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Nathan Converse, Eduardo Levy-Yeyati, and Tomas Williams

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Nathan Converse† Eduardo Levy-Yeyati ‡ Tomas Williams §

Abstract

This paper examines how the growth of exchange-traded funds (ETFs) has affected the sensitivity of international capital flows to global financial conditions. Using data on individual emerging market funds worldwide, we employ a novel identification strategy that controls for unobservable time-varying economic conditions at the investment destination. We find that the sensitivity of flows to global financial conditions for equity (bond) ETFs is 2.5 (2.25) times higher than for equity (bond) mutual funds. We then show that our findings have macroeconomic implications. In countries where ETFs hold a larger share of the equity market, total cross-border equity flows and returns are significantly more sensitive to global financial conditions. Our results imply that the increasing role of ETFs as a channel for international capital flows has amplified the global financial cycle in emerging markets.

JEL Classification: F32, G11, G15, G23

Keywords: exchange-traded funds; mutual funds; global financial cycle; global risk; push and pull factors; capital flows; emerging markets

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†Division of International Finance, Federal Reserve Board. Nathan.L.Converse@frb.gov

‡School of Government, Universidad Torcuato di Tella. ely@utdt.edu

§Department of Economics, George Washington University. tomaswilliams@gwu.edu

1 Introduction

Recent work has documented how changes in US financial conditions are transmitted to other countries in a so-called global financial cycle (Rey, 2015). While much of this research has focused on bank flows (Bruno and Shin, 2015b,a), changes in US monetary policy and risk appetite are also transmitted via portfolio flows (Forbes and Warnock, 2012; Fratzscher, 2012; Avdjiev et al., 2017). At the same time, it is clear that exposure to the global financial cycle varies across countries (Cerutti et al., 2017; Choi et al., 2017) and over time (Ahmed and Zlate, 2014). Indeed, as shown by the green line in Figure 1, portfolio capital flows to emerging markets have become more sensitive to changes in global financial stress over the last 15 years. This increased sensitivity has coincided with another shift over the same period: the growing importance of exchange traded funds (ETFs) in the financial markets of emerging economies, illustrated by the blue line in Figure 1. Are these two trends related? And if so, how? In this paper we show that rise of ETFs as a conduit for capital flows to emerging markets has indeed amplified the transmission of global financial shocks to those economies, and present evidence suggesting that this is due to the particular pool of investors who favor ETFs.

The growing importance of ETFs is not limited to emerging markets. Even as the mutual fund industry has expanded rapidly in recent years, accounting for US$20 trillion in assets worldwide (Khorana et al., 2005; ICI, 2017) and acting as an important channel for cross-border portfolio capital flows (Didier et al., 2013), the assets of ETFs have grown even faster. The share of fund assets held by ETFs has gone from only 3.5 percent in 2005 to 14 percent in 2017 (Figure 2). Indeed, the rising popularity of ETFs has been one of the most notable developments in the fund industry over the past decade (Cremers et al., 2016). Nonetheless the rise of ETFs has been particularly striking for emerging markets (EM) funds, where the ETF asset share reached 20 percent in 2017.[1]

We explore the relationship between the growth of ETFs and the sensitivity of EM capital flows to global factors—also referred to as push factors—in two steps. First, we present robust evidence that fund-level investor flows to ETFs respond more to changes in global financial conditions than flows to traditional mutual funds. By contrast ETF flows respond less, if at all, to changing economic conditions in the countries in which the ETFs invest. Second, we show that where ETFs

[1] ETFs account for an even larger share (25 percent) of the assets of equity funds dedicated to investing in emerging markets. While the share of EM bond funds assets held by ETFs is much lower, it has been growing very rapidly. Prior to 2006 there were essentially no EM bond ETFs.

hold a larger share of the host country's market capitalization, both aggregate portfolio flows and equity returns are more sensitive to global factors. These findings indicate that the rise of ETFs as a vehicle for international capital flows has amplified the effects of the global financial cycle in emerging markets.

Our analysis uses comprehensive data from EPFR Global on monthly investor flows to mutual funds and ETFs over the period 1997 to 2017.[2] The dataset contains more than 33,000 mutual funds and more than 6,000 ETFs, with more than US$29 trillion in assets under management at the end of June 2017. Beyond its extensive coverage, this database has several appealing features. In addition to data on net fund flows and month-end assets, EPFR provides information on each fund's investment scope, indicating the country or set of countries where the fund invests. Importantly, the coverage of the dataset is sufficiently broad that the investment scope varies for ETFs and mutual funds, so that both categories include global, regional, and dedicated country funds. EPFR also provides information on each fund's location, allowing us to control for domicile-specific push factors and thus focus on the effects of truly global factors.

Our novel empirical approach exploits these features of the data. We examine how investor flows into funds respond to global push factors and test whether the response differs for mutual funds and ETFs. Throughout the paper, we control for economic conditions in each fund's investment destination in two different ways. First we use a specific variable: growth in industrial production, averaged across countries for multi-country funds.[3] Second, we use investment-scope-time fixed effects to absorb *any* time-varying, investment-scope-specific factors that might affect fund flows. This allows us to cleanly identify how global factors differentially affect flows going into ETFs versus mutual funds.

Consistent with previous research on fund flows, we find that increases in global financial stress are negatively related to investor flows into dedicated emerging market funds, both mutual funds and ETFs. However, we go on to show that the sensitivity of ETF flows to these push factors is significantly larger than that of flows into mutual funds, a fact previously undocumented in the literature.[4] Quantitatively, the sensitivity of EM fund flows to push factors is almost 2.5 times

[2] Throughout the paper we use the term investor flows and fund flows interchangeably to refer to end investors' purchases and redemptions of shares in mutual funds and ETFs.

[3] In robustness checks, we demonstrate that our findings are robust to alternative ways of aggregating pull factors in multi-country funds. We also experiment with other pull factor variables, such as destination country interest rates.

[4] Importantly, because we are doing our analysis at a monthly frequency, this finding is not a mechanical result of the fact that ETFs are continuously traded while mutual funds are not.

bigger for equity ETFs, and 2.25 times larger for bond ETFs, than it is for mutual funds.

In order to understand better why ETF flows exhibit greater sensitivity to global financial conditions, we also present evidence consistent with the view that ETFs appeal to a different clientele than traditional mutual funds. Specifically, our findings suggest ETF investors place particular value on liquidity and are relatively inattentive to local economic conditions in the countries where the funds invest. The key features that define ETFs are their low cost, their passive management, and their liquidity (ETFs are continuously traded while mutual funds are not). Because some mutual funds offer low fees or are passively manged, we are able to test whether these two characteristics are associated with greater sensitivity to global financial conditions. And we find that they are not. By process of elimination, our results therefore suggest that the liquidity of ETFs attracts investors who behave differently. At the same time we show that at the monthly frequency, mutual fund investors respond to changes in economic conditions in the countries where these funds invest, but ETF investors do not, indicating that they are relatively inattentive.

Having used fund-level data to clearly identify the greater sensitivity of ETF flows to global financial conditions, we then show that our findings have economically significant implications at the aggregate level. Analyzing a panel of 43 emerging markets, we regress total portfolio equity flows from abroad on our measure of global financial stress, allowing the coefficient to vary with the share of each country's equity market held by foreign ETFs. We find that in countries where ETFs hold a larger share of the equity market, aggregate portfolio equity inflows are more sensitive to global financial conditions. We repeat the exercise using aggregate equity market returns as the dependent variable and find similar results. Quantitatively, a one- standard-deviation increase in the share of local equity held by ETFs is associated with an a response of portfolio equity inflows that is 2.9 times higher. For stock prices, a similar increase in the ETF share is associated with an exposure to global factors almost 1.2 times larger. It follows that while ETFs may attract new investors to the EM asset class, the benefits of a broader investor base for EM issuers may be partially offset by the fact that the greater sensitivity of ETF flows deepens exposure to the global financial cycle, raising the volatility of financing conditions in recipient economies.[5]

Throughout the paper we explicitly address concerns about endogeneity and omitted variable bias in order to ensure that the results do in fact reflect a causal effect of ETFs on the sensitivity

[5]See Converse (2018) for a detailed exploration of the negative effects of capital flow volatility on the real economy in emerging markets.

of capital flows to global financial conditions. Endogeneity is a concern in our analysis because financial institutions may create ETFs to cater to investors seeking exposure to volatile or high-beta markets. To deal with this, we include investment scope-time fixed effects in our fund-level analysis, so that we are effectively comparing ETF flows with the flows into mutual funds which have *the same investment destination*. This ensures that our fund-level results are not driven by ETFs tending to invest in more volatile markets. In our country-level regressions, we tackle the potential endogeneity of our ETF share variable in two ways. First, we construct a narrower measure the ETF share which excludes the single-country ETFs that may have been created to provide access to high-beta markets. And second, we use a proxy for the ETF share which is not subject to concerns about endogeneity. In both cases, our core result survives: ETF participation is significantly related to the sensitivity of EM capital flows and equity prices to global shocks.

In our aggregate-level regressions, omitted variable bias is a also concern because ETFs are likely to own a larger share of the equity market in economies which are more financially integrate, and financial integration is in turn associated with greater sensitivity to global financial shocks. We therefore re-run our aggregate-level regressions with an exhaustive set of de facto and de jure financial integration measures, and interact those integration measures with our measure of global financial stress. The estimate of the coefficient measuring the relationship between ETF participation and sensitivity to global shocks remains virtually unchanged when we do this, indicating that our country-level results are not driven by omitted variable bias.

Our paper relates to four strands of the literature. In addition to the already mentioned body of work on the global financial cycle, we contribute to the large literature on the drivers of capital flows to emerging markets (Ahmed and Zlate, 2014) and the relative importance of global push factors and local pull factors (Forbes and Warnock, 2012; Cerutti et al., 2015), in particular work using mutual fund data to explore the issue (Fratzscher, 2012). In this context, Jotikasthira et al. (2012) also study withdrawals and redemptions by end investors and how they affect the transmission of shocks across countries but do not differentiate between types of funds as we do.[6] Whereas Raddatz and Schmukler (2012) and Miyajima and Shim (2014) study whether the portfolio decisions of fund managers differ from those of end investors, we analyze the differences in the behavior of end investors in two different types of funds—ETFs and traditional mutual funds.[7] In a closely related

[6] In their paper Jotikasthira et al. (2012) build empirical evidence at the international level based on a large literature both theoretical (Shleifer and Vishny (1997)) and empirical (Coval and Stafford (2007)) on asset fire sales.

[7] In one of the first papers making use of mutual fund data, Borensztein and Gelos (2003) compare capital flows via

paper, Brandao-Marques et al. (2015) do compare the sensitivity of ETFs and mutual funds in the EPFR data, but study flows to individual countries rather than fund flows, so that they capture the combined responses of fund managers and end-investors. Additionally, Brandao-Marques et al. (2015) restrict their analysis to fund-level data while we also provide evidence on aggregate macro financial variables such as capital inflows and country asset prices.[8]

Third, our paper relates to the rapidly growing literature studying the consequences of the growth of ETFs for financial markets and economic activity. Broadly speaking, our paper contributes that literature, nearly all of which has focused on US financial markets, by examining the consequences of ETFs for emerging markets. To our knowledge, only two previous papers analyze the effects of ETFs in an international context. Baltussen et al. (2019) show that ETF ownership is associated with greater negative serial correlation in returns, a phenomenon closely related to the volatility we study in this paper. Analyzing 41 funds provided by iShares, Filippou et al. (2019) show that US investors' demand for foreign country ETFs comoves significantly with the VIX, but is uncorrelated with analogous implied volatility measures in destination countries. We confirm this result using data from a larger sample of funds, but focus our attention on differences in the behavior of ETF investors relative to mutual fund investors, rather than differences in ETF investors' sensitivity to global as opposed to local shocks.

Our findings complement in two ways work analyzing the effects of ETFs on US equity markets, which has showed that ETF ownership increases both comovement (Da and Shive, 2017; Israeli et al., 2017) and volatility (Ben-David et al., 2018). First, our results confirm that equity flows and stock prices are more volatile in *international* markets with greater ETF ownership. Second, we highlight a specific *mechanism* through which ETFs boost volatility and comovement: by increasing sensitivity to global financial shocks. In addition, the evidence we present that ETFs attract investors seeking liquid assets and who are inattentive to local economic conditions in the funds' investment destination is consistent with the findings of several papers analyzing the role of ETFs US corporate bond markets (Dannhauser, 2017; Dannhauser and Hoseinzade, 2017; Nam, 2017). And the amplification mechanisms modeled in Bhattacharya and O'Hara (2017) may help to explain the greater sensitivity of ETF flows that we identify.

open-ended funds with those via closed-ended funds

[8] More broadly, this study is related to a large literature studying international mutual funds and how these institutional investors affect international financial markets and asset prices. See among others Kaminsky et al. (2004); Gelos and Wei (2005); Broner et al. (2006); Gelos (2011); Shek et al. (2015); Forbes et al. (2016).

Fourth and finally, our paper relates to the literature on the drivers of investor flows into managed funds (for a survey see Christoffersen et al., 2014), which has explored in depth the relationship between fund flows and performance. We take on board the insights from this literature by controlling for the past performance of funds in our main specifications, but study how another set of variables—global financial conditions and local economic conditions in the countries where the funds invest— affect flows to different types of funds.

The rest of the paper is structured as follows. Section 2 presents information on the institutional details and the mechanics of ETFs. Section 3 details the data we use. In Section 4, we outline our empirical strategy, present our main results concerning the sensitivity of fund flows to global factors, and then assess whether something other than ETFs can explain our findings. Section 5 analyzes the aggregate implications, particularly the link between ETF participation and the global financial cycle. Section 6 concludes.

2 ETFs and Institutional Details

This section presents a brief description of the structure and functioning of exchange traded funds (ETFs), focusing on the ways in which they differ from traditional mutual funds.[9] Like a mutual fund, an ETF is an investment vehicle which owns a basket of underlying assets, usually stocks or bonds.[10] Often the basket is constructed to track the performance of a particular index. Although actively managed ETFs do exist, they are rare– of more than 700 ETFs in our dataset which focus on emerging markets, only 7 are actively managed.

When open-ended mutual fund investors buy or sell shares, they enter into a transaction with the fund, and the price at which the transaction happens is determined by the fund's net asset value (NAV) at the end of the trading day on which the buy or sell request is made. By contrast, ETF shares are continuously traded on equity exchanges, allowing investors to buy or sell shares at any time at the current market price. In this sense ETFs are like closed-end mutual funds, which also have exchange-traded shares. The continuous trading of ETF shares not only makes them easy

[9] This section is informed by the concise and insightful institutional detail in Ben-David et al. (2018) and Da and Shive (2017), as well as the comprehensive chapter by Deville (2008).

[10] There are also other types of ETFs, for example, commodity ETFs. Because the EPFR data contain only equity and bond ETFs, here we limit our discussion to these ETF types. In markets outside the U.S., there are also synthetic ETFs which replicate the performance of a designated basket of securities through the trading of derivatives. While flows in and out of synthetic ETFs do not directly generate capital flows, they nonetheless affect asset prices.

for investors to buy and sell at low cost, but also greatly reduces the need for the fund to hold a cash allocation to satisfy redemptions, eliminating the cash drag that is an implicit cost mutual fund investing.

Whereas closed-end mutual funds have a fixed number of shares, set at the fund's IPO, ETF shares can be created or redeemed. Indeed, the creation and redemption of ETF shares ensures that the value of the ETF's shares outstanding closely tracks the basket of underlying assets. The ETF has a number of so-called authorized participants (APs), large financial institutions that can create or redeem shares in the fund. To create new ETF shares, an AP buys up the underlying assets and exchanges them for fund shares. When an AP redeems shares, it returns shares to the fund administrators and receives the corresponding quantity of underlying assets.

