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# Money Market Fund Growth During Hiking Cycles

A Global Analysis

Kleopatra Nikolaou

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# Money Market Fund Growth During Hiking Cycles
# A Global Analysis

**Prepared by Kleopatra Nikolaou***

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ABSTRACT: This paper examines the drivers of money market funds (MMFs) growth during monetary policy hiking cycles. Analyzing data from nine countries with notable MMF sectors post-pandemic, it examines three main drivers: yield differentials between MMFs and bank deposits, banking turmoils that affect perceptions of relative safety for traditional cash options, and structural characteristics (types) of MMFs. The findings indicate that MMFs attract capital during rising interest rates driven primarily by yield-seeking behavior. This pattern persisted following the 2023 banking turmoil, where yield remained the dominant driver. After accounting for yield differentials, MMF growth was not unusually high compared to previous hiking cycles, suggesting limited evidence of widespread flight-to-safety flows. Moreover, when MMF yields rise, investors increasingly favor private debt MMFs, likely due to their higher yields. These findings highlight that, while MMFs primarily serve as cash management vehicles, investors use them to optimize yields, notably when rates are rising.

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WORKING PAPERS

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# Glossary

MMF ..... Money Market Fund

NAV ..... Net Asset Value

CNAV ..... Constant Net Asset Value

VNAV..... Variable Net Asset Value

LVNAV..... Low-Volatility Net Asset Value

USD..... United States Dollar

US ..... United States

GFC..... Global Financial Crisis

JPY..... Japanese Yen

EUR..... euro

# Executive Summary

Money Market Funds (MMFs) are traditionally viewed as safe and liquid vehicles for short-term investment. Their global assets have grown sharply—from around €7 trillion in 2020 to about €11 trillion at the start of 2025—now accounting for roughly 15% of the world's open-ended mutual funds. This expansion is striking given the long-standing concerns over MMF vulnerabilities and their implications for financial stability. Past crises have repeatedly exposed these fragilities, and the FSB recently reaffirmed that MMFs remain exposed to liquidity mismatches and sudden redemptions that can amplify systemic stress, especially when they have a large footprint in short-term funding markets (FSB, 2024).

Against this background, I examine MMF growth across nine countries with significant MMF sectors that span four global regions. I focus on how yield seeking behavior has shaped investor flows, notably during periods of rising interest rates. I use the MMF yield advantage over bank deposits, also called as MMF spread in this paper, as a proxy for yield seeking behaviour and I examine how the sensitivity of MMF growth on superior MMF yields changes in the policy cycle, after I control for the macro-financial environment. The hypothesis is that MMFs offer higher yields to their investors compared to bank alternatves, especially during periods of monetary policy tightening. This leads yield-oriented investors to shift their funds towards MMFs, thus superior MMFs yields can enhance MMF growth.

Nevertheless, a shift towards MMFs can also be the result of a loss of confidence in banks, for example following a banking turmoil such as that experienced in March 2023. Such a change can also redirect flows towards MMFs, highlighting the importance of safety in cash management over yield-seeking behaviour. I analyze the incremental change in the sensitivity of MMF growth on the MMF spread following the March 2023 event, as well as growth patterns before and after the turmoil to shed light on the impact of the turmoil on MMF growth. Finally, MMFs are structured in various ways to accommodate different investor preferences regarding safety and returns among other concerns, while still maintaining their role as short-term safe assets. The distinction between public and private debt holding MMFs can also shed light on the patterns of MMF Inflows, complementing the discussion of yield seeking behavior. In this paper, I explore how differences in fund structure and currency denomination can also shape investor preferences.

The findings show that the MMF yield advantage is a central factor behind MMF growth, particularly during periods of monetary tightening. Investors respond strongly to yield differentials, reallocating from bank deposits to MMFs when the return gap widens. This pattern was evident across countries in our sample, although the scale of response varied by region. Moreover, the paper finds little evidence for a panic-induced inflow into MMFs in the wake of the 2023 banking turmoil. MMF inflows in certain jurisdictions including the US appear driven more by return-seeking behavior than by panic or risk aversion. Finally, a rise in MMF yields can influence the allocation between public vs private MMFs, in different ways across countries.

This paper advances literature in different ways. It shifts the analytical lens from the well-studied vulnerabilities and outflows of money market funds (MMFs) during systemic crises to the less-explored dynamics of MMF inflows during monetary policy tightening cycles. By leveraging a unique dataset covering nine countries with significant MMF sectors, the study provides a comprehensive cross-country perspective that moves beyond the U.S.-centric focus of previous research. In addition, while previous literature has postulated that MMF spreads

played a role in MMF inflows, this paper provides a direct testing framework in an international setting. It also leverages the unique context of the 2023 banking turmoil, which occurred during a globally synchronized hiking cycle, to analyse the role of banking crises on NBFIs. Finally, the paper offers new global insights into how structural characteristics—such as the distinction between public and private debt MMFs and currency denomination—shape investor preferences and MMF growth.

The growing role of MMFs in global cash management has implications for financial stability and monetary policy. The sensitivity of MMF flows to interest rate changes suggests that monetary tightening can accelerate deposit outflows from banks, complicating policy transmission. At the same time, the limited response to non-systemic, banking shocks implies that MMFs primarily serve as instruments of yield optimization in the current financial environment. These findings underscore the importance of MMF design and regulation in managing liquidity risks in an evolving macro-financial landscape.

# 1. Introduction

In recent years, the dynamics of money market fund (MMFs) flows have returned to the spotlight. While past scrutiny largely focused on MMF outflows during systemic crises, recent attention has shifted toward their inflows—particularly during episodes of monetary policy tightening. This shift became especially relevant as central banks globally embarked on aggressive rate hikes in 2022–2024 following the pandemic. The tightening cycle revealed growing fragilities in the banking sector, as demonstrated during the 2023 turmoil involving the collapse of U.S. regional banks and Credit Suisse in Europe (Copestake et al., 2023; Jiang et al., 2024). Moreover, a significant yield differential emerged between MMFs and traditional bank deposits, likely prompting many investors—especially yield-sensitive ones—to reallocate capital away from bank deposits and into MMFs. The surge in MMF inflows, especially in the U.S., raised concerns over deposit stability and underscored the attractiveness of MMFs as both yield-enhancing and liquid cash alternatives.

This evolving landscape highlights two fundamental drivers of MMF flows: the search for yield and the desire of safety. Different MMF types have evolved to cater to different combinations of these preferences, yet the behavior of investors during inflow phases—particularly outside the U.S.—remains underexplored.

In this paper, I examine MMF flows across nine countries with significant MMF sectors, focusing on how yield seeking behavior has shaped investor flows during periods of rising interest rates. I use the MMF spread —the gap between MMF yields and alternative cash investments such as bank deposits— as a proxy for investors' desire for higher yields. I examine how the sensitivity of MMF growth on superior MMF yields changes in the policy cycle, after I control for the macro-financial environment. Existing literature supports the idea that yield advantages can drive flows into MMFs (Dreschler et al., 2017 and Xiao, 2020). The hypothesis is that MMFs offer higher yields to their investors compared to what banks can offer to depositors, especially during periods of monetary policy tightening. This leads yield-oriented investors to shift their funds towards MMFs. In the absence of crises, this mechanism can provide powerful results, and this paper demonstrates so.

Nevertheless, a shift towards MMFs can also be the result of safety concerns about other cash management alternatives. A loss of confidence in the banking sector, in particular a banking crisis, could narrow the range of available alternatives and boost MMF flows. The 2023 banking turmoil, which occurred during a globally synchronized hiking cycle, could narrow the range of available alternatives and boost MMF flows. There is a widespread notion that MMF inflows gained significant momentum in the US after the US regional banking crisis in March 2023 (Caglio et al, 2023; Adrian et al, 2024; Nikolaou, 2023; GFSR, 2023). Given that the turmoil occurred in the context of already rising MMF spreads, did it provide an additional push to MMF inflows compared to previous hiking cycles, and how did investors react to higher MMF spreads in that environment? This approach sets the stage for understanding whether investor reallocations reflected panic and risk aversion, or rational shifts toward more attractive alternatives.

Finally, the structural characteristics of MMFs across jurisdictions, particularly the public vs. on-public (private) debt composition, may condition investor sensitivity to risk and return. MMFs are structured in various ways to accommodate different investor preferences regarding safety and returns among other concerns, while still maintaining their role as short-term safe assets. Such patterns can also shed light on the patterns of MMF Inflows, complementing the discussion of yield seeking behavior. I examine the distinction between those MMFs investing

in public versus non-public debt, a distinction particularly salient to the US, the largest MMF jurisdiction[1]. Over the past decade, US MMFs have increasingly shifted towards public securities, but outside the U.S., private debt MMFs remain dominant (FSB, 2024). The shift towards public funds in the US was driven by regulatory reforms that imposed liquidity fees and redemption gates on private debt MMFs, so that public MMFs was instead offering relatively enhanced redemption certainly, by ensuring redemptions on demand and at par. While private debt MMFs can carry more redemption risk, they can generally offer somewhat higher yields, creating a tradeoff between safety and returns. I examine whether these structural differences influence flows during periods of rapid MMF growth, when the MMF yield advantage increases, and during stress periods (the 2023 banking turmoil).

