due to the *unexpected* bailout of AIG was the trigger for investors to flee to the highest quality instruments available (those instruments with implied or explicit government guarantee).

As the following table clearly illustrates, on September 15 and 16, institutional prime MMFs had total outflows of just over $50 billion from the Reserve Fund and $50 billion from all other prime funds. This was a fairly well-contained, credit-driven event. Some prime funds experienced no net redemptions at all over these two days.

However, financial markets skidded into a total liquidity collapse after the surprise AIG failure. Over the next two days following the failure of AIG, prime MMFs saw more than $200 billion of outflows.

Institutional Prime MMF Assets

Dates (2008)	Change In Inst. Prime MMF Assets ($B)	Market Events
8/28 – 9/12	(1)	Fannie & Freddie fail – estimated cost $200B
9/15	(61)*	Merrill Lynch rescued Run on WaMu of $16.4B Lehman Brothers fails as Fed guarantees $138B Reserve Primary Fund halts redemptions S&P rates AIG "A-" long-term and "A2" short-term
9/16	(37)*	Reserve Primary Fund "officially" breaks the buck with $785M loss on Lehman After the market closes, AIG requires $85B bailout
9/17	(130)	
9/18	(94)	
9/19	(25)	Several government safety nets implemented include commercial paper support and a temporary, limited MMF guarantee program Goldman Sachs and Morgan Stanley apply to convert into bank holding companies
9/22 – 12/31	+132	Cash inflows above the guarantee level

*Includes approximately $54B in redemptions from investors in the Reserve Primary Fund

The climactic week of September 15 ended with the government instituting several measures to support the commercial paper market. It also instituted the Temporary Guarantee Program, temporarily insuring money fund investors at their September 19

investment levels. MMF investments beyond investors' September 19 levels were excluded from the guarantee program.[4]

Phase 2 Summary
Market events catapulted the prolonged run on the financial system to a firestorm run, as investors continued their flight to quality.

	Assets as of 9/10/08 ($B)	Assets as of 10/15/08 ($B)	Change ($B)	% Change
Inst. MMFs				
Prime MMFs	2,153	1,725	(428)	(20%)
Treas/Gov MMFs	906	1,359	454	50%
Commercial Paper				
ABCP	742	677	(65)	(9%)
Bank/Finance CP	810	588	(221)	(27%)
Non-Financial CP	205	188	(18)	(8%)
Bank Deposits				
Demand Deposits	292	321	30	10%
Large Time Deposits	2,121	2,066	(55)	(3%)
Other Instruments				
Enhanced Cash	25	25	-	0%
Auction Rate Sec.	*0	*0	-	0%
SIVs	0	0	-	0%

*$330 billion in assets were frozen/illiquid.

[4] Commercial paper support measures and the Temporary Guarantee Program had a single identical aim, according to M. L. Fein, which was not to shore up a "run" in MMFs. Fein argues, "The Fed's liquidity facilities and related regulatory actions that ostensibly benefited MMFs in reality were designed to support banks and the bank commercial paper market and that the bank commercial paper market was the source of systemic risk, not MMFs." See "SHOOTING THE MESSENGER: THE FED AND MONEY MARKET FUNDS," April 2, 2012.

Phase 3: Stabilization (October 2008 – December 2008)

The depth of the Phase 2 panic is underscored by the number of ways the government actively intervened in the markets. Some of the many programs instituted in the fall of 2008 include[5]:

- Fed lends JPMorgan $138 billion to assist with Lehman Brothers debt (September 15)
- Fed rescues AIG with $85 billion loan (September 16)
- Fed increases swap lines with other central banks by $180 billion (September 18)
- Fed establishes ALMF program to support money fund purchases of asset-backed commercial paper (September 19)
- Washington Mutual closed, assets acquired by JPMorgan (September 25)
- Treasury institutes TGP which guaranteed investor holdings of MMFs at September 19 levels (September 19)
- Goldman Sachs and Morgan Stanley convert to bank holding companies with discount window access (September 21)
- Fed doubles currency swap lines to $620 billion (September 29)
- SEC eases accounting mark-to-market rules for banks (October 3)
- TAF, the collateralized lending program, expanded to $900 billion (October 6)
- Fed begins CPFF for CP (October 7)
- IRS declares a cash repatriation tax holiday (October 7)
- Federal Reserve begins paying banks interest on their reserve balances (October 8)
- Second AIG bailout $37.8 billion (October 8)
- Wells Fargo purchases Wachovia (October 12)
- Fed removes all caps and provides unlimited currency swap lines to the Bank of England, the ECB and the Swiss National Bank (October 13)
- FDIC guarantees all demand deposits, without limitation (October 14)
- Fed removes all caps and provides unlimited currency swap lines to the Bank of Japan (October 14)
- Initial $250 billion of the $700 billion TARP program rolled out (October 14)
- FDIC guarantees all senior debt of U.S. banks and bank holding companies (October 14)
- MMIFF established for direct purchase of up to $540 billion of commercial paper and bank CDs to prop up those markets. This amount greatly exceeds total withdrawals from commercial paper-based money market funds (October 19)
- New York Fed lends $50B to two foreign banks, Irish-German Depfa Bank and Belgium's Dexia Bank (November 4)
- Third AIG bailout, an additional $40 billion (November 10)
- Second round of Citigroup support at $20 billion (November 24)
- TALF provides $200 billion to support retail and small business asset-backed commercial paper (November 25). Increased to $1,000 billion on February 10, 2009
- Fed announces program to purchase direct obligations of housing-related GSEs (November 25)
- General Motors and Chrysler bailouts announced (December 19)

