

Money Market Fund Systemic Risk Analysis and Reform Options

Consultation Report



IOICU-IOSCO

**TECHNICAL COMMITTEE
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Foreword

Certain events during the recent financial crisis highlighted the vulnerability of the financial system, including Money Market Funds, to systemic risk. These events have prompted a review of the regulation of the role of MMFs in the non-bank financial intermediation system.

In this regard, the Financial Stability Board (FSB) asked IOSCO to undertake a review of potential regulatory reforms of MMFs that would mitigate their susceptibility to runs and other systemic risks, and to develop policy recommendations by July 2012. IOSCO has mandated its Standing Committee on Investment Management (SC5) to elaborate such policy recommendations.

To ensure a sound base for evaluation of these options, the FSB asked IOSCO to review:

- The role of MMFs in funding markets;
- Different categories, characteristics and systemic risks posed by MMFs in various jurisdictions, and the particular regulatory arrangements which have influenced their role and risks;
- The role of MMFs in the crisis and lessons learned;
- Regulatory initiatives in hand and their possible consequences for funding flows; and
- The extent to which globally agreed principles and/or more detailed regulatory approaches are required/feasible.

The objective of this consultation paper is to share with market participants IOSCO's preliminary analysis regarding the possible risks MMFs may pose to systemic stability, as well as possible policy options to address these risks

How to Submit Comments

Comments may be submitted by one of the three following methods **on or before Monday 28 May 2012**. To help us process and review your comments more efficiently, please use only one method.

Important: All comments will be made available publicly, unless anonymity is specifically requested. Comments will be converted to PDF format and posted on the IOSCO website. Personal identifying information will not be edited from submissions.

1. Email

- 1.1. Send comments to MoneyMarket@iosco.org
- 1.2. The subject line of your message must indicate *Money Market Fund Systemic Risk Analysis and Reform Options*
- 1.3. If you attach a document, indicate the software used (e.g., WordPerfect, Microsoft WORD, ASCII text, etc) to create the attachment.
- 1.4. Do not submit attachments as HTML, PDF, GIFG, TIFF, PIF, ZIP or EXE files.

2. Facsimile Transmission

Send by facsimile transmission using the following fax number: + 34 (91) 555 93 68.

3. Paper

Send 3 copies of your paper comment letter to:

Mohamed Ben Salem

International Organization of Securities Commissions (IOSCO)

Calle Oquendo 12

28006 Madrid

Spain

- 1.1. Your comment letter should indicate prominently that it is a '*Public Comment on Money Market Fund Systemic Risk Analysis and Reform Options*

Contents

Chapter		Page
1	Executive Summary	1
2	Objective of the Consultation Paper	4
3	Systemic Risk Analysis	5
4	Policy Options	14
5	Conclusions and Additional Questions	35
	Appendixes: Table of Contents	36
	Appendix A: List of Questions	37
	Appendix B: Background	41

1. Executive Summary

Although there is no globally accepted definition, MMFs can be defined as an investment fund that has the objective to provide investors with preservation of capital and daily liquidity, and that seeks to achieve that objective by investing in a diversified portfolio of high-quality, low duration fixed-income instruments.

Specifically, MMFs are broadly used by both retail and institutional investors as an efficient way to achieve diversified cash management. MMFs act as intermediaries between shareholders seeking liquid investments and diversification of credit risk exposure and borrowers seeking short term funding.¹ In some jurisdictions, including the United States and Europe, MMFs serve as an important source of financing for governments, business and financial institutions. The health of MMFs is important not only to their investors, but also to a large number of businesses and national and local governments that finance current operations through the issuance of short-term debt.

With a worldwide financial footprint of over US\$ 4.7 trillion in assets under management as of 3rd quarter 2011,² MMFs comprise over 20 percent of the assets of CIS worldwide,³ and are a significant source of credit and liquidity. MMFs typically invest in high-quality, short-term debt instruments such as commercial paper, bank certificates of deposit and repurchase agreements and generally pay dividends that reflect prevailing short-term interest rates. MMFs' history of providing daily liquidity and principal preservation have played a significant role in differentiating MMFs from other CIS and have facilitated the use of MMFs as important cash management vehicles.

Assets under management total approximately US\$ 2.7 trillion in the United States and US\$ 1.5 trillion in Europe, which together represents around 90 percent of the global MMF industry.⁴ Within Europe, three countries (France, Luxembourg and Ireland) represent a combined market share close to 90 percent.⁵ Two business models co-exist: constant net asset value (CNAV) funds, which are offered in the United States and in other jurisdictions such as Canada, China, Luxembourg, Ireland and Japan, and variable net asset value (VNAV) funds. CNAV funds dominate the MMF market with an estimated market share of close to 80 percent globally (around 40 percent in Europe⁶). Over the last three years, money market funds have experienced a decline in their total assets under management, reflecting the low interest rate environment.

¹ See Report of the President's Working Group on Financial Markets: Money Market Fund Reform Options, at 7, available at: <http://www.treasury.gov/press-center/press-releases/Documents/10.21%20PWG%20Report%20Final.pdf> ("PWG").

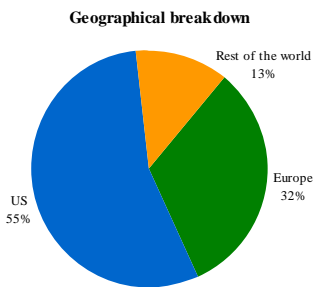
² See ICI data, available at http://www.ici.org/research/stats/worldwide/ww_09_11

³ As of 3rd quarter 2011, worldwide mutual fund assets were approximately USD 23.1 trillion. Id.

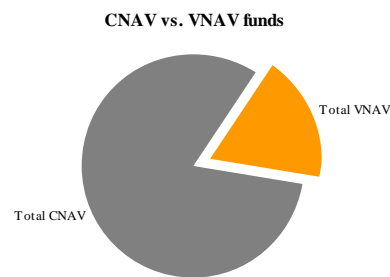
⁴ Id. Other countries include Japan (US \$ 74 bn), China (US \$ 47 bn), Brazil (US \$ 45 bn), Canada (v38bn), India (US \$ 38 bn), South Africa (US \$ 38 bn) and Australia (v26 bn) (IOSCO estimates as of mid-2011, based on different domestic sources; definition may differ with ICI data). Additional data are available in Appendix B.

⁵ See FitchRatings, European Money Market Funds Sector Update, Sept. 2011, available at http://www.fitchratings.com/creditedesk/reports/report_frame.cfm?rpt_id=651371. See also Appendix B, section 4.1.3.

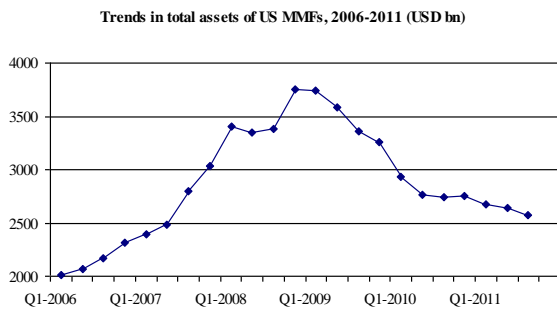
⁶ Id.



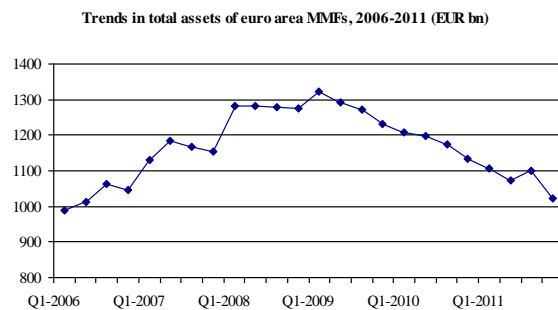
Source: ICI.



Source: IOSCO, based on various sources.



Source: Federal Reserve.



Source: ECB.

It has been said that a “break in the link [between borrowers and MMFs] can lead to reduced business activity and pose risks to economic growth.”⁷ The regulation of MMFs, therefore, is important not only to fund investors, but to a wide variety of operating companies, as well as national and local governments that rely on these funds to purchase their short-term securities. However, certain events during the recent financial crisis highlighted the vulnerability of the financial system, including MMFs, to systemic risk. These events have prompted a review of the regulation of the role of MMFs in the non-bank financial intermediation system.

In this regard, the Financial Stability Board (FSB) asked IOSCO to undertake a review of potential regulatory reforms of MMFs that would mitigate their susceptibility to runs and other systemic risks, taking into account national regulatory initiatives, and develop policy recommendations by July 2012.⁸ IOSCO has mandated its Standing Committee on Investment Management (SC5) to elaborate such policy recommendations.

The FSB’s mandate indicates that a crucial issue to be considered by such a review is whether the regulatory approach to MMFs needs to choose between (i) encouraging/requiring shifts to variable Net Asset Value (NAV) arrangements, (ii) imposing capital and liquidity requirements

⁷ See Mike Hammill & Andrew Flowers, *MMMF, and AMLF, and MMIFF*, MACROBLOG (Federal Reserve Bank of Atlanta), Oct. 30, 2008, available at <http://www.macroblog.typepad.com/macroblog/2008/10/index.html>

⁸ See FSB Report with recommendations to strengthen oversight and regulation of shadow banking (October 2011), available at http://www.financialstabilityboard.org/publications/r_111027a.pdf (‘FSB Report’).

on MMFs which continue to promise investors constant NAV, and/or (iii) whether there are other possible approaches.

To ensure a sound base for evaluation of these options, the FSB asks IOSCO to review:

- The role of MMFs in funding markets;
- Different categories, characteristics and systemic risks posed by MMFs in various jurisdictions, and the particular regulatory arrangements which have influenced their role and risks;
- The role of MMFs in the crisis and lessons learned;
- Regulatory initiatives in hand and their possible consequences for funding flows; and
- The extent to which globally agreed principles and/or more detailed regulatory approaches are required/feasible.

The products covered by this report are investment funds marketed as “money market funds” as well as collective investment schemes (CIS) which use close terminologies for their marketing (e.g., “cash” or “liquid” funds) or which are presented to investors and potential investors as having similar investment objectives even though they are labeled differently. This definition is not intended to cover non-MMFs (e.g. short-term bond funds) but is intended to be broad enough to cover products that seek to arbitrage around money market fund regulation in certain jurisdictions. MMFs are not homogeneous and as such demonstrate a range of characteristics dependent on their structure, which is reflected in the regulatory approach adopted by different jurisdictions. Nonetheless, MMFs are a type of CIS and are subject to CIS regulation in SC5 jurisdictions.

Question 1: Do you agree with the proposed definition of money market funds? Does this definition delimit an appropriate scope of funds to be potentially subject to the regulatory reform that the FSB could require to put in place, with an objective to avoid circumvention and regulatory arbitrage?

2. Objective of this consultation paper

The objective of this consultation paper is to share with market participants IOSCO's preliminary analysis regarding the possible risks MMFs may pose to systemic stability, as well as possible policy options to address these risks. Specific questions are included in each section of the paper and are listed in Appendix A. This consultation paper includes as Appendix B a background report that reviews the historical development of MMFs, their market significance and investor base, their role in funding markets, the experience during the 2007-2008 financial crisis, the changes to MMF regulatory frameworks adopted since then, as well as a review of some of the recent literature on MMFs.

IOSCO requests feedback on the analysis conducted as well as on the various policy options discussed. Input from market participants, investors and other stakeholders will contribute to the progress of IOSCO's work and will be taken into consideration when elaborating the final recommendations.

This is a report prepared for public consultation by IOSCO's Standing Committee 5. IOSCO's Standing Committee 5 is a multilateral group of staff-level experts from various IOSCO member jurisdictions. A number of IOSCO Technical Committee members are currently considering whether or not to adopt regulations in this area, and the policy options, analysis, findings and conclusions presented in this report do not necessarily reflect the views of any one member.

The consultation paper begins with an overview of the systemic importance of MMFs and the main identified areas of risk. The remainder of the document describes the different policy options (which are not necessarily mutually exclusive) currently being considered.

3. Systemic risk analysis

Several key events during the financial crisis of 2007-2008 underscored the vulnerability of the financial system to systemic risk. One such event was the September 2008 run on MMFs, which drew regulators' attention to the potential for MMFs to raise systemic risk. Although money market funds did not cause the 2007-2008 crisis, their experience during the crisis highlighted their potential role in spreading or even amplifying a crisis.⁹ We analyze below what contributes to this potential.

3.1 . Systemic importance of money market funds and key vulnerabilities

3.1.1. Susceptibility to runs

The financial crisis of 2007-2008 highlighted the vulnerabilities of MMFs, and most notably, their susceptibility to runs. In general, MMFs are vulnerable to runs because shareholders have an incentive to redeem their shares before others do when there is a perception that the fund might suffer a loss. As discussed further below, certain features of different types of MMFs may make them more susceptible to runs.

In 2007, in the wake of the subprime crisis, several funds in Europe marketed as “enhanced” or “dynamic” cash funds faced trouble due to their holdings of certain asset-backed securities that had been downgraded with subsequent valuation problems. Approximately 15-20 funds had to suspend redemptions for a short period and/or receive support from sponsor banks and four funds were closed. In the United States, in 2007, losses in the subprime mortgage markets adversely affected a significant number of MMFs that had invested in certain asset-backed commercial paper. In some cases, bank sponsors provided considerable financial support to the asset-backed commercial paper issuers. In other cases, money market fund affiliates provided support to the funds by purchasing certain troubled investments or by providing some form of credit support.

As financial markets continued to deteriorate in 2008, however, MMFs came under renewed stress, which culminated the week of September 15, 2008, when the bankruptcy of Lehman Brothers led to heavy redemptions from about a dozen MMFs that held Lehman Brothers securities. One such fund group, the Reserve Fund group, began experiencing a run on its Primary Fund, which spread to the other Reserve Fund group funds, including those that were not exposed to Lehman Brothers securities. This run extended to other prime MMFs following the announcement by the Reserve Fund group operator that its Primary Fund would break the buck. In total, during the week of September 15, 2008, investors withdrew approximately \$300 billion from Prime MMFs, or 14 percent of the assets held in those funds. The dislocation of the short-term funding market which followed (see below) led the U.S. government to step in, including with the creation of liquidity facilities and the extension of a guarantee to money market funds.

Several features of MMFs, their sponsors, and their investors contribute to the run risk of MMFs. For example, although a constant, rounded NAV fosters an expectation of safety, MMFs are

⁹ See Appendix B for a more detailed account of the MMF experience during the financial crisis. The magnitude of the effects associated with MMFs during the crisis was not the same across all jurisdictions.

subject to credit, interest-rate, and liquidity risks. Thus, when a fund incurs even a small loss because of those risks, the constant, rounded NAV may subsidize shareholders who choose to redeem at the expense of the remaining shareholders. A larger loss that causes a fund's share price to drop below its fixed price per share (and thus "break the buck") may prompt more substantial sudden, destabilizing redemptions. Moreover, although the expectations of safety fostered by the constant, rounded NAV suggest parallels to an insured demand deposit account, MMFs have no formal capital buffers or insurance to prevent NAV declines; MMFs instead have relied historically on discretionary sponsor capital support to maintain a constant NAV. Accordingly, uncertainty about the availability of such support during crises may contribute to runs. Examples of sponsor support are also found in the case of variable NAV funds.

Finally, because investors have come to regard MMFs as extremely safe vehicles that meet all withdrawal requests on demand (and that are, in this sense, similar to bank deposits), MMFs have attracted highly risk-averse investors (possibly more so in the case of constant-NAV funds) who are particularly prone to flight when they perceive the possibility of a loss. It is likely that these features mutually reinforce each other in times of crisis.

The characteristics of the funds' investor base also impact the likelihood of a run. Experience from the financial crisis shows that redemption pressures mostly came from institutional investors, which represent the larger part of MMF's investor base.¹⁰ The different reactions between retail and institutional investors could be explained by the greater sophistication of institutional investors (as can be observed generally with regard to CIS) and arguably less asymmetry of information for those investors. Institutional investors in MMFs also exhibit extreme risk aversion, leading them to redeem shares preemptively at the first sign of heightened risk. Other aspects may come into play, such as the importance of ratings in the MMF industry (see below), which could create additional vulnerability and "cliff effects" in case of downgrades.

Question 2: Do you agree with the description of money market funds' susceptibility to runs? What do you see as the main reasons for this susceptibility?

3.1.2. Importance in short-term funding and contagion effects

MMFs are important providers of short-term funding to financial institutions, businesses and governments. Due to this intrinsic link of MMFs to the short-term markets, confidence shocks in MMFs can quickly have a broader macroeconomic impact.¹¹ Confronted with redemption pressures, managers may have to unwind their positions against a declining market, potentially

¹⁰ With some variations depending on the jurisdictions: in the United States, retail investors represent roughly a third of the MMF investor base. This share is lower in France (less than 10%). Irish and Luxembourg funds are offered almost exclusively to institutional investors, which is also the case in countries such as India. In contrast, retail investors represent a larger share of the MMF investor base in countries such as China and Japan. *See* Appendix B, section 3.

¹¹ Other efforts are being undertaken to strengthen the safety of other aspects of short-term funding markets, such as the reform of the tri-party repo markets.

fuelling a liquidity crisis. During the crisis, fund managers also reacted by retaining cash to meet future redemption requests rather than investing in commercial paper, certificates of deposits or other short-term instruments, or invested only at the shortest maturities, creating a dislocation of the short-term private debt markets and leading to significant funding difficulties for otherwise healthy issuers. Tensions also translated to the tri-party repo market, where MMFs are important participants. The financial crisis therefore made apparent the dependence of banks on short-term funding as well as the role of MMFs as major providers of such short-term funding. The link between banks and MMFs for short-term funding may create a risk as the “*own maturity mismatch*” [of the MMF industry] may “[mask] *the true liquidity position of the banking sector and [inject] extra fragility into the financial system as a whole*”.¹²

More recently, the shifts in the asset allocation of U.S. MMFs away from European banks have further stressed the importance of money market funds in European banks’ funding. In May of 2011, before the escalation of the Eurozone sovereign debt crisis, U.S. MMFs exposure to European banks represented around 52% of total U.S. Prime MMF assets.¹³ It rapidly dropped down to approximately 33% six months later.¹⁴ MMFs may have withdrawn funding from European banks not because of fear of credit risk, but simply based on “headline risk.”¹⁵ In other words, while MMFs should reasonably pull away from weak credits, the drop in exposure may not reflect an analysis of credit risk but rather may reflect that MMFs may be overly risk-averse after the financial crisis. The withdrawal of this U.S. MMF funding over a relatively short time period had several important implications for the sourcing of dollar-denominated funding of European banks and their dollar-denominated operations. Tensions on EUR/USD cross-currency basis swaps over the summer of 2011 also led central banks to announce dollar liquidity measures, with the establishment of three US dollar liquidity-providing operations with a maturity of three months, in addition to the ongoing weekly seven-day operations re-established in May 2010.¹⁶

¹² See P. Tucker, Deputy Governor for Financial Stability, Bank of England, *Shadow Banking, Capital Markets and Financial Stability*, Remarks at a BCG Partners Seminar (January 2010), available at <http://www.bis.org/review/r100126d.pdf>.

¹³ Data from Forms N-MFP filed with the U.S. Securities and Exchange Commission.

¹⁴ Id.

¹⁵ See, e.g., Wells Fargo Advantage Money Market Funds Portfolio Manager Commentary (Sept. 30, 2011), available at http://www.wellsfargoadvantagefunds.com/pdf/cash/20110930_commentary.pdf (“This negative news cycle contributes greatly to investor anxiety. In an effort to assuage investors, money funds manage their ‘headline risk’ by avoiding issuers who are in the news. ... Those who talk of money funds cutting off credit from borrowers do not seem to give sufficient weight to the role that the funds’ investors play, or appreciate that, to a large degree, the funds’ actions simply reflect the preferences of their shareholders. ... The problem with managing headline risk this way is that, as the supply of eligible investments continues to dwindle, replacement investments are not so easily found these days. At some point, money market participants may end up incrementally increasing real risk—perhaps in quality, perhaps in concentration, perhaps in duration—in order to reduce headline risk. At some point, there will be no pure “risk off” trade. Since they have a voice in how their funds are invested, money fund shareholders must ask themselves if this is the outcome that they want to further. Will they someday regret casting aside issuers of fundamentally high credit quality, like the French banks, for the sake of appearances?”).

¹⁶ See “ECB announces additional US dollar liquidity-providing operations over year-end” available at <http://www.ecb.int/press/pr/date/2011/html/pr110915.en.html>, and related announcements from the Federal Reserve, the Bank of England, the Bank of Japan and the Swiss National Bank.

Finally, dependencies between banks and MMFs can be observed also on the investor side, since banks can also be important investors in money market funds, further adding to the flow of funds between banks and MMFs. The importance of banks as MMF investors could create additional vulnerabilities, as banks' redemption requirements are likely to be large and simultaneous.¹⁷ Insurers may also be important investors in MMFs, again creating a potential contagion link between MMFs and the rest of the financial system.

Question 3: Do you agree with the description of the role of money market funds in short-term money markets? To what extent this role may create risks for short-term funding markets and their participants? Are there changes to be taken into account since the 2007-2008 experience? What are the interdependencies between banks and MMFs and the risks that are associated?

3.1.3. Links with sponsors

MMFs have relied historically on discretionary sponsor capital support to preserve the stability of the NAV. Examples are identified throughout the history of MMFs: analysis from Moody's¹⁸ shows that over the 1980-2009 period, over 200 funds were beneficiaries of some form of sponsor support in Europe and in the United States, with a peak in 2007-2009. In Europe, in the summer of 2007 and in the fall of 2008, parent banks gave support in a number of cases, either by acquiring troubled assets, issuing guarantees or providing capital. In the United States, after the Reserve Fund's announcement, SEC staff provided no-action assurances to a number of MMF sponsors to permit sponsors to purchase securities and otherwise provide capital support to the funds, involving in some cases very significant amounts of capital. During the period from August 2007 to December 31, 2008, U.S. SEC staff estimated that almost 20 percent of all MMFs received some support from their money managers or their affiliates.

As the size of the industry has grown, sponsor support has become an unreliable business model. Dependence between MMFs and their sponsors create risks for the sponsor, because of the significant amounts potentially involved to support the funds and prevent reputational effects. Links with sponsors also imply potential contagion effects, including to the banking sector where the sponsor is a bank. Finally, the question of implicit support has clearly emerged as an important area of risk, as support is at the same time expected but not guaranteed (since an explicit commitment may require the sponsor to consolidate the potential support on its balance sheet as a liability). Uncertainty about the availability of sponsor support may thus amplify the likelihood of runs.

¹⁷ See Appendix B, section 6.3.2., describing the new applicable regime introduced to limit such investments, with the introduction of a prudential cap of 10%.

¹⁸ See Moody's, Sponsor Support Key to MMFs (August 2010), available at http://www.moody.com/researchdocumentcontentpage.aspx?docid=PBC_126231.