If the value of ETF shares differs from the value of the underlying basket, there is an arbitrage opportunity for the fund's APs. For example, when an ETF's outstanding shares are more valuable than the underlying, an AP can buy up the underlying, exchange it for fund shares, then sell the fund shares at a profit. These sales will cause the price of the ETF shares to fall until the ETF and the underlying are equal in value. Of course, if the underlying assets are relatively illiquid, there is scope for the price of the ETF to diverge from the underlying since arbitrage will not always be possible.

Importantly, although shares in the emerging market ETFs in our sample are generally traded on exchanges in developed markets, the creation and redemption process nonetheless means that investor flows into these funds generate cross border capital flows. For example, should end investors' purchases of ETF shares push their price above that of the underlying asset, the ETF's APs will buy the underlying assets and redeem them to make an arbitrage profit. Because the APs are generally large financial institutions in countries with developed financial markets, their purchase of the underlying asset represents a foreign purchase of an emerging market asset, classified as a gross portfolio capital inflow in the balance of payments.

3 Data

3.1 Fund Flows Data

We obtain monthly fund-level data on mutual funds and ETFs from the commercial data provider EPFR Global.[11] The dataset includes both equity and bond funds, with the data on equity funds covering the period January 1997 to August 2017 and the bond fund data running from January 2002 to August 2017. The data are an unbalanced panel with funds both entering and leaving the sample, so that the data do not suffer from survivorship bias. The full EPFR database contains 33,019 mutual funds (of which roughly 65 percent are equity funds) and 6,431 ETFs (of which 80 percent are equity funds). At the end of June 2017, EPFR funds held US$26.4 trillion in assets under management, accounting for approximately 66 percent of the total worldwide assets of mutual funds and ETFs.[12] Official data on US holdings of foreign assets show that US-domiciled mutual funds held around US$1.7 trillion in emerging market assets, and US funds tracked by EPFR hold roughly 50 percent of these (TIC, 2017).[13]

Our primary variable of interest is investor flows (F_{it}), defined as the US dollar value of the net purchases or redemptions of shares in fund i in month t.[14] Throughout our analysis, we normalize flows into each fund by its assets under management at the end of the previous month (A_{it-1}) so that our measure of fund flows is $\left(f_{it} = \frac{F_{it}}{A_{it-1}}\right)$. Importantly, the dataset includes a field classifying each fund according to what we refer to as its investment scope, meaning the country or group of countries where the fund invests. Example of multi-country investment scope categories include "Global Emerging Markets" and "Latin America Regional." See Appendix Table A2 for a list of the investment scope categories in the dataset and how many funds and observations are assigned to each.

In addition, EPFR also provides data on each fund's performance, meaning the month-on-month percent change in the fund's net asset value (NAV). Throughout our analysis, we control for

[11] For detailed variable definitions and sources see Table A1.

[12] According to ICI (2017) the total assets of the fund industry are roughly US$40 trillion.

[13] Here we compare the holdings of US-domiciled funds with US data on overseas holdings because most countries do not yet report the institutional sector of asset holders.

[14] We use the fund flows variable generated by EPFR, which is calculated by subtracting the change in the fund's net asset value (NAV) from the change in the fund's total assets: $F_{it} = (A_{it} - A_{it-1}) - A_{it-1} \times (\%\Delta NAV_t)$. For funds that report assets and returns in currencies other than the US dollar EPFR converts flows using the average spot exchange rate for the month, so that $F_{it} = F^*_{it} \times \overline{ER}_{it}$, where F^*_{it} is flows measured in the fund's reporting currency and $\overline{ER}_{it}$ is the average exchange rate for the month (measured as fund's reporting currency per US dollar).

the lagged performance of each fund relative to the average performance of funds with the same investment scope. EPFR also provides a host of other fund characteristics which we use in our analysis, such as each fund's domicile and it's declared benchmark.

We clean the EPFR dataset using procedures standard in research using fund-level data, dropping funds with less than one year of data and funds with average assets lower than US$10 million. In addition, we drop funds with extreme values of performance and inflows (measured as a share of lagged assets), specifically funds with observations in the top and bottom one percent for these variables. Because our analysis is focused on the role of mutual funds and ETFs in international capital flows, we exclude from the dataset domestic funds, which investing only in the country in which they are domiciled. We also exclude funds domiciled in a country that is included in the fund's investment scope (e.g. a Latin America regional fund domiciled in Brazil). See Table A3 for the number of funds and observations in each domicile in our cleaned dataset.

This procedure leaves us with 12,852 mutual funds and 2,525 ETFs in our dataset. Table 1 presents summary statistics and provides a first glimpse of our main result. The volatility of fund flows normalized by assets is much larger for ETFs than for mutual funds.[15] The greater volatility of ETF investor flows can be seen even more clearly in Figure 3, where we plot the aggregate fund flows normalized by aggregate initial assets for the two types of funds. Even after the global financial crisis, fund flows for ETFs appear to be much more volatile and less persistent than investor flows for mutual funds.

3.2 Additional Variables

We analyze the drivers of fund flows using data on pull and push factors. Our main measure of global push factors is the St. Louis Fed Financial Stress Index, which is the first principal component of 18 mostly US financial variables including interest rates, spreads, and equity and bond market implied volatility. Putting changes in the financial stress index in context, the index jumped by 1.5 standard deviations following the September 11, 2001 terrorist attacks and during the 2013 Taper Tantrum. During the 2011 peak of the Eurozone crisis and after the 2015 surprise devaluation of the Chinese currency, the index increased by roughly two standard deviations.

In robustness checks, we use a variety of other commonly used measures of risk sentiment

[15] Table A4 contains summary statistics for the assets under management of funds.

and liquidity conditions. As indicators or risk, we employ the Chicago Board Options Exchange Market Volatility Index (VIX), the effective yield of the Bank of America Merrill Lynch US High Yield Master II Index (US HY), and the spread between 3-month LIBOR and 3-month Treasury Bill (TED spread). Following the literature, we also run our analysis using the effective federal funds rate (FF Rate) to measure global financial conditions. Since the US policy rate was at the zero lower bound for a substantial portion of our sample period, we also make use of the shadow federal funds rate developed by Wu and Xia (2016) (FF Shadow Rate). With the exception of the shadow fed funds rate, which is made available by the Atlanta Fed, our risk and monetary policy variables were obtained from the Federal Reserve Economic Data (FRED) system at the end of each month.[16] Our analysis also takes into account push factors specific to each fund's home country. Specifically, we use monthly stock market returns measured in dollars from MSCI for the domicile country reported by EPFR. For funds domiciled in financial centers, we assign the major stock market most closely associated with the financial center as its home market.[17]

To capture pull factors for fund investors we use the month-on-month change in country-specific seasonally adjusted industrial production (IP) indexes from the IMF's International Financial Statistics (IFS) database.[18] For multi-country funds, we construct investment scope-level aggregate pull factors by taking the cross-country median value for IP growth for the countries within the fund's scope.[19] Our results are not sensitive to the method used to aggregate across countries in each investment scope; using the mean value of IP growth or taking a weighted average produced quantitatively similar results. In robustness checks, we also include monthly one year ahead forecasts of short-term interest rates in the economies included in each fund scope, obtained from Consensus Economics. We avoid using market interest rates or equity returns as push factors because of the potential for reverse causality, as these variables are themselves affected by fund flows.

[16] For summary statistics on these global factors see Table A5.

[17] Funds domiciled in Ireland, the British Virgin Islands, and the Channel Islands were matched with UK stock market returns. Funds domiciled in other Caribbean financial centers were matched with US stock returns. Funds domiciled in Luxembourg were assigned German equity returns.

[18] IP data were seasonally adjusted using the X12-ARIMA method developed by the U.S. Census Bureau. For summary statistics on IP growth see Table A6.

[19] Funds to which EPFR has assigned the same investment scope classification may invest in a slightly different set of countries (e.g. not all EM Asia funds invest in Taiwan). In constructing our aggregates, we use the set of countries which MSCI assigns to each country group each period. As a result, the set of countries included in each category varies over time. For example, we include Greece in "Emerging Europe" after November 2013, when it was downgraded from MSCI's developed markets index.

4 Empirical Strategy and Results

4.1 Empirical Strategy

The dependent variable in our fund-level regressions is investor flows into each fund, rather than flows to individual countries. We thus avoid constructing estimates of capital flows at the fund-country-time level, which has been common in the literature but introduces measurement error.[20] We model fund flows as a function of global factors, local factors, and lagged fund returns. More specifically, we use the following baseline specification:

$$f_{it} = \theta_i + \beta GF_t + \gamma(GF_t * ETF_i) + \lambda LF_{it} + \eta(LF_{it} * ETF_i) + \sum_{k=1}^{3} \delta_k R_{it-k} + \varepsilon_{it} \quad (1)$$

where f_{it} is investor flows into fund i during month t, normalized by the fund's assets at the start of month t. The variable GF_t ("Global Factor") is a measure of global financial conditions, LF_{it} ("Local Factor") captures pull factors in the fund's investment destination, ETF_i is a dummy equal to one if the fund is an ETF, and ε_{it} is an error term.[21] This baseline specification includes fixed effects at the fund level θ_i. Since a large body of work has shown that past performance affects fund flows, we include three lags of the fund's returns relative to other funds with the same investment scope (R_{it}).

Throughout the paper we try to keep the specification parsimonious and therefore include generally only one pull and one push factor in each regression. For GF_t our main variable is the St. Louis Fed Financial Stress Index, a broad measure of global financial conditions.[22] Fund flows f_{it} represent an *adjustment* in end investors' holdings of fund i, which could be due reallocation across funds or to a change in the size of the portfolio of investors who hold fund i. We therefore include the global factor variable in differences, so that β represents the change in investors' holdings of fund i in response to a change in global financial conditions at time t.[23] The sum $\beta + \gamma$ captures the sensitivity of ETF investor flows to push factors, and the main parameter of interest to us is

[20] Measurement error occurs because of the need to approximate each fund's country-level returns using a publicly available price index.

[21] The ETF dummy does not enter the regression on its own because it is not time varying. Funds do not switch from being a mutual fund to being an ETF, or vice versa.

[22] In Section 4.4 we show that using narrower various narrower measures of global risk sentiment and liquidity conditions does not alter our results.

[23] More specifically we take log differences of the St Louis Fed Financial Stress Index.

γ, the difference in sensitivity between ETF flows and mutual fund flows.

The focus of this paper is the difference in the responses of ETF and mutual fund investor flows to *global* financial shocks, but we do include a local factor in our regression and allow its coefficient to differ for ETFs for two reasons. First it allows us to verify that our results are in line with other research on the drivers of fund flows. And second, knowing η—the differential response of ETF investor flows to local factors—may help us better understand our results regarding γ. Our main measure of local factors, often referred to as pull factors in the literature on the drivers of capital flows, is month-on-month growth in industrial production (as described in Section 3). We use IP because measures of local returns (equity returns or interest rates) would raise serious concerns about endogeneity bias, since large fund flows can generate price changes (as documented in, for example, Jotikasthira et al., 2012).[24] As discussed in Section 3 our main specifications measure pull factors using the median industrial production growth for the group of countries included in the fund's investment scope, but our results are robust to using either the simple or the GDP-weighted mean of IP growth. The response of ETF investor flows to pull factors is given by $\lambda + \eta$.

Beyond this baseline specification, we use an alternative approach exploiting higher dimensional fixed effects as follows:

$$f_{it} = \theta_i + \theta_{st} + \gamma(GF_t * ETF_i) + \eta(LF_{it} * ETF_i) + \sum_{k=1}^{3} \delta_k R_{it-k} + e_{it}, \tag{2}$$

where θ_{st} are fixed effects at the investment scope-time level. This set of fixed effects absorbs all time-varying shocks non-parametrically at the investment scope level. Thus, we can more cleanly identify the difference in sensitivities coming from the difference in the type of fund. For instance, if financial institutions create ETFs to service country or regions with higher sensitivity to push factors, this would generate a high γ in Equation 1 even if ETF flows per se were not more sensitive. The use of scope-time fixed effects addresses this concern because it allows us to compare the sensitivities of ETFs and mutual funds with the same investment scope, controlling for any time-varying factors specific to the investment scope.[25]

[24] While fund flows can also affect the cost of capital in the countries where the fund invests, in turn affecting real investment and thus industrial production, this effect is unlikely to work within a single month.

[25] In principle the structure of our database allows us to use fixed effects at finer levels, such as the fund domicile-investment scope-time level, or the benchmark-time level. However, especially for bond funds, there are too few ETFs within these more granular sub-categories. We therefore favor the investment scope-time fixed effects for most of the paper.

4.2 Main Results

We begin by estimating equation (1) for the dedicated emerging market funds in our sample (Table 2).[26] Consistent with previous work, the results show that an increase in global financial stress is associated with a reduction in investor flows to both EM equity (Column 1) and EM bond funds (Column 4). Columns 2 and 5 present this paper's main result: flows to dedicated EM ETFs are significantly more sensitive to the global push factor than EM mutual fund flows, for both equity and bond funds.[27] Indeed, ETF flows' exposure to our global factor is almost 2.5 times bigger for equity funds and 2.25 times larger for bond funds.[28]

To ensure that our main parameter of interest, γ in equations 1 and 2, is well identified, we next estimate equation 2, which includes investment scope-time fixed effects. Including this set of fixed effects allows us to compare ETFs with mutual funds that have the same investment scope and also control for any time-varying determinants specific to that investment scope. Again, this strategy helps us control for the fact that financial institutions may choose to create ETFs specifically to cater to investment scope categories which, for other reasons, exhibit more volatility in fund flows. The resulting point estimates for γ (found in columns 3 and 5) are somewhat smaller in magnitude than those in column 2, which is consistent with endogenous ETF creation generating an upward bias in our estimates of equation 2. Nonetheless, the coefficients on the global factor-ETF interaction term do not change dramatically and remain significant.

Our baseline regression results imply that the greater sensitivity of ETF flows has an economically significant effect on the size of flows to dedicated emerging market funds. To illustrate this, we analyze the 2013 Taper Tantrum in light of our results. Following Fed Chairman Ben Bernanke's May 22, 2013 comments regarding the possibility of scaling back the Federal Reserve's asset purchase program, investors withdrew US$38 billion (2.8 percent of fund assets) from dedicated EM

[26] While all our regressions contain fund performance controls, we do not report the estimated coefficients for compactness. Full results including our estimates for δ_{it-k} in equations 1 and 2 are presented in Table A7.

[27] In Appendix Table A8 we show that for developed market (DM) funds the sensitivity of ETF flows to both push and pull factors is not significantly different from that of traditional mutual funds. We then investigate the behavior of flows to developed market ETFs in detail in appendix table A9 and find that DM ETF flows do appear more sensitive to global financial conditions than DM mutual fund flows once we modify our dataset in two ways. First, we re-include funds investing in the country where they are domiciled. We do this because in developed markets these funds cater to foreign as well as domestic investors, unlike in EMs where their investor base is largely domestic. Second, we exclude DM funds investing exclusively in German, Japanese, and U.S. government bonds, which are widely considered safe-haven assets. However, since the focus of this paper is on flows to dedicated emerging market funds we leave further exploration of the behavior of investors in developed market funds to future work.

[28] This is calculated as $\frac{\beta+\gamma}{\beta}$ where the numerator is the sensitivity of ETFs flows to the global factor, while the denominator is the sensitivity of mutual fund flows to the global factor.

funds in June 2013, of which US$11.5 billion came out of ETFs. Concurrently, the St. Louis Fed Financial Stress index that is our main measure of global financial conditions increased by 1.5 standard deviations. The coefficient estimates in column 5 of Table 2 imply that approximately US$26.3 billion (1.9 percent of assets) of the total outflow can be attributed to the increase in financial stress that followed Bernanke's speech. If we impose on ETF flows the same sensitivity that we estimate for mutual fund flows, the outflow due to financial stress would have been US$20.8 billion (1.5 percent of fund assets). This back of the envelope calculation thus implies that the extra sensitivity of ETF flows boosted outflows by US$5.5 billion (0.5 percent of fund assets), meaning that outflows would have been roughly 15 percent smaller if ETF flows had the same sensitivity as mutual fund flows. Thus our results suggest that the extra sensitivity of ETF flows is economically important, but at the same time do not imply implausibly large effects.