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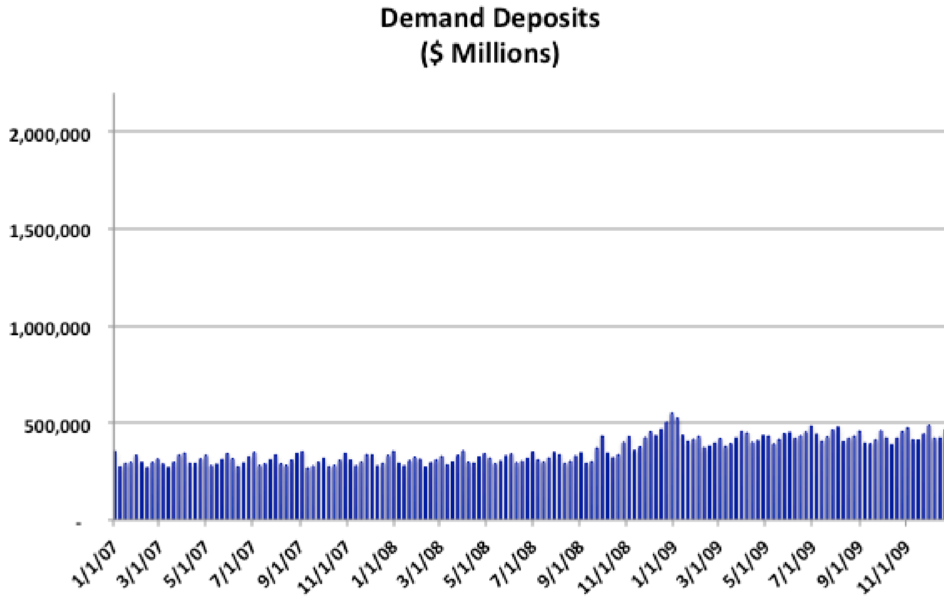
[5] See Appendix B for acronym definitions.

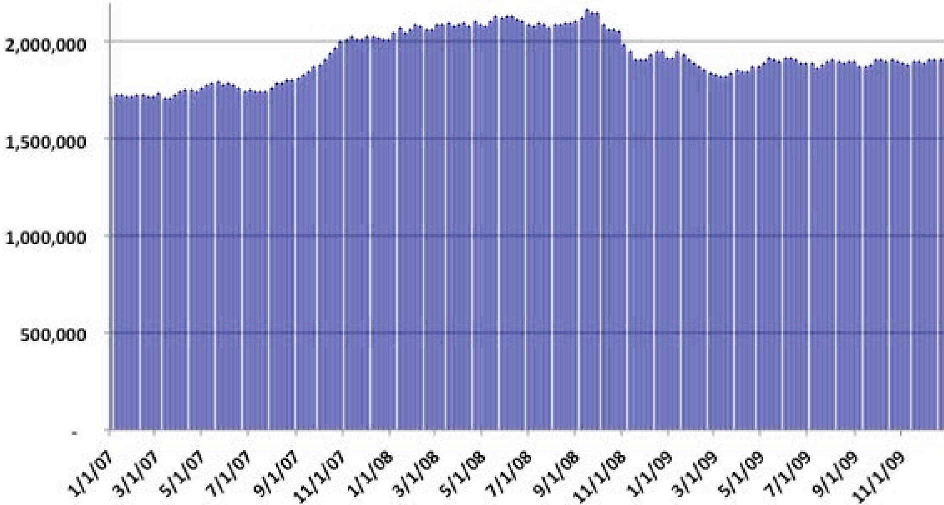
During this period of dramatic rescues and bailouts, hundreds of billions *flowed into* several asset classes, including prime MMFs, Treasury/government MMFs, insured bank deposits and financial commercial paper.