The empirical findings offer several insights. First, I find that the MMF yield advantage is a key determinant of MMF growth across countries. MMFs grow significantly faster when they offer better returns relative to bank deposits—a relationship especially pronounced during monetary policy tightening. This confirms that MMFs are an important vehicle for yield-seeking behavior in a rising-rate environment.

Second, this yield-seeking behavior appears to continue in the three-month period after 2023 banking turmoil in most global regions. In the US, MMF growth became more sensitive to superior MMF yields after the turmoil, although, contrary to the popular narrative, MMFs did not grow as much as in previous hiking periods once macro-financial and Fund characteristics are controlled for. The results downplay the scenario of investor flight to MMF safety, pointing to the yield optimization as the main driver, as investors “woke-up” to higher yields offered by the MMFs following the 2023 turmoil. The results are complementary to existing literature, which document intrabank-US sector flows (from regional to large banks) that largely satisfying investors’ flight to safety in that period (Caglio et al., 2024). The Asia-Pacific and Americas regions show a similar pattern. By contrast, in the euro area investors appeared to have sobered, with MMF spread sensitivity remaining positive, on net, but moderating from previously elevated levels.

Third, I find that public MMFs, despite their relatively more conservative investment profile, are not universally preferred by investors. Although public MMFs have grown significantly and dominate the U.S. market—arguably supported by the depth and liquidity of the U.S. Treasury market —this pattern does not necessarily replicate in other jurisdictions where non-public debt MMFs are more prevalent and continue to gain traction. My evidence suggests that when MMF yields rise relative to deposit rates, investors in most regions tend to pivot away from the more conservative public MMFs, indicating a willingness to trade off some degree of safety for higher yields. This dynamic is also evident in the aftermath of the 2023 banking turmoil, when investor sensitivity to MMF spreads increased. Additionally, I observe that off-shore USD-denominated MMFs tend to grow faster compared to local currency funds, underscoring the dollar’s ongoing centrality in global cash management and demand for safe assets.

Overall, this paper’ findings highlight the MMF yield advantage as a primary driver of MMF growth. This advantage typically emerges during monetary policy tightening cycles and has supported MMF inflows following the 2023 banking turmoil. I also find that a rising MMF spreads can shift allocations away from public funds in

[1] There are several ways to differentiate MMFs, especially in a global context, as the regulatory frameworks as well as the financial ecosystems can vary substantially. For example, another relevant structural aspect for our analysis could be the ease of access to the investment and the ability to transfer the funds across investments. However, consistent measurement data across and within countries were not available in our data sets.

certain jurisdictions. Our results suggest that in periods of rising MMF spreads, which largely coincide with hiking periods, yield considerations may be more relevant for investors compared to safety considerations.

From a broader perspective, the findings have implications for financial stability and the transmission of monetary policy. First, the responsiveness of MMFs to rate hikes—especially through yield differentials, suggests that central banks may face more complex deposit dynamics in a tightening environment, as underscored by previous research (Xiao, 2020; Aldasoro and Doerr, 2023). Second, the muted response of MMFs to the 2023 turmoil suggests that, in the absence of a systemic event, market-based alternatives like MMFs may act as instruments of yield optimization rather than panic-driven safety switches. This highlights the importance of MMF design, regulation, and transparency in managing cross-market liquidity flows in an evolving macro-financial context.

# 2. Links to literature

This paper advances previous academic research in several important ways. The study adopts a cross-country approach, analyzing MMF flows in four global regions with significant MMF sectors. This international scope allows for the identification of regional differences in investor behavior and fund structure, moving beyond the country-specific evidence that dominates the literature. The literature on money market funds (MMFs) has traditionally focused on their vulnerabilities and the dynamics of outflows during periods of systemic financial stress, such as the Global Financial Crisis (Kacperczyk and Schnabl, 2010; Li et al., 2021; Aldasoro et al., 2021; FSB, 2020). More recent studies have examined MMF behavior during the COVID-19 shock and regulatory reforms, particularly emphasizing the U.S. market and global perspectives (Aldasoro et al., 2021; Bouveret et al., 2022). Studies on MMF dynamics during earlier financial crises, such as the Eurozone crisis, include Gallagher et al. (2019).

However, the drivers of MMF inflows during monetary policy tightening cycles remain underexplored, especially outside the U.S. context: Prior work by Drechsler et al. (2017, 2021) and Xiao (2020) suggest that deposit outflows from banks into MMFs increase during tightening cycles. A key mechanism driving this shift is the opportunity cost of holding bank deposits, which tends to rise during monetary policy tightening periods. This opportunity cost arises as banks are typically slower to pass on higher rates and results with a positive MMF spread. However, this hypothesis is not directly tested. Yet, these studies have not systematically tested the impact of yield advantage, banking turmoil, and fund structure on MMF growth across multiple jurisdictions.

This paper shifts the analytical focus from MMF vulnerabilities and outflows to the determinants of MMF inflows during global monetary policy hiking cycles, providing a novel perspective on cash management and financial stability. The paper also fills a gap in research, by constructing a proxy for the MMF yield advantage and empirically testing its effect on MMF growth.

In addition, this paper leverages the unique context of the 2023 banking turmoil, which occurred during a globally synchronized hiking cycle, to analyze the incremental changes in MMF growth dynamics following the March 2023 events. Unlike broader systemic crises, the 2023 episode primarily affected banks, enabling a clearer analysis of substitution dynamics between bank deposits and MMFs. The results complement and extend analysis that focuses on how depositor flight patterns from certain banks, especially those facing

heightened market and run risk and often amplified during bank stress or tightening cycles, can drive flows into safer alternatives (Caglio et al., 2024; Copestake et al., 2023; Jiang et al., 2024).

A substantial body of research documents the reach-for-yield behavior of MMFs, with prime funds in the U.S. widely recognized for investing in riskier private securities to deliver higher yields and attract yield-sensitive investors (Kacperczyk & Schnabl 2013; Chernenko & Sunderam 2013; La Spada 2015). These studies highlight that both competitive pressures and sponsor characteristics shape the degree of risk-taking, particularly when safe asset yields are low. My findings align with these results and extend the literature by showing that public MMFs are dominant in the U.S.. Outside the U.S., non-public (private) debt MMFs remain prevalent. Furthermore, I show that investors can dynamically adjust to MMF yield changes, with investors moving away from public MMFs, into non-public ones, in periods when MMF spreads are rising in the US and Europe.

The remainder of this paper is structured as follows: Section II described key measurements determining the size and geography of the global MMF sector. Section III narrows down the sample of countries for our analysis and describes the data used in the analysis. Section IV provides a more detailed motivation behind the factors explored. Section V presents the empirical methodology and results, and Section VI concludes.

# 3. The size of the global MMF sector

MMFs are generally viewed as cash management vehicles by investors. They are open-ended investments funds, that typically invest in diversified portfolios of short-term, safe and liquid assets. They aim to preserve principal value of the investment, while typically offering the possibility of daily redemptions (FSB, 2024). In normal times, MMFs can offer comparable levels of security and accessibility, often at higher rates compared to other cash investment alternatives, such as bank deposits, and increased diversification of credit risk. They can therefore be seen as a desirable alternative for cash management purposes.

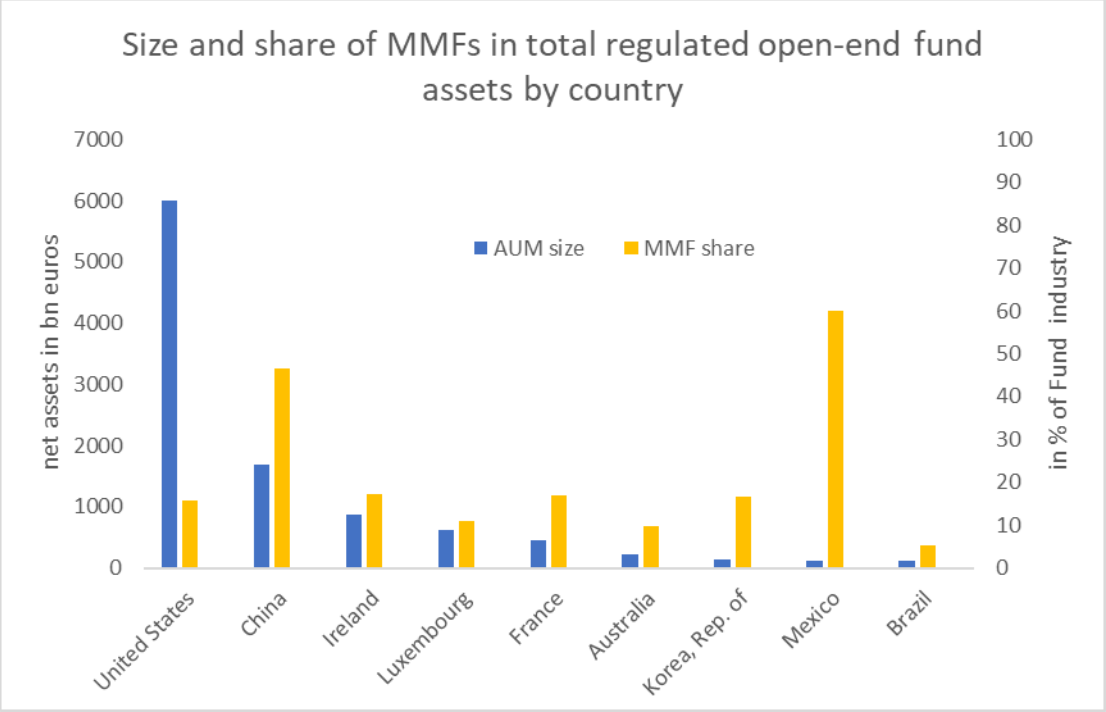
The global MMF sector is about 10.5 trillion euros, compared to the larger global mutual fund sector of about 74 trillion euros. The MMF sector is present in a relatively limited number of countries, mainly AEs, with the US holding the largest global MMF share, just shy of 60%. Europe and in China account for approximately one third of the US size, with jurisdictions beyond that group accounting for less than 2% of the global MMF sector size. [2] While relative nominal sizes vary considerably, the MMF sector makes up about 10 percent to 20 percent of the mutual fund sector in most jurisdictions with at least 1% of the global MMF share. The exception is China and Mexico, where the share of the MMFs in the mutual fund sector is much larger (Figure 1a).

