

**EFAMA AND IMMFA  
RECOMMENDATION  
FOR  
A EUROPEAN CLASSIFICATION AND DEFINITION  
OF  
MONEY MARKET FUNDS**

**8 July 2009**

## 1. INTRODUCTION

The global financial crisis has highlighted the need to make the financial system more robust, stable and transparent.

In this perspective, the difficulties experienced by a small number of money market funds in Europe and the United States raised concerns about the risk characteristics of money market funds. These concerns led many investors to redeem their shares from money market funds in the autumn of last year.

Although the situation has improved considerably since November 2008, with the results that overall money market fund assets grew stronger in Europe in 2008, EFAMA<sup>1</sup> and IMMFA<sup>2</sup> have agreed to work on an European definition of money market funds, and a strict codification of the assets in which they can invest in order to clarify, and where appropriate, limit exposure to investment risks. This project anticipated the recommendation made by the high-level group on financial supervision in the EU chaired by Jacques de Larosière, which called for the development of common rules for investment funds in the EU, notably concerning definitions and codification of assets.<sup>3</sup>

In undertaking this work, EFAMA and IMMFA aimed at achieving two objectives:

- Defining clear-cut rules that investment funds would need to respect to be allowed to carry the label “money market”.
- Defining rules in a way that clearly inform investors about the risk characteristics of money market funds.

The first objective is justified in view of the wide variety of definitions of money market funds that characterise the European market at present. On top of that, there are in the marketplace pooled investment products that carry the “money market” fund label, whereas they are taking on more risk than do money market funds. This situation is a source of confusion for investors, which is detrimental the long-term attractiveness of money market funds. From this perspective, converging towards a common definition in Europe is of long-term benefit to investors, investment management companies and regulators.

Equally crucial is the objective of defining money market funds in a way that reveal their risk/return profiles. Money market funds are not the same as bank deposits. They are an investment product, with associated investment risks. Investors in money market funds continue to bear the risks and rewards associated with the funds underlying investment portfolios and strategies as described in the funds prospectuses. Against this background, it is accepted that some money market funds may seek more risk than others in seeking higher yields. For this reason, EFAMA and IMMFA propose to distinguish between two types of money market funds predominantly defined in terms of different risk-limiting criteria.

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<sup>11</sup> The European Fund and Asset Management Association (EFAMA) is the representative association for the European investment management industry. EFAMA represents through its 24 member associations and 44 corporate members about EUR 11 trillion in assets under management of which EUR 6.1 trillion was managed by around 53,000 investment funds at end 2008. For more information, please visit [www.efama.org](http://www.efama.org).

<sup>2</sup> The Institutional Money Market Funds Association (IMMFA) represents providers of EU-based “constant net asset value” money market funds, with assets of EUR 407 billion at end 2008.

<sup>3</sup> See recommendation 9 of the report.

This Report consists of eight sections, plus annexes.

As discussed above, Section 1 reviews the rationale for the development of a common European definition of money market funds.

Section 2 provides a brief introduction on the organization, the size and economic importance of money market funds in Europe.

Section 3 discusses the objectives of money market funds.

Section 4 discusses the risks of money market funds, as well as the main risk-limiting criteria used in this Report to define money market funds.

Section 5 discusses the proposed classification and definition of money market funds.

Section 6 highlights the disclosure efforts that will be required to meet the objective of this industry initiative in terms of information to the public.

Section 7 presents the proposed arrangements for the implementation of the definition at national level.

The Report concludes with two annexes. The first one summarises the classification in the form of a table, whereas the second one provides some additional information to understand better the technical criteria used to limit the funds' investment risks.

## **2. THE EUROPEAN MARKET FOR MONEY MARKET FUNDS**

### **2.1 Fluctuating and Constant NAV Money Market Funds**

There are two basic types of money market funds: fluctuating and constant net asset value (NAV) money market funds.

Like equity and bond funds, which fluctuate in value, fluctuating NAV money market funds allow their unit/share price fluctuate in line with market valuations. Their income can be distributed or accumulated. Accumulated interest income is reflected in an increase in the value of the fund shares/units.

Income in constant NAV funds is accrued daily and can either be paid out to the investor or used to purchase more units in the fund at the end of the month. Under this income policy, units/shares in constant NAV funds are issued with an unchanging face value (such as EUR1 or US\$ per unit/share). These funds use amortized cost pricing, with a regular comparison against the mark-to-market value of both the assets and the portfolio. In industry jargon, a constant NAV fund that would “break the buck” where there is a divergence of 50 basis points or more between these two values, i.e. the point at which the constant NAV is lost. While it is not unlawful to break the buck, constant NAV funds try to avoid this in order to preserve the stability of the NAV.