The difference in sensitivity to global financial shocks between ETF and mutual fund flows that we have found implies that the growth of ETFs as a conduit for international capital flows has contributed to the strengthening of the relationship between global financial conditions and portfolio flows depicted in Figure 1. However, we also find evidence investor flows to ETFs have become more sensitive to our global push factor over time. Figure 4 plots the 36-month rolling slope of a regression of aggregate fund flows on our chosen measure of global financial conditions. Except for a brief period after the 2008 global financial crisis the sensitivity of ETF flows to push factors is greater (in absolute terms) than for traditional mutual funds. Moreover, the sensitivity of investor flows into ETFs has been increasing steadily since 2012 while the sensitivity of mutual fund flows has essentially remained constant over the period. This suggests that the rising sensitivity of aggregate flows to dedicated EM funds that we highlighted in the introduction is due not only to the growing use of ETFs as a channel for cross-border investment but also to the increase in the sensitivity of ETF flows.

The focus of our analysis is on how investor flows to ETFs and mutual funds respond differently to global shocks; however, the results presented in Table 2 also reveal differences in how flows to the two types of funds comove with what are often called pull factors in the capital flows literature: economic conditions in the countries where the funds invest. In column 2 of Table 2 we see that flows to dedicated EM mutual funds are positively and significantly related to economic conditions in the funds' investment destination. For bond funds, the coefficient is of a similar magnitude but not statistically significant, perhaps because our data contain many fewer observations for bond funds.

The coefficient on the interaction of the local factor and the ETF dummy (η in equation 1) is never significant, so we cannot reject the null that ETF and mutual fund flows respond to local factors in the same way. At the same time, it is noteworthy that the sum of the local factor coefficient (again, λ) and the coefficient on its interaction with the ETF dummy (η) is never statistically different from zero. This can be seen in the the row labeled "Local Factor ETF" in the bottom section of Table 2, which gives the ETF-specific coefficient $\lambda + \eta$ and the row below, which gives the p-value from a test of the null that the sum is equal to zero. Because we calculate pull factors for multi-country funds by averaging across the countries in the funds' investment scope, there is a concern that lack of a statistically significant response by ETF investors could be the result of attrition bias generated by measurement error in our local factor. But in Table A10 we confirm that ETF flows do not respond to the local factor even when we limit our sample to country-specific funds, for which such measurement error is not a concern.

It therefore appears that while ETF investors respond strongly to changes in global financial conditions, they respond little if at all to changes in local economic conditions in the particular countries where the ETF invests.[29] This somewhat surprising finding is in fact consistent with the hypothesis put forward by Nam (2017) and Dannhauser (2017) that ETFs attract investors who are relatively uninformed about the fundamentals of the assets they trade. Moreover, our results regarding ETF investors' insensitivity to destination-specific shocks offers a potential explanation for the finding of Israeli et al. (2017) that US stock prices respond less to firm-specific information about future earnings when ETFs hold a larger share of the stock.

4.3 Alternative Hypotheses

We now explore several alternative explanations for our main finding that ETF flows respond more to changes in global financial conditions. First, we consider the possibility that our global shock measure is correlated with financial conditions in some countries which are also home to more ETFs. Second, we show that our results are not merely a reflection of ETFs having grown in popularity faster in countries where fund investors are more responsive to shocks. Third, we assess whether our findings simply reflect different speeds of portfolio adjustment by testing whether mutual funds'

[29] We also test whether flows to mutual funds and ETFs respond differently to lagged fund performance and find they do not (these results are available on request). Once again, the inclusion of these additional interaction terms does not substantially change our coefficient estimates for global factors.

sensitivity to global financial shocks is the same as those of ETFs at longer time horizons. Having shown that these alternative hypotheses cannot explain our findings, we explore which specific features of ETFs are associated with greater sensitivity to global conditions.

The first alternative explanation for our findings concerns, on the one, hand the correlation between global financial shocks and country-specific financial shocks in countries where ETF investors reside and, on the other hand, the fact that the popularity of ETFs is different across different domicile countries. If our measure of global shocks is more highly correlated with country-specific shocks in places where ETFs are more popular, this could explain our result that ETF investor flows are more sensitive to our measure of global shocks. To determine whether this is the case, we now run a set of regressions in which we control for push factors that are specific to the country where each fund is domiciled. In particular, we add to our baseline specification the stock market returns in each fund's domicile country in order to capture financial conditions at home for the fund's investors. The resulting coefficient estimates are presented Table 3. Higher stock market returns at home are associated with larger investor flows to EM funds (Column 1), presumably reflecting portfolio rebalancing to maintain a desired weight on EM assets as the size of investors' total portfolios grows. Despite its importance, the inclusion of this variable does not alter our main conclusions. ETF flows are still significantly more exposed to the global factor than mutual fund flows (Columns 1 and 2). Furthermore, the effect is now larger for both equity (Panel A) and bond funds (Panel B). In column 3, we introduce domicile-investment scope-time fixed effects to our estimation. In doing so, we go beyond just controlling for stock market performance and control for all time-varying unobservables that might be affecting fund flows at the fund domicile or investment scope level. For example, one might think that central bank policy rates at the fund domicile might play a role on top of stock market returns. This specification controls for such factors, and the results remain very similar to our baseline. Nonetheless, stock market returns in the domicile of the fund do seems to be an important explanatory variable, and we therefore include this variable as a fund-level control in the rest of the estimations presented in this section.

The second alternative explanation for our main finding has to do with differences in the growth of ETFs relative to traditional mutual funds across domicile countries. If ETFs have simply grown more quickly in domicile countries where investor flows tend to be more sensitive to global financial shocks, this could explain why we find ETF flows are more sensitive. We therefore run a set of regression where we control for the fact that investor flows to ETFs exhibit different long-term

trends than flows to mutual funds. As noted in the introduction, the share of fund assets held by ETFs has risen steadily over the last 15 years. This growth is largely due to ETFs receiving steadily growing inflows during the period. To ensure that our results are not an artifact of the upward trend in ETF flows over the period we analyze, we run a set of regressions that include fixed effects at the fund domicile-year-ETF level. In other words, we interact a set of dummy variables for the funds' country of domicile with our ETF dummy and a full set of year fixed effects. We include the domicile fixed effects in this interaction to account for the fact that the rise in the popularity of ETFs has been more pronounced in some countries than in others. The results of this regression (colums 4 and 5 of Table 3) also verify that our results are not driven by, for example, U.S. investors being more sensitive to global shocks and also more eager to shift to using ETFs as an investment vehicle. The point estimates for coefficient on the global factor-ETF dummy interaction (*gamma*) is smaller than our baseline estimate, but still implies that ETF flows are more than twice as sensitive to global financial conditions than are mutual fund flows.

Third, we consider the possibility that mutual fund investors are in fact equally as sensitive to global financial shocks as ETF investors, but simply respond to such shocks more slowly. To test this hypothesis, in Table 4 we re-estimate our baseline specifications at quarterly frequency (columns 1 and 2) and again at the 6-month frequency (columns 3 and 4). Once again, we confirm our baseline result that ETF fund flows are significantly more sensitive to push factors than flows to mutual funds. Indeed, the excess sensitivity of ETF flows appears even larger for bond funds than in the monthly regressions. Thus, our baseline results do not merely reflect differences in the timing of ETFs' versus mutual funds responses to global shocks. Rather, the lower frequency analysis in Table 4 provides further evidence that country capital flows channeled via ETFs are much more sensitive to push factors than regular mutual funds.

With respect to pull factors, equity ETFs flows do behave differently at a lower frequency. Whereas flows into equity ETFs were not sensitive to local conditions in our monthly frequency analysis, at the quarterly and 6-month frequency equity ETF flows are positively associated with IP growth in the investment destination, as is the case for mutual funds (in Table 4 this can be seen by looking at the p-values associated the "local factor ETF" coefficient). By contrast, investor flows to bond ETFs remain uncorrelated with pull factors over longer horizons,. So it appears that equity ETF investors are not totally inattentive to economic conditions in the funds' investment destinations, but rather acquire such information or act on it only with a lag. This

finding regarding the timing of equity ETF investors' reaction to local shocks is consistent with Giglio et al. (2019), who present evidence that changes in retail investors' beliefs do not affect the likelihood that they adjust their portfolios, but that when portfolio adjustment occurs, it does reflect changes in beliefs. Once again, the focus of this paper is differences in fund flows' sensitivity to global factors; nonetheless, our results regarding funds' sensitivity to local factors do help us paint a fuller picture of how ETF investors differ from traditional mutual fund investors.

Having ruled out three alternative explanations for our findings, we now determine whether the greater sensitivity that we have identified is related to fund characteristics which in turn are positively correlated with ETF status, but which can also be features of mutual funds. In particular, we examine how fund size, passive investment strategy, and multi-country scope are related to the sensitivity of fund flows to changes in global financial conditions. We find that none of these fund characteristics can explain the excess sensitivity result we obtained for ETF flows in Table 2, suggesting that it is some other feature of ETFs—perhaps the liquidity they offer—that draws investors who behave differently from mutual fund investors.

The average emerging market ETF in our sample is around 50 percent larger than the average mutual fund, so we test whether it is in fact large funds that are more sensitive to changes in global financial conditions (Table 5, columns 1 and 2). We allow the coefficient on the global factor to vary according to the size of the mutual fund by interacting the global factor with a dummy variable equal to one if the mutual fund is large, defined as having more than $250 million in assets.[30] Large equity mutual funds do not seem to have a significantly higher sensitivity to global factors (Table 5, Panel A). While flows into large bond mutual funds do have a higher exposure to our measure of global push factors than flows to small bond mutual funds, the large funds are nonetheless significantly less sensitive than ETFs (Panel B). Because larger mutual funds tend to have lower fees, our results regarding large funds also suggest that it is not the relatively low cost of investing via ETFs that motivates investors to behave differently

Another key characteristic of ETFs is their passive management strategy.[31] We therefore next examine whether passively managed mutual funds are more sensitive to changes in global financial conditions than are actively managed mutual funds. The results in columns 3 and 4 of Table 5 show

[30] In Table A11 we experiment with alternative thresholds for what constitutes a large fund, and obtain very similar results.

[31] While active ETFs do exist, there are very few. Our dataset includes more than 500 ETFs investing in emerging markets, of which only seven are actively managed.

that passive equity and bond mutual funds are not significantly different from other mutual funds, and further that the change in specification does not alter the estimated coefficients on the global factor-ETF interaction. We therefore conclude that it is not ETFs' passive management that sets them apart from mutual funds in terms of their sensitivity to global shocks.

Because country-specific ETFs are much less common than country-specific mutual funds, there is a concern that our results may reflect differences in the sensitivity of flows to multi-country (global and regional) funds relative to that of single-country funds, rather than any feature specific to ETFs. This is a particularly important concern given that global and regional funds may cater to less specialized, possibly less sophisticated, investors who are more sensitive to changes global financial conditions. However, these concerns are dispelled in columns 5 and 6 of Table 5, where we test whether the sensitivity of flows to country-specific mutual finds differs significantly from that of multi-country funds.[32] We fail to reject the null that the sensitivity of flows to single-country mutual funds differs from that of flows to multi-country mutual funds, and also fail to reject the null that flows to county-specific ETFs have a different sensitivity than flows to multi-country ETFs. Overall then the results presented in the final two columns of Table 5 demonstrate that the greater sensitivity of ETF flows to global financial conditions which we have identified is not merely a reflection of the prevalence of multi-country ETFs, but rather some other feature of this type of fund.

We have now ruled out a number of competing explanations for our baseline results. Neither the size, nor the passive management strategy, nor the multi-country investment scope of ETFs explain their greater sensitivity to changes in global financial conditions relative to traditional mutual funds. Taken together, the findings in this section also suggest that it is not the case that ETFs' low fees explain their greater sensitivity. This is because the lowest cost mutual funds are large, passively managed, or both, and we have confirmed that these characteristics on their own do not induce higher responsiveness to global shocks. By process of elimination, our results suggest that the distinctive characteristic of ETFs which generates excess sensitvity is the enhanced liquidity they provide, due to the fact that ETF shares can be traded intra-day while mutual fund shares

[32] In Table A10 we also estimate equations 1 and 2 separately for, on the one hand, global and regional funds and on the other hand country funds. For equity funds, results for the two groups are qualitatively and quantitatively similar (Panel A). In the case of bond funds, we cannot reject the null that flows to country-specific ETFs have the same sensitivity to global financial conditions as country-specific mutual funds, but this is likely due to the small number of country-specific bond funds in our sample. Our dataset contains 98 country-specific EM bond funds, of which only eight are ETFs.

cannot.[33] This result is consistent with various pieces of evidence presented by Ben-David et al. (2018) that US equity ETFs attract clientele who trade frequently and thus value liquidity more highly than other investors.

4.4 Robustness

In this section, we demonstrate the robustness of the results reported above along three different dimensions: varying the time period covered by our analysis, using different measures of global financial shocks, and using different measures of local pull factors. We discuss the results of each exercise here but present the full estimation results in the Appendix (Tables A12 through A15) to conserve space.

We begin our robustness checks by considering only the period after the global financial crisis of 2007/2008. We do this to address the concern that our results reflect that fact that ETFs captured substantial market share only after the financial crisis, a period when sensitivity of fund flows to global financial conditions was high for reasons unrelated to the existence of ETFs. This is a reasonable worry, given that pre-crisis, there are periods in our sample with few or no ETFs. By restricting our sample to the post-crisis period, we ensure that a substantial number of ETFs as well as mutual funds are present in each month. And indeed, the results in Table A12 are both qualitatively and quantitatively similar to our baseline estimation. Thus our results are not a reflection of ETFs happening to be come popular at a time when sensitivity to global financial conditions was generally high.

Next, we exclude the period of the global financial crisis of 2007/2008, dropping the months between March 2007 until March 2009 from our estimations (Table A12). We do this because crisis periods tend to disproportionately increase the cross-country correlation of financial variables (Forbes and Rigobon, 2002). However the results in Table A12 confirm that when we exclude the global financial crisis, the sensitivity of fund flows to ETFs is still significantly larger than for mutual funds, both for equity and bond funds. Similarly, our finding that investor flows to ETFs are not significantly associated with local pull factors remains once we remove the crisis period from our sample.

[33] At the same time, note that because we are studying flows at a monthly frequency, the greater sensitivity we encounter is not a *mechanical* result of the fact that ETF shares can be traded intra-day.

Third, we show that our results are robust to using different measures of global financial shocks. We begin by using three common measures of global risk appetite: the VIX, the TED spread, and the US high yield spread (Table A13). For equity funds, our findings are very similar to the baseline: ETF flows always exhibit higher sensitivity to the global variable than mutual fund flows, while ETFs flows response to local factors is not significantly different from zero. Flows to EM bond funds do not exhibit elevated sensitivity to the VIX or the TED spread, but do respond significantly more than EM mutual fund flows to changes in the US high yield spread. In the first two columns of Table A14 we verify that when we measure global financial conditions using the first principal component of these variables (PCA1) to measure global push factors, the results are very similar to our baseline for both equity and bond funds.

In columns 3 to 6 of Table A14 we capture global financial shocks using two different measures of U.S. monetary policy. Because the U.S. policy rate was at the zero lower bound for a substantial part of the period we analyze, we not only re-run our specification using the fed funds rate, but also with the so-called shadow fed funds rate developed by Wu and Xia (2016). Here again we see that ETFs fund flows respond much more strongly to changes in financial conditions than do mutual fund flows. All in all, our findings are robust to the use of different variables to capture changes in global financial conditions.