Inflow of Assets to Guaranteed Bank Deposits
On October 14, the FDIC expanded its insurance guarantee to cover *unlimited* non-interest-bearing bank deposits. During this phase, bank demand deposits grew by $230 billion (72%) to a total of $551 billion.



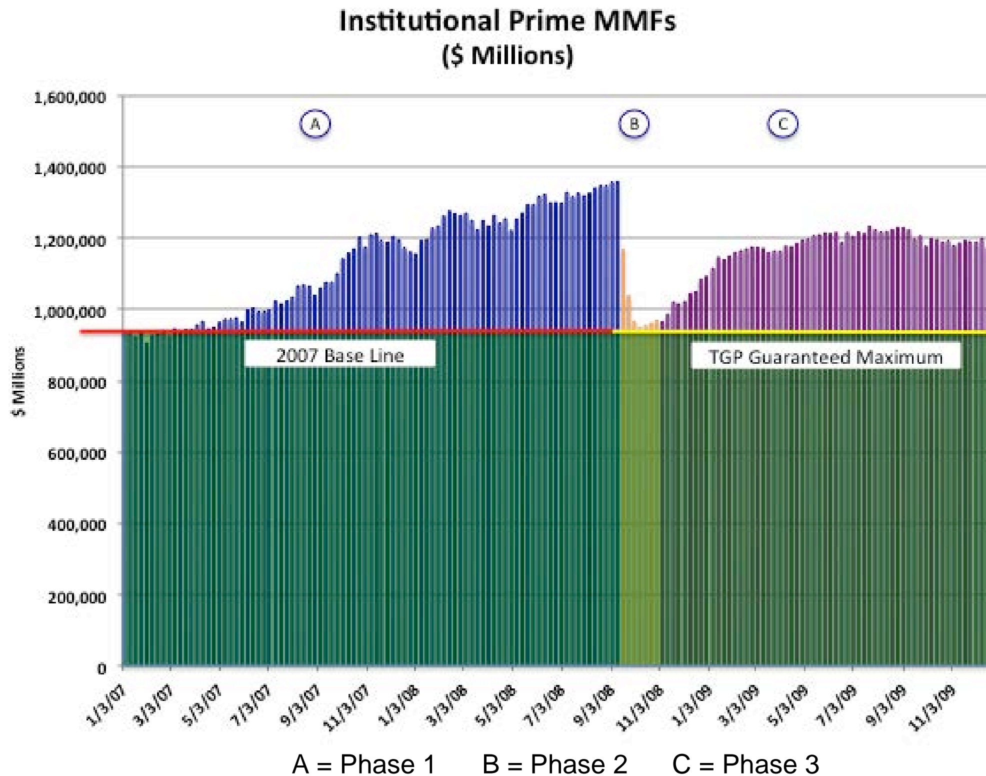
Source: Federal Reserve

The inflow into demand deposits was somewhat offset by an outflow of large time deposits, which decreased by $148 billion during this period.



Source: Federal Reserve

Inflow of Non-Guaranteed Assets into Institutional Prime MMFs
As one reaction to the market panic of Phase 2, the Treasury established the Temporary Guarantee Program (TGP) for MMFs. TGP guaranteed any investments in MMFs at September 19, 2008 levels. New assets invested after this date were excluded from this program and therefore not guaranteed.



A = Phase 1 B = Phase 2 C = Phase 3

Source: The Investment Company Institute, Treasury Strategies

Despite the fact that incremental investments were not guaranteed, institutional investors increased their holdings in prime MMFs. These sophisticated investors were fully aware that new MMF investments were not guaranteed, and that other fully guaranteed options were available (i.e., bank demand deposits). This testifies to the value investors place on MMF instruments.

Phase 3 Summary

	Assets as of 10/15/08 ($B)	Assets as of 12/30/08 ($B)	Change ($B)	% Change
Inst. MMFs				
Prime MMFs	1,725	1,875	151	9%
Treas/Gov MMFs	1,359	1,473	114	8%
Commercial Paper				
ABCP	677	705	28	4%
Bank/Finance CP	588	714	125	21%
Non-Financial CP	188	181	(7)	(4%)
Bank Deposits				
Demand Deposits	321	551	230	72%
Large Time Deposits	2,066	1,919	(148)	(7%)
Other Instruments				
Enhanced Cash	25	25	-	0%
Auction Rate Sec.	*0	*0	-	0%
SIVs	0	0	-	0%

*$330 billion in assets were frozen/illiquid.