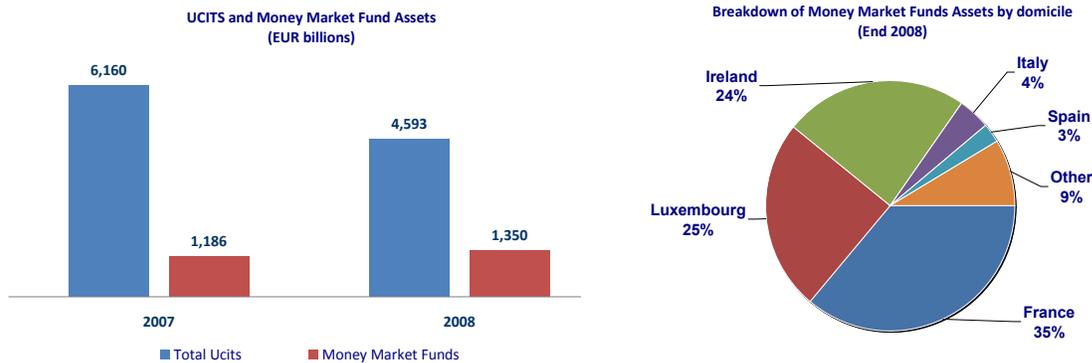
Fluctuating NAV money market funds have been around throughout most of the European countries for more than 25 years. The demand came from investors’ frustration with regard to the limitations placed on interest rates paid on bank deposit accounts. Originally, each country took its own approach to developing a money market fund sector. The widening of the investment possibilities towards bank deposits, money market instruments and derivatives, which came with the adoption of UCITS III in 2001, led to a harmonization of fluctuating NAV money market funds under the UCITS brand.

The constant NAV funds were launched in the United States in the 1970s in response to the regulatory restrictions that prohibited U.S. banks from paying market rates on interest on their retail deposits. This type of funds appeared in Europe in the late 1980s, predominantly in Ireland, as U.S. based institutions set up them originally for their U.S. clients’ “off-shore” dollars. In general they operate under requirements that are similar to those governing money market funds in the United States. At present, most of these funds also operate within the requirements set down in the UCITS Directive.

### **2.2 Size of the Market**

At the end of 2008, European money market funds had EUR 1,350 billion under management, compared to EUR 1,186 billion at end 2007.

Assets under management by fluctuating NAV were EUR 943 billion at end 2008, compared to EUR 845 billion at end 2007. Constant NAV funds held EUR 407 billion of assets at end 2008, compared to EUR 341 billion at end 2007.



The share of money market funds in the UCITS market represented close to 30% at end 2008, compared to 19% at end 2007. This sharp increase confirms the fact that money market funds offer investors safe harbour investment in times of market turbulence.

Even if the worsening of the financial crisis following to the bankruptcy of Lehman Brothers led to some outflows in September, money market funds enjoyed net inflows of about EUR 100 billion in 2008. This was a remarkable result given that all other UCITS categories suffered net outflows as consequence of the global financial crisis.<sup>4</sup>

The main domiciles of money market funds at end 2008 were France (EUR 488 billion), Luxembourg (EUR 335 billion) and Ireland (EUR 319 billion). These three domiciles represented 85% of the European money market funds market.

## 2.2 Economic Importance of Money Market Funds

Money market funds are widely used across the financial world in both the retail and institutional sectors. The main users of money market funds at present are households, corporate treasurers, pension funds, insurance companies, and other institutions with significant cash balances.

Compared to bank deposits, money market funds provide the benefits of pooled investment, as investors can participate in a diversified and high-quality portfolio than they otherwise could individually.

Money market funds also play an important role as a significant investor in issuers of short dated high quality money market instruments, including certificates of deposits, time deposits, commercial paper, asset-backed commercial paper, asset-backed securities, repos and floating rate securities.