Fourth, we demonstrate that our core results do not change when we use alternative measures of local economic conditions—the local factor in specifications 1 and 2. Recall that because we are analyzing flows to funds, many of which invest in multiple countries, we need to average any measure of local conditions across the countries within the fund's investment scope. In columns (1) and (2) of Table A15 we average using the unweighted mean of month-on-month growth across countries, while in columns 3 and 4 we take the GDP-weighted average. The results are very similar to those in Table 2. In columns 5 to 8 of Table A15 we include a measure of local financial conditions, the Consensus forecast for the country's short-term interest rate in the following year. Whether we include this variable on its own (columns 5 and 6) or alongside our measure of real conditions (columns 7 and 8), our finding that ETF flows are more sensitive to changes in global financial conditions remains. Moreover, the response of ETF flows to changes in local economic conditions is never significantly different from zero.

5 Aggregate Implications: ETFs and the Global Financial Cycle in Emerging Markets

Having presented evidence that investor flows into dedicated emerging market ETFs are more sensitive to changes in global conditions than flows into EM mutual funds, in this section we ask whether this greater sensitivity affects countries' exposure to the global financial cycle at the aggregate level. After all, ETFs account for less that half of EM mutual fund assets, and mutual funds are only a subset of cross-border investors. We address this question in two steps. First, we present graphical evidence suggesting that ETFs have boosted the sensitivity of aggregate EM fund flows to global financial conditions in the period since the global financial crisis. Second, we provide a quantitative assessment of this enhanced sensitivity for capital flows and equity prices at the country level.[34]

We begin our discussion of the aggregate implications of our fund-level findings by looking again at Figure 4, which plots the 36-month rolling slope coefficient for aggregate flows into all EM funds (the green line), for aggregate EM mutual fund flows (the red line), and for total EM ETF flows (the blue dashed line) with respect to our measure of global financial stress. The sensitivity of flows to both mutual funds and ETFs, and thus total flows, spiked during the financial crisis, fell back to its pre-crisis value relatively quickly, and jumped again during the 2011 Eurozone crisis. Since then, the sensitivity of traditional mutual funds flows to global financial conditions has trended back towards its pre-crisis average. But the sensitivity of traditional mutual funds flows to global financial conditions has not reverted to its pre-crisis level. Rather, it has remained more than 30 percent higher than it's pre-crisis average. Thus, Figure 4 demonstrates that the growing importance of ETFs in the fund industry combined with the rise in ETF flows' sensitivity over the last several years has resulted in fund flows overall becoming more sensitive to changes in global financial conditions.

To formally explore the macro-level implications of our fund-level results, we construct a measure of ETFs' market penetration in each country, defined as the share of the country's equity

[34]Throughout this section we focus on portfolio equity flows and equity prices. We do this because both portfolio capital flows and bonds prices are much more diverse and more difficult to aggregate. For instance, portfolio debt liability flows in the balance of payments include purchases of both sovereign and corporate securities, both of which may be denominated in either domestic or foreign currency. Accordingly, there are separate price indexes for sovereign and corporate debt in domestic and foreign currency. We therefore restrict our analysis to the aggregate implications for equity.

market capitalization held by ETFs:

$$\text{ETF Share}_{ct} = \frac{\sum_{i \in ETF} w_{ict} A_{it}}{\text{Mcap}_{ct}} \tag{3}$$

where w_{ict} is the share of ETF i's assets invested in country c at time t, and A_{it} is the ETF's total assets under management measured in U.S. dollars. In using share of outstanding held by ETFs to measure their importance, we follow previous work analyzing the effects of ETF ownership on the behavior of US stock returns (Glosten et al., 2016; Israeli et al., 2017; Ben-David et al., 2018). Both w_{ict} and A_{it} are obtained from EPFR. The numerator thus captures the dollar value of ETFs' assets in country c at time t, while the denominator is the stock market capitalization of country c (Mcap_{ct}, also measured in U.S. dollars).

We test whether capital flows and asset prices are more exposed to global factors in countries with a greater ETF presence using the following specification:

$$y_{ct} = \alpha_c + \beta GF_t + \mu(GF_t * \text{Share ETF}_{ct-1}) + \delta(\text{Share ETF}_{ct-1}) + \theta_t + \nu_{ct} \tag{4}$$

where y_{ct} is the aggregate variable of interest, either quarterly portfolio equity liability flows from the balance of payments (normalized by GDP) or monthly MSCI country stock market returns. The global factor GF_t is defined as before. We lag the ETF share variable one period to avoid reverse causality, since large capital inflows in period t could mechanically boost the ETF share for the same period. We also include a set of country fixed effects (α_c) and in some specification add time fixed effects (θ_t) as well. In equation 4, μ captures how the sensitivity of capital flows and prices to global factors varies with the presence of ETFs.[35]

The results of our macro-level regressions, presented in Table 6, suggest that a greater ETF share is associated with a higher aggregate exposure to global financial shocks for both equity flows (Panel A) and stock returns (Panel B). We first confirm that, as one would expect, portfolio equity inflows and local equity returns are negatively related to increases the global financial stress index that we use to measure global financial conditions (column 1). Then in column 2 we interact our measure of global conditions with the ETF share in order to test whether the greater sensitivity we found at the fund level generates macro-level effects. The negative and significant coefficient on the

[35]Summary statistics for the relevant macro variables are presented in Table A16.

interactoin term indicates that the association between global shocks and equity flows and returns is indeed larger (in absolute value) when the ETF share of the local equity market is greater. The result holds even when we add time fixed effects, which strip out among other things any time trend in the ETF share (Column 3). The coefficient estimates in columns 2 and 3 thus constitute the core result of our macro-level regressions, implying that our findings at the micro level have implications for aggregate financial variables.

How large is the effect? With the ETF share of equity assets at its mean (ETF Share$_{ct} = 0.43$ percentage points), the country's inflows beta with respect to the global financial conditions is -0.27; for a country with an ETF share one standard deviation higher (ETF Share$_{ct} = 1.16$ percentage points), this beta increases to -0.79, which implies an exposure 2.9 times higher. The conclusions are qualitatively similar when looking at aggregate stock market returns (Panel B). Increasing the ETF share by one standard deviation relative to the average ETF share, the beta associated with the global factor is 1.2 times higher. Thus the effects are economically as well as statistically significant.

One potential concern about these estimates is that of omitted variable bias. For instance, greater financial integration may lead to an increase in both the ETF share and the equity market co-movement with global factors. Our regressions already include country fixed effects that could control for the cross-country differences in the level of financial integration, which has been shown to vary little over time. Nonetheless, we perform two additional exercises in order to demonstrate that our core results are not driven by a correlation between the ETF share and financial integration.

First, in columns 4 and 5 of Table 6, we verify that it is not holdings of equity by investment funds more generally that is associated with higher sensitivity to changes in global financial conditions. To do this, we include alongside the ETF share the share of assets held by mutual funds (Mutual Fund Share) and interact this variable with the global factor. If our results on the ETF share were merely reflecting the fact that ETFs own more stocks in countries that are more financially integrated, and that, in turn, more financially integrated countries are more sensitive, then we would expect to find the same result for the mutual fund share that we do for ETFs. But we do not—the interaction with the mutual fund share is not statistically significant, with a point estimate dramatically smaller than that for the ETF share interaction. Furthermore, when we add the variables capturing the mutual fund share, the coefficient on the ETF share interacted with the

global factor is not affected at all, suggesting that financial integration as measured by the mutual fund share is not a relevant omitted variable.

The second exercise we perform in order to verify that our result are not driven by omitted variable bias is to explicitly control for countries' general degree of international financial integration. To this end, in columns 5 and 7 of Table 7 we include as a control the ratio of each country's gross financial assets and liabilities measured as a share of its GDP.[36] This is a measure of de facto international financial integration widely used in the literature. In Table A17 we experiment with alternative measures of financial integration, including de jure and other defacto measures, such as equity and FDI de facto financial integration. We also interact this broad measure of financial integration with our global financial stress measure in order to assess whether it is in fact general international financial integration that renders capital flows to emerging markets more sensitive to global conditions.[37] As one would expect, in the flows regressions in Panel A of Table 7 financial integration is positively and significantly associated with the level of capital flows—more integrated countries tend to receive higher capital flows. At the same time, we find that the estimated coefficient on the interaction between the ETF share and global financial conditions changes very little when we control for general financial integration, both for portfolio equity flows (Panel A) and equity returns (Panel B). And this is true whether we include only country fixed effects (column 6) or country and time fixed effects (column 7). These results confirm that the relationship that we have found between, on the one hand, ETF ownership of local equities and, on the other hand, the sensitivity of capital flows and equity prices to global financial conditions is not simply driven by a correlation between ETF participation and international financial integration.

Reverse causality is also a concern in our country-level regressions. Financial institutions do not set up new ETFs at random. Rather, they are usually created in response to demand from investors. For example, if there are investors who would like to quickly move in and out of risky assets, asset managers will likely set up ETFs that provide exposure to those assets. We address this concern about endogeneity in two ways. We first note that for endogenous ETF creation to drive our results, two very specific and arguably implausible conditions must hold. We then conduct a robustness test in which we examine a subset of cross-border ETF holdings which previous work

[36] We obtain data on cross-border assets and liabilities from (Lane and Milesi-Ferretti, 2018).

[37] We drop the mutual fund share and its interaction from these regressions in order to make clear that the lack of significance of the financial integration variable is not due to colinearity. However, results are basically unchanged if the mutual fund share variables are included.

suggests are exogenously determined.

Under what conditions would reverse to causality rather than a causal relationship explain our finding that total portfolio equity flows and stock prices are more sensitive to global factors where ETFs hold a larger share of the market? First, it must be the case that the launch of an ETF in a volatile market does *not* attract new investors to that market. If the launch of ETFs investing in a volatile market *does* draw in new investors, the responsiveness of total portfolio equity capital flows (measured as a share of GDP) will increase, and the introduction of the ETF will have had a causal effect on that responsiveness. Second, for reverse causality to explain our results it must *also* be the case that the ETF launch did *not* lead those investors who had exposure to that market to change their behavior by reacting more to global financial shocks. Both of these assumptions seem implausible since the appeal of ETFs relative to other investment vehicles is that they are low cost, and thus attract to new investors, and more liquid, which likely prompts a change the behavior of investors.

Nonetheless, to confirm that the creation of ETFs to provide access to already volatile or high-beta markets does not drive our results, in Table 7 we focus the relationship between ETF holdings which are *exogenously* determined and sensitivity to global financial shocks. We isolate exogenous differences in the ETF share in two different ways. First, in columns 1 and 2 we construct an ETF share measure which includes only the emerging market assets held by global and regional ETFs (as opposed to country specific funds). Because these funds' holdings are diversified across countries, it is less likely that their holdings are endogenously determined by a desire to access high-beta emerging markets. More importantly, these funds' holdings of any particular country's stocks are largely determined by benchmark weights, as documented by Raddatz et al. (2017). As a result, we can be confident that the share of a given country's market capitalization held by this subset of ETFs is not endogenously determined. When when redo our analysis using this exogenous measure of ETF holdings in Table 7, we find results very similar to those in Table 6. Once again, both flows and returns respond more to changes in global financial conditions in markets where ETFs own a larger share of the equity market capitalization.

We further address concerns about heterogeneity bias in columns 3 and 4 of Table 7, where we replace the ETF share with a dummy variable (MSCI EM) equal to one for countries that

MSCI classifies as emerging markets and zero for countries MSCI deems frontier markets.[38] Many ETFs track MSCI indexes, and more ETFs track MSCI's emerging market index than its frontier index. Thus the degree to which ETFs own the local market is correlated with the country's MSCI classification. However as demonstrated in Raddatz et al. (2017), the timing of changes in MSCI classification is largely exogenous. Thus our MSCI variable can be regarded as an arguably exogenous proxy for the ETF share variable, which we interact with the global factor in a regression that also includes country fixed effects. Re-estimating equation 4 using the MSCI classification as a proxy for ETF share (again, column 1 of 7), we find that the interaction term is once again negative and significant. Since we include country fixed effects in the regression and focus on within-country variation, this implies that MSCI upgrades of a country are associated with an increase in the exposure of capital flows and equity returns to global financial conditions.

Our findings regarding the macro-level implications of ETFs' growing role in cross-border capital flows are summarized in Figure 5. We plot the relationship between, on the one hand, the cross-sectional betas for portfolio equity inflows (the left panel) and stock market returns (the right panel) for the 2000-2017 period and, on the other hand, the average share of assets held by ETFs for a given country and period. Furthermore, we find that the inclusion (exclusion) from important benchmark indexes tracked by ETF investors raises (reduces) the country's betas, even when we look exclusively at the cross-section of countries, which is again consistent with the hypothesis that ETFs amplify the incidence of global factors on local markets.

6 Conclusion

Since the early 2000s, the asset management industry has undergone a significant change as the assets under management of ETFs have expanded rapidly. In this paper, we present evidence that the growing role of ETFs as a channel for cross-border capital flows has increased the exposure of emerging markets to the global financial cycle. We use detailed monthly micro data at the fund level from 1997 until 2017 to document that investor flows into dedicated emerging market ETFs are more sensitive to global push factors than flows into emerging market mutual funds. This difference is economically large, with betas to global factors almost 2.5 times bigger for equity ETFs, and

[38] Our sample also includes one country, Israel, that shifted from being classified as emerging to developed markets by MSCI. For simplicity, we drop Israel from our sample for this exercise.

2.25 time bigger for bond ETFs, relative to non-ETFs. By contrast, while flows into mutual funds respond to changes in local economic conditions, ETF flows do not. Our findings are robust to the inclusion of fund and investment scope-time fixed effects, time-varying fund controls such as past performance and economic conditions in the domicile of the fund. We explicitly consider and rule out a host of alternative explanations for the patterns we uncover in the data, confirming that it is specifically ETF flows which are particularly sensitive to changes in global financial conditions.

In addition, we demonstrate that our findings have important implications for aggregate cross-border capital flows: we find that greater holdings of equity by foreign ETFs is associated with a higher exposure to global financial conditions both for aggregate portfolio equity flows and stock market returns. These results are not only statistically significant, but of economic importance. A one standard deviation increase in the percentage of local assets held by ETFs implies a sensitivity to global financial shocks that is 2.5 times in terms of portfolio equity flows and almost 1.4 times larger for prices.

Overall, our results suggest that greater use of ETFs as a conduit for capital flows to emerging markets has increased the exposure of these economies to the global financial cycle. Our findings also present one example of how the rising popularity of passively managed, benchmarked instruments contributes to market co-movement and capital flows synchronicity at the expense of local fundamentals. Finally, the results presented here raise the question of why ETF flows respond differently to global and local factors, whether this is due to the perceived liquidity of ETFs shares or differences in the investor base of ETFs. This is a natural line for future research.