Conclusion

The financial crisis fueled by the housing market collapse reverberated throughout the overall money markets. The failure of some very prominent institutions was widely felt and many asset classes experienced runs or failed altogether as a result.

A prolonged, credit-driven run took hold in mid-2007 as the housing tsunami cascaded across all asset classes. During this first phase, investors moved deliberately but without panic to higher ground. Excepting the surprise auction rate securities freeze,[6] major events of this period unfolded slowly, and problem institutions were well recognized in advance of their ultimate failures.

Then, two unanticipated shocks hit on successive days and triggered a firestorm run on all non-government guaranteed asset classes. First, the U.S. government abruptly reversed its very visible policy of supporting large distressed financial institutions. In a move that stunned the markets, it allowed Lehman Brothers to fail.[7]

Secondly, on the following evening while the markets were closed, the U.S. government reversed course again. While Lehman Brothers had been allowed to fail days earlier, the NY Fed that night announced an $85 billion bailout of AIG. This unexpected failure and its unprecedented magnitude shook the very foundations of the markets.

The next morning, investors ran for the high ground en masse, moving hundreds of billions of dollars into government and treasury MMFs, insured bank deposits, and government securities. They sold virtually everything else.

By year-end, with a mind-boggling list of support programs, bailouts, and guarantees, markets began to calm. When the dust settled, the crises that had begun in June 2007 had led to huge shifts of liquid assets. The ABCP, SIV, enhanced cash and auction rate securities markets were decimated. More than $1 trillion flowed *into* treasury/government MMFs during this time. An additional $600 billion flowed into government-guaranteed bank demand deposits, non-guaranteed prime MMFs, and large time deposits.

[6] Treasury Strategies long insisted these should not be classed as cash or cash equivalents. The freeze was a surprise to investors, yet this was recognized as an asset class deserving close scrutiny.
[7] The Reserve Fund, with 1.2% of its assets in A-rated Lehman commercial paper, was collateral damage to this policy change. Although Reserve "broke the buck", every other MMF holding Lehman paper maintained their $1 NAV.

Overall Crisis Summary

*$330 billion in assets were frozen/illiquid.

	Assets as of 6/27/07 ($B)	Assets as of 12/30/08 ($B)	Total Change ($B)	% Change
Inst. MMFs:				
Prime MMFs	1,705	1,875	170	10%
Treas/Gov MMFs	427	1,473	1,046	245%
Commercial Paper:				
ABCP	1,173	705	(469)	(40%)
Bank/Finance CP	763	714	(49)	(6%)
Non-Financial CP	196	181	(15)	(8%)
Bank Deposits:				
Demand Deposits	326	551	226	69%
Large Time Deposits	1,743	1,919	176	10%
Other Instruments:				
Enhanced Cash	250	25	(225)	(90%)
Auction Rate Sec.	330	0*	(330)*	(100%)
SIVs	400	0	(400)	(100%)

Recommendation

We encourage regulators to carefully consider the precise sequence of events as the crisis unfolded. This time period reveals a great deal about how much stress the markets could systematically digest and at which point the cumulative impacts became overwhelming. One point in particular stands out: the unprecedented and unanticipated AIG collapse, triggered by losses on Lehman credit default swaps, is the single proximate event that triggered a firestorm run on all money market asset classes. For all intents and purposes, that event divided the markets into just two asset classes: anything guaranteed by the U.S. government and anything that was not. During September 2008, investors wanted out of the latter and in to the former.

This point – along with the failures of various other asset classes, the widespread market chaos during this period, the flight to quality *into* MMFs, and the fact that 2010 MMF regulatory changes have already strengthened one of the most resilient asset classes throughout the financial breakdown – should guide regulators in their evaluations of asset classes and considerations of regulatory change.

Appendix B

Maintaining Public Sector Funding Access

Maintaining Public Sector Funding Access:

The Importance of Preserving Money Market Mutual Funds (MMFs)

New MMF regulations that were implemented in October of this year are having major negative consequences for issuers and borrowers of debt held by money market funds. Specifically, Tax-Exempt MMFs (TE MMFs) are closing and assets are leaving. This is drying up a very important municipal financing conduit.

As TE MMF close (or shorten their maturities), municipalities have fewer buyers for their debt. Even when they are able to place issues with the remaining TE funds, due to the shortened maturity structure, they are less able to lock in rates and more subject to weekly rate resets. This increases volatility and adds to their borrowing costs. If they are not able to place their issues with TE MMFs, only two options are available. They must turn to other lenders that have higher transaction costs or charge higher rates or they must defer or cancel infrastructure, educational/healthcare facilities or other municipal projects.