Question 4: What is the importance of sponsor support for MMFs? What is the respective percentage of bank versus non-bank sponsors in the MMF industry? Are there differences among MMFs depending on their sponsors? What are the potential systemic risks of support or protection against losses provided by sponsors?

3.1.4. Importance for investors

MMFs are often viewed as a diversified and safe alternative to bank deposits and used as an important cash management tool by institutions and investors. As highlighted in recent academic work,¹⁹ MMFs are especially important for large institutional cash pools which have “outsourced” all or a portion of their cash management operations to MMFs as a way to manage cash more efficiently and to find investment alternatives to insured bank deposits or direct holdings of securities. In particular, MMFs are seen as able to offer –through global portfolio diversification– preservation of principal and liquidity for large institutional cash pools, which would otherwise not be able to find a sufficient supply of short-term guaranteed instruments meeting their investment limitations and liquidity needs. Furthermore, bank deposits are not sufficiently insured to house large institutional cash pools, and MMFs thus offer counterparty diversification.

MMFs also offer advantages for retail investors, providing access to more favorable market interest rates than are generally available through bank accounts (in a normal interest rate environment). MMFs also often offer a convenient option for retail investors looking for transitory investment vehicles (*e.g.*, at the termination of a life insurance contract). Lastly, MMFs may benefit from investors’ flight to safety during periods of financial stress.²⁰

A sizeable shrinking of the MMF industry would therefore leave many investors with fewer investment alternatives for their cash management and could direct a greater concentration of assets towards the banking sector or unregulated or less regulated substitute products.

Question 5: Do you agree with the description of MMF benefits? Are there other benefits of MMFs for investors than those outlined in this presentation? What are the alternatives to MMFs for investors? How has investor demand for MMFs recently evolved? What would lead investors to move away from MMFs to other financial products?

¹⁹ See Zoltan Pozsar, “IMF Working Paper: Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System” (Aug. 2011) (“IMF Paper”).

²⁰ During the run in the US on “Prime” MMFs in September 2008, “Government” MMFs experienced positive inflows from investors (*see* Appendix B, section 3.2 for the definition of “Prime” and “Government” MMFs). During the week of September 15, 2008, investors withdrew approximately \$310 billion (15% of assets) from prime MMFs. *See* President’s Working Group on Financial Markets: Money Market Fund Reform Options (Oct. 2010), *available at* <http://www.sec.gov/rules/other/2010/ic-29497.pdf>. During that same week, Government MMFs experienced an over 20% increase in assets (*source*: IMoneyNet).

3.2. Money market funds are specific collective investment schemes

3.2.1. Money market funds vs. bank deposits

Similarly to banks, MMFs play a role in the monetary system of the economy.²¹ Money market funds also present several features that make them similar to bank deposits: in particular, they offer preservation of principal and immediate liquidity. In some jurisdictions, MMFs also offer transaction account services and play a role in the payment system.

MMFs also perform bank-like functions because of their role in credit transformation: Through MMFs, investors earn returns from a credit, maturity or liquidity mismatch²² between the investor funding and the investments from which the return is generated. Additionally, investors may redeem their investments on demand, even though MMF assets are longer term. However, compared to banks, the extent of this transformation is reduced in the case of MMFs, which have to comply with strict requirements in terms of duration (*e.g.*, the weighted average maturity of an MMF pool is generally 60 days) and credit quality. An additional difference from banks is that MMFs do not generally employ leverage (although they may, like any other lender in the markets, contribute to the building-up of leverage in the system). Also, investors in MMFs are shareholders, not creditors, and the MMF [sponsor/operator] is subject to a fiduciary duty to treat its shareholders fairly. Moreover, banks may hold long-term, often highly non-transparent investments and may have substantial off-balance sheet commitments.

Question 6: Do you agree with the proposed framework comparing money market funds and bank deposits? Are there other aspects to consider?

3.2.2. Differences and similarities between constant NAV and variable NAV funds

Constant Net Asset Value (CNAV) MMFs are offered in United States and in some parts of Europe, as well as in other jurisdictions such as Japan, China and Canada. They refer to funds which use amortized cost accounting to value all of their assets and/or share price rounding method, enabling them to maintain a constant value of a share of a fund. This characteristic has attracted much attention in the recent debates. One reason for this is that the CNAV model differentiates MMFs from all other CIS, whose values fluctuate with the value of the underlying assets, which may make CNAV MMFs bear a closer resemblance to bank deposits.

Another difference is that CNAV funds also offer in some jurisdictions same-day liquidity whereas investors in CIS asking for redemption on point in time T generally have to wait at least T+1 to have their money back, as the investment manager must wait for the market close to determine share value. Another difference is that, as explained below, CNAV funds are often

²¹ See Jeremy C. Stein, Monetary Policy as Financial Stability Regulation, *QUARTERLY J. OF ECON* (2011). In ECB's statistics for instance, MMFs are included in the money-issuing sector and classified in the statistics together with credit institutions in the monetary financial institutions (MFI) sector. Other investment funds are reported separately.

²² See Andrei Shleifer, "Comments and Discussion" to Gary Gorton, Andrew Metrick, "Regulating the Shadow Banking System" *Brookings Papers on Economic Activity* (Fall 2010).

(notably in Europe) Triple-A rated funds.

Both CNAV and variable NAV (VNAV) funds²³ are susceptible to runs because MMFs engage in maturity transformation with assets that are subject to market risk and MMFs have limited liquidity to pay shares back on demand. For CNAV funds, however, rounding the NAV to a fixed amount, as described above, concentrates losses in remaining shareholders in the event of a run exacerbating the incentive to run. Moreover, the “cliff event” of breaking the buck may incite panic in the shareholder base.

Some VNAV funds also use amortized cost accounting to value some of their assets. Under certain circumstances, and depending on the fund’s profile and the extent of the use of amortized cost accounting, the value of a VNAV fund may actually fluctuate very little, making those VNAV funds behave similarly to CNAV funds, although a difference remains with regard to the NAV calculation and the use of share price rounding in the case of CNAV funds. Other differences and/or similarities might be identified depending on whether funds distribute or accumulate revenues.²⁴

Question 7: Are there other similarities or differences between CNAV and VNAV funds which would be useful for the analysis? Is there evidence (based on representative samples) showing differences in the fluctuation of the funds’ NAV depending on their model? What is the extent of the use of amortized cost accounting by VNAV funds? Has this practice evolved over time?

3.2.3. Importance of ratings in the MMF industry

The discussions over the summer and fall of 2011 regarding the potential impact on MMFs of a downgrade of the U.S. debt and of the sovereign debt crisis in Europe have illustrated the importance of ratings in the MMF industry. Firstly, similarly to other CIS, managers may rely on external ratings for the selection of portfolios’ assets. Secondly, an important feature of the MMF industry is that many funds receive ‘triple-A’ ratings from credit rating agencies.²⁵ In Europe notably, according to an industry practice, all CNAV MMFs must receive a ‘triple-A’ MMF rating from at least one of the three main credit rating agencies in order to comply with the IMMFA industry code. In the United States, a significant number of MMFs are rated ‘triple-A’ by credit rating agencies, although an equally significant number of funds are not rated, giving the impression that, *de facto*, MMFs are either rated “triple A” or not rated at all.²⁶ Credit rating agencies may withdraw ‘triple-A’ ratings in some occasions but seem to rarely take rating actions regarding MMFs.

The rating process imposes frequent scrutiny from agencies (including regular inspections and reviews of MMFs’ reports) and provides external sources of information and opinions to investors. It also imposes discipline on funds in order to retain their ratings. However, the

²³ See Appendix B, section 4.1.3.

²⁴ However, the majority of CNAV funds generally offer distributing shares, whereas VNAV funds generally offer accumulating shares, also reflecting differences in investors’ preferences.

importance of ratings in the MMF industry also creates risks, in the case of a downgrade of the underlying instruments which could force MMF managers to sell assets, or in the case of a downgrade of the fund itself, which could lead to a run on the fund. Both effects may come into play simultaneously or mutually reinforcing.

Question 8: What is the importance of ratings in the MMF industry? What is the impact of the monitoring function of credit rating agencies for MMFs? What are the potential systemic risks associated with ratings in the MMF industry?

3.2.4. Role of MMFs in repo markets

As already described, MMFs are important participants in the repo markets and repo transactions constitute an important part of MMF portfolios. In many jurisdictions, there does not seem to be rules specific to the use of repos by MMFs in place. That being said, a separate Work Stream of the FSB is currently discussing the regulation of securities lending and repo markets, taking into account existing work on market infrastructure.²⁷ This work could also have consequences for money market funds.

Question 9: Are existing rules adequately addressing risks regarding the management of collateral from money market funds? What are the risk management processes currently in place with regard to repo and securities lending transactions? Do MMFs present unique issues with regard to their use of repo markets or would general policy recommendations that the FSB may issue regarding repo markets be applicable?

3.3. Other factors to consider

Other factors and recent trends should be taken into consideration when reflecting on MMF regulatory reform, notably:

- the current environment of low interest rates and its impact on the performance of money market funds;
- the impact of recent regulatory reforms in Europe (guidelines issued by the Committee of European Securities Regulators (CESR), now replaced by the European Securities Markets Authority (ESMA)) and in the United States (changes to Rule 2a-7 adopted by the US S.E.C.) on MMFs' asset allocation;
- concentration trends in the industry of MMFs;

²⁵ Ratings are accompanied with a symbol reflecting the difference with ratings on long-term debt obligations (AAAmmf at Fitch, Aaa-mf at Moody's, AAAM at Standard and Poor's).

²⁶ Several reasons may explain why some funds are not rated: the clients of the funds do not need the funds to be rated, or the managers do not think it is necessary to market their funds to their clients, or the funds do not to comply with the MMFs 'triple A' rating criteria defined by credit rating agencies.

²⁷ FSB Report, at 25.

- changes in banks' and other issuers' short-term funding needs and impact of potential changes to bank's capital requirements;
- recent and on-going reforms in the tri-party repo market.

Question 10: *Are the above-mentioned changes in the environment of MMFs relevant factors to take into consideration? What are some of the implications for regulatory options? Are there other aspects to consider?*

3.4. Preliminary conclusions and implications for policy options

We have described some of the main characteristics of MMFs highlighting both their systemic importance for investors and issuers alike, as well as specific areas of risks. This preliminary analysis has several implications for policy options:

- first of all, although important reforms have already been adopted and implemented to address some of the shortcomings identified during the crisis, several areas of risk remain; notably, MMFs must now comply with strict criteria in terms of credit quality and liquidity management, thereby reducing their scope for credit, maturity or liquidity transformation, but are still vulnerable to runs, particularly in case of a credit event. Moreover, their importance and interconnectedness with the rest of the financial system make their safety paramount for financial stability at large;
- secondly, policy options will have to be carefully weighed in the context of their potential impact on financial stability and market functioning. Several important and complex issues will have to be considered, such as the impact on competition and diversity, moral hazard, impact on the short-term funding markets and other potential disruptive effects as well as regulatory obstacles and/or practical implementation challenges;
- thirdly, CNAV funds combine a set of characteristics which may increase their vulnerability to systemic risk; however, VNAV funds are not exempt from risks, more so when they use amortized cost accounting to value some or a large part of their assets. Several recommendations would therefore be relevant for both types of funds;
- fourthly, a range of policy options can be considered, as the rest of the document will discuss. Certain options are inspired from banking regulation whereas, others rely more on traditional securities markets' regulatory tools. Ultimately, the main question is whether regulators want to clarify the appropriate requirements currently applicable to MMFs and mark more clearly their similarities with other collective investment schemes or to extend regulatory safeguards to reflect the hybrid nature of some MMFs; and
- finally, the policy options could be used in isolation or combined with others. Combining certain policy options may mitigate some of the disadvantages of some of the proposed policy options.

Question 11: *Do you agree with the systemic risk analysis and the rationale for reform presented in this section? Are there other factors to consider?*

4. Policy options

The following four sections describe options aimed at reinforcing the robustness and safety of money market funds. These options are not necessarily mutually exclusive and some may be considered in combination.

4.1. Section 1: Mandatory move to variable NAV and other structural alternatives

4.1.1. Move to variable NAV

Description of Option: Prohibit the use of amortized cost valuation for any securities held by a MMF

One of the alternatives advanced to resolve the systemic risk of CNAV MMFs has been that of conversion to VNAV MMFs. CNAV MMFs have contributed to create instability by giving investors the expectation of redeeming at par on the false belief that MMF shares are a risk-free cash equivalent. Over time, converting to VNAV could therefore lower investor expectations that MMFs are impervious to losses, and the potential for heightened run risk when a fund fails to live up to those expectations.

VNAV MMFs also reduce a shareholder's incentive to run when a fund has experienced a (less than catastrophic) loss. A variable NAV, where all assets are marked-to-market, provides price transparency to investors and reduces the "first mover" advantage by forcing redeeming shareholders to redeem at a NAV that reflects current losses, lessening the transfer of losses to remaining shareholders.

Some evidence suggests, however, that both types of funds behave similarly in normal and stressed market environments and that both may be subject to runs. Essentially, shareholders in a VNAV MMF still have an incentive to run due to the limited liquidity in any MMF, which creates a higher share price for early redeemers, and thus a first mover advantage.²⁸ Moreover, the elimination of CNAV funds could be potentially disruptive for short-term financing in the broader market, if such a change dampens investor demand for MMFs, which may reduce MMFs' ability to provide credit to local governments, financial institutions and other borrowers in the short-term markets. If no substitutes emerge, a contraction in CNAV MMFs may have consequences for certain types of credit, such as commercial paper and short-term municipal debt, for which MMFs are dominant investors.

In the U.S. especially, transition to a VNAV paradigm may itself be systemically risky, by potentially generating pre-emptive runs by investors seeking to avoid potential losses, or by the outflow of institutional investors who transfer assets to less regulated or unregulated cash management vehicles that hold similar or substantially similar vehicles, but which are not subject to the protections of the Investment Company Act.²⁹ A longer transition period could reduce this

²⁸ *See Run Risk in Money Market Funds*, HSBC Global Asset Management (November 3, 2011) (where a study of 2a-7 prime funds and European VNAV funds posits that run risk is correlated to currency rather than pricing mechanism).

²⁹ The growth of unregulated or lesser regulated funds from displaced CNAV MMFs may present greater systemic risk, as such funds are ostensibly more difficult to monitor and may take on more risk than more

risk.

Further, a move to VNAV funds may face operational challenges, notably in the United States. Cash managers commonly have investment restrictions or guidelines preventing investments in VNAV funds and some local authorities prohibit their cash managers and pension funds from investing in funds that are not constant-value funds. Similarly, fiduciary obligations, accounting and tax considerations may also create barriers to investment in variable value funds.

Finally, to the extent that a VNAV MMF is used as a cash management product, investors may not fully adjust their expectations of the tail risk inherent in MMFs because under normal market conditions, the value of VNAV MMFs would not fluctuate very much. Thus, investor behavior may not be affected by a switch from CNAV to VNAV MMFs. However, observations during the summer of 2011 indicate fluctuations in the value of European VNAV MMFs, reflecting changing market conditions and increased volatility. Despite these moves, there was little impact on redemptions, suggesting that investors accept temporary variations (including negative ones) in the NAV of their funds.

Question 12: *Do you agree with the benefits of imposing a mandatory move from CNAV to VNAV, which would amount to prohibiting the use of amortized cost valuation for any securities held by a MMF? Are the challenges identified in the US context valid in other jurisdictions currently authorizing CNAV funds? How could these challenges be overcome?*

4.1.2. Other structural alternatives as a way to maintain constant NAV

4.1.2.1 With NAV buffers

As an alternative to mandatory move from CNAV to VNAV, another option is to impose one of several variations of NAV buffers on MMFs, alone, or in combination with other measures aimed at curbing systemic risk (e.g. redemption restrictions).

Under this option, an MMF could create a fund-level capital reserve by retaining a portion of its income as a potential backstop against losses. The income retained would be offset by a valuation allowance reflecting possible losses on a MMF's portfolio securities. The reserve would be drawn upon if losses on securities caused the MMF to deviate from the price of the CNAV (e.g., \$1). An advantage of this option is that it would maintain a stable value investment product, but would eliminate the need for amortized cost valuation (and risks attached with such valuation) and instead introduce a "capital supported" NAV. At a time of crisis, a NAV buffer could mitigate the incentive for investors to run since there would be dedicated resources to address a certain amount of losses. A pre-funded loss absorption capacity could make MMFs more resilient because it could lessen markets' tendency to freeze, improving the capacity of short-term funding markets to weather abrupt or unexpected crises. Buffering of losses may also

regulated products. However, the characteristics of the money market funds' investor base –and especially their risk aversion and preference for capital preservation- may limit the willingness of certain investors to move to other less regulated vehicles.

provide additional flexibility for private and public responses to a shock and much needed time for investors to moderate their reaction to small or temporary changes in the value of their shares.

One disadvantage of this option is that it may create accounting and tax challenges that would have to be addressed. There might also be legal obstacles or delays; for instance, in the European context, such a reform would require legislative amendments to the UCITS framework or beyond. The structure and creation of a NAV buffer also may present operational hurdles. A significant consideration for both regulators and the public is the speed with which the NAV buffer would be established. A build-up over an extended period (*e.g.*, 10 years) may be economically feasible, but would be of limited use for some time. An aggressive build-up could potentially cause disruptions to the financial markets due to the decline in MMF assets that would be siphoned-off to establish the reserve. Also, the size of the reserve (in relative terms to the size of the fund) is a critical factor, as a larger reserve would provide substantial protection against a run, but would take time to accumulate. A smaller reserve, on its own, may accrue more quickly, but would be of limited use, and could give the erroneous impression that investor losses have greater protection than they actually do. It should also be noted that this option may create some transfer of benefit from existing shareholders who would contribute to the establishment of the buffer (directly or indirectly, *e.g.* via increased costs or lower performance) and future shareholders who may later benefit from this buffer, although all investors benefit from the protections of the buffer.

Several options can be considered for the establishment of NAV buffers, as described below.

(a) Market-funded NAV buffers — Subordinated shares

Description of Option: Require MMFs to issue a subordinated equity share class as a form of market-funded NAV buffer

A variant of a NAV buffer requirement could be the establishment of market-funded capital requirements. One such alternative would be to require MMFs to issue a stated percentage of its shares in the form of a subordinated equity share class that takes first losses and in return receives a preferential return (the capital fee). The MMF sponsor may (or could be required to) purchase the subordinated shares. At regular intervals, the MMF would be required to bring capital back to the initial stated percentage. If the capital falls below the stated minimum, the sponsor would have to contribute the incremental capital or would be forced to close the MMF to new subscriptions until capital is repaired. An overcapitalized MMF could redeem its excess capital. This mechanism would permit capital shares to be sold and trade, or rather, float, mark-to-market, reflecting the likelihood of portfolio losses. As a consequence, a MMF assuming greater portfolio risks would face higher funding costs. The subordinated shares would serve the dual purpose of absorbing portfolio losses, and serving as a brake on risk-taking.

Along with the general benefits of NAV buffers discussed above, market-funded NAV buffers may also provide incentives for prudent risk management. The subordinated shares model provides capital shareholders an incentive to monitor a MMF for risk. The option allows for the rational allocation of risk in that the subordinated shares would be allocated to investors seeking the possibility of higher returns in exchange for higher risk. Also tail risk would be explicitly

and transparently priced in the form of the preferential return paid out to the capital shares. Operationally, the market-funded buffer would allow MMFs to be capitalized relatively quickly in a higher interest rate environment.

The issuance of the subordinated securities, however, gives rise to a number of considerations. As a threshold matter, fund sponsors may be unable to raise enough capital to purchase the shares, if required, or to make obligatory capital calls, which would impair the proper functioning of the subordinated share mechanism to stem systemic risk. From a marketing perspective, a potential drawback with the use subordinated shares as a capital requirement is that there may be a limited appetite for purchasing capital shares – an untested, new instrument. Also, the mechanism could be difficult to implement in a low interest rate environment, when it may be uneconomical to pay a preferential return.

The structure of the subordinated securities also poses challenges. It is possible that the failure to successfully issue additional capital shares when needed may trigger MMF redemptions or cause broader market distress. While structuring capital as equity substantially mitigates this risk because equity is perpetual and thus does not pose “roll-over risk,” issuing as equity is more expensive. If the subordinated securities are structured as debt, laddering, over-issuance, and making the debt extendible could mitigate this risk.

Finally, the interplay of other financial regulations may disadvantage certain MMFs. For example, in the U.S., if the sponsor holds a significant amount of capital shares, the sponsor may be required to prepare a consolidated balance sheet, which could result in some bank-sponsored MMFs not being viable.

(b) Shareholder-funded NAV buffer — Version 1

Description of Option: Require MMFs to create a shareholder-funded NAV buffer

Another potential mechanism to curb the systemic risk of MMFs is a shareholder-funded NAV buffer. This alternative would require retention of [a portion of] MMF income to fund an internal NAV buffer that absorbs initial losses. MMFs would divorce the pricing of purchases and redemptions in the MMF from the MMF’s NAV. In other words, a MMF would use a fixed \$1.00 transaction price to price purchases and redemptions, which would prevent the MMF from “breaking-the-buck” on the upside because of the NAV buffer. In other words, the shadow price NAV could exceed \$1.005 without requiring a share price of \$1.01. The MMF would not be permitted to transact at \$1.00 if its mark-to-market NAV per share fell below \$0.995. The capital requirement would be set based on capital weights, which would depend largely on cost of liquidating portfolio holdings. For example, daily liquid assets would receive a zero weight, while assets with 90 or more days to maturity would receive the highest weight. If a MMF is capital impaired, it could acquire daily liquid assets exclusively until the capital is repaired.

As a form of capital requirement, the shareholder-funded buffer offers many of the same principal advantages as NAV buffers generally in managing systemic risk, but with several added benefits. The structure is relatively simple and should be easily implemented by MMFs. A MMF that cannot raise capital could simply invest in lower-risk portfolios, which would require lower capital.

It also is slow to build or re-build capital to any appreciable level, which may have the practical effect of turning most funds into government MMFs for significant periods of time. Another unintended effect is that, during the slow build-up, sponsors may be forced to pre-fund the buffer, in which case, sponsor-funded capital is a more efficient solution.

Another consideration that detracts from the viability of the alternative is that risk weighting is a crude method of measuring portfolio risks and may have further negative consequences. Risk weighting puts regulators in the position of weighing risks rather than risk weighting a free market mechanism; would encourage regulatory arbitrage; and may create the risk of false capital panacea, where inexact risk weights lead to MMFs that are in fact undercapitalized.

This option also entails other regulatory considerations including the inefficient tax structure created by the shareholder-funded buffer. For example, in the U.S., retained income is subject to federal excise taxes.

