A Discussion of the Current Money Market Fund Debate

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Can a Money Market Fund Bear the Default of a Security?

- Money market fund investors own pro rata interest in the funds, and, like all mutual funds, bear fund risks.
- In the event of a default, the fund must dispose of the security "as soon as practicable".
- If the loss exceeds 0.5%, the fund can no longer round share prices to $1.00.
- Credit events are "cliff events" requiring funds or sponsors to take actions. Fund mark-to-market prices, in most cases are within a several basis points of $1.00 until that event occurs.

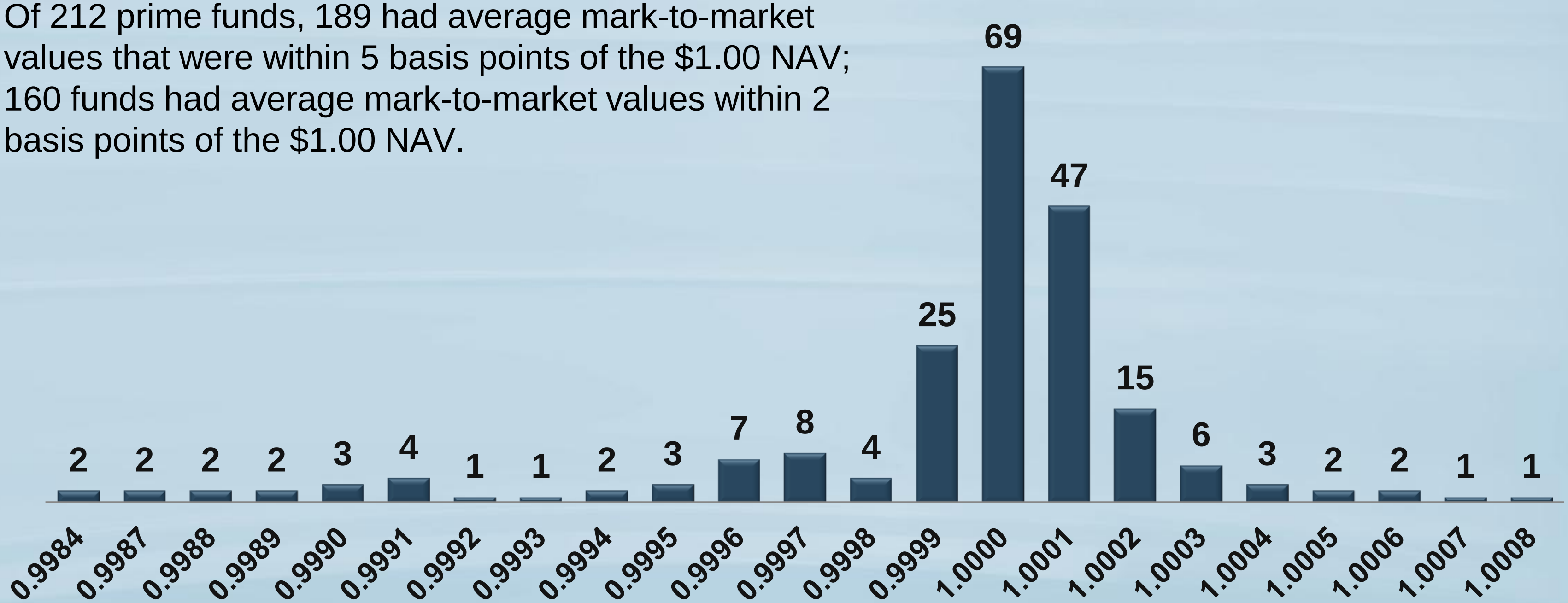
Why Do Mark-to-Market Prices ("Shadow Price") Remain so Close to $1.00 Despite Not Using Amortized Cost Pricing?

- Portfolios have extremely short durations. Portfolio maturities on average cannot exceed 60 days (90 days before 2010 reforms) and average 45 days.
- High-quality securities
- Distribute income daily
- A few funds have some small (1 to 16 bps) of embedded losses/gains, and shareholders continue to purchase and redeem shares at $1.00.

Mark-to-Market Values of Money Market Funds Remain Close to $1.00 NAV

Averages of prime money market fund mark-to-market values, January 2011–July 2012

Of 212 prime funds, 189 had average mark-to-market values that were within 5 basis points of the $1.00 NAV; 160 funds had average mark-to-market values within 2 basis points of the $1.00 NAV.



Note: Includes all prime money market funds that continuously reported on SEC Form N-MFP from January 2011 to July 2012.
Source: Investment Company Institute tabulation of SEC Form N-MFP data

Absolute Average Monthly Change in Mark-to-Market Values Less than a Basis Point

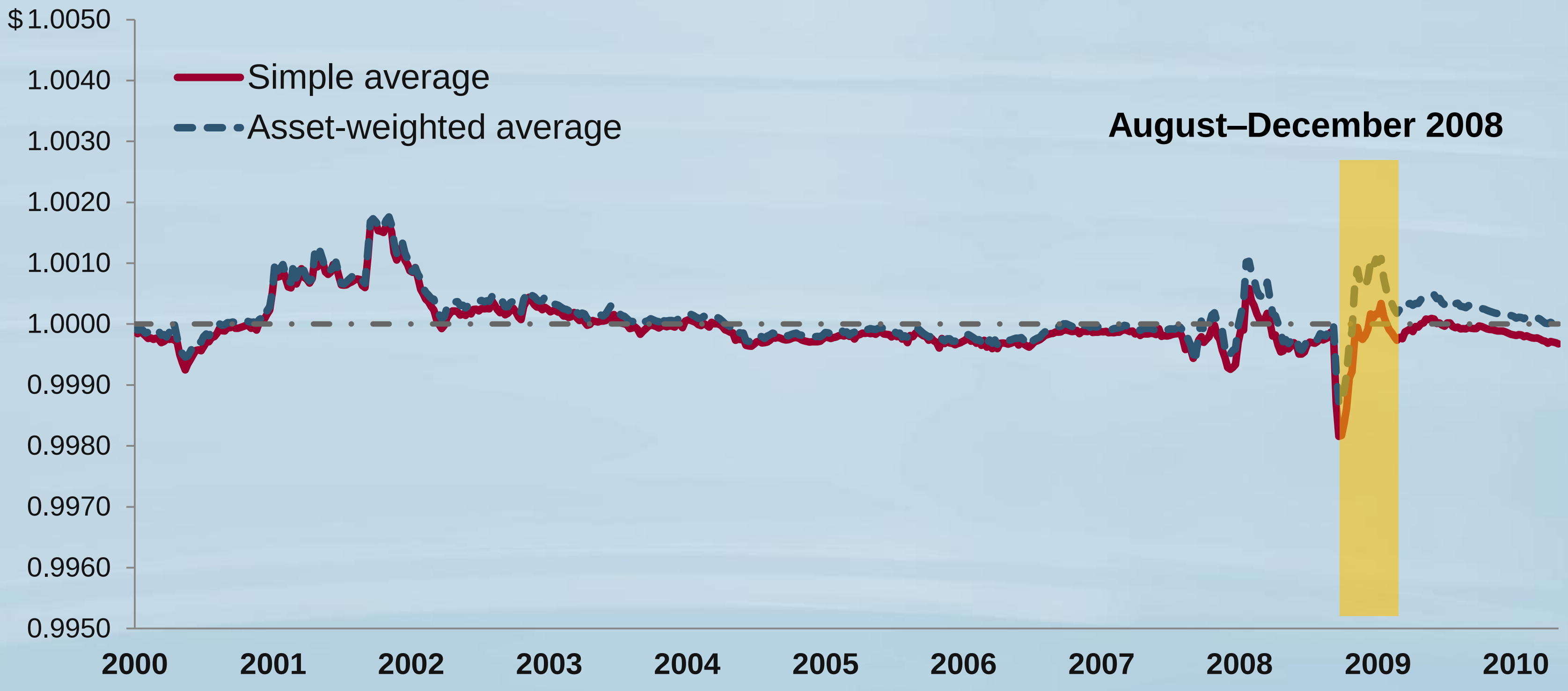
Averages of absolute monthly changes in mark-to-market values of all prime money market funds, January 2011–July 2012

Average absolute change in mark-to-market value (basis points)	Number of funds	Percentage of funds
0	11	5
.01–1	193	91
1.01–2	6	3
≥2.01	2	1
Total	212	100.0

Source: Investment Company Institute tabulation of SEC Form N-MFP data

Mark-to-Market Values, January 2000–April 2010

Sample of representative prime money market funds, weekly



Source: Investment Company Institute

Why Else Might Money Market Investors Want to be First to Redeem Shares?

- Liquidity Costs: "During periods of market strain when liquidity is at a premium redeemers who receive $1 per share bear none of the liquidity costs of their redemptions" (McCabe, Cipriani, Holscher, Martin, 2012)
- Market Impact Costs: "[R]edemptions that force one MMF to sell less-liquid assets at a loss may put downward pressure on asset prices" (McCabe et. al.)
- Expected or Realized Credit Losses: "Incentives to redeem shares before others do arises because investors who redeem shares from a troubled money market fund may benefit by imposing costs on other shareholders" (McCabe et. al.)

