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Money Market Funds in Europe and Financial Stability

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Content

Executive summary 2

Background 4

MMFs and financial stability 5

Scope and purpose of the paper 5

1. Overview of the current EU landscape 6
1.1. Definition 6
1.2. The EU regulatory framework and differences with the US approach 6
1.3. Key figures and recent trends 7
1.4. The role of MMFs in short-term financing and bank funding in particular 10
1.5. Other trends at play: potential effects of the new prudential frameworks 11
1.6. Consolidation in the MMF industry and other structural issues 12

2. Sources of risk from a financial stability perspective 13
2.1. Shadow banking 13
2.2. Accounting valuation techniques 14
2.3. Ratings 16
2.4. Differences in regulatory approach and the risk of arbitrage 16

3. Channels of contagion 18
3.1. The role of MMFs in short-term funding markets 18
3.2. Links with sponsors 18
3.3. MMFs and the sovereign debt crisis 20
3.4. Other potential areas of concern 21

4. Avenues to explore further 23
4.1. Policy options 23
4.2. Factors to be considered 25
4.3. Monitoring of MMFs 27

Concluding remarks 29

References 30

List of tables and charts 33

Appendix 1: Glossary 34

Appendix 2: MMFs during the financial crisis 36

Appendix 3: Differences between CNAV and VNAV funds 38

Appendix 4: ECB data 39

Appendix 5: Comparison of EU and US regulation on MMFs 41

Appendix 6: Overview of some of the proposals currently under discussion in the United States 43

Appendix 7: Investor base of the European IMMFA funds industry 44

Executive summary[1]

Money market funds (MMFs) are investment funds whose primary objectives are to maintain the principal value of the funds and offer a return in line with money market rates, while providing daily liquidity to their investors. In Europe, MMFs manage approximately EUR 1 trillion in assets, with three countries (France, Ireland and Luxembourg) representing an aggregate market share of over 90%.

MMFs were at the heart of dramatic episodes of the financial crisis of 2007-08, prompting regulators on both sides of the Atlantic to extensively review the regulatory framework applicable to them. In Europe, new guidelines were adopted in 2010, imposing strict standards in terms of the credit quality and maturity of underlying securities and better disclosure to investors. Although these initiatives are considered to have considerably improved MMF regulation, discussions are still ongoing, both in the United States (US) and at the international level, as to how to reduce the systemic risks associated with MMFs and, in particular, their vulnerability to runs. The Financial Stability Board (FSB) has identified MMFs as a key component of the shadow banking system and has asked the International Organization of Securities Commissions (IOSCO) to submit policy recommendations by July 2012 for further regulatory reform of such funds.

The purpose of this occasional paper is to provide a first assessment of the systemic importance of MMFs within the European context, as well as of the main areas of risk, policy implications and the possible role for the European Systemic Risk Board (ESRB).

1. With regard to the systemic importance of MMFs, the paper finds that, although small when compared with credit institutions in Europe, money market funds represent a significant part of the European asset management industry. Moreover, the role played by MMFs in money markets and short-term funding, as well as their interconnectedness with other parts of the financial system, particularly banks, add to their systemic importance. The relatively high share of institutional investors in the investor base of MMFs also needs to be considered, as this is likely to generate significant redemption pressure during times of stress, as well as concentration risk.

2. As regards the risks associated with MMFs, the paper explains that these risks arise from the fact that, MMFs hold potentially risky assets that may mature in a year (or more) but issue shares that are redeemable on demand and are viewed as safe. MMFs have little ability to absorb losses and no official liquidity backstop, as a result they are vulnerable to runs. The paper highlights a number of areas where concerns remain, such as the reference to constant net asset value and, more generally, the use of amortised cost accounting, the reliance on ratings, the issue of implicit support and the potential risk of contagion to sponsors.

3. In terms of policy implications, the paper identifies differences between the regulatory frameworks of the United States and the European Union (EU). It also lists the main reform options available, referring to the work of the IOSCO and the current US discussions on this issue. Both direct and/or indirect regulation could be considered, such as a move to a floating net asset value (NAV), the introduction of capital/NAV buffers and the development of new standards as regards portfolio liquidity, valuation or procedures during times of stress. The paper emphasises that, while

[1] Drafting completed in April 2012.

MMFs have long been subject to securities market regulations, the existing frameworks may need to be complemented and revised in order to address broader concerns related to financial stability.

4. As regards the next steps, the paper emphasises that the various policy options will have to be thoroughly assessed and carefully considered in the context of their potential impact on financial stability and market functioning. Several factors will have to be taken into account, such as moral hazard, competition, the impact on financing, regulatory obstacles and implementation challenges (particularly in a low interest rate environment), as well as the need for global consistency.

5. With regard to the ESRB, it could conduct further analysis on the role of MMFs in providing finance to the economy, the differences in MMF profiles and possible policy recommendations to strengthen their robustness, as well as the related macroprudential implications. This analysis could also serve as an input into the European Commission's consultation on shadow banking, which also considers the regulation of money market funds.

JEL classification: G15, G18

Keywords: ESRB, financial stability, money market funds, shadow banking

Background

Money market funds have grown to represent a significant share of the global funds industry. They are significant providers of short-term funding for banks, companies and governments and are key participants in money markets. MMFs are often viewed as a safe alternative to bank deposits and used as a cash management tool by corporations and investors.

Prior to the financial crisis of 2007-08, MMFs were not perceived as being susceptible to investor runs and were considered to enhance financial stability. However, the crisis (see Appendix 2) highlighted the vulnerabilities of MMFs and their role in the transmission of risks. In Europe, a number of so-called "enhanced MMFs"[2] were hit by the fallout in the US subprime mortgage market during the summer of 2007, and either had to be supported by sponsor banks or suspended. By comparison, the United States experienced a crisis of far greater proportions when one leading fund, the Reserve Primary Fund, "broke the buck": i.e. it was unable to keep its net asset value at one US dollar, in the wake of the collapse of Lehman Brothers. This event triggered a run on MMFs, with around USD 310 billion – about 10% of the total assets under management – withdrawn from such funds in just a few days, creating a dislocation of the commercial paper (CP) market and forcing the US authorities to step in, including with the creation of two liquidity facilities and an extension of the deposit guarantee.

These episodes put the spotlight on MMFs and prompted regulatory changes both in Europe (the guidelines of the European Securities and Markets Authority, ESMA[3]) and across the Atlantic (revisions to Rule 2a-7 of the US Securities and Exchange Commission or SEC). Despite these changes, work is still in progress. In the United States, the President's Working Group has asked for further reforms to address the systemic risks associated with MMFs and the Financial Stability Oversight Council (FSOC) has reiterated this request, highlighting the main options for regulators to focus on. At the international level, the Financial Stability Board (FSB) has identified money market funds as a key component of the shadow banking system and requested the IOSCO to assess the case for additional regulatory actions. The FSB's mandate[4] indicates that a crucial issue to be considered by such a review is whether the regulatory approach to MMFs needs to choose between encouraging/requiring a shift to variable net asset value arrangements or imposing capital and liquidity requirements on MMFs which continue to promise investors a constant NAV – and whether there are other possible approaches. The IOSCO is due to submit policy recommendations to the FSB by July 2012. In Europe, the European Commission's Green Paper on Shadow Banking identifies "money market funds (MMFs) and other types of investment funds or products with deposit-like characteristics which make them vulnerable to massive redemptions ("runs")" as possible shadow banking entities or activities on which the Commission is currently focusing its analysis.

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[2] Some of these funds were actually bond or diversified funds, but marketed as money market funds. MMFs are now strictly classified according to the new guidelines (see Section 1.2).

[3] The guidelines were published in May 2010 by the Committee of European Securities Regulators (CESR). Since 1 January 2011, the CESR has been replaced by the European Securities and Markets Authority (ESMA).

[4] See the FSB's "Report with recommendations to strengthen oversight and regulation of shadow banking" of 27 October 2011. The FSB Task Force on Shadow Banking has set up five work streams, the second of which deals with the regulatory reform of MMFs.

MMFs and financial stability

MMFs may hold potentially risky and sometimes illiquid assets that may mature in a year (or more), but issue shares that are redeemable on demand (frequently on a daily basis) and are viewed as safe. As such, they provide maturity transformation, with little ability to absorb losses and without an official liquidity backstop. Furthermore, in most cases, any shocks impacting MMFs can quickly have broader, systemic consequences given their significant role in short-term funding markets and interconnectedness with banks.

Two different types of MMFs exist in Europe: constant net asset value (CNAV) funds which use amortised cost accounting to value their assets, enabling a stable face value (e.g. of €1 or US$1 per share) to be maintained, and variable net asset value (VNAV) funds which principally use mark-to-market accounting (see Appendix 3). Despite strict credit quality, maturity, diversification and liquidity standards, CNAV funds are generally considered to be riskier from a financial stability perspective and this model is currently under review in the United States. In Europe, the new ESMA classifications of May 2010 have established two types of MMFs: "short-term money market funds" (STMMFs, which include both VNAV and CNAV funds) and "money market funds" (which are all VNAV funds).

Scope and purpose of the paper

This occasional paper highlights the relevance of the topic of money market funds from the ESRB perspective. Section 1 defines MMFs and provides a short overview of the related EU landscape. Section 2 then describes MMF characteristics which may constitute sources of vulnerabilities and Section 3 elaborates on the possible channels for contagion. Lastly, the final section of this paper presents a review of possible avenues for further work.

Based on this paper, the ESRB may conduct more in-depth analysis, taking account of the discussions at the international level. Accordingly, this paper should not be viewed as offering any final recommendations, but simply as listing some of the main options available and the factors that need to be considered.

1. Overview of the current EU landscape

1.1. Definition

The primary objectives of MMFs are to maintain the principal value of the original investment and offer a return in line with money market rates, while also providing daily liquidity to investors. MMFs are attractive to investors because they offer low-cost portfolio diversification. Such funds invest in money market instruments with very short maturities that are expected to pose little investment risk, such as repos, as well as deposits. They also invest in long-term assets, typically those approaching their maturity date, such as asset-backed commercial paper or floating rate notes.

For monetary analysis purposes, MMFs are included in the money-issuing sector. In the ECB's statistics, they are classified in the monetary financial institutions sector, together with credit institutions (as defined in Community law) and national central banks.

1.2. The EU regulatory framework and differences with the US approach

The Undertakings for Collective Investment in Transferable Securities (UCITS) framework: Money market funds are products subject to securities markets regulation. In Europe, the vast majority of MMFs comply with the provisions of the UCITS Directive, which defines rules in respect of eligible assets, leverage, diversification and counterparty risk.[5] Asset managers also have to comply with an extensive set of rules regarding business conduct, conflicts of interest, risk management, internal controls and capital requirements. Once authorised as a UCIT, a money market fund can be distributed across the EU, including to retail investors. Prior to the ESMA guidelines published in May 2010, most countries had developed specific rules for MMFs, typically vis-à-vis requirements for investment in money market instruments and compliance with maturity restrictions, but there was no regulatory framework for MMFs at the European level.

New standards in Europe: In May 2010, the Committee of European Securities Regulators (CESR, ESMA's predecessor) published recommendations to create a harmonised definition of the term "MMF" in Europe. The regime establishes two classifications – "money market funds" and "short-term money market funds" – and imposes strict standards in respect of sensitivity to interest rate risk, fund liquidity, asset maturity and credit risk. STMMFs operate with a very short weighted average maturity (WAM) and weighted average life (WAL), and MMFs operate with a longer weighted average maturity and weighted average life. The ESMA guidelines require MMFs to invest in money market instruments that are "of high quality", as determined by the management company. According to the guidelines, instruments may be considered of a high quality if they have been awarded one of the two highest available short-term credit ratings by each recognised credit rating agency or the equivalent if the instrument is not rated. MMFs that are not STMMFs may invest in sovereign issuance of at least investment grade quality.

In addition, the ESMA guidelines stipulate a specific disclosure drawing attention to the difference between MMFs and bank deposits. In particular, it must be made clear in fund documentation that an

[5] Directive 2009/65/EC of the European Parliament and of the Council and the four implementing acts - Commission Regulation (EU) No 583/2010 and Commission Regulation (EU) No 584/2010, Commission Directive 2010/42/EU, Commission Directive 2010/43/EU and Directive 2007/16/EC under Directive 2009/65/EC.

objective to preserve capital does not imply a capital guarantee. MMFs are also required to provide sufficient information on the impact of the longer duration on the risk profile of a fund.

The ESMA guidelines came into force in July 2011, with a six-month transitional period for existing funds.

CNAV funds in the European framework: With regard to valuation approaches (see Appendix 3), ESMA allows the use of a constant net asset value for STMMFs only, reflecting the fact that the longer the average maturity of MMF assets, the greater the risk of mispricing. In addition to ESMA guidelines on STMMFs, most CNAV money market funds comply with an industry code that specifies additional liquidity requirements and valuation techniques.[6]

Differences in approach between Europe and the United States: As described in Appendix 5, the US and EU[7] regulatory frameworks have many similarities since both impose strict requirements on asset quality, diversification, maturity and liquidity. In particular, both the US and EU regulations set limits in respect of the WAM and the WAL. Under both regimes, the distinction between MMFs and bank deposits must be carefully highlighted in investor documentation.