(c) Shareholder-funded NAV buffer — Version 2

Description of Option: Require MMF shareholders to purchase a certain amount of capital securities as a condition of investment in the fund's constant value shares

Another option for a shareholder-funded NAV buffer is to require MMF shareholders to purchase a specified amount of capital securities as a condition of investment in the MMF's constant value shares. This option promotes efficiency as it internalizes the liquidity costs of redemptions. The option preserves the ability of shareholders to transact a majority of their investment at a constant value, so the option preserves, in large part, the convenience, tax and accounting advantages of a constant NAV while more efficiently allocating to investors the risk of their investment. Further, as noted in the previous option, shareholder-funded buffers offer many of the same principal advantages as NAV buffers generally in managing systemic risk.

Investors, who are not accustomed to paying for the liquidity risk of their MMF investments, however, may not accept this option and may choose other less-regulated products as an alternative. This option, which is a form of self-insurance, may be less resilient (and itself more prone to runs) in a crisis because risk-averse shareholders bear first losses rather than others more willing to bear this risk.

(d) Sponsor-funded NAV buffer

Description of Option: Require MMF sponsors to provide financial support for the funds that the sponsors implicitly assume

Another form of NAV buffer would make obligatory the (currently discretionary) capital supports by sponsors that MMFs have relied on historically, at least in the U.S. Under this option, MMF sponsors would be required establish and fund an escrow that absorbs first losses in any MMF that they sponsor. Along with the typical advantages of all NAV buffers, this method would allow each sponsor the autonomy to meet its financial obligation in the manner it determines most efficient. The method also provides flexibility such that sponsors with sufficient capacity could provide capital relatively quickly. It further minimizes moral hazard as it strongly incentivizes a sponsor to conduct prudent risk management. Finally, this version of sponsor-funded buffer is relatively simple to implement and easy for markets and investors to

understand.

This sponsor-funded buffer alternative, however, may have less desirable effects. Specifically, it could result in balance sheet consolidation for sponsors that are banks— a result with significant capital implications. Because bank sponsors in the U.S. advise a substantial portion of MMF assets, the alternative (even without the effects of balance sheet consolidation) could have undesirable systemic risk implications if this leads to an increase in the interconnectedness in the system (especially with the banking system) and if more systemically important sponsors are better able to finance capital. Again, an unknown number of sponsors may have difficulties raising the capital and therefore will suffer from a competitive disadvantage in this market. Some of the costs may also be passed to investors, depending on competitive patterns.

Question 13: *What would be the main effects of establishing a NAV-buffer? What would be the most practical ways to implement such buffers? Should various forms of NAV-buffers be allowed or should regulators favor a single option? What would be a realistic size of the NAV-buffer and what would be the impact in terms of costs for running MMFs? In the case of subordinated shares, could the option be seen as creating a securitization position, with associated requirements in terms of retention?*

4.1.2.2 With insurance

Description of Option: Require private insurance to resolve short-term cash shortages

Another potential private sector solution to mitigate the risk of runs in MMFs is private insurance as a liquidity backstop. This option builds on the positive experience in the U.S. where federal government intervention was instrumental in slowing the run on MMFs in 2008 and seeks to propose a private sector (or alternatively a private-public sector combination) mitigant to runs analogous to deposit insurance. MMF insurance would seek to reduce or eliminate individual shareholder's capital losses and deter redemptions. The MMF insurance model might posit sponsors retaining the first level of losses up to a specified limit, and assigning private insurers or risk pools responsibility for the next level of losses. Also possible is a final government backstop responsible for extraordinary or catastrophic losses. The government insurance alternative could also encompass provision for post-event recoupment.

Although a good theoretical possibility, as a threshold issue, it appears unlikely that private insurance carriers would undertake to insure an industry with highly correlated risk and large tail risks. It is also questionable whether the insurance industry would have the excess surplus to cover the significant liability exposure of a run on MMFs or would be able to carry the reinsurance necessary for extraordinary events. The recent experience with private financial guarantees may also call in to question the viability of the MMF insurance option.

Among the most critical challenges of the MMF insurance option is the ability of potential insurers to appropriately price risk. Risk-based pricing would be instrumental to the viability of the MMF insurance system, but might be difficult to achieve in practice. Insurance pricing unresponsive to the specific risks of a MMF portfolio would heighten moral hazard and serve as

a disincentive to prudent risk management. Insurance that underprices risk would act as a subsidy for MMF sponsors and investors. Conversely, it is argued that MMF insurance is easier to fair value than bank deposit insurance because MMF portfolio are highly restricted, generally homogeneous, transparent and priced daily.

An insurance program for MMFs presents other complex challenges in design and implementation, similar to the obstacles presented in the creation of a private liquidity facility. As with a liquidity facility, mandatory participation is critical to maintaining an adequate risk pool, instilling investor confidence, preventing free-ridership and ensuring an adequate premium base. Additionally, as with a liquidity facility, a mandatory participation requirement presupposes the political will and regulatory oversight capacity to police the new MMF insurance system.

Question 14: Do you agree with the description of the challenges associated with the establishment of a private insurance? Are there ways to address them?

4.1.2.3 With a conversion to Special Purpose Banks

Description of Option: Require bank-like regulation for MMFs

A rationale for requiring constant NAV MMFs to reorganize as special purpose banks (SPBs) subject to banking oversight and regulation is the functional similarities between MMF shares and bank deposits and the risk of runs on both. As banks, MMFs could have access to government insurance and lender-of-last-resort facilities and would be subject to a well-understood regulatory framework for the mitigation of systemic risk that may include bank-like regulation such as capital reserve requirements and insurance coverage.

While conceptually straightforward, the implementation of the SPB option might take a broad range of forms and, in the U.S., would require legislation together with extensive interagency coordination. The potential government liabilities through deposit insurance (of insured SPBs) would be increased substantially and the development of an appropriate pricing scheme for such insurance would present some of the same challenges as the pricing of deposit insurance. Central bank monetary policy would also be increasingly burdened by discount window lending to MMFs. It is also likely that, under a new banking regime, large amounts of equity would be necessary to capitalize the new SPBs to meet bank regulatory capital requirements. The asset management industry is lightly capitalized and raising substantial equity may be a large hurdle and may further reduce money market funds' capacity to supply short-term credit. The reduction, in turn, may lead institutional investors to direct their assets to unregulated instruments.

Also, the myriad of possible interactions between the new SPBs and the existing banking system would have to be studied carefully by policymakers. For example, retail investors could lose access to a significant investment option if the new SPBs are limited to traditional (bank-like) depositary instruments. Also, if the transformation of MMFs into depositary institutions leads the new SPBs to limit the types of deposits available in the short-term markets, issuers may be unable to meet their funding needs, causing a further seizure of the short-term markets.

Question 15: Do you agree with the description of the challenges and potential second-round effects of a conversion of MMFs into special purpose banks? Are there ways to circumvent those effects?

4.1.2.3 With the establishment of two-tier system(s)

(a) Enhanced protection for CNAV funds

Description of Option: Permit both VNAV and CNAV funds with certain risk limiting conditions

In formulating reforms intended to reduce the systemic risk of MMFs, policymakers could permit investors to select the types of MMFs that best balance investors' appetite for risk and preference for yield by allowing both constant and variable NAV investments to exist simultaneously. For example investors could choose from:

- constant NAV funds, which would be subject to enhanced protections such as, for example, required participation in a private liquidity facility or enhanced regulatory requirements and
- variable NAV funds, which would have to comply with certain restrictions (and which would presumably offer higher yields), but would not be required to obtain access to external sources of liquidity or insurance.

Alternatively, policymakers could permit only certain types of MMFs to be constant NAV. For example, in some jurisdictions, certain types of MMFs limit themselves to holding only government obligations and, for many, all or substantially all of their assets are daily liquid assets. Such funds may not need enhanced protections because these funds are unlikely to have material fluctuations in their mark-to-market NAV per share due to the nature of their portfolio holdings (even though they could have some day-to-day fluctuations, particularly when interest rates change). It may not be necessary to impose the cost of requiring certain risk limiting conditions to support the stable NAV of these funds considering the minor nature of fluctuations that these funds can be expected to have given their holdings.

An environment where CNAV funds to continue to be available may reduce the likelihood of a substantial decline in demand for MMFs if the entire industry is transitioned to VNAV MMFs and the predicted capital flight toward unregulated vehicles if an adequate stable value substitute were not available. It is proposed that the combination of both CNAV and VNAV funds would mitigate the risks associated with the exclusive use of constant NAV funds as the protections in the variable funds would directly address some of the vulnerabilities of constant funds.

During a crisis, a two-tier system might prevent large shifts of assets out of MMFs altogether — and a reduction in credit supplied by the funds—if investors simply shift assets from riskier VNAV funds toward safer (because of the enhanced protections) CNAV funds.

The implementation of the two-tier system presents the same challenges as the introduction of any individual enhanced protections (such as mandated access to a private emergency liquidity facility) that would be required for CNAV funds. Also, the ultimate effectiveness of the dual system depends on investors' understanding the risks associated with each type of fund and their rational election of the appropriate fund investments over the tendency to redeem in a dislocated

market.

Question 16: *What are the main advantages and drawbacks of two-tier system(s)? Would it be sufficient to address the risks identified? What could be the conditions applicable to CNAV funds? What could be the potential impact on investor demand? Should certain funds be exempted from certain risk limiting conditions due to their holdings?*

(b) Constant NAV MMFs reserved for either only retail or only institutional investors

Description of Option: Permit both VNAV and CNAV funds, but reserve CNAV MMFs for either only retail or only institutional investors

Institutional investors have historically generated greater risks of runs for MMFs than retail investors, as evidenced in the run on MMFs in September 2008, which was almost exclusively due to redemptions from prime MMFs by institutional investors. Institutional investors typically have generated greater cash-flow volatility for MMFs than retail investors and have been much quicker to redeem MMF shares from constant NAV funds opportunistically. Separating retail and institutional investors would mitigate the risks associated with CNAV MMFs by addressing the investor base of constant NAV funds rather than by mandating other types of enhanced protections for those funds. In this way, the option protects the interests of retail investors by reducing the likelihood of contagion of a run that began with institutional MMFs spreading to retail funds. However, this structure may not be appropriate in jurisdictions that, unlike the U.S., have no significant retail MMF presence.

The reality, however, is that, at least in the U.S., retail and institutional funds are indistinguishable due to the widespread use of omnibus accounts to invest in MMFs. Operationally, for the option to be effective, a regulator would need to define retail and institutional investors – an option rejected by the SEC in the 2010 MMF amendments – and MMFs would have to be reconstituted as one or the other, with the attendant disruption that a large-scale shift of assets among MMFs could cause.

In addition, there is no guarantee that any future run will be contained to largely institutional investors. While the exodus of institutional investors caused the run on MMFs in 2008, retail investors also may be risk-averse and could precipitate a future run. In addition, retail investors ultimately might have joined in the run in 2008 had government support not been provided.³⁰

Question 17: *Do you agree with the suggestion that reserving CNAV funds for only certain investors (i.e. retail or institutional investors) would face practical challenges and would not be sufficient to address the risks identified?*

³⁰ See Appendix B, section 5.2.3 for a discussion of the U.S. government intervention.

Question 18: *Regarding the different structural alternatives described in Section 1, what are the benefits and drawbacks of the different options described above? How could they be prioritized? What are the necessary conditions for their implementation?*

4.2 Section 2: MMF valuation and pricing framework

4.2.1. General principle of marked-to-market valuation

As described above, variable NAV fund with all assets marked-to market would provide price transparency to investors regarding the value of the assets held by the funds and reduce the “first mover” advantage by forcing redeeming shareholders to redeem at a NAV that reflects current losses, lessening the transfer of losses to remaining shareholders. In close connection with the option of a mandatory move to variable NAV, fully variable NAV MMFs should be construed as prohibition of the use of amortized cost valuation for any securities held by MMFs; i.e. all portfolio securities would be "marked-to-market" for their valuation.

This path has been taken in some countries where the experience has been positive. In particular, Brazil successfully implemented similar reform in 2002 for short-term bond funds, introducing a change from amortized cost accounting to mark-to-market. The reform followed a period of increased volatility when differences between curve prices and the market prices of the Brazilian sovereign bonds –which were commonly held by the funds – started to grow, meaning that many funds’ portfolios could have been overvalued, with potential harm to investors. Although the reform (added to several macroeconomic factors) led to substantial redemption requests in the short-term, the Brazilian fund industry recovered quickly and was able to grow soundly. MMFs are also prohibited to use amortized cost accounting in other countries such as Australia.

However, as discussed above, this option may not fully address the systemic risk of MMFs, particularly run risk. In addition, it could unduly increase the costs and complexity of the funds’ valuation processes by imposing mark-to-market accounting for all instruments. In addition, for many securities, mark-to-market pricing is just an estimate (often based on matrix pricing) and so the cost involved in requiring it for every security, even securities with very short maturities, may not be justified.

Question 19: *What are the main benefits and drawbacks of imposing the use of marked-to-market accounting for all the instruments held by MMFs? What is the availability of market prices for securities commonly held by money market funds? Are there situations where this general principle could not be applied?*

4.2.2 Exceptions to marked-to-market general principle

As described above there might be situations where the obligation to mark all assets to market might not be optimal or feasible. In that case, the use of other valuation policies/methodologies may be warranted.

4.2.2.1 Fair value/marked-to-model

As discussed in the recent IOSCO consultation report on valuation,³¹ the key objective underlying CIS valuation principles is that investors should be treated fairly. Where possible, assets should be valued according to current market prices. Where market prices are not available, it may be more appropriate to fair value the instruments. In the case of instruments held by MMFs, and in the absence of specific market prices, valuation models based on current yield curve and issuer spread may be appropriate.

4.2.2.2 A secure and robust framework for the use of amortized cost

Description of Options: Restrict the use of amortized cost accounting by MMFs

One area of risk identified above is the use of amortized cost accounting by money market funds. However, in some circumstances, the use of amortized cost may be warranted. In particular, use of amortized cost may be appropriate where there are limits or restrictions on the gap between the amortized cost value and the market value. A basic premise justifying the use of amortized cost accounting is the fact that securities held until maturity will eventually yield a value equivalent to the amortized cost value, regardless of the current disparity between amortized cost accounting and market value. An alternative to the prohibition of amortized cost accounting is to impose restrictions on the use of amortized cost accounting by money market funds, with the objective to reduce the risks of mispricing and ensure effective price transparency to investors. As a consequence, the use of amortized cost accounting would be strictly limited to some exceptions to the general valuation principle of mark-to-market.

One reason for these exceptions is that for many securities, mark-to-market pricing is an approximation (often based on matrix pricing) and so the cost involved in requiring mark-to-market pricing, even for securities very close to maturity, may not be justified and may not necessarily provide greater price accuracy.

Where the use of amortized cost accounting is allowed, regulation generally limits its use to instruments of maturity or residual maturity below 397 days. In some jurisdictions, more stringent requirements may apply, e.g. in France, China and India. According to changes adopted in February 2012 in India, the amortization is restricted to securities having residual maturity of less than 60 days from the current position of 91 days.

Two types of additional restrictions could be considered, which are not necessarily mutually exclusive:

Option 1: Set restrictions (or tighten existing rules) on the type of instruments which could be subject to amortized cost accounting, in terms of maturity, credit quality or sensitivity to market risk. For example, in terms of asset's residual maturity, a limit could be set to a defined number of days, e.g. 30, 60 or 90 days,³² as the risk of mispricing increases with longer term underlying assets. Similarly, when instruments present specific vulnerability to interest rate or credit risk,

³¹ See IOSCO, Principles for the Valuation of Collective Investment Schemes, Consultation Report, February 2012, available at <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD370.pdf>.

³² See Appendix B, section 4.1.4 for a description of the conditions currently applicable in Europe.

the use of amortized cost accounting should be prohibited. Additional requirements may be considered, such as that all instruments with comparable characteristics should be valued using the same accounting method.

Option 2: Establish limits in terms of maximum deviation between amortized cost valuation and market value for each asset of the portfolio. The maximum discrepancy permitted could be of a certain number of basis points of the market value for each underlying asset. Escalation procedures should be in place once this materiality threshold is attained in order to ensure that the manager undertakes appropriate actions. This option would necessarily constrain the use of amortized cost accounting and would allow greater price sensitivity by the fund and greater transparency to investors. This framework would rely on calculation of “shadow price” and the definition of stricter procedural requirements since deviation would be monitored for each asset of the portfolio.³³

After the MMF amendments in the U.S. in 2010, the average maturity of portfolio securities in MMFs was significantly limited. One question in relation to these options is therefore whether they would significantly restrain investment allocation and notably shorten the maturity of MMF portfolio securities. Shortening maturity may add more pressure to rollover risk and may increase volatility in short-term funding markets. Shorter term securities may also add risk in that their credit spreads widen when tail risks emerge.

Question 20: Should the use of amortized cost accounting be limited, and, if so, how? Are general restrictions on funds’ WAM or WAL preferable? Are there practical impediments (e.g. availability of prices) to imposing stricter requirements on the use of amortized cost accounting than current existing regimes? What would be the potential effects on MMFs’ investment allocation and short-term funding markets? What monitoring should be implemented? What conditions are advisable? In particular, please describe the rationale, feasibility and effects of limiting the residual maturity of instruments to [30-60-90-other] days. What materiality threshold could be proposed?

³³ See Appendix B, section 4.2.1. A key element of the U.S. ICA regime is the reliance on the mutual fund board, especially the independent directors, to oversee all aspects of the mutual fund. Rule 2a-7 includes certain procedural requirements overseen by the fund’s board of directors, including the requirement that the fund periodically “shadow price” the amortized cost NAV of the fund’s portfolio against the mark-to-market NAV of the portfolio.

4.3 Section 3: Options regarding liquidity management

As in any open-ended CIS, liquidity risk of MMFs has to be managed so that MMF manager is able to face redemption pressure at any time or, in other terms, to ensure there is no mismatch between asset and liability.³⁴ To that end, the MMF manager may be required to have portfolio liquid enough (portfolio or asset liquidity) and/or may be required or permitted to restrict liquidity on investor side (liability/investor liquidity) under certain conditions.

4.3.1. Portfolio liquidity

4.3.1.1 Global liquidity requirements

Description of Option: Require money market funds to hold a certain amount of liquid assets and restrict the amount of illiquid assets

One of the most significant amendments to the U.S. regulation of money market funds adopted in 2010³⁵ was the imposition of liquidity requirements (*i.e.*, minimum ratios of daily and weekly assets to be held by the funds, as well as a limit to the so-called “illiquid” securities held by the funds). These restrictions are understood to have had far reaching implications.³⁶ Similar requirements have also been recently introduced in Canada. In contrast, no similar restrictions exist in Europe or in other jurisdictions, although there is a general principle that the assets held must be liquid enough not to compromise the ability of the funds to meet redemption requests, with similar effects in terms of liquidity management. In addition, the existing industry code applicable to European CNAV funds imposes requirements that are close to the ratios defined in U.S. regulation, although not identical.

Liquidity regulation helps funds convert portfolio holdings to cash to pay redeeming shareholders and prevent fire sales of assets at a loss by firms confronted with redemption pressures. An option is to impose liquidity restrictions harmonized at global level to ensure that minimum (or, in the case of illiquid assets, maximum) limits are set for all funds. This option also provides a greater level-playing field. However, there are some practical challenges, notably with regard to the definition of the so-called “liquid” or “illiquid” assets, depending on the characteristics and structure of financial markets. By limiting the types of instruments deemed liquid, there is also a risk of introducing bias in the funds’ asset allocation, with potential implication on short-term funding markets. Furthermore, these requirements, which are set as minimum thresholds, are likely not to be sufficient in case of a run and should be adapted to the funds’ specific characteristics and investor base (see 4.3.1.2 below). It should also be noted, that liquidity restrictions do not address redemptions caused by credit losses.

³⁴ See IOSCO, Principles of liquidity risk management for collective investment schemes, Consultation paper, April 2012, available at www.iosco.org

³⁵ See Appendix B, section 6.2.3.

³⁶ Notably, it is posited that these new requirements have played a significant role to help US MMFs weather the volatility of summer 2011 and the surge in redemption requests observed in June 2011 and again in late July/early August 2011.

Question 21: *What are the main benefits and drawbacks of imposing global liquidity restrictions? Should there be restrictions regarding (daily/weekly) liquid assets as well as regarding illiquid assets? Are global definitions of (daily, weekly) liquid and illiquid assets practical? Are there other conditions to consider (e.g. regarding the concentration of assets)?*

4.3.1.2 Know your shareholders

Description of Option: Require MMFs to establish sound policies and procedures to “know their shareholders” and better anticipate cash outflows

MMFs generally have a higher and possibly less predictable volume of redemptions than other CIS. The volatility of cash flows (particularly shareholder redemptions) may also vary from one fund to the other, depending on their investor base. Characteristics to consider include identifiable patterns in investors’ cash needs (e.g., in the case of institutional investors such as pension funds or corporations), their sophistication, their risk aversion, as well as the concentration of the funds’ investor base (if known). An important aspect of MMF liquidity risk management therefore lies on the knowledge of the funds’ shareholders and an analysis of historical cash flows. In the U.S. MMFs must adopt policies and procedures designed to assure that appropriate efforts are undertaken to identify risk characteristics of shareholders. Those risk characteristics may include the risk that a single or concurrent redemption (s) of several shareholders may have a material effect on a fund’s ability to satisfy redemptions. In the case of large investors, the relationship between the manager and the investors is also especially important during stressed conditions and could in certain circumstances contribute to reduce the likelihood of significant and unexpected redemption requests. The challenge in the U.S. with this requirement is that MMFs largely are held through omnibus accounts and the beneficial owner of the fund shares is not often visible at the fund level.

Question 22: *To what extent are managers able to “know their customers” and anticipate redemptions? Are there practical obstacles for managers to “know their customers” (e.g., in the case of platforms, omnibus accounts) and how could they be addressed? What are the main features of the funds’ investor base to take into consideration from a liquidity risk management point of view? Should conditions, e.g., regarding the concentration of the investor base be considered? Would this requirement allow fund managers to better understand and manage the risks to which the fund is exposed?*

4.3.2 Liability/investor liquidity risk management

4.3.2.1 Redemption Restrictions

In contrast to NAV buffers, which mitigate concerns about potential MMF losses by seeking to absorb declines in assets’ value; redemption restrictions seek to deter losses caused by redeeming shareholders. Redemption restrictions would restrict a shareholder’s ability to freely redeem a

portion of his or her account.

Redemption restrictions seek to mitigate the liquidity risk of MMFs by forcing redeemers to bear the cost of redemptions in the form of a redemption restriction. A redemption restriction can work synergistically with other systemic risk mitigants, such as NAV buffers, and could serve to justify a lower required capital requirement. However, if implemented alone, a MMF still has a relatively small cushion before it will break-the-buck, with potential disruptive consequences. Also, a redemption restriction could allow a sponsor valuable time to assess and react to emergent redemption pressures.