In Europe, MMFs are concentrated within a limited number of countries, each characterized by distinct classifications and currency compositions. European MMFs are mainly concentrated in three countries, Ireland,

[2] For a discussion on the historical development of MMFs, see Bouveret et al., (2022)

France and Luxembourg. [3] MMFs in Ireland and Luxembourg cater for an investor clientele that is mostly non-domestic, in line with these countries being financial hubs. In Ireland and Luxembourg most funds are off-shore dollar funds, with a smaller participation of euro denominated funds and funds denominated in British pounds. Ireland has the largest number of British pound denominated funds. France hosts predominantly EUR denominated funds. MMF presence in other European countries is small in comparison (Figure 1b).

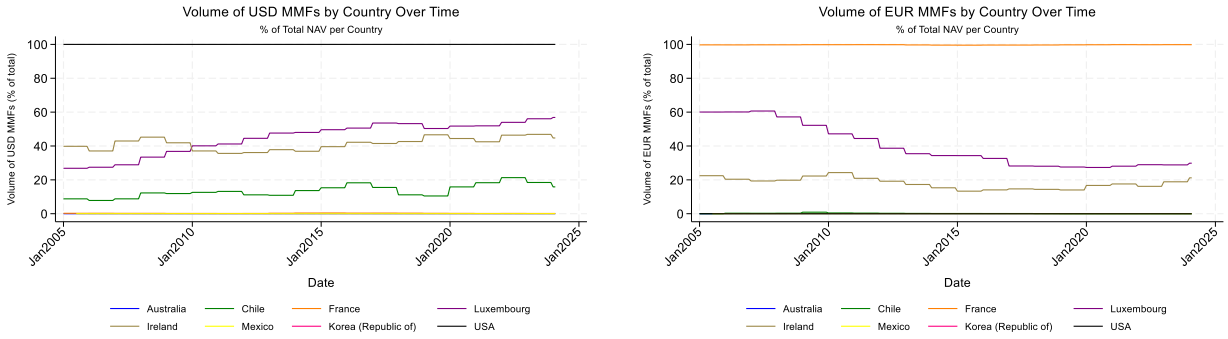
**Figure 1a: MMF sector relative size**




Notes: The blue bars show the share of the MMF sector in each jurisdiction compared to the global MMF share. The share is computed by dividing the net assets under management (AUM) of MMFs in each jurisdiction over the sum of the global AUMs. The yellow bars show the size of the MMFs in each jurisdiction as a proportion of the overall mutual fund sector in the same jurisdiction. The share is computed by dividing the net assets under management (AUM) of MMFs in each jurisdiction over the sum of AUMs over all mutual fund sectors in each jurisdiction. The sectors include Equity, Bond, Multi-asset, Real Estate and Other funds. The data correspond to 2025Q2 values.The data source is EFAMA, with calculations from the authors.

**Figure 1b. Evolution of USD and EUR denominated funds**

[3] The European regulatory reform of 2017 resulted to a unified European regulation, the so-called EU Money Market Fund Regulation (MMFR), which imposed more stringent regulatory requirements and increased the cost of compliance. As a result, the number of MMFs declined notably in smaller domiciles and MMF concentration increased (EFAMA, 2020).




Notes: The Charts plot the share of USD- (left panel) and EUR- (right panel) denominated MMFs across countries over time. The share is computed by dividing the total net asset value (NAV) of MMFs with the respective currency denomination over the total NAV of MMFs in the same jurisdiction. The data source is Lipper, with calculations from the author.

# 4. Data

This paper uses an extensive dataset, that relies on several sources. I focus on countries with large nominal size of MMF sector, which underwent a hiking cycle in the last couple of years. This includes the US and Europe, as well as Australia, Brazil, Mexico and Korea. I include Chile for a more complete representation of the Americas region. European MMFs for the purpose of this analysis include Ireland, Luxembourg and France. I focus on MMFs denominated in the group of currencies that corresponds to the countries in our sample. This includes, for example, USD funds in jurisdictions outside the US or euro denominated funds in jurisdictions outside of the euro area. It excludes MMFs denominated in other currencies (such as GBP or JPY), although these funds make up a rather small size of the overall sample.

I use monthly observations of Net Asset Values (NAVs) for individual MMFs from Lipper, from January 2004 to September 2023. The data includes fund-level information on the Fund type (available only for US and European MMFs), the jurisdiction and the underlying currency of the Funds (available for all jurisdictions).[4] I construct the year-on-year growth rate of NAVs as our key dependent variable (Figure 2). To exclude occasions of MMF conversions, for example from prime to government MMFs in the US, growth rates above 100 percent in absolute value are excluded from the sample.[5]

[4] In the US, government and Treasury MMFs appear under the same – stable NAV- category. In Europe, we group CNAVs and LVNAVs in one category and Short-term and Standard NAVs in another category.

[5] As a robustness check, we also run our results excluding growth rates larger than 75 percent and 50 percent. The results (not shown) are not economically different.

I augment the MMF dataset with monetary policy rates from Bloomberg, used to create dummies for periods of policy rate hikes.[6] A hiking period extends from the first hike until the month prior to the first cut. I also construct a monetary policy rate shock measure as in Xiao (2020). I use the ECB policy rate for euro area countries in the sample.

I construct the MMF yield advantage (or MMF spread) using money market yields and deposit rates for each country. Ideally, fund-level MMF yields would be used, but such data are either not available or not comparable across countries in the sample due to different yield maturities reported in MMFs across jurisdictions. To overcome this limitation, I use overnight money market rates across jurisdictions from Bloomberg as a proxy for MMF yields.[7] USD (EUR) denominated MMFs outside the USA (euro area) are assigned the US (euro area) overnight rate. This is because MMFs denominated in foreign currencies typically invest in assets denominated in these currencies and therefore their yields are impacted more from the monetary policy in those countries, rather than their domestic policy rates (Bua et al., 2019). The overnight rate could be seen as a lower bound for MMF yields, especially because MMFs that invest in private securities of longer duration, a key MMF category outside the US, could earn yields higher than the overnight rate. In that sense, our measure may underestimate the impact of the MMF yield advantage for countries outside the US.

I use data from various sources (Bloomberg, IMF, central bank statistics) on national average bank deposit rates.[8] Consistent data is not available across countries. To maximize consistency, I focus on savings rates or, when available, deposit rates and certificates of deposits with maturities close to one year. I construct the MMF spread as the spread between money market yields (our proxy for MMF yields) and bank deposit rates. I follow a similar transformation for the MMF spread as for the monetary policy shock measure, that is, I take the cumulative change in the spread over the last three years. The final proxy takes both negative and positive values, with the negative values partly owing to the longer maturities considered for the deposit rates compared to the ON MMF yields (Figure 3).[9]

Finally, I augment the dataset with macro and financial variables, which I use as control variables. Macro variables include inflation and GDP year-on-year growth rates by jurisdiction. Financial variables include the VIX (CBOE Volatility Index) as a proxy for global risk sentiment and yield curve spreads (10 year minus 2years) as a proxy for market sentiment of duration aversion. Other than Australia, USA and France, which have their own

[6] The Bloomberg tickers used are: Australia: cash rate target (RBATCTR Index), Brazil: Seltic Target Rate (Bzstseta index), Chile: Monetary policy rate (Chovchov index), ECB: Deposit facility rate (EUORDEPO Index), USA: Federal Funds Target Rate lower bound (FDTRFTRL Index), Mexico: Bank of Mexico official overnight rate (Mxonbr Index), Korea: Official bank rate (KORP7DR Index).

