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Multi-Sector Bond Funds: New Evidence on Global and Domestic Drivers and Effectiveness of Capital Account Measures

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Abstract

Portfolio bond flows to emerging and developing market economies (EDMEs) from multi-sector bond funds (MSBFs) are volatile and highly concentrated, rendering them potentially risky. This paper uses a recent MSBF flows dataset to shed more light on capital flow push and pull factors and to provide new evidence on the effectiveness of capital account tightening measures in reducing volatile MSBF flows. The results show: (i) higher U.S. monetary policy rates and global risk aversion significantly reduce aggregate MSBF flows and those denominated in hard currencies, while stronger global commodity price growth and global liquidity significantly increase them; (ii) global and domestic GDP growth (surprisingly) have a countercyclical impact on MSBF flows during our sample period, and, importantly, (iii) capital account tightening measures that target fixed income investment funds are effective in reducing MSBF flows to EDMEs, especially during periods of increased stress. Together, these results provide new insights into multi-sector bond funds and the importance of designing and implementing targeted capital control measures.

JEL codes: G23; F21; F38; F41

Keywords: *multi-sector bond funds, portfolio bond flows, and capital controls*

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1. Introduction

Bond issuance in emerging and developing market economies (EDMEs) has grown significantly over the last decade or so. In selected Southeast Asian economies alone, outstanding foreign currency bonds almost tripled from US$150 billion in 2010 to US$420 billion in 2022, while local currency bond markets in the region more than doubled from US$865 billion to US$2,100 billion over the same period.[1] The growth of the wider EMDE bond market, also beyond Southeast Asia, reflects a transition in the international financial landscape. Dubbed the "second phase of global liquidity" by Shin (2013), the shift towards EMDE bonds issued in global debt markets contrasts with the "first phase of global liquidity" from 2003 to the 2008-2009 global financial crisis which centred on global banking transactions.

The transition from the banking-centred first phase of global liquidity to the bond market-driven second phase has allowed EMDE issuers to tap into a broader investor base beyond traditional banks. Diversified sources of external funds offer EMDE issuers opportunities for increased access to finance and reduced reliance on a single financing channel. Bond markets generally also provide longer-term financing than bank loans, reducing rollover risks while better matching the financing needs of long-term investments. Furthermore, bond issuance subjects EMDEs to greater market scrutiny and transparency, potentially promoting sound macroeconomic policies and structural reforms that could foster local capital market development. At the same time, however, the shift toward bonds has brought about new challenges. Portfolio debt investments are often more volatile and prone to sudden reversals in response to global factors. International bond investors may exhibit procyclical behaviour, amplifying economic and financial cycles, and through their global and regional portfolio, could transmit shocks across countries. Also, EMDEs often issue bonds in hard currencies,[2] leading to currency mismatches that can amplify risk during periods of exchange rate volatility. Policymakers need to carefully assess the benefits against the costs in order to gauge the possible implementation of measures to manage the risks effectively.

The shift in global liquidity to EDME bonds paved the way for the rise of multi-sector bond funds (MSBFs), which are regulated open-end investment funds. They typically have broad mandates that give managers discretion in their investments regarding geography and sector exposures. This usually translates into an active investment style with positions in advanced and emerging markets.[3] In contrast, (country and regional) dedicated funds usually reallocate within the asset class and adhere more closely to benchmark indices. Given their large footprint across bond markets and unconstrained nature, MSBFs are potentially risky as their opportunistic behaviour and sudden portfolio reallocations may amplify asset price co-movements and generate contagion across bond markets that are linked solely through their common ownership.[4, 5] To put this in perspective, based on a ranking of the largest investment funds by assets available in Bloomberg LP, as of the start of April 2024, investment funds domiciled in Western Europe or North America managed some US$51 trillion in assets.[6] The largest asset category is equity,

[1] Refer to AsianBondsOnline https://asianbondsonline.adb.org/ (accessed March 2024).

[2] Hard currency assets are sovereign debt issues by EMDEs in major foreign currencies, such as US dollars or euros, that typically are less likely to fluctuate suddenly in value than local EMDE currencies.

[3] Funds that share at least one or more features with MSBFs in the literature are also called global, international, multi-country, cross-over, or broad mandate.

[4] An opportunistic investment strategy is typically a high-conviction investment approach with a high-return objective (outsized opportunity for excess return vs. targeted return) but generally a riskier (often concentrated) profile. Typically, these investments are not clearly defined by asset allocation limitations and are unconstrained by region, size, or style.

[5] Refer to Section 2a for a more detailed discussion of MSBF flows.

[6] Funds domiciled in these jurisdictions account for the lion's share of assets regulated investment funds manage globally.

which accounted for some US$28 trillion, but about US$11 trillion is focused on fixed-income.[7] Netting out the fixed-income investment funds categorised as exchange-traded funds (ETF, ETN, and ETC), which are mostly passive investments pegged to the performance of a particular index, leaves close to US$9 trillion in assets. With this much potential firepower across fixed-income sectors, sudden portfolio reallocations may cause significant volatility and spillovers.[8]

For these reasons, a better understanding of the determinants of cross-border MSBF flows into EMDEs, as well as the effectiveness of policy measures in addressing the potential risks they bring, are vital in designing and implementing appropriate policy measures. These are the main objectives of this paper. While there is a vast body of research on EMDE capital flows and the effectiveness of capital control measures, the scope of this paper is limited to fixed-income (portfolio) investments from large (foreign) investment funds based on micro-data and the effectiveness of capital controls relevant to these specific flows. Looking through this lens, the existing literature becomes much scarcer, and we pose several narrowly defined research questions to gain deeper insights into the various drivers and policy effectiveness related to cross-border MSBF flows.

1. *What global and domestic factors are cross-border MSBF flows most sensitive to?* To examine this question, we adopt the capital flows push and pull framework.
2. *Are capital account measures that target fixed-income flows effective in reducing cross-border MSBF flows into EDMEs?*[9]

This paper is related to the empirical literature focusing on: (i) the determinants of capital flows, and (ii) the effectiveness of capital control measures. On the determinants of capital flows, the seminal papers by Calvo et al. (1993), Chuhan et al. (1998), Fernandez-Arias (1996), Fernandez-Arias and Montiel (1996), and Taylor and Sarno (1997) consider the relative importance of push (global) and pull (domestic) factors.[10] This paper, however, differs from these and related studies as it provides evidence on the relevance of push and pull factors for a specific type of portfolio bond flows, namely those due to multi-sector bond funds. Consequently, this paper relates more closely to the empirical studies of Brandao-Marques et al. (2022), Chantapacdepong and Shim (2015), and Fratzscher (2012), who similarly apply a push and pull framework to assess the determinants of securities level portfolio flow data, albeit sourced from the Emerging Portfolio Fund Research (EPFR) Global Database.[11]

On the effectiveness of capital controls, most studies, including those from Baba and Kokenyne (2011); Ahmed and Zlate (2014); Gori et al. (2024); Lepers and Mehigan (2019); Lepers and

[7] Other categories include alternative, commodity, mixed allocation, money market, private equity, real estate, and specialty assets.

[8] A 'sector' refers to the entity that issued the bond and has some key investment characteristics. Government and corporate bonds are the largest sectors of the bond market, but there are many other types. For instance, MSBFs invest in various sectors, including government but also investment-grade corporate, high-yield corporate, mortgage, and municipal bonds. They can also be quite active in the financial derivatives associated with these sectors.

[9] In this paper, we prefer to use the term "capital account measures" instead of "capital controls" or "capital flows management measures". In our view, "capital account measures" is a more neutral term which encompasses a broader set of capital account openness measures which is reported in the International Monetary Fund's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). Semantics aside, we use the term "capital account measures" in the same spirit as "capital controls" or "capital flows management measures", such that these measures can encourage or restrict resident and/or non-resident cross-border financial investments.

[10] See Koepke (2019) and Levy-Yeyati and Zúñiga (2015) for surveys on the empirical results from various studies assessing the significance of push and pull factors.

[11] Most empirical studies on emerging market portfolio flows include equity funds and consider country portfolios inferred from aggregate capital flows (e.g., balance of payments accounts) or aggregated subcomponents (e.g., FDI, portfolio investments, and other investments). Comparatively, few papers consider a micro perspective and those that do, mostly use the Emerging Portfolio Fund Research (EPFR) Global database. EPFR offers many benefits, especially higher frequency, but it does not provide a representative sample for emerging market country allocations by large, actively managed global investment bond funds.

Mercado (2021); and Pasricha et al. (2018) among others, have assessed the effectiveness of capital account measures in reducing capital flows. Moreover, the capital account measures in these studies include a broader set of measures from the International Monetary Fund's (IMF) Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) and/or other related sources. However, unlike these studies, which obtained capital flow data mostly from the Balance of Payments Statistics, this paper applies a new database constructed from fund-level data on multi-sector bond funds and focuses on capital account measures related to fixed-income, especially from investment funds to examine the effectiveness of "targeted" capital account measures. Consequently, this paper is closest to Chantapacdepong and Shim (2015), who use fund-level data sourced from the EPFR Global Database to assess the significance of push and pull factors (but on portfolio bond correlations instead of flows), as well as to examine the effectiveness of capital flow management measures (though not investment fund specific).

In answering the abovementioned questions, this paper extends the existing literature in two directions. First, it considers the significance of push and pull factors using fund-level data on multi-sector bond funds sourced from Bloomberg LP, as opposed to the EPFR Global Database or the Balance of Payments (BoP) Statistics.[12] In doing so, it adds to the literature on investment funds (domiciled in developed markets) that are invested in EMDEs by extending the detailed bottom-up quarterly database first presented in Cortes and Sanfilippo (2020 and 2021). The lack of representativeness of these increasingly important international institutional investment funds in key databases most often used in empirical literature to study push and pull factors, could undermine the validity and generalisability of the results. Second, it examines the effectiveness of specific capital account tightening measures targeted at a specific type of flows, in contrast to other studies that have considered a broader set of capital account measures, which may have contributed to inconsistent results in the literature.

To address the questions, this paper proceeds as follows. First, we update the dataset of Cortes and Sanfilippo (2020 and 2021) on 40 MSBFs, based on data from Bloomberg LP, through end-2022, such that it includes the aftermath of the COVID-19 shock, as well as Russia and Ukraine conflict. During our sample period of 4Q2009 - 4Q2022, these funds have had exposure to 101 EDMEs. Second, we construct a new dataset on capital account tightening measures (CAM tightening) specifically related to or targeted at fixed-income and investment fund transactions. We also present new capital account loosening measures, CAM tightening on inflows and outflows, and a capital account restrictiveness (CAR) index to test the robustness of our results and extend our baseline analyses. Third, we take advantage of these new databases to assess the significance of global (U.S. monetary policy, global risk aversion, global growth, global commodity price growth, global liquidity) and domestic factors (domestic GDP growth) as well as the effectiveness of capital account tightening measures in reducing MSBF flows in all, hard, and local currency by running a panel regression with fixed effects. We minimize potential endogeneity by using lagged capital account tightening measures; and the two-step policy shock approach, following Ahnert et al. (2021); Auerbach and Gorodnichenko (2013); Furceri et al. (2018); and Lepers and Mercado (2021). Finally, we conduct various sensitivity tests by adding or removing covariates, changing specifications, and sample splits, as well as several extensions, using loosening measures, distinguishing controls on inflows and outflows, and interacting capital account measure with global risk aversion.

[12] To ensure that our data is accurate and as representative as possible, we aggregate country exposures from the bottom-up based on actual regulatory filings of individual investment funds available through the PORT function of Bloomberg, in contrast to voluntarily reported data (as is the case in EPFR).

This paper presents several new findings: (i) higher U.S. monetary policy rates and global risk aversion significantly reduce aggregate MSBF flows and those denominated in hard currencies,[13] while stronger global commodity price growth and global liquidity significantly increase the same flows; (ii) global and domestic GDP growth tend to have a countercyclical impact on MSBF flows; (iii) capital account tightening measures related to, or targeted, at fixed-income and investment funds are effective in reducing MSBF flows to EDMEs. These results hold across various sensitivity tests. In addition, we also find that (iv) loosening capital account restrictions increases MSBF flows denominated in hard currencies, albeit less so than tightening reduces inflows; (v) tightening controls on directional inflows are more effective compared to tightening measures on directional outflows; and (vi) implementing CAM tightening is more effective in reducing MSBF flows at higher levels of global risk aversion, providing evidence for the effectiveness for the episodic use of CAMs.

This paper's contributions are thus threefold. First, it sheds more light on multi-sector bond fund flows in the context of capital flow push and pull factors. Second, it provides additional evidence on the effectiveness of capital account tightening measures in reducing volatile MSBF flows. Third, it highlights the importance of designing and implementing targeted capital account measures.

The rest of the paper is organised as follows. Section 2 discusses MSBF flows and capital account measures. It provides a succinct literature review, data description, and stylised facts. Section 3 elaborates on the empirical specification. Section 4 presents and discusses the baseline results, sensitivity tests, and extensions of the empirical analysis, while Section 5 concludes. Online appendices present detailed discussions on MSBF flows and capital account measures data, as well as data sources and results of the sensitivity tests.

2. MSBF Flows and Capital Account Measures

2a. Patterns and Trends of Multi-Sector Bond Funds in Emerging and Developing Market Economies

Cortes and Sanfilippo (2020 and 2021) highlight the potential risks that multi-sector bond fund (MSBF) flows can pose to emerging and developing market economies (EMDEs). Taking advantage of a new and improved dataset on international fixed-income investment funds based on micro-data, the authors show that MSBFs are highly concentrated in their positioning and fund managers' decision-making, as well as exhibit opportunistic behaviour, such that they invest in EDMEs to improve returns and, when returns are unsatisfactory, reallocate away from EDMEs, typically deviating significantly from benchmarks. Moreover, the authors find that during periods of high-risk aversion, especially when combined with large redemptions, MSBFs' sizeable, concentrated, and non-benchmarked reallocations could be associated with the underperformance of selected emerging and developing markets. Sensitive to global factors and unconstrained in nature, MSBFs thus can be a source of spillovers of financial volatility into and across EMDEs and potentially exert a significant impact on cross-border flows.[14] These results suggest that, on balance, MSBFs are not a stabilising force but rather exacerbate periods of stress.[15]

[13] Aggregate flows are defined as the sum of all hard- and local currency-denominated flows of our 40 sample MSBFs.
[14] For a discussion on the propagation of shocks in emerging markets through funds, among others, see Jotikasthira et al. (2012). In later work, Puy (2016) quantifies the impact of fund portfolio rebalancing at the global level, showing global contagion in bond (and equity) flows, and regional contagion in bond flows.
[15] The findings underscore pro-cyclical investment fund behaviour and the amplifying dynamics between redemptions (inflows) by end-investors from which fund flows originate and investment fund managers' sales (purchases). This ties

This paper builds on and extends the analysis of MSBF flows by assessing the significance of push and pull factors as well as the effectiveness of capital account measures. In doing so, we update the dataset of Cortes and Sanfilippo (2020 and 2021) through 2022, which captures the impact of the COVID-19 pandemic, Russia's invasion of Ukraine, and the onset of the high inflation period. **Appendix 2** (online) provides a detailed discussion of our MSBF dataset. The extended dataset reinforces the documented patterns and stylised facts of MSBF-related volatility, currency, and concentration risks.

During a period of easy monetary policy and low global bond yields, EMDEs increasingly saw portfolio debt inflows from a type of large international investment fund such as MSBFs. The assets under management of regulated investment funds in global capital markets grew significantly following the global financial crisis (**Figure 1a**). Given the wide diversity, ranging from low-income African countries to high-income Gulf economies, EDME fixed-income can be especially attractive to investors seeking returns and diversification. The assets under management of a sample of 40 large MSBFs nearly doubled in the decade after the GFC to about US$1 trillion at their peak – which translates to almost 10 percent of the entire bond investment fund sector globally (**Figure 1b**). Since 2010, the MSBF aggregate EDME investment portfolio has ranged between US$50 billion and US$160 billion (peaking in 2014). Most of their EDME exposure has been invested in sovereign bonds and, to a lesser extent, bonds of state-owned enterprises (**Figure 2a**).

The global financing environment for EDMEs started to shift and became more restrictive around 2016-17. MSBFs started to shed significant exposures built up in the (sovereign) bonds of various key EDMEs, and the asset class saw sharp outflows, totaling US$36 billion in 2018 just from our sample MSBFs. After a brief rebound, these dynamics accelerated during successive macroeconomic and geopolitical shocks, including the COVID-19 pandemic, global supply chain issues, Russia-Ukraine conflict, soaring inflation and policy rates, and increased fiscal and debt vulnerabilities. MSBF exposure to EDMEs declined by US$68.5 billion to US$52 billion from end-2019 to end-2022, with most of the decline occurring in 2022 (US$46.3 billion), bringing EDME portfolio holdings back close to the level at the start of the sample period in early 2010. These dramatic swings in a relatively brief period, mainly influenced by factors outside the control of domestic policymakers, illustrate the volatility of capital flows and serve as a stark reminder of the vulnerability of EDME issuers to the international financial system.

Aside from the external factors that triggered the observed volatility of MSBF flows, the evolution of aggregate MSBF EDMEs holdings by currency denomination clearly demonstrates a search for yield and subsequent flights to safety. Until early 2016, MSBFs quickly grew their local currency debt holdings, increasing their dominance vis-à-vis hard currency assets (**Figure 2b**).[16] The ratio then stabilised, only to drop around mid-2017, trending towards less local in favour of more hard currency. The sharp capital outflows witnessed at the start of the global pandemic and the recent turmoil following the Russia-Ukraine conflict affected the entire asset class. Yet, hard currency debt was relatively quick to recover and overtook local currency debt holdings. This dominance has persisted and become more pronounced, with some 62 percent of MSBF bond holdings denominated in hard currency as of end-2022. Demand for local currency assets has been weaker as higher exchange rate volatility weighed on carry-trade-related flows, and MSBFs rebalanced their portfolios into safer assets while selling positions in response to redemptions

into earlier work on the interaction between portfolio decisions of fund managers and those of end-investors, such as Kaminsky et al. (2001), Raddatz and Schmukler (2012), Miyajima and Shim (2014), and Shek et al. (2018).

[16] The hard currency holdings on MSBF balance sheets are nearly all U.S. dollar-denominated, with some euro positions, other hard currencies combined barely stand out.

(Cortes and Sanfilippo, 2021). Consequently, the disconnect between flows into local and hard currency in emerging market fixed income is an important issue for policymakers to consider. By understanding the factors contributing to the disconnect, policymakers can design policies that help to promote more balanced flows.

Besides volatility and currency risks, concentration risk is another key concern. There have been 101 EMDE recipients since 2010: 24 in Eastern Europe and Central Asia, 23 in Latin America and the Caribbean, 21 in Africa, 20 in Asia, and 13 in the Middle East and North Africa. Notwithstanding the global distribution, economies from Latin America, followed by Asia, are the main recipients of the asset class, which also mostly suffer from both surges and reversals (**Figure 3**). Following the 2011–12 European Sovereign Debt Crisis and a subsequent period of deleveraging to reduce the high debt built up in the pre-Global Financial Crisis (GFC) years, many Emerging European economies experienced large MSBF outflows, which persisted when the European Central Bank started its quantitative easing programme in 2015. These cutbacks brought European exposure closer to African and Middle Eastern countries, which have received comparatively fewer flows across the sample horizon.

Significant cross-country differentiation also exists, with a few selected economies benefitting greatly in the boom and suffering most in the bust, likely exacerbating price volatility in those markets. Since MSBFs are unconstrained by benchmarks, they are highly concentrated in their positions and decision-making and exhibit significantly more opportunistic behaviour than other investment funds (Cortes and Sanfilippo, 2020 and 2021). Unlike dedicated bond funds, where the decision to invest in emerging markets rests with the end investor, MSBF portfolio managers are responsible for asset allocation decisions across fixed-income sectors and geographic locations subject to their particular investment mandates. As a result, MSBF reallocate their portfolios disproportionally, focusing on the bonds of a few selected emerging market sovereign issuers in more liquid and developed financial markets. In this regard, differences in regulatory frameworks and policy measures play a role in understanding the cross-country heterogeneity of MSBF flows.