On the other hand, investors long have been attracted to the liquidity feature of MMFs, and a feature that impairs liquidity may not be acceptable to the market. Operationally, it also may be challenging to apply the restriction to omnibus, sweep, and retirement plan accounts, where the ultimate investor is unknown to the MMF or not easily discernible.

4.3.2.1.1 Liquidity fees

Description of Option: Impose a liquidity fee based on certain triggers

Redemption fees may make explicit to investors that MMFs do entail some risk, which in times of severe stress will be borne by investors. One option would be to postpone the imposition of redemption fees during “normal” market conditions and instead impose the fee only when triggered by a market event or by the volume of redemptions.

For example, a MMF operator or board of directors (depending on the governance structure of the jurisdiction) could be required to determine whether or not to charge a “liquidity fee” on redeeming shareholders if the market-based NAV of a fund’s portfolio fell below a specified threshold (such as \$0.9975 per share) and to communicate its decision to the fund’s regulator. The amount of the charged liquidity fee would be the anticipated change in the market-based NAV of the MMF’s portfolio from the redemption, assuming a horizontal slice of the MMF’s portfolio was sold to meet the redemption request.

This option would seek to require that redeeming shareholders bear some of the liquidity costs of their redemption rather than transferring those costs to remaining shareholders. In this way, a liquidity fee could result in more effective pricing of risk (in this case, liquidity risk). A liquidity fee could reduce shareholders’ incentive to run and enhance the fair operation of MMFs as it relates to remaining and redeeming shareholders.

There also are certain potential drawbacks with this alternative. The option may give shareholders the incentive to engage in a pre-emptive run if investors fear that the liquidity fee may be imposed (for example, because there is general stress in the market). This incentive to run may be heightened because, by redeeming before the fee is imposed, a shareholder both limits potential losses and avoids paying an additional fee.

Question 23: *Would such a liquidity fee generate a pre-emptive run? If so, when and are there ways that pre-emptive run risk could be reduced? How would shareholders react to the liquidity fee? Would it cause shareholders to transfer their MMF investments to alternative investment products? If so, which types of shareholders are most likely to make such transfers and to which products and will such a shift in investment create new systemic risks or economic, competitive, or efficiency benefits or harm? Would MMF board directors be able to impose a liquidity restriction despite potential unpopularity with investors and competitive disadvantage imposed on the fund? At what level such a liquidity trigger should be set?*

4.3.2.1.2 Minimum balance requirement

Description of Option: Impose a minimum balance requirement on MMFs

Money market funds could be required to have minimum balance requirements in which shareholders could redeem substantially all of their shareholdings (e.g., 95% or more) without restriction, but redemptions of the minimum balance amount would be held back for a specified period of time and subject to loss if the MMF loses value during the holdback period. The aim of this option would be to cause redeeming shareholders to more fully bear the liquidity costs of their redemption by requiring that they remain exposed to losses in the fund for some period after their redemption. This option could be structured such that shareholders would not be able to avoid losses by redeeming (e.g., redemptions of the minimum balance simply delayed for a certain number of days) or to actively discourage redemptions (e.g., by subordinating a pro rata portion of a shareholder's minimum balance as they redeem).

This alternative has all of the advantages of the previous option in causing MMF shareholders to internalize liquidity costs created by their redemptions. It lessens (and can actually reverse) a shareholder's incentive to engage in a run on a MMF. Unlike the liquidity fee described above, a minimum balance requirement has the advantage of being always in place, with no triggering event that investors could attempt to game and avoid imposition of the restriction and create a pre-emptive run.

This option, however, would alter the full, immediate redeemability of all MMF shares and thus may represent a significant change for shareholders. This option also would involve operational changes to apply it to omnibus accounts.

Question 24: *How would shareholders react to a minimum balance requirement? Would it cause shareholders to transfer their MMF investments to alternative investment products? If so, which types of shareholders are most likely to make such transfers and to which products and will such a shift in investment create new systemic risks or economic, competitive, or efficiency benefits or harm?*

4.3.2.2 Valuation at bid

Description of Option: Allow MMFs to value their assets at bid price

Another option could be for funds to value their underlying investments at bid price. Such method could be implemented as a general valuation framework or only in the case of net outflows exceeding a certain amount. This option reduces the negative impact of redemptions on investors remaining in a fund. It is favorable to incoming investors, which pay less when subscribing to the fund, while redeeming shareholders receive less for their shares than the actual NAV. This option therefore reduces the incentive to redeem, similarly to redemption fees.

However, there are some practical questions to address, notably with regard to the relevance of bid prices under stressed market conditions, or regarding the trigger mechanisms which would allow the manager to switch to valuation at bid (see discussions above in the case of liquidity fees). When the method is used as a general valuation framework by the funds, conditions should also be in place to ensure that existing shareholders are not impacted in case of large flows of subscriptions. On the contrary, when bid price is used only in times of market stress, the negative impact on the net asset value of the fund could be significant.

Question 25: What are the benefits of using bid price for valuing the funds? Are there other options (such as anti-dilution levy) which could be explored to reduce shareholders' incentive to redeem?

4.3.2.3 Redemptions in-kind

Description of Option: Require redeeming shareholders to receive the corresponding cash and in-kind securities percentage corresponding to the MMF's portfolio composition at the date of the redemption request

Large redemptions may impose liquidity costs on other shareholders in the MMF by forcing MMFs to sell assets in an untimely manner. That is, large cash redemption causes the MMF to sell securities, possibly in a down market, and transfer the loss *pro rata* to all remaining shareholders, instead of isolating the loss to the redeeming shareholder. A requirement that MMFs distribute large redemptions in-kind would force these redeeming shareholders to bear their own liquidity costs and potentially reduce the incentive to redeem. This would permit MMFs to distribute securities in-kind to a large redeeming shareholder, in proportion to the redemption request, and cause that shareholder, and that shareholder only, the market risk of selling the securities. The in-kind policy may have the added effect of allowing sponsors more time to assess and react to problems during periods of increased redemption pressure.

On the other hand, the in-kind redemption requirement may only reduce or delay the systemic effects related to large redemptions, but not solve for the greater risk of runs faced by MMFs. The sell-off of assets by large redeeming investors may still generate market effects, if those redeeming shareholders immediately sell the securities received. Also, large redeeming investors may seek to avoid the effects of the in-kind redemption policy by making redemption requests just below the in-kind thresholds established by MMFs.

An in-kind redemption regime places the burden for valuing and liquidating portfolio securities (with the attendant costs) directly on the investor. To make the in-kind redemption option feasible, regulators would have to prescribe situations in which a fund must redeem in-kind and determine how portfolio securities could be fairly distributed in lieu of cash. Specifically, a regulator would need to make judgments about how assets may be equitably redeemed. For example, operationally, some securities are non-transferable in certain jurisdictions, while other assets are sold in large blocks and are indivisible.

Question 26: *What are the benefits and drawbacks of allowing redemptions-in-kind? Are there practical impediments to implementing this option (e.g. some portfolio securities cannot easily be divided)?*

4.3.2.4 Gates

Description of Option: Require/permit MMFs to impose gates

In Europe, MMFs may utilize gates as a liquidity risk management tool. In general, a gate restricts the amount of redemptions available to all shareholders on a particular redemption day. For example, if the aggregate amount of redemption requests for all shareholders for a particular redemption date exceeds a particular percentage of the MMF's NAV as of such redemption date, the amount requested by each shareholder would be reduced, pro rata, to the extent necessary to reduce the aggregate amount of redemption requests to an amount equal to that percentage of the MMF's NAV. The intent of a gate is to stop a run.

A disadvantage of gates is that they likely will only be triggered during a crisis, and they do not address the first mover advantage. In addition, they restrict liquidity that investors expect from a money market fund. Beyond investor expectations, gates also could impact the markets more generally as a crisis that causes gates to be put in effect could cause investors to turn to what may be an already-stressed banking system for their liquidity needs. An additional disadvantage is that gates are not a permissible tool in some countries, including the United States and Canada. Therefore, such an option may require additional regulatory action (e.g. exemptions or legislative changes) in these jurisdictions.

Question 27: *What are the benefits and drawbacks of requiring gates in some circumstances? Which situations should trigger gates to be imposed to redeeming investors? Would it be enough to permit gates in some jurisdictions? Would there be a risk of regulatory arbitrage?*

4.3.3 Private emergency liquidity facility

Description of Option: Require an external liquidity facility to resolve short-term cash shortages

A private emergency liquidity facility has been advanced as a regulatory solution to reduce the liquidity risk of MMFs and in some measure a MMF's vulnerability to runs, as there is favorable history to suggest that a liquidity backstop is effective in lessening MMF runs. Specifically, as

detailed in Appendix B, in the U.S., the U.S. Treasury and Federal Reserve liquidity backstops were successful in stemming the run on MMFs during the crisis in 2008.

As a backstop, a private emergency liquidity facility could have several beneficial effects. It could effectively, or in combination with other measures, substantially buttress a MMF's ability to withstand significant outflows, without resorting to an asset sale in declining or illiquid markets. Unlike the imposition of individual MMF liquidity requirements, which may leave certain MMFs with too much liquidity and others with too little liquidity during a crisis, a private liquidity facility may offer a more efficient way to pool risk. That is, a private liquidity facility would provide liquidity to only those MMFs that need it, and in proportion to their need. Another beneficial effect of a private liquidity facility is that it could reduce the contagion effects of runs by alleviating the liquidity pressures of a single or few distressed funds before a redemption stampede affects the whole MMF industry. Importantly, an effective private liquidity facility should incentivize managers to take on appropriate risks because the private liquidity facility would not protect funds from capital losses due to isolated credit losses or excessive capital risks. A well-designed and well-managed liquidity facility would internalize the cost of liquidity protection, and could permit regulators with the flexibility to relax liquidity restrictions for MMFs that have acquired greater access to the liquidity facility's capacity.

Despite the potential benefits of a private liquidity facility, the attendant challenges with establishing an effective facility may render the option unworkable. Fundamentally, it is not clear that a liquidity facility alone would prevent broader runs on MMFs triggered by concerns about widespread credit losses. Also, for a liquidity facility to be effective, its structure and operations would have to be carefully designed to ensure that the facility has sufficient capacity during a crisis and that the facility itself is not vulnerable to runs. A depleted facility could trigger or amplify a run on MMFs. Sufficient capacity likely would only be possible through discount window access, as the MMF industry may not be able to raise sufficient capital without undue leverage. However, discount window access may raise complicated policy considerations.

Liquidity facilities also face other significant hurdles, including policy concerns that must be overcome to ensure that such a facility would be effective during crises. Specifically, a voluntary liquidity facility may create free-ridership concerns where non-participating MMFs may present a greater systemic risk than participating MMFs, but could still benefit from the stability and goodwill provided by the liquidity facility, while not sharing the costs associated with the facility. If participation is mandatory, regulatory resources would have to be expended to ensure prudent, equitable and efficient management of the liquidity facility.

Further, the liquidity facility would have to be designed to avoid the creation improper economic incentives. For example, private liquidity facilities may enhance moral hazard problems if MMF advisers may be incentivized to maintain minimum liquidity levels in their MMFs. Alternatively, inappropriate constraints may imperil the facility's effectiveness.

Finally, a private liquidity facility must have a strong governance structure to act as an effective backstop, in the face of numerous conflicts of interests inherent in the diverse membership of a given facility. An inadequate governance structure may be unable to stem domination by larger MMFs or funds representing certain significant sectors or interests.

Question 28: Do you agree with the suggestion that the establishment of a private liquidity facility faces challenges that make the option unworkable or do you see ways to circumvent these challenges?

4.3.4 Section 4: Options to address reliance on ratings

The FSB published in October 2010 Principles for Reducing Reliance on CRA Ratings.³⁷ The objective of these principles is to reduce the herding and "cliff-effects" that currently arise from CRA rating thresholds being hardwired into laws, regulations and standards. The principles also aim to catalyze significant change in existing practices, to end mechanistic reliance by market participants and establish stronger internal credit risk assessment practices instead.

4.3.5 Remove references to ratings from MMF regulation

Description of Option: Remove reference to ratings from MMF regulation and consider alternative standards

An important feature –and obligation under MMF regulation– is that MMFs invest mainly in high quality instruments. To this effect, in most jurisdictions, MMF regulation still includes some references to CRA ratings. The two most important references to ratings in MMF regulation relate to the selection of instruments and to the monitoring of ratings downgrades.

Regulators have already taken some steps to ensure that there is no over-reliance on ratings due to references to CRA ratings in MMF regulation: in the United States, Rule 2a-7 is being reviewed as part of the overall effort to remove references to ratings in SEC rules and to encourage independent assessment of credit worthiness, as required by the Dodd-Frank Act.³⁸ Under the proposed amendments, a MMF would continue to be limited to investing in securities that MMF boards of directors (or their delegates) determine present minimal credit risks, which determination would have to be based on factors pertaining to credit quality and the issuer's ability to meet its short-term financial obligations. First tier security would be those that the fund's board (or its delegate) determines that the issuer (or in the case of a security subject to a guarantee, the guarantor) has the "highest capacity to meet its short-term financial obligations."

In Europe, ESMA guidelines include references to ratings, but the guidelines make clear that the responsibility for the assessment of the quality of a money market instrument lies with the management company and that credit ratings should only be an element to be taken into consideration amongst others to assess the creditworthiness of the instrument.

Building on these recent initiatives, IOSCO could recommend that explicit reference to external CRA ratings for purposes of credit quality be removed from MMF regulation. However, such move is not exempt from difficulties and risks. In all cases, it should be made clear in MMF regulation that external ratings are only one element to take into consideration for the managers

³⁷ See Financial Stability Board, Principles for Reducing Reliance on CRA Ratings, October 2010, available at http://www.financialstabilityboard.org/publications/r_101027.pdf

³⁸ See Securities and Exchange Commission, References to Credit Rating in Certain Investment Company Act Rules and Forms, Securities Act Release No. 9193, March, 3, 2011, available at <http://www.sec.gov/news/press/2011/2011-59.htm>; see also Report on Review of Reliance on Credit Ratings As Required by Section 939A(c) of the Dodd-Frank Wall Street Reform and Consumer Protection Act, July 2011, available at <http://www.sec.gov/news/studies/2011/939astudy.pdf>.

when assessing the credit quality of an instrument. In addition, as recommended by the FSB, IOSCO could develop or recommend regulators to develop alternative standards or definitions of creditworthiness reflecting the high quality of the instruments MMFs should invest in.

Question 29: *What are the main benefits and drawbacks of the provisions included in current regimes referring to external CRA ratings? Are there alternatives to credit ratings that reasonably can be substituted?*

4.3.6 Improve the meaning of triple-A for rated MMFs

Description of Option: Encourage greater differentiation of ratings in the MMF population

Rating criteria used by rating agencies to assess MMFs may vary and can be more stringent than applicable regulation.³⁹ Other aspects, such as sponsor support, organization aspects or redemption patterns, may also be taken into consideration by credit rating agencies in their rating processes. Although rating agencies provide full rating scales, only a very small number of rated funds are not ‘triple-A’ rated.

Reference to a ‘triple-A’ rating has drawbacks since it may create a false sense of security for investors and weaken their diligence in the selection of funds. It also highlights the risk raised by investors’ overreliance on credit ratings, which is sometimes due to constraints on investors. Furthermore, the reference to ‘triple-A’ may be viewed as providing some form of credit transformation, since MMFs are, *inter alia*, composed of securities which may be rated lower than triple-A. Lastly, the rating process itself encourages references to ratings, as the rating criteria often refers to ratings (of the underlying assets, of the counterparty, *etc.*).

Regulators and investors could also be concerned by the large predominance of ‘triple-A’ funds among rated MMFs, and the relative absence of rating actions. Such pattern offers little differentiation among funds and may actually question the relevance of the ratings for investors.

Question 30: *What are the benefits of MMF ratings? Should a greater differentiation between MMF ratings be encouraged? To what extent are investors restricted in their investments to ‘Triple-A’ rated funds? What alternatives could there be (e.g. from other third parties)? What initiatives could be proposed to educate investors about MMF ratings?*

³⁹ These criteria set limits in terms of credit quality, maximum instrument maturity, counterparty credit risk, issuer exposure, liquidity, etc. See Fitch, *Assessing and Comparing Risks of Money Market Funds*, July 2010, available at http://www.fitchratings.com/creditdesk/reports/report_frame.cfm?rpt_id=537647; Moody’s, *Revised Money Market Fund Rating Methodology and Symbols*, March 2011, available at http://www.moody.com/researchdocumentcontentpage.aspx?docid=PBC_131303; Standard and Poor’s, *Methodology: Principal Stability Fund Ratings*, June 2011, available at <http://www.standardandpoors.com/prot/ratings/articles/en/us/?articleType=HTML&assetID=1245323027807>.

5. Conclusions and additional questions

This report considers a vast range of policy options, also highlighting some of the questions and challenges to be addressed. On the basis of responses to the consultation, IOSCO will elaborate final recommendations for addressing regulatory reforms to mitigate MMFs' susceptibility to runs and other systemic risks. To better inform the final recommendations, IOSCO also asks the following:

Question 31: In addition to the options explored in the four sections above, do you see other areas to consider which could contribute to reinforcing the robustness of MMFs?

Question 32: Do differences between jurisdictions require different policy approaches or would a global solution be preferable, notably to ensure a global level playing field?

TABLE OF CONTENTS

9

APPENDIX B: BACKGROUND	39
1. Early days	41
2. Market Significance	41
3. Investor Base	44
4. Regulatory framework prior to the crisis	45
5. The 2007-2008 Financial Crisis.....	53
6. Regulatory Changes Arising from the 2007-2008 Financial Crisis	63
7. Insights from recent academic and financial literature	67

APPENDIX A: LIST OF QUESTIONS

- Question 1:** Do you agree with the proposed definition of money market funds? Does this definition delimit an appropriate scope of funds to be potentially subject to the regulatory reform that the FSB could require to put in place, with an objective to avoid circumvention and regulatory arbitrage?
- Question 2:** Do you agree with the description of money market funds' susceptibility to runs? What do you see as the main reasons for this susceptibility?
- Question 3:** Do you agree with the description of the role of money market funds in short-term money markets? To what extent this role may create risks for short-term funding markets and their participants? Are there changes to be taken into account since the 2007-2008 experience? What are the interdependencies between banks and MMFs and the risks that are associated?
- Question 4:** What is the importance of sponsor support for MMFs? What is the respective percentage of bank versus non-bank sponsors in the MMF industry? Are there differences among MMFs depending on their sponsors? What are the potential systemic risks of support or protection against losses provided by sponsors?
- Question 5:** Do you agree with the description of MMF benefits? Are there other benefits of MMFs for investors than those outlined in this presentation? What are the alternatives to MMFs for investors? How has investor demand for MMFs recently evolved? What would lead investors to move away from MMFs to other financial products?
- Question 6:** Do you agree with the proposed framework comparing money market funds and bank deposits? Are there other aspects to consider?
- Question 7:** Are there other similarities or differences between CNAV and VNAV funds which would be useful for the analysis? Is there evidence (based on representative samples) showing differences in the fluctuation of the funds' NAV depending on their model? What is the extent of the use of amortized cost accounting by VNAV funds? Has this practice evolved over time?
- Question 8:** What is the importance of ratings in the MMF industry? What is the impact of the monitoring function of credit rating agencies for MMFs? What are the potential systemic risks associated with ratings in the MMF industry?
- Question 9:** Are existing rules adequately addressing risks regarding the management of collateral from money market funds? What are the risk management processes currently in place with regard to repo and securities lending transactions? Do MMFs present unique issues with regard to their use of repo markets or would general policy recommendations that the FSB may issue regarding repo markets be applicable?

- Question 10:** Are the above-mentioned changes in the environment of MMFs relevant factors to take into consideration? What are some of the implications for regulatory options? Are there other aspects to consider?
- Question 11:** Do you agree with the systemic risk analysis and the rationale for reform presented in this section? Are there other factors to consider?
- Question 12:** Do you agree with the benefits of imposing a mandatory move from CNAV to VNAV, which would amount to prohibiting the use of amortized cost valuation for any securities held by a MMF? Are the challenges identified in the US context valid in other jurisdictions currently authorizing CNAV funds? How could these challenges be overcome?
- Question 13:** What would be the main effects of establishing a NAV-buffer? What would be the most practical ways to implement such buffers? Should various forms of NAV-buffers be allowed or should regulators favor a single option? What would be a realistic size of the NAV-buffer and what would be the impact in terms of costs for running MMFs? In the case of subordinated shares, could the option be seen as creating a securitization position, with associated requirements in terms of retention?
- Question 14:** Do you agree with the description of the challenges associated with the establishment of a private insurance? Are there ways to address them?
- Question 15:** Do you agree with the description of the challenges and potential second-round effects of a conversion of MMFs into special purpose banks? Are there ways to circumvent those effects?
- Question 16:** What are the main advantages and drawbacks of two-tier system(s)? Would it be sufficient to address the risks identified? What could be the conditions applicable to CNAV funds? What could be the potential impact on investor demand? Should certain funds be exempted from certain risk limiting conditions due to their holdings?
- Question 17:** Do you agree with the suggestion that reserving CNAV funds for only certain investors (i.e. retail or institutional investors) would face practical challenges and would not be sufficient to address the risks identified?
- Question 18:** Regarding the different structural alternatives described in Section 1, what are the benefits and drawbacks of the different options described above? How could they be prioritized? What are the necessary conditions for their implementation?
- Question 19:** What are the main benefits and drawbacks of imposing the use of marked-to-market accounting for all the instruments held by MMFs? What is the availability of market prices for securities commonly held by money market funds? Are there situations where this general principle could not be applied?
- Question 20:** Should the use of amortized cost accounting be limited, and, if so, how? Are general restrictions on funds' WAM or WAL preferable? Are there practical impediments (e.g. availability of prices) to imposing stricter requirements on the

use of amortized cost accounting than current existing regimes? What would be the potential effects on MMFs' investment allocation and short-term funding markets? What monitoring should be implemented? What conditions are advisable? In particular, please describe the rationale, feasibility and effects of limiting the residual maturity of instruments to [30-60-90-other] days. What materiality threshold could be proposed?