In providing an important source of funding for a variety of institutions such as banks and nonfinancial corporations, money market funds have positive effects on capital markets. These effects can be seen in terms of their role in the disintermediation process and the development of capital market. By maintaining a certain level of demand for securities issued

<sup>4</sup> More explicitly, the massive losses recorded in worldwide stock markets led investors to pull out of equity and balanced funds, EUR 161 billion and EUR 41 billion, respectively in 2008. Concomitantly, bond funds saw net outflows of EUR 174 billion, largely reflecting the fear of credit and counterparty losses and the war for deposits fought by the banking sector.

by companies, money market funds offer companies possibilities to diversify their financing from bank loans to securities, thereby stimulating capital market development. Money market funds managers also contribute to enhance efficiency in financial markets, by considering professionally the credit risks of the instruments into they invest money market funds – a role that retail investors cannot play when investing their savings in bank deposits, in part because of the state guarantees reduce the incentives to discriminate among banks on the basis of their credit risk.

Money market funds also provide a significant contribution to money market liquidity. In addition to discretionary portfolio readjustments, they must also buy or sell assets to meet purchases and redemptions of assets. Increased liquidity is in turn beneficial to the efficiency and lead to a reduction in the cost of capital for firms, benefiting the economy.

### **3. CLARIFYING THE OBJECTIVES OF A MONEY MARKET FUND**

The main objectives of a money market fund can be defined as:

- Preserving capital
- Maintaining liquidity
- Providing a competitive yield

Capital preservation is expressed in terms of the stability or constant accumulation of the fund's NAV per share. The objective is not to guarantee to pay back the invested capital plus interest but to limit investment risks to very low levels. Liquidity is defined as the ability of a fund to meet reasonably foreseeable redemptions. As investment products, money market funds also aims at offering competitive return associated with the performance of the funds' underlying portfolio.

These objectives don't have the same importance for all money market funds. Referring to the three categories of money market funds included in the European Fund Classification<sup>5</sup>, it is possible to distinguish between these categories according to the relative importance they give to each objective:

- Short-term: (1) capital preservation/liquidity  
(2) yield
- Regular: (1) capital preservation  
(2) yield/liquidity
- Enhanced: (1) yield  
(2) capital preservation  
(3) liquidity

The financial crisis has shown that the triple goals of preserving capital, maintaining liquidity and providing a competitive yield may not be able to be achieved simultaneously in times of severe market turmoil. Money market fund sponsors or their parent firms had to assist money market funds facing credit and liquidity challenges, and since the beginning of the financial crisis, many money market funds have not performed for investors as well as the investors, and the funds' sponsors or parent firms expected. The difficulties arose as the tightening of the money and credit markets severely impacted the liquidity of the holdings of money market funds and their possibility of selling portfolio securities without realizing significant losses.

The experience also showed that money market funds pursuing conservative investment strategies survived the financial crisis better than funds investing in instruments with relatively high maturity and low credit quality and/or making use of sophisticated investment techniques.

Against this background, we recommend reserving the "money market fund" label to short-term and regular money market funds, as defined in section 5. Specific proposals to implement this recommendation and classify existing money market funds falling outside the scope of short-term and regular money market funds are presented in section 7.

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<sup>5</sup> The EFC is a pan-European classification system that has been developed by the European Fund Categorization Forum. To know more about the EFCF, please visit the EFAMA website at the following address: [http://www.efama.org/index.php?option=com\\_wrapper&Itemid=45](http://www.efama.org/index.php?option=com_wrapper&Itemid=45).

Under this approach, in light of the above clarification of money market funds' objectives, short-term and regular money market funds share as their primary objective the preservation of capital. They differ to the extent that regular money market funds give a slightly lower importance to liquidity requirement than short-term money market funds in order to offer a slightly higher yield.

#### **4. CLARIFYING THE RISKS OF A MONEY MARKET FUND**

A complex part of analysing a money market fund is judging a fund's sensitivity to changing market conditions and, therefore, gauging a measure of its ability to shield investors from adverse market swings. All money market securities are subject to price fluctuations – based on interest rate movements, maturity, liquidity and the supply and demand for each type of security. Identifying the different types of risks facing money market funds and the risk-limiting criteria that can be used to contain these risks is crucial to the definition of a sound classification of money market funds.

The purpose of this section is to stipulate the framework used in the proposed classification to limit the risks of money market funds.

##### **4.1 Definitions of Risks**

In general, money market funds are exposed to the main risks:

- **Interest rate risk:** the risk that an investment's value will adversely change due to a change in the market level of interest rates.
- **Credit/credit spread risk:** the risk that an investment's value will adversely change due to a change in credit spreads and/or the occurrence of various credit events, including that of default.
- **Liquidity risk:** the risk that the fund would be unable to satisfy redemption requests promptly without realizing losses due to the difficulty of selling illiquid assets and/or reduction of market liquidity during times of extreme market stress.