2b. Capital Account Measures

Recent papers on capital controls using new methodologies and more refined data on policy measures offer some evidence of their effectiveness in reducing capital flows.[17] For instance, Forbes et al. (2016) use fund-level portfolio investments by country (from EPFR) in a case study of Brazil and find that an increase in tax on foreign investment in bonds causes fund managers to significantly reduce their portfolio allocations in both bonds and equities of that country, as well as of those economies viewed more likely to implement similar capital controls. Also focusing on selected emerging economies individually but using Balance of Payments data, Baba and Kokenyne (2011) find that Colombia's unremunerated reserve requirements reduced short-term inflows but had no effect on total capital flows, while Thailand's liberalisation of outflow controls increased capital outflows and decreased net capital inflows with a lag.

In terms of methodology, this paper is closely related to studies using panel data to assess the effectiveness of capital control measures for a broader set of EMDEs. Ahmed and Zlate (2014) show that capital controls introduced in emerging economies after the GFC discouraged both total and portfolio (bonds and equity) net and gross capital flows. Using portfolio flow data from the EPFR Global Database and Balance of Payments Statistics, as well as bond-specific and broader capital control measures, Chantapacdepong and Shim (2015) find a country's policy

[17] For recent literature surveys on the impact of capital flow management measures on capital flows, refer to Beck et al. (2023), Erten et al. (2021), and Rebucci and Ma (2019).

action of loosening bond inflows increases bond flow correlation of the country with other countries in Asia-Pacific, thereby supporting the signaling hypothesis.[18] Pasricha et al. (2018) find that greater capital account openness increases both gross capital inflows and outflows but has an ambiguous impact on net capital flows. Lepers and Mehigan (2019) show that residency-based measures on bond flows reduce total capital inflows but provide limited support for a credit-mitigation role. Using sectoral capital flows and sectoral capital flow measures for a sample of advanced and emerging economies, Lepers and Mercado (2021) find that tightening capital controls on the banking sector and other financial corporates lowers the volume of capital inflows to these sectors. In contrast to these papers, Forbes et al. (2015) find that most capital controls do not significantly affect other key targets, such as exchange rates, capital flows, interest-rate differentials, inflation, equity indices, and different volatilities.[19]

In terms of capital account policy considerations, there has been a clear shift in views. Starting in the 1980s, the move towards greater capital account liberalisation weakened the appetite for capital controls. However, the first important challenge to the paradigm of free cross-border capital mobility came in the late 1990s when several EMDEs witnessed financial crises and severe capital flow reversals. By the early 2000s, several economies that had liberalised their capital account began reintroducing capital controls, and this trend strengthened after the global financial crisis (Klein, 2012). While originating in advanced economies, the financial panic of 2008-09 triggered a sharp reversal in capital flows to emerging markets. However, the ensuing reversal was short-lived as major central banks, including the U.S. Federal Reserve, European Central Bank, and Bank of Japan among others, started large-scale liquidity provisions through bond-buying programmes that ballooned their balance sheets. Combined with quasi-zero interest rates in the U.S. and EU, investors reallocated portfolios toward financially more attractive alternatives, such as private and government bonds in EMDEs. Consequently, several EMDEs responded by introducing new or tightening capital controls to reduce the risks associated with volatile capital flows and buy time for more fundamental reforms.

The International Monetary Fund's (IMF) guidance typically provides a policy anchor for economies that desire to retain access to external finance. In response to the growing need for broader policy tools in dealing with volatile capital flows, the IMF (2012) adopted its "Institutional View."[20] While acknowledging the possible merit of capital controls in reducing the risks of financial bubbles, instability, and resource misallocation, their use and potential costs relegated them to measures of last resort that required careful design and implementation (Habermeier et al., 2011). Macroeconomic policies remained the recommended tools of adjustment – for instance, allowing the currency to appreciate when it is undervalued, purchasing foreign exchange reserves if their level is deemed inadequate, and lowering policy rates if economic overheating is not a risk, or tightening fiscal policy to create space for monetary easing if consistent with inflation objectives. However, beyond these first lines of defense, the Institutional View included two categories of instruments – capital flow management measures (CFMs) and macroprudential measures (MPMs) - into the policy toolkit. Apart from complicated vocabulary

[18] If an economy imposes capital controls, foreign investors may take that as a "signal" that similar measures will be taken by other economies in the region or those with similar conditions.

[19] A separate branch of empirical studies on capital controls focuses on the impact of capital controls on other macro-financial variables. For instance, Klein (2012) considers the impact of capital controls on domestic credit, GDP growth, and the real exchange rate. Chamon and Garcia (2016) show that capital controls in Brazil usually have some impact on the spread between onshore and offshore dollar interest rates, albeit no significant effect on exchange rate appreciation. Alfaro et al. (2014) find a negative microeconomic impact of capital controls due to harder access to funding for firms that depend on external finance, typically small and medium enterprises. Carvahlo et al. (2022) show that increasing capital controls at given levels of non-financial and other financial corporate capital inflows lower domestic credit growth, particularly for non-financial corporate credit growth. In contrasts to these studies, this paper focuses on the effectiveness of capital controls on specific type of portfolio capital flows.

[20] For detailed discussion, see IMF (2011), Ostry et al. (2010), and Ostry (2011).

to avoid any prior stigma associated with "capital controls," the introduction of CFMs and MPMs signaled the IMF's openness to their judicious use, albeit in a limited manner when faced with surges that jeopardise financial instability while the macroeconomic policy space is constrained (IMF, 2012). A review of the Institutional View in 2022 expanded the policy toolkit by allowing the pre-emptive use of CFMs and MPMs on capital inflows in the presence of stock vulnerabilities that threaten economic and financial stability, even without surges in capital flows (IMF, 2022).

Against this background of a changing policy zeitgeist, this paper examines the effectiveness of capital account measures on multi-sector bond fund flows to EMDEs. Following the recent literature on capital controls, this study uses higher-frequency quarterly data and focuses on capital account policy changes instead of the presence or absence of policy measures. **Appendix 3** provides an in-depth description of the construction of our capital account measures (CAM) and capital account restrictiveness (CAR) indices. Based on data from the IMF AREAER report, policy measures are classified according to detailed categorisations by types of assets, regulation, and residency. The changes in each quarter are summed up within subcategories that, in turn, are aggregated into broader indices. Our new database is constructed to account for some key empirical challenges that have complicated assessments of capital control effectiveness namely intensity, specificity, and measurement.[21]

On intensity, we code every policy adjustment to reflect whether it tightens or eases the capital account restrictiveness in the same spirit as Ahmed et al. (2020), Ghosh et al. (2017), and Lepers and Mehigan (2019). Tracking the changes in restrictiveness allows us to capture the direction and the frequency of policy adjustments. However, we should note that it does not capture the comparative strength between measures and across countries over time, thus not entirely resolving the intensity issue. For instance, our CAM captures whether an implemented measure increases or decreases the intensity of capital account restrictiveness, but not necessarily by how much. Still, this more granular assessment of each policy action improves upon indices based on dummy variables reflecting the presence or absence of controls, which could confound results, especially as economies cyclically adjust or typically progressively open their capital account rather than in one go.

A second issue that might contribute to conflicting results in the empirical literature on capital control effectiveness is the lack of specificity amid a wide variety of (i) capital controls and (ii) types of capital flows. Overly broad and/or varying definitions complicate a like-for-like comparison across studies and may contribute to varying results. For instance, using aggregate capital flow measures or control indices may bias results: introducing limits on portfolio debt, even if successful, may do little to impact overall capital flows, which also include FDI and other debt flows. Even with more narrowly defined capital flows, the definition of effectiveness and its measurement can be problematic (Edwards, 1999). Market participants often circumvent legal restrictions, so capital controls do not always translate into actual restrictions on movements. The differences between legal and actual capital restrictiveness affect the "true" degree of financial openness which has been an empirical issue in assessing the effectiveness of capital controls. While it is impossible to fully account for regulatory circumvention, acknowledging the importance of specificity helps mitigate the empirical challenge in assessing their effectiveness. Unlike previous studies, our capital account measures and indices focus only on the policies relevant to fixed-income investment fund cross-border flows. In particular, we hone in on policies affecting: (i) bonds and other debt securities; (ii) money market instruments; (iii) collective investment securities; (iv) derivatives and other instruments; and (v) provisions specific to the

[21] Our capital account measures and indices include only those related to, or targeted at fixed-income flows, and MSBFs. However, our methodology can be extended to other subsets of investment funds and/or other types of capital flows.

financial sector, such as limits and currency matching of investment firms and collective investment funds.[22] In other words, our empirical analysis considers the effectiveness of specific capital account measures on specific capital flows (MSBF flows) rather than aggregate Balance of Payments categories. Hence, effectiveness is assessed by changes in MSBF capital mobility.

Related to specificity is the measurement of capital controls. The IMF's CFMs and MPMs vocabulary indicates policy measures could be classified based on their intended goal, and the literature has further distinguished different types of controls depending on specific characteristics – for example, residency- or currency-based, structural versus cyclical, types of instruments, among others. Unsurprisingly, results on effectiveness can vary depending on the applied measurement. Within the category of our fixed-income policy measures, to avoid omissions and issues with cross-country definitions, we take a broad view toward capital account interventions. Our interpretation of policy measures includes not only direct restrictions on financial transactions between domestic and foreign parties but also regulatory requirements that can act as a *de facto* incentive/deterrent to international financial transactions, even if not aimed at international capital flows per se.[23] In this broad context, we use "capital account measures" as an umbrella term that envelops measures on in- and outflows, on foreign and local currency, and on short- and long-term flows, be it price-based (e.g., taxes or subsidies) or quantity-based (e.g., outright bans or quantity limits) measures. Similarly, we take a broad view to determine whether a restriction affects non-residents. Although a government's direct authority only extends to residents, in many cases, non-residents and their investment decisions are indirectly affected by restrictions on residents, and vice-versa. Given the signaling effect of such restrictions on the likelihood of other capital controls in the future, both measures on residents and non-residents are considered here.[24]

Over the past two decades, observed patterns of our capital account tightening and loosening measures (CAM) across EDMEs indicate an overall trend toward steady liberalisation, albeit slower and less widespread than in advanced economies (Lepers and Mehigan, 2019; Lepers and Mercado, 2021). Capital account openness across the emerging and developing world has increased, notwithstanding the episodic use of capital controls in selected countries after the global financial crisis. **Figure 3a** plots our most aggregated measure of capital account restrictiveness (CAR), averaged across EDMEs in each quarter, showing that economies continued to maintain a high degree of capital account openness through 2015 and further eased through 2021.[25] Interestingly, the loosening of EDME capital account restrictions during 2015-2021 occurred against a significant reduction in MSBF EMDE exposure, as noted in **Figures 2a** and **2b**. Moreover, **Figure 3b** presents our capital account tightening and loosening measures (CAM), showing specific periods with noticeable tightening or loosening measures undertaken. For instance, 1Q2019 recorded the greatest number of capital account tightening measures relevant to MSBF flows across our EMDE sample. The figure also shows that most tightening and loosening measures were implemented in 2018-2021.

[22] We have reviewed and classified each policy adjustment as either affecting resident, non-residents, or both, and as tightening or loosening measures. For instance, "the derivative margin deposit was reduced to zero (previously 1%)" is classified as a loosening measure applicable to both residents and non-residents.

[23] This closely follows Forbes et al. (2015) definition of capital controls.

[24] Forbes et al. (2016) argue that the signaling channel played a role in explaining the effects of Brazil's tax on foreign investment in bonds on foreign investor portfolio allocations: shifting their capital allocations in favour of countries with large export exposure to China at the cost of those perceived as likely also to impose capital controls following Brazil.

[25] Refer to Appendix 3 for a detailed discussion of the methodology to construct our capital account restrictiveness index.

3. Empirical Specification

To assess the relevance of global and domestic factors as well as the effectiveness of capital account measures on multi-sector bond fund flows, we estimate the following empirical model:

$$\Delta y_{if,t} = \alpha + X^{G}_{t-1}\beta' + X^{D}_{i,t-1}\gamma' + \delta CAM_{i,t-1} + \zeta_{if} + \zeta_{t} + \varepsilon_{if,t} \qquad \text{Equation (1)}$$

where $\Delta y_{if,t}$ refers to the percentage change of MSBF flows for a given country *(i),* fund type (*f),* as well as time *(t).*[26] X^{G}_{t-1} is a row vector of global factors which vary in time *t-1*; $X^{D}_{i,t-1}$ is a row vector of domestic factors which varies per country *i* at period *t-1*; and $CAM_{i,t-1}$ is our capital account tightening measure implemented by country *i* at time *t-1*.[27] ζ_{if} and ζ_{t} are country-fund and time fixed effects. $\varepsilon_{if,t}$ is the error term. Our dataset includes 101 emerging and developing market economies and 40 investment funds. **Table A1** in **Appendix 1** lists all economies included in our sample. In total, we have 4,040 country-fund cross-section dimensions across 53 quarters from 4Q2009 to 4Q2022. Hence, our dataset amounts to around 38,200 observations.

Equation (1) is estimated using panel fixed effects, where country-fund and time-fixed effects are captured using dummy variables. The sample runs from 4Q2009 to 4Q2022. The cross-section dimension of the panel dataset pertains to the country-fund unit. Each country could receive different flows from various funds at a given time, and each fund can invest in different economies at any given time. Hence, the combination of country and fund provides a unique cross-section dimension. Moreover, the country-fund fixed effects will jointly capture country and fund characteristics. The above equation is estimated using ordinary least squares with standard errors clustered at country-fund level to account for possible serial correlation in the error term. To address potential endogeneity due to omitted variable bias and reverse causality, the empirical specification uses lagged values of the regressors and includes fixed-effects.

It is difficult to isolate the impact of capital account measures on MSBF flows as policymakers typically introduce policy changes in response to large changes in capital flows, thereby enforcing endogeneity due to reverse causality. This could weaken the empirical evidence on the effectiveness of capital controls, especially during crises, and it could obscure the proper estimation of a reaction function more generally.[28] In this regard, we further address endogeneity by implementing the "exogenous policy shock" approach used by Ahnert et al. (2021) on macroprudential foreign exchange (FX) regulations, Auerbach and Gorodnichenko (2013) on fiscal policy shocks, Furceri et al. (2018) on monetary policy shocks, and Lepers and Mercado (2021) on sectoral CFM policy shocks. This approach removes the potential for endogenous adjustments by running a two-step regression approach. In the first stage, we estimate the likelihood of adjusting capital account measures from a range of variables, notably MSBF flows themselves plus our host of global and domestic factors, as it is assumed that large changes in these factors will lead to larger MSBF flows, which would then warrant the use of capital account measures. We then derive the residuals from the first-step regression and use those residuals as

[26] We conduct a sensitivity test using MSBF flows in US$ million. But since our focus is more on the direction of change in MSBF flows, we use the percentage changes as the dependent variables in our baseline specification and in all our sensitivity tests.

[27] We also test the impact of capital account loosening measure as an extension of our baseline specification.

[28] As noted by Erten et al. (2021), if the impact of capital controls on capital inflows is estimated without addressing the endogeneity, the estimation results would likely be downward biased (underestimate effectiveness). However, finding a valid instrument for the exogenous use of capital controls while satisfying the exclusion restriction is very difficult.

the exogenous policy shock measure in the second-step regression, shown in Equation (1), as our $CM_{i,t-1}$ measure.

For our dependent variable, we use the percentage change of MSBF flows for a given country *(i)*, fund type (*f),* and time *(t)*. The results for MSBF flows are presented by currency breakdown: all, hard, and local. The data are obtained from Bloomberg LP, discussed in **Appendix 2**, and presented in **Figures 1-3**. MSBF flows are derived from regulatory balance sheet filings. We define EDME holdings per fund per country as the market value of the portfolio allocations at the end of each quarter, adjusted for price changes. To adjust portfolio allocations for asset value changes, we assume that asset returns due to price changes are approximated by industry-standard country fixed-income index returns, that is government bond index (GBI) for local currency and emerging market bond index global (EMBIG) for hard currency. While our baseline regressions use MSBF flows expressed as quarter-on-quarter percent changes, we test the robustness of our results with MSBF flows expressed as quarter-on-quarter nominal (US$) values. For our capital account measure (CAM), we use our dataset discussed in the previous section and **Appendix 3**; and presented in **Figures 3a and 3b**. Our capital account policy measure is a count variable that includes all tightening measures across specified categories that could impact MSBF flows. It is expected that capital flows will decrease (increase) when capital account measures are tightened (loosened), as shown by Chantapacdepong and Shim (2015); Lepers and Mehigan (2019); and Lepers and Mercado (2021).

Table 1 presents the summary statistics of the main variables included in the baseline specification. Notice that the standard deviations for MSBF flows are relatively larger compared to the regressors. However, among the dependent variables, MSBF flows in local currency exhibit the largest volatility.[29] **Table A2** of **Appendix 1** provides data sources, notes, and sources. We consider relevant factors commonly identified in the empirical literature for our global (push) and domestic (pull) factors.

For global factors, commonly identified significant variables include U.S. monetary policy, global risk aversion, global growth, global commodity price growth, and global liquidity. A higher global or U.S. interest rate reduces the search for yield and could worsen the creditworthiness of emerging and developing economies, thereby reducing cross-border flows, particularly bond flows (Ahnert et al. 2021; Byrne and Fiess, 2016; Fratzscher, 2012; Ghosh et al., 2014; and Taylor and Sarno, 1997). We use expected changes in U.S. monetary policy rates to account for investors' forward-looking horizon, following Cerutti et al. (2019). More specifically, expected changes are determined by the difference between the rate implied by Fed Funds futures contracts one year out and the actual Federal Funds rate. Greater global risk aversion, proxied by the CBOE Volatility Index (VIX), leads to lower or reversals of cross-border flows, including portfolio flows to emerging markets which are typically perceived as riskier (Ahmed and Zlate, 2014; Ahnert et al. 2021; Chantapacdepong and Shim, 2015; Fratzscher, 2012; Ghosh et al., 2014; Lepers and Mercado, 2021; and Milesi-Ferretti and Tille, 2011). Stronger GDP global growth is generally found to be significantly correlated with higher capital flows, including private sector flows (Ahnert et al., 2021; Byrne and Fiess, 2016; Lepers and Mercado, 2021; and Milesi-Ferretti and Tille, 2011). Global commodity price booms tend to channel capital flows to commodity-exporting economies, including emerging and developing economies, more so when interest rates are low (Byrne and Fiess, 2016; CGFS, 2021; Ghosh et al., 2014; Lepers and Mercado, 2021; and Reinhart and Reinhart, 2009). Larger global liquidity tends to increase private sector capital inflows – banks, nonfinancial corporates, and other financial corporates (Lepers and Mercado, 2021), but it can also signal global liquidity shocks (Fratzscher, 2012).

[29] The standard deviation for MSBF flows in US$ million (levels) is even larger than that in percent changes, suggesting their volatile nature.

For domestic factors, we include domestic GDP growth in our baseline specification, which is a proxy for the domestic business cycle (Ahnert et al. 2021; Byrne and Fiess, 2016; Fratzscher, 2012; Ghosh et al., 2014; and Lepers and Mercado, 2021). Higher domestic GDP growth is expected to attract foreign investors. We also consider other domestic factors, such as domestic credit, per capita income, and capital account restrictiveness index, in our sensitivity tests.