This paper will show the following, all of which demonstrate the negative impacts on municipal financing of new MMF regulation:

- Massive amounts of assets are leaving from Tax-Exempt MMFs
- Borrowing rates for Municipal borrowers have increased dramatically
- Managers that use TE funds on behalf of their customers are exiting those funds

Between December 2016 and December 2016 around $120 billion left TE MMFs, a decline of nearly 50%. Since TE MMFs provide a significant amount of financing to municipal borrowers, the short-term market for municipal debt is significantly smaller. This has led to a massive spike in borrowing rates – from less than 0.05% to 0.50%. Without Tax-Exempt MMFs, municipalities will be forced to seek even higher cost borrowing like bank credit, or reduce their short-term capital consumption. Projects in infrastructure, healthcare, education and government services will be impacted.

I. TE MMF assets declined by 50% in the months leading up to implementation of new regulations

MMFs have historically been an important holder of short-term municipal debt. As of December 2015, they provided over $250 billion of short-term funding to municipalities by purchasing their short-term debt instruments. By December 2016, TE MMFs were just barely half of that number and a quarter of pre-crisis levels in June 2008. Figure 1 shows the precipitous decline in TE MMF assets in 2016 prior to the implementation of new regulations in October.

Figure 1.Tax-Exempt Money Fund Asset Levels ($B), Source: CraneData.com, Treasury Strategies (December 2016)

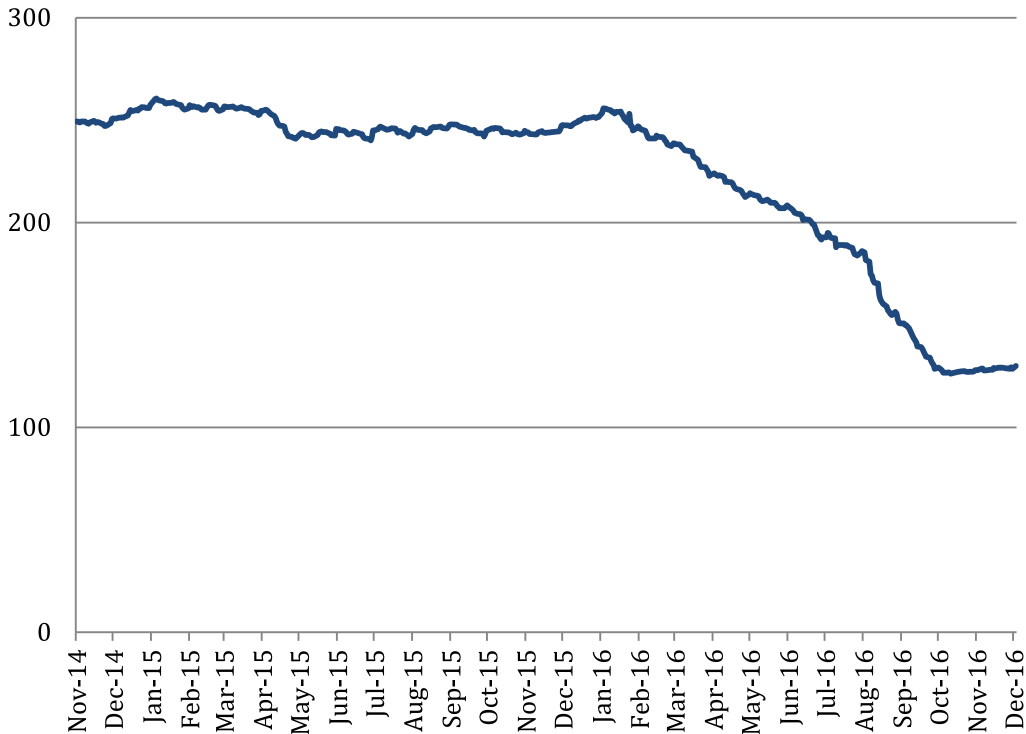
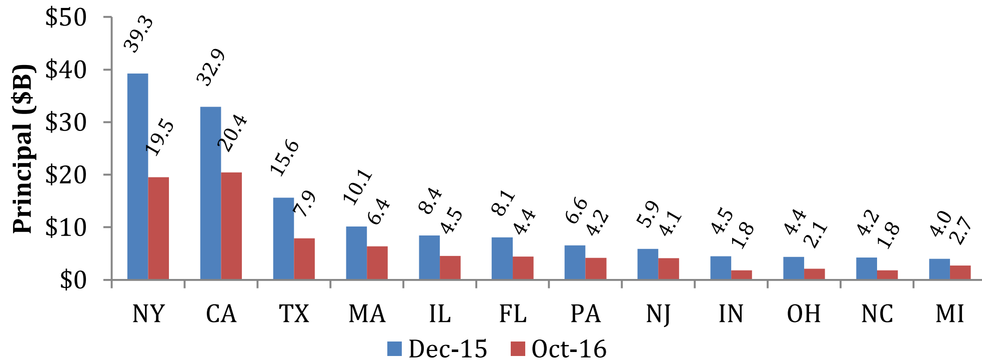