- Question 21:** What are the main benefits and drawbacks of imposing global liquidity restrictions? Should there be restrictions regarding (daily/weekly) liquid assets as well as regarding illiquid assets? Are global definitions of (daily, weekly) liquid and illiquid assets practical? Are there other conditions to consider (e.g. regarding the concentration of assets)?
- Question 22:** To what extent are managers able to “know their customers” and anticipate redemptions? Are there practical obstacles for managers to “know their customers” (e.g., in the case of platforms, omnibus accounts) and how could they be addressed? What are the main features of the funds' investor base to take into consideration from a liquidity risk management point of view? Should conditions, e.g., regarding the concentration of the investor base be considered? Would this requirement allow fund managers to better understand and manage the risks to which the fund is exposed?
- Question 23:** Would such a liquidity fee generate a pre-emptive run? If so, when and are there ways that pre-emptive run risk could be reduced? How would shareholders react to the liquidity fee? Would it cause shareholders to transfer their MMF investments to alternative investment products? If so, which types of shareholders are most likely to make such transfers and to which products and will such a shift in investment create new systemic risks or economic, competitive, or efficiency benefits or harm? Would MMF board directors be able to impose a liquidity restriction despite potential unpopularity with investors and competitive disadvantage imposed on the fund? At what level such a liquidity trigger should be set?
- Question 24:** How would shareholders react to a minimum balance requirement? Would it cause shareholders to transfer their MMF investments to alternative investment products? If so, which types of shareholders are most likely to make such transfers and to which products and will such a shift in investment create new systemic risks or economic, competitive, or efficiency benefits or harm?
- Question 25:** What are the benefits of using bid price for valuing the funds? Are there other options (such as anti-dilution levy) which could be explored to reduce shareholders' incentive to redeem?
- Question 26:** What are the benefits and drawbacks of allowing redemptions-in-kind? Are there practical impediments to implementing this option (e.g. some portfolio securities cannot easily be divided)?
- Question 27:** What are the benefits and drawbacks of requiring gates in some circumstances? Which situations should trigger gates to be imposed to redeeming investors?

Would it be enough to permit gates in some jurisdictions? Would there be a risk of regulatory arbitrage?

- Question 28:** Do you agree with the suggestion that the establishment of a private liquidity facility faces challenges that make the option unworkable or do you see ways to circumvent these challenges?
- Question 29:** What are the main benefits and drawbacks of the provisions included in current regimes referring to external CRA ratings? Are there alternatives to credit ratings that reasonably can be substituted?
- Question 30:** What are the benefits of MMF ratings? Should a greater differentiation between MMF ratings be encouraged? To what extent are investors restricted in their investments to 'Triple-A' rated funds? What alternatives could there be (e.g. from other third parties)? What initiatives could be proposed to educate investors about MMF ratings?
- Question 31:** In addition to the options explored in the four sections above, do you see other areas to consider which could contribute to reinforcing the robustness of MMFs?
- Question 32:** Do differences between jurisdictions require different policy approaches or would a global solution be preferable, notably to ensure a global level playing field?
-

1. Early days

MMFs developed in the 1970s during an era of U.S. banking regulation that placed a ceiling on the rates banks were legally allowed to pay.⁴⁰ Money market instruments were attractive to smaller investors because they generally offered market rates, as opposed to the rates offered by bank demand deposit accounts. Importantly, MMFs were accessible to investors with modest-sized accounts because of their low investment minimums. In addition, MMFs often provided penalty-free redemption with next-day settlement and free check-writing privileges.⁴¹

MMFs were introduced in Europe slightly later, starting in France in the early 1980s as a result of French bank regulation that prohibited the payment of interest on bank deposit accounts. The growth of MMFs in France was also driven in part by increased issuance of (public and private) short-term debt. Luxembourg MMFs developed in parallel to French MMFs. Ireland, which positioned itself as one of the major European centers for fund management, also benefited from the growth of the industry over the last two decades, and especially from the growth of US-style MMFs. These funds were introduced in Europe in the early 1990s mainly by U.S. management companies to meet the demand for cash management services from multinational corporations.⁴²

2. Market Significance

2.1. Europe

At the end of 2011, the assets under management of euro area MMFs was slightly over EUR 1 trillion (US \$ 1.3 trillion) (EUR 1.1 trillion at Q3-2011 or US \$ 1.4 trillion). At its peak, European MMFs amounted to EUR 1.4 trillion, but the segment has suffered from the environment of low interest rates and experienced significant outflows since the beginning of 2009.⁴³

The industry is largely dominated by France, Ireland and Luxembourg, with respective market shares by investment fund domicile of approximately 34 percent, 29 percent and 25 percent,⁴⁴ *i.e.*, an aggregated market share close to 90 percent. The industry represents slightly less than 10 percent of the total AUM of all investment funds in Europe, but represents a bigger share of the asset management industry of these three countries (*e.g.*, roughly a third in France). Other countries with a relatively small MMF industry include Italy, Spain and the Nordic countries. Switzerland has also a relatively large MMF industry, which would rank it as the fifth largest in Europe.

⁴⁰ See ICI Report at 21. Regulation Q of the Federal Reserve permitted a maximum rate on thrift passbook accounts of 5% to eventually 5.5%; the maximum rate for bank passbook accounts was .25% lower (at a time when market interest rates were in the double digits). See ICI Report at 141.

⁴¹ See ICI Report at 21.

⁴² See V. Baklanova, *European Money Market Funds: History and Development of regulation* (2011).

⁴³ ECB data, Aggregated balance sheet of euro area Money Market Funds, Q4 2011, *available at* https://stats.ecb.europa.eu/stats/download/bsi_mmf/bsi_mmf/bsi_mmf_u2.pdf.

⁴⁴ Data from Fitch at end-August 2011. See also below section 4.1.3. for a breakdown between CNAV and VNAV MMFs.

MMFs primarily invest in short-term transferable debt instruments and/or in bank deposits. For monetary analysis purposes, MMFs are included in the money-issuing sector and classified in the European Central Bank's (ECB) statistics together with credit institutions in the MFI (monetary financial institutions) sector.⁴⁵ The euro area monetary financial institutions (MFI) sector is the main counterpart of MMFs (around 40 to 45 percent of their assets). MMFs also hold a substantial portfolio of external assets (*i.e.*, assets issued by non-euro area residents), from 35 to 40 percent of total assets, which are mainly debt securities denominated in U.S. dollars and pound sterling issued by non-euro area banks. European MMFs therefore represent a crucial source of funding for the financial sector. Euro area general government and other (non-financial) euro area residents together represent approximately 15 percent of MMF assets.

2.2. United States

Due in large part to the growth of institutional funds, MMFs in the United States have grown substantially over the last decade, from approximately US \$1.4 trillion in assets under management at the end of 1998 to approximately US \$2.7 trillion in assets under management at the end of the fourth quarter 2011 up from a high of US \$3.8 trillion in 2008.⁴⁶ During this same period, retail taxable MMF assets grew from approximately US \$835 billion to US \$945 billion, down from a high of US \$1.36 trillion in 2008, while institutional taxable MMF assets grew from approximately US \$516 billion to \$1.8 trillion (down from a high of US \$2.48 trillion in 2008).⁴⁷

One implication of the growth of MMFs is the increased role they play in the short-term funding markets. They are by far the largest holders of commercial paper, owning almost 33 percent of the outstanding paper.⁴⁸ The growth of the commercial paper market has generally followed the growth of MMFs over the last three decades.⁴⁹ Today, MMFs provide a substantial portion of short-term credit extended to U.S. businesses.

MMFs also play a large role in other parts of the short-term market. They hold approximately 23 percent of all repurchase agreements, 65 percent of state and local government short-term debt, 24 percent of short-term U.S. Treasury securities, and 44 percent of short-term agency securities.⁵⁰ They serve as a substantial source of financing in the broader capital markets, holding approximately 10 percent of all state and local government debt, approximately four percent of U.S. Treasury securities and 5 percent of agency securities.⁵¹ While U.S. MMFs have traditionally had exposure to European banks, as a result of the European sovereign debt crisis, U.S. MMFs have reduced their exposure. As of November 2011, European bank

⁴⁵ ECB, *id.*

⁴⁶ See 2010 Factbook at 8.

⁴⁷ See 2010 Factbook at 166, Table 39.

⁴⁸ See Flows and Outstandings Third Quarter 2010, at 89, Table 208 (Sept. 16, 2010), *available at* <http://www.federalreserve.gov/releases/z1/Current/z1.pdf> ("Fed. Flow of Funds Report").

⁴⁹ See Instruments of the Money Market, at 121, Table 2 (Timothy Q. Cook & Robert K. Laroche eds., 1993), *available at*

http://www.richmondfed.org/publications/research/special_reports/instruments_of_the_money_market/pdf/full_publication.pdf; Fed. Flow of Funds Report at 88-89, Tables L.206 and 208. One commenter has called the growth of these two markets "inextricably linked." See Leland Crabbe & Mitchell A. Post, *The Effect of SEC Amendments to Rule 2a-7 on the Commercial Paper Market*, at 4 (Federal Reserve Board, Finance and Economics Discussion Series #199, May 1992) ("Crabbe & Post").

⁵⁰ These securities include securities issued or guaranteed by the Federal National Mortgage Association ("Fannie Mae"), the Federal Home Loan Mortgage Corporation ("Freddie Mac") and the Federal Home Loan Banks. See generally U.S. Treasury Department, FAQs on Fixed Income Agency Securities, *available at* <http://www.treas.gov/education/faq/markets/fixfedfederal.shtml>.

⁵¹ See Fed. Flow of Funds Report (percentages derived from flow of funds data for Q4 2010).

exposure was down to approximately 33 percent of total holdings of U.S. prime MMFs, down from 52 percent as of May 2011. Over the period, U.S. MMFs have increased their holdings to bank debt from other zones, such as Canada and Australia.

2.3. Other jurisdictions

2.3.1. Australia

Cash funds in Australia can be broadly broken down into two types. Both are market valued and do not make use of amortized cost accounting. The majority of Australian cash funds primarily invest in highly rated, liquid short term money market instruments. There are also a number of "enhanced" cash funds often with longer maturity and less liquidity than the more traditional cash funds. Although funds with "cash" in the

ir titles generally do exhibit shorter maturity and liquidity profile than other fixed income funds, the investment strategy published may in fact permit investments of longer maturity and liquidity profile, more like a fixed interest fund.

According to Australian Bureau of Statistics, registered 'cash' funds (subject to Corporation Act) are estimated to be at an unconsolidated amount of AUD24 billion (account for 1.4 percent of the total managed funds) as at September 2011. For this purpose all Funds with the word "cash" in their fund names are considered to be included and all others are categorized as fixed income funds. An industry estimate is that the total size of the fixed income non-cash retail funds are estimated to be around AUD23 billion as at March 2011.

2.3.2. Brazil

As of March 2011, the total NAV of Brazilian "short term funds" was 72 billion BRL (approximately 45 billion USD) – excluding feeder funds to avoid double counting of assets. That is equivalent to 5 percent of the Brazilian mutual funds industry NAV.

2.3.3. Canada

As of December 2011, assets under management of Canadian money market funds totaled C\$36.7 billion, which represented 4.6 percent of total investment fund assets under management in Canada.

2.3.4. China

The first money market fund in China was launched in Oct. 2003. At the end of 2011, there are 51 money market funds managed by 49 domestic fund management firms in China. Total asset under management (AUM) was US\$ 46.81 billion (compared to US\$ 62 billion in 2008) with average AUM US\$918 million. The total AUM of MMFs is about 13 percent of the total AUM of mutual funds (about RMB 2192.8 billion) in China at the end of 2011.

2.3.5. India

MMFs and liquid funds developed in India in early 2000s. They are broadly used by institutional investors as an investment vehicle which is accessible, convenient and cost-effective with protection of the principal and liquidity.

At the end of November 2011, the average AUM of MMFs/Liquid Funds in India was US \$37.79 billion declining by 1 percent from March 2011. At its peak in March 2011, the average AUM was at US \$38 billion. The industry is completely dominated by other than retail investors contributing around 99 percent of the average AUM of MMFs/ Liquid Funds (within the non-retail segment the dominance by institutions is around 75 percent).

As on the end of November 2011, the average AUM of MMFs/Liquid Funds in India is about 24 percent of the average AUM of the industry and about 35 percent of the average AUM of debt oriented schemes. The change in average AUM of MMFs/Liquid Funds as on 31/03/2008, 31/03/2009, 31/03/2010, 31/03/2011 & 30/11/2011 are by (+)1.67%, (+)21.0%, (-)38.0%, (+)121.75% and (-)1.0% respectively.

Further, the average AUM of other short term debt funds similar to MMFs/ Liquid Funds was US \$35 billion as of November 2011. These funds have characteristics like liquidity, capital protection, high quality portfolio, cost-effective, with weighted average maturity of the portfolio up to 60 days and have potential to pose to systemic risk. Thus, at the end of November, 2011, the total average AUM of MMFs/ Liquid funds and other similar short term debt funds putting together was around \$73 billion.

2.3.6 Japan

In Japan, Money Reserve Funds (MRFs) are similar to money market funds. However, they are small in overall size, and not quite functioning as the alternative of deposits. In addition, they have only limited investing in commercial paper issued by banks and therefore are not playing a central role in funding of banks.

As of the end of March 2011, 10 asset management companies managed 13 MRFs, whose assets under management were about 6.1 trillion yen (approximately 74 billion US dollars).

3. Investor Base

3.1. Europe

Irish and Luxembourg domiciled funds are offered almost exclusively to institutional non-domestic investors. This is reflected in the high share of external liabilities for MMFs (mostly shares/units sold to non-euro area investors, especially UK investors), which is around 40 percent.

By contrast, France-domiciled MMFs are predominantly held by domestic investors. MMFs play notably an important role in cash management for many French corporations, which hold approximately a third of French MMFs, with approximately 10 percent held by French retail investors.⁵² The share of retail investors is slightly higher in some countries (*e.g.*, Sweden, Germany), but, overall, the retail base of European MMFs is below 10 percent.

3.2. United States

3.2.1. Retail

Retail investors, which account for one third of the assets in the United States, may be attracted to MMFs as near substitute to bank deposits, notwithstanding the lack of federal insurance (and different regulatory regime).⁵³ In a normal interest rate environment, MMFs offer retail investors access to more favorable market interest than are generally available through bank accounts. Different types of MMFs have been introduced to meet the differing needs of retail MMF investors in the U.S. Historically, most retail investors have invested in “prime MMFs,” which hold a variety of taxable short-term obligations issued by corporations and banks, as well as repurchase agreements and asset backed commercial paper secured by

⁵²*Ee* See Banque de France, Net subscriptions of shares/units issued by investment funds, available at <http://www.banque-france.fr/fr/statistiques/telechar/titres/2011-08-france-stat-info-souscriptions-nettes-de-titres-opcvvm.pdf>. The share of MMFs in household financial wealth declined rapidly in the 1990s, from over 6% in 1994 to slightly over 1% in 2000, not far from today’s level.

⁵³ See PWG p. 8.

pools of assets.⁵⁴ Prime MMFs typically have paid higher yields than other types of MMFs available to retail investors.⁵⁵ “Government MMFs” principally hold obligations of the U.S. Government, including obligations of the U.S. Treasury and federal agencies and instrumentalities, as well as repurchase agreements collateralized by Government securities. Some government MMFs limit themselves to holding only Treasury obligations. Compared to prime funds, government funds generally offer greater safety of principal but historically have paid lower yields. “Tax exempt MMFs” primarily hold obligations of state and local governments and their instrumentalities, and pay interest that is generally exempt from federal income taxes.

3.2.2. Institutional

Institutional investors account for two-thirds of the assets in MMFs in the U.S., even though such investors have access to less regulated, higher yielding MMF substitutes as well as to the underlying investments of a MMF.⁵⁶ Institutional MMFs hold securities similar to those held by prime funds and government funds. They typically have large minimum investment amounts (*e.g.*, US \$1 million), and offer lower expenses and higher yields due to the large account balances, large transaction values, and smaller number of accounts associated with these funds. As of year-end 2010, U.S. financial and non-financial companies used MMFs to manage at least a portion of their cash balances, holding US \$362 billion and US \$517 billion respectively.⁵⁷ As of year-end 2010, nonfinancial businesses held 25 percent of their cash in MMFs, although this is down from 30 percent at year-end 2009.⁵⁸

European and U.S. regulation governing MMFs do not distinguish between retail and institutional funds and do not impose any limitations on the type of investor that can invest in a MMF.

3.3. Other jurisdictions

In China, the target investors for money market funds include individual investors and institutional investors. At the end of Nov. 2011, individual investors held about 52 percent of the MMF AUM in China, institutional investors held the remaining.

In India, MMFs/liquid funds are broadly used by the institutional investors as an investment vehicle which is accessible, convenient and cost-effective with protection of the principal and liquidity. The total investor base in MMF/Liquid Funds in India as on 31st March 2011 is around 0.2 million (with 85 percent of investors are retail investors) and the remaining 15 percent of investors are dominating 99 percent of the total asset under management.

In Japan, MRFs (money reserve funds) are provided through cash management accounts that security firms offer to retail investors. Therefore, as a matter of practice, investors of such funds are only retail investors.

4. Regulatory framework prior to the crisis

4.1. Europe

⁵⁴ See Investment Company Institute, 2009 Investment Company Fact Book, At 147, Table 38 (May 2009), available at http://www.ici.org/pdf/2009_factbook.pdf (“2009 Fact Book”).

⁵⁵ See, *e.g.*, *iMoneyNet Money Fund Report* (Mar. 20, 2009), available at http://www.imoney.net.com/files/Publication_News/mfr.pdf.

⁵⁶ See PWG p. 8.

⁵⁷ See ICI Report at 96, Figure 6.18.

⁵⁸ See ICI Report at 11.

4.1.1. A set of common provisions defined by the UCITS legislation complemented by domestic rules specific to MMFs

Prior to the crisis, the regulatory framework of MMFs in Europe varied significantly from country to country, although most countries had developed specific rules for MMFs, typically requesting investments to be made in money market instruments and compliance with maturity restrictions. In addition to these specific rules defined domestically, most European MMFs are set up as “Undertakings for Collective Investment in Transferable Securities” (UCITS), and therefore subject to the requirements of the 2007 EU UCITS legislation.⁵⁹

The UCITS legislation includes rules defining eligible assets, diversification rules, borrowing rules and safe keeping/protection of assets rules. Asset management companies are also subject to detailed rules, including in respect to risk management and controls as well as reporting to national competent authorities. Companies are subject to examination from national competent authorities.

The UCITS Directive defines diversification rules.⁶⁰ Notably, a UCITS shall invest no more than 5 percent of its assets in transferable securities or money market instruments (MMIs) issued by the same body; or 20 percent of its assets in deposits made with the same body. Member States can raise the 5% limit to a maximum of 10 percent but the total value of the transferable securities and the MMIs held by the UCITS in the issuing bodies in each of which it invests more than 5 percent of its assets (not exceeding 10 percent) shall not exceed 40 percent of the value of its assets.

Notwithstanding the individual limits, a UCITS shall not combine, where this would lead to an investment of more than 20% of its assets in a single body, any of the following: investments in transferable securities and MMIs from that body, deposits with that body, and exposures arising from OTC derivatives transactions with that body. Different limits apply regarding securities or MMIs that are issued or guaranteed by a Member State, its local authorities, by a third country or a public international body (35 percent or up to 100 percent)⁶¹ as well as regarding “covered bonds” (25 percent). Companies which are included in the same group for the purposes of consolidated accounts shall be regarded as a single body. Member States may allow cumulative investment in transferable securities and MMIs within the same group up to a limit of 20 percent.

4.1.2. The definition of Money Market Instruments (MMIs)

According to the UCITS Directive, money market instruments are defined as instruments dealt with on money markets that are liquid and have a value that can be accurately determined at any time.⁶² These criteria are further specified by the 2007 EU Eligible Assets Directive (see below). UCITS may also invest in money market instruments other than the above mentioned if the issue or issuer of such instruments is regulated for the purpose of protecting investors and savings (for example, issued or guaranteed by public authorities, or by issuers subject to prudential supervision).

⁵⁹ Directive n°2009-65-EC (“UCITS Directive”), available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:302:0032:0096:en:PDF>

⁶⁰ *d.* Article 52.

⁶¹ Member States may authorise UCITS to invest up to 100% of their assets in different transferable securities and MMIs issued or guaranteed by a Member State, local authorities, a third country or a public international body. Such a UCITS shall hold securities from at least six different issues but securities from any single issue shall not account for more than 30% of its total assets. Specific disclosures apply.

⁶² *Id.*, Article 2.1 (o), as well as Article 50(h).

The 2007 EU Eligible Assets Directive⁶³ defines the main applicable criteria for defining money market instruments: they have a maturity at issuance of up to 397 days, or a residual maturity of up to 397 days or are subject to a yield adjustment in line with money market conditions at least every 397 days, or their risk profile, including credit and interest rate risks, corresponds to that of financial instruments meeting these conditions. The Directive also provides more clarification regarding the instruments of which the issue or issuer is regulated for the purpose of protecting investors and savings.

In addition, the Eligible Assets Directive defines the main applicable criteria for assessing liquid instruments whose value can be accurately determined at any time:

- They can be sold at limited cost in an adequately short time frame, taking into account the obligation of the UCITS to repurchase or redeem its units at the request of any unit holder;
- Their value can be accurately determined at any time, e. g. there is an accurate and reliable valuations system, which:
 - enable the UCITS to calculate a net asset value in accordance with the value at which the financial instrument held in the portfolio could be exchanged between knowledgeable willing parties in an arm's length transaction;
 - are based either on market data or on valuation models including systems based on amortized costs.

4.1.3. Accounting methods

MMFs are therefore allowed to use two separate accounting techniques to value their assets:

- Amortized cost accounting which values the assets at their purchase price, and then subtracts the premium / adds back the discount in a regular fashion (linearly) over the life of the assets. The assets will then be valued at par at its maturity.
- Mark-to-market accounting which values the assets at the price that could be obtained if the assets were sold (*i.e.*, market price).

CNAV funds use amortized cost accounting to value their assets. This enables the funds to maintain a NAV at EUR1/£1/\$1. Most CNAV funds distribute income to investors on a regular basis, though some may choose to accumulate the income, or add it on to the NAV. The NAV of accumulating CNAV funds will vary by the income received.

V-NAV funds use mark-to-market accounting to value some or most of their assets. The NAV of these funds will vary by a slight amount, due to the changing value of the assets and, in the case of an accumulating fund, by the amount of income received.

Variable NAV MMFs are used in France and in most other European countries, while constant NAV MMFs, based on the U.S. model, are used in Ireland as well as in Luxembourg (Luxembourg distributes both V-NAV and CNAV funds). According to IMMFA and Fitch data, the market share of (IMMFA 'triple-A' rated) CNAV MMFs has grown rapidly over the last years, from 20 percent (EUR 168 billion) of total MMFs in 2005 to 37 percent by mid-2010 (EUR 458 billion).⁶⁴ Latest figures from Fitch indicate that 'triple-A' rated CNAV

⁶³ Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:079:0011:0019:EN:PDF> ("Eligible Assets Directive"). See notably, Articles 2, 3.2, 4, 5.

⁶⁴ See IMMFA/PWC, *The contribution of IMMFA funds to the money market*, Feb. 2011, available at www.immfa.org/immfa.pwc.pdf.