Are These Features Unique to Money Market Funds?

- Liquidity Costs: All mutual fund shares are redeemable on demand at the NAV. Shareholders in any pooled product without redemption fees do not bear the full cost of their liquidity. Furthermore, in markets generally, an increase in the demand for liquidity can increase the risk of supplying liquidity, causing market-makers to reduce or cease their market-making activities.
- Market Impact Costs: Security prices are highly correlated, heavy selling of a security can cause prices to fall for similar securities. Spillover effects may be greater in less liquid markets where model-based pricing is used to value securities.
- 2010 Reforms: Several of the 2010 reforms to money market mutual fund regulation were aimed at these two concerns.

2010 Liquidity Requirements

1-Day: 10% of fund assets must be held in

- Securities with remaining maturity of 1-day
- Treasury securities

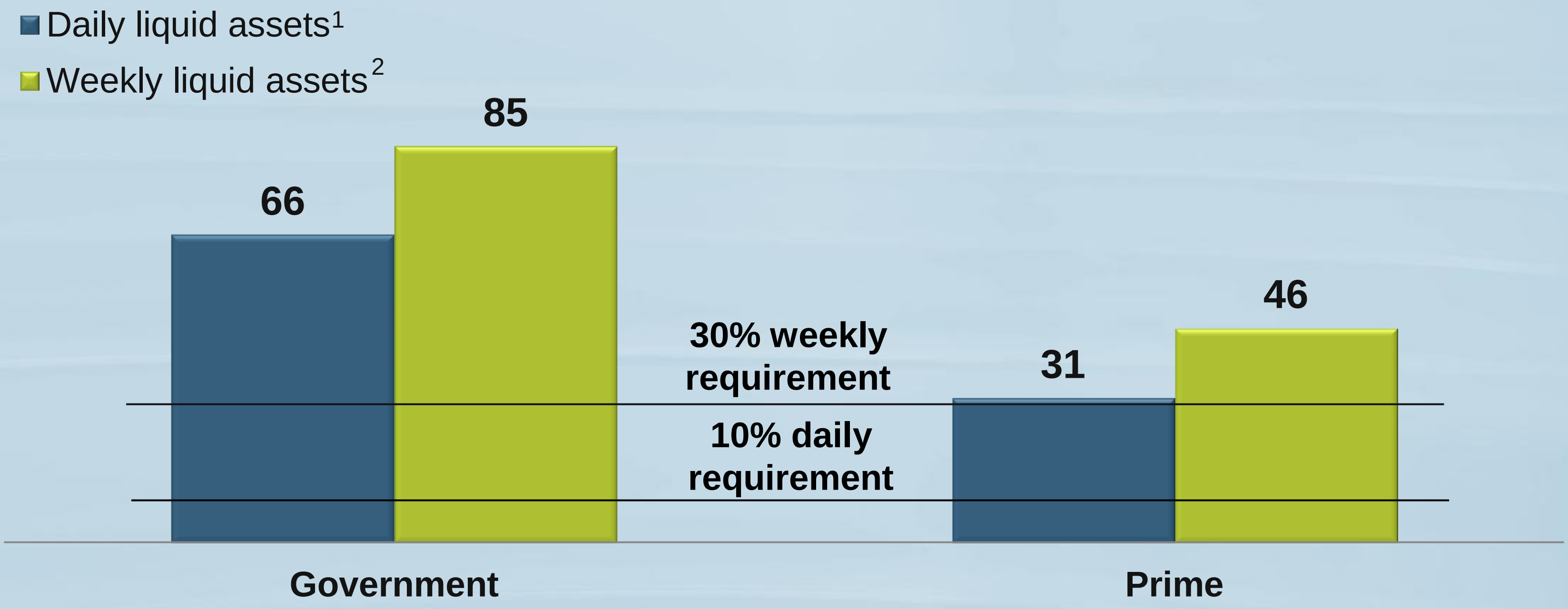
1-Week: 30% of fund assets must be held in

- Securities with remaining maturity of 5 business days
- Treasury securities
- Agency securities maturing in 60 days or less

Rationale: If funds need liquidity, they must get it from most liquid markets to have minimal impact on short-term markets.

Liquid Assets for Taxable Money Market Funds

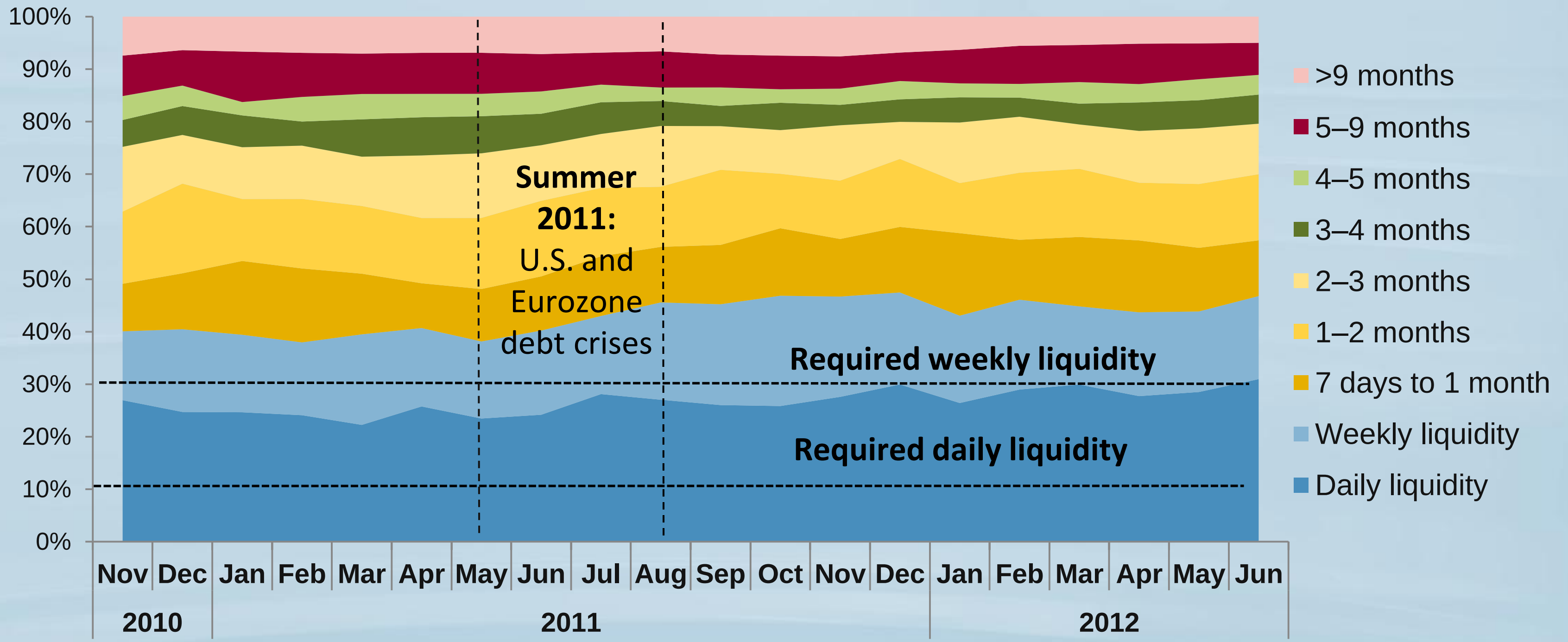
Percentage of total assets, June 2012



[1]Daily liquid assets include securities with a remaining maturity of one business day, and Treasury securities.
[2]Weekly liquid assets include securities with a remaining maturity of five business days or less, Treasury securities and agency securities maturing within 5 and 60 business days.
Source: Investment Company Institute tabulation of SEC Form N-MFP data

Prime Funds Have Consistently Held Substantial Medium-Term Liquidity

Percentage of assets, June 2012



Note: Maturity buckets are formed using the security's final legal maturity. Daily liquidity includes treasury securities of any maturity. Weekly liquidity includes government agency securities with a remaining maturity of 60 days or less. While daily liquidity is part of weekly liquidity, for the purposes of this chart, the two are separated.
Source: Investment Company Institute tabulation of SEC Form N-MFP data

