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By Craig M. Lewis¹ and Christian Schlag²

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Introduction

On July 23, 2014, the U.S. Securities and Exchange Commission (SEC) finally passed a set of amendments, “Money Market Reform: Amendments to Form PF,” designed to prevent investor runs on money market mutual funds such as those experienced in institutional prime funds following the bankruptcy of Lehman Brothers.³

The two most important of these amendments are 1) the requirement that institutional prime money market funds price and transact at market values – the Floating Net Asset Value (FNAV) amendment - and 2) an amendment that provides non-government money market funds with an effective mechanism to limit investor runs through the discretionary imposition of liquidity fees and redemption gates. This so-called “combination approach” is a targeted policy choice that tackles different incentives for investors to redeem during periods of market-wide stress.⁴

These reforms choices are of particular interest because they largely reflect a reversal of the policy choices that the SEC was prepared to make when money market fund reform stalled under former SEC Chairman Mary Schapiro, who served as SEC chair from January 2009 to December 2012. At that time, the SEC was effectively deciding between a capital buffer and FNAV option. The capital buffer alternative was the preferred policy choice by Chairman Schapiro and her staff.

Following a comprehensive study of the available data by the economists at the SEC, the subsequent Chairman Elisse Walter reworked the proposed rule to provide a choice between the FNAV option, the liquidity fees and redemption gate option, or a possible combination of the two.⁵ When Chair Mary Jo White became Chair of the SEC in October 2013, she inherited a process that was well

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³ See Securities and Exchange Commission (2014).

⁴ See Daniel M. Gallagher (2014)

⁵ See Division of Risk, Strategy, and Financial Innovation U.S. Securities and Exchange Commission (2012)

underway but still required a significant number of decisions about the final structure. On July 23, 2014, the final rule was adopted that requires all non-governmental money market funds to consider the use of liquidity fees and redemption gates during periods when funds are experiencing liquidity shortfalls. It also requires all institutional, prime funds to use FNAV pricing.

One of the most interesting aspects of the final rule is what it does not require. Specifically, it did not require money market funds to hold capital against possible shareholder losses. Despite receiving significant support in the U.S. from the Federal Reserve, the capital buffer proposal ultimately was rejected because it fundamentally changed the nature of the product from one that offers enhanced yield to one that replicates a government money market fund. The final rule ensured that money market mutual funds are regulated in a manner consistent with the disclosure based regime that is the SEC's forte, rather than forcing them to reorganize as special purpose banks.⁶

These policy choices should be particularly relevant to European regulators because the European Commission's proposed regulations require a 3% capital buffer, specific diversification requirements, and the elimination of amortized cost pricing. The Commission's proposal was unable to gather the requisite votes and reform efforts have stalled. One of the reasons may have been estimates by the European Commission indicating that costs to fund managers would rise between 3% to 10% per year. Given these products' thin margins, this was viewed by opponents as excessive.

Money Market Funds

U.S. money market funds are open-end investment management companies that are registered under the Investment Company Act of 1940. The principal regulation underlying money market funds is rule 2a-7 under the Investment Company Act, which was promulgated in 1983, amended in 2010, and most recently amended in 2014.

A mutual fund chooses whether or not to comply with rule 2a-7. A fund that does so may represent itself as a money market fund, rather than, for example, an ultra short-term bond fund. All other funds are prohibited from suggesting that they are money market funds. Under rule 2a-7, a money market fund must satisfy constraints on portfolio holdings related to liquidity, maturity, and portfolio composition, as well as satisfy a number of operational requirements.

⁶ Adding a capital buffer would require money market funds to have a bank-like capital structure. As residual claimants, capital buffer investors effectively become the "equity holders" and shareholders are converted into "debt holders", i.e., demand depositors.