4. Results and Analysis

4a. Baseline Results

Table 2 shows the baseline results. The dependent variables are percentage changes of MSBF flows in all, hard, and local currency, shown in columns 1 and 4, 2 and 5, and 3 and 6, respectively. Columns 1-3 present the results using lagged capital account measures, while columns 4-6 show the estimates using the two-step exogenous capital account policy shock approach. The estimates show that a higher U.S. monetary policy rate significantly reduces aggregate MSBF flows and those denominated in hard currencies, such that a one percentage point increase in the U.S. policy rate reduces total MSBF flows by around 2.0-3.0 percentage points, and hard currency-denominated MSBF flows by 3.0-4.0 percentage points. However, there is no significant impact on MSBF flows denominated in local currencies. Similar results are noted for the impact of global risk aversion (proxied by the VIX), such that a one-unit increase in the VIX reduces aggregate, and hard currency-denominated MSBF flows by around 0.6-0.8 percentage points. These push factor results corroborate prior empirical studies on EMDE portfolio flows, particularly those using investment fund data, notably Fratzscher (2012). Meanwhile, higher global commodity prices increase aggregate and hard currency-denominated MSBF flows by around 0.1-0.4 percentage point, while a one-percent increase in global liquidity raises MSBF flows by 1.4-3.2 percentage points across currency denomination and in the aggregate.

Interestingly, the baseline results point to a countercyclical impact of global and domestic GDP growth on MSBF flows during our sample period. The estimates in **Table 2** show that higher global GDP growth significantly reduces cross-border aggregate and hard currency denominated MSBF flows by around 1.2-1.6 percentage points. Although this runs contrary to the expected result of a positive impact, it could reflect that global growth was relatively stable during a period of comparatively attractive, albeit downward trending, emerging market growth (2010-2019) and bottomed when the "comparative attractiveness" of emerging market growth increased (2020).[30] Further, MSBFs, as a group, suffered sizeable redemptions during four periods: 2014-2015, 2018Q2-Q3, 2020Q1, and 2022, while global growth was relatively stable during the former two episodes. During these stress episodes, the MSBF EMDE portfolio faced significant outflows (disproportionate to their advanced economy portfolio), especially in their EMDE local currency holdings.[31] Following the 2020 shock, after some emerging market hard currency flows had already recovered, MSBFs were still pulling out of local currency assets, which helps explain the different signs and insignificant estimation results for local currency flows. In addition, domestic

[30] Comparative attractiveness is interpreted as a positive spread of emerging markets over advanced economies' growth rates, such that the greater the spread, the greater the pull for emerging market inflows. Examining global growth dynamics, alongside the spread, our sample period shows a shift in the relationship compared to earlier periods. In 1980-1990, the growth spread was considerably smaller than in 2000-2010 when the dotcom bust and the GFC weakened advanced economies' growth. Emerging market growth, while negatively impacted, was comparatively more resilient such that the spread sharply trended upward. The large growth gap persisted, albeit trending lower during 2010-2019, and increased following the outbreak of the COVID-19 pandemic in 2020 before dropping during 2021-2022 amid the most recent macroeconomic and geopolitical shocks.

[31] Hard currency became the dominant denomination in the EDME portfolio in 2019 after local currency dominance for the entire prior period.

GDP growth is only significant for MSBF flows denominated in local currency, but the estimated coefficient has a negative sign. The limited significance across currencies arguably reflects push-factor dominance for portfolio flows, while fundamentals such as local growth are typically more significant for FDI or equity flows. The counterintuitive sign could reflect that stronger domestic growth leads to higher revenues in local currency, thereby significantly reducing financing needs in local currency. Together, these results suggest a countercyclical impact of economic growth on MSBF flows.

Importantly, **Table 2** provides evidence that when capital account measures are tightened by one unit, either by imposing an additional measure or by increasing the intensity of the existing measure, MSBF flows (in all currencies) decrease by around 1.7 percentage points. This translates to roughly a US$95 decrease in MSBF flows in all currencies per unit increase in capital account tightening measure, given that the median value of our MSBF flow sample is approximately US$5,550. The estimates have the same sign and roughly equal magnitudes using either lagged capital account tightening measure or the two-step exogenous policy shock approach. The results also underscore two new findings. First, although the estimates for MSBF flows in hard and local currency are statistically insignificant, the negative signs of the estimated coefficients are roughly consistent with the expected impact of capital controls. These results suggest that tightening capital account measures can be associated with lowering total MSBF flows but not the currency breakdown *per se*. Second, our capital account tightening variable (CAM tightening) only includes measures related to multi-sector bond funds. The results suggest that targeted or specific tightening measures, as opposed to broader tightening measures, can effectively lower specific types of portfolio flows. In this regard, our results offer empirical support for using "targeted" capital flow management measures, as noted in the IMF's Institutional View (2012).

In summary, the baseline results presented in Table 2 provide new evidence on the relevance of various global and domestic factors in driving MSBF flows in EDMEs, as well as the effectiveness of targeted capital account tightening measures in lowering MSBF flows.

4b. Sensitivity Tests

Several sensitivity tests are conducted to verify the results by adding or removing global and domestic factors, using different empirical specifications, and conducting sample and period splits.[32] The baseline results mostly hold when adding or removing global and domestic factors, although there are differences. First, instead of using percent changes of MSBF flows, we verify the results using nominal MSBF flows (US dollars) as dependent variables. Compared to the baseline results, the significance of global commodity price growth, domestic GDP growth, and, importantly, capital account policy measures have disappeared, suggesting that the large heterogeneity across cross-sectional units, which include small to large economies, may be confounding estimation results (**Table A5**).[33] Second, the baseline results hold when global commodity price growth and global liquidity are removed from the baseline specification, as both might be correlated with other global factors (**Table A6**). Third, MSBF flows might exhibit serial correlation due to fund managers' portfolio reallocations. To test this, the lag of the dependent variable is added to the empirical model, and the results show that the lagged MSBF flows are negative (mean-reverting) and significant (**Table A7**). This implies that fund managers undertake reallocation of their MSBF portfolio, such that if they allocate more in one period, they reduce portfolio flows in the next period. This could reflect how MSBFs search for the sectors, regions, or

[32] The results are available in the online appendices.

[33] Larger economies tend to receive larger capital flows in absolute terms than smaller economies. The heterogeneity in the scale of the dependent variable across cross-sectional units can lead to heteroskedasticity.

economies that have the better prospects – often the same assets that have been outperforming in recent periods – but as soon as (future) returns fail to match the recent past, MSBFs might reverse course.[34]

Fourth, the baseline results also hold when domestic credit and per capita income are included in the specification (**Table A8**). Estimates on domestic credit have positive signs, as expected, and are significant, especially for aggregate MSBF flows and those denominated in hard currencies. In contrast, estimation results for per capita income, which is a proxy for an economy's level of development, show negative signs and are significant mostly for MSBF flows denominated in local currency. As described in Section 2a, significant cross-country differentiation exists, with a few selected economies benefitting greatly in the boom and suffering the most in the bust. These robustness tests confirm that MSBFs focus on the bonds of selected emerging market sovereign issuers with more liquid and developed financial markets but not necessarily overall economic levels of development. In other words, if a minimum level of financial development exists, MSBFs allocate even to riskier (often lower economically developed) countries where returns tend to be higher. Fifth, aside from including capital flow tightening measures (CAM tightening), we also include our capital account restrictiveness (CAR) index to test if the level of restrictiveness or the change in policy matters most. The baseline results hold, implying that the significance of CAM tightening is not soaked up by the inclusion of the capital account restrictiveness index. This then provides empirical support on the use of episodic controls in the context of capital flows (**Table A9**).[35] This somewhat contrasts with the results of Bhargava et al. (2023), which suggest a policy measure's impact is affected by the pre-existing capital account restrictiveness.[36] Lastly, higher foreign exchange reserves might signal a lower default probability on external debt servicing and, importantly, less of a need to implement capital controls. Including a measure of foreign exchange reserves to GDP in the baseline specification does not alter the baseline findings, nor is the variable significant, not even for hard currency flows (**Table A10**).

Using different empirical specifications, the results of the sensitivity tests are mostly consistent with the baseline findings, but again, there are some differences. First, global and domestic factors may have a contemporaneous impact on changes in MSBF flows. Instead of using lagged values, we check using contemporaneous values of push and pull factors, except for our capital account tightening measures, as we want to minimise the potential endogeneity of the policy measure and account for the potential lagged response time to any policy measure. The results show that U.S. monetary policy, global risk aversion, global liquidity, and our capital account tightening measures remain significant, with consistent signs (**Table A11**). Second, our baseline specification uses a country-fund fixed effect. We test the result by including separate fixed effects for country and fund. The results are the same as the baseline (**Table A12**).

Using sample and period splits reveals further insights into the significance of push and pull factors and the effectiveness of tightening CAM using fund-level data. First, our EMDE sample includes economies classified as advanced economies by the IMF, such as Croatia; Hong Kong, China; Israel; Republic of Korea; Latvia, Lithuania; Slovakia; Slovenia; and Chinese Taipei.

[34] Mean-reversion implies that extreme performers on either the high- or the low-end in one period tend to perform the opposite in the future, bringing their long-term results closer to average.

[35] Klein (2012) shows that capital controls do not work if they are episodic, arguing that long-term and widespread capital controls ("walls") may have some effect, but any controls that are viewed as temporary ("gates") will not reduce financial vulnerabilities. However, his analysis considers growth and financial vulnerabilities, instead of capital flows.

[36] Note that Bhargava et al.'s (2023) specification focuses on crisis periods with an interaction term, an overall capital account restrictiveness index, and the effect of capital controls on net aggregate non-resident capital inflows and resident outflows (based on IMF BoP data). In our paper, the analysis focuses on specific flows (based on micro-data) and targeted controls related to fixed-income investment funds, which could explain the difference in results.

Removing these economies from the estimation does not change the results (**Table A13**). Next, splitting the data into two periods, 4Q2009 to 3Q2015 and 4Q2015 to 4Q2022, shows that the baseline results hold for period two and MSBF flows in period one are mostly driven by U.S. monetary policy and global liquidity (**Tables A14.a and A14.b**). The bifurcation of the results arguably reflects that most tightening CAM have been implemented in the second period or after 2018 as shown in **Figure 3b**, and the number in the earlier sample period was too small to estimate a robust reaction function. Lastly, splitting the country sample into two – higher and lower economy income groups – indicates that economies belonging to the lower income group are more sensitive to global factors, though their capital account tightening measures are effective **(Tables A15.a and A15.b)**.

In summary, the baseline results hold under various sensitivity tests.

4c. Extensions

Aside from various sensitivity tests, we also extend the baseline analysis by considering: (i) the effectiveness of capital account loosening measures, (ii) differentiating between measures on inflows and outflows, and (iii) assessing the interaction between global risk aversion and capital account tightening measures.

First, instead of tightening measures, we consider capital account loosening measures. **Table 3** presents the results and shows that the significance and signs of the global and domestic factors are the same as in the baseline results shown in **Table 2**. However, the capital account loosening measures (CAM loosening) are significant, with positive signs only for MSBF flows in hard currency, such that a one-unit increase in capital account easing measures increases MSBF flows in hard currency by around 0.8-1.2 percentage points. This translates to roughly a US$77 increase in MSBF flows in hard currency per unit increase in capital account loosening measure, given that the median value of our MSBF flows in hard currency is approximately US$7,700. This result offers evidence of the effectiveness of easing capital account restrictions in increasing hard currency-denominated bond flows. The estimated coefficient also suggests that CAM loosening measures, while significant, elicit a smaller response than tightening measures. This has important policy implications, especially for the use of episodic controls, such that foreign investors are more sensitive to tightening than easing of the capital account, so tightening can be especially effective in mitigating financial vulnerabilities, but subsequent reversals in capital flows may take longer to materialise.

Second, since the empirical literature suggests that the effectiveness of capital account measures on inflows and outflows may elicit different degrees of effectiveness, we extend the baseline analysis by differentiating between capital account tightening measures on inflows and outflows separately (Bhargave et al., 2023; and Forbes et al., 2015). Again, our capital account tightening measures are specific to MSBF flows and are interpreted broadly. For capital account tightening measures on inflows, we include purchases of non-residents and sales of residents, while capital account tightening measures on outflows include purchases of residents and sales of non-residents.[37] The rationale for this extension is to assess the effectiveness of capital controls targeting specific directional flows, inflows vs. outflows, regardless of whether residents or non-residents would undertake them. **Tables 4a** and **4b** present the results of tightening measures on outflows and inflows, respectively. The results show that the same global and domestic factors are significant with the same signs as in the baseline results presented in **Table**

[37] This paper considers the inflows and outflows in terms of direction of cross-border financial transactions that affect multi-sector bond funds. As such, this extension defines inflows and outflows in terms of "direction" of flows and not based on residency such that between residents and non-residents transactions.

2. However, the findings on CAM tightening differ. The estimates show negative signs for outflow measures, although they are insignificant. For inflow measures, the estimates also have negative signs but are significant. Again, this has important policy implications, as it implies that tightening controls on directional inflows is more effective than those on directional outflows, highlighting the effectiveness of targeted measures.

Lastly, we extend the analysis by assessing if the effectiveness of capital account tightening measures is affected by the degree of global risk aversion. This assesses whether tightening measures would have a greater impact during periods of heightened global risk aversion. We do so by interacting global risk aversion (VIX) with the capital account tightening measures (CAM tightening). The interaction of both continuous variables will show that at a given level of capital account tightening measure, increasing global risk aversion will lead to a larger decrease in MSBF flows.[38] **Tables 5** and **6** present the panel regression results and marginal effects, respectively, while **Figure 4** shows the margins plot of the marginal effects. **Table 5** indicates that the interaction terms of VIX and CFM tightening measures have negative signs and are statistically significant for aggregate, hard-, and local currency-denominated flows using lagged and two-step CAM tightening measures.[39] The negative signs of the marginal effects, shown in **Table 6,** suggest that a one-unit increase in VIX reduces MSBF flows across various levels of CFM tightening measures. But the more tightening measures are imposed, the greater the reduction in MSBF flows. For instance, suppose an economy has three units of capital account tightening measures in place, a one-unit increase in VIX will reduce MSBF flows in all currencies by around 2.6 percentage points (column 2, row 3 of Table 6). If the economy has more tightening measures, say from 3 to 6 measures, then a one-unit increase in VIX will reduce MBSF flows in all currencies by around 4.5 percentage points (column 2, row 4 of Table 6). This implies that increasing tightening measures will greatly reduce MSBF flows, given a one-unit increase in global risk aversion. Thus, foreign investors' increased sensitivity to CAM tightening during periods of increased risk aversion strengthens the rationale for using capital controls during stress episodes. In other words, the effectiveness of capital account tightening measures in reducing MSBF flows strengthens as more tightening measures are imposed given a one-unit increase in VIX.

In summary, these extensions of the baseline analysis show several new findings: (i) loosening capital account restrictions increase MSBF flows denominated in hard currency, but less so than tightening reduces inflows; (ii) tightening controls on directional inflows is more effective compared to tightening measures on directional outflows; and (iii) implementing CAM tightening is more effective in reducing MSBF flows at higher levels of global risk aversion. These extensions provide empirical support in designing and implementing capital account measures targeted at MSBF flows, especially for their episodic use.

5. Concluding Remarks

This paper utilises MSBF flow data to assess the significance of capital flow push and pull factors as well as the effectiveness of capital controls. The main findings show: (i) higher U.S. monetary policy rates and global risk aversion significantly reduce MSBF flows, whereas stronger global commodity price growth and global liquidity significantly increase MSBF flows; (ii) global and

[38] However, unlike standard interaction terms involving continuous and dummy variables, both VIX and CFM tightening are continuous variables in Equation (1). This complicates the interpretation of the estimated coefficient of the interaction term. Consequently, we refer to the marginal effects of the estimated continuous interaction term to estimate the changes in MBSF flows for a one-unit increase in global risk aversion (VIX) with the CFM tightening at different values.

[39] The estimated coefficients of lagged and two-step CAM tightening measures should be interpreted with caution given that they are one of the two continuous variables in the interaction term.

domestic GDP growth, somewhat surprisingly, tend to have a countercyclical impact on MSBF flows; and (iii) capital account tightening measures related to or targeted at fixed income and investment funds are effective in reducing MSBF flows to EDMEs. Moreover, we also find that loosening capital account restrictions increases MSBF flows denominated in hard currency, albeit less so than tightening reduces inflows; tightening controls on directional inflows is more effective compared to tightening measures on directional outflows; implementing CAM tightening is more effective in reducing MSBF flows at higher levels of global risk aversion, providing evidence for the effectiveness for the episodic use of CAMs. These results extend our understanding of multi-sector bond funds and underscore the importance of designing and implementing targeted capital account measures.

Other extensions of our analysis offer avenues for future research. First, capital account tightening measures targeted at equities (excluded from our analysis) could be used as a potential instrumental variable to address endogeneity. Capital account tightening measures on equities could signal policymakers' willingness or likelihood of implementing capital account tightening measures on bonds in the future, but they should not directly impact fixed-income flows beyond the signaling channel. Second, to check the significance of the specificity in our capital account tightening measures, it would be interesting to run our same baseline regressions with an alternative broader capital control tightening index. The expectation is that the results would be less (or even in-) significant. These extensions are left for future researchers as they go beyond the main questions that this paper seeks to address.

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TABLES AND FIGURES

Table 1: Summary Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
MSBF Flow Percentage Change, All Currency	38,223	0.634	57.789	-1,087.1	1,341.5
MSBF Flow Percentage Change, Hard Currency	34,999	0.657	52.640	-667.6	1,058.8
MSBF Flow Percentage Change, Local Currency	7,510	-0.757	73.506	-912.2	1,173.8
US Monetary Policy	214,120	0.285	0.491	-0.9	2.4
CBOE VIX	214,120	18.789	5.687	10.3	34.5
Global GDP Growth	214,120	2.847	2.388	-8.6	11.8
Global Commodity Price Growth	214,120	7.569	23.697	-34.4	66.7
Global Liquidity	214,120	43.825	3.692	39.4	54.8
Domestic GDP Growth	212,000	3.298	6.103	-66.0	83.3
CAM Tightening	214,120	0.033	0.368	0.0	13.0

Note: See Table A2 for variable definition and sources.
Source: Authors' calculations.

Table 2: Baseline Panel Regressions

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	All	Hard	Local	All	Hard	Local
U.S. monetary policy = L,	-3.407***	-4.224***	2.635	-2.317*	-3.700***	4.410
	(1.167)	(1.050)	(5.022)	(1.266)	(1.123)	(5.794)
CBOE VIX index = L,	-0.645***	-0.698***	-0.458	-0.783***	-0.794***	-0.789**
	(0.109)	(0.097)	(0.345)	(0.114)	(0.105)	(0.346)
Global GDP growth = L,	-1.258***	-1.290***	0.320	-1.589***	-1.470***	-1.271
	(0.263)	(0.243)	(0.937)	(0.273)	(0.257)	(0.944)
Global commodity price growth = L,	0.160***	0.135***	0.178	0.190***	0.160***	0.370***
	(0.036)	(0.036)	(0.117)	(0.038)	(0.038)	(0.114)
Global liquidity = L,	1.571***	1.432***	3.205***	1.794***	1.737***	3.248***
	(0.331)	(0.312)	(1.205)	(0.343)	(0.324)	(1.255)
Domestic GDP growth = L,	-0.094	-0.047	-0.837***	-0.083	-0.050	-0.807**
	(0.059)	(0.058)	(0.310)	(0.060)	(0.057)	(0.320)
CAM Tightening = L,	-1.756**	-1.020	-2.227			
	(0.761)	(0.642)	(2.073)			
Two-step CAM Tightening = L,				-1.688**	-0.980	-1.281
				(0.792)	(0.684)	(2.134)
Observations	38,208	34,984	7,510	33,277	30,219	6,315
R-squared	0.046	0.051	0.059	0.051	0.056	0.092
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates.