##### **4.2 Definition of Risk-Limiting Criteria**

It is widely recognised that it is possible to limit the first two categories of risks to which money market funds can be exposed to, by using the following criteria:

- **Weighted Average Maturity:** WAM is a measure of the length of time to maturity of all of the underlying securities in the 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, rather than the time remaining before the principal value of the security must be repaid. In practice, WAM is used to measure the sensitivity of a money market fund to changing interest rates. As many market participants would instead use the term “Modified Duration” to measure that exact very same sensitivity to changes to interest rates, we will sometimes refer to “WAM/Modified Duration” or simply to “Modified Duration” in the rest of the Report.
- **Weighted Average Life:** WAL is the weighted average of the remaining life (maturity) of each security held in a fund, meaning the average time until the principal is repaid in full (disregarding interest and not discounting). Contrary to what is done in the calculation of the WAM, the calculation of the WAL does not permit the use of interest rate reset dates and instead only uses a security's stated (legal) final maturity. WAL is used to measure the credit risk, as longer the reimbursement of principal is postponed, the higher the credit risk is. WAL limits also helps to limit the effects of

changes in interest rate spreads (i.e., the additional yield paid on a security above the risk-free rate of return on their funds' portfolio).

- **Duration:** The duration of a bond is the weighted average of the present values of all the cash flows on a bond (not distinguishing principal and interest). The duration is used to measure the sensitivity of the price of an asset to interest rate movements, expressed as a number of days/months/years. The motivation for expressing this sensitivity in days/months/years is that the time that will elapse until a cash flow is received allows more interest to accumulate. Therefore, the price of an asset with long-term cash flow has more interest sensitivity than an asset with cash flows in the near future. The duration of a portfolio is the weighted average of the modified duration of each security held in a portfolio.

Some examples illustrating how WAM, WAL and Modified Duration are calculated are presented in Annex 2.

## **5. PROPOSED CLASSIFICATION AND DEFINITION OF MONEY MARKET FUNDS**

Along the lines explained above, the present proposal includes two different types of money market funds: short-term and regular money market funds.

The limitations on these funds' investment strategy proposed to contain interest rate risk, credit/credit spread risk and liquidity risk, are summarised in a single table in Annex 1, together with some additional features that money market funds should comply with.

The purpose of this section is to provide some explanation for the approach taken to limit risks, starting with interest rate risk.

### **5.1. Interest Rate Risk Limitation**

WAM/Modified Duration are used to limit the overall sensitivity of a money market fund's NAV to changing interest rates. We propose to use WAM to measure the interest rate risk of short-term money market funds because this concept has been used by constant NAV funds for this purpose for a long time. As the concept of modified duration tends to be used to measure the interest rate risk for longer average maturity, it is also proposed to use it.

Given that the primary objective of short-term money market funds is to preserve principal, it is proposed that their portfolio's WAM does not exceed 60 days. As outlined above, to calculate WAM, it is common practice to treat a floating rate security as having a maturity equal to the time remaining until the next interest rate reset, rather than the time remaining before the principal value of the security must be repaid. This is the approach we indeed recommend using.

We believe that the 60 days limit is prudent. In the United States, the corresponding limit for constant NAV money market funds currently is 90 days, and the industry recommends shortening it to 75 days.<sup>6</sup> The proposal to set the limit to 60 days is motivated by the goal of ensuring that short-term money market funds comply with the definition of "qualifying money market fund" provided in the MiFID.<sup>7</sup>

The maximum WAM or modified duration of regular money market funds is higher – up to 1 year. This is a key difference with short-term money market funds.

To the extent that it was credit and liquidity risks, not interest rate risk, that caused problems for money market funds in relation to the unfolding financial crisis, we believe that a one year WAM or modified duration is a sound interest rate risk limit for regular money market funds. This proposal should also be seen in the light of the proposal to prohibit money market funds from investing in securities with a maturity or residual maturity of more than 397 days or in floating rate securities with a time remaining until the next interest rate reset of more than 397 days. This restriction ensures that the portfolio average WAM or modified duration will always be significantly lower than 1 for regular money market funds. From this perspective, the limit of 397 days of interest rate risk at instrument level for all instruments is a centrepiece of the proposed definition of money market funds.

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<sup>6</sup> See the Report of the Money Market Working Group published by the Investment Company Institute (ICI) on 17 March 2009, page 76.