That being said, significant differences remain. Notably, the US framework only focuses on "short-term" (CNAV) money market funds. It is also more prescriptive regarding the amounts of "daily" (10%) and "weekly" (30%) liquid assets to be held. The US regulation also defines limits in terms of so-called "Tier 2" securities (3%) and illiquid securities (5%). In contrast, the UCITS Directive states that managers must ensure that fund assets are liquid enough to meet all potential redemption requests. In addition, the SEC's revised Rule 2a-7 addresses the possibility of a suspension of redemptions and sponsor support (i.e. through exemptions allowing "affiliate purchases" during times of market stress). In Europe, the UCITS Directive permits a temporary suspension of the repurchase or redemption of fund shares or units in exceptional circumstances, provided the suspension is justified with regard to the interests of the share/unit holders, but does not deal specifically with the issue of sponsors and the relationships of MMFs with other entities that are part of the same group. Neither the US nor the EU regulation explicitly deals with the specificities of the winding down of a fund. Finally, it should also be recalled that, in 2008, US MMFs benefited from the Troubled Asset Relief Program (TARP) of the US government and were able to access liquidity from the Federal Reserve (see Appendix 2; note that all related programmes expired in 2010), whereas EU MMFs were dependant on other market participants affiliated to the ECB for access to liquidity.

1.3. Key figures and recent trends

At the end of 2011, the assets under management of European MMFs were close to 2006 levels, amounting to EUR 1 trillion for the approximately 1,300 funds registered. This market segment has suffered from the environment of low interest rates and experienced significant outflows since the

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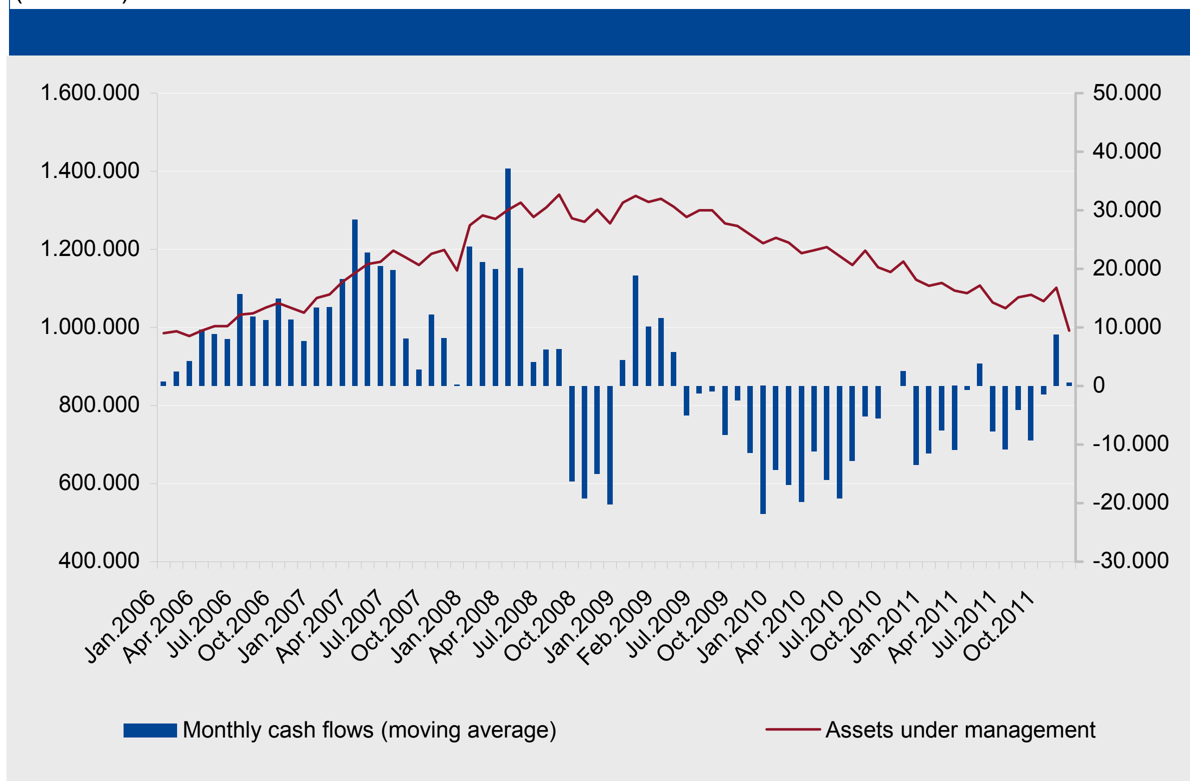
[6] The code, established by the International Money Market Fund Association (IMMFA) and revised in 2009, defines liquidity requirements and imposes escalation procedures when the value of a security of an IMMFA fund differs with the mark-to-market valuation (see Appendix 5). The code also requires that funds obtain a triple-A rating. Requirements are similar, although not identical, to rules in place in the United States.

[7] As explained above, the EU framework for MMFs is defined not only by the ESMA guidelines, but also by the UCITS Directive and other EU legislation on managed funds. In particular, several requirements under the revised SEC Rule 2a-7 already existed in EU legislation (e.g. those related to collateral policy and suspensions).

beginning of 2009. At their peak, European MMFs held EUR 1.4 trillion in assets. In comparison, US MMFs held about USD 2.7 trillion (about EUR 2 trillion) in assets at the end of 2011, which is a trillion dollars lower than the peak level recorded in 2008.

Chart 1: European money market funds: monthly cash flows and total assets under management (2006-11)



Source: ECB.
Note: Three-period un-centred moving average calculated from monthly flows. Last observation: Dec. 2011.

Major countries of domicile: The European MMF industry is dominated by France, Luxembourg and Ireland. According to ECB data, the share of investment funds domiciled in these countries was around 35%, 29% and 28%, respectively, at the end of 2011. Those countries accounting for a relatively small proportion of European MMFs include Italy (3%), as well as Germany, Spain and the Nordic countries (1%) – see Appendix 4 and the discussion regarding recent changes in ECB data below.

Systemic importance: According to data from the ECB, MMFs account for around 14% of the total assets under management of all euro area investment funds. Such funds also represent approximately 3% of the total balance sheet of euro area monetary financial institutions (MFIs; excluding national central banks), as defined by the ECB, with credit institutions accounting for the remaining 97%. MMFs play a relatively more important role in countries such as Luxembourg and Ireland, where they account for 27% and 22% of the total MFI balance sheet, respectively. In France, this segment represents roughly 30% of the total assets under management of investment funds and around 4% of the total MFI balance sheet for this country. For Europe, as a whole, data published by the European Fund and Asset Management Association (EFAMA) indicate that MMFs accounted for approximately 19% of all UCITS at the end of 2011.The other features of MMFs described below,

such as their role in short-term funding markets and their interconnectedness with the rest of the financial system, also increase their systemic importance.

Investor base: Funds domiciled in Ireland and Luxembourg are offered almost exclusively to non-domestic institutional investors. Data on funds managed by members of the Institutional Money Market Funds Association (IMMFA; see Appendix 7) indicate that UK investors account for almost one-half of all IMMFA funds, while a further 33% is covered by investors from the rest of Europe. Conversely, French domiciled MMFs are predominantly held by French investors. In particular, MMFs play an important role in cash management for many French corporations, which hold approximately one-third of all French MMFs – the corresponding figure for retail investors is less than 10%. In some countries (e.g. Sweden and Germany), the share of retail investors is slightly higher. Overall, the retail base of European MMFs is significantly lower than that of their US counterparts: in the United States, retail investors represent approximately one-third of the market.

Share of external assets and liabilities: ECB data show that euro area MMFs hold a substantial portfolio of external assets (i.e. assets issued by non-euro area residents): these account for about 40% of total assets and are mainly comprised of US dollar and pound sterling-denominated debt securities issued by non-euro area banks. The high share of external assets in the total assets of European MMFs matches similar levels of external liabilities, largely shares/units sold to non-euro area investors. As explained above, this is especially relevant for MMFs based in Ireland and Luxembourg, which mostly serve non-euro area residents.[8]

CNAV and VNAV funds: Variable or floating net asset value MMFs are present in France and in most other European countries, while constant net asset value MMFs based on the US model are present in Ireland and Luxembourg (the latter features both VNAV and CNAV funds). According to data from IMMFA and Fitch, the market share of IMMFA triple-A rated CNAV money market funds has grown rapidly over the last years few years, rising from 20% (EUR 168 billion) of total MMFs in 2005 to 37% (EUR 458 billion) by mid-2010.[9] At the end of 2010, the value of triple-A rated CNAV funds reached EUR 486 billion, which corresponds to a market share of approximately 41%. Several factors may explain this growth, including changing investor preferences (especially on the part of corporations) vis-à-vis cash management needs, the introduction of the US industry model, as well as higher variations in investment flows towards French MMFs. According to figures published by Fitch, CNAV and French MMFs appear to have moved in tandem in 2011, in contrast to what was observed in 2010, when CNAV funds stood out for attracting new money.

MMFs and STMMFs: There are currently no figures available at the European level distinguishing between MMFs and STMMFs, as per the new ESMA classifications. By definition, all IMMFA CNAV money market funds are STMMFs, but VNAV funds include both STMMFs and MMFs. In France, the country in which most European MMFs (both MMFs and STMMFs) are domiciled, one-half of funds are "money market funds", as per the new ESMA classifications, and represent approximately 35%

[8] See "Harmonised ECB statistics on euro area investment funds and their analytical use for monetary purposes", *Monthly Bulletin*, ECB, August 2010 as well as Appendix 4. Also refer to Appendix 7 on IMMFA funds.

[9] PWC/IMMFA (2011).

(EUR 120 billion) of total assets under management. Meanwhile, 43% are "STMMFs" accounting for 60% (EUR 211 billion) of total assets under management.[10]

Impact of the new ESMA classifications on the EU MMF population: ECB statistics on MMFs have been reviewed since the adoption of the ESMA guidelines and the end of the transition period in December 2011.[11] From the preliminary estimates available, it can be said that the changes introduced by the ESMA classifications have had a significant impact on the MMF population of certain countries (see Chart 7 below), with some funds being reclassified as bond funds or mixed funds, and others being closed by their management companies. In its Monthly Bulletin of April 2012, the ECB notes in particular that, in Ireland and Luxembourg, the new definitions have seen the MMF industry decline by about 28% and 22% respectively, i.e. in terms of total net asset value. For the euro area, as a whole, the total net asset value of the MMF sector is estimated to have decreased by 18% (EUR 194 billion) since July 2011.

1.4. The role of MMFs in short-term financing and bank funding in particular

Key actors in money markets: MMFs represent significant sources of short-term financing for banks (via commercial paper, certificates of deposit (CDs) and repo-related transactions), as well as for governments and non-financial corporations. Data from the ECB show that short-term debt securities with an original maturity of less than one year (excluding those issued by governments) represent around one-half of total MMF assets in the euro area. Meanwhile, MMF deposits with banks account for approximately 20% of total assets, long-term debt securities (excluding those issued by governments) for 11%, government securities for 14% and other MMFs (including funds outside the euro area) for 4%.[12] In comparison, US MMFs are more heavily invested in government and "agency" securities as well as in non-financial corporations.[13] Overall, MFIs account for roughly three-quarters of the total assets of money market funds in the euro area (see Appendix 4).

The role of US MMFs: The contribution of MMFs to the short-term funding of European banks is not limited to European MMFs. As explained in Section 3.3 and as further detailed in the Annex of the ESRB Recommendation on US Dollar-Denominated Funding of Credit Institutions published in January 2012[14], US MMFs have also come to play a very significant role for the short-term US dollar-denominated funding of European banks. Several factors explain the growing exposure of US MMFs

[10] Source: AMF (data as of February 2012). A small fraction of funds, representing a negligible part (EUR 12 billion) of the total assets under management, did not opt for the new ESMA classifications. Most are now classified as diversified funds.

[11] ECB Regulation No 883/2011 updated the identification criteria for MMFs to match the ESMA classifications.

[12] That is, assuming that the original maturity of all non-euro area bank' debt securities is below 1 year. Note that the total does not add up to 100 due to residual categories. Data refer to all geographical counterparts. For more details see: https://stats.ecb.europa.eu/stats/download/bsi_mmf/bsi_mmf/bsi_mmf_u2.pdf

[13] US MMFs are categorised on the basis of their investment objectives: prime MMFs invest predominantly in non-government paper while government funds invest in government instruments. The flight to safety after the crisis increased the share of government funds. Prime MMFs are the largest category of US money market fund (with approximately USD 1.5 trillion in assets), followed by government funds (with USD 850 million in assets). The smallest category involves MMFs offering tax-free returns to investors. When excluding government funds, Moody's estimates that, on average, more than two-thirds of US prime and tax-free money market funds are directly or indirectly exposed to banks ("MMF 2010 Review and 2011 Outlook", Moody's, March 2011).

[14] Recommendation of the European Systemic Risk Board of 22 December 2011 on US dollar-denominated funding of credit institutions (ESRB/2011/2), available at http://www.esrb.europa.eu/recommendations/html/index.en.html

to European bank debt, including the reduction in the supply of US dollar-denominated money market instruments in recent years (these declined from a peak of USD 12 trillion in 2008 to the approximately USD 9.1 trillion currently registered), as well as the higher yields offered by European issuers. The decline in US dollar-denominated money market instruments is primarily explained by the collapse of the asset-backed commercial paper market following the crisis (this has decreased by 70% since 2007), a reduction in the supply of commercial paper by US non-financial corporations coupled with the demise of large financial institutions such as Lehman Brothers, Bear Stearns and Wachovia, as well as a lack of demand from remaining US banks given their access to deposits.[15] European banks seized the opportunity to tap cheaper sources of funding (i.e. by raising US dollar resources and swapping them into euro) and to finance some of their dollar-denominated assets (e.g. some trading activity). According to estimates from Fitch, at the end of June 2011 and before the exacerbation of the EU sovereign debt crisis, US fund exposure to European banks was close to 50% of the total assets of US prime money market funds, with approximately 30% accounted for by banks in France, Germany and the United Kingdom (UK). From the point of view of European banks, US MMFs thus met a significant part of their US dollar short-term funding needs – over 50% in some cases.