Table 3: Panel Regressions Using Capital Account Loosening Measures

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.446***	-4.286***	2.577	-2.431*	-3.813***	4.236
	(1.167)	(1.049)	(5.021)	(1.266)	(1.120)	(5.740)
CBOE VIX index = L,	-0.650***	-0.707***	-0.426	-0.786***	-0.801***	-0.775**
	(0.109)	(0.097)	(0.336)	(0.113)	(0.105)	(0.339)
Global GDP growth = L,	-1.285***	-1.314***	0.259	-1.610***	-1.493***	-1.299
	(0.264)	(0.244)	(0.938)	(0.273)	(0.257)	(0.944)
Global commodity price growth = L,	0.158***	0.132***	0.186	0.191***	0.159***	0.376***
	(0.037)	(0.036)	(0.120)	(0.038)	(0.038)	(0.116)
Global liquidity = L,	1.557***	1.405***	3.258***	1.786***	1.718***	3.266***
	(0.331)	(0.312)	(1.207)	(0.344)	(0.324)	(1.254)
Domestic GDP growth = L,	-0.093	-0.048	-0.825***	-0.081	-0.050	-0.799**
	(0.059)	(0.058)	(0.304)	(0.060)	(0.057)	(0.316)
CAM Loosening = L,	0.804	1.165***	-0.094			
	(0.503)	(0.448)	(1.310)			
Two-step CAM Loosening = L,				0.375	0.789*	-0.288
				(0.543)	(0.451)	(1.657)
Observations	38,208	34,984	7,510	33,277	30,219	6,315
R-squared	0.046	0.052	0.058	0.050	0.056	0.091
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account loosening measures (CAM loosening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates.

Table 4a: Panel Regressions with Capital Account Tightening Measures on Outflows

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.433***	-4.243***	2.525	-2.387*	-3.736***	4.292
	(1.167)	(1.050)	(5.011)	(1.264)	(1.121)	(5.769)
CBOE VIX index = L,	-0.643***	-0.697***	-0.443	-0.783***	-0.795***	-0.785**
	(0.109)	(0.097)	(0.345)	(0.114)	(0.105)	(0.348)
Global GDP growth = L,	-1.270***	-1.296***	0.284	-1.601***	-1.477***	-1.293
	(0.263)	(0.243)	(0.938)	(0.273)	(0.257)	(0.945)
Global commodity price growth = L,	0.161***	0.136***	0.182	0.192***	0.161***	0.372***
	(0.036)	(0.036)	(0.117)	(0.038)	(0.038)	(0.113)
Global liquidity = L,	1.574***	1.432***	3.214***	1.790***	1.735***	3.236***
	(0.331)	(0.312)	(1.190)	(0.343)	(0.324)	(1.234)
Domestic GDP growth = L,	-0.092	-0.047	-0.830***	-0.081	-0.049	-0.804**
	(0.059)	(0.058)	(0.309)	(0.060)	(0.057)	(0.320)
CAM Tightening = L,	-0.819	-0.661	-1.737			
	(0.727)	(0.741)	(2.870)			
Two-step CAM Tightening = L,				-0.747	-0.446	-1.068
				(0.767)	(0.836)	(2.921)
Observations	38,208	34,984	7,510	33,277	30,219	6,315
R-squared	0.046	0.051	0.058	0.050	0.056	0.091
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Measures of outflows include resident purchases and nonresident sales transactions. Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates.

Table 4b: Panel Regressions with Capital Account Tightening Measures on Inflows

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.275***	-4.139***	2.629	-2.297*	-3.664***	4.152
	(1.170)	(1.053)	(5.041)	(1.268)	(1.124)	(5.779)
CBOE VIX index = L,	-0.648***	-0.700***	-0.431	-0.783***	-0.794***	-0.777**
	(0.109)	(0.097)	(0.339)	(0.114)	(0.105)	(0.341)
Global GDP growth = L,	-1.277***	-1.301***	0.263	-1.599***	-1.475***	-1.311
	(0.263)	(0.243)	(0.937)	(0.273)	(0.257)	(0.946)
Global commodity price growth = L,	0.162***	0.136***	0.185	0.193***	0.162***	0.374***
	(0.036)	(0.036)	(0.118)	(0.038)	(0.038)	(0.115)
Global liquidity = L,	1.565***	1.428***	3.247***	1.806***	1.747***	3.256***
	(0.331)	(0.312)	(1.210)	(0.344)	(0.324)	(1.258)
Domestic GDP growth = L,	-0.095	-0.048	-0.829***	-0.082	-0.050	-0.799**
	(0.059)	(0.058)	(0.308)	(0.060)	(0.057)	(0.317)
CAM Tightening = L,	-4.455**	-3.151	-0.799			
	(2.127)	(2.110)	(3.649)			
Two-step CAM Tightening = L,				-4.020*	-3.369	1.013
				(2.172)	(2.211)	(3.856)
Observations	38,208	34,984	7,510	33,277	30,219	6,315
R-squared	0.046	0.051	0.058	0.050	0.056	0.091
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Measures of inflows include resident sales and nonresident purchases transactions. Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates.

Table 5: Panel Regressions with VIX and Capital Account Tightening Measures Interaction

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.626***	-4.409***	1.777	-3.644***	-3.956***	3.626
	(1.162)	(1.047)	(4.947)	(1.177)	(1.121)	(5.716)
CBOE VIX index = L,	-0.578***	-0.644***	-0.223	-0.614***	-0.778***	-0.790**
	(0.109)	(0.097)	(0.324)	(0.109)	(0.105)	(0.344)
Global GDP growth = L,	-1.240***	-1.275***	0.348	-1.250***	-1.426***	-1.218
	(0.262)	(0.242)	(0.941)	(0.263)	(0.256)	(0.947)
Global commodity price growth = L,	0.162***	0.137***	0.187	0.159***	0.156***	0.342***
	(0.036)	(0.036)	(0.119)	(0.036)	(0.038)	(0.113)
Global liquidity = L,	1.658***	1.498***	3.643***	1.598***	1.762***	3.498***
	(0.331)	(0.312)	(1.258)	(0.332)	(0.323)	(1.291)
Domestic GDP growth = L,	-0.088	-0.043	-0.755**	-0.061	-0.044	-0.673**
	(0.059)	(0.058)	(0.295)	(0.059)	(0.057)	(0.296)
CAM Tightening = L,	11.654***	10.377***	31.115**			
	(2.865)	(2.350)	(14.364)			
VIX*CAM Tightening = L,	-0.654***	-0.547***	-1.959**			
	(0.153)	(0.128)	(0.912)			
Two-step CAM Tightening = L,				10.815***	9.699***	29.105**
				(2.976)	(2.492)	(13.671)
VIX*Two-step Tightening = L,				-0.614***	-0.518***	-1.750**
				(0.159)	(0.135)	(0.863)
Observations	38,208	34,984	7,510	37,878	30,219	6,315
R-squared	0.047	0.052	0.064	0.046	0.057	0.097
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

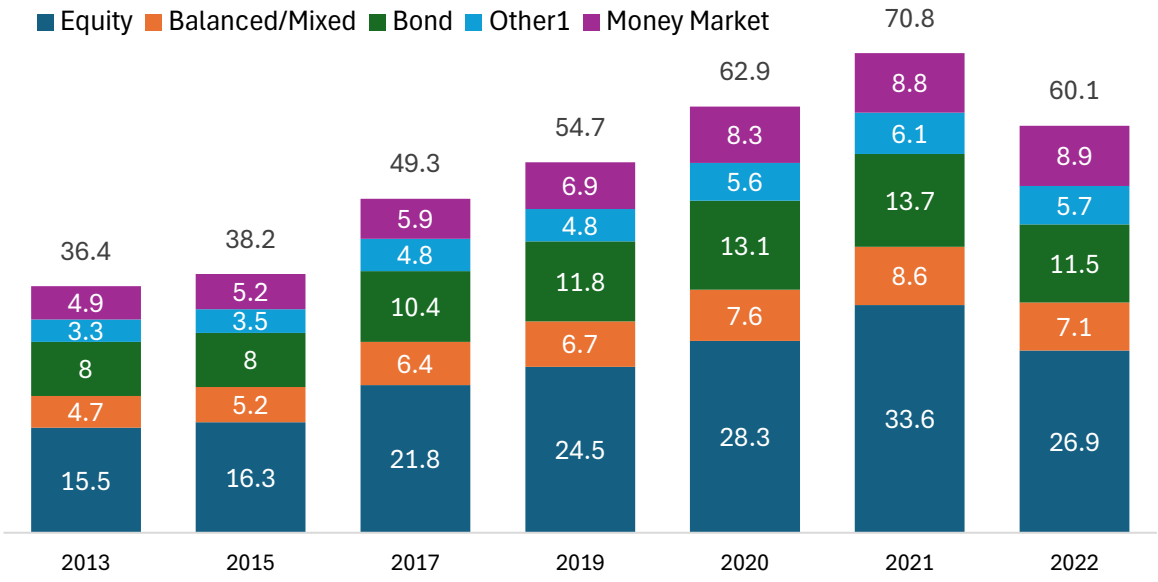
Notes: Dependent variables are percentage change of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates.

Table 6: Average Marginal Effects of Interaction Between VIX and Capital Account Tightening Measures

Expression: Linear prediction:	**All**		**Hard**		**Local**	
Number of observations:	38,208		34,984		7,510	
Tightening measures:	CAM Tightening		CAM Tightening		CAM Tightening	
dy/dx wrt: VIX	dy/dx	Std Error	dy/dx	Std Error	dy/dx	Std Error
1._at: tightening measures = 0	-0.578	0.109	-0.644	0.097	-0.223	0.324
2._at: tightening measures = 3	-2.539	0.467	-2.286	0.392	-6.099	2.755
3._at: tightening measures = 6	-4.500	0.920	-3.928	0.770	-11.975	5.482
4._at: tightening measures = 9	-6.461	1.376	-5.570	1.152	-17.851	8.215
5._at: tightening measures = 12	-8.421	1.834	-7.212	1.534	-23.727	10.950
Expression: Linear prediction:	**All**		**Hard**		**Local**	
Number of observations:	37,878		30,219		6,351	
Tightening measures:	Two-step CAM Tightening		Two-step CAM Tightening		Two-step CAM Tightening	
dy/dx wrt: VIX	dy/dx	Std Error	dy/dx	Std Error	dy/dx	Std Error
1._at: tightening measures = 0	-0.614	0.109	-0.778	0.105	-0.790	0.344
2._at: tightening measures = 3	-2.457	0.493	-2.332	0.421	-6.041	2.747
3._at: tightening measures = 6	-4.300	0.964	-3.885	0.819	-11.291	5.327
4._at: tightening measures = 9	-6.143	1.439	-5.438	1.222	-16.542	7.912
5._at: tightening measures = 12	-7.986	1.915	-6.992	1.625	-21.793	10.499

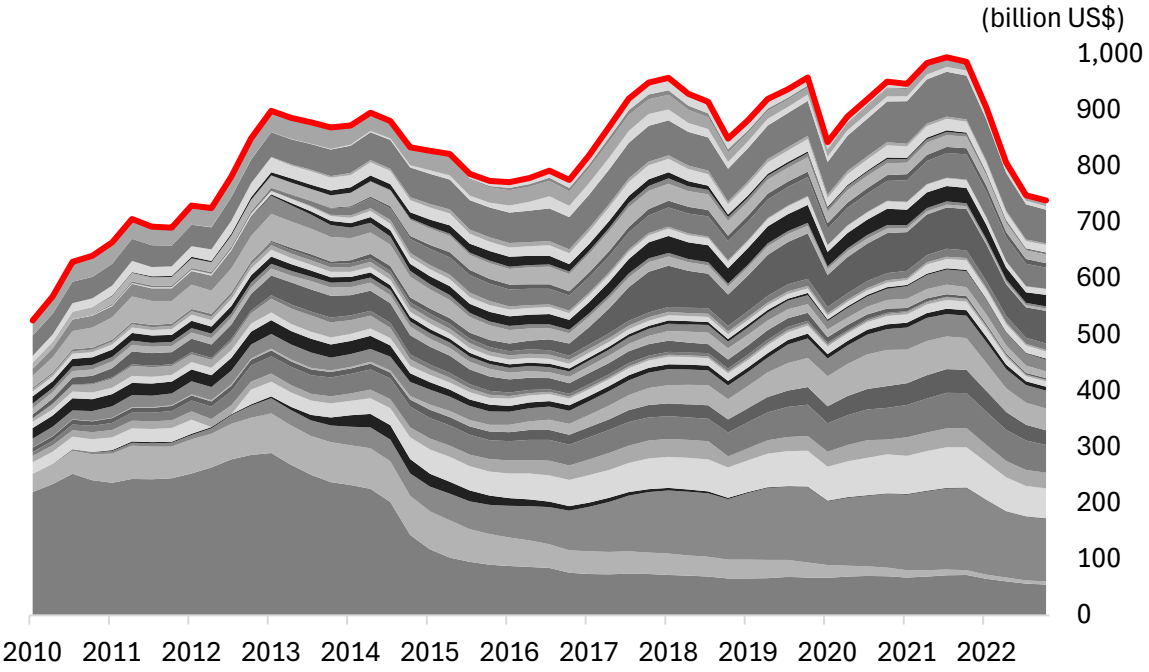
Source: Authors' estimates.

Figure 1a: Assets Under Management of Regulated Investment Funds (US$ trillion)



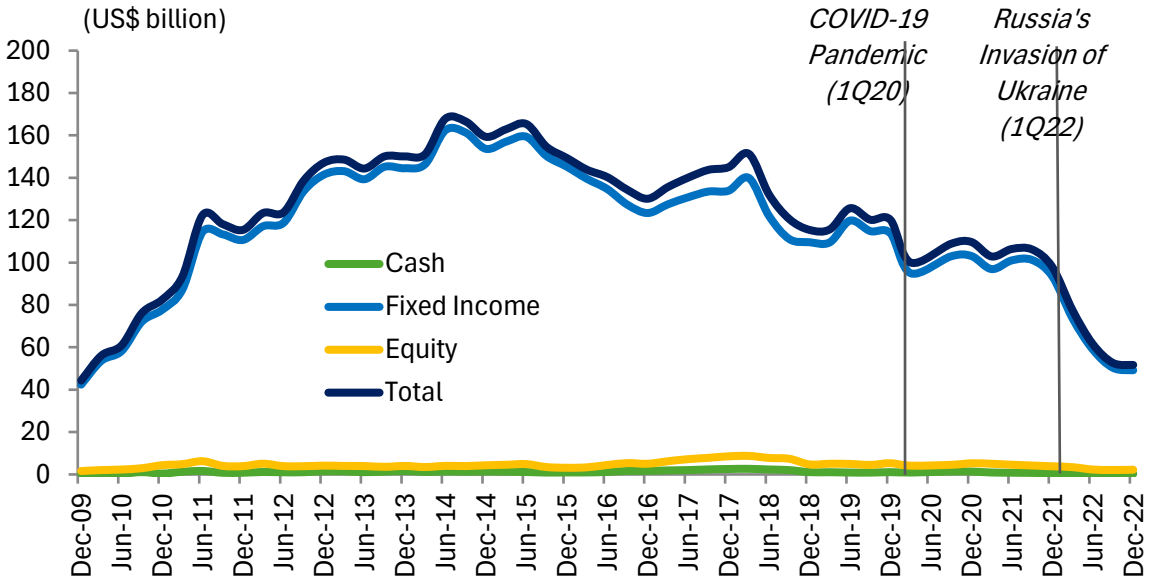
Notes: Other funds include guaranteed/protected funds, real estate funds, and other funds. Data for Russia are 3Q2017. Regulated open-end funds include mutual funds, ETFs, and institutional funds. Refer to Appendix 2 for a discussion on MSBF data.
Source: Authors' calculations using data from International Investment Funds Association.

Figure 1b: Assets Under Management of Multi-Sector Bond Funds Sample
(US$ billion)



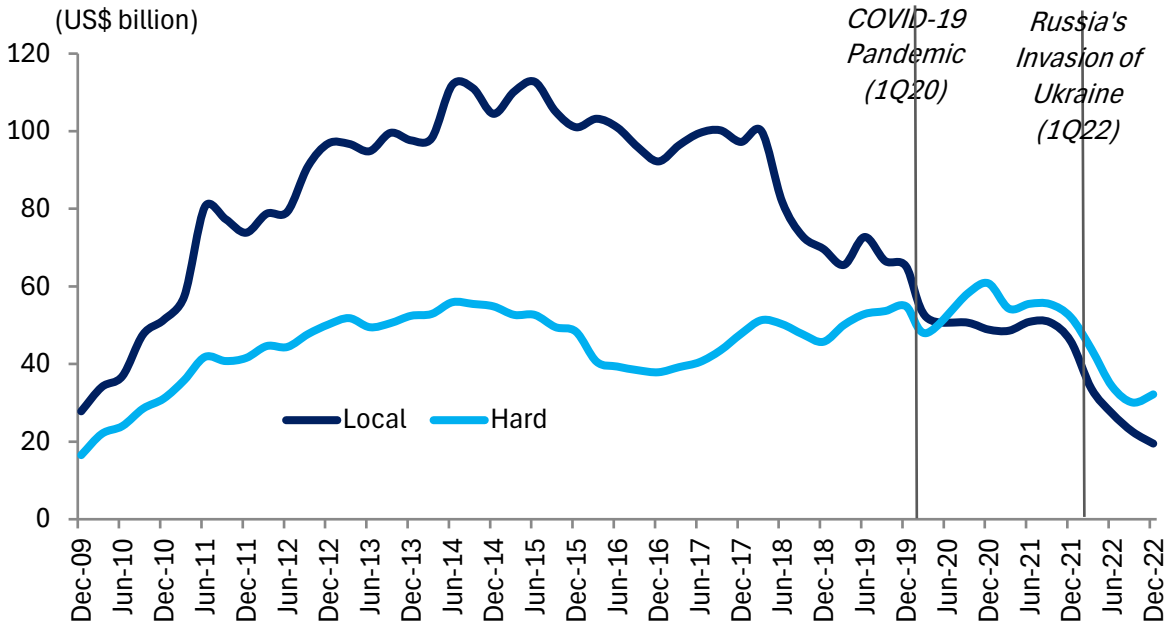
Note: Refer to Appendix 2 for a discussion on MSBF data.
Source: Authors' calculations using data from Bloomberg LP.

Figure 2a: Assets Under Management of Regulated Investment Funds in EDMEs: By Asset Type
(US$ billion)



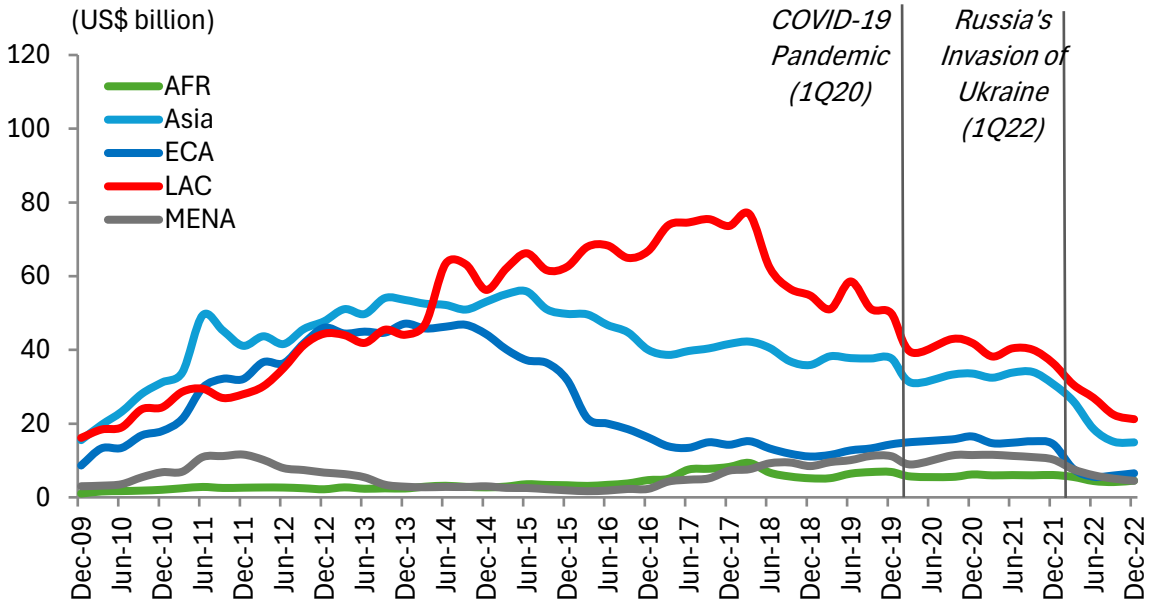
Note: Refer to Appendix 2 for a discussion on MSBF data.
Source: Authors' calculations using data from Bloomberg LP.