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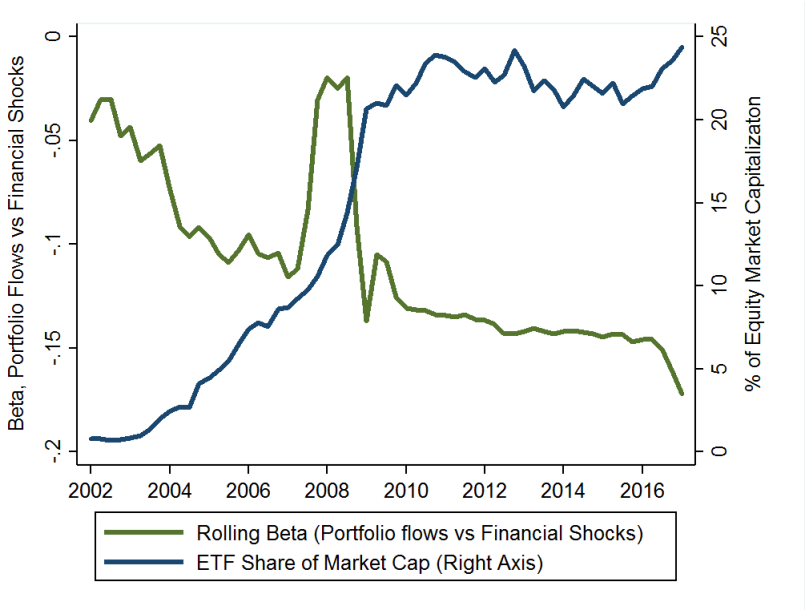
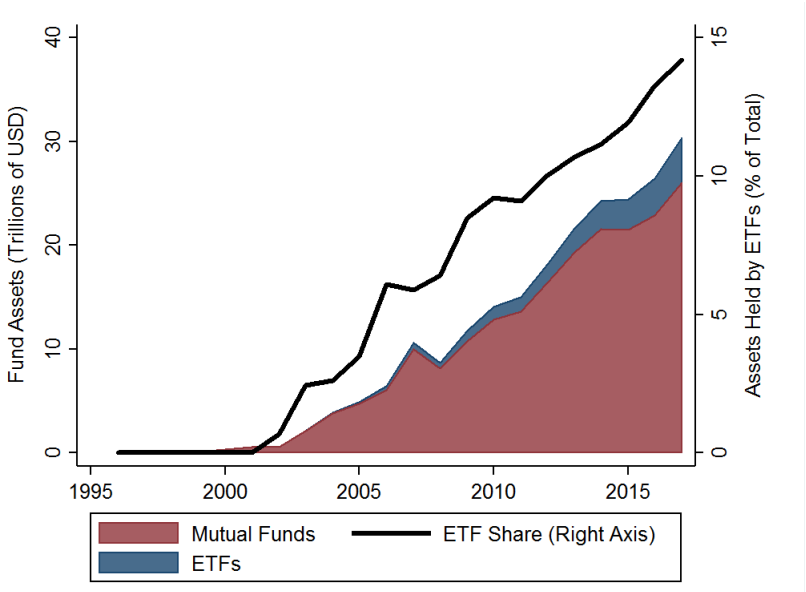
Tables and Figures

Figure 1: ETF Market Share and Emerging Markets' Exposure to Global Financial Shocks



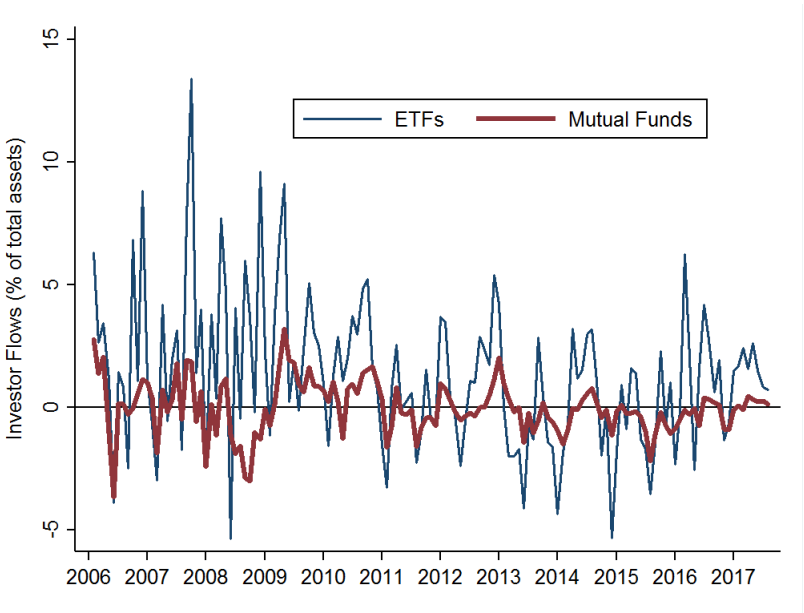
Note: This figure shows the portfolio equity liability flows to emerging markets as a share of GDP. Rolling beta is the slope of a 36-month rolling regression of the portfolio equity liability flows over GDP versus the first difference in the St. Louis Financial Stress Index. ETF Market Share (right axis) represents the assets under management held by equity ETF divided by the total assets under management of all emerging market funds in percentage.

Figure 2: The Growth of ETFs



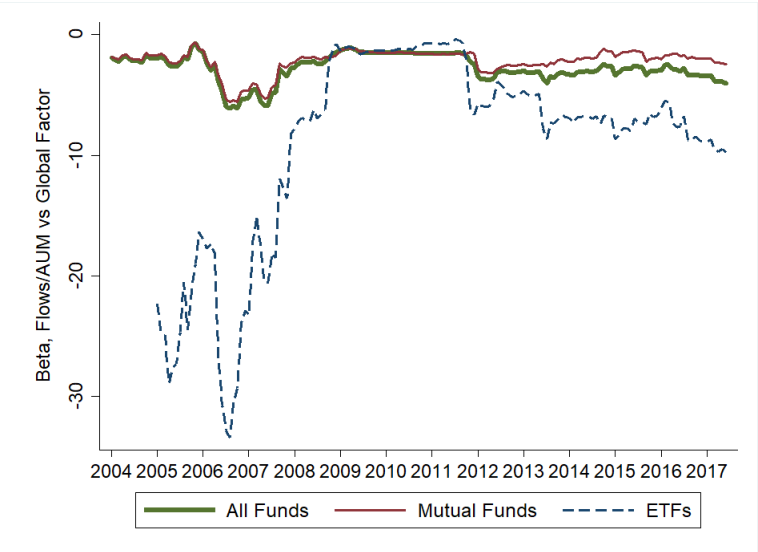
Note: This figure shows the assets under management of ETF and non-ETF in the EPFR data. The data is at plotted at the end of each year. Share ETF (right axis) represents the assets under management held by ETF divided by the total assets under management of all funds in percentage.

Figure 3: Fund Flow Volatility, ETFs vs Mutual Funds



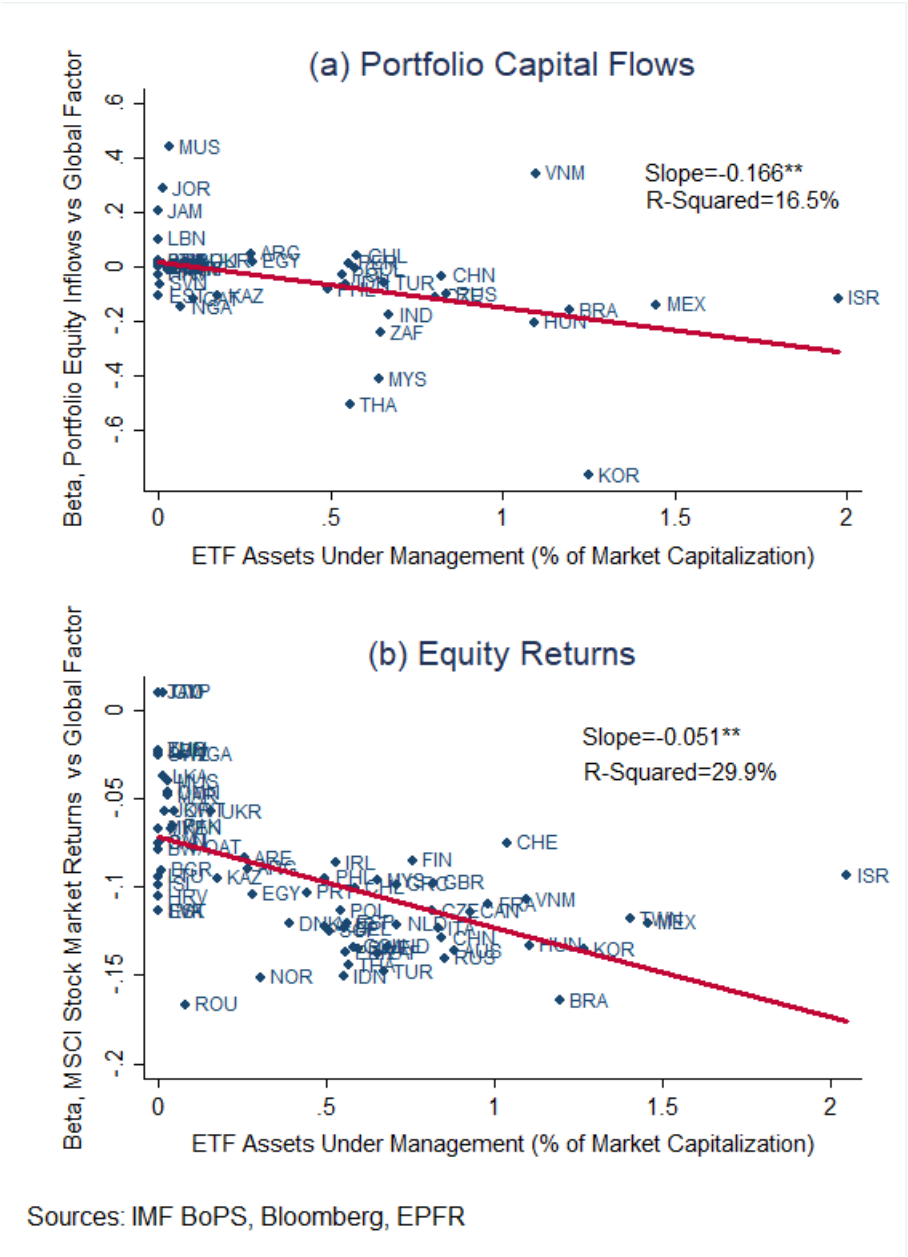
Note: This figure depicts the time evolution of investor flows over initial assets for ETFs and non-ETF funds. Investor Flows are the sum of injections and redemptions at each point in time. AUM are the initial assets under management aggregated at each point in time.

Figure 4: Comparing Sensitivity to Global Factors Over Time



Note: This figure presents the sensitivity of investor flows to global factors for total flows to all funds, aggregate flows to mutual funds, and aggregate flows to ETFs. The beta flows/AUM to Global Factor is the slope of a 36-month rolling regression of the aggregate investor flows over initial assets versus the difference in the St. Louis Financial Stress Index.

Figure 5: Country Betas and ETF Share of Market Capitalization



Note: This figure depicts the exposure to global factors and the relationship with the presence of ETFs in each emerging country. The left panel shows the coefficient of a regression of Balance of Payments Portfolio Equity Inflows to the difference in the St. Louis Financial Stress Index in the vertical axis. The right panel presents in the vertical axis the coefficient of a regression of MSCI stock market returns for each country to the difference in the St. Louis Financial Stress Index. These regressions are for the period 2010-2017. The horizontal axis for both panels indicates the equity assets held by ETFs in each country divided by the total stock market capitalization. Slope and R-squared refers to the corresponding statistics for the linear fit of the scatter plot.

Table 1: Summary Statistics, Fund Flows over Initial Assets

Panel A: Equity Funds						
	Full Sample		Developed Markets		Emerging Markets	
	(1)	(2)	(3)	(4)	(5)	(6)
	ETFs	Mutual Funds	ETFs	Mutual Funds	ETFs	Mutual Funds
Mean	0.85	-0.14	0.93	-0.19	0.64	-0.05
Standard Deviation	9.20	5.97	9.43	5.86	8.54	6.23
10th Percentile	-7.07	-4.48	-7.24	-4.38	-6.72	-4.73
25th Percentile	-0.77	-1.74	-0.77	-1.71	-0.77	-1.82
Median	0.00	-0.30	0.00	-0.36	0.00	-0.16
75th Percentile	2.39	0.98	2.68	0.95	1.45	1.05
90th Percentile	10.10	4.48	10.48	4.27	9.03	4.96
Number of Funds	1858	9150	1380	6621	479	2551
Observations	109888	657800	81050	457014	28838	200786
Panel B: Bond Funds						
	Full Sample		Developed Markets		Emerging Markets	
	(1)	(2)	(3)	(4)	(5)	(6)
	ETFs	Mutual Funds	ETFs	Mutual Funds	ETFs	Mutual Funds
Mean	1.30	0.02	1.26	-0.05	1.58	0.23
Standard Deviation	9.85	6.45	9.88	6.19	9.70	7.18
10th Percentile	-7.14	-5.01	-7.14	-4.84	-7.13	-5.56
25th Percentile	-0.53	-1.93	-0.51	-1.88	-0.63	-2.10
Median	0.00	-0.18	0.00	-0.24	0.00	-0.03
75th Percentile	3.66	1.43	3.62	1.34	4.15	1.73
90th Percentile	11.82	5.50	11.62	5.11	12.85	6.81
Number of Funds	406	3595	353	2738	53	859
Observations	20447	202285	17732	151399	2715	50886

Note: This table reports the summary statistics for fund flows over initial assets (in percentage) for the sample used in the main analysis for the all the sample, developed and emerging market funds. The sample is divided into ETF and non-ETF. Panel A shows statistics for equity funds and Panel B for bond funds. Fund flows over initial assets are winsorized at the 1 and 99 percent level.

Table 2: Baseline Results: Sensitivity of Mutual Fund and ETF Flows to Global Shocks

Dependent Variable: Fund Flows over Initial Assets						
	Equity Funds			Bond Funds		
	(1)	(2)	(3)	(4)	(5)	(6)
Global Factor	-2.118***	-1.857***		-3.294***	-3.169***	
	(0.344)	(0.305)		(0.475)	(0.460)	
Local Factor	0.170***	0.187***		0.099	0.116	
	(0.047)	(0.045)		(0.127)	(0.123)	
Global Factor*ETF		-2.733***	-2.256***		-3.948**	-3.030*
		(0.607)	(0.519)		(1.951)	(1.823)
Local Factor*ETF		-0.133	0.030		-0.352	-0.255
		(0.087)	(0.073)		(0.332)	(0.359)
Fund Performance Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope-Time FE	No	No	Yes	No	No	Yes
Local Factor ETF		0.054			-0.236	
P-value		0.584			0.524	
Observations	210,392	210,392	209,696	50,510	50,510	50,029
N. of Funds	2,908	2,908	2,899	910	910	901
R^2	0.064	0.064	0.138	0.092	0.092	0.177

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects. The left three columns show the results for equity funds and three right-hand columns show results for bond funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in the St. Louis Financial Stress Index. ETF is a dummy indicating whether a fund is an ETF or not. Fund Performance Controls indicates whether the regression includes three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table 3: Domicile-Specific Controls

Panel A: Equity Funds
Dependent Variable: Fund Flows over Initial Assets

	Domicile financial conditions			Domicile specific time FE	
	(1)	(2)	(3)	(4)	(5)
Global Factor	-1.248***			-1.266***	
	(0.271)			(0.213)	
Global Factor*ETF	-2.945***	-2.265***	-2.789***	-1.699***	-1.652***
	(0.740)	(0.646)	(0.762)	(0.470)	(0.417)
Local Factor	0.193***			0.044	
	(0.043)			(0.035)	
Local Factor*ETF	-0.136	0.028	0.172*	-0.177**	-0.082
	(0.086)	(0.073)	(0.098)	(0.073)	(0.072)
Stk Mkt at Fund Domicile	5.164***	1.573*		4.558***	1.925**
	(1.011)	(0.834)		(0.856)	(0.754)
Stk Mkt at Fund Domicile*ETF	-2.393	0.078	0.165		
	(2.639)	(2.254)	(2.946)		
Fund Performance Controls	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	No	Yes
Domicile*Inv. Scope*Time FE	No	No	Yes	No	No
Fund Domicile*ETF*Year FE	No	No	No	Yes	Yes
Local Factor ETF	0.057			-0.133	
P-value	0.563			0.098	
Observations	210,194	209,498	195,690	210,189	209,493
N. of Funds	2,906	2,897	2,750	2,906	2,897
R^2	0.066	0.138	0.216	0.091	0.148

Panel B: Bond Funds
Dependent Variable: Fund Flows over Initial Assets

	Domicile financial conditions			Domicile specific time FE	
	(1)	(2)	(3)	(4)	(5)
Global Factor	-2.391***			-2.198***	
	(0.465)			(0.416)	
Global Factor*ETF	-5.970***	-4.768**	-7.038***	-2.625**	-2.240**
	(2.276)	(2.132)	(2.363)	(1.206)	(1.130)
Local Factor	0.137			0.049	
	(0.119)			(0.091)	
Local Factor*ETF	-0.374	-0.267	-0.119	-0.237	-0.212
	(0.322)	(0.354)	(0.396)	(0.287)	(0.313)
Stk Mkt at Fund Domicile	5.943***	4.173**		5.574***	3.771***
	(2.056)	(1.699)		(1.838)	(1.224)
Stk Mkt at Fund Domicile*ETF	-14.464**	-11.459*	-13.875**		
	(5.843)	(6.000)	(6.766)		
Fund Performance Controls	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	No	Yes
Domicile*Inv. Scope*Time FE	No	No	Yes	No	No
Fund Domicile*ETF*Year FE	No	No	No	Yes	Yes
Local Factor ETF	-0.237			-0.188	
P-value	0.517			0.571	
Observations	50,510	50,029	48,254	50,509	50,028
N. of Funds	910	901	870	910	901
R^2	0.094	0.177	0.226	0.129	0.190