MMFs reached EUR 461 billion at end-August 2011, *i.e.*, a market share of approximately 41 percent, roughly unchanged in 2011. Stable CNAV funds represent approximately 90 percent of the assets under management of IMMFA CNAV funds, the remaining 10 percent being Accumulated NAV funds.⁶⁵

4.1.4. Conditions for the use of amortized cost accounting

As explained, the Eligible Assets Directive authorizes UCITS funds to use amortization method to value some of their portfolio's instruments. These instruments must comply with the amortization method requirements specified in CESR's guidelines concerning eligible assets for UCITS.⁶⁶ In particular, the UCITS must first take into consideration several cumulative factors to assess the liquidity of MMIs, both at the level of the instrument and at the fund level to ensure that UCITS will have sufficient planning in the structuring of the portfolio and in foreseeing cash flows. With regard to the issue of valuation, the guidelines indicate that the UCITS must ensure that the use of amortized cost will not result in any material discrepancy with the market value. The following examples are provided: MMI with a residual maturity of less than three months and with no specific sensitivity to market parameters, including credit risk; or UCITS investing solely in high-quality instruments with as a general rule a maturity or residual maturity of at most 397 days or regular yield adjustments in line with the maturities mentioned before and with a weighted average maturity of 60 days.

In addition, national regulators may impose more stringent rules on assets valuation. For instance, French accounting standards restrict the use of amortized cost accounting to the valuation of negotiable debt securities of a residual maturity below three months, and only if there are very little risks of variations of the value of the instruments due to market risks such as credit and interest rate risks. Similar rules exist for example in Italy.

In Ireland, the Central Bank permits short-term MMFs (see below for a description of the new ESMA classification) to use amortized cost valuation. In this case the short-term MMFs must carry out a weekly review of discrepancies between the market value and the amortized cost value of the money market instruments. Escalation procedures must be in place to ensure that material discrepancies between the market value and the amortized cost value of a money market instrument are brought to the attention of personnel charged with the investment management of the MMF. Furthermore, short-term MMFs must engage in monthly portfolio analysis incorporating stress testing to examine portfolio returns under various market scenarios to determine if the portfolio constituents are appropriate to meet pre-determined levels of credit risk, interest rate risk, market risk and investor redemptions. The results of the periodic analysis must be available to the Central Bank on request.

4.2. United States

4.2.1. Investment Company Act Regulation

In the United States, MMFs are open-end management investment companies (mutual funds). Like other mutual funds, MMFs are regulated by the U.S. Securities and Exchange Commission (SEC) under the Investment Company Act of 1940 (ICA). Under the ICA, all mutual funds must be registered with the SEC in order to operate in the U.S. In addition to the requirements applicable to other mutual funds under the ICA, MMFs must comply with

⁶⁵ See IMMFA Money Fund Report™, available at <http://www.immfa.org/stats/default.asp>.

⁶⁶ CESR's Guidelines Concerning Eligible Assets For Investment By UCITS, 19 March 2007, available at <http://www.esma.europa.eu/popup2.php?id=4421>.

rule 2a-7. The policy goal of rule 2a-7 in regulating MMFs is to limit the risk that a MMF will be unable to maintain a stable price per share.

MMFs are subject to examination as part of the SEC's examination program for registered investment companies and investment advisers. In addition, MMFs are required to report monthly portfolio information on Form N-MFP. SEC staff routinely reviews data collected through Form N-MFP for trends or MMF holdings that could raise investor protection or systemic risk concerns. Further, the operators of MMFs are required to be registered with the SEC pursuant to the ICA and Investment Advisers Act of 1940.

A key element of the ICA regime is the reliance on the mutual fund board, especially the independent directors, to oversee all aspects of the mutual fund, including fitness of those operating the mutual fund and the resources and internal controls of the mutual fund operator. As is the case with other types of mutual funds, the presence of independent directors ensures that the interests of shareholders in MMFs are strongly represented. Specifically, in the case of MMFs, independent directors seek to ensure that the funds invest in appropriate instruments and that the credit and duration risks present in funds' portfolios are appropriately limited. Within their oversight responsibilities over mutual fund operators, independent directors also assess whether the mutual fund operator has appropriate systems and processes in place for identifying, analyzing, and managing risk. In addition, rule 2a-7 includes certain procedural requirements overseen by the fund's board of directors. One of the most important is the requirement that the fund periodically "shadow price" the amortized cost NAV of the fund's portfolio against the mark-to-market NAV of the portfolio (described below).

4.2.2. Historical Development

MMFs initially operated within exemptive relief from the pricing and valuation provisions of the ICA, which permitted MMFs to achieve a stable price share price.⁶⁷ Specifically, the ICA generally requires a mutual fund to calculate the NAV per share by valuing its portfolio securities for which market quotations are readily available at a market value and other securities and assets at a fair value, as determined in good faith by the fund's board of directors.⁶⁸ These valuation and pricing requirements are designed to prevent investors' interests from being diluted or otherwise adversely affected if fund shares are not priced fairly.⁶⁹

In 1983, the SEC adopted rule 2a-7,⁷⁰ codifying the existing exemptions which permitted MMFs to employ either a penny rounding method of pricing or an amortized cost method of valuation to achieve a stable price per share, typically \$1.⁷¹ Most MMFs use both the penny rounding method of pricing and the amortized cost method of valuation simultaneously. In order to use the stabilization methods under the rule, funds must adhere to the rule's credit,

⁶⁷ See Valuation of Debt Instruments and Computation of Current Price Per Share by Certain Open-End Investment Companies (Money Market Funds), Investment Company Act Release No. 13380 at 3 (July 11, 1983) [48 FR 32555 (July 18, 1983)] ("1983 Adopting Release").

⁶⁸ Section 2(a) (41) of the ICA; rules 2a-4 and 22c-1, hereunder.

⁶⁹ See Revisions to Rules Regulating Money Market Funds, Investment Company Act Release No. 17589 at n.7 and accompanying text (July 17, 1990) [55 FR 30239 (July 25, 1990)] ("1990 Proposing Release")

⁷⁰ The SEC has revised the rule on a number of occasions. For purposes of this analysis, the current version of rule 2a-7, adopted in 2010, will be termed "amended rule 2a-7" or "current rule 2a-7."

⁷¹ See Valuation of Debt Instruments and Computation of Current Price Per Share by Certain Open-End Investment Companies, Investment Company Act Release No. 12206, at 3 (Feb. 1, 1982) [47 FR 5428 (Feb. 5, 1982)] ("1982 Proposing Release"). The use of the amortized cost or penny-rounding method of valuation is not mandatory. A fund can hold itself out as a MMF and value its securities on a mark-to-market basis, as long as it complies with the risk limiting provisions of Rule 2a-7.

maturity, concentration and liquidity standards for MMF portfolio holdings, also known as the “risk limiting” conditions.

4.2.3. Amortized Cost Method

The amortized cost method of valuation, adopted by rule 2a-7 in 1983, permitted MMFs to calculate their current NAV by valuing all portfolio securities and assets at the acquisition cost (as adjusted for amortization of premium or accretion of discount) rather than at current market value, regardless of whether market quotations are readily available.⁷²

A basic premise justifying the use of the amortized cost valuation method is the fact that securities held until maturity will eventually yield a value equivalent to the amortized cost value, regardless of the current disparity between amortized cost value and market value. Thus, the SEC was willing to permit funds to use amortized cost valuation so long as the disparity between the amortized cost value and current market value *remained* minimal. MMFs using the amortized cost valuation method could use penny-rounding in computing their price per share when a gain or a loss in the value of their portfolio, which was not offset against earnings, was recognized.

Where the gain or loss has been recognized, there is no longer merely a potential for a deviation between the value assigned by the fund for the securities sold and that actually realized by the fund. The SEC did not define the permissible amount of deviation, but cautioned that to the extent a fund realized gains or losses that caused the fund’s price per share to deviate from the amortized cost NAV per share, the board had to be particularly careful to ensure that the fund could maintain a stable price per share.⁷³

4.2.4. Penny-Rounding Method

Under the penny-rounding method of computation, MMFs could calculate their current NAV by valuing portfolio securities for which market quotations were readily available at current market value, and other securities and assets at fair value as determined in good faith by the MMF’s board of directors.⁷⁴ A MMF would then compute the current price of its redeemable securities by rounding the NAV per share to the nearest one cent on a share value of one dollar. The penny-rounding method of pricing is generally not used in isolation, but as a complement to the amortized cost method of valuation.

4.2.5. Shadow Pricing

In addition, a MMF using the amortized cost method of valuation is required to monitor the deviation between the price of its shares computed from a NAV per share calculated using amortized cost values for its portfolio instruments and the NAV of such shares calculated using values for portfolio instruments based upon current market factors (shadow NAV). If there is a difference of more than one-half of 1 percent (or \$0.005 per share), the fund must consider whether to re-price its shares, an event colloquially known as “breaking the buck.”

Likewise, a MMF using the penny-rounding method to compute its price per share has to monitor in a similar fashion the valuation of those portfolio instruments with remaining maturities of sixty days or less that were valued at amortized cost in order to assess the fairness of that valuation method.⁷⁵

⁷² See 1983 Adopting Release at 1-2.

⁷³ *Id.* at 4.

⁷⁴ *Id.* at 1-2.

⁷⁵ *Id.* at 1-2.

4.3. Other jurisdictions

4.3.1. Australia

In Australia, cash funds are regulated in the same way as other managed investment schemes.

The Corporations Act does not impose any restrictions or definitions on what constitute a cash fund except that in naming and making disclosure about a financial product the conduct must not be misleading or deceptive. The Corporations Act does not impose restriction on the type of assets a cash fund may invest in or the composition of scheme assets but it must be consistent with what is disclosed to investors to ensure that the disclosure is not misleading.

The Corporations Act defines when a fund is considered liquid (or illiquid) under the Act affecting the way members may redeem from a fund. Only liquid funds may offer short term redemption rather than allow withdrawal by particular time limited withdrawal offers.

Currently, to be regarded as liquid under the Act, 80 percent or more of the scheme assets must be liquid assets. Liquid assets are assets which can be realized within the period specified in the constitution of the fund for meeting redemption requests and include money in an account or on deposit with a bank; bank accepted bills; marketable securities. The responsible entity is obliged to act with care and diligence and in the best interest of members but the Act does not impose specific obligations on the responsible entity in relation to liquidity risk management.

Redemption prices must be based on current valuations of the assets in the MMF. Valuations must be conducted in an independently verifiable manner or in accordance with a reasonable documented policy that is consistent with ordinary commercial practice.

In terms of disclosure, the Act does not impose specific obligations to disclose information about performance of a fund to prospective investors. However investors that are retail clients are required to be given annual statement which must set out in Australian dollars the amount returned on the investor's investments as well as the management costs. For funds with more than 100 retail investors, the responsible entity is subject to continuous disclosure obligations in that the responsible entity must disclose to members information that would have a material impact on the price of the interests of the fund and is not publicly available.

4.3.2. Canada

The Canadian investment fund regulatory framework imposes specific requirements on publicly-offered MMFs. These requirements include restrictions on the type of assets that are permitted to be held, a 90 day limit on the dollar-weighted average term to maturity of the portfolio and a 5 percent limit on assets that are not denominated in the same currency in which the net asset value of the MMF is calculated. The list of permitted investments does not include derivatives. Additionally, as with all other open-ended investment funds, MMFs are also subject to diversification rules, custodial requirements and continuous disclosure rules.

MMFs must calculate their net asset value using the fair value of their assets and liabilities. MMFs may calculate their net asset value in Canadian or US dollars.

A common feature of Canadian MMFs is that they strive to maintain a constant net asset value (usually set at \$10 per unit or occasionally \$1 per unit). This is an industry practice and not a regulatory requirement. There is no guarantee that the net asset value will stay constant.

4.3.3. China

Under "Notice of China Securities Regulatory Commission on the Investment of Money Market Funds"(2005), it is required that: "Money market funds can use amortized-cost method to calculate the net asset value (NAV) of the portfolio. At the same time, money market funds should apply appropriate risk control tools, such as shadow price (V-NAV), to evaluate the NAV calculated using amortized-cost method (called "C-NAV" below). When the difference between shadow price and C-NAV reaches or exceeds 0.25%, the fund managers should adjust the portfolio for risk control purpose. When the difference reaches or exceeds 0.5%, the fund managers should disclose the information through temporary disclosure report." The net asset value of money market funds is calculated daily. Their mark-to-market shadow price is also calculated daily.

When amortized-cost method is applied, the net asset value of the money market funds is constant at RMB1.00. However, when the shadow price is significantly different from RMB1.00 (difference exceeds 0.5%), the NAV of the funds will be required to use the shadow price, making the NAV variable until the shadow price becomes close to RMB1.00 again. In practice, this has never happened. There were a couple of cases in China that the loss of a MMF exceeds 0.5%, under which the fund managers chose to compensate the fund using their own capital and brought the shadow price closer to the C-NAV price.

For shadow price valuation, in order to achieve fair and comparable valuation cross the money market funds in China, the Mutual Fund Valuation Working Group under the Securities Association of China publishes the valuation standards for assets owned by MMFs every month based on its own research and comments from industry participants. MMFs follow the standards in valuation of each individual asset in the portfolio.

4.3.4. India

In India, MMFs and liquid fund schemes are regulated within the ambit of SEBI (Mutual Funds) Regulations 1996. As per the Regulations,

“Money market mutual fund” means a scheme of a mutual fund which has been set up with the objective of investing exclusively in money market instruments.

Liquid mutual fund schemes’ which can make investment in /purchase debt and money market securities with maturity of up to 91 days only”.

The regulatory framework was significantly revamped following the crisis, as described below.

4.3.5 Japan

According to the SRO rule, Japanese MRFs are required to have a constant net asset value of 1 yen per share. MRFs shall invest in government bonds, local government bonds, corporate bonds, CP or call loans, etc. The SRO rule also requires the assets to be yen-denominated, short-term and highly-rated (i.e. a long-term credit rating of A- or equivalent, or a short-term credit rating of A-2 or equivalent).

5. The 2007-2008 Financial Crisis

5.1. European MMFs during the financial crisis⁷⁶

5.1.1. Summer of 2007

In Europe, a number of so-called “enhanced” or “dynamic” MMFs (actually often authorized as bond or diversified funds, with a higher risk involved than traditional MMFs⁷⁷) were hit by the fallout in the U.S. subprime mortgage market in the summer of 2007, and either had to be supported by sponsor banks or suspended. These funds – which sought to bridge the gaps between traditional MMFs and bond funds – offered higher returns by taking on additional risk, notably by investing in longer-dated and more volatile instruments such as short-term bonds, currencies and arbitrage on credit instruments. This segment increased rapidly in the years prior to the crisis, from around EUR 42 billion by end 2004 to a peak in Q2-2007 at EUR 137 billion. In 2007, some funds faced trouble due to their holdings of certain highly rated asset-backed securities which were downgraded by the relevant rating agencies and which showed a poor level of liquidity, with subsequent valuation problems.

In the third quarter of 2007, “enhanced” MMFs experienced significant redemptions, including funds based in Luxembourg, Germany and France. In total in Europe, around 15-20 funds suspended redemptions for a short period, and 4 of them were definitively closed.⁷⁸ In a number of cases, parent banks gave support to the funds either by acquiring troubled assets or by issuing guarantees.

Pressure waned off gradually, notably following actions from the ECB to ease liquidity strains in the money markets. In 2008, flows in MMFs turned positive again.

5.1.2. Experience following the Lehman Brothers failure

An immediate consequence of the failure of Lehman Brothers was that three triple-A rated IMMFA funds sponsored by Lehman Brothers suspended redemptions on September 18, 2008, as a measure to protect investors from the bankruptcy of their sponsor. Following the freeze of the money markets, significant levels of redemption activity were further witnessed, with some indications of sponsor support. In addition to the general unease in the money markets and the cash needs of investors, the deposit guarantee schemes put in place by certain governments made MMFs a less attractive alternative to bank deposits, which also resulted in increased redemptions. About EUR 45 bn were redeemed from European MMFs in the third quarter of 2008. As a result of redemption requests there was a significant shift of MMF assets into overnight deposits and away from longer dated paper, which worsened the situation in the money markets themselves.

⁷⁶ Little has been written about European money market funds during the financial crisis. See EFAMA, Annual Report 2008-2009, available at http://www.efama.org/index2.php?option=com_docman&task=doc_view&gid=988&Itemid=-99 (“EFAMA”); Elias Bengtsson, Shadow Banking and Financial Stability: European Money Market Funds in the Global Financial Crisis, 2011; CESR, Consultation Paper, A common definition of MMF, Oct. 2009, available at <http://www.esma.europa.eu/popup2.php?id=6141>; E. Fonteny, “Assessing the True Scale of Outflows in Money Market Funds”, AMF Economic and Financial Newsletter, Autumn 2007, available at http://www.amf-france.org/documents/general/8118_1.pdf.

⁷⁷ In France, for example, where a fund was first suspended in July 2007 because of valuation issues, followed by two others in August 2007, these funds were not classified as money market funds and did not comply with the then-applicable French regulation on money market funds. None of the French funds classified as money market funds had to suspend redemptions during the 2007-2008 financial crisis.

⁷⁸ EFAMA at 9.

In the face of the escalation of events, the European industry requested assistance from national monetary authorities, the European Commission and the ECB to increase liquidity in the money markets and help prevent a run on the funds.⁷⁹ However, the ECB chose to reduce liquidity pressures more generally by lowering interest rates and by broadening the scope of eligible collaterals for banks on October 15, 2008, thereby supporting liquidity in short-term money markets, but without taking specific actions in favor of MMFs. Pressures on MMFs started to recede in November 2008; liquidity in the funds increased due to a reduction in redemption activity and new subscriptions and short-term investments including significant holdings of overnight deposits.

5.2. United States

5.2.1. Background

MMFs have had a record of stability during their more than 30 years of operation. Before the fall of 2008, only one MMF in the U.S. had ever broken the buck.⁸⁰ This record appears to be due primarily to three factors. First, the short-term debt markets generally were relatively stable during this period. Second, many fund advisers (and their portfolio managers and credit analysts) were skillful in analyzing the risks of portfolio securities and thereby largely avoiding significant losses that could force a fund to break the buck.⁸¹ Finally, fund managers and their affiliated persons have had significant sources of private capital that they were willing to make available to support the constant NAV of a MMF when it experienced losses in one or more of its portfolio securities.

5.2.2. Subprime Mortgage Crisis

In 2007, losses in the subprime mortgage markets adversely affected a significant number of MMFs. These MMFs had invested in asset backed commercial paper issued by structured investment vehicles (SIVs), which were off-balance sheet conduits sponsored mostly by certain large banks and money managers.⁸² Although most SIVs had little exposure to subprime mortgages, SIVs suffered severe liquidity problems and significant losses when risk-averse short-term investors (including MMFs), fearing increased exposure to liquidity risk and residential mortgages, began to avoid the commercial paper the SIVs issued.⁸³ Unable to roll over their short-term debt, SIVs were forced to liquidate assets to pay off maturing obligations and began to wind down operations.⁸⁴ In addition, credit rating agencies (NRSROs) rapidly downgraded SIV securities, increasing downward price pressures already generated by these securities' lack of liquidity. The value of the commercial paper fell, which

⁷⁹ EFAMA at 13.

⁸⁰ In September 1994, a small institutional money market fund re-priced its shares below \$1.00 as a result of loss in value of certain variable rate securities. The fund promptly announced that it would liquidate and distribute its assets to its shareholders. See 1996 Adopting Release, *supra* note xx, at n.162.

⁸¹ See Temporary Exemption for Liquidation of Certain Money Market Funds, Investment Company Act Release No. 28487, at text accompanying nn.6-7 (Nov. 20, 2008) [73 FR 71919 (Nov. 26, 2008)] (“Rule 22e-3T Adopting Release”).

⁸² See Neil Shah, *Money Market Funds Cut Exposure to Risky SIV Debt—S&P*, REUTERS, Nov. 21, 2007, available at <http://www.reuters.com/article/bondsNews/idUSN2146813220071121>.

⁸³ The SEC knew of at least 44 money market funds that were supported by affiliates because of SIV investments. In many of these cases the affiliate support was provided in reliance on no-action assurances provided by SEC staff. Many of these no-action letters are available on the SEC website. See <http://www.sec.gov/divisions/investment/im-noaction.shtml#money>. Unlike other asset backed commercial paper, SIV debt was not backed by an external liquidity provider.

⁸⁴ See, e.g., Alistair Barr, *HSBC's Bailout Puts Pressure on Citi, "Superfund,"* MARKETWATCH, Nov. 26, 2007, available at <http://www.marketwatch.com/story/hsbcs-35-bln-siv-bailout-puts-pressure-on-citi-superfund>.

threatened to force several MMFs to break the buck.

MMFs weathered this storm. In some cases, bank sponsors of SIVs provided support for the SIVs. In other cases, MMF affiliates voluntarily provided support to the funds by purchasing the SIV investments at their amortized cost or providing some form of credit support.⁸⁵ MMFs also benefited from strong cash flows into MMFs, as investors fled from riskier markets. During the period from July 2007 to August 2008, more than \$800 billion in new cash was invested in MMFs, increasing aggregate fund assets by one-third.⁸⁶ Eighty percent of these investments came from institutional investors.⁸⁷

As financial markets continued to deteriorate in 2008, however, MMFs came under renewed stress. This pressure culminated the week of September 15, 2008 when the bankruptcy of Lehman Brothers Holdings Inc. (Lehman Brothers) led to heavy redemptions from about a dozen MMFs that held Lehman Brothers debt securities. On September 15, 2008, The Reserve Fund group, whose Primary Fund series held a \$785 million position in commercial paper issued by Lehman Brothers, began experiencing a run on its Primary Fund, which spread to certain of the other Reserve Fund group MMFs (most of which did not hold Lehman Brothers commercial paper). The Reserve Fund group MMFs rapidly depleted their cash to satisfy redemptions, and began offering to sell the funds' portfolio securities into the market, further depressing their valuations. Unlike the other MMFs that held Lehman Brothers debt securities (and SIV commercial paper), the Primary Fund ultimately had no affiliate with sufficient resources to support the \$1.00 NAV. On September 16, 2008, The Reserve Fund group announced that as of that afternoon, its Primary Fund would break the buck and price its securities at \$0.97 per share.⁸⁸ On September 22, 2008, in response to a request by The Reserve Fund group, the Commission issued an order permitting the suspension of redemptions in certain Reserve Fund group MMFs, to permit their orderly liquidation.⁸⁹

These events led many investors, especially institutional investors, to redeem their holdings in other prime MMFs and move assets to Treasury or government MMFs.⁹⁰ This trend was

⁸⁵ See, e.g., Shannon D. Harrington & Christopher Condon, *Bank of America, Legg Mason Prop Up Their Money Funds*, BLOOMBERG, Nov. 13, 2007, available at <http://www.bloomberg.com/apps/news?pid=20601087&sid=aWWjLp8m3J1I&refer=home>. Under rule 17a-9, funds were not required to report to us all such transactions, but now would be.

⁸⁶ See INVESTMENT COMPANY INSTITUTE, REPORT OF THE MONEY MARKET WORKING GROUP, at 21 (Mar. 17, 2009), available at http://www.ici.org/pdf/ppr_09_mmwg.pdf ("ICI REPORT") at 49.