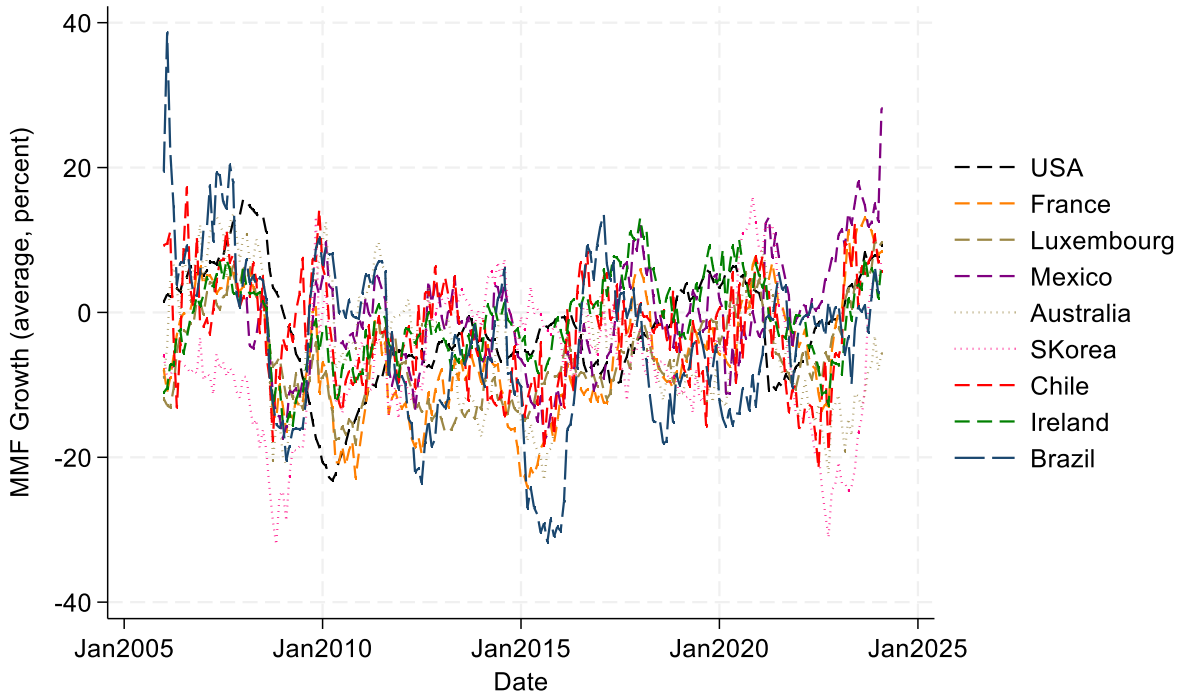
[7] The Bloomberg tickers are: USA: Effective Federal Funds Rate (FEDL01 Index), Australia: Overnight cash-rate (RBACOR Index), Korea: Overnight call rate (KOCRD Equity), Brazil: CETIP DI overnight interbank rate (BZDIOVRA Index), Chile: Average interbank rate (CHIBPROM Index), Mexico: Overnight closing rate (MXBRBA Index), European Short-term rate (ESTRON Index).

[8] USA: 1 year CD rate, Europe: average of bank deposit rates from corporations and households with agreed maturity of over one year, for Brazil, Chile and Mexico: Average of deposit rate and savings rate from IMF statistics, for Australia: Deposit rate on savings accounts, Korea: average of Deposit rate on new time and savings deposits, 1-year bank deposits and deposit rate from CEIC.

[9] In both sides of the Atlantic, and in Korea the spread is negative for large periods of time, suggesting that bank rates offer higher yields compared to MMFs. The reverse holds in Mexico and Brazil, while in Australia the difference has been relatively small prior to the 2022 hiking cycle. Part of those differences may be attributed to the different definitions and maturities of deposit rates across countries.

yield curve spreads, I assign the yield curve spread of the US to EMs and dollar denominated funds and the yield curve spread of Germany to the remaining euro denominated funds.

**Figure 2: Average MMF Growth by jurisdiction**




Notes: The chart plots the average MMF year-on-year growth rate across countries in our sample.
Source: Lipper and author calculations.

# 5. Motivation

## A. MMF yield advantage as a determinant of MMF flows

Previous literature has demonstrated that positive monetary policy shocks lead to inflows into MMFs (Xiao, 2020; Aldasoro and Doerr, 2023). The rationale is that yields from money market funds adjust more swiftly once a cycle of interest rate increases is underway, whereas bank deposits rates tend to lag. The faster adjustment of MMF yields is by construction, as they are based on diversified portfolios of short-term assets offering yields that closely track policy rates in highly competitive funding markets.

On the other hand, the stickiness of deposit betas (the elasticity of bank rates to policy rate increases), especially when interest rates rise, has also been documented in the literature. Bank deposit rates are influenced by market structure and bank strategies, other than policy rates. For example, banks with significant market power and strong “deposit franchise”, which operate in concentrated markets tend to adjust deposit rates slowly (Dreschler et al., 2017; Dreschler et al., 2021). In the context of the euro area, Messer and Niepmann (2023) highlight that

sluggishness in deposit rate adjustments can be due to excess liquidity in the banking system reducing the need for deposit funding, rather than lack of competition.

In this context, yield-oriented investors are more likely to pivot towards MMFs, when monetary policy tightening widens the spread between MMF and bank rates Xiao (2020). Conversely, there is some evidence that monetary policy easing cycles put MMFs yields at a disadvantage compared to banks, leading to outflows from MMFs (Bua et al, 2019).

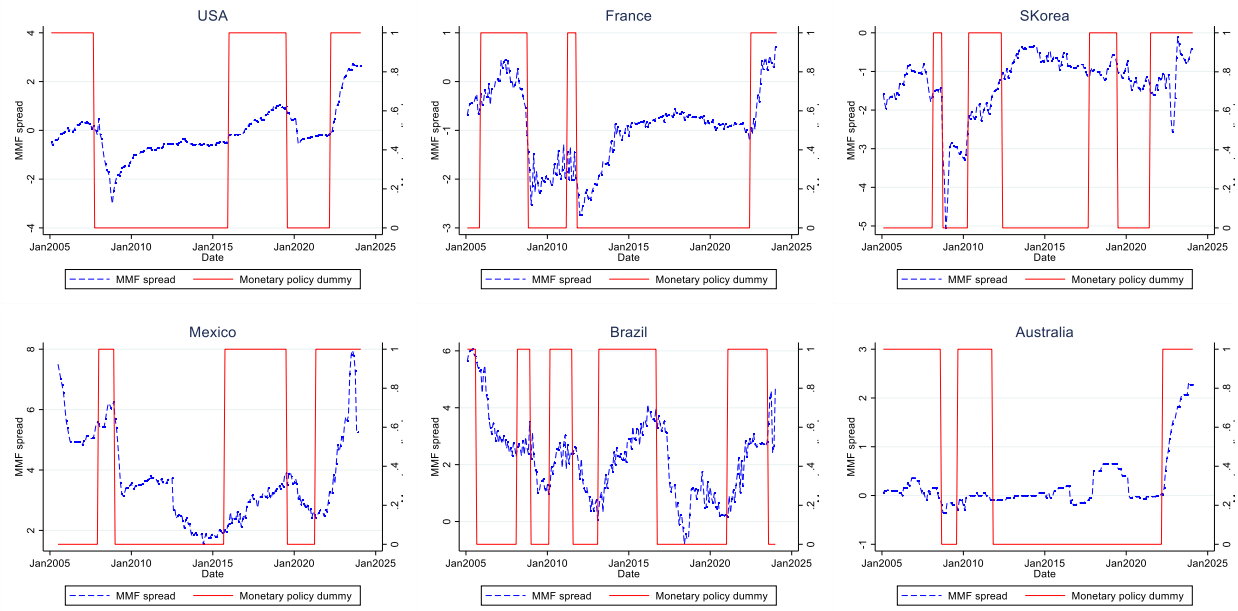
This paper investigates the relationship between relative returns – measured as the MMF yield advantage- and MMF flows, a relationship that has not been tested directly before. This paper fills this gap by constructing a proxy of the MMF yield advantage across countries and testing the hypothesis that MMFs grow faster in periods of interest rate hikes. My proxy for the MMF yield advantage, the MMF spread, typically increases across countries during periods of monetary policy hikes and declines outside these periods (Figure 2). [10] For example, the hiking cycle of 2022 appears to have driven a strong net increase in the spread.

Investor flows into money market funds (MMFs) are influenced by broader portfolio allocation decisions. A range of factors—including risk aversion and macroeconomic uncertainty—shape expectations about future returns and drive investors to reallocate between risky and safe assets, or between long-term and short-term instruments in a forward-looking manner. For example, during periods of heightened uncertainty or low risk appetite, investors may reduce exposure to long-duration or risky assets and increase holdings of liquid, short-term instruments such as MMFs and bank deposits. Conversely, when risk appetite rises and expected returns on risky assets improve, investors often reallocate away from cash-like instruments toward equities or longer-term bonds (Ederington and Colubeva, 2010; Chalmers et al., 2013). Such cyclical reallocations can affect the pool of capital available for investment in cash-like alternatives.

This paper uses macro and financial variables to control such broader portfolio allocation decisions. The controls include inflation and GDP variables, which am also found in Xiao (2020). In addition, I use financial variables, namely the VIX and the yield curve spread (10 years minus 2 years), to control for market sentiment. The VIX is a popular proxy for global risk sentiment in academic literature, with spikes in the index associated with widespread financial stress or heightened uncertainty about the global economic outlook (Rey, 2015). Similarly, the yield curve shape can also encourage (when steep) or discourage (when flat or inverted) investors' duration taking curve.

[10] Note, however, that the euro area saw a rebound in the spread during the negative rates period in the euro area. This rebound is driven by the decline in bank rates relative to MMF rates. Figure 2 shows the case of France, but similar behavior is also exhibited in Luxembourg and Ireland.