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for emerging market funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in the St. Louis Financial Stress Index. ETF is a dummy indicating whether a fund is an ETF or not. Fund Controls indicates whether the regression includes fund control variables. These variables are the three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level and the difference in logs of the MSCI stock market index in the domicile of each fund. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table 4: Analysis at Lower Frequencies

Panel A: Equity Funds				
Dependent Variable: Fund Flows over Initial Assets	Frequency			
	Quarterly		6-Month Periods	
	(1)	(2)	(3)	(4)
Global Factor	-0.853		-0.063	
	(0.601)		(0.974)	
Global Factor*ETF	-5.018***	-4.343***	-7.545**	-5.688**
	(1.726)	(1.470)	(3.077)	(2.726)
Local Factor	0.649***		1.050***	
	(0.107)		(0.219)	
Local Factor*ETF	0.205	0.463**	0.428	0.677
	(0.227)	(0.200)	(0.512)	(0.528)
Fund Controls	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes
Local Factor ETF	0.854		1.478	
P-value	0.001		0.029	
Observations	208,134	200,756	199,787	199,091
N. of Funds	2,906	2,888	2,895	2,885
R^2	0.112	0.203	0.154	0.252
Panel B: Bond Funds				
Dependent Variable: Fund Flows over Initial Assets	Frequency			
	Quarterly		6-Month Periods	
	(1)	(2)	(3)	(4)
Global Factor	-2.004		-2.607	
	(1.275)		(1.794)	
Global Factor*ETF	-12.249***	-9.996***	-19.000***	-14.767***
	(3.262)	(3.373)	(4.518)	(4.097)
Local Factor	0.597**		1.373***	
	(0.299)		(0.454)	
Local Factor*ETF	-0.716	-0.666	-1.913**	-1.345
	(0.648)	(0.702)	(0.879)	(0.856)
Fund Controls	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes
Local Factor ETF	-0.119		-0.540	
P-value	0.883		0.655	
Observations	49,877	49,401	46,881	46,422
N. of Funds	910	901	906	898
R^2	0.150	0.253	0.198	0.302

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for emerging market funds. Fund flows are cumulative during an horizon of 3 and 6 months and are divided by the initial assets. Panel A shows the results for equity funds and Panel B for bond funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in logs of the variable indicated at the top of each column. ETF is a dummy indicating whether a fund is an ETF or not. Fund Controls indicates whether the regression includes fund control variables. These variables are the three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level and the difference in logs of the MSCI stock market index in the domicile of each fund. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table 5: Exploring Alternate Hypotheses

Panel A: Equity Funds Dependent Variable: Fund Flows over Initial Assets	ETFs vs Large Funds		ETFs vs Passive		ETFs vs Global Funds	
	(1)	(2)	(3)	(4)	(5)	(6)
Global Factor	-1.174***		-1.271***		-1.135***	
	(0.264)		(0.277)		(0.252)	
Global Factor*ETF	-2.705***	-2.341***	-2.608***	-2.274***	-3.018***	-2.655***
	(0.652)	(0.534)	(0.620)	(0.522)	(0.825)	(0.737)
Local Factor	0.192***		0.194***		0.192***	
	(0.043)		(0.043)		(0.043)	
Local Factor*ETF	-0.134	0.028	-0.135	0.030	-0.133	0.029
	(0.086)	(0.073)	(0.086)	(0.073)	(0.085)	(0.073)
Global Factor*>250M	-0.260	-0.175				
	(0.185)	(0.158)				
Global Factor*Passive			-0.177	0.082		
			(0.667)	(0.692)		
Local Factor*Passive			-0.080	0.075		
			(0.152)	(0.153)		
Global Factor*Country Fund					-0.496	
					(0.333)	
Global Factor*Country Fund*ETF					1.022	0.824
					(0.831)	(0.854)
Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes	No	Yes
Local Factor ETF	0.058		0.058		0.059	
P-value	0.547		0.547		0.541	
Observations	210,194	209,498	210,194	209,498	210,194	209,498
N. of Funds	2,906	2,897	2,906	2,897	2,906	2,897
R^2	0.066	0.138	0.066	0.138	0.066	0.138
Panel B: Bond Funds Dependent Variable: Fund Flows over Initial Assets	ETFs vs Large Funds		ETFs vs Passive		ETFs vs Global Funds	
	(1)	(2)	(3)	(4)	(5)	(6)
Global Factor	-2.020***		-2.453***		-2.481***	
	(0.467)		(0.476)		(0.488)	
Global Factor*ETF	-4.300**	-3.571*	-3.877**	-3.116*	-4.109*	-3.109*
	(2.013)	(1.915)	(1.948)	(1.836)	(2.157)	(1.834)
Local Factor	0.135		0.138		0.136	
	(0.119)		(0.119)		(0.119)	
Local Factor*ETF	-0.372	-0.264	-0.375	-0.266	-0.375	-0.265
	(0.331)	(0.360)	(0.332)	(0.360)	(0.332)	(0.360)
Global Factor*>250M	-0.886***	-0.991***				
	(0.328)	(0.296)				
Global Factor*Passive			-3.304	-2.357		
			(2.354)	(2.429)		
Local Factor*Passive			-0.453*	-0.112		
			(0.240)	(0.243)		
Global Factor*Country Fund					0.591	0.000
					(0.874)	(.)
Global Factor*Country Fund*ETF					2.893	
					(5.124)	
Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes	No	Yes
Local Factor ETF	-0.237		-0.237		-0.239	
P-value	0.526		0.526		0.521	
Observations	50,510	50,029	50,510	50,029	50,510	50,029
N. of Funds	910	901	910	901	910	901
R^2	0.094	0.177	0.093	0.177	0.093	0.177

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for EM funds. Panel A shows the results for equity funds and Panel B for bond funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in the St. Louis Financial Stress Index. ETF is a dummy indicating whether a fund is an ETF or not. >250M is a dummy variable that is 1 when a fund's AUM is larger than $250 million. Fund Controls indicates whether the regression includes three lags of the fund's returns (measured as the deviation from the average return of funds with the same investment scope) level and the log differenced MSCI stock market index in the fund's domicile. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table 6: Aggregate Economic Significance: ETF Assets and Country Betas

Panel A
Dependent Variable: Balance of Payments Gross Portfolio Equity Inflows (% of GDP)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Global Factor	-0.201**	0.031		0.031		0.028	
	(0.090)	(0.110)		(0.109)		(0.128)	
Global Factor*ETF Share		-0.712***	-0.724***	-0.711***	-0.730***	-0.722***	-0.715***
		(0.097)	(0.071)	(0.108)	(0.081)	(0.101)	(0.072)
ETF Share		-0.127**	-0.027	-0.127**	-0.026	-0.137**	0.001
		(0.055)	(0.051)	(0.054)	(0.050)	(0.055)	(0.051)
Global Factor*Mutual Fund Share				-0.000	0.004		
				(0.013)	(0.012)		
Mutual Fund Share				-0.008	-0.015		
				(0.014)	(0.015)		
Global Factor*Fin. Integration						0.009	0.016
						(0.024)	(0.023)
Financial Integration (L-MF)						0.051***	0.059***
						(0.008)	(0.008)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	Yes	No	Yes	No	Yes
Observations	2,035	2,035	2,032	2,035	2,032	2,035	2,032
N. of Countries	43	43	43	43	43	43	43
R^2	0.136	0.155	0.222	0.155	0.222	0.183	0.257

Panel B
Dependent Variable: MSCI Country Stock Markets Returns (basis points)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Global Factor	-9.09***	-7.49***		-7.00***		-7.42***	
	(1.57)	(1.53)		(1.40)		(1.55)	
Global Factor*ETF Share		-5.13***	-4.28***	-4.36***	-3.11***	-5.14***	-4.16***
		(0.88)	(0.77)	(0.96)	(0.72)	(0.88)	(0.73)
ETF Share		-0.73***	-0.02	-0.73***	-0.36**	-0.72**	-0.38**
		(0.28)	(0.10)	(0.28)	(0.15)	(0.28)	(0.15)
Global Factor*Mutual Fund Share				-0.41*	-0.51**		
				(0.24)	(0.24)		
Mutual Fund Share				0.11*	0.05		
				(0.06)	(0.05)		
Global Factor*Fin. Integration						-0.03	0.02
						(0.04)	(0.04)
Financial Integration (L-MF)						-0.03*	-0.02
						(0.02)	(0.01)
Country FE	Yes	Yes	No	Yes	Yes	Yes	Yes
Time FE	No	No	Yes	No	Yes	No	Yes
Observations	7,613	7,613	7,606	7,613	7,606	7,613	7,606
N. of Countries	49	49	49	49	49	49	49
R^2	0.112	0.124	0.354	0.125	0.361	0.124	0.359

Note: This table reports the OLS coefficients from a regression of Balance of Payments Portfolio Equity Liability Flows over GDP (Panel A) or MSCI Country Stock Market Returns (Panel B) on different explanatory variables and different sets of fixed effects for emerging markets at the quarterly frequency. Global Factor is the difference in the St. Louis Financial Stress Index. ETF Share is the assets under management of equity ETFs divided by the total equity market capitalization. Mutual Fund Share is the assets under management of equity of funds that are not ETFs divided by the total equity market capitalization. Financial Integration is total financial assets plus liabilities divided by GDP from Lane and Milesi-Ferretti (2018). All the estimations are for the period 2000-2017. Panel A estimations are at the quarterly frequency and Panel B at the monthly frequency. The dependent variable is winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table 7: Aggregate Economic Significance: Robustness

Panel A:
Dependent Variable: Balance of Payments Gross Portfolio Equity Inflows (% of GDP)

	(1)	(2)	(3)	(4)
Global Factor	0.012		-0.021	
	(0.119)		(0.090)	
Global Factor*ETF Share (excl. Country Funds)	-0.634***	-0.657***		
	(0.129)	(0.116)		
ETF Share (excl. Country Funds)	-0.295***	-0.104		
	(0.092)	(0.136)		
Global Factor*MF Share (excl. Country Funds)	-0.050***	-0.046**		
	(0.019)	(0.020)		
Mutual Fund Share (excl. Country Funds)	0.005	-0.008		
	(0.013)	(0.013)		
Global Factor*MSCI EM			-0.337***	-0.395***
			(0.093)	(0.097)
MSCI EM			0.473***	0.273
			(0.153)	(0.175)
Country FE	Yes	Yes	Yes	Yes
Time FE	No	Yes	No	Yes
Observations	2,007	2,004	1,845	1,842
N. of Countries	43	43	40	40
R^2	0.157	0.223	0.149	0.221

Panel B:
Dependent Variable: MSCI Country Stock Markets Returns (basis points)

	(1)	(2)	(3)	(4)
Global Factor	-6.519***		-6.961***	
	(1.373)		(1.627)	
Global Factor*ETF Share (excl. Country Funds)	-6.069***	-4.373***		
	(2.236)	(1.490)		
ETF Share (excl. Country Funds)	-1.631**	-1.396***		
	(0.668)	(0.418)		
Global Factor*MF Share (excl. Country Funds)	-1.101**	-1.223***		
	(0.465)	(0.378)		
Mutual Fund Share (excl. Country Funds)	0.335***	0.122		
	(0.126)	(0.083)		
Global Factor*MSCI EM			-3.968***	-4.489***
			(1.084)	(1.260)
MSCI EM			0.458	-0.351
			(0.519)	(0.443)
Country FE	Yes	Yes	Yes	Yes
Time FE	No	Yes	No	Yes
Observations	7,525	7,518	7,525	7,518
N. of Countries	49	49	49	49
R^2	0.129	0.365	0.117	0.361

Note: This table reports the OLS coefficients from a regression of Balance of Payments Portfolio Equity Liability Flows over GDP (Panel A) or MSCI Country Stock Market Returns (Panel B) on different explanatory variables and different sets of fixed effects for emerging markets at the quarterly frequency. Global Factor is the difference in the St. Louis Financial Stress Index. ETF Share is the assets under management of equity ETFs divided by the total equity market capitalization. Mutual Fund Share is the assets under management of equity of funds that are not ETFs divided by the total equity market capitalization. ETF and Mutual Fund Share are computed by using only global or regional funds (i.e. excluding country funds). MSCI EM is a variable that is 0 when a country is a frontier markets or standalone market under, 1 when it is an emerging market, and 2 when it is a developed market under MSCI classification scheme. All the estimations are for the period 2000-2017. Panel A estimations are at the quarterly frequency and Panel B at the monthly frequency. The dependent variable is winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Appendix

Table A1: Variable Definition and Source

Variable	Definition	Source
F_{it}	Injections/Redemptions to fund i at time t in US dollars	EPFR
A_{it}	Assets under management to fund i at time t in US dollars	EPFR
Fund Performance	Portfolio return of each fund minus the average return at the investment scope level	EPFR
STLFSI	St. Louis Financial Stress Index	FRED
VIX	Chicago Board Options Exchange Market Volatility Index	FRED
US HY	Effective yield of the Bank of America Merrill Lynch US High Yield Master II Index	FRED
TED Rate	Spread between 3-month LIBOR and 3-month Treasury Bill	FRED
PCA1	Principal Component of the monthly growth (in logs) of VIX, US HY and TED Rate	Own
FF Rate	Effective Federal Funds Rate	FRED
FF Shadow Rate	Wu-Xia Federal Funds Rate	Atlanta Fed
Median IP Growth	Median of the Monthly Industrial Production Growth at the Investment Scope Level	IMF IFS
Mean IP Growth	Mean of the Monthly Industrial Production Growth at the Investment Scope Level	IMF IFS
GDP Weighted IP Growth	GDP weighted Monthly Industrial Production Growth at the Investment Scope Level	IMF IFS
Stk Mkt at Domicile	Monthly Growth of the MSCI Stock Market Index at the Domicile of the Fund	MSCI

Table A2: Funds by Investment Scope

Panel A: Developed Markets

	Equity Funds		Bond Funds	
	(1) Observations	(2) Funds	(3) Observations	(4) Funds
Europe	84007	1221	17180	355
Europe ex-UK	45518	697	39421	847
Global	189738	2928	82413	1397
Global ex-US	67734	868	3820	54
Japan	35554	515	496	9
Pacific	13223	185	148	5
United States	65646	1089	16032	306
Other	36644	530	9621	219
Total	538064	7999	169131	3091

Panel B: Emerging Markets

	Equity Funds		Bond Funds	
	(1) Observations	(2) Funds	(3) Observations	(4) Funds
Asia ex-Japan	51377	648	5395	110
China	16299	275	1212	31
Emerging Europe	15610	162	2024	26
Global Emerging Markets	68527	924	40469	652
Greater China	12641	123	68	2
India	10072	156	308	9
Latin America	12691	145	1291	21
Other	42407	617	2834	66
Total	229624	3029	53601	912

Note: This table shows the statistics for the investment scope of the funds. Panel A reports the developed market funds, and Panel B the emerging market funds. Other is a residual category indicating all other domiciles.