Figure 2b: Assets Under Management of Multi-sector Bond Funds Sample: By Currency Denomination (US$ billion)



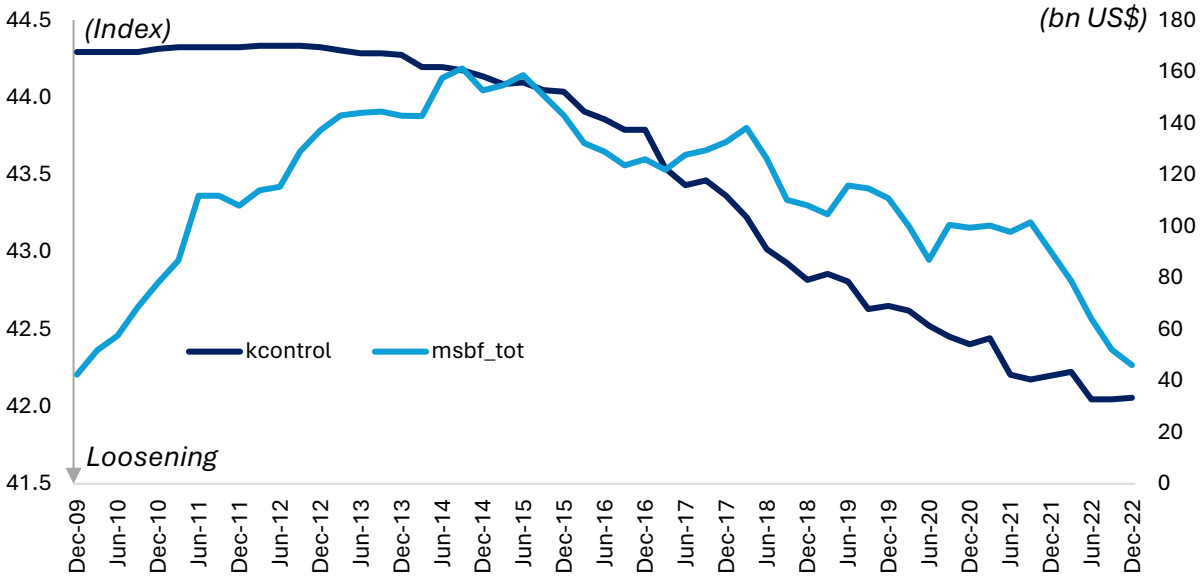
Notes: Local currency refers to domestic currency. Hard currency reflects nearly all U.S. dollars, with minor Euro positions, and other hard currencies including GBP, JPY, CHF, AUD, CAD, SGD, DKK, NOK, NZD, and SEK (but combined, they barely stand out). Refer to Appendix 2 for a discussion on MSBF data.
Source: Authors' calculations using data from Bloomberg LP.

Figure 2c: Assets Under Management of Regulated Investment Funds: By Region (US$ billion)



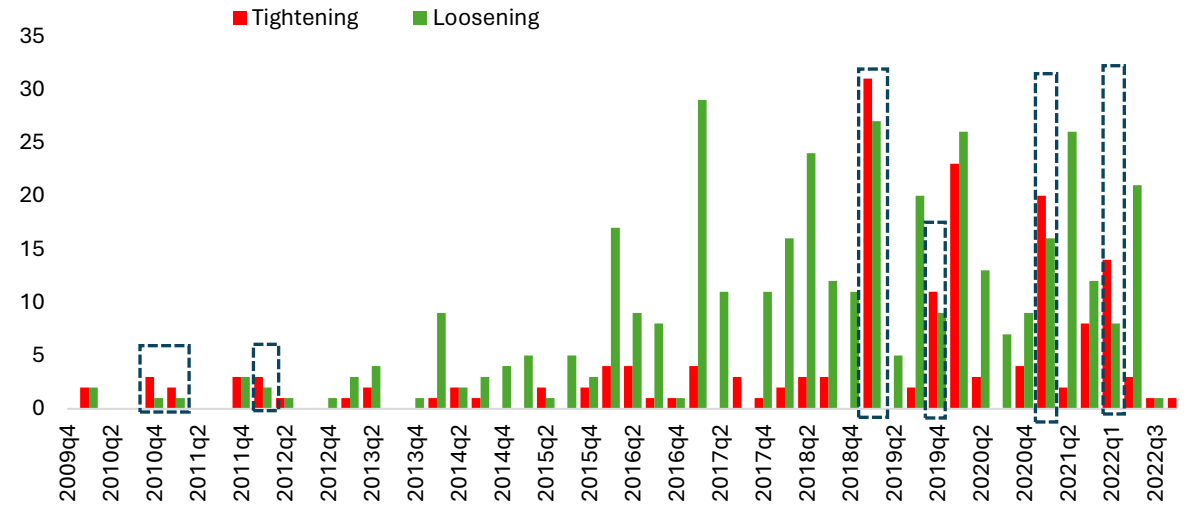
AFR = Africa; ECA = Emerging Europe and Central Asia; LAC = Latin America; and MENA = Middle East and North Africa.
Note: Refer to Appendix 2 for a discussion on MSBF data.
Source: Authors' calculations using data from Bloomberg LP.

Figure 3a: Multi-Sector Bond Funds and Capital Account Restrictiveness (CAR) Index



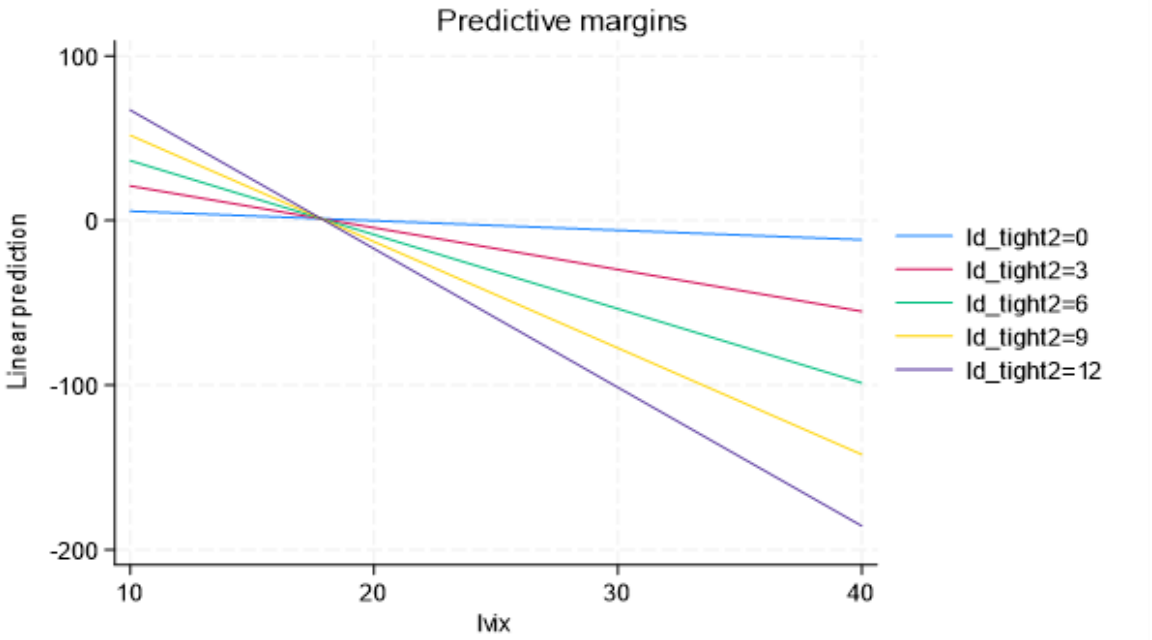
kcontrol = capital account restrictiveness, msbf_tot = MSBF flows in US$ billion.
Note: Refer to Appendices 2 and 3 for discussion on MSBF data and capital account restrictiveness index, respectively.
Source: Authors' calculations using data from Bloomberg and Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) Online of the International Monetary Fund.

Figure 3b: Capital Account Tightening and Loosening Measures (CAM)



Tightening = capital account tightening measures; Loosening = capital account loosening measures
Note: Refer to Appendix 3 for a discussion on capital account measures (CAM).
Source: Authors' calculations using data from the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) Online of the International Monetary Fund.

Figure 4: Margins Plot of CAM Tightening and VIX – All Currency



Notes: Based on estimates of average marginal effects as presented in Table 6 (first column upper panel).
Source: Authors' estimates.

APPENDIX 1: Economy List and Data Definitions and Sources

Table A1: List of Emerging and Development Market Economies

Albania*	Georgia*	Panama*
Angola	Ghana	Papua New Guinea
Argentina*	Guatemala	Paraguay
Armenia*	Honduras	Peru
Azerbaijan*	Hong Kong, China*^	Philippines
Bahamas*	Hungary*	Poland*
Bahrain*	India	Qatar*
Bangladesh	Indonesia	Romania*
Barbados*	Iraq	Russia*
Belarus*	Israel*^	Rwanda
Belize	Ivory Coast	Saudi Arabia*
Benin	Jamaica	Senegal
Bolivia	Jordan	Serbia*
Bosnia And Herzegovina*	Kazakhstan*	Slovakia*^
Brazil*	Kenya	Slovenia*^
Bulgaria*	Korea, Rep*^	South Africa
Burkina Faso	Kuwait*	Sri Lanka
Cambodia	Latvia*^	Suriname
Cameroon	Lebanon	Taipei, Chinese*^
Chile*	Lithuania*^	Tajikistan
China*	Macau, China*^	Tanzania
Colombia*	Malaysia*	Thailand*
Congo, Democratic Republic	Maldives*	Togo
Congo, Republic	Marshall Islands	Trinidad and Tobago*
Costa Rica*	Mauritius*	Tunisia
Croatia*^	Mexico*	Turkey
Czech Republic*^	Mongolia	Ukraine
Dominican Republic*	Morocco	United Arab Emirates*
Ecuador	Mozambique	Uruguay*
Egypt*	Namibia	Uzbekistan
El Salvador	Nigeria	Venezuela
Ethiopia	North Macedonia*	Vietnam
Fiji	Oman*	Zambia
Gabon	Pakistan	

Notes: Economies with (^) are not included as emerging economies in the IMF's World Economic Outlook Database classification. Economies with (*) belong to the upper half of the sample income group, based on real per capita GDP at purchasing power parity at US$ 2015.
Source: Authors' elaborations

Table A2: Data Definitions and Sources

Variables	Definitions and Notes	Sources
MBSF Flows percent change, All (Aggregate)	quarter-on-quarter % change; computed as the first difference of the natural log of the price-adjusted MSBF holdings in US$ - all currency (hard and local currency); refer to Appendix 3 for detailed data discussion	Calculated values using data taken from Bloomberg LP.
MBSF Flows in US$ million, All (Aggregate)	US$ million; computed as the quarter-on-quarter first difference of the price-adjusted MSBF holdings in US$ - all currency (hard and local currency); refer to Appendix 3 for detailed data discussion	Calculated values using data taken from Bloomberg LP.
MBSF Flows percent change, Hard	quarter-on-quarter % change; computed as the first difference of the natural log of the price-adjusted MSBF holdings in US$ - hard currency (including USD, EUR, GBP, JPY, CHF, AUD, CAD, SGD, DKK, NOK, NZD, and SEK); refer to Appendix 3 for detailed data discussion	Calculated values using data taken from Bloomberg LP.
MBSF Flows in US$ million, Hard	US$ million; computed as the quarter-on-quarter first difference of the price-adjusted MSBF holdings in US$ - hard currency (including USD, EUR, GBP, JPY, CHF, AUD, CAD, SGD, DKK, NOK, NZD, and SEK); refer to Appendix 3 for detailed data discussion	Calculated values using data taken from Bloomberg LP.
MBSF Flows percent change, Local	quarter-on-quarter % change; computed as the first difference of the natural log of the price-adjusted MSBF holdings in US$ - local currency; refer to Appendix 3 for detailed data discussion	Calculated values using data taken from Bloomberg LP.
MBSF Flows in US$ million, Local	US$ million, computed as the quarter-on-quarter first difference of the price-adjusted MSBF holdings in US$ - local currency; refer to Appendix 3 for detailed data discussion	Calculated values using data taken from Bloomberg LP.

Variables	Definitions and Notes	Sources
U.S. Monetary Policy	percentage point difference between the Fed Funds futures rate 12-months out and the current U.S. Fed Funds rate	Computed values taken from Bloomberg LP.
CBOE VIX (index)	Chicago Board of Exchange Volatility Index (VIX)	Sourced from Chicago Board of Exchange accessed through Haver Analytics.
Global GDP Growth	% year-on-year change of real global GDP	Sourced from International Monetary Fund's World Economic Outlook Database (October 2023).
Global Commodity Price Growth	% year-on-year change of global commodity price (all commodity)	Computed using data sourced from International Monetary Fund's Primary Commodity Prices Database.
Global Liquidity	Bank international claims to all sectors in % of global nominal GDP	Sourced from Bank for International Settlements' Global Liquidity Indicators
Domestic GDP growth	% year-on-year change of real GDP	Computed from national sources taken from CEIC Database and Haver Analytics.
Capital Account Tightening Measures (CAM Tightening)	Number (count) of capital account tightening measures applicable to MSBF implemented in each period (quarter); refer to Appendix 3 for detailed discussion	Authors' classification and computations using data from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) Online
Two-step CAM Tightening	Exogeneous capital account policy shock, computed as residual of the first-step regression where tightening measure is regressed on range of variables including MSBF flows.	Authors' estimates.
Domestic credit to GDP	domestic credit to private sector by banks in % of nominal GDP; annual data were used for quarterly values	Sourced from World Bank's World Development Indicators
Per capita income	Natural log values of real GDP per capita, purchasing power parity exchange rate in US$ values	Sourced from Haver Analytics
Capital Account Restrictiveness (CAR) index	Index of capital account restrictiveness where initial values for 4Q2009 refer to the ratio of the total number of restrictions implemented in an	Authors' classification and computations using data from the Annual Report on Exchange Arrangements and Exchange Restrictions

Variables	Definitions and Notes	Sources
	economy over the total number of measures applicable to MSBF (ranging from 0-100); subsequent periods are adjusted using data on quarterly changes in restrictions applicable to MSBF as reported in the IMF AREAER; refer to Appendix 3 for detailed discussion	(AREAER) Online of the International Monetary Fund.
Capital Account Loosening Measures (CAM Loosening)	Number (count) of capital account loosening measures applicable to MSBF implemented in each period (quarter); refer to Appendix 3 for detailed discussion	Authors' classification and computations using data from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) Online
CAM Tightening on Outflows	Number (count) of capital account tightening measures applicable to fixed-income outflows implemented in each period (quarter); outflows refer to purchases of residents and sale of nonresidents; refer to Appendix 3 for detailed discussion	Authors' classification and computations using data from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) Online
CAM Tightening on Inflows	Number (count) of capital account tightening measures applicable to fixed-income inflows implemented in each period (quarter); inflows include purchases of nonresidents and sale or residents; refer to Appendix 3 for detailed discussion	Authors' classification and computations using data from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) Online
Foreign exchange reserves to GDP	foreign exchange reserves in % of nominal GDP	Computed using data from IMF's International Financial Statistics, Haver Analytics, and national sources accessed through CEIC Database.

APPENDIX 2: Multi-Sector Bond Funds Database

Sample Selection: This database updates Cortes and Sanfilippo (2020, 2021). We rely on the Financial Stability Board's (2014) proposed methodology to assess whether an individual investment fund is systemically important in the investment management space to inform our selection criteria for the investment fund sample. The sample is selected based on size, active investment style (not adhering to an index), and cross-jurisdictional activities (developed-market domiciled but with emerging market exposure).

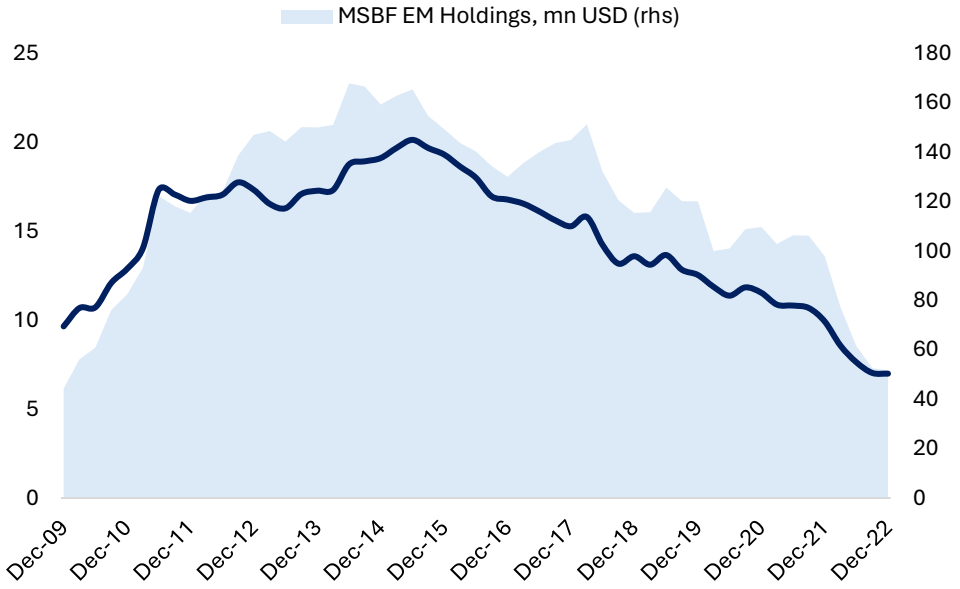
Sample Funds, Period, and Recipient Economies. The sample comprises 40 large multi-sector bond funds (MSBFs) domiciled in the U.S. (24) and Europe (16), which are the largest regulated investment fund markets.[40] Their investment in EMs is calculated using individual fund balance sheet regulatory filings available through Bloomberg's Portfolio and Risk Analytics ("Port") function. Therefore, to the best of our knowledge, the data should provide a good approximation of the country-level portfolio weights for EMs allocated by foreign MSBFs. We cover the post-crisis period 2009Q4–2022Q4. The motivation for the starting point is that MSBFs became large EM asset allocators in the post-crisis period. The endpoint was determined by the latest standard period with available regulatory information on the portfolio allocation for all funds in the sample when writing this paper. The sample of recipients considers 166 Emerging Markets and Developing Economies (EMDEs). This includes all IMF WEO EMDE countries, with the addition of some countries that are regarded as EMs in the EPFR database. It does not include territories or constituencies of developed economies, except for Hong Kong, Macau, and Chinese Taipei. Across the sample horizon, MSBFs have held positions in at least one period in 101 different economies; at the end of 2022, MSBFs were positioned in 77 EMs.