European bank funding from MMFs: In terms of their relative importance for European banks' short-term funding, Fitch estimated that US MMFs accounted for at least 3% of total deposits, money market and short-term funding for several European institutions, and as much as 6 or 7% in certain cases, although specific figures may fluctuate over time. To this must be added the other US prime MMFs not considered in the Fitch sample, other private cash resources from the US, as well as the funding from European MMFs. In the case of European money market funds, our estimates (based on ECB data covering MMFs in France, Ireland and Luxembourg at end-June 2011) indicate funding of around EUR 430 billion for the largest national banking sectors in Europe from European MMFs, particularly in respect of French, UK, German and Dutch banks.[16] While the overall dependence on MMFs may not appear significant in relative terms, a reduction in MMF funding forces institutions to look for alternative sources of finance and, in some cases, may even create negative perceptions about their financial condition (see Section 3.3 for a discussion of the events of summer 2011).

1.5. Other trends at play: potential effects of the new prudential frameworks

Asset pool: Basel III requests banks to lengthen their funding maturities, whilst MMFs are required to purchase short-dated debt – this could result in less paper for MMFs to purchase and a reduced source of short-term funding for banks. The Basel III liquidity coverage ratio (LCR) also stipulates that banks hold a minimum amount of high-quality assets, which would exclude securities issued by MMFs – this is likely to reduce the investor base for MMFs. Finally, banks and MMFs may have to compete for the same types of securities which are perceived as being among the most liquid assets, e.g. high-quality paper issued by public entities or non-financial corporations.

Within the European context, it is relevant to note that the CRD IV proposal for implementing Basel III considers shares or units in collective investment undertakings (CIUs) as eligible assets in terms of the LCR liquidity buffer. Such shares or units are considered eligible up to a maximum amount of

[15] See Box 1.4 of the IMF *Global Financial Stability Report* of September 2011 and Baba et al., 2009.

[16] This figure refers to data as of end-2011 and does not reflect the effects of the new ESMA classifications for funds based in Luxembourg.

EUR 250 million provided that CIUs only invest in liquid assets, except in the case of derivatives to mitigate interest rate or credit risk. With regard to Solvency II, the new prudential regime applicable to European insurers gives preferential treatment to bonds of good credit quality and short-term maturities, which may also have an impact on MMFs.

Competition with bank deposits: Basel III encourages deposits as a key source of funding for banks, possibly leading to an increase in competition from deposits and other banking products for cash placement, particularly as related to retail savings. According to the fund industry, part of the net outflows observed in 2011 is due to competition from the banking sector affecting demand for money market funds.[17] The new prudential framework may also change banks' incentives vis-à-vis their asset management subsidiaries. Conflicts of interest may also arise.

Bank contingent funding obligations: The new liquidity ratios under Basel III also require banking groups to include outflows on all liquidity lines granted to MMFs, CNAV funds in particular. Run-off rates are to be defined at the discretion of national supervisory bodies and publicly disclosed.

1.6. Consolidation in the MMF industry and other structural issues

The recent economic and financial environment represents a challenge for the MMF business model. Indeed, the low level of short-term interest rates limits the range of financial assets offering an attractive yield and, in some cases, forces MMFs to waive fees. Other factors, such as the lack of ability to differentiate between providers, increased operating costs and the need for economies of scale tend to drive consolidation within the MMF industry.[18] This trend could accelerate with the implementation of the Basel III framework, which is likely to foster competition among banking institutions and MMFs. Industry consolidation and, in turn, sponsor concentration, raises issues related to the systemic nature of some actors and thus the management of counterparty risk, as discussed further in Section 4.2.

[17] See the EFAMA report *Trends in the European Investment Fund Industry in the Fourth Quarter of 2011 and Results for the Full Year 2011*.

[18] See, for example, Moody's 2010 Review and 2011 Outlook ("Continuing consolidation").

2. Sources of risk from a financial stability perspective

2.1. Shadow banking

Maturity transformation: MMFs hold (potentially) risky assets that may mature in one year (or more) but issue shares that are redeemable on demand and viewed as safe. As such, they provide maturity transformation, with little ability to absorb losses, no explicit liquidity backstop and without being subject to the same prudential standards and supervision that apply to banks. MMFs have therefore been identified as an important component of the shadow banking system that is potentially open to "modern bank runs".

Deposit-like features: Some characteristics tend to exacerbate the deposit-like features of MMFs. US MMFs in particular offer many services similar to bank deposits, such as cheque books. The use of a constant net asset value also blurs the difference between money market funds and bank deposits, as investors are not informed of any change in the value of their shares and consider their investments to be "deposit-like". The former Chair of the Federal Deposit Insurance Corporation (FDIC), Sheila C. Bair, has noted that such funds maintain a "fiction of a stable NAV, which implies risk-free assets". In comparison, similarities with securities are more obvious for funds based on a variable net asset value. It should also be recalled that CNAV funds offer same-day liquidity whereas investors in VNAV funds asking for redemption on a given day (T) have to wait at least one additional day (T+1) to have their money back, as managers wait until the market close to run the valuation procedure.[19] Lastly, the triple-A ratings of CNAV funds in Europe (see Section 2.3 below) reinforce the perception that MMFs are "safe", particularly as the ratings process involved differs to that for securities and other funds and companies.

Treatment as cash equivalents: Another aspect to consider is the treatment of investments in MMFs as cash equivalents, depending on the interpretation of the International Accounting Standard 7 (IAS 7) Statement of Cash Flows.[20] Such treatment makes MMFs attractive for corporate clients.

Investor base and the likelihood of a run: The experience of the financial crisis shows that redemption pressures mostly came from institutional investors, as illustrated by Chart 2 (which is taken from the FSOC's 2011 Annual Report). Several factors may explain the different reactions of retail and institutional investors.[21] In particular, institutional investors are seen as particularly risk-adverse and, at the same time, possess greater sophistication and resources to monitor MMFs and redeem shares pre-emptively.

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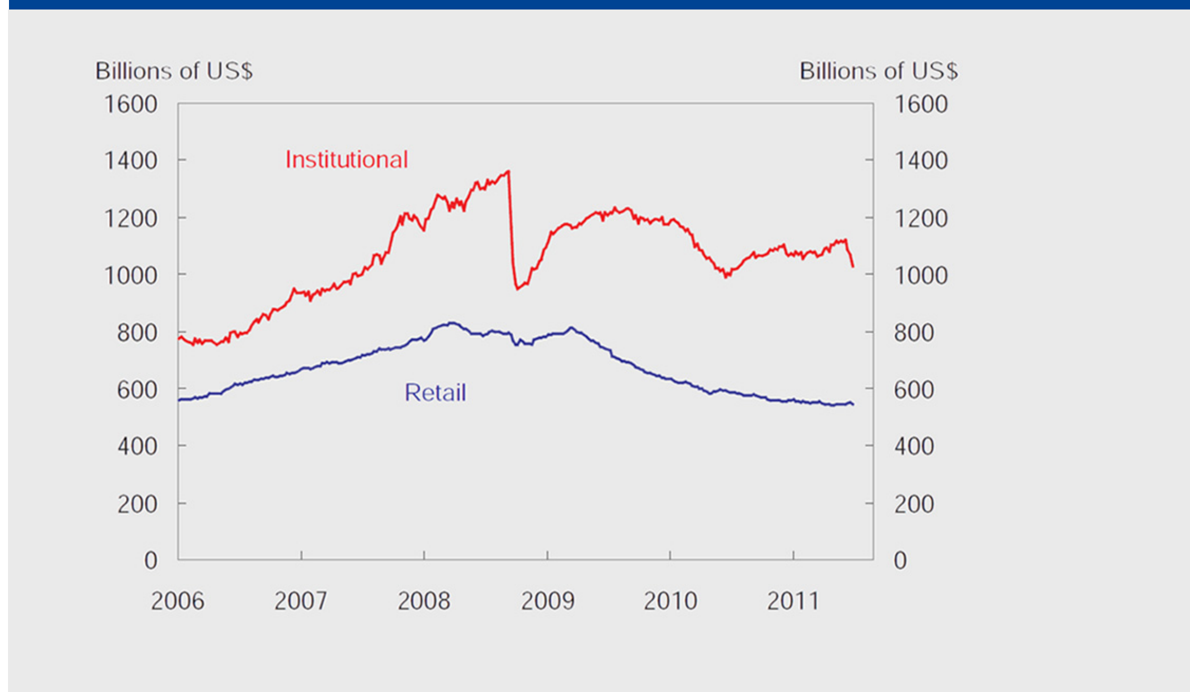
[19] CNAV managers are able to calculate the NAV at around 2 p.m. and pay back investors the same afternoon, i.e. provided a request is received by a certain cut-off hour (usually 1 p.m.).

[20] IAS 7.7.: "Cash and cash equivalents comprise cash on hand and demand deposits, together with short-term, highly liquid investments that are readily convertible to a known amount of cash and that are subject to an insignificant risk of changes in value". It is reported that the IASB is considering removing the concept of cash equivalents.

[21] See, for example, McCabe, 2010 and ECB, 2011.

Chart 2: Holdings of institutional and retail investors in US prime MMFs



Source: ICI

2.2. Accounting valuation techniques

First-mover advantage in CNAV funds: CNAV money market funds offer immediate redemptions at a rounded constant price (e.g. US$1 or €1 per share). Early redemption requests are paid at par, even if actual asset values are lower. This means that investors who redeem later bear disproportionate losses. This first-mover advantage contributes to destabilising runs. It is especially relevant for institutional investors who are extremely risk-averse and tend to react more quickly and massively than retail investors, as indicated above. Although the first-mover advantage predominantly concerns CNAV funds, experiences from the financial crisis also show that VNAV fund investors may have an incentive to divest if they suspect that the valuation of a fund's underlying assets is questionable, for example, due to illiquidity and valuation uncertainties.

Use of amortised cost accounting by other MMFs: According to the existing UCITS framework, MMFs can value their portfolio "either on market data or on valuation models including systems based on amortised costs". [22] This option, included under the EU Eligible Assets Directive of 2007, came with guidelines imposing certain conditions for the use of amortised cost accounting.[23] It is then

[22] Directive 2007/16/EC: Eligible Assets, Article 4.2(b).

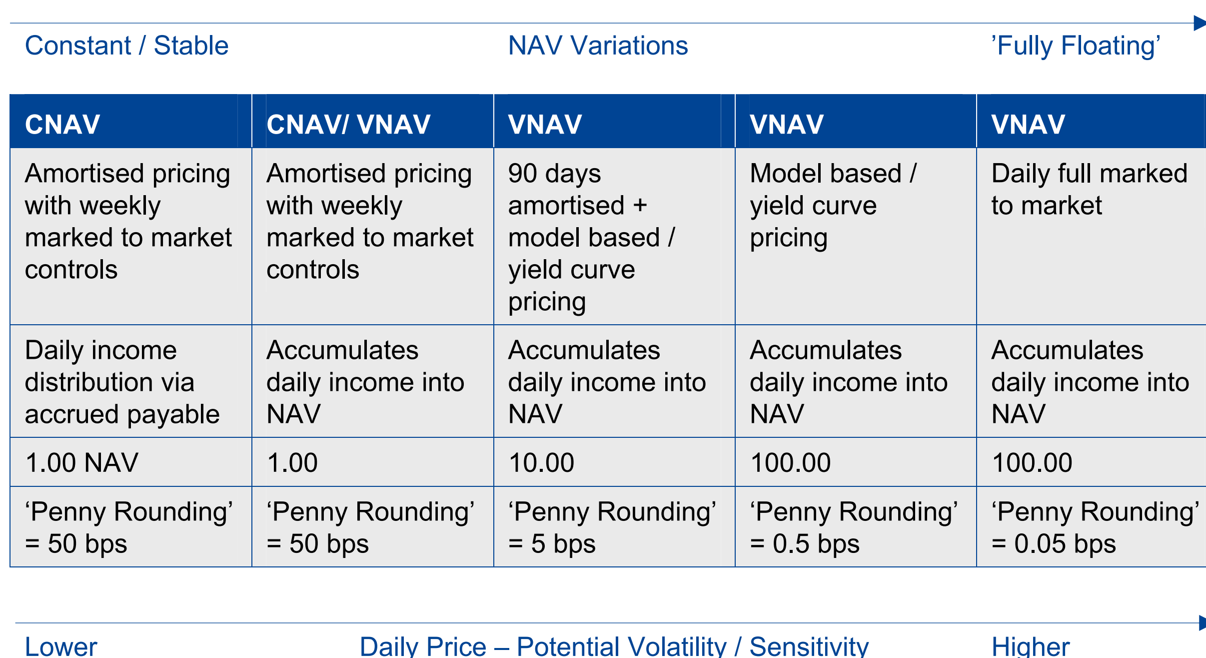
[23] Please refer to the *CESR's guidelines concerning eligible assets for investment by UCITS*, 19 March 2007. The CESR states that UCITS must ensure that the use of the amortised cost will not result in any material discrepancy with the market value. The CESR provides certain examples: a MMI with a residual maturity of less than three months and with no specific sensitivity to market parameters, including credit risk; or a 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.

left to national regulators to impose more stringent rules for asset valuation. In France for example, the use of amortised cost accounting (authorised as a simplifying approach to complement the general valuation methodology and offered to all types of funds) is restricted to negotiable debt securities of a residual maturity below three months, only if there is no particular sensitivity to market risks such as interest rate and credit risks. The rules are similar in Italy. This accounting practice is mainly tolerated because of the lack of secondary market pricing for many of the securities that MMFs invest in, and because it offers an alternative to more complicated valuation models. Furthermore, it is permitted on the basis that amortised cost valuation offers an appropriate approximation of the market prices of these types of instruments.

In the absence of specific requirements and safeguards, the use of an amortised cost accounting method by VNAV funds to value longer term underlying assets may give rise to an inaccurate assessment of a fund's portfolio value. However, one further difference between VNAV and CNAV funds with regard to valuation is that CNAV funds use amortised cost accounting for all of their assets and at the level of the fund itself, leading to two levels of linearization or rounding.