**Figure 3: MMF spread and monetary policy cycles**




Notes: The charts plot the average MMF spread between MMF yields, proxied as money market rates and deposit rates across countries (blue line). We assume that USD and EUR denominated funds follow the USA and euro area money makret rates respectively. The red line denotes periods of monetary policy rate hikes. A hiking period is starts at the first rate hike and ends before the first rate cut. Spreads are calculated in percent. Source: Lipper, IMF statistics, Bloomberg, CEIC and author calculations.

## B. The impact of the 2023 banking turmoil

Second, this paper examines how the 2023 banking turmoil has affected MMF flows globally. The rationale is that during banking crises investors often seek deposit alternatives, which MMFs can offer. Bank fragility can emerge in the context of monetary policy tightening from the interaction between declining asset values and shifts in depositor behavior (Jiang et al., 2024; Copestake et al., 2023). The 2023 regional banking turmoil in the US was a case study of such dynamics. Concerns about solvency and deposit safety triggered runs on some regional banks, leading to large deposit outflows into both systemically important U.S. banks and MMFs (Caglio et al, 2024; Adrian et al, 2024; Nikolaou, 2023; GFSR, 2023). Soon after, the collapse of Credit Suisse in Europe added to the sense of instability, reverberating across European banking markets. [11] Equity prices of global banks—particularly in advanced economies—dropped sharply, while emerging markets was less affected (Pandey et al, 2023). The financial stress receded quickly, helped by swift policy responses, including liquidity backstops and coordinated communication by central banks (Yousaf et al., 2023; Pandey et al., 2023). Still, the episode marked a notable test of the financial system during a global monetary tightening cycle—and presented a unique context to assess investor behavior.

Three features make the 2023 turmoil particularly relevant for analyzing MMF flows. First, unlike the GFC or the COVID-19 shock, the 2023 turmoil did not constitute a broad systemic crisis. That distinction matters, as systemic events typically affect both banks and MMFs, making it harder to disentangle substitution dynamics. In contrast,

[11] See https://www.reuters.com/business/european-banks-bumpy-recovery-year-after-credit-suisse-collapse-2024-03-13/

the 2023 turmoil predominantly hit the banking sector, allowing clearer observation of any "flight-to-MMF" effects. [12] Second, it allows analysis in a globally synchronized setting. The turmoil of 2023 took place amid a global hiking cycle. Since MMF growth is known to respond to rate hikes via yield differentials, this common backdrop offers a clean environment to isolate the incremental impact of the banking turmoil, controlling for monetary policy effects. Third, while sharp post-SVB inflows into U.S. MMFs has been widely discussed in policy and media circles, there has been little formal, cross-country analysis of MMF behavior during this episode. The dominant narrative has been one of major inflows into US MMFs, contrary to European ones. [13] This paper undertakes an in-depth market analysis, the first of its kind, and interestingly finds results that contradict the dominant narrative.

The empirical analysis focuses on whether MMF growth during the banking turmoil was significantly higher than in previous hiking cycles. In doing so, I ask: did it provide an additional push to MMF inflows after controlling for the macro-financial environment and fund specific characteristics, and how did investors react to higher MMF spreads in that environment? This approach sets the stage for understanding whether investor reallocations reflected panic and risk aversion, or rational shifts toward more attractive, liquid alternatives.

## C. Structure and types of MMFs as a driver of MMF flows

MMFs are generally viewed as cash management vehicles by investors. MMFs are open-ended investments funds that typically invest in diversified portfolios of short-term, safe and liquid assets. They aim to preserve principal value of the investment, while typically offering the possibility of daily redemptions (FSB, 2021). Therefore, in normal times, MMFs offer comparable levels of security and accessibility, at higher rates compared to other cash investment alternatives, such as bank deposits, and increased diversification of credit risks and can therefore be seen as a desirable alternative for cash management purposes.

And yet, there are stark differences among MMFs. Across and within jurisdictions there can be different types of funds whose characteristics can be important for cash management decisions (FSB, 2024).[14] While there are several dimensions across which MMF types can be delineated, a broad dimension is between public and private debt MMFs. This category is particularly prominent in the US, the largest jurisdiction for MMFs.

In the US, government MMFs have become the dominant type of MMF. Those MMFs invest in public debt and typically allow investors to get their principal back on demand and at par, much like deposits. The investments of public debt MMFs in the US are typically in cash and short dated government securities.[15] The presence of these MMFs has been substantial in the US, but they expanded significantly following the 2015 MMF regulatory reform[16]

[12] See https://www.reuters.com/business/european-banks-bumpy-recovery-year-after-credit-suisse-collapse-2024-03-13/

[13] See April 11, 2023 Reuters article: Why European MMF inflows are lagging behind US torrent

[14] See FSB (2024), Annex 1 for an overview of the different categories of MMFs across jurisdictions.

[15] They can also involve repurchase agreements with Government securities as collateral.

[16] The 2015 MMF reforms in the US introduced several significant changes to enhance the stability and transparency of money market funds. One of the key changes was the requirement for institutional prime and municipal MMFs to adopt a floating net asset value (NAV) instead of a constant NAVs, which aimed to reduce the risk of runs on these funds during market stress. The reforms also introduced redemption gates that allowed money market funds to temporarily suspend redemptions if the fund's weekly liquid assets fell below a certain threshold, 30 percent of its total assets. Subsequent reforms in 2023 removed redemption gates but imposed liquidity fees on redemptions for non-government MMFs, which are mandatory for certain categories of prime funds. Both reforms mandated increased liquidity requirements, ensuring that funds maintain a higher percentage of their assets in liquid securities to better handle redemptions, and enhanced reporting requirements.

and currently account for more than 80 percent of the assets held by US taxable MMFs (Figure 4, Chart 1).[17] The main alternative in the US, prime MMFs, have broader investment options but face restrictions in redemptions.

The shift to Government MMFs has considerably stabilized the US MMF sector, suggesting that government MMFs may offer more comfort to investors in times of crisis. Contrary to GFC and the Eurozone crisis, when US MMFs saw considerable redemptions and outflows, the Covid crisis did not see many outflows in US MMFs in general. Instead, government MMFs have seen substantial inflows during the Covid pandemic, unlike their prime counterparts, who witnessed outflows[18]. This development speaks to the importance of government MMFs in attracting flows in periods of crisis, underpinning the uneasiness of US investors with limited or uncertain access to their principal (Li et al, 2021). Nevertheless, government MMFs can yield less compared to non-government MMFs, which suggests that yield oriented investors may still find non-government MMFs appealing (Figure 4, Chart 2).

Outside the US, public-debt MMFs are not as prominent. In fact, the relative size of public debt MMFs in our sample, excluding the US, has remained broadly stable or even declined in other countries in our sample. Public debt funds have a substantial share in Korea (about 40 percent) but have less than 20 percent in the remaining countries. In Europe, money market funds with equivalent characteristics to US government MMFs account for only 10 percent of total EU money market funds (Constant NAVs or CNAVs). (Figure 5).[19] The depth and size of the US Treasuries market can be an important factor behind the large expansion of government MMFs, supporting the outgrown size of the US MMF sector compared to other countries.

Instead, in countries outside the US, the vast majority of MMF investments lean heavily on private liabilities. These MMFs invest in a diversified pool of liquid private debt, which can, in certain countries, include bank deposits (term or negotiable) and offer higher returns compared to public funds. This is because they also typically allow for somewhat longer maturities and relatively higher exposure to credit risk.[20] Nevertheless, on-demand access to the principal is typically restricted, with additional fees and “gates” on redemptions potentially imposed by the Fund, to safeguard against sudden and sharp liquidity withdrawals.[21]

Given the marked difference between the United States and other countries in our sample, I examine whether public (government) MMFs attract more investor flows than other types of funds across countries. I also explore how fund types behave, such as when MMF spreads widen during monetary tightening cycles, or when

[17] The depth and size of the US Treasuries market can be an important factor behind the large expansion of government MMFs, supporting the outgrown size of the US MMF sector compared to other countries.

[18] Similarly, the financial stability of European MMFs was also improved compared to the GFC. Despite concerns about liquidity squeezes for European MMFs during the pandemic crisis, no European fund had to impose trading suspensions.

[19] CNAVs are only found in Ireland and Luxembourg and are predominantly offshore USD funds. The share of CNAVS has grown in those two countries over time, but the dominant type of MMFs include limited exposure to private debt and guarantee the principal investment under conditions (low-volatility NAVs - LVNAVs). Shares of CNAVs and LVNAVs are considered cash equivalents under EU accounting standards. Variable NAV may be further split into short-term and Standard ones. French MMFs offer almost exclusively variable NAVs and allow for a broader range of assets, including corporate debt and longer-term securities and are subject to looser liquidity rules (Figure 5). See Types of MMF - Institutional Money Market Funds Association for more information on European MMFs.

[20] This behavior is notable in France and is also observed in Chile. Bank deposits are considered more liquid compared to other debt instruments issued by banks and bought by MMFs, such as CPs in Europe. Financial stability concerns can arise from increased interconnectedness between the bank and the non-bank sectors as MMF redemptions can contribute to deposit runs but these concerns are beyond the scope of this paper.

[21] While such tools remain at the discretion of the Fund in the case of the US government MMFs, they are mandatory in Europe (Table 1).