Table A3: Funds by Domicile

Panel A: Number of Funds

	Equity Funds			Bond Funds		
	(1) Full Sample	(2) DM	(3) EM	(4) Full Sample	(5) DM	(6) EM
Canada	522	455	67	78	70	8
France	714	607	109	267	256	11
Germany	296	280	16	118	113	5
Ireland	1188	852	339	440	349	92
Japan	245	125	120	166	91	75
Luxembourg	3303	2366	944	1752	1327	425
Switzerland	270	222	49	181	173	8
United Kingdom	733	521	215	131	118	13
United States	2347	1764	589	474	311	163
Other	1409	827	583	399	286	114
Total	11005	7999	3029	4001	3091	912

Panel B: Number of Observations

	Equity Funds			Bond Funds		
	(1) Full Sample	(2) DM	(3) EM	(4) Full Sample	(5) DM	(6) EM
Canada	36028	29972	6056	4144	3767	377
France	47004	39530	7474	13647	13033	614
Germany	21715	20496	1219	5952	5639	313
Ireland	73366	48846	24520	26658	20735	5923
Japan	10374	5451	4923	7241	3968	3273
Luxembourg	235145	161760	73385	94549	69651	24898
Switzerland	18518	14610	3908	9250	9096	154
United Kingdom	57137	37372	19765	9302	8293	1009
United States	182008	132528	49480	32289	21478	10811
Other	86393	47499	38894	19700	13471	6229
Total	767688	538064	229624	222732	169131	53601

Note: This table shows the statistics for the domicile of the funds. Panel A reports the number of funds, and Panel B the number of observations in the sample for each domicile. Funds are divided into developed or emerging market funds. Other is a residual category indicating all other domiciles.

Table A4: Summary Statistics, Assets Under Management

Panel A: Equity Funds

	All Sample		Developed Markets		Emerging Markets	
	(1)	(2)	(3)	(4)	(5)	(6)
	ETFs	Mutual Funds	ETFs	Mutual Funds	ETFs	Mutual Funds
Mean	609.40	714.52	569.05	825.99	722.62	460.95
Standard Deviation	2782.76	3649.96	2475.34	4270.73	3501.88	1430.28
p10	12.91	20.00	13.41	23.14	11.72	15.56
p25	27.56	49.32	29.24	57.09	23.27	36.42
Median	86.78	151.16	90.40	171.55	76.68	112.37
p75	315.93	462.10	321.36	518.28	303.65	349.00
p90	1031.81	1296.78	1020.59	1458.55	1065.87	976.13
Number of Funds	1858	9150	1380	6621	479	2551
Observations	110435	658470	81422	457385	29013	201085

Panel B: Bond Funds

	All Sample		Developed Markets		Emerging Markets	
	(1)	(2)	(3)	(4)	(5)	(6)
	ETFs	Mutual Funds	ETFs	Mutual Funds	ETFs	Mutual Funds
Mean	489.09	784.45	457.45	878.80	694.65	504.17
Standard Deviation	1105.49	2356.44	1055.87	2655.26	1367.77	999.38
p10	13.67	28.71	13.60	33.70	14.30	20.25
p25	32.95	76.11	32.85	87.57	34.69	50.83
Median	123.22	221.78	125.90	248.70	105.40	156.59
p75	443.83	670.71	430.55	752.21	569.13	456.71
p90	1273.78	1736.33	1181.92	1877.18	2397.69	1262.66
Number of Funds	406	3595	353	2738	53	859
Observations	20573	202587	17829	151567	2744	51020

Note: This table reports the summary statistics for the assets under management (in millions USD) for the sample used in the main analysis for the all the sample, developed and emerging market funds. The sample is divided into ETF and non-ETF. Panel A shows statistics for equity funds and Panel B for bond funds.

Table A5: Summary Statistics, Global Factors

Summary Statistics Global Variables						
	(1)	(2)	(3)	(4)	(5)	(6)
	St. Louis FSI	VIX	TED Rate	US HY	FF Rate	FF Shadow Rate
Mean	-0.01	-0.00	-0.00	0.00	-0.02	-0.02
Standard Deviation	0.26	0.16	0.22	0.09	0.17	0.20
p10	-0.22	-0.18	-0.29	-0.09	-0.21	-0.25
p25	-0.12	-0.09	-0.14	-0.06	-0.02	-0.08
Median	-0.02	-0.01	-0.00	-0.01	0.00	0.00
p75	0.07	0.07	0.14	0.04	0.02	0.09
p90	0.18	0.18	0.25	0.11	0.15	0.20
Observations	248	248	248	248	248	248

Note: This table reports the summary statistics for the variables used as global factors. The St. Louis FSI, the FF Rate and the FF Shadow Rate are in differences. The VIX, TED Rate, US HY are in differences of logs.

Table A6: Summary Statistics, Local Factors

Industrial Production Growth in Investment Scope									
	All Sample			Developed Markets			Emerging Markets		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Median	Mean	GDP Weighted	Median	Mean	GDP Weighted	Median	Mean	GDP Weighted
mean	0.18	0.18	0.19	0.05	0.05	0.05	0.27	0.26	0.28
sd	2.61	2.63	2.60	2.44	2.46	2.42	2.71	2.74	2.72
p10	-2.23	-2.27	-2.22	-2.22	-2.22	-2.20	-2.25	-2.30	-2.25
p25	-0.76	-0.81	-0.72	-0.81	-0.84	-0.77	-0.72	-0.79	-0.69
p50	0.25	0.25	0.26	0.10	0.10	0.10	0.37	0.35	0.38
p75	1.19	1.24	1.17	0.93	0.98	0.91	1.32	1.38	1.32
p90	2.45	2.50	2.46	2.21	2.25	2.15	2.59	2.65	2.63
N	9424	9424	9424	3699	3699	3699	5725	5725	5725

Note: This table reports the summary statistics for the variables used as local factors. Median, mean and GDP weighted indicates how the monthly growth in industrial production was aggregated at the investment scope level. All the variables are in percentages.

Table A7: Lagged Performance Coefficients

With Lagged Performance Controls				
	Fund Flows over Initial Assets			
	(1) Equity	(2) Equity	(3) Bond	(4) Bond
Lagged (1) Fund Performance	11.941***	9.072***	-10.187***	19.799***
	(1.631)	(1.351)	(3.413)	(3.186)
Lagged (2) Fund Performance	7.729***	6.925***	-3.959	13.096***
	(1.048)	(0.951)	(3.344)	(3.472)
Lagged (3) Fund Performance	5.788***	5.158***	-1.975	11.361***
	(1.111)	(1.065)	(2.611)	(2.498)
Local Factor	0.187***		0.116	
	(0.045)		(0.123)	
Local Factor*ETF	-0.133	0.030	-0.352	-0.255
	(0.087)	(0.073)	(0.332)	(0.359)
Global Factor	-1.857***		-3.169***	
	(0.305)		(0.460)	
Global Factor*ETF	-2.733***	-2.256***	-3.948**	-3.030*
	(0.607)	(0.519)	(1.951)	(1.823)
Fund FE	Yes	Yes	Yes	Yes
Investment Scope-Time FE	No	Yes	No	Yes
Local Factor ETF	0.054		-0.236	
P-value	0.584		0.524	
Observations	210392	209696	50510	50029
N. of Funds	2908	2899	910	901
R^2	0.064	0.138	0.092	0.177

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for emerging market funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in logs of the variable indicated at the top of each column. ETF is a dummy indicating whether a fund is an ETF or not. Lagged (n) Fund Performance is the nth lag of the portfolio returns of the fund minus the average fund returns at the investment scope level. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table A8: Developed Market Funds - Baseline Results

Dependent Variable: Fund Flows over Initial Assets	Equity Funds			Bond Funds		
	(1)	(2)	(3)	(4)	(5)	(6)
Global Factor	-0.997***	-0.941***		-1.367***	-1.380***	
	(0.198)	(0.158)		(0.258)	(0.253)	
Local Factor	0.058	0.073*		0.158*	0.153	
	(0.044)	(0.043)		(0.095)	(0.104)	
Global Factor*ETF		-0.485	-0.438		0.242	-0.148
		(0.552)	(0.472)		(0.829)	(0.779)
Local Factor*ETF		-0.097	-0.065		0.047	0.261**
		(0.108)	(0.103)		(0.141)	(0.125)
Fund Performance Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope-Time FE	No	No	Yes	No	No	Yes
Local Factor ETF		-0.025			0.200	
P-value		0.824			0.070	
Observations	467,681	467,681	467,263	142,806	142,806	142,600
N. of Funds	7,840	7,840	7,840	3,046	3,046	3,042
R^2	0.077	0.077	0.104	0.088	0.088	0.115

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects. The left three columns show the results for equity funds and three right-hand columns show results for bond funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in the St. Louis Financial Stress Index. ETF is a dummy indicating whether a fund is an ETF or not. Fund Performance Controls indicates whether the regression includes three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table A9: Developed Market Funds - Additional Tests

Developed Market Funds	Fund Flows over Initial Assets					
	(1) Equity	(2) Equity	(3) Equity	(4) Bond	(5) Bond	(6) Bond
Local Factor	0.017	0.026		0.179**	0.187**	
	(0.032)	(0.030)		(0.074)	(0.080)	
Global Factor	-1.112***	-0.968***		-1.315***	-1.208***	
	(0.172)	(0.145)		(0.319)	(0.312)	
Local Factor*ETF		-0.055	-0.028		-0.116	0.023
		(0.084)	(0.082)		(0.232)	(0.229)
Global Factor*ETF		-1.065**	-0.967**		-1.762**	-1.914**
		(0.496)	(0.473)		(0.884)	(0.813)
Fund Performance Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope-Time FE	No	No	Yes	No	No	Yes
Local Factor ETF		-0.029			0.071	
P-value		0.745			0.727	
Observations	818356	818356	818049	287285	287285	287074
N. of Funds	13107	13107	13107	5387	5387	5382
R^2	0.088	0.088	0.108	0.114	0.114	0.138

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for developed market funds. Coefficients were estimated using data that included domestic funds but excluded funds investing exclusively in Japanese, German, or U.S. government bonds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in the St. Louis Financial Stress Index. ETF is a dummy indicating whether a fund is an ETF or not. Fund Performance Controls indicates whether the regression includes three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. The estimations for bond funds do not have funds investing in government debt of safe heaven countries (Germany, Japan, United States). The estimations do not contain the heighten of the global financial crisis (August 2007, September and October 2008) and contain both domestic and international mutual funds. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table A10: Global and Country Funds - Additional Tests

Panel A: Equity Funds Dependent Variable: Fund Flows over Initial Assets	Global Funds		Country Funds	
	(1)	(2)	(3)	(4)
Global Factor	-1.205***		-1.500***	
	(0.249)		(0.441)	
Global Factor*ETF	-3.019***	-2.640***	-1.996***	-1.872***
	(0.809)	(0.727)	(0.661)	(0.591)
Local Factor	0.167***		0.237***	
	(0.053)		(0.044)	
Local Factor*ETF	0.154	0.253**	-0.334***	-0.172**
	(0.142)	(0.124)	(0.082)	(0.077)
Local Factor ETF	0.321		-0.097	
P-value	0.046		0.277	
Observations	150,851	150,832	59,342	58,666
N. of Funds	1,987	1,987	921	912
R^2	0.070	0.121	0.056	0.176
Panel B: Bond Funds Dependent Variable: Fund Flows over Initial Assets	Global Funds		Country Funds	
	(1)	(2)	(3)	(4)
Global Factor	-2.479***		-2.030**	
	(0.499)		(1.024)	
Global Factor*ETF	-4.094*	-3.424*	-1.758	2.562
	(2.156)	(1.963)	(4.169)	(4.189)
Local Factor	0.154		0.016	
	(0.133)		(0.131)	
Local Factor*ETF	-0.502	-0.291	0.488	0.479
	(0.384)	(0.360)	(0.411)	(0.954)
Fund Controls	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes
Local Factor ETF	-0.348		0.504	
P-value	0.418		0.164	
Observations	47,060	46,964	3,450	3,065
N. of Funds	812	809	98	92
R^2	0.092	0.167	0.090	0.299

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for emerging market funds. Panel A shows the results for equity funds and Panel B for bond funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in the St. Louis Financial Stress Index. ETF is a dummy indicating whether a fund is an ETF or not. Fund Controls indicates whether the regression includes fund control variables. These variables are the three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level and the difference in logs of the MSCI stock market index in the domicile of each fund. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table A11: ETFs vs Large Mutual Funds - Alternative Definitions of "Large"

Panel A: Equity Funds Dependent Variable: Fund Flows over Initial Assets	100M		Top 25th Percentile	
	(1)	(2)	(3)	(4)
Global Factor	-1.076***		-1.164***	
	(0.272)		(0.257)	
Global Factor*ETF	-2.802***	-2.411***	-2.714***	-2.270***
	(0.645)	(0.523)	(0.666)	(0.544)
Local Factor	0.192***		0.192***	
	(0.043)		(0.043)	
Local Factor*ETF	-0.134	0.028	-0.134	0.028
	(0.086)	(0.073)	(0.086)	(0.073)
Global Factor*>100M	-0.319*	-0.225		
	(0.183)	(0.189)		
Global Factor*>Top Quartile Av.Assets			-0.149	0.008
			(0.233)	(0.221)
Local Factor ETF	0.058		0.058	
P-value	0.547		0.547	
Observations	210,194	209,498	210,194	209,498
N. of Funds	2,906	2,897	2,906	2,897
R^2	0.066	0.138	0.066	0.138
Panel B: Bond Funds Dependent Variable: Fund Flows over Initial Assets	100M		Top 25th Percentile	
	(1)	(2)	(3)	(4)
Global Factor	-1.926***		-1.926***	
	(0.443)		(0.454)	
Global Factor*ETF	-4.401**	-3.715*	-4.402**	-3.696*
	(2.030)	(1.905)	(2.051)	(1.925)
Local Factor	0.136		0.136	
	(0.119)		(0.119)	
Local Factor*ETF	-0.372	-0.265	-0.372	-0.265
	(0.331)	(0.360)	(0.331)	(0.360)
Global Factor*>100M	-0.761*	-0.898**		
	(0.398)	(0.399)		
Fund Controls	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes
Local Factor ETF	-0.237		-0.237	
P-value	0.526		0.526	
Observations	50,510	50,029	50,510	50,029
N. of Funds	910	901	910	901
R^2	0.094	0.177	0.094	0.177

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for emerging market funds. Panel A shows the results for equity funds and Panel B for bond funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in the St. Louis Financial Stress Index. ETF is a dummy indicating whether a fund is an ETF or not. (>Top Quartile Av.Assets) is a dummy variable that is 1 when the average assets under management in a fund are larger than the top quartile average assets in our sample for each equity and bond funds separately. Fund Controls indicates whether the regression includes fund control variables. These variables are the three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level and the difference in logs of the MSCI stock market index in the domicile of each fund. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table A12: Robustness - Alternate Time Periods

Panel A: Equity Funds Dependent Variable: Fund Flows over Initial Assets	Post GFC		Excluding GFC	
	(1)	(2)	(3)	(4)
Global Factor	-2.495***		-1.746***	
	(0.443)		(0.321)	
Global Factor*ETF	-2.457***	-2.499***	-2.817***	-2.607***
	(0.595)	(0.594)	(0.731)	(0.592)
Local Factor	0.122*		0.195***	
	(0.062)		(0.047)	
Local Factor*ETF	-0.122*	-0.015	-0.147	0.029
	(0.072)	(0.077)	(0.089)	(0.076)
Local Factor ETF	-0.001		0.049	
P-value	0.994		0.635	
Observations	136,893	136,562	194,390	193,744
N. of Funds	2,498	2,492	2,885	2,875
R^2	0.087	0.136	0.069	0.139
Panel B: Bond Funds Dependent Variable: Fund Flows over Initial Assets	Post GFC		Excluding GFC	
	(1)	(2)	(3)	(4)
Global Factor	-3.963***		-3.480***	
	(0.897)		(0.860)	
Global Factor*ETF	-5.087**	-4.954**	-5.301**	-5.033**
	(1.973)	(1.984)	(2.062)	(2.004)
Local Factor	0.106		0.091	
	(0.141)		(0.125)	
Local Factor*ETF	-0.261	-0.182	-0.247	-0.180
	(0.326)	(0.371)	(0.332)	(0.372)
Fund Controls	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes
Local Factor ETF	-0.155		-0.157	
P-value	0.687		0.683	
Observations	42,144	41,804	46,632	46,196
N. of Funds	871	864	905	898
R^2	0.106	0.186	0.100	0.182