The following chart illustrates possible variations between CNAV and VNAV fund models:

Chart 3: Variations between "constant" and "fully floating" NAV funds



CNAV	CNAV/ VNAV	VNAV	VNAV	VNAV
Amortised pricing with weekly marked to market controls	Amortised pricing with weekly marked to market controls	90 days amortised + model based / yield curve pricing	Model based / yield curve pricing	Daily full marked to market
Daily income distribution via accrued payable	Accumulates daily income into NAV	Accumulates daily income into NAV	Accumulates daily income into NAV	Accumulates daily income into NAV
1.00 NAV	1.00	10.00	100.00	100.00
'Penny Rounding' = 50 bps	'Penny Rounding' = 50 bps	'Penny Rounding' = 5 bps	'Penny Rounding' = 0.5 bps	'Penny Rounding' = 0.05 bps

Source: Blackrock, 2011.

NAV fluctuations: In practice, the net asset values of some VNAV money market funds may not vary much relative to CNAV funds, as the underlying instruments will generally exhibit low asset price volatility and the amortised cost value will not differ materially from the market price. Recent figures on US money market funds show a decline in the volatility of the "shadow NAV" of US prime MMFs,

reflecting the impact of the new SEC regulation on MMFs as well as the increased risk aversion of the managers of such funds.[24]

2.3. Ratings

The discussions during the summer of 2011 regarding the impact of a US downgrade for US MMFs illustrate the importance of ratings in this industry. Two particular issues emerge from this debate: the reliance on ratings by managers for the selection of instruments and the triple-A rating of some MMFs.

Reliance on ratings by MMF portfolio managers: The ESMA guidelines make explicit references to ratings (see Section 1.2 above), but stress that these are only one element to be taken into consideration when assessing the quality and eligibility of the assets to be included in the fund portfolio and that it remains the overall responsibility of the management company to determine the quality of the instruments it invests in.

The triple-A rating of CNAV funds and investors: Most CNAV money market funds receive a triple-A rating in Europe.[25] Although the rating process entails vigilance on the part of credit rating agencies, a specific reference to a triple-A rating may create a false sense of security for investors and weaken their diligence in the selection of funds. Furthermore, the wording "triple-A" may be viewed as providing some form of credit transformation, since MMFs may hold securities rated lower than triple-A. This also highlights the risk generated by investors' overreliance on credit ratings, which is sometimes due to their own regulatory constraints (see insurance and cash equivalence issues). In addition, this may increase the volatility of investments and the pro-cyclicality of the financial system.

2.4. Differences in regulatory approach and the risk of arbitrage

Existing differences: Differences between the US and EU regulatory frameworks could raise questions about regulatory arbitrage.[26] Indeed, current differences may call for a review of certain aspects of the EU framework, particularly in relation to CNAV funds, an area where the US framework may appear to be more prescriptive and where more aspects are left to industry self-regulation in Europe.

Future reforms: Going forward, industry players will bring to Europe the new products that will emerge from the reforms across the Atlantic and the path chosen in the United States will have to be taken into account in the discussions regarding policy options in Europe. The EU framework may offer more possibilities for reform than the US one, since the EU money market fund industry is smaller and more diverse. Specifically, EU policy options could be less complex and less costly to

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[24] See Fitch, *US MMF Shadow NAV Volatility Declines Post-Crisis*, January 2012. A shadow NAV per share refers to the MMF share price calculated on the basis of the mark-to-market valuation of the assets in the fund portfolio.

[25] Ratings are accompanied with a symbol reflecting the difference with ratings on long-term debt obligations. Moody's indicated last May that more than 90% of rated MMFs now meet its Aaa-mf standards due to improvements in portfolio quality and stability. In contrast to Europe, a significant number of US MMFs are not rated due to several reasons (e.g. clients do not need the funds to be rated or the funds do not comply with the triple-A rating criteria of agencies).

[26] Some money market funds are also domiciled in offshore jurisdictions, such as the Bahamas, Bermuda and Cayman Islands.

implement. Finally, the issue of regulatory arbitrage should also be considered with regard to the effectiveness of the solutions the EU and US public authorities may seek to implement, especially in times of market stress. The need for a common approach to MMF regulation is also discussed in Section 4.2.

3. Channels of contagion

3.1. The role of MMFs in short-term funding markets

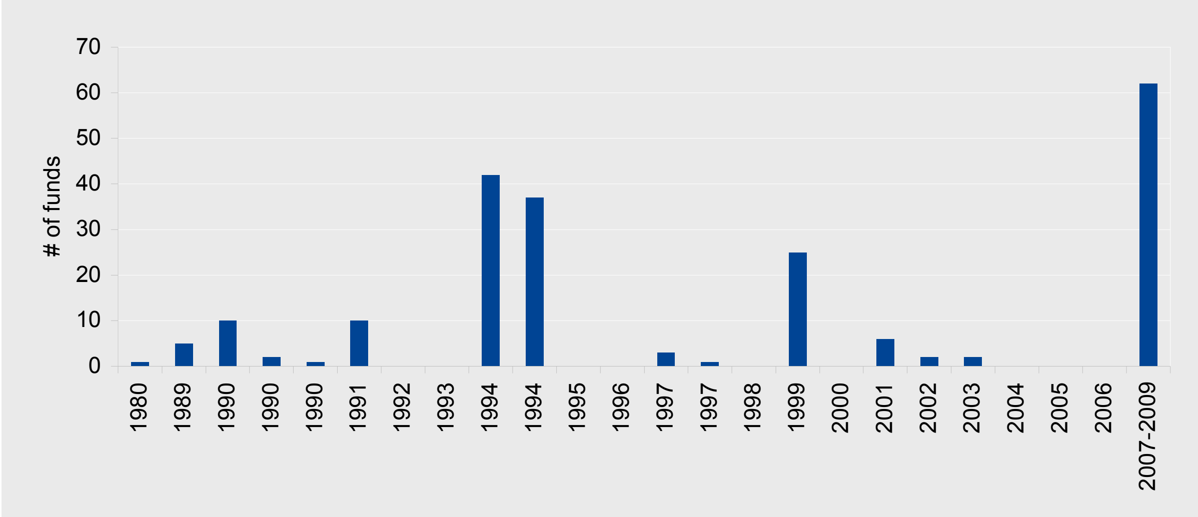
When confronted with redemption pressures, fund managers have to dispose of assets. Asset sales in stressed markets force prices down, including those for assets not experiencing credit deterioration, and all other institutions that hold these assets become affected. During the financial crisis, fund managers also reacted by investing at only the shortest maturities, creating a dislocation of the market for commercial paper and very significant funding problems. Tensions were also transmitted to the tri-party repo markets, where money markets funds are important providers of cash. Hence, under stressed market conditions, MMFs can constitute an important channel of contagion by prompting an abrupt decrease in bank funding. The discussions in the United States (see, for example, the unofficial transcript of the SEC Roundtable on Money Market Funds and Systemic Risk of May 2011), therefore, partly focus on whether MMFs may skew resources in favour of short-term funding, with potentially destabilising impacts for the financial sector.

3.2. Links with sponsors

The role of sponsors when difficulties arise: In the case of the Reserve Primary Fund, the sponsor (the fund company, Reserve Fund) lacked the resources to back the fund and prevent its net asset value from decreasing below one US dollar. Several other events have also underlined the crucial role of sponsors. Indeed, analysis conducted by Moody's demonstrates that third-party support has been provided throughout the history of MMFs. For the period 1980-2009, the agency has identified over 200 CNAV money market funds in the United States and Europe that were the beneficiary of some form of sponsor support. Such support peaked between 2007 and 2009 (Chart 4), when over 60 funds (36 US funds and 26 European ones) were in need of assistance, predominantly due to credit deteriorations/defaults and liquidity issues. According to Moody's, at least 20 firms managing prime funds in the United States and Europe incurred expenditure of about USD 12 billion in order to preserve the value of their CNAV funds. In addition, at least two fund management firms relied on parent company balance sheets and access to the Federal Reserve window to meet redemptions, while two firms consolidated MMF assets onto their balance sheets. As a consequence, analysts and credit rating agencies are now increasingly considering the importance of balance sheet and financial strength for institutions offering MMFs, thereby possibly increasing the potential for contagion to sponsors.

Chart 4: Sponsor support (number of funds receiving support and the estimated value of parent company support)

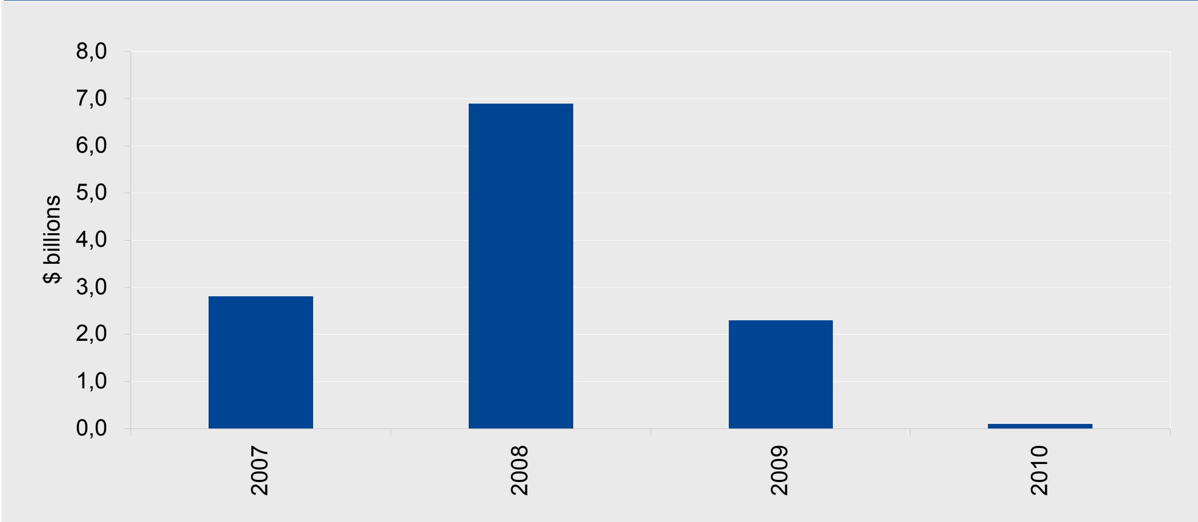
Figure 1: Number of funds receiving support: 1980-2009, US and Europe



Note of explanation: During this 30-year interval covered in Figure 1, the number of money market funds in the US and Europe ranged from 106 funds in 1980, the year of the first support event, to 834 funds at the end of 2009, including 705 funds in the US and 129 funds in Europe. The number of funds reached a peak in the year 2000, when the combined number stood at 1,091 funds. Funds represent the number of portfolios rather than share classes, and include government funds, non-government funds, tax-exempt funds, funds denominated in multiple currencies as well as accumulating and fluctuating CNAV share classes.

Sources: Moody's Investors, based on various public sources. Sources for data as to the number of funds are MoneyNet and Investment Company Institute, Investment Company Factbooks.

Figure 2: Estimated minimum pre-tax dollar value of parental support



Sources: Moody's Investors, based on financial fillings bay publicly traded firm, including Moody's analysis and estimates covering capital infusions through year-end 2010 due to impaired fund net asset values. Foreign currencies have been converted into US dollars.

While these elements confirm the importance of sponsors for money market funds, the links between sponsors and MMFs are not subject to specific regulation and oversight. Furthermore, there is anecdotal evidence that not all European MMFs have sponsors.

Contagion risk: As outlined above, a sponsor bank may be forced to provide substantial liquidity in order to prevent a fund from being suspended and triggering a panic that could also spread to its own retail client base due to the reputational risk involved. Depending on the size of the fund and the extent of redemption pressures, this could exceed the bank's capital reserves, leading to a failure and contagion to other banks.

Implicit support: While sponsor support is expected, it is not guaranteed. This is because sponsors do not usually commit to supporting a MMF in advance, since an explicit commitment may require a sponsor to consolidate a fund onto its balance sheet. During the crisis, uncertainty about the availability of such support may have fuelled runs. The extent of the linkages with the sponsor and the banking/non-banking status of the sponsor are also relevant.

3.3. MMFs and the sovereign debt crisis

A volatile source of funding: Just as MMFs played a key role in the first stage of the global financial crisis, fears have arisen that they may contribute to another liquidity crunch in funding markets in its second phase. These fears were highlighted in June 2011 when US money market funds – after having removed their exposure to European periphery countries during the first six months of 2011 – started cutting exposure to banks from other European countries (see Table 1 and the ESRB Recommendation on US Dollar-Denominated Funding of Credit Institutions).[27]

According to data from Fitch, European banks accounted for 32% of the total holdings of the ten largest US prime MMFs in December 2011, approximately 18% lower than in the first six months of 2011. Euro area banks, in turn, accounted for about 10% of the total holdings of MMFs in the Fitch sample, which represents a 16% decrease in dollar terms since end-November 2011 and a 72% decrease since end-May 2011. In addition to this absolute decline in exposure, US money market funds reduced the maturity profile of their CD exposures to European banks in several countries. Meanwhile, seeking alternative pools of assets, they increased their exposure to banks in other parts of the world, such as Canada, Japan and Australia, with these accounting for more than 30% of fund assets at the end of December 2011 – 20% higher than at the end of May 2011. The latest available data (i.e. for February 2012) tend to indicate a stabilisation and a reallocation of capital within Europe. Exposure to euro area banks increased in the first two months of 2012, albeit remaining more than 60% below end-May 2011 levels. In terms of instrument types, repos now represent close to one-third of US money market fund exposure to European banks, indicating a preference for secured exposure. CDs account for a further 32% of exposure, compared with over 50% in 2011.