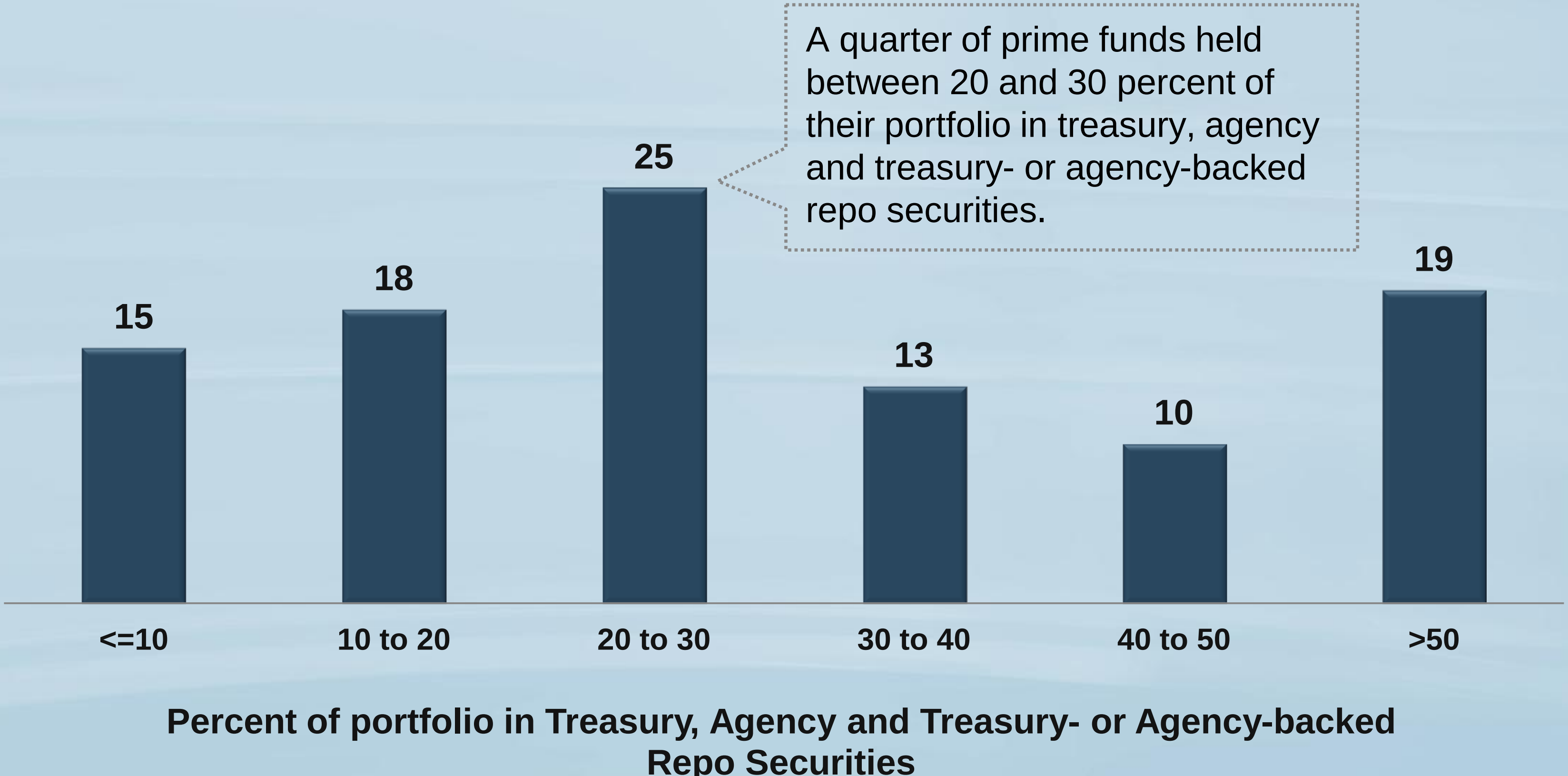
Prime Money Market Fund Holdings of Treasury, Agency, and Repo Securities

Monthly, January 2002–August 2012

Source: Investment Company Institute

Prime Funds' Portfolios are Becoming More Similar to those of Government Funds

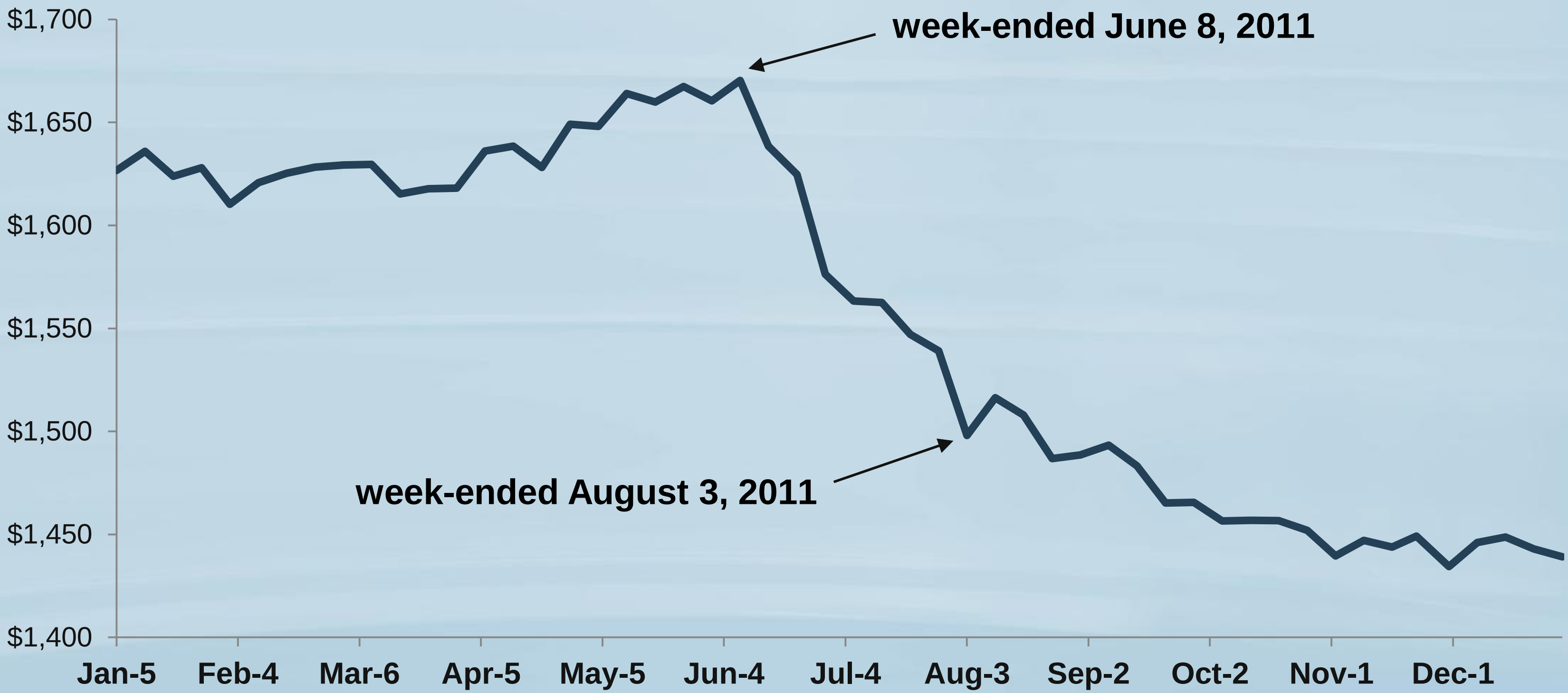
Percentage of funds, June 2012



Source: Investment Company Institute Tabulation of SEC Form N-MFP data

Prime Money Market Funds Assets During U.S. Debt Ceiling and Eurozone Debt Crises

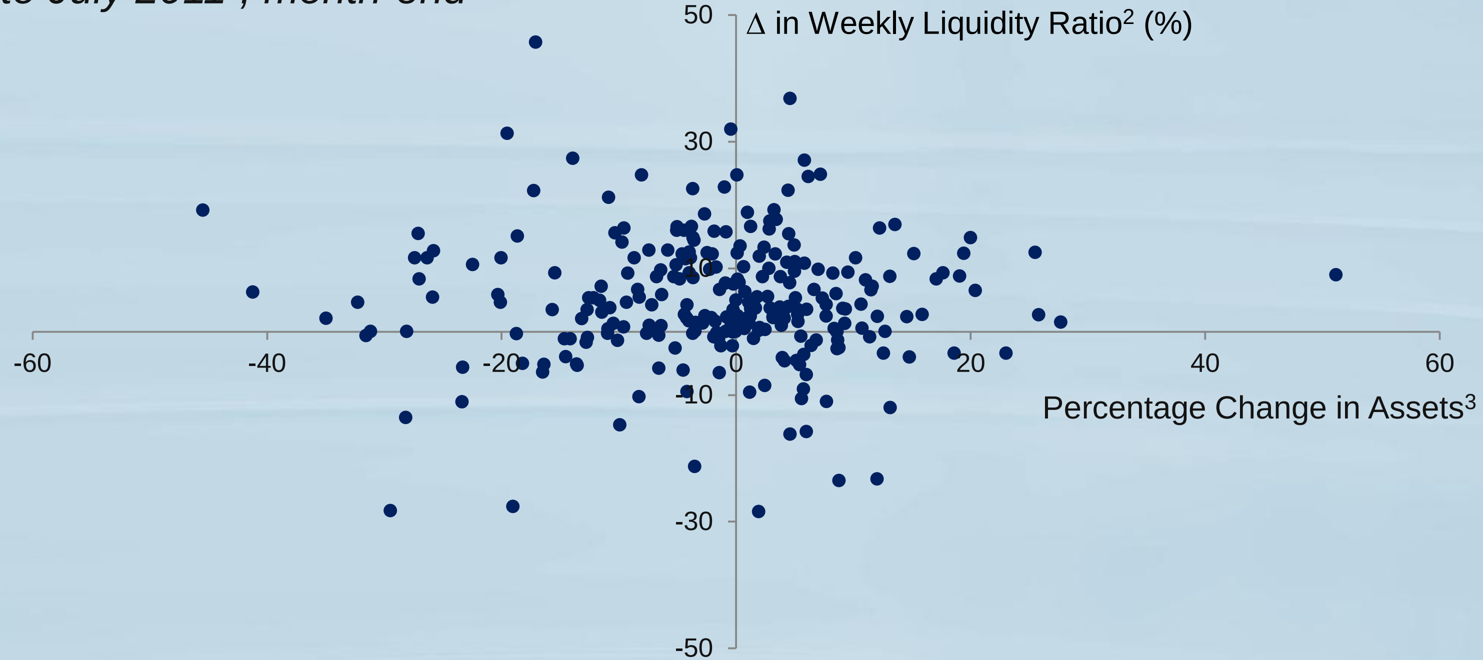
Assets, billions of dollars, 2011, weeks-ended Wednesday