Figure 2 shows the large Tax-Exempt MMF investments in municipal debt of highly populated industrial and economic centers including New York, California, Texas, Massachusetts, Illinois, and Florida. It also shows the severe decline in these investments in 2016, with each of those states experiencing a 35% to 50% decline in the months leading up to the new regulations.

Figure 2. Tax-Exempt Money Fund Holdings of Short-Term Municipal Debt – Top 12 States ($B), Source: CraneData.com, Treasury Strategies (November 2016)



The reach of TE MMFs is even more striking when viewed in light of population. These funds represented over $700 for every man, woman and child in the U.S in December 2015, or up to $2,000 per household. The asset losses in TE MMFs translate to a decline of up to $700 to $1,000 per capita in the states that were most impacted.

The impact of these declines is geographically diverse. The per capita effects are just as pronounced in Alaska, Wyoming and Missouri as they are in New York and California, as shown in Figure 3.

Figure 3. Tax-Exempt Money Fund Holdings of Short-Term Municipal Debt – Top 12 States by Assets Per Capita, Source: CraneData.com, U.S. Census (November 2016)

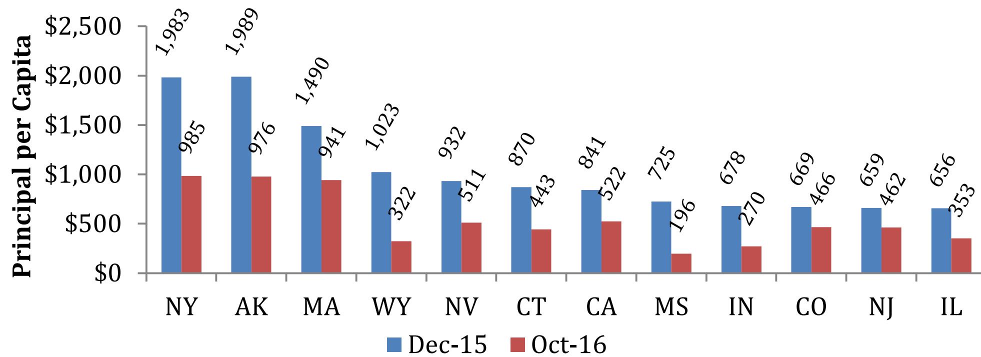


Figure 4 shows the impact of these asset outflows to important municipal issuers in the states of Texas, California, and New York. Many of these specific issuers have seen a decline in their debt held by TE MMFs over 50%, and some have seen much higher declines. Combined, the MTA and Port Authority in New York City have seen declines in excess of $1.8 billion.

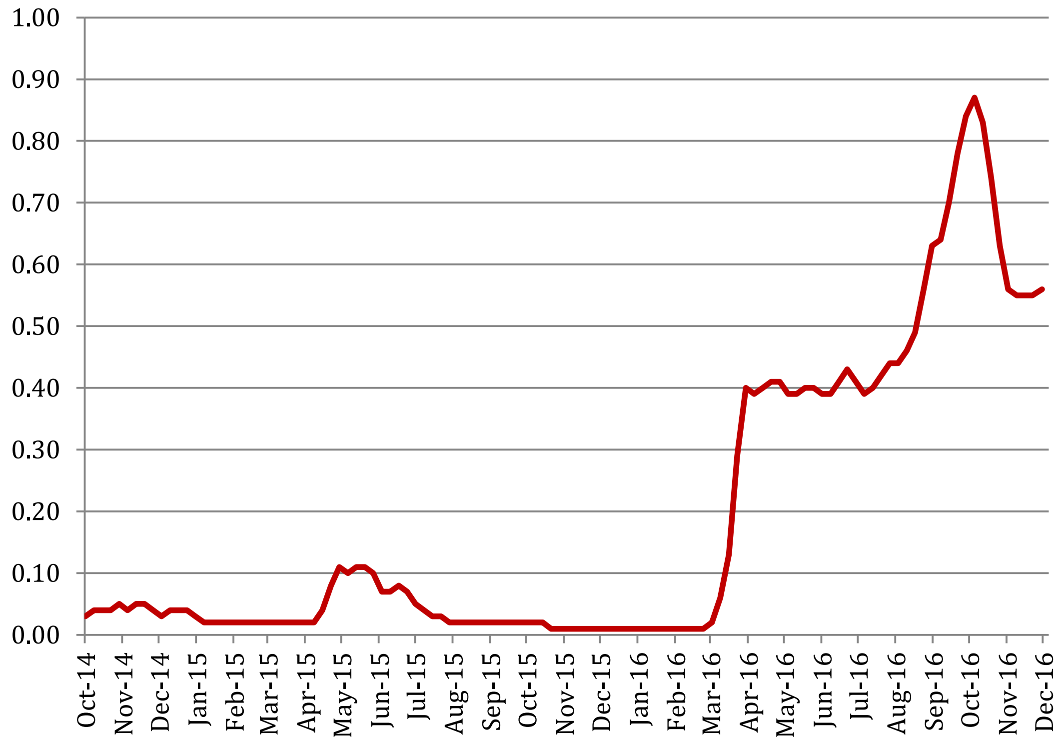
Figure 4. Impacts to Tax-Exempt Money Fund issuers in TX, CA and NY ($MM)
Source: Cranedata.com, Treasury Strategies (November 2016)