Investor Redemption Behavior Following the Lehman Brothers Bankruptcy

Financial turmoil in 2007 and 2008 put money market funds under considerable pressure, which culminated the week of September 15, 2008 when Lehman Brothers Holdings Inc. (“Lehman Brothers”) declared bankruptcy. This event, when coupled with concerns about American International Group, Inc (AIG) and other financial sector securities, led to heavy redemptions from about a dozen money market funds that held, or were expected to be holding, these debt securities. The largest of these was the Reserve Fund, whose Primary Fund series held a \$785 million position in commercial paper issued by Lehman Brothers. The capital loss associated with the failure of Lehman Brothers caused the Primary Fund to “break the buck.” A fund is deemed to break the buck when the shadow price deviates from amortized cost by more than 0.50%.

During the week of September 15, 2008, investors withdrew approximately \$300 billion from prime money market funds, or 14% of all assets held in those funds. The heaviest redemptions generally came from institutional funds, which placed widespread pressure on fund share prices as credit markets became illiquid. A Study by the U.S. Securities and Exchange Commission's Division of Risk, Strategy, and Financial Innovation (RSFI Study) documents that most of these assets were reinvested in institutional government funds.⁷ The RSFI Study concludes that this behavior is consistent with a number of alternative explanations that include flights to quality, transparency, liquidity, and performance.⁸ It also discusses the possibility that redemption activity may have been partially caused by shareholders exercising a redemption put associated with stable dollar pricing.

The SEC’s 2010 Amendments

The SEC's response to the market events of 2008 was to initially propose (June 2009) and later adopt (February 2010) amendments to Rule 2a-7. The amendments tightened the risk-limiting conditions of Rule 2a-7 by, among other things, requiring funds to maintain a portion of their portfolios in instruments that can be readily converted to cash, reducing the maximum weighted average maturity of portfolio holdings, and improving the quality of portfolio securities. The specific portfolio constraints were:

- *Liquidity.* A money market fund must have daily liquidity of 10% and weekly liquidity of 30% of total assets under management. Daily liquid assets include cash, U.S. Treasury bills, and securities that mature in one day such as repurchase agreements. Weekly liquid assets

⁷ See Division of Risk, Strategy, and Financial Innovation U.S. Securities and Exchange Commission (2012).

⁸ Schmidt, Timmerman, and Wermers (2014) provide evidence that less liquid funds and those that were unlikely to receive sponsor support were more likely to experience heavy redemptions.

generally include these same securities plus certain government agency securities and securities that mature in one week.

- *Maturity.* There are three maturity requirements: 1) individual securities can have a maximum maturity of 397 days, 2) the weighted average maturity (WAM) cannot exceed 60 days, and 3) the weighted average life (WAL) cannot exceed 120 days.⁹
- *Portfolio Composition.* Portfolio composition constraints generally require funds to hold no more than 5% of any individual first tier asset. The maximum aggregate second tier concentration limit is 3.0%. A fund may not hold more than 0.5% of any second tier security with a maturity not to exceed 45 days. Illiquid securities can comprise at most 5.0% of portfolio assets. A security is deemed to be illiquid if it cannot be sold close to its fair value within seven business days.

The 2010 amendments to rule 2a-7 also include a number of operational requirements. These include reporting portfolio holdings to the Commission on a monthly basis and stress testing. In addition, the Commission broadened affiliates options to purchase fund assets and permitted a money market fund that has broken the buck, or is at imminent risk of breaking the buck, to suspend redemptions to allow for an orderly liquidation of fund assets. These amendments were designed to make money market funds more resilient to certain short-term market risks, and to provide greater protections for investors in the event that a money market fund is unable to maintain a stable price per share.

The SEC's 2014 Amendments

On July 23, 2014, the Securities and Exchange Commission finally adopted additional amendments to the rules that govern money market mutual funds. The amendments specify additional structural and operational reforms designed to ameliorate the residual possibility of investor runs.

1. Floating Net Asset Value

The FNAV option requires institutional prime money market funds to value their portfolios at market prices and sell and redeem shares based on those prices. These funds will no longer be allowed to price portfolios using amortized cost pricing, which is a key pricing concession that has allowed funds to maintain a constant \$1.00 share price.