Source: Investment Company Institute

Change in Prime Fund Liquidity Ratios versus Fund Flows

May to July 2011[1], month-end



[1]The period from May 31st, 2011 to July 31st, 2011 was chosen because, using a monthly data, this is the period during which aggregate prime fund outflows were abnormally large.

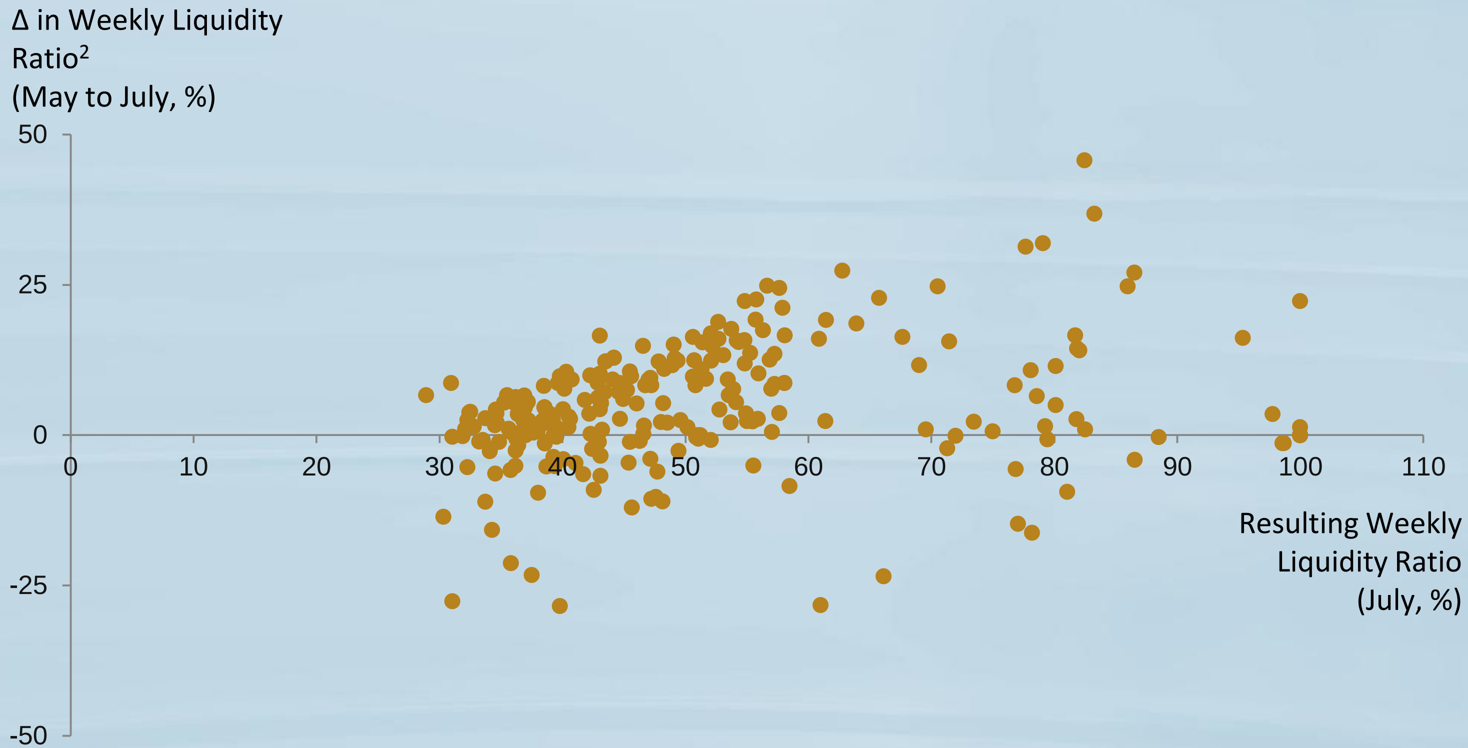
[2]The change in weekly liquidity is measured as a fund's weekly liquidity ratio (weekly liquid assets as a percentage of total assets) at the end of July minus its weekly liquidity ratio at the end of May.

[3]The percentage change in assets is measured as the change in a fund's assets from May to July as a percentage of its May assets.

Source: Investment Company Institute tabulation of SEC Form N-MFP data

Change in Prime Fund Liquidity Ratios versus Resulting Liquidity Ratio

May to July 2011[1], month-end



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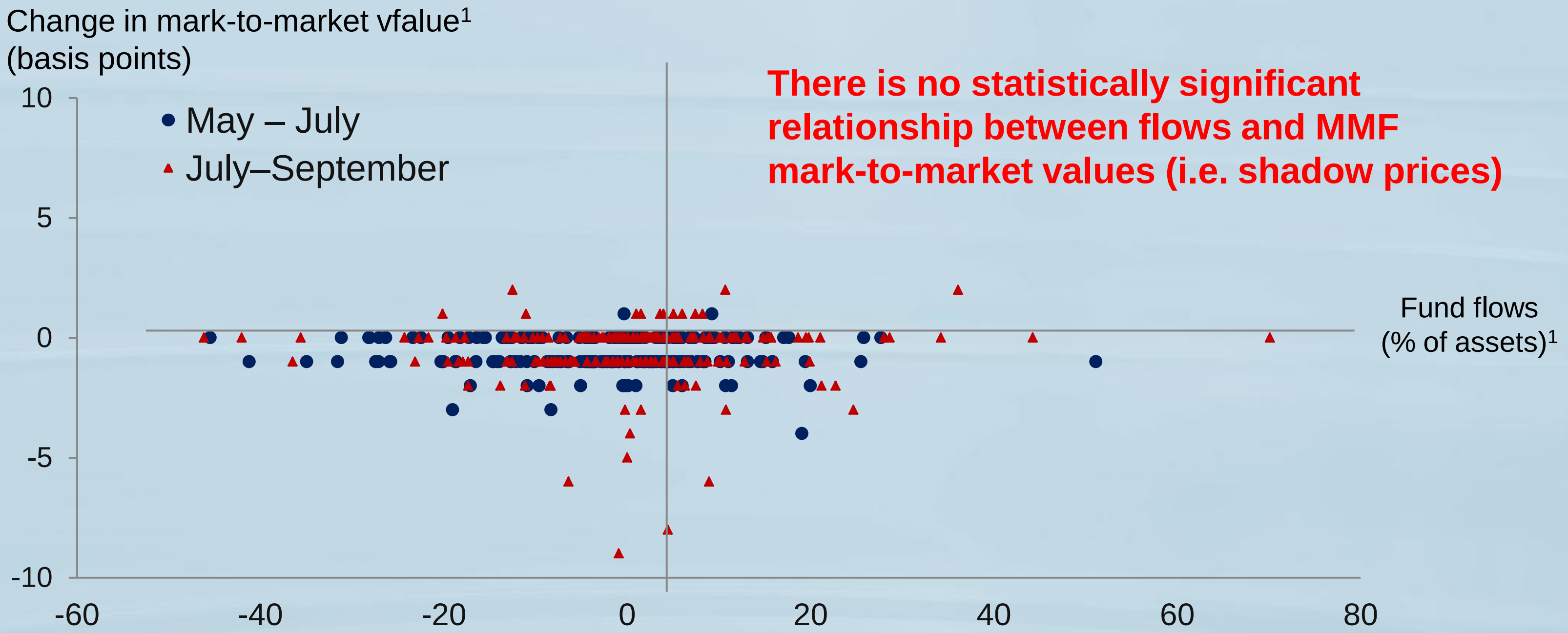
[2]The change in weekly liquidity is measured as a fund's weekly liquidity ratio (weekly liquid assets as a percentage of total assets) at the end of July minus its weekly liquidity ratio at the end of May.