TE MMF Issuer	Principal - 12/31/15	Principal - 10/31/16	Change	% Change
Texas				
Texas Transportation Commission	$230	$104	($126)	-55%
Lower Neches Industrial Development	$414	$74	($340)	-82%
Dallas Area Rapid Transit	$133	$73	($60)	-45%
California				
California Health Facilities	$2,048	$1,279	($769)	-38%
California Infrastructure and Economic Development	$374	$196	($178)	-48%
Bay Area Toll Authority	$421	$166	($256)	-61%
New York				
Metropolitan Transportation Authority	$2,324	$847	($1,477)	-64%
Port Authority Transportation	$1,207	$852	($355)	-29%
Nassau Healthcare	$157	$55	($102)	-65%

II. Municipal borrowing rates have increased dramatically

As TE MMFs assets have diminished and waves of funds have closed, municipal borrowers have had to pay increasingly high rates to secure financing. Figure 5 shows that the SIFMA Index of municipal short term borrowing has jumped from under 5 basis points at the beginning of 2016 to over 50 basis points at the end of October. This greatly increases the borrowing costs for municipalities, university and hospitals. Since most debt resets on a weekly basis, borrowing costs on existing debt has increased by over ten-fold for many borrowers.

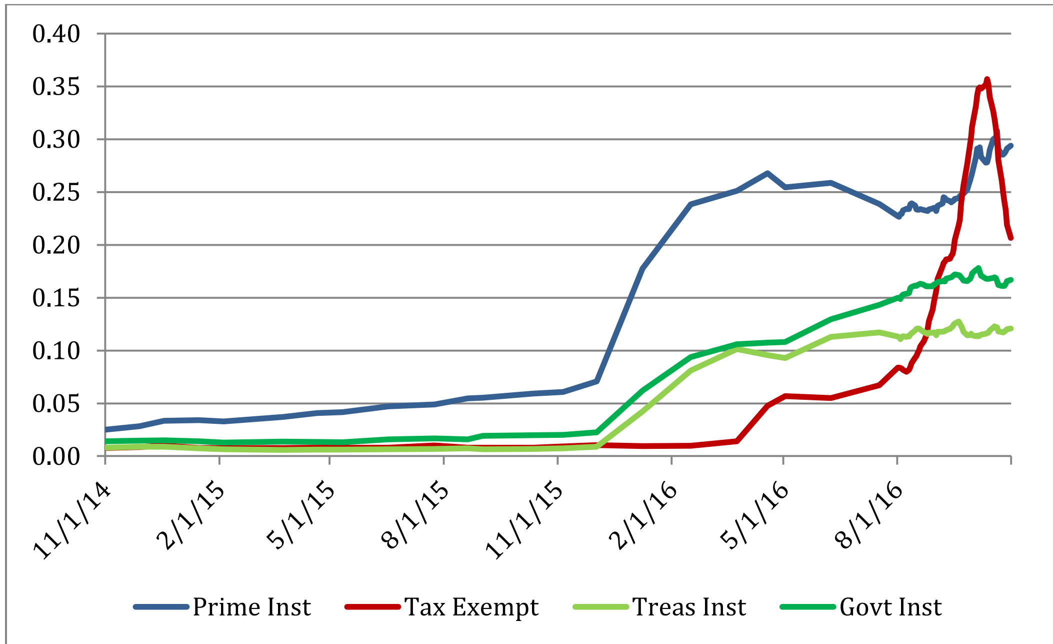
Figure 5. SIFMA Municipal Swap Index Rates (%),
Source: SIFMA (December 2016)



Municipal borrowing rates have also jumped from being significantly lower than other short-term rates to being positioned in-between one-month and three-month LIBOR. This represents a significant market disruption because many municipal debt instruments have traditionally been closer to over-night and seven-day rates due to weekly rate resets.