⁸⁷ See ICI Report at 49.

⁸⁸ See Press Release, The Reserve Fund, A Statement Regarding The Primary Fund (Sept. 16, 2008). The Reserve Fund subsequently stated that the fund had broken the buck earlier in the day on September 16. See Press Release, The Reserve Fund, Important Notice Regarding Reserve Primary Fund's Net Asset Value (Nov. 26, 2008) ("The Fund is announcing today that, contrary to previous statements to the public and to investors, the Fund's NAV per share was \$0.99 from 11:00 a.m. Eastern time to 4:00 p.m. Eastern time on September 16, 2008 and not \$1.00.").

⁸⁹ See In the Matter of The Reserve Fund, Investment Company Act Release No. 28386 (Sept. 22, 2008) [73 FR 55572 (Sept. 25, 2008)] (order). Several other Reserve funds also obtained an order from the SEC on October 24, 2008 permitting them to suspend redemptions to allow for their orderly liquidation. See Reserve Municipal Money-Market Trust, et al., Investment Company Act Release No. 28466 (Oct. 24, 2008) [73 FR 64993 (Oct. 31, 2008)] (order).

⁹⁰ See Baba, at 72; Blackrock, *The Credit Crisis: U.S. Government Actions And Implications For Cash Investors*, Nov. 2008, available at https://www2.blackrock.com/webcore/litService/search/getDocument.seam?venue=PUB_INS&ServiceName=PublicServiceView&ContentID=50824 ("The Credit Crisis"); Standard & Poor's, *Money Market Funds Tackle 'Exuberant Irrationality,'* Ratings Direct, Sept. 30, 2008, available at http://www2.standardandpoors.com/spf/pdf/media/MoneyMarketFunds_Irrationality.pdf.

intensified by turbulence in the market for financial sector securities as a result of the bankruptcy of Lehman Brothers and the near failure of American International Group, whose commercial paper was held by many prime MMFs.

During the week of September 15, 2008, investors withdrew approximately \$300 billion from prime (taxable) MMFs, or 14 percent of the assets held in those funds.⁹¹ Most of the heaviest redemptions were from institutional funds, which depleted cash positions and threatened to force a fire sale of portfolio securities that would have placed widespread pressure on fund share prices.⁹² Fearing further redemptions, MMF (and other cash) managers began to retain cash rather than invest in commercial paper, certificates of deposit or other short-term instruments.⁹³ In the final two weeks of September 2008, MMFs reduced their holdings of top-rated commercial paper by \$200.3 billion, or 29 percent.⁹⁴

As a consequence, short-term markets seized up, impairing access to credit in short-term private debt markets.⁹⁵ Some commercial paper issuers were only able to issue debt with overnight maturities.⁹⁶ The interest rate premium (spread) over three-month Treasury bills paid by issuers of three-month commercial paper widened significantly from approximately 25-100 basis points before the September 2008 market events to approximately 200-350 basis points, and issuers were exposed to the costs and risks of having to roll over increasingly large amounts of commercial paper each day.⁹⁷ Many MMF sponsors took extraordinary

⁹¹ See ICI REPORT at 62 (analyzing data from iMoneyNet); see also Investment Company Institute, *Money Market Mutual Fund Assets Historical Data*, Apr. 30, 2009, available at http://www.ici.org/pdf/mm_data_2009.pdf (“ICI Mutual Fund Historical Data”).

⁹² See ICI Mutual Fund Historical Data.

⁹³ See Philip Swagel, “The Financial Crisis: An Inside View,” Brookings Papers on Economic Activity, at 31 (Spring 2009) (conference draft), available at http://www.brookings.edu/economics/bpea/~media/Files/Programs/ES/BPEA/2009_spring_bpea_papers/2009_spring_bpea_swagel.pdf.

⁹⁴ See Christopher Condon & Bryan Keogh, *Funds’ Flight from Commercial Paper Forced Fed Move*, BLOOMBERG, Oct. 7, 2008, available at http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a5hvnKFCC_pQ.

⁹⁵ See *Minutes of the Federal Open Market Committee*, Federal Reserve Board, Oct. 28-29, 2008, at 5, available at <http://www.federalreserve.gov/monetarypolicy/files/fomcminutes20081029.pdf> (“*FRB Open Market Committee Oct. 28-29 Minutes*”) (stating that following The Reserve Fund’s announcement that the Primary Fund would break the buck, “risk spreads on commercial paper rose considerably and were very volatile” and “conditions in short-term funding markets improved somewhat following the announcement of... a number of mutual initiatives by the Federal Reserve and the Treasury to address the pressures on money market funds and the commercial paper market”). See also Press Release, Federal Reserve Board Announces Creation of the Commercial Paper Funding Facility (CPFF) to Help Provide Liquidity to Term Funding Markets (Oct. 7, 2008), available at <http://www.federalreserve.gov/newsevents/press/monetary/20081007c.htm> (“The commercial paper market has been under considerable strain in recent weeks as money market mutual funds and other investors, themselves often facing liquidity pressures, have become increasingly reluctant to purchase commercial paper, especially at longer-dated maturities. As a result, the volume of outstanding commercial paper has shrunk, interest rates on longer term commercial paper have increased significantly, and an increasingly high percentage of outstanding paper must now be refinanced each day. A large share of outstanding commercial paper is issued or sponsored by financial intermediaries, and their difficulties placing commercial paper have made it more difficult for those intermediaries to play their vital role in meeting the credit needs of businesses and households.”).

⁹⁶ See Matthew Cowley, *Burnt Money Market Funds Stymie Short-Term Debt*, DOW JONES INTERNATIONAL NEWS, Oct. 1, 2008; Anusha Shrivastava, *Commercial-Paper Market Seizes Up*, THE WALL STREET JOURNAL, Sept. 19, 2008, at C2.

⁹⁷ See Federal Reserve Board data, available at http://www.frbatlanta.org/econ_rd/macroblog/102808b.jpg (charting three-month commercial paper spreads over three-month Treasury bill); see also Federal Reserve Board Chairman Ben S. Bernanke, Testimony before the Committee on Financial Services,

steps to protect funds' net assets and preserve shareholder liquidity by purchasing large amounts of securities at the higher of market value or amortized cost and by providing capital support to the funds.⁹⁸

5.2.3. Government Intervention

On September 19, 2008, the U.S. Department of the Treasury and the Board of Governors of the Federal Reserve System ("Federal Reserve Board") announced an unprecedented market intervention by the federal government in order to stabilize and provide liquidity to the short-term markets. The Department of the Treasury announced its Temporary Guarantee Program for Money Market Funds (Guarantee Program), which temporarily guaranteed certain investments in MMFs that decided to participate in the program.⁹⁹ The Federal Reserve Board announced the creation of its Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF), through which it extended credit to U.S. banks and bank holding companies to finance their purchases of high-quality asset backed commercial paper from MMFs.¹⁰⁰ In addition, the Federal Reserve Board's Commercial Paper Funding Facility (CPFF) provided support to issuers of commercial paper through a conduit that purchased commercial paper from eligible issuers, although the CPFF did not purchase commercial paper from MMFs.¹⁰¹ The SEC and its staff worked closely with the Treasury Department and the Federal Reserve Board to help design these programs, most of which relied in part on rule 2a-7 to tailor the program and/or condition the terms of a fund's participation in the program, and the SEC also assisted in administering the Guarantee Program.¹⁰² SEC staff

U.S. House of Representatives (Nov. 18, 2008), *available at* <http://www.federalreserve.gov/newsevents/testimony/bernanke20081118a.htm>.

⁹⁸ SEC staff provided no-action assurances allowing 100 money market funds in 18 different fund complexes to enter into such arrangements during the period from September 16, 2008 to October 1, 2008. *See, e.g.*, <http://www.sec.gov/divisions/investment/im-noaction.shtml#money>.

⁹⁹ *See* Press Release, U.S. Department of the Treasury, Treasury Announces Guaranty Program for Money Market Funds (Sept. 19, 2008), *available at* <http://www.treas.gov/press/releases/hp1147.htm>. The Program insured investments in money market funds, to the extent of their shareholdings as of September 19, 2008, if the fund had chosen to participate in the Program. The Guarantee Program expired in 2009. The SEC adopted, on an interim final basis, a temporary rule, rule 22e-3T, to facilitate the ability of money market funds to participate in the Guarantee Program. The rule permitted a participating fund to suspend redemptions if it broke a buck and liquidated under the terms of the Program.

¹⁰⁰ *See* Press Release, Federal Reserve Board, Federal Reserve Board Announces Two Enhancements to its Programs to Provide Liquidity to Markets (Sept. 19, 2008), *available at* <http://www.federalreserve.gov/newsevents/press/monetary/20080919a.htm>. The AMLF expired on February 1, 2010. *See* Press Release, Federal Reserve Board, Federal Reserve Announces Extensions of and Modifications to a Number of Its Liquidity Programs (June 25, 2009), *available at* <http://www.federalreserve.gov/newsevents/press/monetary/20090625a.htm> ("2009 Federal Reserve Extension and Modification Announcement").

¹⁰¹ *See* Press Release, Federal Reserve Board, Board Announces Creation of the Commercial Paper Funding Facility (CPFF) to Help Provide Liquidity to Term Funding Markets (Oct. 7, 2008), *available at* <http://www.federalreserve.gov/newsevents/press/monetary/20081007c.htm>. At one point the Federal Reserve had purchased about one-fifth of all commercial paper outstanding in the U.S. market. *See* Bryan Keogh, *GE Leads Commercial Paper "Test" as Fed's Buying Ebbs*, BLOOMBERG, Jan. 27, 2009, *available at* <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aHWA87Aa2aQQ>. The CPFF will expire on February 1, 2010, unless extended. *See* 2009 Federal Reserve Extension and Modification Announcement, *supra* note xx. Although the CPFF did not directly benefit money market funds, it did indirectly benefit them by stabilizing the commercial paper market. *See, e.g.*, Richard G. Anderson, *The Success of the CPFF?* (Economic Synopses No. 18, Federal Reserve Bank of St. Louis, 2009), at 2, *available at* <http://www.research.stlouisfed.org/publications/es/09/ES0918.pdf>.

¹⁰² *See, e.g.*, Guarantee Agreement that money market funds participating in the Treasury's Guarantee Program were required to sign, at 2, 10, *available at* <http://www.treas.gov/offices/domestic-finance/key->

also worked with sponsors of MMFs to provide regulatory relief they requested to participate fully in these programs.¹⁰³

These steps helped to stanch the tide of redemptions from institutional prime MMFs,¹⁰⁴ and provided liquidity to MMFs that held asset backed commercial paper. Commercial paper markets remained illiquid, however, and, as a result, MMFs experienced significant problems pricing portfolio securities. Institutional as well as retail MMFs with little redemption activity and no distressed securities reported to SEC staff that they nevertheless faced the prospect of breaking the buck as a consequence of their reliance on independent pricing services that reported prices based on models with few reliable inputs. The SEC's Office of Chief Accountant and the Financial Accounting Standards Board provided funds and others guidance on determining fair value of securities in turbulent markets,¹⁰⁵ but it appeared that fund boards remained reluctant to deviate from the prices received from their vendors. On October 10, 2008, the Division of Investment Management issued a letter agreeing not to recommend enforcement action if MMFs met the "shadow pricing" obligations of rule 2a-7 by pricing certain of their portfolio securities with a remaining final maturity of less than 60 days by reference to their amortized cost.¹⁰⁶

Over the four weeks after The Reserve Fund's announcement, assets in institutional prime MMFs shrank by 30 percent, or approximately \$418 billion (from \$1.38 trillion to \$962 billion).¹⁰⁷ No MMF other than The Reserve Primary Fund broke the buck, although MMF sponsors or their affiliated persons in many cases committed extraordinary amounts of capital to support the \$1.00 NAV per share. SEC staff estimated that during the period from August 2007 to December 31, 2008, almost 20 percent of all MMFs received some support from their

[initiatives/money-market-docs/Guarantee-Agreement_form.pdf](#) (under which money market funds were required to state that they operated in compliance with rule 2a-7 to be eligible to initially participate in the program and must continue to comply with rule 2a-7 to continue to participate in the program); *see also* <http://www.sec.gov/divisions/investment/mmtempguarantee.htm>.

¹⁰³ *See* Investment Company Institute, SEC Staff No-Action Letter (Sept. 25, 2008) (relating to the AMLF); Investment Company Institute, SEC Staff No-Action Letter (Oct. 8, 2008) (relating to the Guarantee Program). These no-action letters are available on our website at <http://www.sec.gov/divisions/investment/im-noaction.shtml#money>.

¹⁰⁴ During the week ending September 18, 2008, taxable institutional money market funds experienced net outflows of \$165 billion. *See Money Fund Assets Fell to \$3.4T in Latest Week*, ASSOCIATED PRESS, Sept. 18, 2008. Almost \$80 billion was withdrawn from prime money market funds even after the announcement of the Guarantee Program on September 19, 2008. *See* Diana B. Henriques, *As Cash Leaves Money Funds, Financial Firms Sign Up for U.S. Protection*, N.Y. TIMES, Oct. 2, 2008, at C10. However, by the end of the week following the announcement, net outflows from taxable institutional money market funds had ceased. *See Money Fund Assets Fell to \$3.398T in Latest Week*, ASSOCIATED PRESS, Sept. 25, 2008.

¹⁰⁵ *See* Press Release No. 2008-234, Securities and Exchange Commission, Office of the Chief Accountant and FASB Staff Clarifications on Fair Value Accounting (Sept. 30, 2008), *available at* <http://www.sec.gov/news/press/2008/2008-234.htm>.

¹⁰⁶ Investment Company Institute, SEC Staff No-Action Letter (Oct. 10, 2008). This letter is available on our website at <http://www.sec.gov/divisions/investment/noaction/2008/ICI101008.htm>. The letter by its terms did not apply, however, to shadow pricing if particular circumstances (such as the impairment of the creditworthiness of the issuer) suggested that amortized cost was not appropriate. The staff position also was limited to portfolio securities that were "first tier securities" under rule 2a-7 and that the fund reasonably expected to hold to maturity. The letter applied to shadow pricing procedures through January 12, 2009.

¹⁰⁷ On September 10, 2008, six days prior to The Reserve Fund's announcement, approximately \$1.38 trillion was invested in institutional prime (taxable) money market funds. *See* ICI Mutual Fund Historical Data, *supra* note xx. On October 8, 2008, approximately \$962 billion was invested in those funds. *See id.* In addition, between September 10 and September 17, the assets of these funds fell by approximately \$193 billion.

money managers or their affiliates.

During this time period, short-term credit markets became virtually frozen as market participants hoarded cash and generally refused to lend on more than an overnight basis.¹⁰⁸ Interest rate spreads increased dramatically.¹⁰⁹ After shrinking to historically low levels as credit markets boomed in the mid-2000s, interest rate spreads surged upward in the summer of 2007 and peaked after the bankruptcy of Lehman Brothers in September 2008.¹¹⁰ MMFs shortened the weighted average maturity of their portfolios to be better positioned in light of increased liquidity risk to the funds.¹¹¹ Although the crisis money markets faced in the fall of 2008 abated, the problems did not disappear. Short-term debt markets remained fragile.¹¹² Although the average weighted average maturity of taxable MMFs (as a group) had risen to 53 days as of the week ended June 16, 2009,¹¹³ the SEC understood that the long-term securities that account for the longer weighted average maturity are not commercial paper and corporate medium term notes (as they were before the crisis), but instead are predominantly government securities, which suggests that MMFs may still be concerned about credit risk. The Treasury Guarantee Program was extended twice, but expired in 2009.¹¹⁴ Programs established by the Federal Reserve Board to support liquidity in the short-term market expired in 2010.¹¹⁵

¹⁰⁸ The Credit Crisis, at 1 (“After experiencing more than \$400 billion in outflows over a short period of time, money funds had little appetite for commercial paper; even quality issuers discovered they could not access the commercial paper market”).

¹⁰⁹ An interest rate spread measures the difference in interest rates of debt instruments with different risk. See Markus K. Brunnermeier, *Deciphering the Liquidity and Credit Crunch 2007-2008*, 23 J. ECON. PERSPECTIVES 77, 85 (Winter 2009) (“Brunnermeier”).

¹¹⁰ David Oakley, *LIBOR Hits Record Low as Credit Fears Ease*, FIN. TIMES, May 5, 2009. For example, the “TED” spread (the difference between the risk-free U.S. Treasury Bill rate and the riskier London Inter-bank Offering Rate (“LIBOR”)), normally around 50 basis points, reached a high of 463 basis points on October 10, 2008. See David Serchuk, *Banks Led by the TED*, FORBES, Jan. 12, 2009.

¹¹¹ Taxable money market fund average weighted average maturities shortened to 40-42 days during October 2008 from 45-46 days shortly prior to this period based on analysis of data from the iMoneyNet Money Fund Analyzer database.

¹¹² See Bryan Keogh, John Detrixhe & Gabrielle Coppola, *Coca-Cola Flees Commercial Paper for Safety in Bonds*, BLOOMBERG, Mar. 17, 2009), available at <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=atxKQSJUp6RE> (noting that certain companies are issuing long-term debt to replace commercial paper to avoid the risk of not being able to roll over their commercial paper, given the instability in short-term credit markets); Michael McKee, *Fed Credit Has Stabilized Markets, Not Fixed Them, Study Says*, BLOOMBERG, Mar. 6, 2008, available at <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aRGBZuGYE78Y>.

¹¹³ This information is based on analysis of data from the iMoneyNet Money Fund Analyzer database.

¹¹⁴ See Press Release, U.S. Department of the Treasury, Treasury Announces Extension of Temporary Guarantee Program for Money Market Funds (Nov. 24, 2008), available at <http://www.treas.gov/press/releases/hp1290.htm>; Press Release, U.S. Department of the Treasury, Treasury Announces Extension of Temporary Guarantee Program for Money Market Funds (Mar. 31, 2009), available at <http://www.treas.gov/press/releases/tg76.htm>.

¹¹⁵ The AMLF and the CPFF expired on February 1, 2010. See Press Release, Federal Reserve (June 25, 2009), available at <http://www.federalreserve.gov/newsevents/press/monetary/20090625a.htm>. The use of the AMLF peaked on October 1, 2008, with holdings of \$152.1 billion. See FEDERAL RESERVE BOARD, STATISTICAL RELEASE H.4.1: FACTORS AFFECTING RESERVE BALANCES (Oct. 2, 2008), available at <http://www.federalreserve.gov/releases/h41/20081002>. AMLF holdings as of April 29, 2009 stood at \$3.699 billion. See FEDERAL RESERVE BOARD, STATISTICAL RELEASE H.4.1: FACTORS AFFECTING RESERVE BALANCES (Apr. 30, 2009), available at <http://www.federalreserve.gov/releases/h41/20090430>.

5.3. Experience in other jurisdictions

5.3.1. Australia

Australia experienced some disruption to its short term funding markets as a result of the global financial crisis, however not as a result of any reduction in investments by MMFs as there were no heavy redemptions experienced by cash funds. Most funds weathered the crisis well. While they experienced an increase in redemption requests, they were able to meet these requests in a timely fashion without any disruptions to the fund or underlying funding markets.

There were a number of "enhanced" funds which became frozen (i.e. ceased to provide continuous redemption) during the financial crisis and some were still frozen as at November 2011. These funds exhibited longer maturity and less liquidity and rather than liquidating underlying investments, redemptions to the funds were frozen. These funds are subject to redemption offers and hardship access by investors. It should be noted that these funds are a subset of a larger group of frozen funds which is largely composed of mortgage funds.

5.3.2. Canada

One of the effects of the financial crisis was the freezing of the Canadian non-bank sponsored asset-backed commercial paper (ABCP) market in August 2007. The managers (or related entities of the managers) of MMFs that held non-bank sponsored ABCP voluntarily bought all of the frozen ABCP from the funds at par plus accrued interest. This ensured that fund investors would not incur losses from these investments.

In September 2008, the Ontario Securities Commission and the Autorité des marchés financiers conducted reviews of MMFs to assess their portfolio holdings and to determine if they were adequately managing redemption requests. All funds reviewed were able to meet redemption requests and no investments held by the funds were written down. The investments held by Canadian dollar denominated MMFs consisted predominantly of short-term debt issued by Canadian issuers. Fund managers put in a number of mechanisms to manage redemption requests, including: (i) maintaining a more liquid portfolio and decreasing the weighted average term to maturity of their portfolios; (ii) monitoring the holdings of individual investors to manage the risk of having a single large investor redeem; and (iii) using a "large investor" agreement to restrict further purchases, to require a minimum holding period, or to require a longer notice period for a large redemption.

5.3.3. India

Due to the liquidity crisis during 2008-09, liquid funds were under strain from redemption pressures that required them to borrow to meet redemption requirements. Upon request from mutual funds, Reserve Bank of India (The Central Bank) facilitated short term liquidity window to MMFs.

6. Regulatory Changes Arising from the 2007-2008 Financial Crisis

6.1. Europe: 2010 CESR/ESMA classification and guidelines

In May 2010, CESR (now ESMA) published recommendations to create a harmonized definition of a MMF "label" in Europe and to establish new common standards addressing

the failures identified during the financial crisis.¹¹⁶

According to the new guidelines, MMFs must “have the primary investment objective of maintaining the principal of the fund and aim to provide a return in line with money market rates”. The guidelines also establish a classification creating two types of MMFs: “short-term money market funds” (ST-MMFs) and “money market funds” (MMFs). Any collective investment undertaking labeling or marketing itself as a money market fund must comply with the guidelines. Collective investment undertakings with so-called “enhanced money market fund strategies” are not expected to be able to comply with the guidelines.

6.1.1. Portfolio Quality

According to the guidelines, MMFs must invest in money market instruments which comply with the criteria set out in the UCITS Directive that are “of high quality”, as determined by the management company. In making its determination, a management company must take into account a range of factors, including, but not limited to: a) the credit quality of the instrument, b) the nature of the asset class represented by the instrument, c) for structured financial instruments, the operational and counterparty risk inherent with the financial transaction, and d) the liquidity profile.

For the purposes of assessing the credit quality of the instrument, ESMA guidelines provide that an instrument may be considered of a high quality if it has been awarded one of the two highest available short-term credit ratings by each recognized credit rating agency or an equivalent if the instrument is not rated. MMFs that are not ST-MMFs may invest in sovereign issuance of at least investment grade quality.

6.1.2. Portfolio Maturity

ST-MMFs operate with a very short WAM (below 60 days) and WAL (below 120 days), and MMFs operate with a longer WAM (maximum of 6 months) and WAL (maximum of one year). Maximum residual maturities are set to 397 days for ST-MMFs and two years for MMFs, provided, in that case, that the time remaining until the next interest rate reset is less than or equal to 397 days. The maturity used for calculating the WAL (and assessing compliance with the guidelines on maximum maturity) is the residual maturity until legal redemption. Variable rate securities should reset to a money market rate or index.