Source: Investment Company Institute tabulation of SEC Form N-MFP data

Changes in Prime Fund Mark-to-Market Values in Summer 2011

Basis points, May 31–July 31 and July 31–September 30



[1]Change in both fund mark-to-market values and assets are measured across two periods: May–July and July–September. Thus, changes in mark-to-market values from May–July are matched with May Eurozone holdings and changes in mark-to-market values from July–September are matched with July Eurozone holdings..
Note: Excludes funds with absolute flows above 99 percent of assets.
Source: Investment Company Institute tabulation of SEC Form N-MFP data

Incentive to Redeem to Avoid Credit Losses

- Anticipated Credit Losses:
  - Investors in any fund or in the markets generally have an incentive to redeem shares or sell securities if they anticipate credit losses.
  - Discounts on short-term paper must be extremely large to affect share prices of a money fund.
- Actual Credit Losses:
  - If there is a material loss and the fund adviser chooses not to support the fund, the fund would reprice fund shares and under the 2010 rules can suspend redemptions and liquidate—eliminating the first-mover advantage.

Even Large Downgrades May Not Put MMF's NAV at Risk

	Remaining days to maturity of downgraded security			
	90	60	30	0
Downgraded security represents 1% of fund assets and its yield rises				
100 basis points				
Resulting mark-to-market value	$0.99997	$0.99998	$0.99999	$1.00000
Deviation from $1.00000 (basis points)	-0.3	-0.2	-0.1	0.0
400 basis points				
Resulting mark-to-market value	$0.99990	$0.99993	$0.99997	$1.00000
Deviation from $1.00000 (basis points)	-1.0	-0.7	-0.3	0.0
Downgraded security represents 5% of fund assets and its yield rises				
100 basis points				
Resulting mark-to-market value	$0.99987	$0.99992	$0.99996	$1.00000
Deviation from $1.00000 (basis points)	-1.3	-0.8	-0.4	0.0
400 basis points				
Resulting mark-to-market value	$0.99950	$0.99967	$0.99983	$1.00000
Deviation from $1.00000 (basis points)	-5.0	-3.3	-1.7	0.0

Note: Figure represents the mark-to-market value of a fund with the indicated percentage of its portfolio subjected to the indicated rise in interest rates as the result of a downgrade. The fund's mark-to-market value is assumed initially to be $1.00000, and it and the resulting mark-to-market value are shown to the fifth decimal place in order to measure the impact of the downgrade. The sensitivity test assumes there are no subsequent downgrades, and that the market value of the remaining securities in the portfolio equals amortized cost.

Source: Investment Company Institute

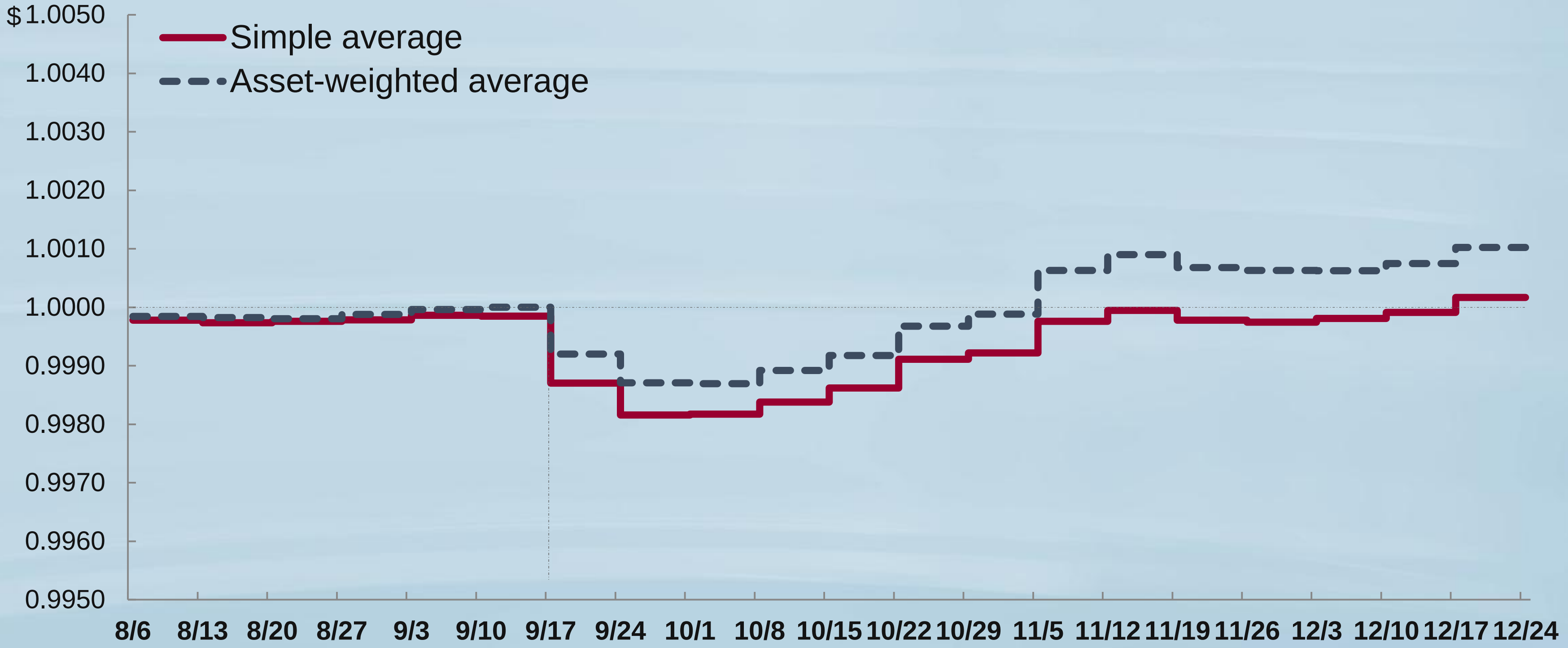
Summary

- Regulators still have not articulated the features of money market funds that make them uniquely susceptible to destabilizing redemptions (“runs”) and/or have ignored the impact of 2010 reforms.
- Holdback or other “always on” redemption restrictions will make money funds less liquid than direct holdings of money market instruments or even bond funds.
- Capital requirements intended to “absorb losses” ignore the defining characteristic of mutual funds. Like all mutual fund investors, money market fund investors own a interest in the fund. All the shares in the fund are capital.

Appendix

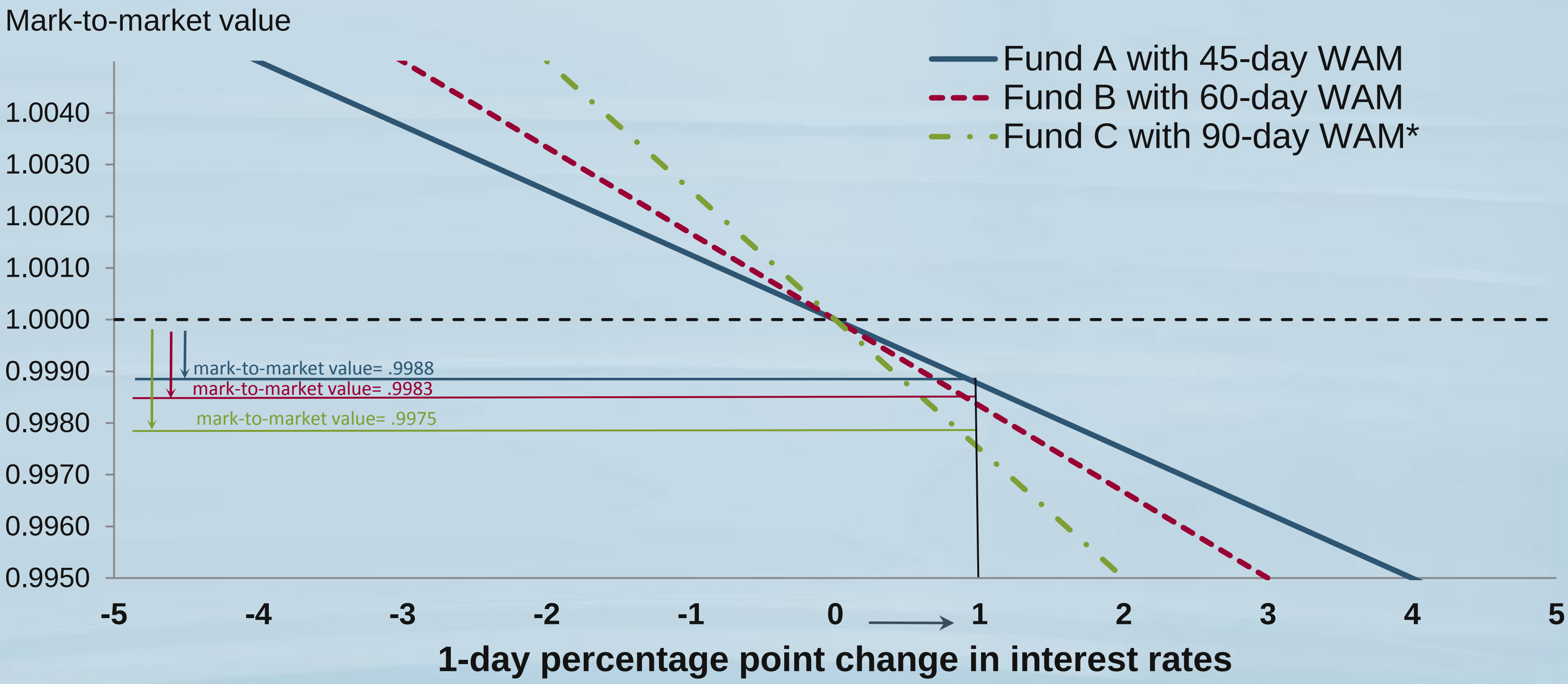
Mark-to-Market Values, August 6–December 24, 2008