<sup>7</sup> See Article 18 of the MiFID.

## 5.2. Credit/Credit Spread Risk

In addition to traditional short-term money-market products such as certificates of deposit or commercial paper, a fund may also invest in floating rate securities whose index is based on a money-market rate, but whose maturity can be much longer than those of short-term money-market products. In order to measure the credit and credit spread risk of the whole portfolio of such a fund, WAM, as per our definition, cannot be used since the WAM calculation for floating rate securities uses interest rate reset dates, as opposed to maturity. Consequently, for the purpose of measuring and limiting credit/credit spread risk, the WAL of such portfolio will instead be used, as was explained in section 4.2.

To limit the effect of changes in interest rate spreads (i.e. the additional yield paid on a security above the risk-free rate of return) on the fund's portfolio, we propose to require short-term money market funds to maintain a weighted average life (WAL) that does not exceed 0.5 year. For regular money market funds, this limit has been set at 1.5 years with a view to differentiating sufficiently the average risk/return profile of this type of money market funds.

A fund experiencing a sudden increase in WAL above the agreed thresholds because of redemptions will have to adjust its portfolio within a relatively short period of time, taking into account the investors' best interests.

With a view to limiting investment in securities with long stated maturities, we propose to limit the investment possibilities in floating rate securities in the following ways:

- Short-term money market funds may invest in floating rate securities with a final or residual maturity of less than or equal to 2 years<sup>8</sup>; however, they may not invest more than 10 percent of their assets in floating rate securities with a residual maturity of in between 1 and 2 years;
- Regular money market funds may invest in floating rate securities with a final or residual maturity of less than or equal to 2 years; they may also invest up to maximum 10 percent of their assets in floating rate securities with a residual maturity of in between 2 and 5 years.
- Floating rate securities should reset to some money market rate or index, including T-bill index.
- In case of structured finance instruments the maturity calculation may be based on the most likely "expected life" scenario rather than the stated "legal life" of the instrument.

The quality of money market funds also depends upon the quality of the securities into which they invest. For this reason, it is proposed to impose minimal credit risks in the following way:

- Short-term money market funds must invest exclusively in money market instruments and securities with the highest credit quality at the time of purchase. "Highest credit quality" means highest short-term credit assessment (e.g. P1 by Moody's or equivalent other external or internal rating) or, in its absence, the equivalent long-term credit

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<sup>8</sup> Just as the maturity limit imposed on eligible instruments is 397 days instead of 1 year, some flexibility is allowed with regard to the maturity of floating rate securities, provided it remains below 26 months.

assessments (e.g. Aaa to A3 by Moody's or equivalent other external or internal rating).

- Regular money market funds must invest exclusively in high quality investment grade money market instruments and securities at the time of purchase. High quality investment grade means investment grade short-term credit assessment (e.g. P1-P3 by Moody's or equivalent other external or internal rating) or equivalent long-term credit assessments (e.g. Aaa to Baa3 by Moody's or equivalent other external or internal rating).
- The credit quality of each portfolio investment must be assessed by an internal (e.g. credit department) or external body (e.g. competent rating agency, broker) that is independent from the fund manager.
- In case of default or downgrading, the portfolio adjustment should be done in the best interests of investors in money market funds.

### **5.3. Liquidity Risk**

To be able to satisfy redemption requests promptly, money market funds must manage their portfolio liquidity prudently. This requires in particular investing in securities that are sufficiently liquid to meet reasonably foreseeable redemptions, even during times of market stress. It is also agreed that funds with a concentrated shareholder base or a new shareholder base with uncertain liquidity requirements may need to take a conservative approach with regard to the management of its portfolio. Also, during periods of higher market volatility or limited liquidity, funds may find it prudent to hold a greater percentage of their assets in cash or securities accessible very quickly.

Against this background, it is recommended that short-term and regular money market funds adopt internal standard to be able to meet reasonably foreseeable liquidity demand of their clients, taking into account client concentration and client segments, industry sectors and instruments, and market liquidity conditions.

Given the prime importance that short-term money market funds give to their ability to meet redemptions without incurring losses that could affect the remaining shareholders, we also recommend they comply with the following two portfolio liquidity requirements:

- A minimum of 5 percent of their assets must be held in cash, Treasury securities, or other securities and repurchase agreements that would be accessible within one day.
- At least 20 percent of the fund's assets should be held in cash, Treasury securities, or other securities that would be accessible within seven days.