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for emerging market funds. Columns 1 and 2 exclude the months between March 2007 and March 2009. Columns 3 and 4 exclude the months before April 2009. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in the St. Louis Financial Stress Index. ETF is a dummy indicating whether a fund is an ETF or not. Fund Controls indicates whether the regression includes fund control variables. These variables are the three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level and the difference in logs of the MSCI stock market index in the domicile of each fund. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table A13: Robustness - Global Factors, Part 1

Panel A: Equity Funds						
Dependent Variable: Fund Flows over Initial Assets	Global Factor Variable:					
	VIX		TED Spread		US High Yield Spread	
	(1)	(2)	(3)	(4)	(5)	(6)
Global Factor	-1.637***		-0.961***		-3.806***	
	(0.378)		(0.256)		(1.018)	
Global Factor*ETF	-2.464***	-2.662***	-1.289*	-1.609***	-6.270***	-7.157***
	(0.655)	(0.628)	(0.740)	(0.575)	(2.073)	(1.781)
Local Factor	0.191***		0.188***		0.184***	
	(0.045)		(0.044)		(0.042)	
Local Factor*ETF	-0.135	0.027	-0.149*	0.010	-0.136*	0.022
	(0.083)	(0.071)	(0.083)	(0.071)	(0.082)	(0.069)
Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes	No	Yes
Local Factor ETF	0.056		0.039		0.048	
P-value	0.562		0.682		0.601	
Observations	210,194	209,498	210,194	209,498	210,194	209,498
N. of Funds	2,906	2,897	2,906	2,897	2,906	2,897
R^2	0.066	0.138	0.065	0.138	0.067	0.138
Panel B: Bond Funds						
Dependent Variable: Fund Flows over Initial Assets	Global Factor Variable:					
	VIX		TED Spread		US High Yield Spread	
	(1)	(2)	(3)	(4)	(5)	(6)
Global Factor	-2.603***		-1.391**		-7.031***	
	(0.780)		(0.648)		(1.649)	
Global Factor*ETF	-1.173	-1.129	-1.067	-1.803	-10.441***	-10.445***
	(1.625)	(1.469)	(2.311)	(1.977)	(3.972)	(3.307)
Local Factor	0.145		0.131		0.164	
	(0.122)		(0.118)		(0.117)	
Local Factor*ETF	-0.413	-0.280	-0.425	-0.301	-0.331	-0.211
	(0.337)	(0.363)	(0.336)	(0.363)	(0.328)	(0.352)
Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes	No	Yes
Local Factor ETF	-0.269		-0.295		-0.167	
P-value	0.489		0.440		0.652	
Observations	50,510	50,029	50,510	50,029	50,510	50,029
N. of Funds	910	901	910	901	910	901
R^2	0.091	0.177	0.090	0.177	0.094	0.177

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for emerging market funds. Panel A shows the results for equity funds and Panel B for bond funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the difference in logs of the variable indicated at the top of each column. ETF is a dummy indicating whether a fund is an ETF or not. Fund Controls indicates whether the regression includes fund control variables. These variables are the three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level and the difference in logs of the MSCI stock market index in the domicile of each fund. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table A14: Robustness - Global Factors, Part 2

Panel A: Equity Funds

Dependent Variable: Fund Flows over Initial Assets	Global Factor Variable:					
	PCA1		Fed Funds Rate		Shadow Fed Funds Rate	
	(1)	(2)	(3)	(4)	(5)	(6)
Global Factor	-0.270***		0.291		-0.188	
	(0.056)		(0.459)		(0.386)	
Global Factor*ETF	-0.362***	-0.421***	-4.704***	-2.994**	-2.402***	-1.834**
	(0.099)	(0.088)	(1.553)	(1.350)	(0.894)	(0.718)
Local Factor	0.182***		0.194***		0.196***	
	(0.044)		(0.044)		(0.044)	
Local Factor*ETF	-0.141*	0.016	-0.147*	0.017	-0.167*	0.004
	(0.079)	(0.066)	(0.088)	(0.074)	(0.091)	(0.077)
Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes	No	Yes
Local Factor ETF	0.041		0.047		0.030	
P-value	0.643		0.644		0.774	
Observations	204,181	203,567	210,194	209,498	210,194	209,498
N. of Funds	2,906	2,897	2,906	2,897	2,906	2,897
R^2	0.069	0.139	0.064	0.138	0.064	0.138

Panel B: Bond Funds

Dependent Variable: Fund Flows over Initial Assets	Global Factor Variable:					
	PCA1		Fed Funds Rate		Shadow Fed Funds Rate	
	(1)	(2)	(3)	(4)	(5)	(6)
Global Factor	-0.479***		1.834		-0.563	
	(0.094)		(1.342)		(1.009)	
Global Factor*ETF	-0.411**	-0.430**	-14.136***	-10.676**	-4.651**	-3.830**
	(0.206)	(0.174)	(5.340)	(4.869)	(1.961)	(1.556)
Local Factor	0.142		0.156		0.149	
	(0.115)		(0.118)		(0.127)	
Local Factor*ETF	-0.368	-0.255	-0.549	-0.398	-0.524	-0.368
	(0.339)	(0.362)	(0.336)	(0.351)	(0.331)	(0.354)
Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes	No	Yes
Local Factor ETF	-0.226		-0.393		-0.375	
P-value	0.555		0.312		0.328	
Observations	50,510	50,029	50,510	50,029	50,510	50,029
N. of Funds	910	901	910	901	910	901
R^2	0.096	0.177	0.090	0.177	0.090	0.177

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for emerging market funds. Panel A shows the results for equity funds and Panel B for bond funds. Local Factor is the median monthly industrial production growth for the investment scope of each fund. Global Factor is the first principal component of the difference in logs for the VIX, TED Rate and US HY for the first two columns. For Columns (3)-(6) is the difference of the variable indicated at the top of each column. ETF is a dummy indicating whether a fund is an ETF or not. Fund Controls indicates whether the regression includes fund control variables. These variables are the three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level and the difference in logs of the MSCI stock market index in the domicile of each fund. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table A15: Robustness - Local Factors

Panel A: Equity Funds

Dependent Variable: Fund Flows over Initial Assets

	Aggregation Method:							
	Mean		GDP-Weighted Mean					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Global Factor	-1.295***		-1.267***		-1.206***		-1.181***	
	(0.276)		(0.270)		(0.277)		(0.270)	
Global Factor*ETF	-2.603***	-2.280***	-2.616***	-2.275***	-3.362***	-2.845***	-3.341***	-2.796***
	(0.618)	(0.521)	(0.620)	(0.518)	(0.669)	(0.618)	(0.685)	(0.622)
IP Growth	0.125***		0.256***				0.236***	
	(0.031)		(0.045)				(0.046)	
IP Growth*ETF	-0.051	0.045	-0.125	0.086			-0.080	0.108
	(0.068)	(0.061)	(0.102)	(0.090)			(0.122)	(0.118)
Expected Short-Term Interest Rate					-0.204***		-0.203***	
					(0.055)		(0.053)	
Expected Short Rate*ETF					0.062	-0.225*	0.070	-0.224
					(0.127)	(0.131)	(0.137)	(0.138)
IP Growth ETF	0.074		0.130				0.156	
P-value	0.341		0.237				0.237	
Short Rate ETF					-0.142		-0.133	
P-value							0.385	
Observations	210,194	209,498	210,194	209,498	170,490	170,326	168,327	168,164
N. of Funds	2,906	2,897	2,906	2,897	2,394	2,391	2,392	2,389
R^2	0.066	0.138	0.066	0.138	0.071	0.133	0.073	0.132

Panel B: Bond Funds

Dependent Variable: Fund Flows over Initial Assets

	Aggregation Method:							
	Mean		GDP-Weighted Mean					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Global Factor	-2.481***		-2.432***		-2.464***		-2.419***	
	(0.477)		(0.474)		(0.499)		(0.492)	
Global Factor*ETF	-3.848**	-3.086*	-3.936**	-3.127*	-4.283**	-3.740**	-4.322**	-3.776**
	(1.936)	(1.828)	(1.951)	(1.843)	(1.978)	(1.833)	(1.988)	(1.852)
IP Growth	0.089		0.249*				0.240*	
	(0.080)		(0.137)				(0.139)	
IP Growth*ETF	-0.244	-0.192	-0.120	-0.075			-0.122	-0.030
	(0.237)	(0.248)	(0.416)	(0.465)			(0.437)	(0.479)
Expected Short-Term Interest Rate					-0.270***		-0.249**	
					(0.100)		(0.104)	
Expected Short Rate*ETF					0.950	1.304*	0.982	1.354*
					(0.906)	(0.764)	(0.909)	(0.773)
Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Investment Scope*Time FE	No	Yes	No	Yes	No	Yes	No	Yes
IP Growth ETF	-0.155		0.130				0.118	
P-value	0.586		0.771				0.802	
Short Rate ETF					0.680		0.734	
P-value					0.471		0.439	
Observations	50,510	50,029	50,510	50,029	49,056	48,777	48,721	48,456
N. of Funds	910	901	910	901	871	864	871	864
R^2	0.093	0.177	0.094	0.177	0.094	0.174	0.094	0.173

Note: This table reports the OLS coefficients from a regression of fund flows over initial assets on different explanatory variables and different sets of fixed effects for emerging market funds. Panel A shows the results for equity funds and Panel B for bond funds. Local Factor is the either the mean or GDP weighted monthly industrial production growth for the investment scope of each fund. The variable used is indicated at the top of each column. Global Factor is the difference in the St. Louis Financial Stress Index. ETF is a dummy indicating whether a fund is an ETF or not. Fund Controls indicates whether the regression includes fund control variables. These variables are the three lags of the portfolio returns of the fund minus the average fund returns at the investment scope level and the difference in logs of the MSCI stock market index in the domicile of each fund. Local Factor ETF indicates the sum of the coefficients for Local Factors and Local Factors*ETF. P-value shows the significance test for Local Factor ETF = 0. Fund flows over initial assets are winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.

Table A16: Summary Statistics - Macro Variables, ETF Share, and Mutual Fund Share

Panel A: Quarterly Sample			
	Portfolio Equity Inflows (% of GDP)	ETF Share	Mutual Fund Share
	(1)	(2)	(3)
Mean	0.365	0.440	1.964
Standard Deviation	1.079	0.734	2.413
10th Percentile	-0.524	0.000	0.001
25th Percentile	-0.084	0.000	0.253
Median	0.126	0.081	1.414
75th Percentile	0.617	0.685	2.904
90th Percentile	1.626	1.313	4.172
Number of Countries	43	43	43
Observations	2035	2276	2276
Panel A: Monthly Sample			
	Stock Markets Returns (basis points)	ETF Share	Mutual Fund Share
	(1)	(2)	(3)
Mean	0.003	0.434	1.840
Standard Deviation	0.082	0.727	2.288
10th Percentile	-0.087	0.000	0.048
25th Percentile	-0.035	0.000	0.271
Median	0.007	0.081	1.328
75th Percentile	0.048	0.657	2.658
90th Percentile	0.092	1.306	3.990
Number of Countries	49	49	49
Observations	7755	8134	8134

Note: This table reports the summary statistics for macro variables for the sample used in the macro-level regressions. The sample is divided into the quarterly (Portfolio Equity Inflows) and monthly sample (Stock Market Returns). Panel A shows statistics for quarterly sample and Panel B the monthly sample. Portfolio Equity Inflows and Stock Market Returns are winsorized at the 1 and 99 percent level.

Table A17: Robustness - Aggregate-level Regressions and Alternate Financial Integration Measures

Panel A
Dependent Variable: Balance of Payments Gross Portfolio Equity Inflows (% of GDP)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Global Factor	0.038		0.020		0.044		-0.169	
	(0.110)		(0.130)		(0.093)		(0.193)	
Global Factor*ETF Share	-0.716***	-0.729***	-0.727***	-0.714***	-0.687***	-0.718***	-0.708***	-0.711***
	(0.097)	(0.069)	(0.099)	(0.070)	(0.101)	(0.077)	(0.101)	(0.073)
ETF Share	-0.129**	-0.026	-0.132**	-0.006	-0.112**	-0.038	-0.120**	-0.018
	(0.056)	(0.050)	(0.055)	(0.051)	(0.055)	(0.050)	(0.057)	(0.053)
Global Factor*Equity Integration	-0.015	-0.014						
	(0.051)	(0.052)						
Equity Integration (L-MF)	0.050	0.066						
	(0.077)	(0.081)						
Global Factor*FDI Integration			0.054	0.068				
			(0.090)	(0.085)				
FDI Integration (L-MF)			0.133***	0.148***				
			(0.021)	(0.021)				
Global Factor*Equity Inflows Controls					-0.087	-0.058		
					(0.173)	(0.195)		
Capital Controls Eq. Inflows					-0.309**	-0.231		
					(0.130)	(0.168)		
Global Factor*Chinn-Ito FO							0.334*	0.334*
							(0.183)	(0.182)
Chinn-Ito FO							-0.279	-0.283
							(0.280)	(0.276)
Observations	2,035	2,035	2,035	2,035	1,745	1,745	2,030	2,030
N. of Countries	43	43	43	43	37	37	43	43
R^2	0.156	0.223	0.186	0.258	0.165	0.235	0.155	0.220

Panel B
Dependent Variable: MSCI Country Stock Markets Returns (basis points)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Global Factor	-10.68***		-10.50***		-12.19***		-10.54***	
	(1.74)		(1.76)		(2.06)		(1.80)	
Global Factor*ETF Share	-4.17***	-3.70***	-4.22***	-3.70***	-4.21***	-3.40***	-4.51***	-4.07***
	(1.05)	(0.71)	(1.05)	(0.71)	(1.13)	(0.74)	(1.03)	(0.69)
ETF Share	-0.67**	-0.29*	-0.66**	-0.30*	-0.68**	-0.34**	-0.71**	-0.39**
	(0.32)	(0.16)	(0.32)	(0.16)	(0.31)	(0.17)	(0.33)	(0.16)
Global Factor*Equity Integration	0.16	0.15		0.18*				
	(0.11)	(0.10)		(0.10)				
Equity Integration (L-MF)	-0.01	0.11						
	(0.16)	(0.10)						
Global Factor*FDI Integration			-0.17	-0.13				
			(0.16)	(0.15)				
FDI Integration (L-MF)			-0.10*	-0.03				
			(0.05)	(0.04)				
Global Factor*Equity Inflows Controls					3.08***	3.44***		
					(0.85)	(0.73)		
Capital Controls Eq. Inflows					-0.69	0.04		
					(0.86)	(0.64)		
Global Factor*Chinn-Ito FO							-0.04	-0.56
							(1.61)	(1.59)
Chinn-Ito FO							0.79	1.39*
							(1.47)	(0.77)
Observations	7,755	7,755	7,755	7,755	6,756	6,756	7,584	7,584
N. of Countries	49	49	49	49	42	42	48	48
R^2	0.188	0.417	0.188	0.417	0.190	0.431	0.187	0.416

Note: This table reports the OLS coefficients from a regression of Balance of Payments Portfolio Equity Liability Flows over GDP (Panel A) or MSCI Country Stock Market Returns (Panel B) on different explanatory variables and different sets of fixed effects for emerging markets at the quarterly frequency. Global Factor is the difference in the St. Louis Financial Stress Index. ETF Share is the assets under management of equity ETFs divided by the total equity market capitalization. Equity (FDI) Integration is total equity (FDI) assets plus equity (FDI) liabilities divided by GDP from Lane and Milesi-Ferretti (2018). Equity Inflows Controls is the equity infows capital controls measure in **?**. Chinn-Ito FO is the financial openness from **?**. All the estimations are for the period 2000-2017. Panel A estimations are at the quarterly frequency and Panel B at the monthly frequency. The dependent variable is winsorized at the 1 and 99 percent level. Driscoll-Kraay robust standard errors in parenthesis. *** p< 0.01, ** p< 0.05, *p< 0.10.