Portfolio Holdings Characteristics. These funds' combined assets under management (AUM) peaked at about $994 billion in 2021Q3. However, there is considerable cross-fund heterogeneity, as eight funds originate during the sample period. For these 'new' funds, their assets typically quickly grow. Of the already-existing funds, 11 funds entered the sample period with more than $10 billion in AUM. During 2009Q4-2022Q4, the AUM of the average fund per quarter ranged between $14 billion to $25 billion. EM assets represent a significant share of the aggregate MSBFs balance sheets, 15 percent on average over the sample period. The EM portfolio, however, is exposed to considerable volatility (and more so than its AE counterpart), with the EM share of the total AUM peaking at around 20 percent in mid-2015 but recently being drawn down to around 7 percent (see Figure A1). Given the absolute size of the aggregate MSBF portfolio and the relatively small size of some recipient capital markets and their foreign investor base, MSBFs could contribute to financial instability with rapid liquidations and refinancing risks. Dissecting the aggregate MSBF EM portfolio reveals some characteristics that explain the name "Multi-Sector Bond Funds" (MSBFs), namely:

[40] In the U.S. so-called "Collective Investment Vehicles" (mutual funds, ETFs, and closed-end funds) fall under the Investment Company Act of 1940, which applies to all investment companies apart from some exemptions (e.g., hedge funds). The key regulator is the Securities and Exchange Commission (SEC), to which mutual funds report a complete list of their holdings on a quarterly basis. In Europe, equivalent investment funds go by the name of "Undertakings for Collective Investment in Transferable Securities" (UCITS) and are regulated by a common EU legal and regulatory framework, the legislation (known as the UCITS Directive). They also have quarterly reporting requirements to their regulatory authority, which depends on the fund's chosen (EU) country of domicile.

- Although there is no formal restriction on asset types that can be included in the portfolio, funds in the sample are heavily focused on a fixed-income, irrespective of the economy type, with holdings in various fixed-income sectors.
- A further breakdown by security type within the fixed-income category shows that sovereign debt accounts for a significantly larger share in the MSBF EM portfolio than the AE portfolio. This is unsurprising. Given the comparatively limited size, liquidity, overall higher credit risk, and lower information availability in EM credit markets, EM sovereign issuers dominate domestic securities markets even in economies with more developed corporate markets.
- MSBFs held positions in all EM regions. Focusing on fixed income, over the sample period, the regions with the largest outstanding MSBF holdings (by far) were Latin America (LAC) with 37.7 percent and Asia (29.3 percent), where the largest and most liquid EM local currency markets are, followed by Eastern Europe and Central Asia (18.6 percent). The Middle East and North Africa (6 percent) and Sub-Saharan Africa (3.6 percent) have received comparatively fewer flows across the sample horizon.
-

Figure A1: MSBFs EM Exposure (Percent, billions of U.S. dollars)



Source: Authors calculations using data from Bloomberg.

Computation of Price-adjusted Flows. EM holdings per fund per country are defined as the market value (MV) of the portfolio allocations at the end of each quarter (in USD), adjusted for price changes. To adjust portfolio allocations for the changes solely due to the changes in portfolio asset values, we assume that the asset returns derived from price changes are approximated by country index returns (GBI for local currency and EMBIG for hard currency). More specifically, the price-adjusted series is determined as follows:

(1) Determine the Q/Q growth rate in the MV of MSBF holding: $\Delta MV_{Q2\text{-}1} = ((MV_{Q2} / MV_{Q1}) - 1)$;
(2) Subtract the Q/Q return in the relevant index (Ri) from the rate of change in MV: $(\Delta MV_{Q2\text{-}1} - Ri_{Q2\text{-}1})$;

(3) Apply the returns-adjusted growth rate to the MV in Q1. Such that the price-adjusted MV in Q2 becomes:
$MV_{Q2} = MV_{Q1} * (1+(\Delta MV_{Q2\text{-}1} - Ri_{Q2\text{-}1}))$
(4) Repeat in every quarter: $MV_{Q3} = MV_{Q2} * (1+(\Delta MV_{Q3\text{-}2} - Ri_{Q3\text{-}2}))$; and so on.

We use the first difference log transformations of the (price-adjusted) dollar value as our primary dependent variable for a more intuitive interpretation. Furthermore, we differentiate between local currency holdings and hard currency holdings.

APPENDIX 3: Capital Account Measures

To construct our new dataset on capital control indices, we map the policies reported in the IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) into separate categories that are then aggregated into broader indices. In doing so, this paper expands and innovates upon the datasets presented in Schindler (2009) and later extended by Klein (2012), Fernández et al. (2014), and Fernández et al. (2016), which create aggregate controls indices that are based on the *presence* of capital controls.[41] However, it departs from those papers by focusing more on policy *changes* to introduce, remove, ease, or tighten capital controls more in line with Ahmed et al. (2020), Ghosh et al. (2017), and Lepers and Mehigan (2019).[42]

The AREAER, among other things, reports on a range of capital account restrictions (Section XI "Capital Transactions") and regulatory requirements (Section XII "Provisions Specific to the Financial Sector") relevant to international transactions. The rules and regulations are presented by asset categories (Equities, Bonds or other debt securities, Money market instruments, Collective investment securities, and by type of financial institution (Banks and credit institutions, Institutional investors). Given the portfolio composition of MSBFs and the importance of the specificity of capital account measures, we focus on the capital restrictions and provisions relevant to fixed-income investment funds. In this regard, our capital account measures are specific to MSBF flows.

- The AREAER distinguishes across types of capital transactions according to the residency of the buyer or seller and whether the transaction is a purchase or sale/issuance. For our asset categories – Money Market, Bonds, Collective Investments, and Derivatives – there are four categories of controls: two categories of controls on inflows, including Purchase Locally by Non-Residents (p_nr) and Sale or Issue Abroad by Residents (s_r); and two categories of controls on outflows, which are Purchase Abroad by Residents (p_r) and Sale or Issue Locally by Non-Residents (s_nr).
- However, certain controls are only classified based on investment type because they are not intended to restrict the purchase or sale of FX per se. Instead, they are intended to regulate the types of investments that residents and non-residents can make. These cases typically restrict the Purchase and Sales of Residents and Nonresidents, which we add as an additional category. If such 'investment type restrictions' are relevant specifically for Purchases (p) or Sales (s), they are categorised using the same prefix as before. Similarly, the same suffix is used for investment-type restrictions relevant specifically to Residents (r) or

[41] Schindler's (2009) dataset covers 91 countries from 1995 to 2005. It considers restrictions on inflows and outflows over six asset categories: equity, bonds, money market, collective investment, financial credit, and FDI. Klein (2012) extends Schindler's dataset to include the period 2006 to 2010 but limits the coverage to 44 countries and restrictions on inflows. Fernandez, Rebucci, and Uribe (2014) further extend the dataset to 2011 for the original 91 countries in Schindler. They also consider restrictions on capital inflows and outflows. Fernández, Klein, Rebucci, Schindler, and Uribe (2015) expand in three dimensions: asset categories (new asset categories are derivatives, commercial credit, financial guarantees, and real estate), countries (nine new countries were added, bringing the total number to 100), and the sample period to cover the period 1995-2013.

[42] Ahmed et al. (2020) use a quarterly dataset on capital controls covering 17 countries from 2002 to 2012 to assess determinants of capital flows. Their capital control measure is a count of actions countries undergo to implement new restrictions, tighten or ease them, or remove them altogether, as reported in the IMF AREAER. Ghosh et al. (2017) examine the policy response to EMDEs capital inflows, including the use of capital controls (on inflows and outflows) and prudential policies, using the same dataset created by Ahmed et al. (2020) but extended to loosening measures and for the period from 2005 to 2013. Lepers and Mehigan (2019) assess the effectiveness of policy instruments. Combining several databases on financial policies, including the IMF AREAER, the paper classifies 22 subcategories of (inward & outward) measures, constructing change-based indicators for 39 countries for the period 2000 to 2015.

Non-Residents (nr). We take a broad view to determine whether an investment type restriction affects non-residents. Although we acknowledge that a government's direct authority (and the laws and regulations it sets) only extends to residents, in many cases, non-residents (allowed to be physically or legally present) and their investment decisions are indirectly affected by the investment type restriction. Thus, we categorise such restrictions under the general classification(p_s_r_nr).

- Finally, provisions specific to investment funds that could, in practice, function as a (dis)incentive to enter a market are categorised into three types: Limits (max.) on securities issued by nonresidents (cif_ls_nr), Limits (min.) on investment portfolio held locally (cif_lp_loc), Currency-matching regulations on assets/liabilities composition (cif_curr).

Table A3 lists the possible capital transaction and financial sector provision categories in their most disaggregated format. The AREAER is published annually. Policy measures reported in the annual report reflect the restrictions in place in a country as of the end of December of the previous year. However, the IMF online data portal also publishes policy changes and specific dates during a given year. We take advantage of this to create our capital account tightening and easing policy measures. Our capital account measures (CAM) simply count the number of policy changes, either tightening or loosening measures, applicable to MSBF flows for each economy in each period. The IMF AREAER recorded changes in capital restrictions and provisions relevant to fixed-income investment funds in 87 countries during our sample period, of which 27 countries were not recorded in our sample of MSBF recipients due to their developed/high-income status or because MSBFs never held any positions there.[43,44] The overlapping 60 economies and our capital account measures (CAM) – aggregate, by residency, by flow type – are listed in **Table A4**.[45] The empirical analysis utilises our 'count' CAM tightening and loosening indices for our baseline estimation, sensitivity tests, and extensions.

In addition to our 'count' indices of changes (tightening or loosening) in capital account measures (CAM), we also create an index to reflect capital account restrictiveness (CAR). The method to construct our capital account restrictiveness indices builds on earlier work of Fernandez et al. (2016), where the authors apply a binary coding (0/1) of the annual data if there is a control *present* in a specific asset category (the example paper includes all ten asset categories in the AREAER) and construct aggregate indices based on the *average* across the asset categories. Similarly, Erten et al. (2021), create several indices by taking simple averages of binary capital measures across asset categories *and* financial-sector-specific regulations. Our method departs from these papers as we construct indices based on a count of *unique policy measures* to determine changes in the openness of the overall capital account instead of an average capital account openness per period. Furthermore, our capital account restrictiveness (CAR) indices are created on a quarterly frequency to mitigate the empirical challenge due to timing in prior studies using annual indexes (based on a binary recording), where the impact of capital controls implemented at a higher frequency may not be adequately captured.

Our measure of an economy's relative capital account restrictiveness (CAR) index is created as follows. At the start of our sample period, the CAR is defined as the ratio of the sum of all the controls

[43] Aruba, Australia, Austria, Belgium, Curaçao and Sint Maarten, Cyprus, Finland, Germany, Greece, Iceland, Italy, Malta, Montenegro, Portugal, Sweden, Switzerland and United Kingdom.

[44] Cabo Verde, Central African Republic, Chad, Equatorial Guinea, Eswatini, Kyrgyz Republic, Lao P.D.R., Moldova, Tonga and Vanuatu.

[45] The recorded policy changes run through 2022, which was the cut-off for the IMF AREAER at the time of writing.

in a country to the sum of all possible controls recorded across our sample countries in our base year, and ranges 0-100.

- CAR = 100
  = [(∑ total capital controls in economy$_i$) / (∑ total restriction classifications identified for MSBFs fixed income)] x 100
  = maximum restrictiveness, i.e., all possible capital controls are present in an economy.
- CAR = 0
  = [((∑ total capital controls in economy$_i$) / (∑ total restriction classifications identified for MSBFs fixed income)] x 100
  = maximum openness, i.e., none of the possible capital controls are present in an economy.
- CAR = 0 - 100 = some possible capital account measures are present in an economy.

The CAR allows ranking our sample countries in terms of their restrictiveness and serves as the benchmark/snapshot for a given country at the start of our sample period. This benchmark is then adjusted using the reported changes from the IMF AREAER. More specifically, for each reported policy change, the data are coded following the same consistent method that has become the literature standard: a policy measure's removal or easing is coded as -1, and the introduction or tightening of a measure as +1. The changes are then aggregated at the quarterly level.

- $CAR_{2010Q1} = CAR_{2009Q4} + \sum$ (CAM tightening (+1) 2010Q1) – ∑ (CAM loosening (-1) 2010Q1)
- $CAR_{2010Q2} = CAR_{2010Q1} + \sum$ (CAM tightening (+1) 2010Q2) – ∑ (CAM loosening (-1) 2010Q2)
- and so on.

Hence, our dataset captures how each country's "intensity" of the capital controls changes relative to the starting date.[46] The use of policy changes, rather than the mere presence of a measure, has become the typical approach to analyse the effects of capital controls, especially as economies tend to progressively open their capital account or (counter-)cyclically implement measures.

Table A3: Capital Account Measures – IMF AREAER Classification

Index	Category
XI.	***Capital Transactions***
XI.A.2.a.2.	**Bonds or other debt securities *(b_...)***
XI.A.2.a.2.i.	Purchase locally by nonresidents (p_nr)
XI.A.2.a.2.ii.	Sale or issue locally by nonresidents (s_nr)
	Purchase and Sale locally by nonresidents (p_s_nr)
XI.A.2.a.2.iii.	Purchase abroad by residents (p_r)
XI.A.2.a.2.iv.	Sale or issue abroad by residents (s_r)
	Purchase and Sale abroad by residents (p_s_r)
	Purchase and/or Sale by residents and non-residents (p_s_r_nr)
XI.A.2.b.	**Money market instruments *(m_...)***
XI.A.2.b.1.	Purchase locally by nonresidents

[46] As a caveat, although our method captures the direction and the frequency of adjustments, it does not capture the intensity between different policies, i.e., some changes may be stronger than others.

XI.A.2.b.2.	Sale or issue locally by nonresidents
	Purchase and Sale locally by nonresidents (p_s_nr)
XI.A.2.b.3.	Purchase abroad by residents
XI.A.2.b.4.	Sale or issue abroad by residents
	Purchase and Sale abroad by residents (p_s_r)
	Purchase and/or Sale by residents and non-residents (p_s_r_nr)
XI.A.2.c.	**Collective investment securities *(cis_...)***
XI.A.2.c.1.	Purchase locally by nonresidents
XI.A.2.c.2.	Sale or issue locally by nonresidents
	Purchase and Sale locally by nonresidents (p_s_nr)
XI.A.2.c.3.	Purchase abroad by residents
XI.A.2.c.4.	Sale or issue abroad by residents
	Purchase and Sale abroad by residents (p_s_r)
	Purchase and/or Sale by residents and non-residents (p_s_r_nr)
XI.A.3.	**Controls on derivatives and other instruments *(der_...)***
XI.A.3.a.	Purchase locally by nonresidents
XI.A.3.b.	Sale or issue locally by nonresidents
	Purchase and Sale locally by nonresidents (p_s_nr)
XI.A.3.c.	Purchase abroad by residents
XI.A.3.d.	Sale or issue abroad by residents
	Purchase and Sale abroad by residents (p_s_r)
	Purchase and/or Sale by residents and non-residents (p_s_r_nr)

XII.	***Provisions Specific to the Financial Sector***
XII.B.3.	**Investment firms and collective investment funds *(cif_...)***
XII.B.3.a.	Limits (max.) on securities issued by nonresidents *(cif_ls_nr)*
XII.B.3.c.	Limits (min.) on investment portfolio held locally *(cif_lp_loc)*
XII.B.3.d.	Currency-matching regulations on assets/liabilities composition *(cif_curr)*

Table A4: Capital Account Measures Policy Changes

Country	Code	Period	Tightening Control	Loosening Control	Tightening Control Non-Residents	Tightening Control Residents	Loosening Control Non-Residents	Loosening Control Residents	Tightening Control Outflows	Tightening Control Inflows	Loosening Control Outflows	Loosening Control Inflows
Albania	ALB	2020q1	0	2	0	0	2	0	0	0	1	1
Angola	AGO	2017q1	0	1	0	0	1	0	0	0	0	1
Angola	AGO	2021q2	0	1	0	0	0	1	0	0	1	0
Argentina	ARG	2013q1	0	1	0	0	1	1	0	0	0	0
Argentina	ARG	2013q2	1	0	1	1	0	0	0	0	0	0
Argentina	ARG	2014q1	0	1	0	0	1	1	0	0	0	0
Argentina	ARG	2014q2	1	0	1	1	0	0	0	0	0	0
Argentina	ARG	2015q4	1	2	1	0	2	2	0	0	0	0
Argentina	ARG	2016q1	0	2	0	0	1	1	0	0	0	2
Argentina	ARG	2016q2	0	6	0	0	3	3	0	0	3	3
Argentina	ARG	2016q3	0	5	0	0	0	5	0	0	5	0
Argentina	ARG	2017q1	0	17	0	0	8	9	0	0	12	5
Argentina	ARG	2017q2	0	2	0	0	2	0	0	0	1	1
Argentina	ARG	2019q1	7	0	4	3	0	0	3	4	0	0
Argentina	ARG	2019q4	9	2	7	2	0	2	7	2	1	1
Argentina	ARG	2020q1	0	1	0	0	0	1	0	0	0	1
Argentina	ARG	2020q2	0	1	0	0	0	1	0	0	0	1
Argentina	ARG	2020q3	0	1	0	0	0	1	0	0	0	1
Argentina	ARG	2020q4	0	1	0	0	0	1	0	0	0	1
Argentina	ARG	2021q2	0	5	0	0	0	5	0	0	1	4
Argentina	ARG	2021q3	2	0	2	0	0	0	0	2	0	0
Argentina	ARG	2021q3	3	2	1	2	2	2	3	0	0	0
Bahamas	BHS	2018q1	0	1	0	0	0	1	0	0	1	0
Bahamas	BHS	2020q2	1	0	0	1	0	0	1	0	0	0
Bahamas	BHS	2021q1	0	1	0	0	0	1	0	0	1	0
Belarus	BLR	2016q1	0	4	0	0	4	2	0	0	2	0
Belarus	BLR	2018q1	0	1	0	0	0	1	0	0	0	1
Belarus	BLR	2018q3	2	2	1	1	1	2	2	0	0	0
Belarus	BLR	2019q1	0	6	0	0	3	3	0	0	5	1
Belarus	BLR	2021q3	0	1	0	0	1	0	0	0	1	0
Belize	BLZ	2020q3	0	1	0	0	1	0	0	0	0	1
Bolivia	BOL	2010q4	1	0	0	1	0	0	1	0	0	0
Bolivia	BOL	2016q2	2	0	0	2	0	0	2	0	0	0
Bolivia	BOL	2017q2	0	2	0	0	0	2	0	0	2	0
Bolivia	BOL	2017q3	1	0	0	1	0	0	1	0	0	0
Bolivia	BOL	2017q4	1	0	0	1	0	0	1	0	0	0
Bolivia	BOL	2019q1	2	0	0	2	0	0	2	0	0	0
Bolivia	BOL	2019q3	1	0	0	1	0	0	1	0	0	0
Bolivia	BOL	2021q1	4	1	0	4	0	1	4	0	1	0
Bolivia	BOL	2022q1	2	0	0	2	0	0	2	0	0	0
Brazil	BRA	2010q4	2	0	2	0	0	0	0	0	0	0
Brazil	BRA	2013q2	0	1	0	0	1	1	0	0	0	0
Brazil	BRA	2013q4	0	1	0	0	1	1	0	0	0	0
Brazil	BRA	2016q3	0	1	0	0	1	0	0	0	1	0
Brazil	BRA	2020q1	0	2	0	0	2	0	0	0	2	0
Brazil	BRA	2022q1	0	1	0	0	0	1	0	0	1	0
Bulgaria	BGR	2018q1	1	0	1	1	0	0	0	0	0	0
Bulgaria	BGR	2022q4	1	0	1	1	0	0	0	0	0	0
Cameroon	CMR	2019q1	5	2	1	4	2	0	3	2	2	0
Chile	CHL	2017q1	0	2	0	0	0	2	0	0	2	0
Chile	CHL	2020q1	0	1	0	0	1	0	0	0	1	0
China	CHN	2015q3	0	2	0	0	2	0	0	0	0	0
China	CHN	2015q4	1	0	0	1	0	0	0	0	0	0
China	CHN	2016q1	0	4	0	0	2	2	0	0	0	4
China	CHN	2016q2	0	1	0	0	1	0	0	0	0	1
China	CHN	2017q1	0	1	0	0	1	0	0	0	0	1
China	CHN	2017q4	0	2	0	0	1	1	0	0	0	2
China	CHN	2018q1	0	1	0	0	1	0	0	0	0	1
China	CHN	2018q2	1	2	1	0	1	1	0	1	1	1
China	CHN	2018q3	0	1	0	0	1	0	0	0	1	0
China	CHN	2018q4	0	5	0	0	5	0	0	0	0	5
China	CHN	2019q1	1	0	1	0	0	0	1	0	0	0
China	CHN	2019q4	0	3	0	0	3	0	0	0	0	3
China	CHN	2020q1	0	1	0	0	1	0	0	0	0	1
China	CHN	2020q2	0	1	0	0	1	0	0	0	0	1
China	CHN	2020q3	0	1	0	0	0	1	0	0	1	0
China	CHN	2020q4	1	4	0	1	3	1	0	1	0	4
China	CHN	2021q2	0	2	0	0	2	0	0	0	0	2
China	CHN	2021q3	0	2	0	0	0	2	0	0	1	1
China	CHN	2021q3	0	1	0	0	1	0	0	0	0	1
China	CHN	2022q2	0	2	0	0	2	0	0	0	0	2
Colombia	COL	2014q1	0	1	0	0	1	1	0	0	0	0
Colombia	COL	2014q3	1	0	1	1	0	0	0	0	0	0
Colombia	COL	2015q3	0	2	0	0	2	2	0	0	0	0
Colombia	COL	2018q1	1	0	1	0	0	0	0	1	0	0
Colombia	COL	2018q2	0	5	0	0	2	5	0	0	1	1
Colombia	COL	2019q1	0	1	0	0	1	1	0	0	0	0
Congo	COG	2019q1	5	2	1	4	2	0	3	2	2	0
Costa Rica	CRI	2018q2	0	2	0	0	2	0	0	0	0	2
Croatia	HRV	2014q1	0	1	0	0	1	1	0	0	0	0
Croatia	HRV	2020q1	0	2	0	0	2	0	0	0	2	0
Croatia	HRV	2021q3	2	0	2	1	0	0	1	0	0	0
Dominican R	DOM	2019q3	0	1	0	0	0	1	0	0	1	0
Dominican R	DOM	2020q1	2	0	2	0	0	0	2	0	0	0
Dominican R	DOM	2022q3	1	0	0	1	0	0	0	1	0	0
Ecuador	ECU	2018q4	0	2	0	0	1	1	0	0	1	1
Ecuador	ECU	2022q1	0	4	0	0	4	0	0	0	0	4
El Salvador	SLV	2012q4	0	1	0	0	1	1	0	0	0	0
Fiji	FJI	2020q1	7	0	3	4	0	0	5	2	0	0
Gabon	GAB	2019q1	5	2	1	4	2	0	3	2	2	0