These requirements only apply when a security is purchased. A temporary breach is acceptable if the liquidity position is used to meet a redemption that causes the fund liquid assets to fall below the 5 and/or 20% requirements. New investments should be in such liquid instruments.

#### **5.4. Other risks**

Money market funds traditionally have been viewed as low risk investments. For this reason, it is proposed to prohibit money market funds from taking any economic exposure to equity, commodity and foreign exchange.

All money market funds should also comply with the risk diversification requirements set in the UCITS Directive and maintain strict management procedures, including procedures to assess the risk of new products in which money market funds could invest.

It is also required that money market funds should ensure that their performance objective is oriented toward a money market benchmark to ensure that they are complying with minimum risk standards and differentiate themselves from bond funds and other fund types.

#### **5.5 Other features**

It is accepted that money market funds use derivatives provided that their use is in line with the fund strategy. In particular, economic exposure to equity, commodity and forex may not be achieved through the use of derivatives.

Short-term money market funds can carry either a fluctuating NAV or a constant NAV. The money market funds represented by IMMFA are of the latter type. All regular money market funds carry a fluctuating NAV.

## **6. INFORMATION DISCLOSURE**

We have developed a classification based on two types of money market funds.

This approach has the advantage of allowing distinguishing one type from another in terms of risk/return profiles (according to the here defined criteria) and investment strategies.

To ensure that the distinction between the two types of money market funds facilitate investor choice, we recommend that fund managers commit to indicate in their funds' prospectus and marketing materials in which type their money market funds belong to (short-term or regular) and remind the investors about the objective and risk characteristics of this type to make them comfortable about their choice.

## **7. IMPLEMENTATION AND TRANSITIONAL PERIOD**

EFAMA and IMMFA are committed to encourage the adoption of the definition as the industry standard for money market funds. Both associations will seek the endorsement of their members, and actively communicate with performance measurement agencies and regulatory authorities to seek their support in establishing the classification as a key part of the European investment fund industry fabric.

EFAMA and IMMFA also agree that all existing money market funds falling outside the definition of short-term and regular money market funds should be allowed to keep the money market fund label during a transitional period of 3 years to give time to fund managers to adjust their fund range to the definition. During this period, these funds will be regrouped in national fund classification in a separate category, under the name "other" money market funds.

Following the transitional period, at the latest on 30 June 2012, the funds that would continue to fall outside the definition of short-term and regular money market funds will no longer be classified as money market funds. The European Fund Categorization Forum will develop a proposal for the classification of those funds.

## **8. CONCLUDING REMARKS**

There is currently no common definition of money market funds across Europe. To that extent, the proposed classification of money market funds is a key industry initiative to clarify what the label “money market” funds should include.

Compared to existing definitions of money market funds, the adoption of the classification will enhance the level of predictability for investors of the nature of investment risks to which they may be exposed.

The proposed restrictions on maximum interest rate risk at both portfolio and individual instrument level, as well as the limit set on the weighted average life will limit the exposure of money market funds to interest rate and credit/credit spread risks. And the proposed criteria to limit liquidity risk, including the new minimum daily and weekly liquidity requirements, ensure money market funds keep a high level of portfolio liquidity.

To the extent that the classification rests on two separate types of money market funds, investors should not be confused about which product is right for their needs. And more importantly, the proposal to reserve the “money market fund” label to funds designed to preserve capital and maintain strong liquidity will reduce investor confusion about the exact nature of money market funds, thereby facilitating choice and enhancing investor protection.

Achieving this goal would undoubtedly contribute to a more integrated and transparent European market for money market funds.