Another sign of this disruption is the yields that yields on TE MMFs have also increased significantly in this period compared to other money fund types. TE MMFs are traditionally the lowest yielding money fund due to their tax advantages, credit quality and short portfolios. Figure 6 shows that in the second half of 2016, TE MMF yields increased dramatically to be the highest yielding fund type for a brief period of time. As of October 31, 2016, only Prime Institutional funds offered higher yields.

Figure 6. Seven-day Money Fund Yields (%),
Source: Cranedata.com, Treasury Strategies, December 2016



III. Managers using TE funds on behalf of their customers are exiting

As they formulated the new MMF rules, regulators believed Tax-Exempt MMFs were held almost exclusively by retail investors. This was important, because the new rules were aimed at what are commonly called institutional funds – those used by corporates, institutions and trusts (called non-natural persons). [8]

The thinking was that if these non-natural persons did not invest in Tax-Exempt MMFs, then TE funds would see little impact, and municipal finance would be unharmed. However, this key assumption is incorrect. Not only are **significant portions of Tax-Exempt MMFs held by non-natural persons**, but the business is already adjusting in ways that will hurt municipal borrowers.

To delve into this issue, we conducted a two-part examination:

- First, we had discussions with managers from six of the largest U.S. tax-exempt fund companies that collectively represent 60% of all such assets.
- Second, to validate those findings, we surveyed 21 financial intermediaries that invest in TE MMFs, including nine of the 50 largest U.S. banks.

Fund Managers

From discussions with fund managers, we have estimated that non-natural persons hold a material portion – at least 30% to 50% – of TE MMF assets. Only one manager thought its fund had less than 30% institutional ownership.

Fund managers tell us they expect that virtually all such non-natural person investors in Tax-Exempt funds to leave. Reasons given range from operational difficulties to investment policy restrictions, driven primarily by the new regulations. As the new rules force such investors to exit, Tax-Exempt MMF asset levels will shrink and many funds will close.

Figure 11. Estimated TE MMF Assets Held by Institutional Investors, Source: Treasury Strategies Interviews of Top Fund Managers, February 2016

Fund Manager	Estimated % of TE MMF Assets Owned by Institutional Investors
# 1	30%
# 2	35%
# 3	15%
# 4	45%
# 5	50%
# 6	30%

[8] Non-natural persons include entities such as partnerships, LLCs, irrevocable trusts, corporations, and institutions

Financial Intermediaries
Information from Financial Intermediaries (FIs), who direct customer investments into Tax-Exempt MMFs, also paints a troubling picture for the future of these funds. Tax-Exempt MMF usage by FIs is likely to plummet.

According to FIs, non-natural persons account for almost two-thirds of the assets that they place in Tax-Exempt MMFs. Many FIs plan to cease offering Tax-Exempt Funds to any client, due to the complexity, difficulty and risk of determining which clients are natural versus non-natural investors. For others, the new rules make it impossible to continue offering Tax-Exempt funds to customers as an option on their sweep platforms. Accordingly, FIs will fully or substantially eliminate their use of Tax-Exempt MMFs on behalf of their customers.

This is a double-edged sword for municipal finance. First, lower investment in Tax-Exempt MMFs translates directly to reduced outlets for municipal borrowing. Secondly, at these significant levels of asset reduction, many TE funds will fall below efficient operating levels, and will close entirely – a trend we have already noted is underway.

IV. Conclusion

New SEC rules that change how MMFs function are having many unintended consequences. One such consequence now manifesting itself is a material reduction in the short-term credit available to municipal borrowers whose debt is held by Tax-Exempt MMFs. As recently as December 2015, Tax-Exempt MMF assets exceeded $250B. As of December 5, 2016, they are now under $130B.

These changes have also lead to a dramatic increase in the borrowing costs. Many municipalities have seen borrowing rates increase by ten-fold in 2016. They are also 30-day and 90-day rates for debt that resets on a weekly basis and is 100% callable on demand.

Without Tax-Exempt MMFs, municipalities will be forced to seek even higher cost borrowing options like bank credit, or reduce their short-term capital consumption. Neither of these options bode well for the US economy and tax payer.