Table A4: Capital Account Policy Changes (continued)

Country	Code	Period	Tightening Control	Loosening Control	Tightening Control Non-Residents	Tightening Control Residents	Loosening Control Non-Residents	Loosening Control Residents	Tightening Control Outflows	Tightening Control Inflows	Loosening Control Outflows	Loosening Control Inflows
Hong Kong, C	HKG	2017q1	0	1	0	0	1	1	0	0	0	0
Hungary	HUN	2016q1	0	1	0	0	0	1	0	0	1	0
India	IND	2010q4	0	1	0	0	1	1	0	0	0	0
India	IND	2011q1	0	1	0	0	1	1	0	0	0	0
India	IND	2011q4	1	1	1	1	1	1	0	0	0	0
India	IND	2014q1	0	1	0	0	1	1	0	0	0	0
India	IND	2014q2	0	2	0	0	2	1	0	0	0	0
India	IND	2014q3	0	3	0	0	2	2	0	0	0	0
India	IND	2015q1	0	2	0	0	2	2	0	0	0	0
India	IND	2015q3	0	1	0	0	0	1	0	0	0	0
India	IND	2015q4	0	1	0	0	1	1	0	0	0	0
India	IND	2017q1	0	2	0	0	2	0	0	0	0	2
India	IND	2017q4	0	2	0	0	2	0	0	0	0	2
India	IND	2018q1	0	5	0	0	4	1	0	0	1	4
India	IND	2018q2	1	7	1	0	5	2	0	1	0	7
India	IND	2018q3	0	1	0	0	0	1	0	0	0	1
India	IND	2019q1	1	4	1	1	4	0	0	0	0	4
India	IND	2019q2	0	2	0	0	2	0	0	0	0	2
India	IND	2019q3	1	2	1	1	1	2	0	0	0	1
India	IND	2019q4	1	2	1	1	2	0	0	0	0	2
India	IND	2020q1	4	9	4	4	9	2	0	0	0	7
India	IND	2020q2	0	1	0	0	1	0	0	0	0	1
India	IND	2021q1	1	2	1	1	1	1	0	0	1	1
India	IND	2022q1	0	1	0	0	1	0	0	0	0	1
India	IND	2022q2	0	2	0	0	1	1	0	0	0	2
India	IND	2022q3	0	1	0	0	1	0	0	0	0	1
Indonesia	IDN	2014q4	0	2	0	0	2	2	0	0	0	0
Indonesia	IDN	2018q2	0	2	0	0	2	1	0	0	0	1
Indonesia	IDN	2018q3	0	1	0	0	1	1	0	0	0	0
Indonesia	IDN	2020q1	0	1	0	0	1	0	0	0	0	1
Indonesia	IDN	2022q2	1	1	1	0	1	0	0	1	0	1
Israel	ISR	2011q1	2	0	2	2	0	0	0	0	0	0
Israel	ISR	2014q4	0	1	0	0	1	1	0	0	0	0
Israel	ISR	2017q1	1	1	1	0	1	0	0	1	0	1
Jamaica	JAM	2014q1	0	1	0	0	0	1	0	0	1	0
Jamaica	JAM	2015q1	0	2	0	0	0	2	0	0	2	0
Jamaica	JAM	2016q1	0	2	0	0	0	2	0	0	2	0
Jamaica	JAM	2020q1	0	1	0	0	0	1	0	0	1	0
Jamaica	JAM	2020q4	0	2	0	0	0	2	0	0	2	0
Jamaica	JAM	2021q1	0	1	0	0	0	1	0	0	1	0
Jamaica	JAM	2021q2	0	4	0	0	1	3	0	0	4	0
Jamaica	JAM	2022q1	1	0	1	0	0	0	0	1	0	0
Jamaica	JAM	2022q2	1	1	1	0	1	0	0	1	0	1
Kazakhstan	KAZ	2018q3	0	2	0	0	2	0	0	0	2	0
Kazakhstan	KAZ	2019q1	1	4	1	0	4	0	0	1	3	1
Korea	KOR	2010q1	2	0	2	2	0	0	0	0	0	0
Korea	KOR	2013q1	1	0	1	1	0	0	0	0	0	0
Korea	KOR	2016q1	0	1	0	0	0	1	0	0	1	0
Korea	KOR	2020q1	0	1	0	0	0	1	0	0	1	0
Latvia	LVA	2017q1	0	1	0	0	1	1	0	0	0	0
Latvia	LVA	2021q2	0	1	0	0	1	1	0	0	0	0
Lebanon	LBN	2011q4	1	0	1	1	0	0	0	0	0	0
Lebanon	LBN	2012q2	1	0	1	1	0	0	0	0	0	0
Lebanon	LBN	2014q1	1	0	1	1	0	0	0	0	0	0
Lebanon	LBN	2016q1	1	0	0	1	0	0	1	0	0	0
Lebanon	LBN	2019q1	2	0	1	2	0	0	1	0	0	0
Lebanon	LBN	2019q2	0	1	0	0	1	0	0	0	0	1
Lebanon	LBN	2021q1	1	0	1	0	0	0	1	0	0	0
Lithuania	LTU	2012q1	1	0	1	1	0	0	0	0	0	0
Lithuania	LTU	2016q1	1	0	0	1	0	0	1	0	0	0
Malaysia	MYS	2010q1	0	1	0	0	1	1	0	0	0	0
Malaysia	MYS	2012q1	0	2	0	0	2	1	0	0	0	0
Malaysia	MYS	2013q2	0	2	0	0	0	2	0	0	0	2
Malaysia	MYS	2017q2	0	1	0	0	1	1	0	0	0	0
Malaysia	MYS	2018q3	0	1	0	0	0	1	0	0	0	1
Malaysia	MYS	2019q3	0	1	0	0	1	0	0	0	0	1
Malaysia	MYS	2020q2	0	5	0	0	0	5	0	0	5	0
Malaysia	MYS	2021q2	0	3	0	0	1	2	0	0	1	2
Mexico	MEX	2012q1	1	0	1	1	0	0	0	0	0	0
Mexico	MEX	2020q3	0	1	0	0	1	1	0	0	0	0
Morocco	MAR	2014q1	0	1	0	0	1	1	0	0	0	0
Morocco	MAR	2018q1	0	1	0	0	0	1	0	0	1	0
Morocco	MAR	2019q1	0	5	0	0	1	4	0	0	5	0
Mozambique	MOZ	2017q4	0	1	0	0	0	1	0	0	1	0
Namibia	NAM	2018q3	0	1	0	0	0	1	0	0	1	0
North Maced	MKD	2018q2	0	4	0	0	0	4	0	0	4	0
Oman	OMN	2021q3	0	1	0	0	0	1	0	0	1	0
Pakistan	PAK	2018q1	0	1	0	0	0	1	0	0	1	0
Pakistan	PAK	2018q3	1	0	0	1	0	0	1	0	0	0
Pakistan	PAK	2018q4	0	1	0	0	0	1	0	0	1	0
Pakistan	PAK	2019q1	0	1	0	0	1	0	0	0	0	1
Pakistan	PAK	2020q1	0	1	0	0	1	1	0	0	0	0
Pakistan	PAK	2020q3	0	1	0	0	1	0	0	0	0	1
Pakistan	PAK	2021q3	0	3	0	0	2	1	0	0	1	2

Table A4: Capital Account Policy Changes (continued)

Country	Code	Period	Tightening Control	Loosening Control	Tightening Control Non-Residents	Tightening Control Residents	Loosening Control Non-Residents	Loosening Control Residents	Tightening Control Outflows	Tightening Control Inflows	Loosening Control Outflows	Loosening Control Inflows
Paraguay	PRY	2013q1	0	1	0	0	1	0	0	0	0	0
Paraguay	PRY	2014q2	1	0	1	1	0	0	0	0	0	0
Paraguay	PRY	2016q3	1	0	1	0	0	0	0	1	0	0
Paraguay	PRY	2018q2	1	0	1	0	0	0	0	1	0	0
Paraguay	PRY	2018q4	0	1	0	0	1	0	0	0	0	1
Peru	PER	2011q4	1	0	1	1	0	0	0	0	0	0
Philippines	PHL	2013q2	0	1	0	0	1	1	0	0	0	0
Philippines	PHL	2014q4	0	1	0	0	1	1	0	0	0	0
Philippines	PHL	2016q3	0	2	0	0	2	0	0	0	2	0
Philippines	PHL	2018q3	0	1	0	0	1	0	0	0	0	1
Philippines	PHL	2019q3	0	8	0	0	5	3	0	0	3	5
Philippines	PHL	2021q2	0	5	0	0	5	5	0	0	0	0
Philippines	PHL	2021q3	0	2	0	0	1	1	0	0	0	1
Poland	POL	2016q1	1	1	0	1	0	1	1	0	1	0
Qatar	QAT	2020q2	1	0	0	1	0	0	0	1	0	0
Russia	RUS	2022q1	3	0	3	0	0	0	0	3	0	0
Russia	RUS	2022q2	0	4	0	0	1	3	0	0	0	4
Saudi Arabia	SAU	2016q2	2	1	2	0	1	0	1	1	0	1
Saudi Arabia	SAU	2016q4	1	0	1	0	0	0	0	1	0	0
Saudi Arabia	SAU	2017q2	0	1	0	0	1	0	0	0	0	1
Saudi Arabia	SAU	2018q1	0	2	0	0	2	0	0	0	0	2
Saudi Arabia	SAU	2018q3	0	1	0	0	1	0	0	0	0	1
Saudi Arabia	SAU	2018q4	0	1	0	0	1	0	0	0	0	1
Saudi Arabia	SAU	2019q2	0	2	0	0	2	0	0	0	1	1
Saudi Arabia	SAU	2020q3	0	2	0	0	2	1	0	0	0	1
Saudi Arabia	SAU	2020q4	0	1	0	0	1	0	0	0	0	1
Saudi Arabia	SAU	2022q2	0	1	0	0	1	1	0	0	0	0
Serbia	SRB	2018q2	0	2	0	0	1	1	0	0	1	1
Slovenia	SVN	2018q4	0	1	0	0	0	1	0	0	0	1
South Africa	ZAF	2011q4	0	1	0	0	0	1	0	0	0	0
South Africa	ZAF	2012q2	0	1	0	0	1	1	0	0	0	0
South Africa	ZAF	2015q1	0	1	0	0	1	1	0	0	0	0
South Africa	ZAF	2017q1	1	1	1	0	1	1	1	0	0	0
South Africa	ZAF	2018q1	0	1	0	0	1	0	0	0	1	0
South Africa	ZAF	2022q1	0	2	0	0	1	1	0	0	2	0
Sri Lanka	LKA	2012q1	1	0	1	1	0	0	0	0	0	0
Sri Lanka	LKA	2013q1	0	1	0	0	1	1	0	0	0	0
Sri Lanka	LKA	2016q1	0	2	0	0	0	2	0	0	2	0
Sri Lanka	LKA	2017q4	0	3	0	0	1	2	0	0	2	1
Sri Lanka	LKA	2019q1	2	0	2	0	0	0	0	2	0	0
Sri Lanka	LKA	2020q1	10	4	4	6	2	2	10	0	4	0
Sri Lanka	LKA	2020q2	1	1	0	1	0	1	1	0	1	0
Sri Lanka	LKA	2020q4	3	1	0	3	0	1	3	0	1	0
Sri Lanka	LKA	2021q1	13	8	4	9	2	6	13	0	6	2
Sri Lanka	LKA	2021q2	1	1	0	1	0	1	1	0	1	0
Sri Lanka	LKA	2021q3	1	0	0	1	0	0	1	0	0	0
Sri Lanka	LKA	2022q1	3	0	0	3	0	0	3	0	0	0
Tajikistan	TJK	2011q4	0	1	0	0	0	1	0	0	0	0
Tajikistan	TJK	2013q2	1	0	0	1	0	0	0	0	0	0
Tajikistan	TJK	2017q3	2	0	0	2	0	0	2	0	0	0
Tanzania	TZA	2014q1	0	1	0	0	0	1	0	0	0	0
Tanzania	TZA	2022q2	0	10	0	0	6	4	0	0	6	4
Thailand	THA	2010q1	0	1	0	0	1	1	0	0	0	0
Thailand	THA	2017q1	1	2	0	1	0	2	1	0	2	0
Thailand	THA	2018q1	0	1	0	0	0	1	0	0	1	0
Thailand	THA	2019q3	0	2	0	0	0	2	0	0	2	0
Thailand	THA	2019q4	1	0	1	0	0	0	0	1	0	0
Thailand	THA	2020q2	0	3	0	0	0	3	0	0	3	0
Thailand	THA	2021q2	1	1	1	0	1	0	0	1	0	1
Thailand	THA	2022q2	1	0	1	0	0	0	0	1	0	0
Trinidad and	TTO	2021q1	0	1	0	0	0	1	0	0	1	0
Turkey	TUR	2014q1	0	2	0	0	2	2	0	0	0	0
Turkey	TUR	2017q1	1	0	0	1	0	0	1	0	0	0
Turkey	TUR	2020q2	0	1	0	0	1	1	0	0	0	0
Turkey	TUR	2021q2	0	1	0	0	1	1	0	0	0	0
Ukraine	UKR	2015q2	1	1	1	1	1	1	0	0	0	0
Ukraine	UKR	2016q2	0	1	0	0	1	0	0	0	0	1
Ukraine	UKR	2016q4	0	1	0	0	1	1	0	0	0	0
Ukraine	UKR	2017q2	0	5	0	0	3	3	0	0	2	2
Ukraine	UKR	2017q4	0	3	0	0	3	0	0	0	0	3
Ukraine	UKR	2018q1	0	1	0	0	1	0	0	0	0	1
Ukraine	UKR	2018q3	0	1	0	0	0	1	0	0	0	0
Ukraine	UKR	2019q3	0	6	0	0	4	3	0	0	2	3
Ukraine	UKR	2019q4	0	2	0	0	2	0	0	0	0	2
Ukraine	UKR	2021q1	0	1	0	0	1	1	0	0	0	0
Ukraine	UKR	2021q2	0	2	0	0	0	2	0	0	2	0
Ukraine	UKR	2022q1	5	0	3	2	0	0	3	2	0	0
Uzbekistan	UZB	2015q2	1	0	1	1	0	0	0	0	0	0
Uzbekistan	UZB	2018q1	0	1	0	0	0	1	0	0	0	1
Vietnam	VNM	2016q1	1	0	1	0	0	0	0	1	0	0
Vietnam	VNM	2021q1	1	1	0	1	1	0	0	1	0	1

Source: Authors' calculations

APPENDIX 4: Sensitivity Tests

Table A5: Panel Regressions – MSBF flows in US$ million

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	1.460	-1.240*	14.064	3.167	-1.234	25.182
	(2.970)	(0.693)	(14.559)	(3.271)	(0.781)	(15.365)
CBOE VIX index = L,	-0.550**	-0.328***	-0.999	-0.823***	-0.357***	-2.156*
	(0.228)	(0.076)	(1.037)	(0.255)	(0.091)	(1.181)
Global GDP growth = L,	-1.180***	-0.314**	-0.803	-1.641***	-0.301	-3.271
	(0.449)	(0.154)	(2.764)	(0.521)	(0.183)	(2.910)
Global commodity price growth = L,	0.100	0.052	0.064	0.130	0.050	0.287
	(0.086)	(0.036)	(0.336)	(0.101)	(0.041)	(0.388)
Global liquidity = L,	1.614*	1.133***	3.805	2.022*	1.181***	6.399
	(0.879)	(0.281)	(3.971)	(1.092)	(0.332)	(4.215)
Domestic GDP growth = L,	-0.169	-0.056	-1.360	-0.170	-0.054	-1.248
	(0.126)	(0.042)	(1.158)	(0.143)	(0.045)	(1.193)
CAM Tightening = L,	0.572	-0.153	2.336			
	(1.759)	(0.811)	(5.035)			
Two-step CAM Tightening = L,				0.419	-0.028	1.827
				(1.929)	(0.865)	(5.264)
Observations	38,283	35,062	7,538	33,390	30,342	6,361
R-squared	0.006	0.017	0.019	0.007	0.022	0.027
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are MSBF flows for all (aggregate), hard and local currency in US$ million. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A6: Panel Regressions – Removing Some Global Factors