Table 1. Summary of the Risk-Limiting Provisions and Other Features of European Money Market Funds						
	Interest Rate Risk		Credit / Credit Spread Risk		Liquidity Risk	Other risks & features
	Overall Portfolio limits	Individual Instrument limits	Overall Portfolio limits	Individual Instrument limits	Overall Portfolio limits	General Provisions
<b>"Short term" MMFs</b>	WAM / Modified Duration ≤ 60 days	Maximum interest reset (floating rate security) / Maximum time to maturity (fixed rate security): <b>397 days</b> & Interest reset to money market rates/indices	WAL ≤ 0.5 year	Floating rate securities with a final or residual maturity of less than or equal to <b>2 years</b> (*) Maximum <b>10%</b> of the fund assets can be held in floating rate securities with a final/residual maturity of in between 1 to 2 years  Investment in instruments with highest credit quality (**) at time of purchase. In case of default or downgrading, the portfolio adjustment is done in the investors' best interests.	MMF should set internal standard to be able to meet reasonably foreseeable liquidity demand of their clients, taking into account client concentration and client segments, industry sectors and instruments, and market liquidity conditions  Minimum of 5% of assets held in instruments accessible within one day, and minimum 20% of assets in instruments accessible within one week	<ul style="list-style-type: none"> <li>- No economic exposure to equity, commodities and forex</li> <li>- Minimum risk diversification in line with UCITS Directive</li> <li>- Strong risk management and valuation procedures including new products procedures</li> <li>- Derivatives may be used provided that their use is in line with the fund strategy</li> <li>- Daily trading of units and shares</li> <li>- Maintain a constant or fluctuating NAV</li> <li>- Oriented to a money market benchmark</li> </ul>
<b>"Regular" MMFs</b>	WAM / Modified Duration ≤ 1 year	Maximum interest reset (floating rate security) / Maximum time to maturity (fixed rate security): <b>397 days</b> & Interest reset to money market rates/indices	WAL ≤ 1.5 year	Floating rate securities with a final or residual maturity of less than or equal to <b>2 years</b> Maximum <b>10%</b> of the fund assets can be held in floating rate securities with a final/residual maturity of in between 2 to 5 years  High quality investment grade investments (**) at time of purchase. In case of default or downgrading, the portfolio adjustment is done in the investors' best interests.	MMF should set internal standard to be able to meet reasonably foreseeable liquidity demand of their clients, taking into account client concentration and client segments, industry sectors and instruments, and market liquidity conditions	<ul style="list-style-type: none"> <li>- No economic exposure to equity, commodities and forex</li> <li>- Minimum risk diversification in line with UCITS Directive</li> <li>- Strong risk management and valuation procedures including new products procedures</li> <li>- Derivatives may be used provided that their use is in line with the fund strategy</li> <li>- Daily trading of units and shares</li> <li>- Oriented to a money market benchmark</li> </ul>
<b>"Other" MMFs</b>	Existing MMFs that are not complying with the definition of Short-Term and Regular MMFs will be classified as "Other" MMFs during a transitional period until <b>30 June 2012</b> ; after that period, the funds continuing to fall outside the definition will be classified outside the perimeter of MMF.					

(\*) The residual maturity can be up to 26 months in some cases, e.g. because of settlement practices in certain markets. In case of structured finance instruments, the residual maturity may be calculated based on the most likely expected life scenario of the instrument instead of the legal maturity of the instrument.

(\*\*) The rating should be assessed by an internal (e.g. credit department) or external body (e.g. competent rating agency, broker) that is independent from the fund manager.

Examples of Use of WAM, WAL and Duration

**1. Zero-coupon bond with 2 years left to maturity**

**1.1 WAM Calculation**

WAM = 2

**1.2 WAL Calculation**

WAL = 2

**1.3 Duration Calculation**

For various duration calculations, one needs to know the bond's current market price and so firstly we must make an assumption about the 2-year zero-coupon market rate. Let's assume that the 2-year zero-coupon market rate is currently 1%. Then the bond's market price is equal to  $€100 / (1.01)^2 = €98.0296$

The formula is most often used to calculate the duration is the Macaulay duration, named from Frederick Macaulay, who introduced the concept. It is defined as the weighted average maturity of a bond where the weights are the relative discounted cash flows in each period, i.e.

Macaulay duration =  $[\sum (\text{cash flow discounted with yield to maturity} \times \text{time to cash flow}) / \text{price of the bond}]$

In the present example,

Year 1 cashflow = 0 ==> present value = 0

Year 2 cashflow = €100 ==> present value = €98.0296

➔ Macaulay Duration =  $[(0 \times 1) / 98.0296] + [(98.0296 \times 2) / 98.0296] = 2 \text{ years}$

The duration is approximately equal to the percentage change in price for a given change in yield. For example, for small interest rate changes, the duration is the approximate percentage by which the value of a bond will fall for a 1% per annum increase in market interest rate. So a 15-year bond with a duration of 7 would fall approximately 7% in value if the interest rate increased by 1% per annum.

In order to more closely approximate the percent change in market value as the result of a percent change in yield, Macaulay derived the **Modified Duration D\***:

$$D^* = [\text{Macaulay duration}] / [1 + (r/n)]$$

where r is the yield to maturity of the bond, and n is the number of cashflows per year.

In the case of a zero coupon bond, the yield to maturity is also a zero-coupon yield.