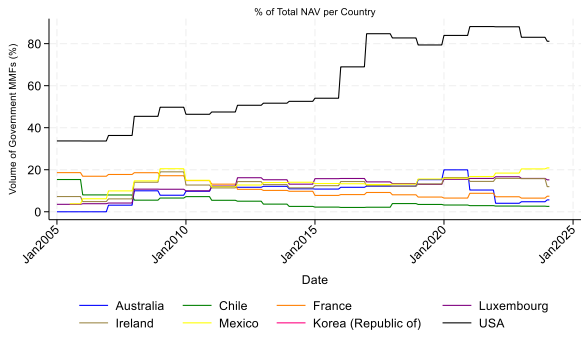
alternative investments become less accessible, as in episodes of banking stress that shift investors toward MMFs. In such periods, yield-oriented investors allocating their money may need to balance the desire for immediacy and safety of principal offered by public MMFs with the somewhat higher returns typically available from non-public MMFs.

Another important source of differentiation among funds is their currency of denomination. In most countries in our sample, MMFs are primarily denominated in local currency. The main exceptions are Ireland, Luxembourg, and, to a lesser extent, Chile. In Ireland and Luxembourg, around half of AUMs are denominated in U.S. dollars, while euro-denominated funds account for a declining share of roughly 20–30% (Figure 1b). In Chile, the share of dollar-denominated funds fluctuates between 10% and 20% of the sector. Overall, this pattern makes the U.S. dollar the dominant currency in the global MMF market. By contrast, euro-denominated funds are largely concentrated in Europe, with France hosting the largest number. Chile is the only country outside Europe in our sample with euro-denominated funds, though their share is minimal. Taken together, the data highlight a strong home-currency bias across markets yet also point to persistent demand for U.S. dollar–denominated assets (Maggiori, Neiman & Schreger, 2020).

In the analysis, I account for differences in fund denomination by matching the MMF yield to the money market rate of the currency of denomination. This ensures that the spread variable aligns with both local and foreign-currency MMFs. I further test whether USD-denominated funds outside the United States attract systematically higher inflows relative to domestically denominated MMFs.

**Figure 4: Public debt MMFs across countries and EU fund types**

**Panel 1. The evolution of public debt MMFs across countries**




**Panel 2. Government vs prime MMF yields in the US**

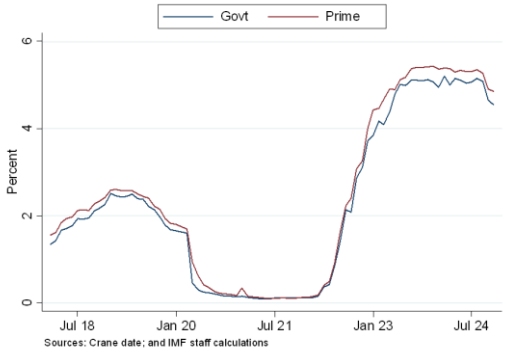
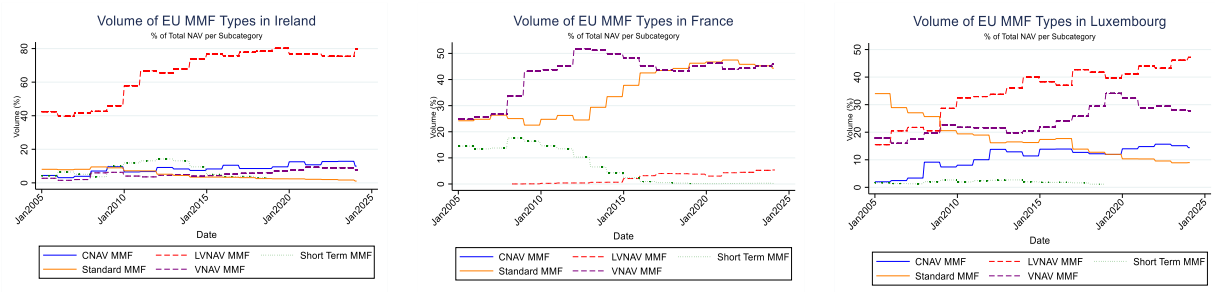



**Figure 5: The evolution of EU Fund types**




Notes: The Charts plot the evolution of government (public) funds in various jurisdictions. The government MMFs include Government and Treasury MMFs in the US and CNAVs in Europe. For the remaining countries in our sample, the Fund is assigned in the category when the name suggests it is a government MMF. Data run from January 2024 to February 2024. Source is Lipper and author calculations.

# 6. Methodology and Empirical analysis

I begin with corroborating the results of previous literature, namely that positive monetary policy shocks lead to inflows for MMFs. I use the following regression form:

$$\Delta y_{t,i} = \beta \Delta pr_t + controls_{t,i} + FE_{t,c,i} + \varepsilon_{t,i} \quad Eq(1a)$$

where $\Delta y_{t,i}$ denotes the year-on-year growth rates of NAV at the fund level and $\Delta pr_t$ denotes changes in the monetary policy rate. The controls include both broader macroeconomic controls (changes in inflation and GDP) and financial controls (changes in the VIX and the yield curve spreads) which are used as proxies for the global risk sentiment and the appetite for duration. The controls include fixed effects (FE) for time and fund characteristics, but also include fund specific characteristics which include country, size (as measured by NAV) and parent company. [22] The standard errors of this and the following regressions in this paper are robust and clustered at the fund level.

Column (1) of Table 1 presents the results and confirms the positive relationship between monetary policy shocks and MMF growth. MMFs in our sample grow on average by 2.14 percentage points, for 1 percentage point increase in the policy rate, holding other variables constant. This indicates that higher interest rates are associated with increased MMF growth, possibly due to MMFs offering higher returns relative to other alternatives for cash management, a hypothesis that I explore next.

The results for the control variables shed light on different aspects of MMFs. Larger funds grow on average significantly faster than smaller ones, with large funds seeing nearly double the growth advantage of medium-

[22] We create a dummy to categorize MMFs by size. The dummy takes the value of 1 if the MMF size is below 25 percent of the average MMF size in the respective country, 2 if the Fund size is between 25 percent and 75 percent and 3 when it is above 75 percent.

sized funds compared to small funds. That is an indication of concentration in the MMF sector. Macro variables are significant and behave as expected. MMF assets rise faster with higher GDP and decline with higher inflation. On average, MMFs experience outflows when the VIX, a proxy for global risk sentiment, increases. This pattern likely reflects the outflows observed during several stress episodes in our sample, which begins in 2005. During such periods, investors may redeem MMF shares to raise cash for liquidity needs or to reduce exposure to credit-sensitive instruments. Also, a steeper yield curve (rising 2s10s spread) is associated with modest outflows, suggesting that investors move into higher-yield, longer-duration assets.

## Impact of the MMF yield advantage

Next, I demonstrate that a key factor in determining cash management allocation is the MMF yields offered compared to cash management alternatives such as bank deposits. I use the MMF Spread, the proxy for the MMF yield advantage, to test the hypothesis that this advantage significantly influences investor decisions.

I test two hypotheses: First, that yield advantage of MMFs positively impacts MMF growth, i.e. the higher the spread the stronger the MMF flows. I do so by simply substituting the spread with the monetary policy rate in the equation above. [23]

$$\Delta y_{t,i} = \beta \Delta Spread_{t,c} + \gamma Dummy_{HC_{t,c}} + controls_{t,i} + \varepsilon_{t,i} \quad Eq(1b)$$

Second, I test whether the yield advantage is higher during periods of monetary policy hikes. To empirically assess the impact of this advantage, I adopt a difference-in-difference analysis of the following form:

$$\Delta y_{t,i} = \beta \Delta Spread_{t,c} * Dummy_{HC_{t,c}} + \gamma \Delta Spread_{t,c} + \delta Dummy_{HC_{t,c}} + controls_{t,i} + \varepsilon_{t,i} \quad Eq(1c),$$

where $Spread_{t,c}$ is the MMF Spread, $Dummy_{HC_{t,c}}$ is a dummy that takes the value 1 during the different hiking cycles for each country in our sample. The hiking cycle ranges from the first monetary policy rate hike until the first cut. The interaction term, $\beta \Delta Spread_{t,c} * Dummy_{HC_{t,c}}$ shows whether the attractiveness of the MMFs, proxied by their yield advantage, is more pronounced when central banks are raising interest rates. [24]

[23] Looking across our sample of countries, the yield advantage typically correlates strongly with monetary policy rates. Contemporaneous correlation coefficients are around 50 percent to 80 percent in most countries, with the exceptions of Australia and Korea, where the correlation coefficients are almost zero.

[24] We need the interaction term to distinguish between hiking and easing cycles. Figure 3 shows that the MMF spread can rise also during cycles of monetary policy easing if banks adjust their deposit rates sharply lower. The interaction term controls for possible increase in the spread outside the windows of monetary policy tightening.