[27] See also Chernenko and Sunderam, 2012. The article shows that funds with large exposure to euro area banks suffered significant outflows between June and August 2011, with significant spillover effects on other (non-euro area bank) issuers, as a result of a "sudden and indiscriminate loss of funding for a large number of firms". The authors report a 10% decline in the assets managed by US prime MMFs over this period, with some large funds experiencing outflows representing 30 to 50% of their assets.

Table 1: Exposure of US prime MMFs to European banks (percentage of total assets under management)

	May 2011					December 2011					February 2012				
	CD	CP	Repo	Other	**Total**	CD	CP	Repo	Other	**Total**	CD	CP	Repo	Other	**Total**
Total Europe	28,3	10,7	9,4	3,0	**51,5**	10,8	8,6	7,5	4,8	**31,7**	9,9	8,0	9,8	3,6	**31,3**
France	9,2	3,8	1,2	0,9	**15,1**	0,1	0,3	0,4	0,2	**1,1**	0,1	1,2	1,2	1,1	**3,6**
Germany	2,4	1,4	2,5	0,5	**6,8**	0,7	1,3	0,8	0,8	**3,6**	1,1	1,0	1,2	0,5	**3,8**
Italy	0,1	0,6	0,0	0,1	**0,8**	0,0	0,0	0,0	0,0	**0,0**	0,0	0,0	0,0	0,0	**0,0**
Netherlands	5,2	1,3	0,6	0,0	**7,2**	3,0	0,7	1,0	0,4	**5,2**	3,7	1,2	0,9	0,0	**5,8**
Spain	0,1	0,0	0,0	0,0	**0,2**	0,0	0,0	0,0	0,0	**0,0**	0,0	0,0	0,0	0,0	**0,0**
UK	5,3	1,3	3,5	0,1	**10,1**	2,0	2,4	2,5	1,4	**8,3**	2,1	2,2	3,8	0,5	**8,6**
Switzerland	2,1	0,4	1,6	0,0	**4,1**	1,8	1,8	2,7	0,4	**6,6**	0,7	1,2	2,6	0,0	**4,5**
Nordic	3,5	1,9	0,1	0,8	**6,2**	2,1	3,2	0,0	1,6	**6,9**	2,2	1,1	0,0	1,6	**4,8**
Australia	3,5	3,2	0,0	1,0	**7,7**	3,9	4,3	0,0	1,9	**10,1**	4,4	4,0	0,0	1,1	**9,5**
Canada	6,9	0,5	0,2	0,7	**8,3**	8,5	0,9	0,4	2,1	**11,9**	8,5	0,8	0,6	1,1	**11,0**
Japan	4,6	0,0	0,2	0,0	**4,8**	8,2	0,2	0,2	0,5	**9,1**	7,8	0,4	0,2	0,3	**8,8**
US	0,1	1,1	6,0	2,0	**9,2**	0,9	2,1	5,1	1,9	**10,0**	0,7	2,8	6,2	1,8	**11,6**

Source: Fitch. MMFs in Fitch's sample represent roughly USD 664 billion (45%) of the ICI's estimate of approximately USD 1.46 trillion for total US prime MMF assets.

Recent changes in the allocation of capital by US money market funds also reflect diversification objectives, as dependence hinders further withdrawal from European banks.[28] In this respect, MMFs are likely to focus on country risk and credit ratings for their investment decisions, which in itself may result in a destabilising feedback loop.

MMF and short-term issuance: A second feedback mechanism that may be worth considering is the issuance of short-term debt. The growth of MMFs in jurisdictions such as France and the United States in the 1980s was driven in part by increased issuance of short-term debt. One of the effects of the euro area crisis has been a shortened term of debt for both bank and sovereign issuance. This could potentially create a feedback loop whereby increased short-term debt feeds growth in MMFs which, in turn, increases the size of any potential systemic risk they pose.

3.4. Other potential areas of concern

Putable certificates of deposit: Finally, a potential concern relates to the recent (albeit still limited) development of putable CDs in the United States. Putable CDs are unsecured short-term debt instruments issued by banks which bear a put option to the benefit of the investor. These instruments appeal to banks as they allow them to issue instruments with longer funding maturities. In case of tensions in the financial markets, they may contribute to a systemic crisis if all investors choose to exercise their put options at the same time.[29]

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[28] For European MMFs, please refer to *European MMFs Face Shrinking Investment Universe*, Fitch, February 2012.

[29] Investments in putable CDs are allowed by the SEC regulation on MMFs; however, according to the ESMA guidelines, MMFs cannot purchase instruments with a residual maturity exceeding the maturity limits specified, even if the instrument has an embedded put option at the discretion of the management company with an exercise date within these limits.

Repo lending: Repos allow MMFs to manage excess balances. However, specific risk may also arise from MMF activity in the repo market. Specifically, when MMFs engage in repo lending they may take collateral which they may not naturally hold if the counterparty defaults. This could potentially lead to asset fire sales upon a major counterparty default. Obviously, the extent to which this is a risk depends on the concentrations of particular asset types as MMF repo collateral.[30]

Some other sources of risk may also be worth investigating, such as the re-hypothecation of assets collateralised with MMFs, although the opportunities in this area are limited for MMFs under the UCITs framework.

[30] For the US repo market context, please see "Risky debt use on repo market hits 2008 levels", Financial Times, 3 February 2012: "Money market funds, where business models are under pressure from extremely low interest rates, might accept riskier debt as security for their short-term loans because doing so can generate a higher return". The article refers to a recent report from Fitch which analyses trends for US prime MMFs and dealer activities since the second-half of 2006. See also Martin, 2012.

4. Avenues to explore further

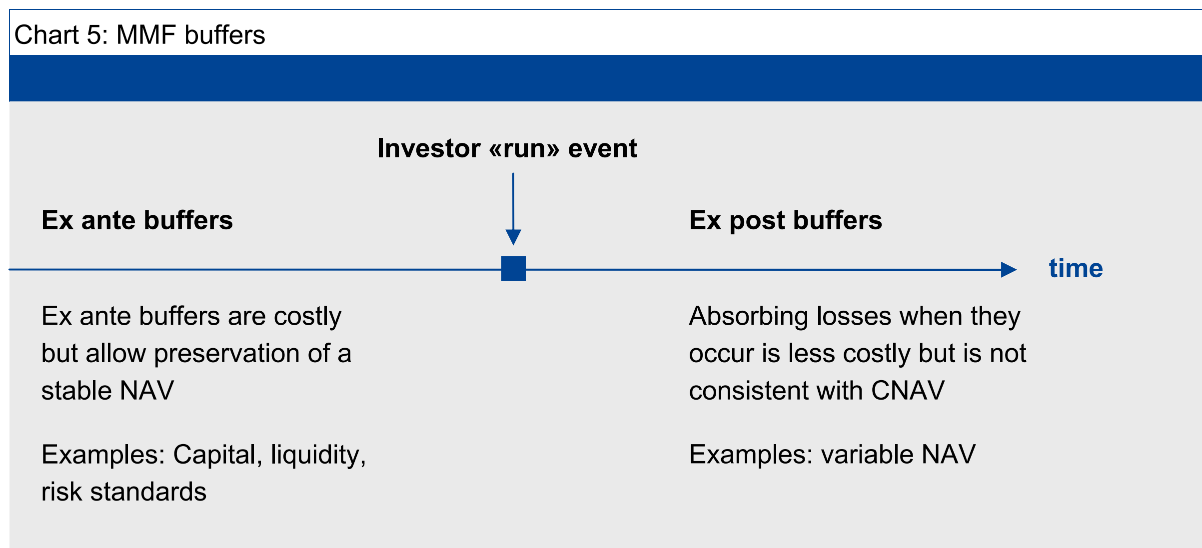
This last section lists some preliminary elements which could be analysed further, considering in particular the policy initiatives being discussed in the United States and the implications of the emerging framework for shadow banking regulation, as currently explored under the leadership of the FSB.

Given the systemic importance of money market funds, all options have to be carefully assessed in terms of their potential impact on the MMF industry and other parts of the financial system, as well as on financing for banks and the corporate sector.

4.1. Policy options

As regards policy recommendations to reduce the risks from shadow banking activities, the FSB envisages direct and/or indirect regulation. Similarly, Sandra Krieger from the Federal Reserve Bank of New York has suggested two possible options. On the first , shadow institutions must equip themselves with credible, robust backstops and shadow investors must bear the cost of transformation (e.g. in the case of CNAV funds, by introducing a variable net asset value that acts as an ex post buffer which can be adjusted rapidly in response to losses or liquidity shocks). As for the second, this involves strengthening the ability of sponsor banks to backstop shadow banking entities and increased costs on their part here (Chart 5).

Chart 5: MMF buffers



Source: Krieger (2011)

In its annual report of July 2011, the FSOC stressed the need for further reforms and recommended a *"particular emphasis on (i) a mandatory floating net asset value (NAV), (ii) capital buffers to absorb fund losses to sustain a stable NAV, and (iii) deterrents to redemption, paired with capital buffers, to mitigate investor runs"*.

At the international level, the FSB has asked the IOSCO to review *"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 on MMFs which continue to promise investors constant NAV, and/or (iii) whether there are other possible approaches"*.

Direct regulation: A first set of policy options involves direct regulation of MMFs. The ESMA guidelines on MMFs were established with a focus on investor protection and the sound functioning of markets. As such, they may need to be expanded and/or reviewed in order to address concerns regarding financial stability (an objective recently added to the market regulation ones). It should also be emphasised that the existing regulations applicable to money market funds in Europe still have to be implemented in a number of countries or have only just been introduced (1 July 2011 for the UCITS IV Directive and ESMA's MMF guidelines). A key issue will therefore be the full enforcement and embedding of the rules, as well as the convergence of supervisory practices and methods across Europe.

The avenues for further exploration at the European level would include:

(a) requiring a mandatory move to a variable NAV for all European MMFs;

(b) introducing specific regulatory requirements or ex ante buffers for CNAV money market funds:
- several "capital solutions" or "NAV buffers" are currently being discussed in the United States (see Appendix 6 for an overview of some of these proposals) – for example, sponsors could be required to fund a capital buffer or a NAV buffer could be established for each MMF by setting aside a small amount of income from the portfolio;

(c) addressing the issue of MMF liquidity by imposing clear and detailed liquidity management requirements:
- "regular" tools for liquidity management, including guidelines stating the approach required from fund managers and the possibility of imposing more stringent tests for assessing the liquidity (and therefore eligibility) of instruments – liquidity ratios (i.e. a minimum share of "highly liquid", non-risky assets) may also be considered, along similar lines to the US approach;
- tools to be used in "exceptional" circumstances, such as redemption gates, side pockets and suspensions, i.e. bearing in mind the protection of investors' interests – one possibility under discussion in the United States is the imposition of redemption fees to create an economic incentive that discourages runs and forces investors to bear liquidity costs;
- rules reinforcing managers' responsibility to investigate the composition of the investor base (i.e. in terms of investor types and redemption patterns) of the MMFs they manage, so as to be better able to anticipate large redemption orders;

(d) designing a resolution framework, as the UCITS framework does not cover the winding down of funds; one which addresses the regulatory closure of a fund and stipulates how illiquid assets should be dealt with in the interest of investors and the market (such as via redemptions in-kind);

(e) addressing remaining questions such as references to ratings; in addition, the comparison of VNAV and CNAV funds highlights a more general problem of UCITS regarding the consistency of valuation rules across Europe – in particular, the use of amortised cost accounting could be restricted to securities with very short maturities, combined with the obligation for managers to periodically check the existence of any discrepancies with the fair value of these instruments and to act accordingly in a prompt way;

(f) designing a framework to address sponsor issues and the relationship between a money market fund, its sponsor bank and any affiliates thereof, particularly in respect of CNAV funds;

(g) exploring regulatory solutions to encourage better convergence between the US and EU MMF environments in order to avoid regulatory arbitrage that could be detrimental to the EU money market fund industry – and which, ultimately, could undermine financial stability in the European Union.

Indirect regulation: Indirect regulation could also be considered, for example, by way of prudential requirements for banking entities related to CNAV money market funds, i.e. via explicit sponsoring and capital requirements for the financial entities which sponsor MMFs.

All of the policy options listed above, which are not mutually exclusive and are listed in no order of priority, will have to be thoroughly assessed and carefully considered in the context of their potential impact on financial stability and market functioning. Specifically, the policy options under discussion will be influenced by the desired future shape of the industry (e.g. the transformation of MMFs into "quasi-banks" or the imposition of additional constraints on existing business models within the scope of market/investment fund regulation). The following section identifies some of the factors to be considered and illustrates the complexity of the issues at hand.

4.2. Factors to be considered

Moral hazard: The exceptional measures adopted in the United States to support the money market funds there may have raised expectations of government intervention in the case of MMFs facing difficulties. Following the adoption of the Dodd-Frank Wall Street Reform and Consumer Protection Act, the US federal government no longer carries the authority to stop a run on money market funds. When exploring policy options, the issue of moral hazard and its impact on risk-taking will have to be taken into consideration (e.g. as regards insurance and access to central bank liquidity). Regulatory changes, such as the introduction of explicit liquidity ratios, may also have some implications in terms of moral hazard, as managers may try to compensate for the loss of returns due to a stipulated minimum level of very liquid assets by holding riskier assets in the other part of the fund portfolio. Similarly, the use of side pockets and redemption gates should only be permitted as a way to deal with exceptional situations of illiquidity and not as an easy way out for risky behaviour and/or failure to comply with existing rules.