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-4.166***	-4.942***	0.596	-3.575***	-4.960***	2.243
	(1.142)	(1.047)	(4.884)	(1.230)	(1.116)	(5.470)
CBOE VIX index = L,	-0.508***	-0.575***	-0.229	-0.566***	-0.593***	-0.403
	(0.104)	(0.095)	(0.319)	(0.105)	(0.099)	(0.313)
Global GDP growth = L,	-0.873***	-0.976***	0.439	-1.029***	-1.022***	-0.229
	(0.209)	(0.194)	(0.862)	(0.211)	(0.204)	(0.879)
Domestic GDP growth = L,	-0.097*	-0.052	-0.821***	-0.088	-0.057	-0.808**
	(0.059)	(0.058)	(0.309)	(0.059)	(0.057)	(0.321)
CAM Tightening = L,	-1.821**	-1.067*	-2.458			
	(0.759)	(0.638)	(2.081)			
Two-step CAM Tightening = L,				-1.726**	-0.988	-1.485
				(0.789)	(0.676)	(2.148)
Observations	38,208	34,984	7,510	33,277	30,219	6,315
R-squared	0.045	0.051	0.057	0.049	0.055	0.089
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A7: Panel Regressions – With Lagged Dependent Variable

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
MSBF Dependent Variable = L,	-0.106***	-0.094***	-0.147***	-0.108***	-0.104***	-0.167***
	(0.013)	(0.012)	(0.030)	(0.013)	(0.013)	(0.033)
U.S. monetary policy = L,	-3.265***	-4.370***	2.788	-2.538**	-4.130***	5.883
	(1.217)	(1.098)	(5.390)	(1.269)	(1.141)	(5.639)
CBOE VIX index = L,	-0.790***	-0.814***	-0.571	-0.901***	-0.882***	-1.083***
	(0.110)	(0.100)	(0.353)	(0.114)	(0.105)	(0.343)
Global GDP growth = L,	-1.294***	-1.338***	0.112	-1.552***	-1.432***	-1.249
	(0.259)	(0.238)	(0.942)	(0.265)	(0.247)	(0.899)
Global commodity price growth = L,	0.162***	0.141***	0.198*	0.189***	0.162***	0.350***
	(0.037)	(0.036)	(0.118)	(0.038)	(0.038)	(0.114)
Global liquidity = L,	2.132***	1.996***	3.813***	2.296***	2.153***	4.377***
	(0.342)	(0.312)	(1.270)	(0.347)	(0.322)	(1.233)
Domestic GDP growth = L,	-0.075	-0.031	-0.875***	-0.080	-0.055	-0.769**
	(0.062)	(0.060)	(0.319)	(0.063)	(0.060)	(0.317)
CAM Tightening = L,	-2.213***	-1.432**	-2.808			
	(0.768)	(0.659)	(2.068)			
Two-step CAM Tightening = L,				-2.047***	-1.222*	-2.383
				(0.785)	(0.676)	(2.069)
Observations	35,628	32,493	6,864	33,277	30,219	6,315
R-squared	0.062	0.062	0.096	0.061	0.066	
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A8: Panel Regressions – Include Domestic Credit and Per Capita Income

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.517***	-4.345***	2.602	-2.432*	-3.828***	4.407
	(1.154)	(1.032)	(5.018)	(1.248)	(1.097)	(5.784)
CBOE VIX index = L,	-0.656***	-0.705***	-0.530	-0.801***	-0.809***	-0.878**
	(0.110)	(0.098)	(0.349)	(0.114)	(0.106)	(0.350)
Global GDP growth = L,	-1.313***	-1.338***	0.293	-1.641***	-1.515***	-1.262
	(0.263)	(0.243)	(0.935)	(0.272)	(0.256)	(0.941)
Global commodity price growth = L,	0.159***	0.136***	0.158	0.188***	0.160***	0.346***
	(0.036)	(0.036)	(0.118)	(0.038)	(0.038)	(0.114)
Global liquidity = L,	1.525***	1.398***	2.920**	1.740***	1.696***	2.946**
	(0.332)	(0.313)	(1.217)	(0.344)	(0.324)	(1.266)
Domestic GDP growth = L,	-0.011	0.023	-0.655**	-0.002	0.020	-0.615*
	(0.065)	(0.064)	(0.323)	(0.065)	(0.063)	(0.329)
Domestic credit to GDP = L,	0.096***	0.087***	0.239	0.087***	0.079***	0.169
	(0.023)	(0.022)	(0.171)	(0.025)	(0.025)	(0.155)
per capita real GDP, PPP USD = L,	-80.024	-46.789	-755.342***	-118.319**	-86.613	-948.758***
	(48.733)	(49.448)	(281.884)	(52.460)	(53.429)	(272.087)
CAM Tightening = L,	-1.729**	-0.993	-2.254			
	(0.761)	(0.641)	(2.068)			
Two-step CAM Tightening = L,				-1.681**	-0.973	-1.356
				(0.792)	(0.683)	(2.134)
Observations	38,086	34,862	7,510	33,175	30,117	6,315
R-squared	0.046	0.052	0.060	0.051	0.057	0.093
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A9: Panel Regressions – with Capital Account Restrictiveness Index

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.404***	-4.227***	2.798	-2.315*	-3.704***	4.517
	(1.167)	(1.050)	(5.025)	(1.266)	(1.123)	(5.796)
CBOE VIX index = L,	-0.645***	-0.698***	-0.444	-0.783***	-0.794***	-0.776**
	(0.109)	(0.097)	(0.345)	(0.114)	(0.105)	(0.344)
Global GDP growth = L,	-1.259***	-1.290***	0.436	-1.589***	-1.469***	-1.203
	(0.263)	(0.243)	(0.934)	(0.273)	(0.257)	(0.939)
Global commodity price growth = L,	0.160***	0.135***	0.190	0.191***	0.160***	0.379***
	(0.036)	(0.036)	(0.118)	(0.038)	(0.038)	(0.115)
Global liquidity = L,	1.571***	1.432***	3.208***	1.795***	1.737***	3.239**
	(0.331)	(0.312)	(1.204)	(0.343)	(0.323)	(1.255)
Domestic GDP growth = L,	-0.094	-0.047	-0.944***	-0.083	-0.050	-0.866***
	(0.059)	(0.058)	(0.315)	(0.060)	(0.057)	(0.326)
CAR Index = L,	0.032	-0.037	0.969***	0.023	-0.026	0.513**
	(0.084)	(0.083)	(0.252)	(0.096)	(0.097)	(0.205)
CAM Tightening = L,	-1.758**	-1.018	-2.465			
	(0.762)	(0.643)	(2.043)			
Two-step CAM Tightening = L,				-1.690**	-0.957	-1.448
				(0.803)	(0.690)	(2.174)
Observations	38,208	34,984	7,510	33,277	30,219	6,315
R-squared	0.046	0.051	0.060	0.051	0.056	0.092
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening) and capital account restrictiveness index (CAR). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level.
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A10: Panel Regressions – Including Natural Log of Foreign Reserves to GDP

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.964***	-4.814***	2.441	-3.005**	-4.427***	4.256
	(1.167)	(1.039)	(5.037)	(1.265)	(1.107)	(5.816)
CBOE VIX index = L,	-0.637***	-0.690***	-0.454	-0.776***	-0.787***	-0.788**
	(0.110)	(0.098)	(0.345)	(0.114)	(0.106)	(0.346)
Global GDP growth = L,	-1.249***	-1.285***	0.348	-1.580***	-1.460***	-1.248
	(0.269)	(0.249)	(0.935)	(0.279)	(0.263)	(0.937)
Global commodity price growth = L,	0.170***	0.147***	0.176	0.197***	0.167***	0.369***
	(0.037)	(0.036)	(0.117)	(0.038)	(0.038)	(0.114)
Global liquidity = L,	1.532***	1.377***	3.282***	1.766***	1.689***	3.309***
	(0.334)	(0.315)	(1.208)	(0.347)	(0.327)	(1.248)
Domestic GDP growth = L,	-0.136**	-0.089	-0.869***	-0.127**	-0.095	-0.833**
	(0.062)	(0.060)	(0.312)	(0.062)	(0.059)	(0.322)
Foreign reserves to GDP = L,	-1.134	-0.509	-5.361	-2.007	-0.973	-4.060
	(1.193)	(1.201)	(5.887)	(1.308)	(1.323)	(5.871)
CAM Tightening = L,	-1.740**	-1.002	-2.116			
	(0.762)	(0.643)	(2.099)			
Two-step CAM Tightening = L,				-1.626**	-0.926	-1.178
				(0.793)	(0.685)	(2.131)
Observations	37,861	34,637	7,510	32,973	29,915	6,315
R-squared	0.046	0.052	0.059	0.051	0.057	0.092
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A11: Panel Regressions – Using Contemporaneous Regressors

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy	-9.710***	-9.708***	-11.449*	-9.224***	-9.864***	-4.334
	(1.779)	(1.677)	(6.266)	(1.812)	(1.702)	(6.506)
CBOE VIX index	-0.924***	-0.848***	-1.294***	-0.946***	-0.886***	-1.392***
	(0.166)	(0.155)	(0.419)	(0.160)	(0.149)	(0.422)
Global GDP growth	0.143	0.110	0.108	0.217	0.166	0.254
	(0.288)	(0.291)	(1.167)	(0.288)	(0.293)	(1.230)
Global commodity price growth	0.045	0.013	0.097	0.021	-0.007	-0.028
	(0.048)	(0.041)	(0.157)	(0.048)	(0.042)	(0.159)
Global liquidity	2.391***	1.962***	5.111***	2.366***	1.972***	4.923***
	(0.270)	(0.250)	(1.045)	(0.271)	(0.249)	(1.052)
Domestic GDP growth	0.002	-0.026	0.168	0.016	-0.024	0.139
	(0.062)	(0.061)	(0.265)	(0.064)	(0.062)	(0.272)
CAM Tightening = L,	-1.478**	-0.757	-2.049			
	(0.742)	(0.624)	(1.990)			
Two-step CAM Tightening = L,				-1.922**	-1.169*	-2.727
				(0.761)	(0.650)	(2.120)
Observations	38,208	34,984	7,510	35,628	32,493	6,864
R-squared	0.050	0.054	0.067	0.055	0.056	0.084
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A12: Panel Regressions – With Separate Country and Fund Fixed Effects

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.146***	-3.910***	2.422	-2.169*	-3.466***	3.695
	(1.136)	(1.021)	(4.882)	(1.230)	(1.092)	(5.608)
CBOE VIX index = L,	-0.646***	-0.687***	-0.402	-0.773***	-0.782***	-0.758**
	(0.107)	(0.095)	(0.331)	(0.111)	(0.102)	(0.336)
Global GDP growth = L,	-1.245***	-1.254***	0.366	-1.601***	-1.490***	-1.298
	(0.256)	(0.237)	(0.911)	(0.267)	(0.251)	(0.935)
Global commodity price growth = L,	0.163***	0.136***	0.174	0.201***	0.168***	0.376***
	(0.036)	(0.035)	(0.113)	(0.037)	(0.037)	(0.112)
Global liquidity = L,	1.620***	1.449***	3.180***	1.819***	1.729***	3.337***
	(0.322)	(0.304)	(1.157)	(0.333)	(0.313)	(1.209)
Domestic GDP growth = L,	-0.098*	-0.051	-0.815***	-0.078	-0.039	-0.776**
	(0.056)	(0.054)	(0.299)	(0.056)	(0.054)	(0.316)
CAM Tightening = L,	-1.709**	-0.930	-2.227			
	(0.736)	(0.614)	(2.011)			
Two-step CAM Tightening = L,				-1.723**	-1.009	-1.364
				(0.763)	(0.645)	(2.054)
Observations	38,208	34,984	7,510	33,277	30,219	6,315
R-squared	0.023	0.026	0.025	0.025	0.028	0.032
Country, fund, and time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Country, fund, and time fixed effects are included as country, fund and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A13: Panel Regressions – Narrower Sample of Emerging Economies

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-2.984**	-3.827***	3.709	-1.767	-3.282***	5.528
	(1.279)	(1.153)	(5.432)	(1.393)	(1.232)	(6.309)
CBOE VIX index = L,	-0.651***	-0.698***	-0.597*	-0.815***	-0.812***	-0.988***
	(0.117)	(0.107)	(0.358)	(0.124)	(0.115)	(0.368)
Global GDP growth = L,	-1.362***	-1.400***	0.057	-1.754***	-1.599***	-1.783*
	(0.287)	(0.266)	(0.992)	(0.295)	(0.278)	(0.964)
Global commodity price growth = L,	0.156***	0.127***	0.162	0.186***	0.147***	0.384***
	(0.039)	(0.038)	(0.124)	(0.041)	(0.040)	(0.118)
Global liquidity = L,	1.724***	1.671***	3.473***	1.890***	1.900***	3.790***
	(0.348)	(0.332)	(1.217)	(0.371)	(0.339)	(1.328)
Domestic GDP growth = L,	0.000	0.076	-0.803**	0.012	0.062	-0.758**
	(0.080)	(0.076)	(0.314)	(0.081)	(0.076)	(0.321)
CAM Tightening = L,	-1.926**	-0.963	-2.880			
	(0.766)	(0.654)	(2.070)			
Two-step CAM Tightening = L,				-1.838**	-0.938	-1.791
				(0.789)	(0.691)	(2.091)
Observations	33,361	30,464	6,833	29,124	26,367	5,740
R-squared	0.044	0.051	0.060	0.049	0.056	0.097
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. Refer to Table A1 for list of economies included in the sample. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level.
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A14.a: Panel Regressions – Period 1 (2009Q4 – 2015Q3)

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-15.754**	-12.827**	-18.515	-9.699	-8.944	14.551
	(6.447)	(5.945)	(17.120)	(8.708)	(7.964)	(23.726)
CBOE VIX index = L,	0.001	0.021	0.293	0.135	0.178	-0.193
	(0.175)	(0.163)	(0.509)	(0.177)	(0.183)	(0.393)
Global GDP growth = L,	-0.756	-0.353	-0.187	1.744	-0.321	7.824
	(1.266)	(1.219)	(3.180)	(2.183)	(2.170)	(6.237)
Global commodity price growth = L,	-0.128	-0.048	-0.522**	-0.071	-0.069	0.349
	(0.106)	(0.104)	(0.262)	(0.131)	(0.136)	(0.291)
Global liquidity = L,	2.426***	2.865***	0.217	2.670***	3.158***	-0.979
	(0.707)	(0.736)	(1.953)	(0.834)	(0.919)	(2.291)
Domestic GDP growth = L,	0.222	0.156	0.434	0.599**	0.509*	0.437
	(0.235)	(0.240)	(0.780)	(0.263)	(0.271)	(0.709)
CAM Tightening = L,	6.789	4.300	11.710			
	(4.720)	(4.107)	(10.147)			
Two-step CAM Tightening = L,				4.959	1.936	13.874
				(5.817)	(4.301)	(13.310)
Observations	13,240	12,225	2,588	10,766	9,841	2,081
R-squared	0.094	0.099	0.102	0.102	0.105	0.165
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A14.b: Panel Regressions – Period 2 (2015Q4 – 2022Q4)

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-0.409	-1.200	8.847	0.284	-0.819	7.006
	(1.415)	(1.258)	(6.081)	(1.480)	(1.306)	(6.797)
CBOE VIX index = L,	-1.206***	-1.304***	-1.474**	-1.371***	-1.450***	-1.335**
	(0.184)	(0.169)	(0.595)	(0.187)	(0.172)	(0.617)
Global GDP growth = L,	-1.923***	-1.957***	-0.650	-2.126***	-2.027***	-1.413
	(0.319)	(0.290)	(1.125)	(0.320)	(0.295)	(1.102)
Global commodity price growth = L,	0.213***	0.162***	0.367***	0.199***	0.156***	0.391***
	(0.043)	(0.040)	(0.139)	(0.044)	(0.041)	(0.137)
Global liquidity = L,	2.313***	2.041***	6.130***	2.342***	2.293***	4.885***
	(0.421)	(0.389)	(1.663)	(0.438)	(0.386)	(1.785)
Domestic GDP growth = L,	-0.062	0.004	-0.948***	-0.075	-0.019	-0.952***
	(0.066)	(0.064)	(0.356)	(0.066)	(0.064)	(0.364)
CAM Tightening = L,	-2.174***	-1.299**	-2.562			
	(0.791)	(0.655)	(2.174)			
Two-step CAM Tightening = L,				-1.906**	-0.943	-2.050
				(0.810)	(0.685)	(2.194)
Observations	24,216	22,079	4,765	21,826	19,762	4,095
R-squared	0.061	0.067	0.074	0.063	0.069	0.085
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level. *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A15.a: Panel Regressions – Higher Income Country Group

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.147**	-3.582***	3.304	-2.230	-3.174**	5.662
	(1.484)	(1.271)	(6.237)	(1.600)	(1.331)	(7.121)
CBOE VIX index = L,	-0.291**	-0.389***	-0.317	-0.441***	-0.517***	-0.640
	(0.137)	(0.121)	(0.399)	(0.141)	(0.129)	(0.420)
Global GDP growth = L,	-0.255	-0.332	0.447	-0.641*	-0.668**	-0.503
	(0.319)	(0.288)	(1.128)	(0.335)	(0.304)	(1.184)
Global commodity price growth = L,	0.096**	0.104**	0.190	0.148***	0.171***	0.393***
	(0.047)	(0.045)	(0.141)	(0.050)	(0.046)	(0.139)
Global liquidity = L,	0.982**	0.926**	2.845**	1.200***	1.418***	2.951*
	(0.424)	(0.394)	(1.421)	(0.444)	(0.415)	(1.567)
Domestic GDP growth = L,	-0.250***	-0.228***	-0.802*	-0.244***	-0.225***	-1.076**
	(0.072)	(0.068)	(0.475)	(0.072)	(0.068)	(0.516)
CAM Tightening = L,	-0.269	0.218	-0.572			
	(0.966)	(0.799)	(1.789)			
Two-step CAM Tightening = L,				-0.062	0.324	-0.010
				(0.963)	(0.806)	(1.894)
Observations	24,640	22,556	5,389	21,564	19,597	4,522
R-squared	0.044	0.052	0.057	0.050	0.060	0.077
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. Refer to Table A1 for list of economies included in the sample. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level.
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' estimates

Table A15.b: Panel Regressions – Lower Income Country Group

VARIABLES	(1) All	(2) Hard	(3) Local	(4) All	(5) Hard	(6) Local
U.S. monetary policy = L,	-3.462*	-5.052***	0.754	-2.239	-4.461**	2.174
	(1.878)	(1.824)	(8.014)	(2.066)	(2.009)	(9.840)
CBOE VIX index = L,	-1.304***	-1.270***	-0.600	-1.429***	-1.320***	-1.126**
	(0.176)	(0.161)	(0.649)	(0.187)	(0.178)	(0.543)
Global GDP growth = L,	-3.136***	-3.101***	0.287	-3.367***	-3.027***	-2.677**
	(0.444)	(0.421)	(1.678)	(0.451)	(0.453)	(1.334)
Global commodity price growth = L,	0.282***	0.199***	0.178	0.277***	0.150**	0.343*
	(0.057)	(0.061)	(0.216)	(0.059)	(0.066)	(0.187)
Global liquidity = L,	2.787***	2.431***	4.635**	2.929***	2.346***	3.988**
	(0.515)	(0.506)	(2.259)	(0.527)	(0.512)	(1.823)
Domestic GDP growth = L,	0.233**	0.359***	-0.934**	0.236**	0.340***	-0.507
	(0.098)	(0.094)	(0.447)	(0.100)	(0.092)	(0.407)
CAM Tightening = L,	-3.302***	-2.227**	-15.319			
	(1.210)	(0.959)	(11.595)			
Two-step CAM Tightening = L,				-3.461***	-2.217**	-11.663
				(1.289)	(1.037)	(11.858)
Observations	13,568	12,428	2,121	11,713	10,622	1,793
R-squared	0.054	0.057	0.075	0.056	0.055	0.154
Panel, time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are percentage changes of MSBF flows for all (aggregate), hard and local currency. Refer to Table A1 for list of economies included in the sample. See Table A2 for variable definitions and sources and Appendix 3 for a discussion on capital account tightening measures (CAM tightening). Panel and time fixed effects refer to country-fund group and time dummies, respectively. Clustered standard errors at panel country-fund group level.

*** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' estimates