**Table 1: Impact of monetary policy on MMF assets**

Results from panel regression of Eq. 1a-c

| | (1) | (2) | (3) |
|---|---|---|---|
| Country | All | All | All |
| Policy rate | 4.133*** | | |
| | (0.125) | | |
| Spread | | 3.418*** | 1.077*** |
| | | (0.128) | (0.126) |
| Dummy (hiking cycle) | | | 1.028*** |
| | | | (0.214) |
| Spread * Dummy | | | 0.903*** |
| | | | (0.155) |
| Dummy (size medium) | 16.708*** | 16.939*** | 15.816*** |
| | (0.227) | (0.227) | (0.284) |
| Dummy (size large) | 32.058*** | 31.910*** | 31.729*** |
| | (0.279) | (0.275) | (0.347) |
| Inflation | -2.433*** | -1.028*** | -0.760*** |
| | (0.072) | (0.069) | (0.078) |
| GDP | 1.106*** | 0.751*** | 1.173*** |
| | (0.060) | (0.061) | (0.081) |
| VIX | -0.826*** | -0.437*** | -0.407*** |
| | (0.059) | (0.061) | (0.072) |
| YC | -2.329*** | -2.637*** | -0.388*** |
| | (0.071) | (0.074) | (0.106) |
| FE country | Yes | Yes | Yes |

**Notes:** The table reports coefficients and standard errors from specifications in Eq. (1a–c). *Spread* is the cumulative difference, over the past three years, between MMF yields (proxied by the overnight money market rate) and the average bank deposit rate in each country. The *Dummy* variable equals 1 during a country's monetary policy hiking cycle. Fixed effects are included for country and MMF size, where *MMF size* is categorized as 1 (below 25% of the average fund size), 2 (25–75%), or 3 (above 75%). Controls include country-specific inflation and GDP, the VIX (common across countries) as a proxy for global risk aversion, and the yield curve spread (10-year minus 2-year), assigned as described in the Data section. All continuous variables are standardized to have a mean of zero and a standard deviation of one. Three, two and one asterisks denote significance at the 1 percent, 5 percent and 10 percent level respectively.

Table 1 (columns 2–3) shows that the yield advantage of MMFs is a significant driver of flows, particularly during hiking cycles. Column (3) indicates that baseline MMF growth is higher during hiking cycles (around +1%), and the positive interaction term shows that the effect of the yield spread on flows is amplified during these periods. In other words, investors are more likely to allocate to MMFs offering superior returns when policy rates are rising. The findings on the control variables remain consistent in this table and across the specifications used in the remainder of the paper, and they will not be reported in the following tables.

## Impact of banking turmoil of MMF growth

Next, I examine how the 2023 banking turmoil affected money market fund (MMF) growth. Earlier results showed that MMFs tend to expand faster during monetary policy tightening cycles. I compare MMF growth during the 2023 turmoil to earlier hiking cycles, while accounting for the role of MMF Spread using the following specification:

$$\Delta y_{t,i} = \beta Period_{t,c} * \Delta Spread_{t,c} + \gamma Period_{t,c} + \delta \Delta Spread_{t,c} + \zeta controls_{t,i,c} + \varepsilon_{t,i} \quad Eq(2b)$$

where $Period_{t,c}$ is a binary indicator equal to 1 during the three months following the collapse of Silicon Valley Bank (March–June 2023) and 0 for prior hiking cycles (adjusted to each country's timeline). This specification separates the baseline effect of the post-turmoil period $(\gamma)$ from the effect of the yield spread $(\delta)$ and allows the interaction term $(\beta)$ to capture how sensitivity to the MMF yield spread differs during the turmoil.

**Table 2: Impact of 2023 bank turmoil on MMF growth**

Results from panel regression of Eq. 2

| | (1) All | (2) USA | (3) euro area | (4) Americas | (5) Asia-Pacific |
|---|---|---|---|---|---|
| Dummy post turmoil | -8.873*** | -24.984** | -1.428 | 0.044 | -18.709*** |
| | (1.051) | (17.085) | (2.009) | (1.041) | (5.615) |
| Spread | 3.381*** | 5.692*** | 10.045*** | 1.193*** | 2.506*** |
| | (0.172) | (0.621) | (0.609) | (0.178) | (0.502) |
| Dummy post turmoil *Spread | 2.927*** | 11.632** | -2.272* | 2.862*** | 5.359* |
| | (0.561) | (5.229) | (1.335) | (0.798) | (3.017) |
| Contols | | | | | |
| Macro - financial | Yes | Yes | Yes | Yes | Yes |
| MMF size / type | Yes | Yes | Yes | Yes | Yes |
| FE country | Yes | Yes | Yes | Yes | Yes |

Notes: The table reports coefficients and standard errors from Eq. (2a) for all countries (column 1) and by region (columns 2–5). The *Americas* region includes Brazil, Chile, and Mexico (excluding the U.S.), *Europe* includes France, Ireland and Luxembourg, and the *Asia-Pacific* region includes Australia and Korea. The *Dummy post-turmoil* equals 1 from March to June 2023 and 0 in the previous hiking cycles. *Spread* is the cumulative difference, over the past three years, between MMF yields (proxied by the overnight money market rate) and the average bank deposit rate in each country. Controls include country-specific inflation and GDP, the VIX (common across countries) as a proxy for global risk aversion, and the yield curve spread (10-year minus 2-year), assigned as described in the Data section. All continuous variables are standardized to have a mean of zero and a standard deviation of one. Three, two and one asterisks denote significance at the 1 percent, 5 percent and 10 percent level respectively.

Table 2 presents regression results for all countries and by region. In the full sample (column 1), MMF growth appears lower in the post-turmoil period compared to earlier hiking cycles $(\gamma)$, but sensitivity to the MMF yield spread $(\beta)$ increased significantly, indicating that relative yields became a stronger driver of inflows. Regional results highlight important differences. In the U.S., MMF post-turmoil growth $(\gamma)$ was lower relative to earlier hiking periods once macro-financial conditions, fund types, and yield spreads are controlled for, while responsiveness to the MMF spread $(\beta)$ rose, consistent with intensified yield-seeking. Similar patterns for the interaction term appear in the Asia-Pacific and Americas regions. In the euro area, growth post-turmoil remained similar to earlier hikes ($\gamma$ is insignificant), but spread sensitivity $(\beta)$ appears negative at the 10% level. Overall, investors who had previously reacted strongly to the MMF spread became somewhat less

responsive after the turmoil. With the overall impact remaining strongly positive on net $(\beta + \delta)$, the results suggest a normalization in investor behavior rather than a reversal.

Overall, the findings do not support a uniform "flight to safety" into MMFs following the collapse of SVB and Credit Suisse. While these events may have heightened awareness of banking sector vulnerabilities, investors' sensitivity to MMF spreads increased in most regions compared to earlier hiking cycles, remaining positive on net. Higher MMF yields helped sustain flows post-turmoil, but overall growth was lower or similar to previous hiking periods, indicating that investors did not shift en masse into MMFs. These results are consistent with literature documenting large shifts from regional US banks into large US banks, following the 2023 turmoil (Caglio et al, 2024). Headline inflows during this period largely reflect macro-financial conditions, fund characteristics, and widening yield differentials; once these factors are controlled for, MMF inflows were smaller than during prior hiking episodes.

## Impact of MMF characteristics on MMF growth

Finally, I expand the analysis of fund-specific characteristics by examining fund types and currency of denomination. I investigate whether public debt funds typically attract more flows compared to other types by adding a Public dummy in equation (1b). Public takes the value 1 for Government and Treasury MMFs in the US and CNAVs in Europe. For the remaining countries in our sample, our dataset does not provide fund type characteristics, so I rely on the fund name and assign the value 1 when the name suggests it is a government MMF[25]. Additionally, I include a dummy that takes the value 1 when the currency of denomination is USD (Dollar Fund) for funds outside the US. This allows us to test whether USD-denominated funds, which are the most common currency of denomination for MMFs in our sample, have stronger inflows compared to MMFs denominated in local currencies. Our baseline specification takes the following form:

$$\Delta y_{t,i} = \beta Spread_t + \gamma Public_{t,i} + \theta Dollar\ Fund_{t,i} + controls_{t,i} + \varepsilon_{t,i} \qquad Eq(3a)$$

Furthermore, I examine whether public funds receive more inflows when the MMF spread increases, which, according to previous analysis, leads to faster MMF growth. I do this by adding an interaction term between the MMF spread and the dummy for public funds.

$$\Delta y_{t,i} = \beta Spread_t + \gamma Public_{t,i} + \delta Spread_t * Public_{t,i} + controls_{t,i} + \varepsilon_{t,i} \qquad Eq(3b)$$

Previous results also demonstrated that, while MMFs did not necessarily grow faster during the 2023 bank turmoil, MMF growth in certain jurisdictions, including the US, became more sensitive to the MMF spread. I test whether in those periods yield oriented investors decide to allocate their money in public vs non-public funds by including an interaction between the dummy for public MMFs and the dummy for the post-turmoil period used in equation 2.

[25] This is done by filtering individual MMF names for key words in different languages, including *Government*, *Govt*, *Setor Público*, *Treasury*, *Governo*, *Gubernamental*, *Tesorería*, and *Títulos Públicos*. The only Korean-related terms corresponding to "government" or "public" in meaning are translated in the data as "Government Bond."

$$\Delta y_{t,i} = \beta Spread_t + \gamma Public_{t,i} + \delta Dummy_{post\_turmoil,t,c} * Public_{t,i} + \varepsilon Dummy_{post\_turmoil,t,c} + controls_{t,i} + \varepsilon_{t,i} \qquad Eq(3c)$$

In all specifications controls include the typical size and macro variables presented in the previous specifications, as well as fixed effects for the MMF Domicile.