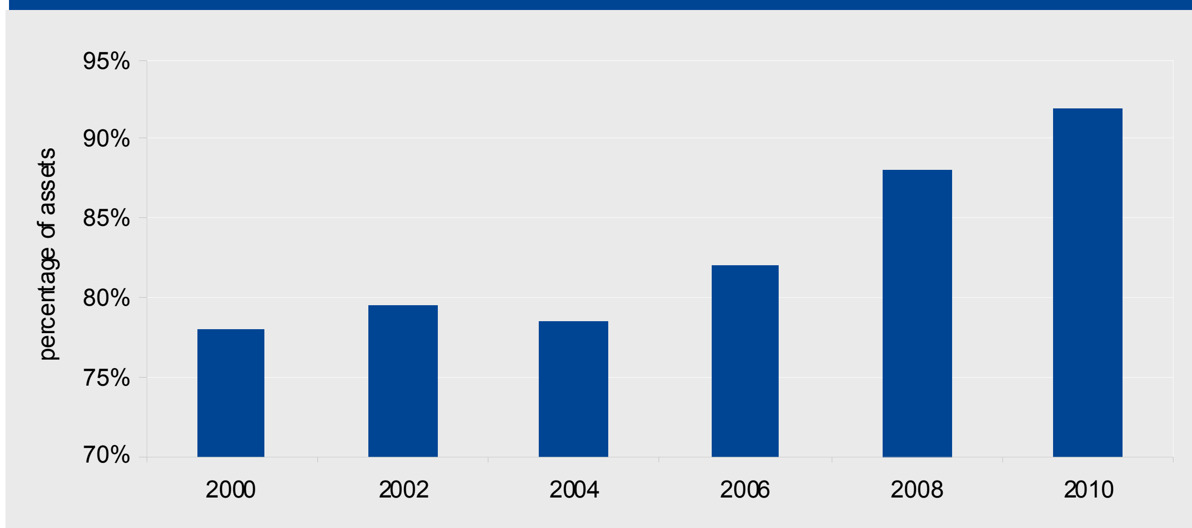
Concentration of deposits in banks: A more rigorous regulatory framework for MMFs would lead to a better assessment of their risks, with likely consequences for the prices faced by investors. Investors may also choose to reduce their investments in MMFs if the industry norm changes significantly, for example, if it moves to a floating NAV. Some opponents of the shift to a floating NAV in the United States have underlined this point and note that this may lead to a greater focus on banks or generate interest in less regulated funds, perhaps ones located offshore, which may in turn increase risks. However, others would argue that substituting MMFs – funds that are not called "deposits", but which have been implicitly "insured" because of their significance for bank funding – with explicitly insured deposits, can only increase transparency and financial stability.

Impact on financing: Changes affecting the MMF industry are likely to have consequences in terms of the availability, length and cost of financing for both banks and non-financial corporations; these aspects will be reinforced by the new banking regulations, particularly those relating to liquidity.

Impact on the cash equivalent status of MMFs: The potential impact of the various policy options on the cash equivalent status of MMFs will have to be considered, as this is an important driver of corporate investment in MMFs.

Impact on the consolidation of the MMF industry: As discussed above, several trends are driving a consolidation of the MMF industry in Europe, similar to those observed in the United States. For example, Chart 6 below shows the growth in the market share of the top 20 firms in the United States – other figures indicate that the top ten US firms account for about 75% of all assets under management and 80% of institutional assets.[31] Meanwhile, Chart 7 shows a decrease in the number of MMFs registered in the three main countries of domicile of European MMFs; these contracted from approximately 1,400 at the beginning of 2009 to slightly below 1,100 at the end of February 2012, with part of this decline being linked to the adoption of the new ESMA classifications and the end of the transition period in December 2011 (i.e. for Ireland and Luxembourg). This end-February 2012 figure is also lower than that registered in 2006, when the total assets under management of MMFs were comparable to today's levels. Going forward, it is possible that regulation forces consolidation in the MMF sector which then results in a larger concentration of risk, including at the sponsor level. In this regard, one should note that the current discussions in the United States take into consideration aspects of industrial organisation, such as the impact on small fund providers, the consequences in terms of barriers to entry for new fund sponsors, as well as the implications for the sponsor model (notably as regards bank-sponsored versus "pure" asset managers).

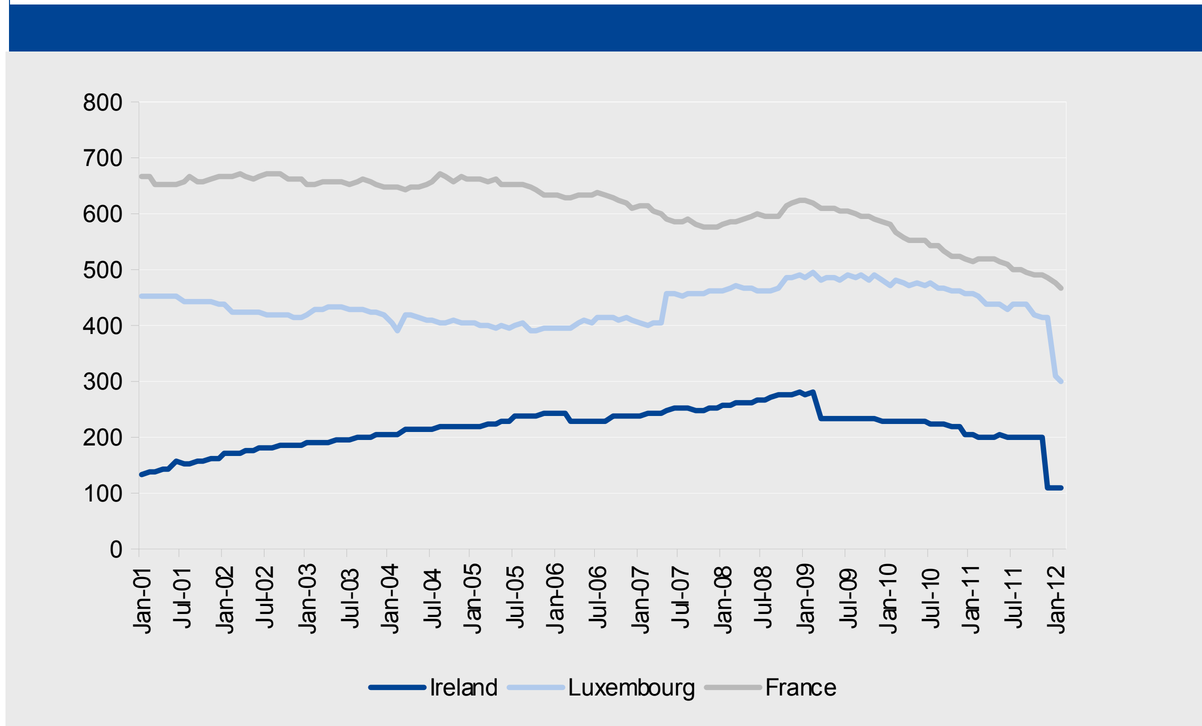
Chart 6: Industry consolidation among the top 20 US firms (2000-10)



Source: Moody's, 2011, based on iMoneyNet and Moody's.

[31] SEC Commissioner E. B. Walter, *Remarks at the 2012 Mutual Funds and Investment Management Conference*, March 2012.

Chart 7: Number of money market funds in France, Ireland and Luxembourg (1999-2011)



Source: ECB (last observation: February 2012)

Regulatory obstacles and/or the need for consistency: MMFs are regulated in Europe as investment funds. Further regulation, including prudential requirements based on banking regulation, may be confronted with a problem at the level of EU law, as MMFs are subject to the UCITS and Alternative Investment Fund Managers (AIFM) directives with maximum harmonisation. Furthermore, there is a need for consistency across jurisdictions: in particular, under the AIFM Directive, non-European MMFs may benefit from "passporting" rights allowing them to market their services to investors throughout the EU's 27 Member States as of July 2015. The disengagement of US money market funds from European banks during the course of summer 2011 has also shown the international linkages created by MMFs. It is therefore crucial to seek consistency in the regulation of MMFs at the global level and agreement on a common set of financial stability principles. Dialogue at the international level is being facilitated by the work of the IOSCO and the FSB.

4.3. Monitoring of MMFs

MMF categories: Initiatives are already under way at the FSB, ECB and the ESRB with regard to the monitoring of shadow banking entities and data gaps. In order to improve the monitoring of MMFs in Europe and their linkages with the rest of the financial system, several points should be considered, including the need for better assessment and monitoring of CNAV funds, as well as the inclusion of the new ESMA classifications (i.e. STMMFs and MMFs) in the data reported.[32]

[32] As mentioned earlier, the ECB has recently introduced new identification criteria for MMFs based on the ESMA guidelines (ECB Regulation (EU) No 883/2011, 25 August 2011). However, the reporting does not distinguish between MMFs and STMMFs.

Concentration issues and sponsors: In terms of assessing the risks to financial stability, the size of individual MMFs and concentration issues should also be taken into consideration. As discussed above, recent analyses from rating agencies underline the recent growth in the size of MMFs, and point to higher levels of fund exposure to individual issuer names (due, in particular, to tight supplies of eligible securities). Concentration of the investor base of certain MMFs may also be an issue of interest from a financial stability perspective. Lastly, an effective monitoring framework will also need to consider the links with banking entities, such as sponsor banks.

Portfolio disclosure: As part of the changes introduced under the reform of 2010, the SEC now requests US money market funds to file detailed data on their holdings every month, including the mark-to-market value ("shadow NAV") of the assets held. This information is then made publicly available 60 days later. Such information allows better monitoring of the positioning and risk-taking of MMFs, both on the part of regulators and investors. Having said this, public disclosure may exacerbate redemption pressures and fire sale effects. Moreover, it is unlikely that all investors will have the resources and capabilities to monitor and analyse the available information.

Concluding remarks

The money market fund industry and the business models it applies are currently under review in the United States and Europe and also at the international level. Further structural reforms are expected across the Atlantic and the International Organization of Securities Commissions is due to submit its assessment and policy recommendations by July 2012. The European market for MMFs differs from the US one, primarily because it features both VNAV and CNAV money market funds. There is also considerable heterogeneity at the country level within Europe. However, the market share of CNAV funds similar to those present in the United States has grown rapidly here and is currently estimated at around 40%.

While discussions on MMFs are now ongoing in the United States and at the international level, in Europe, the ESRB is well-placed to develop its own thinking on this issue, benefiting from the different expertise and perspectives of its members, central bankers and European regulators and supervisors alike. The outcome of such work may also help inform the European Commission's reflections on shadow banking.

Despite significant challenges, the European context could offer flexibility in terms of policy responses to the issues that have been identified with regard to money market funds. In addition, given the international linkages created by such funds, it is important to pursue a common set of principles – applicable across all jurisdictions – to reinforce the robustness of the MMF industry globally.

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List of tables and charts

Chart 1: European money market funds: monthly cash flows and total assets under management (2006-11) 8

Chart 2: Holdings of institutional and retail investors in US prime MMFs 14

Chart 3: Variations between “constant” and “fully floating” NAV funds 15

Chart 4: Sponsor support (number of funds receiving support and the estimated value of parent company support) 19

Chart 5: MMF buffers 23

Chart 6: Industry consolidation among the top 20 US firms (2000-10) 26

Chart 7: Number of money market funds in France, Ireland and Luxembourg (1999-2011) 27

Table 1: Exposure of US prime MMFs to European banks (percentage of total assets under management) 21

Appendix 1: Glossary

Net asset value (NAV): A mutual fund's price per share, calculated by dividing the total value of its securities and other assets, less any liabilities, by the number of fund shares outstanding.

"Breaking the dollar" or "breaking the buck": A phrase used to describe when the net asset value of a money market fund is re-priced from its stable US$1.00 NAV, an event that could be triggered by a deviation greater than one-half of 1 per cent (one-half cent or US$0.0050) between the fund's mark-to-market value (shadow price) and its stable US$1.00 NAV.

Constant net asset value money market funds: A constant or stable NAV money market fund seeks to maintain an unchanging face value (e.g. US$1/€1 per unit/share). Income in the fund is accrued daily and can either be paid out to the investor or used to purchase more units in the fund. Assets are generally valued on an amortised cost basis which takes the acquisition cost of the security and adjusts this value for amortisation of premiums (or discounts) until maturity.

Short-term money market funds (STMMFs) and money market funds (MMFs): According to the classifications established by ESMA, STMMFs operate on the basis of portfolios with a very short weighted average maturity and weighted average life. MMFs operate on the basis of portfolios with a longer weighted average maturity and weighted average life.

Government money market fund (US-specific): A taxable money market fund invested principally in US Treasury obligations and other financial instruments issued or guaranteed by the US government, its agencies, or its instrumentalities. One type of government fund is a Treasury money market fund, which primarily invests in direct government obligations, such as US Treasury bills and other short-term securities backed by the US government either through direct purchases or repurchase agreements collaterised by such securities.

Prime money market fund (US-specific): A taxable money market fund that invests in high-quality, short-term money market instruments including Treasury and government obligations, certificates of deposit, repurchase agreements, commercial paper and other money market securities.

Shadow price/shadow net asset value: A shadow price is the price per share of a money market fund obtained by using market prices to value fund assets. The shadow price is calculated as the market value of a money market fund's total net assets divided by the number of fund shares outstanding. The shadow price is also referred to as the mark-to-market net asset value.

Undertakings for collective investment in transferable securities (UCITS): UCITS are investment funds that have been established in accordance with the UCITS Directive adopted in 1985. Once registered in one EU country, a UCITS fund can be freely marketed across the EU. On 1 July 2010 the European Commission completed a programme of improvements to the EU framework for investment funds by adopting four implementing acts (two Directives and two Regulations) under Directive 2009/65/EC. These improvements include better investor information as well as high standards of business conduct.

Weighted Average Maturity (WAM): According to ESMA, **the** WAM is a measure of the average length of time to maturity of all of the underlying securities in a fund weighted to reflect the relative holdings in each instrument, assuming that the maturity of a floating rate instrument is the time remaining until the next interest rate reset to the money market rate, rather than the time remaining

before the principal value of the security must be repaid. In practice, the WAM is used to measure the sensitivity of a money market fund to changing money market interest rates.