When calculating the WAL for securities, including structured financial instruments, ST-MMFs and MMFs must base the maturity calculation on the residual maturity until the legal redemption of the instruments. When a financial instrument embeds a put option, the exercise date of the put option may be used instead of the legal residual maturity only if the following conditions are fulfilled at all times: a) the put option can be freely exercised by the management company at its exercise date; b) the strike price of the put option remains close to the expected value of the instrument at the next exercise date; and c) the investment strategy of the UCITS implies that there is a high probability that the option will be exercised at the next exercise date. Instruments whose residual maturity until legal redemption is longer than 397 days for ST-MMFs, or longer than two years for MMFs, cannot be purchased even if the instruments embed a put option at the discretion of the management company where the exercise date is within 397 days for the short term MMFs or within two years for MMFs.

¹¹⁶ See CESR’s Guidelines on a common definition of European money market funds, *available at* <http://www.cesr.eu/index.php?docid=6638>. ESMA guidelines entered into force in July 2011, with a six-month transitional period for existing funds. See also ESMA’s Questions and Answers published in August 2011, *available at* <http://www.esma.europa.eu/popup2.php?id=7717>.

6.1.3. Use of a constant net asset value

ESMA allows the use of a constant net asset value for ST-MMFs only, reflecting the fact that the longer the average maturity of MMF assets, the greater the risks of mispricing. Accordingly, by definition, all CNAV MMFs are ST-MMFs, but V-NAV funds include both ST-MMFs and MMFs. In addition to ESMA standards imposed on ST-MMFs, European CNAV MMFs comply with an industry code set by the International Money Market Funds Association (IMMFA) which has been updated following the crisis and defines additional liquidity requirements.¹¹⁷

6.1.4. Risk management

As a general obligation, the Article 1 of the UCITS Directive states that the manager should always be in a position to process redemptions at the request of holders according to the conditions defined by the prospectus. In the case of MMFs, managers therefore have to be able to meet daily redemption requests. ESMA further details the risk management processes applicable to MMFs, in accordance with Article 51 of the UCITS Directive. These processes should include a prudent approach to the management of currency, credit, interest rate and liquidity risk and a proactive stress-testing regime.

6.1.5. Disclosure

ESMA guidelines require specific disclosure drawing attention to the difference between MMFs and bank deposits. It has to be clear in fund documentation that an objective to preserve capital is not a capital guarantee. MMFs are also required to provide sufficient information to explain the impact of the longer duration on the risk profile.

MMFs provide daily NAV and price calculation, and daily subscription and redemption of units.

6.2. United States: 2010 Amendments to Rule 2a-7

As discussed in significant detail above, during 2007-2008 MMFs in the United States were exposed to substantial losses, first as a result of exposure to debt securities issued by SIVs, and then as a result of the default of debt securities issued by Lehman Brothers. All but one of the funds that were exposed to losses from SIV and Lehman Brothers securities obtained support of some type from their advisers or other affiliated persons, which absorbed the losses or provided a guarantee covering a sufficient amount of losses to prevent the fund from breaking the buck. The cumulative effect of these events, when combined with general turbulence in the financial markets, led to a run primarily on institutional taxable prime MMFs, which contributed to severe dislocations in short-term credit markets and strains on the businesses and institutions that obtain funding in those markets. As detailed above, the now expired Federal Reserve Guarantee Program and AMLF liquidity facility were effective in containing the run on institutional prime MMFs and providing additional liquidity to MMFs.

In 2010, the SEC amended rule 2a-7 as a first step to addressing regulatory concerns identified by the SEC as a result of the recent crisis. The amendments were designed to make MMFs more resilient and less likely to break a buck as a result of disruptions such as those that occurred in the fall of 2008. The revised provisions seek to give the SEC better tools to oversee MMFs. If a MMF did break a buck, the amendments are designed to facilitate an orderly liquidation in order to protect fund shareholders and help contain adverse effects on the capital markets and other MMFs.

¹¹⁷ Available at <http://www.immfa.org/About/Codefinal0611.pdf>

Specifically, the amendments tighten the risk-limiting conditions of rule 2a-7 by, among other things: requiring funds to maintain a specified minimum portion of their portfolios in instruments that can readily be converted to cash (including a daily and weekly requirement), tightening restrictions on the maximum weighted average maturity, introducing restrictions on the weighted average life of portfolio holdings and improving the credit quality of portfolio securities. Funds also are required to stress test their ability to maintain a constant NAV. The amendments place more stringent constraints on funds' use of repurchase agreements that are collateralized with private debt instruments rather than government securities. The amendments also improve the SEC's ability to oversee MMFs and investors' ability to impose market discipline by requiring monthly public disclosure of portfolio holdings, and permit a MMF that has broken the buck, or is at imminent risk of breaking the buck, to temporarily suspend redemptions to allow for the orderly liquidation of all fund assets to protect fund shareholders and help contain adverse effects on the capital markets and other MMFs. The amendments were designed to make MMFs more resilient to certain short-term market risks and to provide greater protections for investors in a MMF that is unable to maintain a constant NAV per share.

6.2.1. Portfolio Quality

Rule 2a-7 imposes credit quality requirements. Rule 2a-7 limits MMF portfolio holdings to securities that are denominated in U.S. dollars, that pose minimal credit risk to the MMF, and that are "eligible securities," as defined by rule 2a-7. There are two tiers of eligible securities under the rule. Under rule amendments proposed by the SEC, first tier securities generally would be those that the MMF's board of directors (or its delegate) determines that the security's issuer has the highest capacity to meet its short-term financial obligations. A MMF must invest at least 97 percent of its assets in first tier securities. Second tier securities are securities that present minimal credit risks but that are not first tier securities. A MMF cannot invest more than 3 percent of its assets in second tier securities.

The SEC noted that second tier securities trade in thinner markets, generally have a weaker credit quality profile, and exhibited credit spreads that widened more dramatically than those of first tier securities during the 2008 financial turmoil. During times of financial market stress, second tier securities generally tend to become illiquid and sell in the secondary market, if at all, only at prices substantially discounted from their amortized cost value. This additional risk created by the credit and liquidity profile of second tier securities increases the possibility that a fund holding these securities could break the buck in times of financial market turmoil, with a detrimental impact on fund investors.

For this reason, amended Rule 2a-7 further limits MMFs' investments in "second tier securities." In addition, pursuant to amended rule 2a-7, MMFs are not permitted to acquire any second tier security with a remaining maturity in excess of 45 days. Rule 2a-7 diversification requirements generally prohibit a MMF from investing more than 5 percent of its assets in securities issued by the same entity or more than 0.5 percent of its assets in second tier securities of any single issuer. A MMF cannot "look through" a repurchase agreement issuer to the underlying collateral for purposes of satisfying the diversification provisions of the rule unless the repo is collateralized with government securities.

Amended rule 2a-7 did not prohibit investment in second tier securities completely, as certain second tier securities may provide a higher yield than first tier securities while still maintaining a risk profile consistent with investment objectives for MMF investment. In such circumstances, investment in higher yielding second tier securities may benefit fund investors.

6.2.2. Portfolio Maturity

Amendments to rule 2a-7 further restrict the maturity limitations on a MMF's portfolio in order to reduce the exposure of MMF investors to certain risks, including interest rate risk, spread risk, and liquidity risk. Amended Rule 2a-7 requires a MMF to maintain a dollar-weighted average portfolio maturity that is appropriate to its objective of maintaining a constant NAV per share and it may not (1) acquire any instrument that has a remaining maturity of greater than 397 days (or, for "second tier" credit quality securities with a remaining maturity of greater than 45 days), (2) maintain a dollar-weighted average portfolio maturity (WAM) of more than 60 days, and (3) maintain a dollar-weighted average life to maturity (WAL) of more than 120 days. Generally the maturity shortening provisions of rule 2a-7 permit the use of interest rate resets in variable- or variable-rate notes to shorten the maturity of a security that otherwise matures in 397 days or less for purposes of calculating WAM, but not for purposes of calculating WAL. Securities also can have a shortened maturity under the rule due to unconditional put rights (or "demand features") for purposes of both WAM and WAL.

6.2.3. Portfolio Liquidity

Markets can become illiquid very rapidly in response to events that MMF managers may not anticipate. For this reason, amended rule 2a-7 requires that MMFs maintain a sufficient degree of liquidity necessary to meet reasonably foreseeable redemption requests and reduce the likelihood that a fund will have to meet redemptions by selling portfolio securities into a declining market. MMFs generally have a higher and less predictable volume of redemptions than other open-end investment companies. The rule amendment stemmed from the belief that an MMF's ability to maintain a constant NAV will depend, in part, on its ability to convert portfolio holdings to cash to pay redeeming shareholders without having to sell them at a loss. The liquidity of fund portfolios became a critical factor in permitting them to absorb very heavy redemption demands in the fall of 2008 when the secondary markets for many short-term securities seized up. Depending upon the volatility of a particular fund's cash flows (particularly shareholder redemptions), this provision may require a fund to maintain greater liquidity than would be required by the daily and weekly minimum liquidity requirements discussed below.

Amended rule 2a-7's liquidity requirement is consistent with a fund's statutory obligation to pay redemption proceeds within 7 days of receiving a redemption request as well as under any commitments regarding payments on redemption that the fund has made to shareholders. A MMF is expected to have sufficient policies and procedures to "know its shareholders" to comply with this obligation. In addition, a MMF may not acquire an illiquid security if, immediately after the acquisition, the fund would have invested more than 5 percent of its assets in illiquid securities. Illiquid securities are those that cannot be sold or disposed of in the ordinary course of business within 7 days at approximately the value ascribed to it by the fund. Finally, after the acquisition of any security, a taxable MMF must have invested at least 10% of its assets in "daily liquid assets" and all MMFs must have invested at least 30 percent of assets in "weekly liquid assets." Daily liquid assets are cash, U.S. Treasury securities, and securities convertible into cash in one business day. Weekly liquid assets are cash, U.S. Treasury securities, agency discount notes with remaining maturities of 60 days or less, and securities convertible into cash (whether through maturity or a put) within 5 business days. A MMF must comply with the daily and weekly liquidity standards at the time each security is acquired.

6.2.4. Stress Testing

Amendments to rule 2a-7 require the board of directors of each MMF to adopt procedures providing for periodic stress testing of the MMF's portfolio. A fund must adopt procedures that provide for the periodic testing of the fund's ability to maintain a constant NAV per share based upon certain hypothetical events. These include an increase in short-term interest rates, an increase in shareholder redemptions, a downgrade of or default on portfolio securities, and widening or narrowing of spreads between yields on an appropriate benchmark selected by the fund for overnight interest rates and commercial paper and other types of securities held by the fund. The amendment requires the testing to be done at such intervals as the fund board of directors determines appropriate and reasonable in light of current market conditions, the same approach that rule 2a-7 takes with respect to the frequency of shadow pricing.

6.2.5. Disclosure of Portfolio Information

6.2.5.1. Public Website Posting

Amended rule 2a-7 requires MMFs to disclose information about their portfolio holdings on their websites no later than the 5th business day of each month. The disclosure provides greater transparency of portfolio information in a manner convenient for most investors. The amendment is designed to give investors a better understanding of the current risks to which the fund is exposed, strengthening investors' ability to exert influence on risk-taking by fund advisers.

6.2.5.2. Reporting to the SEC

New rule 30b1-7 requires MMFs to report portfolio information on new Form N-MFP, including the mark-to-market value of these holdings, no later than the 5th business day of each month. The SEC makes this information publicly available 60 days later. The information permits the SEC to create a central database of MMF portfolio holdings, which enhances the SEC's oversight of MMFs and its ability to respond to market events.

6.3. Changes in other jurisdictions

6.3.1. Canada

Following the crisis, Canadian regulators have made the following amendments to the requirements applicable to MMF portfolios to increase liquidity and to reduce credit and interest rate risks:

- a) shorter maturity limits: Canadian regulators have introduced a new weighted average life limit (WAL) of 180 days that is to be combined with the existing weighted average maturity limit of 90 days. The calculation of the new WAL for floating rate notes does not permit the use of interest rate reset dates and instead only uses a security's stated final maturity. This serves to place a limit on the exposure of MMFs to the risks associated with longer terms to maturity;
- b) liquidity buffer requirements: Canadian regulators have introduced a requirement for an MMF to have at least 5 percent of its assets in cash or readily convertible to cash within one day and 15 percent of its assets in cash or readily convertible to cash within one week. This requirement would improve the ability of MMFs to meet redemption requests in difficult market conditions such as those experienced during the financial crisis.

These amendments will come into force in October 2012, after a six-month transition period.

In addition, amendments to portfolio disclosure rules have been made to remove the ability of an MMF to aggregate certain types of short-term debt in its statement of investment portfolio. These amendments are intended to increase the transparency of a fund's portfolio holdings to allow investors to better evaluate the risks associated with the fund's short-term debt holdings. These amendments will come into force in April 2012.

6.3.1.1. India

With easing of liquidity pressures and lessons experienced during 2008-09 onwards, a number of steps were taken as a prudent measure to withstand any liquidity stress in future:

- a) To address asset liability mismatches in open ended schemes – Liquid funds can invest only in instruments of up to 91 day maturity from the earlier 182 days.
- b) Changes in Valuation Norms – The situations of stress on liquidity in debt and money markets lead to huge redemption pressures. Earlier the regulations allowed for debt and money market instruments with residual maturity of up to 182 days being valued on amortization basis instead of mark-to-market. During the 2008-09 crisis, it was observed that such instruments were mostly valued on amortization basis and thus the NAV of the scheme was at variance with the fair value of the instruments in the market.

In order to avoid similar situations in future, it has been decided that all money market and debt securities, with residual maturity of up to 91 days shall be valued at the weighted average price at which they are traded on the particular valuation day. When such securities are not traded on a particular valuation day they shall be valued on amortization basis. It is further clarified that in case of variable rate securities with floor and caps on coupon rate and residual maturity of up to 91 days then those shall be valued on amortization basis taking the coupon rate as floor.

All money market and debt securities, with residual maturity of over 91 days shall be valued at weighted average price at which they are traded on the particular valuation day. When such securities are not traded on a particular valuation day they shall be valued at benchmark yield/ matrix of spread over risk free benchmark yield obtained from agency(ies) entrusted for the said purpose *i.e.*, based on mark-to -model.

- c) Listing of closed ended schemes – Close ended schemes are defined in Regulations as schemes in which the period of maturity is specified. Earlier regulation exempted close ended schemes from mandatory listing in case, *inter alia*, the scheme provides for periodic repurchase facility to all unit holders with restriction. The regulatory framework was amended by allowing the mandatory listing of close ended schemes to provide investors with an exit option and gave fund managers certainty to manage funds till the closing date.
- d) Maturity profile of the instruments where the close ended debt schemes will invest – The closed ended schemes are allowed to invest in securities of initial or residual maturities not exceeding the maturity of the scheme for a better asset liability management.
- e) Allotment of units only when funds available with scheme for utilization – It was observed that mutual funds were deploying funds without receiving clear funds in the scheme account. In order to avoid systemic risk, the provisions regarding uniform cut-off timings for applicability of Net Asset Value (NAV) of mutual fund schemes/plans were modified. The application of purchase was to be recognized only when the funds were available for utilization before the cut-off time without availing any credit facility.
- f) Investment by banks in liquid/short term debt schemes of mutual funds – It was observed that banks' investments in liquid schemes of mutual funds have grown manifold.

The liquid schemes continue to rely heavily on institutional investors such as commercial banks whose redemption requirements are likely to be large and simultaneous; on the other hand, they are large lenders in the over-night markets such as collateralized borrowing and lending obligation (CBLO) and market repo, where banks are large borrowers. The various schemes of mutual funds also invest heavily in certificates of deposit (CDs) of banks. Such circular flow of funds between banks and mutual funds could lead to systemic risk in times of stress/liquidity crunch, etc. Thus, banks could potentially face a large liquidity risk. It is, therefore, felt prudent to place certain limits on banks' investments in liquid/short term debt schemes of mutual funds.

Accordingly, the Reserve Bank of India (The Central Bank) has decided that the total investment by banks in liquid/short term debt schemes (by whatever name called) of mutual funds with weighted average maturity of portfolio of not more than 1 year, will be subject to a prudential cap of 10 percent of their net worth as on March 31 of the previous year.

Further changes in valuation norms including money market funds were adopted in February 2012. In particular, the amortization of the securities is restricted to securities having residual maturity of less than 60 days from current position of 91 days.

6.3.2. Other jurisdictions

In China, CSRC is currently considering regulatory changes on MMF to further restrict the WAM (which is currently 180 days) and increase the liquidity of money market funds. MMF regulatory framework is also under review in other countries such as Australia.

7. Insights from recent academic and financial literature

The academic and financial literature in the aftermath of the short term credit crisis of 2007-2008 sought to analyze the myriad of factors that gave rise to the crisis and the role of MMFs and other non-bank financial instruments in the crisis.¹¹⁸ The recent credit crisis may illustrate the view of many academics and market observers that the neglect of low probability risk and the failure to price those risks may be critical flaws, detrimental to the efficiency of markets. This neglected risk may heighten market volatility and intensify run risk, as risk-averse investors abandon MMFs and other supposedly low risk products in their flight to safer products. That rapid flight of investors could destabilize the broader financial system, due to the size of the MMF industry and its prominence in the short-term financing markets.

Academics assert that the failure of the markets to appropriately price the risks attendant with underlying investments in asset-backed and structured products may have amplified the effects of the crisis. Some market observers believe that the markets inappropriately priced securities by neglecting the possible collapse of home prices, an event of seemingly remote

¹¹⁸ See Gary Gordon and Andrew Metrick, "Regulating the Shadow Banking System" (2011); Gary Gorton, "The Panic of 2007" (2007), available at <http://www.nber.org/papers/w14358.pdf>; Nicola Gennaioli, Andrei Schleifer, Robert Vishny, "Neglected Risks, Financial Innovation, and Financial Fragility", *Journal of Financial Economics* (2011) ("GSV Neglected Risk"); Markus K. Brunnermeier, "Deciphering the Liquidity and Credit Crunch 2007-2008", *23 Journal of Economic Perspectives* 77, 85, (Winter 2009) ("Brunnermeier"); Zoltan Pozsar, "IMF Working Paper: Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System" (Aug. 2011) ("IMF Paper"), available at <http://www.imf.org/external/pubs/ft/wp/2011/wp11190.pdf>.

probability, given recent history, but a feasible event notwithstanding.¹¹⁹ Such neglect of the “tail risk”¹²⁰—also known as a “black swan” event, well outside an ordinary distribution of outcomes¹²¹—is credited with exposing intermediaries to severe losses, and acute market and liquidity risk.¹²²

Leading up to the crisis, the high investor demand for insured deposit alternatives¹²³ led MMFs, among others, to seek securities products that in theory, yielded securities that were virtually equivalent to similarly rated government issuances. Such financial products of relatively recent vintage allowed banks to originate and distribute repackaged loans and mortgages to other financial investors and featured senior tranches that were rated AAA. Under rational market expectations, MMFs should have been able to rely on the substitutability of highly rated corporate credits for similarly rated government issuances in valuing their portfolios. However, the recent crisis may be evidence that because of the neglect of the tail risk attendant to the new financial products—which were erroneously perceived to be virtually riskless—those products were false substitutes for truly safe bonds.¹²⁴

With the precipitous decline in housing prices, investors came to realize that they may have accepted more risk than expected through investments in securities exposed to mispriced securitized debt.¹²⁵ For this reason, the reliance on the false substitutes had the effect of increasing the volatility of the markets. Observers note that because the risk of these new products was not priced into MMF portfolios, these neglected risks caused unfounded optimism, leading to potentially excessive volume *ex ante*—essentially a market boom. The subsequent news of falling housing prices and the recognition of the unattended risks resulted in a flight to quality as many investors were no longer willing to hold MMFs, whether or not they had exposure to the riskier-than-expected asset-backed securities.¹²⁶ Institutional MMFs, in particular, had greater investment inflows and outflows than retail money market funds.¹²⁷ Investors became unwilling to bear the risk of the false substitutes—or perceived risks—even where a particular MMF was not exposed to the mispriced securities. Redemption pressure forced the unwinding of levered positions against a declining market to meet redemption requests, fueling a liquidity crisis. The forced liquidations unnecessarily destroyed value and reduced the value of the market as a pricing mechanism.¹²⁸ The

¹¹⁹ See Nicola Gennaioli, Andrei Schleifer, Robert Vishny, “A Model of Shadow Banking” (2011) (first draft) available at http://web-docs.stern.nyu.edu/old_web/finance/docs/pdfs/Seminars/113f-schleifer.pdf (“GSV Shadow Banking”).

¹²⁰ Tail risk is as a higher than expected risk of an investment moving more than three standard deviations away from the mean. It is generally assumed that the distribution of returns of a portfolio of investments will follow a normal pattern. Following that assumption, the probability that returns will move between the mean and three standard deviations, in either positive or negative direction, is 99.97%. Therefore, the probability of returns moving more than three standard deviations beyond the mean is 0.03%, or virtually zero. The concept of tail risk suggests that the distribution is not normal, but skewed, and has fatter tails. The fatter tails increase the probability that an investment will move beyond three standard deviations.

¹²¹ See “Worst-Case Scenarios: Fat-Tail Attraction” *The Economist* (Mar. 24, 2011) available at <http://www.economist.com/node/18443412/print>.

¹²² See generally, GSV Shadow Banking.

¹²³ See IMF Working Paper at 4.

¹²⁴ See GSV Shadow Banking at 2.

¹²⁵ See GSV Neglected Risk at 15.

¹²⁶ *Id.* at 10.

¹²⁷ See Proposing Release at 7.

¹²⁸ See Krieger Speech.

redemption pressure was amplified as each investor had the incentive to divest before others did so in order to maximize redemption value. Also, due to the intrinsic link of MMFs to the short-term markets, the confidence shock in the MMF markets had a contagion effect in the broader economy.

The conventional belief that the spreading of risk would be achieved by pooling loans among many market participants was challenged as a result of the crisis.¹²⁹ Instead, the crisis may stand for the proposition that the “driving engine” of non-bank intermediation, the diversification of risk, may have actually raised the exposure of intermediates to tail risks.¹³⁰ For example, where financial intermediaries are both borrowers and lenders in the market-based financing system, intermediates that expanded their balance sheets by investing in securities with a higher risk profile than the AAA rating denoted, may have become interconnected with other intermediaries through the sharing of each others’ risks.¹³¹ Therefore, the web of interconnected obligations within market-based financing institutions may have heightened the vulnerability of participants, including MMFs to tail risk.

¹²⁹ See GSV Shadow Banking at 5.

¹³⁰ *Id.* at 3.

¹³¹ *Id.* See also Shin, Hyun Song, “Securitization and Financial Stability,” *The Economic Journal*, 119(536): at 309-332 (2009).