If the 2-year zero-coupon rate (or zero-coupon yield for that matter) goes up to 2% (i.e. 1% + 1%), the bond price will be:

$$€100 / (1.02)^2 = € 96.1169$$

So for a move upwards in the 2-year zero-coupon rate, the modified duration is:  $[(98.0296 - 96.1169) / 98.0296] \times 100 = 1.9511\%$

If the 2-year zero-coupon rate (or zero-coupon yield for that matter) goes down to 0% (i.e. 1% - 1%), the bond price will simply be: €100

So for a move downwards in the 2-year zero-coupon rate, the modified duration is:  $[(100 - 98.0296) / 98.0296] \times 100 = 2.0100\%$

We can see that the modified duration is not the same when rates go up as opposed to when rates go down. This is because the change in price is itself a function of the absolute level of rates. This phenomenon is referred to as convexity, i.e. you lose less when rates go up as you earn when rates go down. Here you lose €1.9127 (=98.0296 - 96.1169) when rates go up, but you earn €1.9704 (=100 - 98.0296) when rates go down.

People will generally use the average of upward and downward modified durations, so here you would have:

$$\text{Modified Duration} = (1.9511\% + 2.0100\%) / 2 = 1.9806\%$$

## 2. Floating rate security with a remaining maturity of 2 years with a three months interest rate reset

First, we need to specify what floating rate serves as an index. Let's assume that the floating rate that serves as an index here is 3-month Euribor. That is indeed most often the case, but there also exists FRNs with a three-month interest rate reset where the interest rate could be a 10-year rate (like 10-year CMS).

### 2.1 WAM Calculation

A floating rate security is treated as having a maturity equal to the time remaining until the next interest rate reset, rather than the time remaining before the principal value of the security must be repaid. This means that the WAM of the floating rate security considered here is equal to 0.25.

### 2.2 WAL Calculation

$$\text{WAL} = 2$$

If the FRN would instead amortise its principal by, say, 50% at the end of year 1 and the other 50% at the end of year 2 (maturity), its WAL would be:  $(0.5 \times 1) + (0.5 \times 2) = 1.5$  years.)

### 2.3 Duration Calculation

As for Macauley duration, for such an FRN, we can only care about the first cashflow, as it is the only one which is known. Macauley's duration as a concept was devised for fixed-rate

bonds (including zero-coupon bonds, which is a special case where the fixed rate is zero). So when calculating Macauley duration for a floater, we need to assume that the principal will be paid back at the next coupon date.

Let's assume that 3-month Euribor has just been fixed at 1.60% and that the actual number of days where this fixing will apply is 90 days. If the FRN's principal is €100, then the next cashflow is €0.40. Then you would need to assume that the cashflow is €100.40. Its present value will be:

$$100.40 / (1+(1.60 \times 90/36000)) = 100 \text{ €}$$

$$\text{Macauley Duration} = 100 \times 0.25 = 0.25 \text{ years}$$

Finally, as for Modified Duration, one wants to measure by how much a bond price will change for a 100 basis points change in its yield. In this FRN case, for every cashflow that is not yet fixed, where the discount factor will be the same as the coupon rate (which is by assumption the case here, so it would really be a bank FRN as Euribor is a bank lending rate), modified duration is by definition equal to 0. So the modified duration of this FRN is equal to the modified duration of the next cashflow, and again one needs to assume principal will be paid at this time too.

If we use the same data as above, the next cashflow is again €0.40.

The price of this FRN right now is 100 € because 3-month Euribor has just been fixed a couple of seconds ago. Now, what would be this FRN price if the 3-month rate suddenly went up by 100 basis points (i.e. to 2.60%)? It would be:

$$100.40 / ((1+(2.60 \times 90/36000)) = \text{€ } 99.7516$$

$$\text{So Modified Duration for the upward move is: } [(100 - 99.7516) / 100] \times 100 = 0.2484\%$$

Then what would be this FRN price if the 3-month rate suddenly went down by 100 basis points (i.e. to 0.60%)? It would be:

$$100.40 / ((1+(0.60 \times 90/36000)) = \text{€ } 100.2496$$

$$\text{So Modified Duration for the downward move is: } [(100.2496 - 100) / 100] \times 100 = 0.2496\%$$

Finally, Modified Duration for the FRN will simply be an average of the upward modified duration and downward modified duration:

$$\text{Modified duration} = [0.2484\% + 0.2496\%] / 2 = 0.2490\%.$$