Sample of representative prime money market funds, weekly



Source: Investment Company Institute

Weighted Average Maturity Determines Sensitivity of a Fund's Mark-to-Market Value to Changes in Interest Rates



**No longer permitted under rule 2a-7.*
Note: Figure indicates the resulting mark-to-market value for a given change in interest rates. The initial mark-to-market value is $1.0000.
Source: Investment Company Institute

Firms that Collapsed or Required Support *Before* Lehman Collapsed

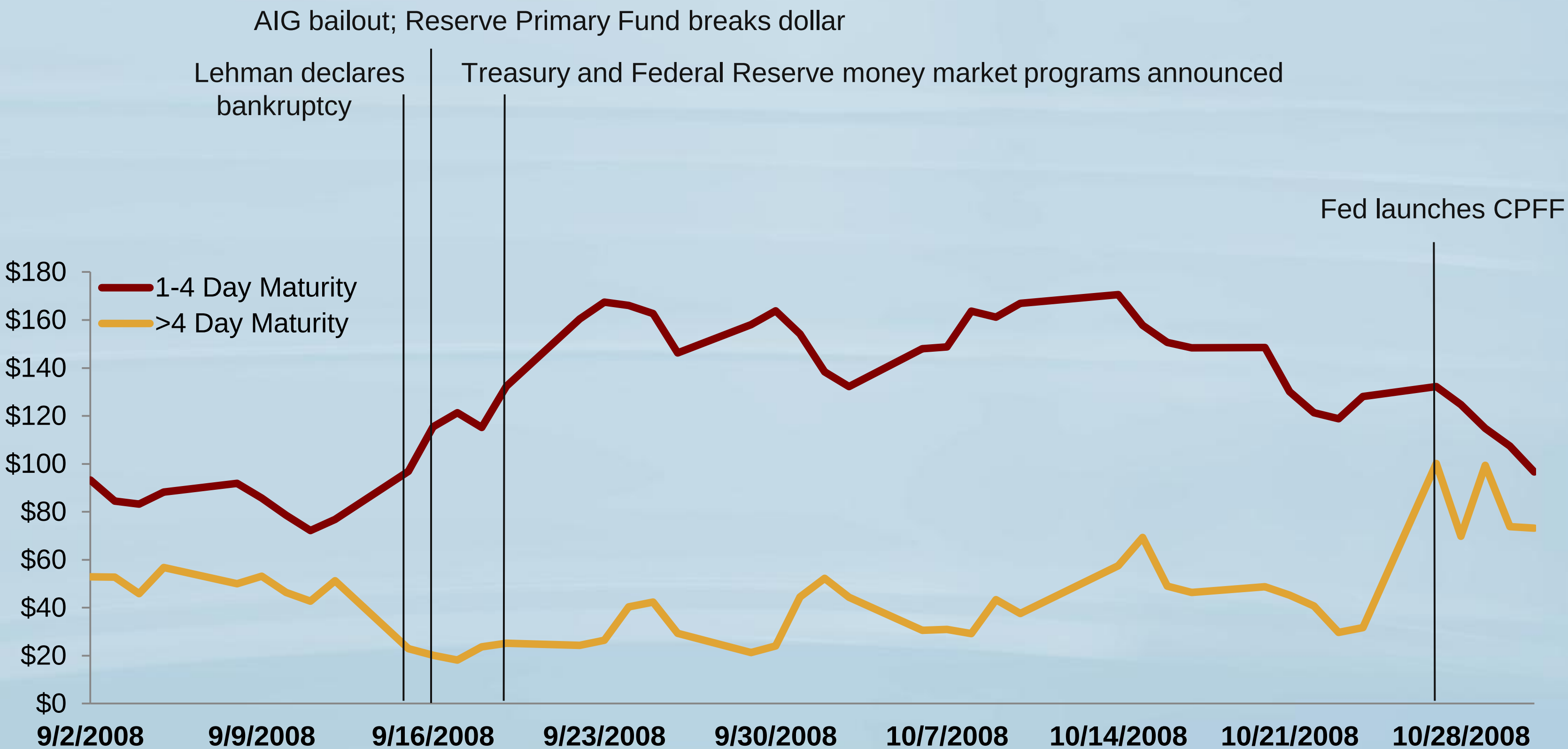
- American Home Mortgage Corp. (Aug. 6, 2007)
- HomeBanc Corp. (Aug. 10, 2007)
- Sachsen Landesbank (Aug. 10, 2007)
- Citigroup, Inc. (Dec. 13, 2007)
- Countrywide (Jan. 11, 2008)
- MBIA, Inc. (Feb 13, 2008)
- Financial Guaranty Insurance Company (Feb. 15, 2008)
- Northern Rock, plc (Feb. 22, 2008)
- Ambac Financial Group, Inc. (Mar. 7, 2008)
- Bear Stearns (Mar. 15-16, 2008)
- IndyMac (Jul. 31, 2008)
- Freddie Mac (Sep. 6-7, 2008)
- Fannie Mae (Sep. 6-7, 2008)
- Merrill Lynch (Sep. 13-14, 2008)

Partial List of Firms that Collapsed, Merged to Avoid Collapse, or Required Support *After* Lehman Failed

- AIG (U.S.) (Sep. 16, 2008)
- Washington Mutual (U.S.) (Sep. 25, 2008)
- Fortis (Benelux) (Sep. 28, 2008)
- Bradford & Bingley, plc (U.K.) (Sep. 29, 2008)
- Anglo Irish Bank (Ireland) (Sep. 30, 2008)
- Dexia (France/Belgium) (Sep. 30, 2008)
- Wachovia (U.S.) (Oct. 3, 2008)
- Hypo Real Estate (Germany) (Oct. 6, 2008)
- Lloyds Bank (U.K.) (Oct. 13, 2008)
- RBS (U.K.) (Oct. 13, 2008)
- Bank of America (U.S.) (Oct. 28, 2008)
- Morgan Stanley (U.S.) (Oct. 28, 2008)
- Commerzbank (Germany) (Nov. 3, 2008)
- GMAC (U.S.) (Dec. 29, 2008)
- US Central Federal Credit Union (U.S.) (Jan. 29, 2009)