⁹ The difference between WAM and WAL is that WAM can be calculated using interest reset dates for floating rate securities.

The ability to price at a stable \$1.00 is an important feature of money market funds that differentiates them from other mutual funds. Many investors find that stable \$1.00 pricing enables them to use money market funds as a cash management vehicle. Although this attribute enhances the utility of the product, stable \$1.00 pricing also confers a first-mover advantage to investors that redeem shares after portfolio losses. This follows because shareholders can sell shares for \$1.00 even though the underlying portfolio securities are worth less, forcing remaining shareholders to absorb any capital losses or liquidity discounts. A key benefit of the FNAV option is that the mutualization of portfolio losses ameliorates the value of the redemption put.

One of the reasons that the FNAV amendment is not considered a stand-alone policy choice is that even in the presence of the FNAV rule, there still exists an incentive to redeem during periods of market stress. This is due to liquidity differences between the securities held by the fund, i.e., the fact that the prices of different securities behave differently, when large quantities of them are sold over a very short span of time. The more liquid a security, the smaller will be the price effect of such a large quantity being sold, while a less liquid asset may experience substantial price declines due to a large sell-off. The consequence of this is that, when faced with redemptions, fund managers typically sell their most liquid assets to keep the negative effect of redemptions on the FNAV to a minimum. Once redemptions are sufficient to cause funds to deplete their stock of liquid assets, managers may be forced to start selling their illiquid assets, which in turn may cause the prices of these assets and the resulting FNAV of the fund to decline fast. This creates an incentive to be 'first in line' when redeeming shares in the fund, since those redeeming later will have to bear the decrease in FNAV when the fund has to sell increasingly illiquid securities. As we discuss next, the liquidity fees and redemption gate option addresses liquidity runs that cannot be stopped by mark-to-market pricing.¹⁰

The SEC's FNAV amendment only applies to institutional prime funds. The reasoning is simple. Based on the empirical evidence, only institutional prime money market funds experienced significant redemption activity during the financial crisis.¹¹ In this sense, the regulation targets the group of investors most responsible for "locking" commercial paper markets during the financial crisis.

¹⁰ The notion of mark-to-market pricing is something of a misnomer for the instruments held by money market funds. Unlike equity-based mutual funds, most of the risky securities held by money market funds do not trade in active secondary markets. This valuation of portfolio securities effectively becomes an exercise in marking-to-model.

¹¹ This interpretation is consistent with the data but other competing explanations exist. One plausible alternative is that retail investors simply were slower to react. By the time they were ready to redeem en masse, the U.S. Department of Treasury announced the Temporary Guarantee Program for Money Market Funds and the Federal Reserve Board authorized the Asset-Backed Commercial Paper Money Market Mutual Fund

2. Liquidity Fees and Redemption Gates

The second major amendment makes liquidity fees and redemption gates available to fund boards. This is a direct way to handle liquidity problems during periods of market stress. The SEC's implementation allows that in the event a fund's weekly liquid assets (WLA) fall below 30%, a board can elect to impose a liquidity fee of no more than 2% or it could impose a temporary redemption gate of no more than 10 days during any 90-day period. If WLA drops below 10%, funds will be required to charge a 1% liquidity fee unless the board decides to opt out.

By design, liquidity fees are intended to force redeeming shareholders to pay the fair price for the liquidity they are demanding. This becomes especially important during periods when markets are illiquid. Since the 30% minimum reflects significant liquidity, a discretionary fee would only need to be imposed if the board believed that the liquidity discounts reflected in market prices would induce shareholder redemptions.

There is no question that fees and gates can stop a liquidity run. By definition, they allow management to slow redemptions through the imposition of fees or to stop them completely with redemption gates, albeit for a limited time. They also allow funds to potentially invest the proceeds from maturing assets into securities other than cash. This could help preserve liquidity in the short-term commercial paper markets during periods of market stress, if appropriately safe investment opportunities are available.¹²

Since government money market funds tend to attract liquidity during periods of market stress, they are exempt from this requirement.