Weighted Average Life (WAL): According to ESMA, the WAL is the weighted average of the remaining life (maturity) of each security held in a fund, meaning the time until the principal is repaid in full (disregarding interest and not discounting). Contrary to the WAM, the calculation of the WAL for floating rate securities and structured financial instruments does not permit the use of interest rate reset dates and instead only uses a security's stated final maturity. The WAL is used to measure the credit risk, as the longer the reimbursement of principal is postponed, the higher is the credit risk. It is also used to limit the liquidity risk.

Alternative Investment Fund Managers Directive (AIFMD): The wide range of investment funds that are not already regulated at the European level by the UCITS Directive are referred to as "alternative investment funds". Once the AIFMD enters into force, all such funds will be required to obtain authorisation and will be subject to ongoing regulation and supervision. The AIFMD will introduce a genuine "single market framework" for this sector, providing funds with a "passport" to market their services throughout the EU on the basis of a single authorisation. Following a limited transition period of two years, and subject to the conditions set out in the AIFMD, this passport will be extended to the marketing of non-EU funds, managed both by EU alternative investment fund managers and their counterparts based outside the EU. The Directive was adopted in November 2010 and has to be transposed into national law and applied by Member States by 2013.

Sources: ESMA, ICI and the European Commission.

Appendix 2: MMFs during the financial crisis

The experience of the Reserve Primary Fund

The Reserve Primary Fund "broke the buck" (i.e. its NAV dropped below US$1) on 16 September 2008, announcing a share price of 97 cents for its flagship fund, because of exposure to Lehman Brothers' commercial paper. This phenomenon had only happened once before and the Reserve Primary Fund was the first MMF open to the general public to ever break the buck.

Furthermore, this event triggered a run on US MMFs. According to data from Moody's, between 9 September and 23 September 2008, the value of holdings by institutional investors in prime MMFs decreased from 1,330 to 948 US$ billions, while that of retail investor holdings declined from 755 to 727 US$ billions. The rapid outflows from prime money market funds seriously disrupted credit markets where MMFs were the major buyers. Interest spreads on asset-backed commercial paper increased dramatically and the share of issued paper maturing in one to four days expanded from roughly 50% to over 90%. The crisis later spread to non-US funds and precipitated severe liquidity strains in world markets.

These events forced the Federal Reserve System to intervene massively. The Federal Reserve created two emergency liquidity facilities designed to backstop money market funds: the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) and the Commercial Paper Funding Facility (CPFF). These programmes also supported short-term funding markets in general. In addition, there was the special Money Market Investor Funding Facility (MMIFF) that was intended to provide liquidity to US MMFs and certain other money market investors, but it was never used. The US Treasury also created the Temporary Guarantee Program for Money Market Funds, which insured shareholder assets in participating MMFs.

European MMFs and the financial crisis

The difficulties encountered by the European MMF industry at the beginning of the financial crisis arose from so-called "enhanced MMFs". These funds (which were often authorised as bond or diversified funds and not as money market funds per se) offered higher returns by taking on additional risk, notably by investing in longer dated and more volatile instruments, such as short-term bonds and currencies, and by pursuing arbitrage on credit instruments. The value of this market segment increased rapidly in the years prior to the crisis, from around EUR 42 billion by the end of 2004 to a peak of EUR 137 billion in the second-quarter of 2007. In 2007, some funds faced difficulties 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, subsequently resulting in valuation problems.

In the third-quarter of 2007, enhanced MMFs experienced significant redemptions, most notably those based in Luxembourg, Germany and France. In Europe, as a whole, around 15 to 20 funds suspended redemptions for a short period and four of these were eventually closed. In a number of cases, parent banks provided support to funds by either acquiring troubled assets or issuing guarantees.

Significant levels of redemption activity were further witnessed following the collapse of Lehman Brothers, with some indications of sponsor support. Government authorities in Germany and Luxembourg also made statements announcing the provision of special liquidity assistance. The Irish

central bank also tried to deal with valuation issues by requiring managers to review discrepancies with mark-to-market prices.

Compared with the experience of the US described above, redemption pressures in Europe, while substantial, remained contained and the ECB did not intervene directly to provide liquidity support.

Sources: Krieger (2011), Gunnarsdottir and Strömqvist (2010), ECB (2011), Rosengren (2011) and Bengtsson (2012), among others.

Appendix 3: Differences between CNAV and VNAV funds

The principal difference between constant net asset value (CNAV) and variable net asset value (VNAV) funds is the **accounting technique** used to value their assets. Money market funds may be allowed to use two separate accounting techniques for this purpose:

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

Constant net asset value funds use amortised cost accounting to value all of their assets. This enables them to maintain a net asset value (this is a mutual fund's price per share) of €1, £1 or US$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.[33]

Generally, there is a requirement for the fund manager to periodically calculate (usually on a weekly or daily basis) the fair market value or a "shadow net asset value" and to compare it with the amortised cost. In the United States, if there is a difference of more than one-half of 1%, the fund must re-price its shares, an event colloquially known as "breaking the buck". In Europe, according to the IMMFA Code of Practice, if the variance is beyond a pre-set level, the fund manager needs to implement procedures to narrow the gap.

Many CNAV money market funds carry "AAA" or similar top ratings from rating agencies. It is stipulated that all IMMFA members must obtain a triple-A rating for their funds.

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

According to the ESMA (i.e. the Committee of European Securities Regulators) guidelines of 2010, money market funds should not be allowed to use a constant net asset value, as they are more sensitive to interest rate changes than short-term money market funds.

Sources: IMMFA, ESMA/CESR and IOSCO.

[33] According to data from IMMFA, in September 2011, stable NAV funds accounted for 90% of all IMMFA fund assets, as compared with the 10% for accumulating NAV funds.

Appendix 4: ECB data

MMFs balance sheet - Liabilities' breakdown [1]

	Structural data				Liabilities - Geographical counterpart			
	Registred funds	Tot. assets (EUR mn)	Share of EU	Cumulated flow (last 12m)	Domestic	Other Euro Area [2]	Rest of the world [3]	Not allocated
AT	16	1,303	0.1%	-1,110	80.3%	13.4%	5.7%	0.7%
BE	13	4,372	0.4%	2,467	66.8%	14.0%	19.0%	0.2%
CY	0	-	-	-	-	-	-	-
DE	53	6,621	0.6%	-1,190	58.0%	35.3%	6.1%	0.6%
EE	0	-	-	-	-	-	-	-
ES	78	8,054	0.8%	-119	98.7%	0.8%	0.3%	0.2%
FI	30	11,423	1.1%	1,004	76.0%	1.9%	21.4%	0.7%
FR	486	369,346	35.4%	-43,204	90.0%	n/a	n/a	10.0%
GR	20	745	0.1%	-442	97.7%	0.7%	0.8%	0.8%
IE	109	287,611	27.6%	23,944	4.6%	12.7%	81.9%	0.8%
IT [5]	27	27,964	2.7%	-11,564	96.3%	0.1%	0.2%	3.4%
LU [5]	412	302,697	29.0%	12,895	6.5%	31.8%	59.3%	2.4%
MT	6	219	0.0%	-40	93.5%	0.5%	5.9%	0.1%
NL	7	n/a	n/a	n/a	n/a	n/a	n/a	n/a
PT	3	65	0.0%	19	99.2%	0.0%	0.6%	0.2%
SI	3	26	0.0%	13	99.8%	0.1%	0.1%	0.0%
SK	8	383	0.0%	-536	97.9%	0.3%	1.3%	0.5%
Euro area	**1275**	**1,020,829**	**97.8%**	**-17,862**	**41.1%**	**14.8%**	**41.3%**	**2.8%**
BG	5	51	0.0%	1	76.5%	0.0%	23.0%	0.0%
CZ	8	479	0.0%	-395	86.7%	n/a	n/a	13.3%
DK	2	98	0.0%	16	n/a	n/a	n/a	n/a
GB	31	5,567	0.5%	520	100.0%	0.0%	0.0%	0.0%
HU	61	4,317	0.4%	-638	97.5%	0.4%	2.2%	0.0%
LT [5]	2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LV	2	93	0.0%	-23	100.0%	0.0%	0.0%	0.0%
PL [5] [7]	2	174	0.0%	-31	100.0%	0.0%	0.0%	0.0%
RO [5]	13	880	0.1%	134	99.3%	0.5%	0.3%	0.0%
SE	28	10,874	1.0%	3,002	96.1%	1.0%	2.9%	0.0%
European Union	**1429**	**1,043,362**	**100.0%**	**-15,277**	**42.3%**	**14.5%**	**40.4%**	**2.8%**

	Liabilities - sector counterpart (euro area) [6]					
	MFI [4]	General Gov.	Other financial intermediaries	Insurance and pension funds	Non-financial corporations	Households
AT	2.5%	1.5%	37.0%	7.7%	10.8%	26.1%
BE	n/a	n/a	n/a	n/a	n/a	n/a
CY	-	-	-	-	-	-
DE	n/a	n/a	n/a	n/a	n/a	n/a
EE	-	-	-	-	-	-
ES	4.4%	n/a	n/a	n/a	n/a	n/a
FI	1.8%	9.5%	13.1%	22.9%	13.5%	39.3%
FR	18.0%	0.0%	17.0%	26.0%	30.0%	10.0%
GR	12.0%	3.4%	1.5%	9.1%	0.7%	73.3%
IE	n/a	n/a	n/a	n/a	n/a	n/a
IT [5]	0.3%	0.1%	2.9%	0.4%	3.4%	92.9%
LU [5]	n/a	n/a	n/a	n/a	n/a	n/a
MT	0.0%	0.0%	1.3%	3.2%	3.9%	91.5%
NL	n/a	n/a	n/a	n/a	n/a	n/a
PT	0.0%	0.9%	9.2%	8.5%	6.6%	74.8%
SI	0.0%	8.0%	5.9%	19.4%	5.0%	61.7%
SK	0.0%	0.0%	12.6%	1.2%	5.7%	80.4%
Euro area	**n.c.**	**n.c.**	**n.c.**	**n.c.**	**n.c.**	**n.c.**

Source: ECB and Banque de France. Data at end-2011.
(1) Data may not add up to 100% due to roundings.
(2) For euro area (EA) member states it is equivalent to the EA minus domestic; for non-EA member states it is equivalent to all the EA.
(3) Rest of the world (i.e. non-domestic and non-EA investors).
(4) Including other MMFs.
(5) Data compiled according to the MMF definition of Regulation ECB/2008/32 (i.e. prior to the adoption of the new ESMA definition).
(6) Data for France refers to the breakdown of domestic investors only.
(7) For Poland data are derived from publicly available sources.

Appendix 4: ECB data (continued)

MMFs Balance Sheet - Assets' breakdown (1)

	Assets - Geographical counterpart				Assets - Counterpart sector (Euro area)(4)				Assets - Counterpart sector (RoW)		
	Domestic	Other Euro Area	Rest of the world (2)	Not allocated	MFI(3)	General Gov.	Non-financial corporations	Other sectors	Banks	General Gov.	Other sectors
AT	29.2%	48.8%	21.6%	0.3%	83.3%	9.9%	1.2%	5.6%	75.9%	2.8%	21.3%
BE	19.7%	54.4%	23.9%	2.0%	35.2%	39.5%	9.2%	16.2%	60.5%	8.0%	31.5%
CY	-	-	-	-	-	-	-	-	-	-	-
DE	54.9%	24.9%	17.9%	2.3%	50.6%	39.1%	3.1%	7.2%	49.5%	31.5%	19.0%
EE	-	-	-	-	-	-	-	-	-	-	-
ES	87.0%	8.9%	3.0%	1.0%	57.5%	38.7%	1.6%	2.3%	28.6%	16.7%	54.7%
FI	34.5%	21.1%	44.3%	0.1%	55.4%	6.0%	26.4%	12.2%	68.8%	15.1%	16.1%
FR	66.0%	23.0%	10.0%	0.0%	82.0%	5.0%	n/a	n/a	n/a	n/a	n/a
GR	88.5%	7.7%	3.9%	0.0%	88.0%	10.3%	0.0%	1.7%	58.6%	0.0%	41.4%
IE	0.6%	23.7%	75.3%	0.4%	77.3%	16.1%	0.1%	6.5%	77.6%	15.2%	7.2%
IT (5)	88.0%	8.4%	2.2%	1.4%	17.0%	82.3%	0.1%	0.6%	39.0%	37.4%	23.8%
LU (5)	5.3%	37.9%	54.8%	2.1%	65.4%	23.1%	4.4%	7.2%	69.8%	15.7%	14.4%
MT	91.0%	8.5%	0.0%	0.6%	83.4%	11.9%	0.0%	4.7%	0.0%	0.0%	0.0%
NL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
PT	90.5%	8.0%	1.5%	0.0%	79.1%	13.3%	7.5%	0.0%	100.0%	0.0%	0.0%
SI	80.4%	19.1%	0.0%	0.5%	77.9%	19.2%	0.0%	2.9%	0.0%	0.0%	0.0%
SK	94.3%	3.8%	1.1%	0.7%	73.5%	25.8%	0.1%	0.6%	20.9%	60.9%	18.2%
Euro area	**29.8%**	**26.0%**	**41.9%**	**2.3%**	**74.3%**	**15.2%**	**4.4%**	**6.2%**	**75.9%**	**14.2%**	**9.9%**

Source: ECB and Banque de France. Data at end-2011.
(1) Availble for euro area member states only. Data may not add up to 100% due to roundings.
(2) Rest of the world (i.e. assets from non-domestic and non-EA borrowers).
(3) Including other MMFs.
(4) Data for France represent the breakdown of net assets instead of total assets.
(5) Data compiled according to the MMF definition of Regulation ECB/2008/32 (i.e. prior to the adoption of the new ESMA definition).