Total Value of Commercial Paper Issuance by Maturity

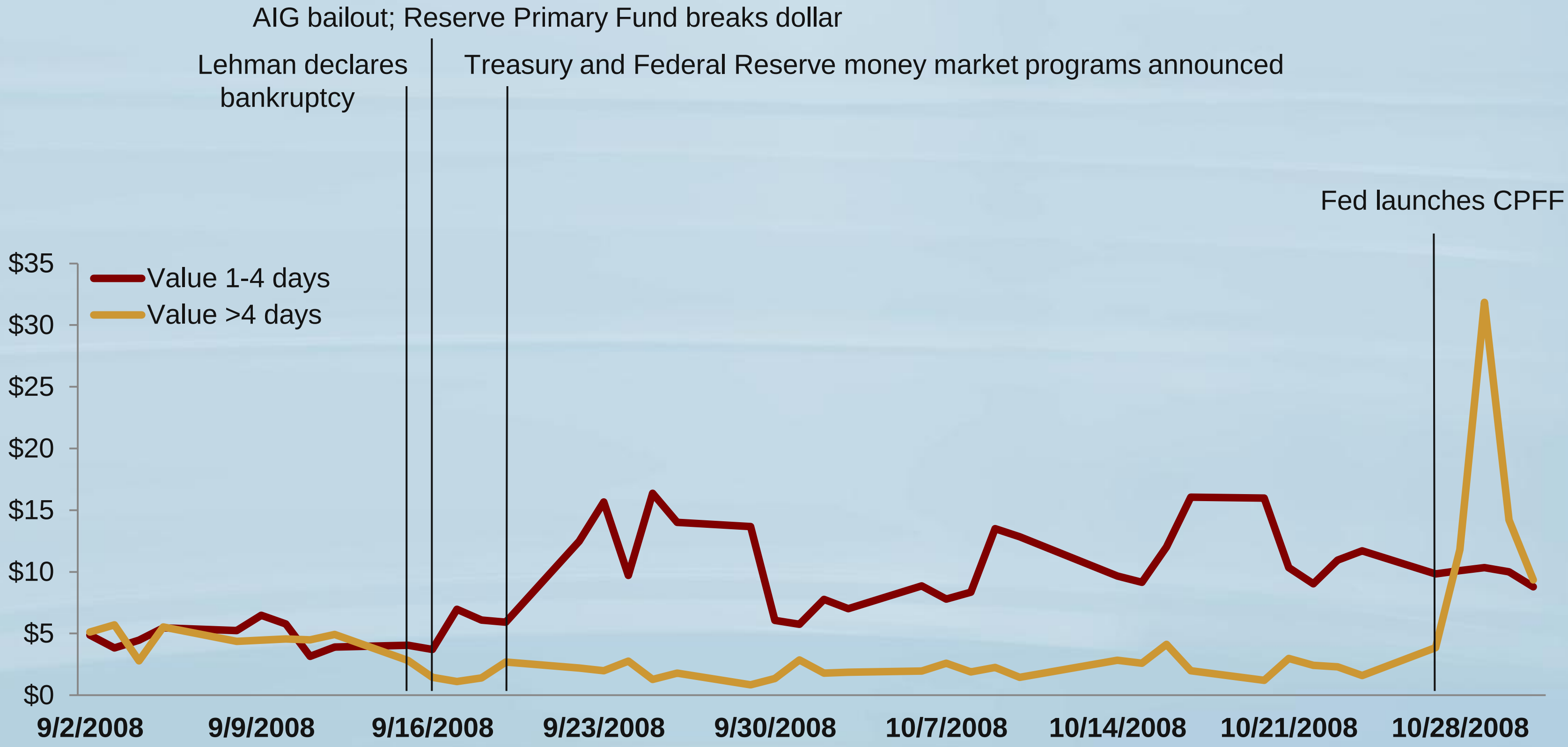
Billions of dollars, daily, September–October 2008



Source: Federal Reserve Board

Total Value of Commercial Paper Issuance by AA-Rated Financial Institutions by Maturity

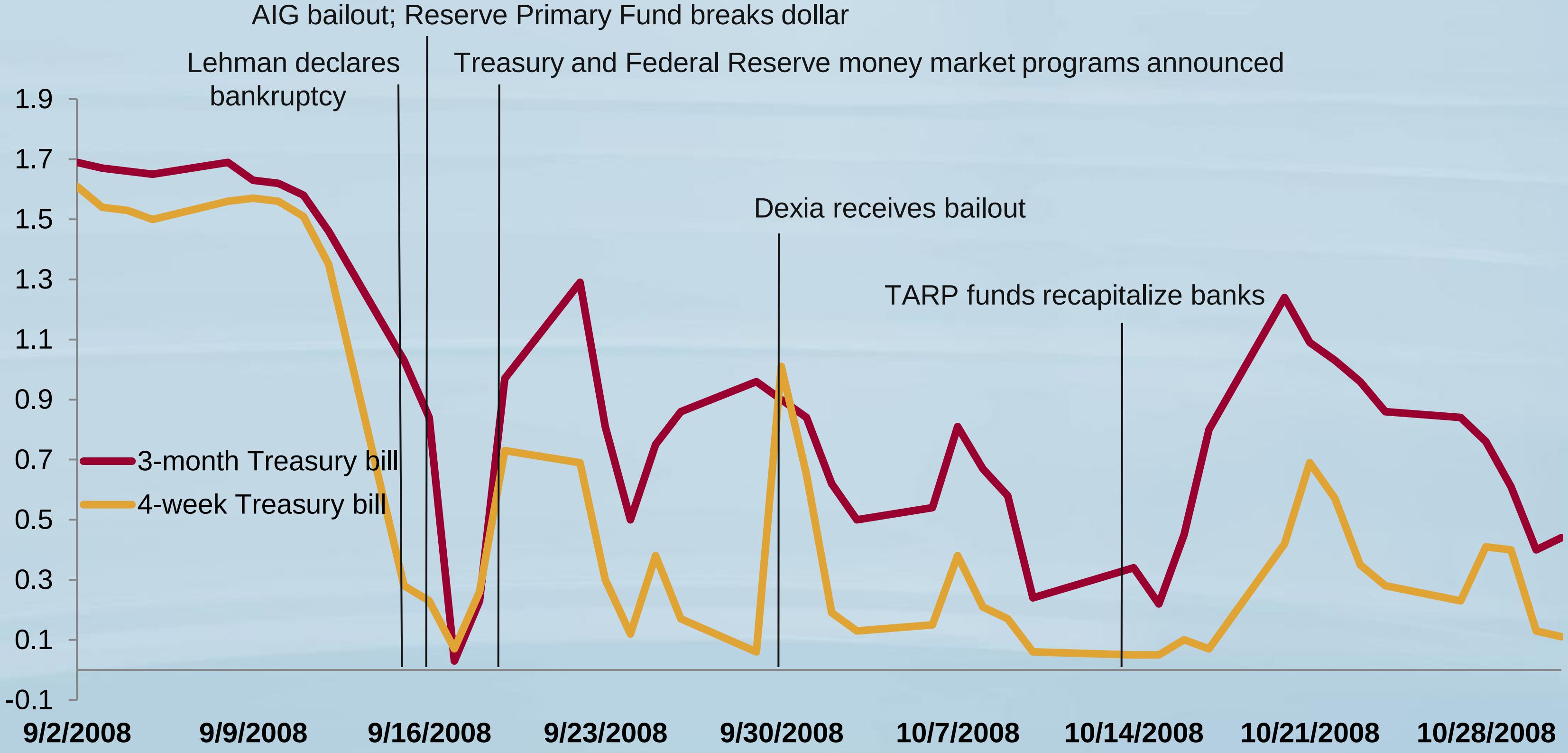
Billions of dollars, daily, September–October 2008



Source: Federal Reserve Board

Treasury Bill Interest Rates

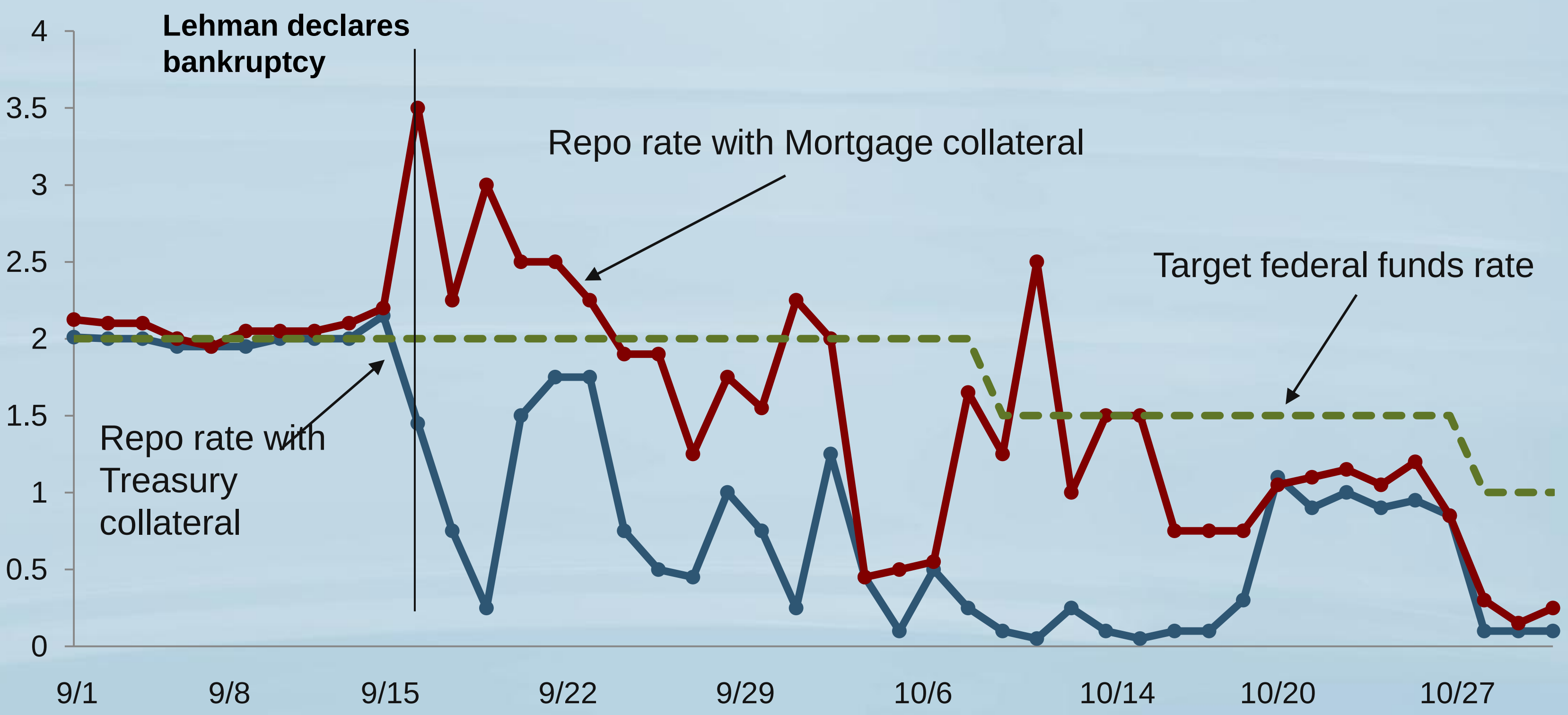
Percent, 2008



Source: Federal Reserve Board

Overnight Rates for Repurchase Agreements

Percent, daily, September 1–October 31, 2008



Sources: Bloomberg and confidential data from ICI members

Banks Refused to Lend to Each Other: Spread Between Three-Month LIBOR and Overnight Index Swap Rate*