2.1 Preemptive Liquidity Runs

There have been concerns that the mere existence of fees and gates could induce a liquidity run. Detractors argue that investors will preemptively run from funds to avoid paying liquidity fees or to have their funds trapped by a redemption gate if they can predict when such measures will be imposed. The principal concern is that, given the correlated nature of money market fund holdings, a liquidity run on one fund could lead to industry-wide contagion. Although a possibility, we believe that the likelihood that such an event could lead to a systemic run is sufficiently remote that the

Liquidity Facility. These assurances eliminated concerns about the quality of the underlying portfolio assets and effectively stopped the run.

¹² Given their fiduciary obligation to shareholders, one should not expect fund managers to buy the commercial paper of failing institutions. However, to the extent that safe investments are available, there is no compelling reason for managers to hoard cash, particularly if short-term investments, such as overnight repos, could be converted to cash before a gate is lifted.

economic benefits associated with forcing redeeming shareholders to pay the fair price for liquidity offset this cost.

In our view, the risks associated with this type of run are overstated for a number of reasons. First, the funds still have substantial internal liquidity when they are allowed to impose fees or gates. Presumably, adequate liquidity reserves would permit assets to be sold without risking a fire sale. Second, the additional price transparency associated with FNAV and additional liquidity disclosures (daily webpage disclosure of weekly liquid assets) should allow sophisticated institutional investors to better understand fund risk. Third, the discretion provided to fund boards to act should make it much harder to predict when such measures will be taken. Finally, fees and gates also provide fund boards with tools to address possible systemic liquidity runs should they develop, thereby making it harder to strategically redeem and thereby mitigating the possibility that such events occur in the first place.

In the SEC's final Money Market Reform rule, it notes that"

*"Indeed, some funds already retain the right to delay payment on redemption requests for up to seven days, as all registered investment companies are permitted to do so under the Investment Company Act, and we are not aware that this possibility has led to any preemptive runs historically. In addition, we note that under section 22(e), the Commission has the authority to, by order, suspend the right of redemption or allow the postponement of payment of redemption requests for more than seven days."*¹³

3. The Capital Buffer Alternative

A policy option that was considered in the U.S. and ultimately rejected (but which is still contained in the proposed EU regulation) was to require money market funds to hold capital as a way to protect against possible losses. The capital buffer is designed to absorb all gains and losses on the portfolio in excess of amortized cost in exchange for a capital charge. Lewis (2014) shows that relatively small capital buffers of 60 basis points are able to absorb gains and losses during normal market conditions.¹⁴ However, a 60 basis point buffer would likely fail if a concentrated position, of say 5%, were to default.¹⁵

A larger buffer could protect shareholders from losses related to defaults in concentrated positions, such as the one experienced by the Reserve Primary Fund following the Lehman Brothers bankruptcy. However, if complete loss absorption is the objective, a substantial buffer would be required. For example, a 3% buffer would accommodate all but extremely large losses. A limitation of

¹³ See Securities and Exchange Commission (2014), page 57.

¹⁴ See Lewis (2014).

¹⁵ Under rule 2a-7, money market funds are permitted to hold concentrated positions of up to 5%.

a 3% buffer is that the cost of providing this protection would be borne at all times even though it is likely to be significantly depleted only rarely.

While a capital buffer would make a money market fund more resilient to portfolio losses, it may be a costly mechanism from the perspective of the opportunity cost of capital. Those contributing to the buffer deploy valuable scarce resources that could be used elsewhere. Moreover, because the capital buffer absorbs fluctuations in the value of the portfolio, much of the yield of the fund will be diverted to funding the capital buffer, which, in turn, will reduce fund yield. Put another way, to the extent that the capital buffer absorbs default risk, those contributing to a capital buffer will demand a rate of return that compensates them for bearing this risk. Since, by construction, a capital buffer absorbs defaults until it is fully depleted, money market funds will allocate that portion of the returns associated with credit risk to capital buffer "investors" and only will be able to offer money market fund shareholders returns that mimic those available for government securities. This effectively converts money market funds into "synthetic" Treasury funds.