**Table 3: Impact of MMF types on MMF growth**

Results from panel regression of Eq. 3a-3c

| | (1) | (2) | (3) |
|---|---|---|---|
| Domicile | All | All | All |
| Spread | 1.771*** | 2.051*** | 1.852*** |
| | (0.096) | (0.102) | (0.097) |
| Public | 0.213 | 0.372 | 0.249 |
| | (1.005) | (1.005) | (1.003) |
| Spread * Public | | -1.579*** | |
| | | (0.185) | |
| Dummy post turmoil | | | -3.721*** |
| | | | (0.603) |
| Dummy post turmoil * Public | | | -3.922** |
| | | | (1.195) |
| Dollar Fund | 11.254*** | 11.408*** | |
| | (1.675) | (1.675) | |
| Contols | | | |
| Macro | Yes | Yes | Yes |
| MMF size | Yes | Yes | Yes |
| FE country | Yes | Yes | Yes |

Notes: The table presents the results from Eq (2a) – (2c). *Spread* is the cumulative difference, over the past three years, between MMF yields (proxied by the overnight money market rate) and the average bank deposit rate in each country. The *Public* dummy equals 1 for Government and Treasury MMFs in the US, for CNAVs in Europe, and for funds whose names indicate government exposure in other countries. The *Dummy post-turmoil* equals 1 from March to June 2023 and 0 in the previous hiking cycles. Fixed effects are included for country and MMF size, where *MMF size* is categorized as 1 (below 25% of the average fund size), 2 (25–75%), or 3 (above 75%). Controls include country-specific inflation and GDP, the VIX (common across countries) as a proxy for global risk aversion, and the yield curve spread (10-year minus 2-year), assigned as described in the Data section. All continuous variables are standardized to have a mean of zero and a standard deviation of one. Three, two and one asterisks denote significance at the 1 percent, 5 percent and 10 percent level respectively.

Table 3 presents the results from equations (3a)–(3c) for all countries in our sample. The coefficient on the public MMF dummy is insignificant across all specifications, suggesting that public debt funds do not attract higher inflows relative to other MMF types. This aligns with the fact that public debt funds are predominant only in the United States. The interaction term in column (2) is significant and negative, indicating that when the MMF spread increases, public debt funds generally experience lower inflows compared to other fund types. Specifically, a 1 percentage point increase in the spread is associated with a 1.58 percentage point smaller inflow relative to non-government MMFs. This finding implies that, during periods of rising MMF returns, yield-seeking investors tend to shift toward non-public debt MMFs, which typically offer higher yields. Similarly, in column (3), the interaction term is again significant and negative, suggesting that in the post-turmoil period, public debt MMFs exhibited significantly lower growth than non-public debt MMFs. This pattern reinforces the idea that investors are drawn

to the higher yields of non-public debt MMFs and is consistent with the increased sensitivity to yield differentials documented in the previous section.

The Dollar fund dummy is positive and highly significant across all specifications, indicating that offshore USD-denominated MMFs grew, on average, about 11 percent faster than those denominated in other currencies (local or euro). This result suggests a preference for dollar-denominated liquidity instruments among global investors and aligns with the expansion of dollar-denominated funds in Ireland and Luxembourg, two key international fund hubs with a central role in channeling global dollar liquidity, particularly for European and international institutional investors. The finding may also reflect monetary policy divergence, as higher U.S. interest rates relative to other jurisdictions increase the attractiveness of dollar-denominated MMFs.

**Table 4: Impact of MMF types on MMF growth by region**

Results from panel regression of Eq. 3b

| | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|
| Domicile | USA | Europe | Europe | Americas | Asia/Pacific |
| Spread | 6.079*** | 4.913*** | 10.680*** | 2.233*** | 1.750** |
| | (0.230) | (0.220) | (0.301) | (0.175) | (0.551) |
| Public | 5.081*** | -3.846* | | 4.209 | 10.578*** |
| | (1.097) | (1.786) | | (3.676) | (2.832) |
| Spread * Public | -4.136*** | -2.702*** | | 1.579** | -3.322* |
| | (0.281) | (0.367) | | (0.577) | (1.438) |
| Dummy post turmoil * Public | | | | | |
| Dummy (LVNAV) | | | 5.248** | | |
| | | | (1.744) | | |
| Spread * Dummy (LVNAV) | | | 4.033*** | | |
| | | | (0.508) | | |
| Dollar Fund | | 11.707*** | 11.333*** | 11.364* | 13.291*** |
| | | (1.829) | (1.792) | (5.121) | (0.980) |
| Contols | | | | | |
| Macro | Yes | Yes | Yes | Yes | Yes |
| MMF size | Yes | Yes | Yes | Yes | Yes |
| FE country | Yes | Yes | Yes | Yes | Yes |

Notes: The table presents the results from Eq (3b) for different regions. The *Americas* region includes Brazil, Chile, and Mexico (excluding the U.S.), *Europe* includes France, Ireland and Luxembourg, and the *Asia-Pacific* region includes Australia and Korea. *Spread* is the cumulative difference, over the past three years, between MMF yields (proxied by the overnight money market rate) and the average bank deposit rate in each country. The *Public* dummy equals 1 for Government and Treasury MMFs in the US, for CNAVs in Europe, and for funds whose names indicate government exposure in other countries. The *Dummy post-turmoil* equals 1 from March to June 2023 and 0 in the previous hiking cycles. Fixed effects are included for country and MMF size, where *MMF size* is categorized as 1 (below 25% of the average fund size), 2 (25–75%), or 3 (above 75%). Controls include country-specific inflation and GDP, the VIX (common across countries) as a proxy for global risk aversion, and the yield curve spread (10-year minus 2-year), assigned as described in the Data section. All continuous variables are standardized to have a mean of zero and a standard deviation of one. Three, two and one asterisks denote significance at the 1 percent, 5 percent and 10 percent level respectively.

Table 4 presents the results from specification (3b) across countries, aiming to better understand the role of public debt MMFs in the United States relative to other regions. Column (4) shows that public debt MMFs in the

U.S. grew on average by about 5 percent more than non-public MMFs. This outcome partly reflects the substantial expansion of government MMFs in the United States since 2015. The Asia-Pacific region also records higher growth for government MMFs compared to other types (column 8). In contrast, public MMFs in Europe (CNAVs) exhibit a negative coefficient, suggesting that they are less attractive than non-public MMFs (column 5). This likely reflects the stronger growth of alternative fund types, such as LVNAVs and VNAVs, in these jurisdictions. Column (6) further tests investor preferences for low-volatility NAVs (LVNAVs), confirming that these funds, considered cash equivalents under EU regulation, grew faster on average than other European fund types. Finally, in the Americas region, the composition of fund types remained broadly stable: the coefficient on public MMFs is insignificant, indicating no notable difference in growth between public and non-public funds.

The interaction term in Eq. (3b) also reveals regional differences in investor responses to rising MMF spreads. In the U.S., Europe and Asia-Pacific region, the interaction coefficient $(\delta)$ is negative, indicating that public debt MMFs attract fewer inflows than non-public funds when MMF spreads increase (columns 4,5, and 8). In Europe, investors appear to shift towards LVNAV MMFs in those periods (column 6), confirming the growing dominance of LVNAVs. Instead, investors in the Americas (excluding the US) tend to prefer public MMFs when the yield advantage is rising. The heterogeneous results likely reflect differences in market structure, investor composition, and the availability of close cash substitutes. Moreover, public MMFs in certain emerging markets may offer relatively high yields compared to government MMFs in the US and Europe, due to higher yields on local sovereign debt. This could make public MMFs particularly appealing during rising spreads, as they combine safety with attractive returns.

# Conclusion and further work

My analysis highlights the MMF yield advantage as a primary driver of MMF growth. This advantage typically emerges during monetary policy tightening cycles and has supported MMF inflows following the 2023 banking turmoil, although the 2023 banking turmoil itself did not appear to catalyze MMFs flows. I also find that a rising MMF yield advantage can influence allocations to different fund types. In the US and the euro area investors shift towards non-public debt MMFs notably when MMF spreads rise, while in the Americas the preference is for public MMFs. I also demonstrate a preference for USD-denominated MMFs in several jurisdictions outside the US, which underscores the dominant role of USD in global short-term funding markets. These findings provide valuable insights into the factors influencing MMF growth and investor behavior in different MMF jurisdictions during hiking cycles.

The findings carry policy implications for regulators and central banks as they navigate the complexities of MMF dynamics in a shifting economic landscape. Understanding when and how MMFs expand is crucial, as their rapid growth can amplify systemic risks in times of stress, when the direction of flows may reverse sharply. Moreover, a cyclical behavior of growth in certain periods may lead to a cyclicality in the attractiveness of other alternatives, such as bank deposits, leading to an acceleration of deposit outflows, potentially complicating monetary policy transmission and straining bank funding.

The findings also underscore the need for robust MMF regulation and oversight in an evolving macro-financial landscape. Policymakers should ensure that MMFs maintain adequate liquidity buffers, sound risk management practices, and transparency, so that they can accommodate the rise and bust cycles, mitigate systemic

vulnerabilities and support financial stability. As the landscape of cash alternatives continues to evolve, ongoing monitoring and adaptive regulation will be essential to safeguard the integrity of both MMF markets and the broader financial system.

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