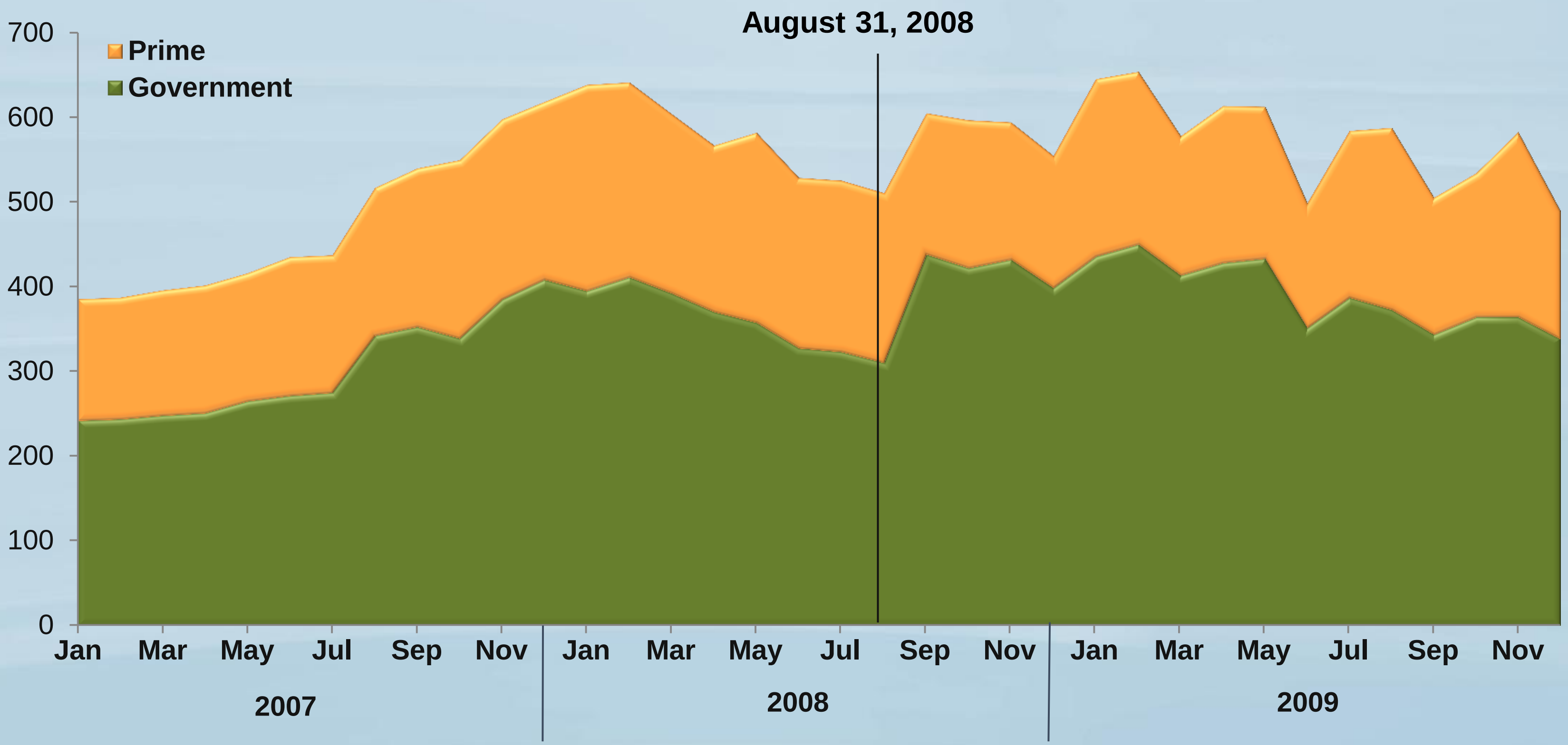
Basis points, daily, 2007–2012

**90-day LIBOR less the 90-day Overnight Index Swap (OIS) rate. An OIS is an interest rate swap with the floating rate tied to an index of daily overnight rates, such as the effective federal funds rate. At maturity, two parties exchange, on the basis of the agreed notional amount, the difference between interest accrued at the fixed rate and interest accrued by averaging the floating, or index, rate.*

Source: Bloomberg

Taxable Money Market Funds Holdings of Repurchase Agreements Were Stable

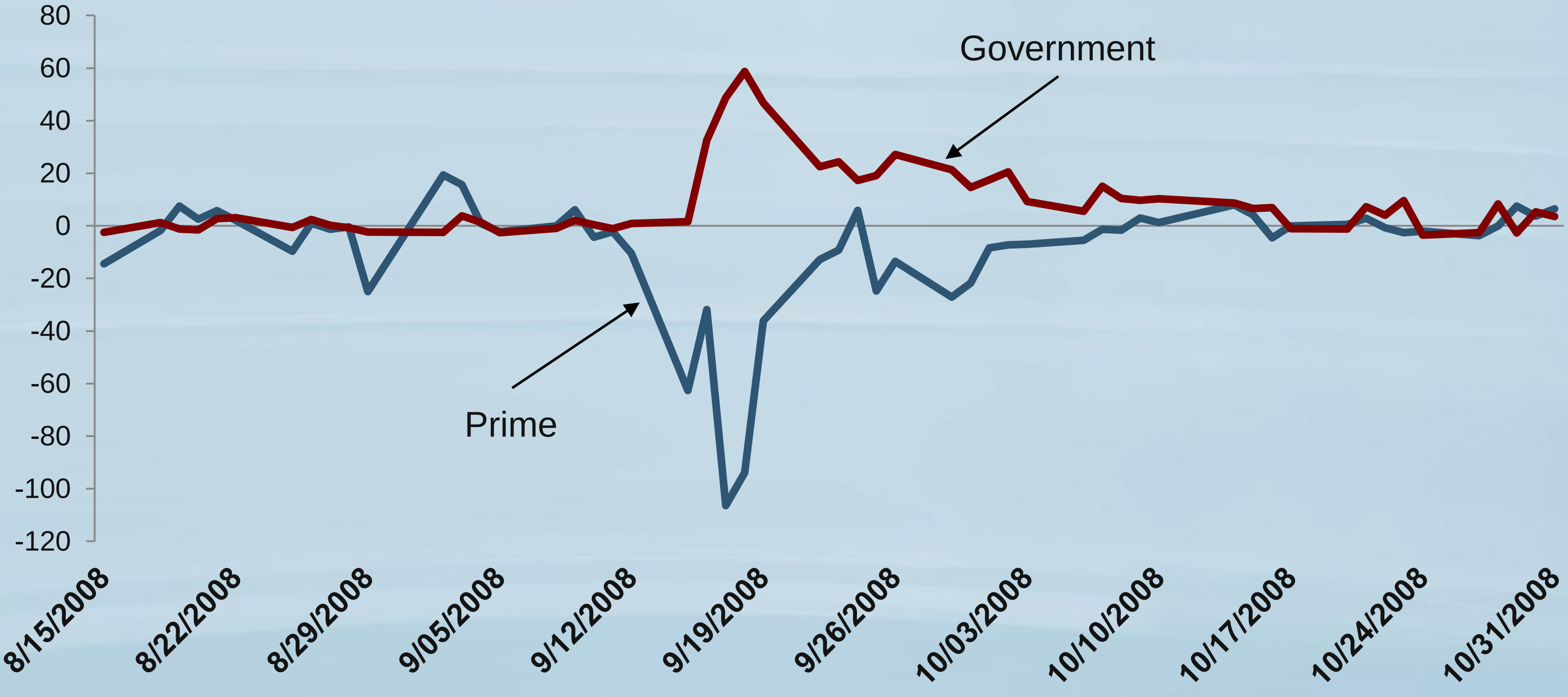
Billions of dollars, month-end, 2007–2009



Source: Investment Company Institute

Taxable MMF Change in Assets

Billions of dollars, change in TNA, 2008



Note: Data exclude Reserve Primary Fund after September 15th.
Source: iMoneyNet