3.1 Implications for Capital Formation

These findings may have broader implications for capital formation. Many investors are attracted to money market funds because they provide stability but offer higher rates of return than government securities. Since these higher rates of return are intended to compensate for exposure to credit risk and to the extent that fund managers are unable to pass through enhanced yields to money market fund shareholders, fund managers may be less willing to invest in risky securities such as commercial paper or short-term municipal securities, particularly if these securities increase the probability that a buffer is depleted. An inability to materially differentiate fund performance on the basis of yield would significantly reduce, but not necessarily eliminate, the utility of money market funds to investors.

Amortized Cost Pricing

In addition to imposing a 3% capital buffer, the EU proposal also disallows the use of amortized cost pricing. We believe that the latter policy choice is something of a red herring. While it is true that amortized cost pricing effectively eliminates principal volatility, it is a reasonable approximation of market prices under normal market conditions, particularly given the very short durations that money market funds are required to maintain.¹⁶ The SEC recognizes this point and has offered the

¹⁶ To illustrate this point consider a simple example. Suppose that the current risk-free rate of interest changes from 1.00% to 2.00% (which represents a rather drastic change). If a zero-coupon bond has 60 days to maturity, (the approximate effective maturity of a portfolio that has a duration of 60 days), then the price declines by 17 basis points. By contrast, zero-coupon bond with 360 and 720 days to maturity experience respective declines

following guidance for all mutual funds, not just money market funds, on the appropriate use of amortized cost valuation:

“Although debt securities with remaining maturities in excess of 60 days should not be valued at amortized cost, the Commission will not object if the board of directors of a money market fund, in good faith, determines that the fair value of debt securities originally purchased with remaining maturities of 60 days or less shall be their amortized cost value, unless the particular circumstances dictate otherwise. Nor will the Commission object if, under similar circumstances, the fair value of debt securities originally purchased with maturities of in excess of 60 days, but which currently have maturities of 60 days or less, is determined by using amortized cost valuation for the 60 days prior to maturity, such amortization being based upon the market or fair value of the securities on the 61st day prior to maturity.”¹⁷

It should be noted that amortized cost pricing does not imply that a fund manager can “set it and forget it.” Events that cause nontrivial price declines, such as credit rating downgrades or liquidity impairment, should be immediately reflected in the valuations of short-term securities. Amortized cost is permissible only if a fund manager concludes that the amortized cost valuation of each portfolio security is approximately the same as its fair value each time the portfolio is valued.

Historically, the obligation to monitor market conditions may not have been fully understood by market participants, possibly even including some money market funds. Setting appropriate valuation guidelines, such as those used by the SEC, reflect an accurate way to track principal volatility.

Since the appropriate use of amortized cost does not create material price distortions, one might ask what the benefit of retaining amortized cost pricing is and why the SEC continues to permit its use for securities with less than 60 days to maturity. It is likely the case that the SEC found the industry’s argument that during normal times amortized cost pricing facilitates intraday liquidity and same day settlement convincing. Given these operational benefits, we believe that the outright prohibition of amortized cost would impose operational inefficiencies, without providing significant improvements in price transparency.

of 98 and 194 basis points. The RSFI study convincingly makes this point in the context of a Monte Carlo simulation analysis. Table 3 of Appendix 2 of that study reports that the ratios of amortized cost to market value (FNAV) for a 360-day buy-and-hold strategy at the 1-percentile and 99-percentile respectively are 0.9989 and 1.0008.

¹⁷ See Securities and Exchange Commission (1977), Financial Reporting Codification (CCH) section 404.05 a. and b., *supra* note 5.

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