Appendix 5: Comparison of EU and US regulation on MMFs

	European Union	US
Eligible assets	• MMFs invest in money market instruments (which comply with the related criteria set out in Directive 2009/65/EC) and deposits with credit institutions. • Must not take direct or indirect exposure to equity or commodities. • Can only use derivatives in line with the money market investment strategy of the fund. • Derivatives which give exposure to foreign exchange may only be used for hedging purposes. Investment in non-base currency securities is allowed provided the currency exposure is fully hedged. • Must limit investment in other collective investment undertakings to those which comply with the definition of MMFs (STMMFs). • MMFs must ensure that the instruments they invest in are of high quality, i.e. given the credit quality, the nature of the asset class, the operational and counterparty risk in the case of structured financial instruments, and the liquidity profile. • Directive 2007/16/EC (Eligible Assets) also defines the main criteria for assessing the liquidity of money market instruments.	• A MMF shall limit its investment to those USD-denominated securities that the fund's board of directors determines present minimal credit risk. • Securities not meeting the maturity, liquidity and diversification requirements of rule 2a-7 are not permitted as investments in a MMF. • A MMF must invest at least 97% of its assets in first-tier securities; second-tier securities (limited to 3% of assets) present minimal credit risks but are still not first-tier securities.
Concentration limits and diversification	General risk diversification ratios apply, including the: • 5-10/20/40% ratio applicable to investments in the same entity; • 20% ratio applicable to a single issuer; • 35 or 100% (provided no position represents more than 30%) ratio for eligible public and semi-public instruments.	• Concentration limit of 5% of assets in securities issued by a single entity. • Concentration limit on Tier 2 securities of a specific issuer of 0.5%. • A MMF cannot "look through" a repurchase agreement for purposes of satisfying the diversification provisions of the rule unless the repo is collaterised with government securities.
Ratings	• No "over reliance" on credit rating agencies. A credit rating is only one among several elements that need to be taken into consideration to assess the creditworthiness of an instrument. • ESMA guidelines stipulate that an instrument may be considered of a high credit quality if it has been awarded one of the two highest available short-term credit ratings by each recognised credit rating agency which evaluates it – or is of an equivalent quality, if not rated. • MMFs that are not STMMFs can hold sovereign issuance of at least investment grade quality.	• Tier 1: short-term rating in the highest short-term rating category for debt obligations (within which there may be sub-categories) – or of a comparable quality, if not rated. • Removal of references to ratings: under rule amendments proposed by the US Securities and Exchange Commission, first-tier securities would be those where the MMF's board of directors (or its delegates) considers the security issuer as having the highest capacity to meet its short-term financial obligations. •
Weighted average maturity (WAM)	• STMMFs: maximum of 60 days. • MMFs: maximum of 6 months.	• Maximum of 60 days (formerly 90 days).
Weighted average life (WAL)	• STMMFs: maximum of 120 days. • MMFs: maximum of 1 year.	• Maximum of 120 days.
Maximum residual maturity	• STMMFs: 397 days. • MMFs: 2 years. • MMFs cannot purchase instruments with a residual maturity exceeding the maturity limits set by the ESMA guidelines, even if, at the management company's discretion, the instruments have an embedded put option with an exercise date within these limits.	• 397 days. • No holdings of Tier 2 securities with a maturity in excess of 45 days.
Price calculation	• STMMFs: constant or floating NAV. • MMFs: floating NAV only. • MMFs must provide daily price and NAV calculations.	• Amortised cost method or penny-rounding method, provided that the MMF adheres to the standards defined. • Prompt consideration in the event of a deviation

	European Union	US
	• The IMMFA Code of Practice stipulates escalation procedures when the value of an IMMFA fund differs from its mark-to-market valuation.	exceeding one-half of 1%.
Liquid assets	• No specific rules under the ESMA guidelines – IMMFA Code of Practice stipulates that 5% of assets should be in daily liquid assets and 20% in weekly liquid assets.	• For taxable MMFs: 10% of assets should be in daily liquid assets (i.e. cash, US Treasury securities, and securities convertible into cash within one business day). • For all MMFs: 30% of assets should be in weekly liquid assets (cash, US 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 five business days.
Illiquid securities	• No specific rules: assets must be liquid enough not to compromise the UCITS' ability to comply with redemption requests.	• Maximum of 5% of total assets (formerly 10%). • Defined as securities that cannot be sold or disposed of within seven days at approximately the value ascribed by the fund.
Reporting and disclosure	• Variety of monthly and quarterly data to be disclosed to the regulator for the purpose of European Central Bank reporting requirements. • Daily calculation of the NAV to be provided to investors (except for employee schemes). • IMMFA funds should disclose their liquidity profile on a monthly basis (i.e. the percentage of securities maturing within one day, one week, one month, and so forth).	• Website disclosure of all portfolio holdings no later than the fifth business day of each month. • MMFs must also file detailed data about their holdings, including their mark-to-market value ("shadow" NAV), no later than the fifth business day of each month (Form N-MFP). • The US Securities and Exchange Commission makes this information publicly available 60 days later.
Stress tests	• MMFs should have a prudent approach to the management of currency, credit, interest rate and liquidity risks and a proactive stress test regime.	• Periodic stress-testing requirement.
Collateral	• Assets posted as collateral must comply with the general UCITS and fund eligible assets rules (thus only money market instruments, cash and deposits apply), including the rules on acceptable forms of collateral, the level required, the valuation of collateral and how and where assets are to be safely kept.	• Only government securities or cash items can be used as collateral.
Affiliates	• No specific rules for affiliate subscriptions. Specific treatment may be considered as undermining the principle of shareholder equality.	• Exemptions regarding affiliate purchases in order to make it easier for affiliates to support the liquidity position of a fund.
Suspensions and liquidation rules	• Funds should always be in a position to process redemptions. Subscription and redemption can be suspended in exceptional circumstances to protect the interest of investors. • Funds must be subject to liquidation rules adequately protecting their unit holders. • NB: IMMFA funds frequently have a clause in their prospectus enabling them to suspend redemptions in order to facilitate an orderly wind-down, and the IMMFA Code of Practice requires all funds to have the ability to operate redemptions in kind to satisfy all or part of a material redemption request.	• Funds should always be in a position to process redemptions. • A fund's board is permitted to suspend redemptions and postpone payment of redemption proceeds if the fund concerned will "break the buck" and irrevocably liquidate. • Redemptions may be settled "in kind". • Board may apply "duties and charges" to reflect disinvestment costs.

Sources: ESMA, SEC, IOSCO, IMMFA; adapted from ECB (2011).

Appendix 6: Overview of some of the proposals currently under discussion in the United States

Proposal	What is it?	Key benefits	Key challenges
Redemption fees	• Institute an economic incentive to discourage runs • Rules could include provision for de minimis withdrawals, and stipulate a notice period after which a fee would not apply	• Act as a "circuit breaker" • Fees collected from redemptions would be retained within the MMF for the benefit of remaining shareholders.	• Do not eliminate the need for capital
NAV buffer	• Establish a NAV buffer (or cushion) within individual MMF portfolios • Set as the uniform "fee" (e.g. four basis points) defined by regulators • The portfolio would stop retaining income when the target buffer is reached	• Ease of implementation • No favouritism between large and small fund families • Removes the incentive to redeem, as the buffer affords a higher NAV	• Requires time to accumulate • Not compatible with current rules on amortised cost valuation • Tax inefficiency • No skin in the game (unless the sponsor would have made a deposit to initiate the buffer)
Subordinated share class	• Each MMF would have two share classes • The senior class of shares would act like current MMF shares, with income and dividends based on the underlying portfolio, less the amount allocated to the subordinated shareholders • Subordinated class shares would have a variable payout	• Discipline imposed by the market, which prices the level of the risk involved • Risk tailored to investor type • Sponsor accountability if sponsors hold a minimum amount of subordinated class shares	• Complicated structure • Complexity and cost of implementation • Conflicts between senior and subordinated shareholders
Trust/special purpose entity (SPE)	• SPE created to hold capital for the benefit of the MMF	• Ease of implementation • Flexibility and speed of funding • Sponsor accountability if the sponsor holds common stock • Risk tailored to investor type • No capital limits	• Complicated structure • Complexity and cost of implementation • No benefit to NAV; limited redemption safeguard
Hybrid approach	• Employ some combination of the prior three options		
Floating NAV	• Eliminate a stable NAV and move to a floating NAV	• Limit MMF-related systemic risk	• Resistance from investors • Flight of assets to banks • Reduced funding sources for municipalities and corporations

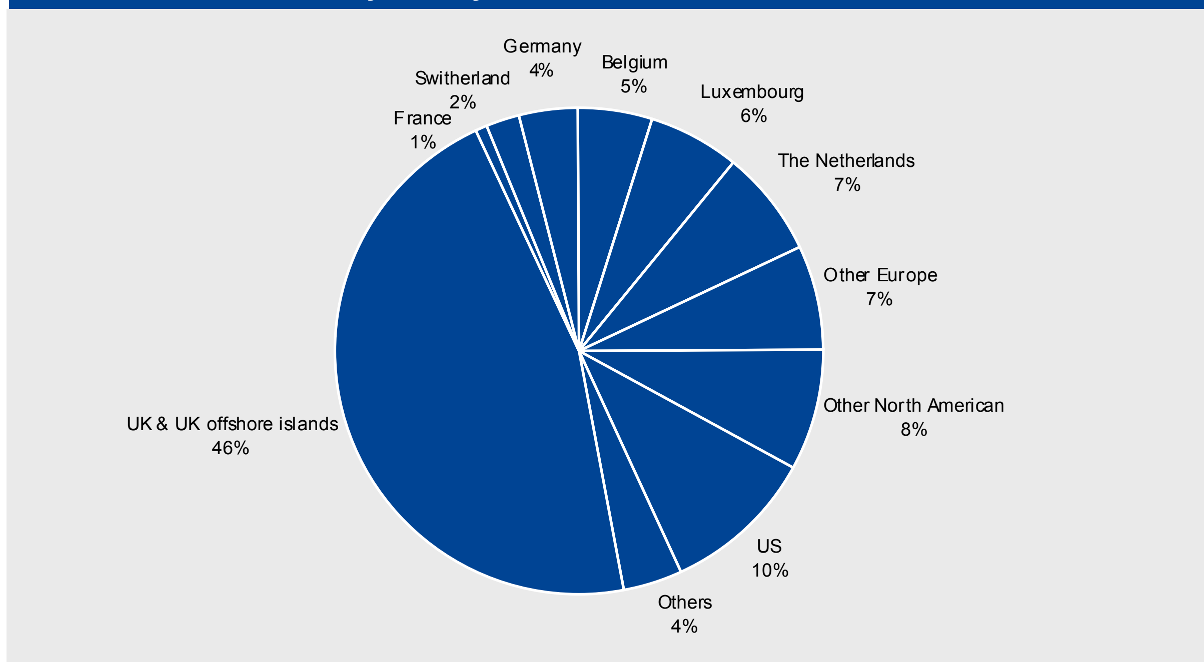
Source: Based on the Blackrock "Viewpoint" of August 2011.

Appendix 7: Investor base of the European IMMFA funds industry

The following analysis is based on data provided by the Institutional Money Market Funds Association (IMMFA), a trade association covering the interests of 35 firms managing around 90 triple-A rated money market funds. These funds hold over €450 billion in assets, which represents around 40% of the value of the total assets held by money market funds in Europe.

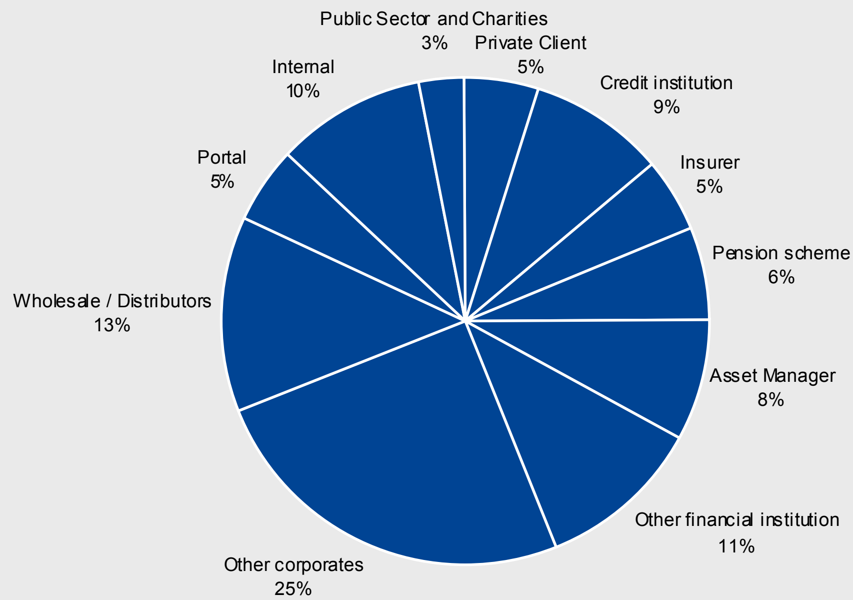
Most of the investors of the funds included in the data are from the United Kingdom (46%) or from elsewhere in Europe (32%). Investors from the United States and the rest of the world account for only a small proportion of IMMFA money market funds (10% and 12%, respectively). The distribution of the type of investors is also presented. According to the IMMFA data, around one-half of the investors are firms from the financial sector (e.g. asset managers, banks, pension schemes, insurers and so forth). Meanwhile, one-fourth of the investors are non-financial corporate firms, most likely those seeking to invest temporary excess cash and to use these MMFs for treasury management purposes. There are few retail investors who invest directly in the funds (less than 5%), but their share may actually be higher due to indirect investments via other agents.

Investors of IMMFA MMFs by country on December 2010



Source: IMMFA, UK FSA.

Investors of IMMFA MMFs by type on December 2010



Source: IMMFA, UK FSA.