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DETERMINANTS OF PORTFOLIO FLOWS TO EMERGING ASIAN ECONOMIES: ARE THERE ANY DIFFERENCES BETWEEN INSTITUTIONAL AND RETAIL INVESTORS?

Key points:

- *During the second half of 2015 and early 2016, financial markets in the emerging Asia experienced a sharp sell-off amid heightened concerns over fund flow reversal from the region. Unlike previous episodes of market stress, this episode has witnessed substantial and sustained outflows of institutional investors from the region.*

- *Given the important role of such portfolio flows to financial stability, a thorough understanding of the determinants of these flows is useful. In a recent study by the IMF, institutional investors are found to be generally less sensitive to day-to-day market volatility but may react more aggressively than retail-oriented mutual funds do when faced with extreme shocks. Such behavioural differences may have implications for the nature of capital flows and financial stability.*

- *This study attempts to empirically ascertain the determinants of capital flows of institutional and retail investors in the region separately. Our results show that while retail investors in general tend to be more sensitive to volatility under normal market stress, institutional investors, in particular bond investors, tend to respond more when market stress is extremely high. Moreover, institutional investors tend to engage less in momentum trading but focus more on economic fundamentals in making investment decisions.*

- *These findings suggest that when institutional investors exhibit persistent capital outflows, this may indicate a fundamental change in their view on regional economic outlook.*

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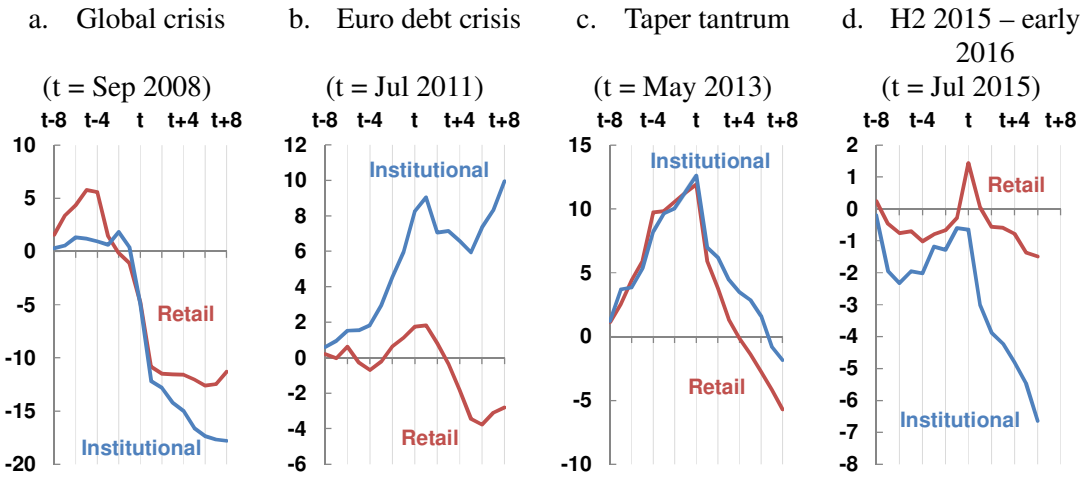
I. INTRODUCTION

During the second half of 2015 and early 2016, financial markets in the emerging Asia experienced a sharp sell-off amid heightened concerns over fund flow reversal from the region. Unlike previous episodes of market stress, this episode has witnessed substantial and sustained outflows of institutional investors from the region.[1] Taking the bond funds for example, outflows of institutional investors from the region in the period between July 2015 and February 2016 have outpaced those from retail funds, a pattern observed only in the 2008 global financial crisis and not seen during the 2011—12 euro area sovereign debt crisis or immediately after the 2013 taper tantrum (Chart 1). Meanwhile, for the equity market, outflows from institutional funds are also notably different from previous episodes. In particular, outflows in the 2015—16 episode are more sustained than before and are more sizable than the outflows of retail funds (Chart 2).

Chart 1: Cumulated flows of bond funds to emerging Asian economies during market stresses

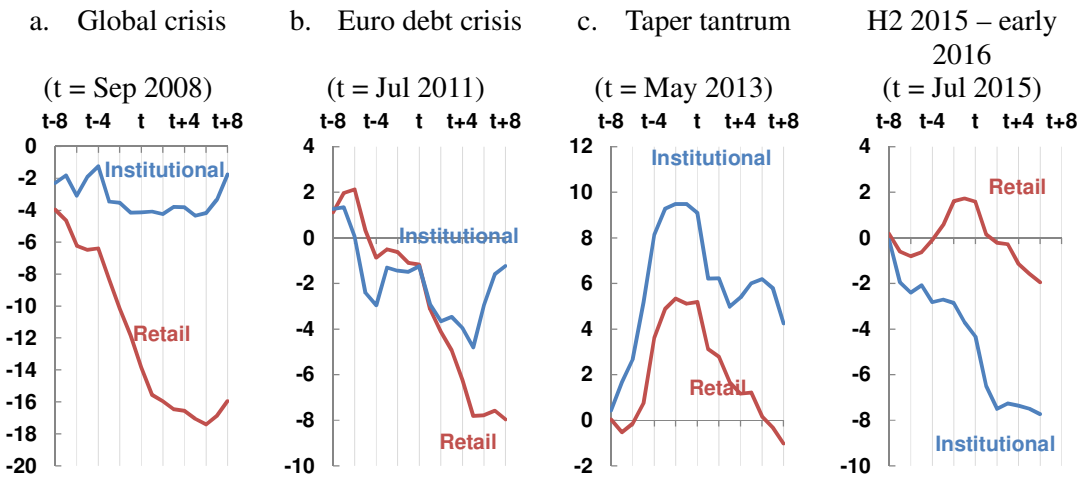


Note: Fund flows of each emerging Asian economy are standardised by subtracting the mean of fund flows of the past 36 months and then dividing the de-meaned value by the standard deviation of the sample. In each episode, standardised bond and equity flows are cumulated from eight months before (t-8) the date of episode (t) to eight months after the episode (t+8). A more comprehensive discussion about the standardisation of fund flows can be found in Footnote 4.

Sources: EPFR and HKMA staff estimates.

[1] The discussion here is based on the data from the monthly country flows database of the Emerging Portfolio Fund Research (EPFR) Global. These fund flows data can be categorised by investor types, namely "institutional" and "retail". Specifically, funds are classified as "institutional" if they are marketed to or focused on institutional investors only, or if they have a minimum investment requirement of US$100,000.

Chart 2: Cumulated flows of equity funds to emerging Asian economies during market stresses



Note: Fund flows of each emerging Asian economy are standardised by subtracting the mean of fund flows of the past 36 months and then dividing the de-meaned value by the standard deviation of the sample. In each episode, standardised bond and equity flows are cumulated from eight months before (t-8) the date of episode (t) to eight months after the episode (t+8). A more comprehensive discussion about the standardisation of fund flows can be found in Footnote 4.

Sources: EPFR and HKMA staff estimates.

Does the different behavioural pattern of institutional investors in the 2015 – 16 episode have any implications for volatility of portfolio flows and stability of the wider financial system? In a recent study by the IMF, institutional investors are found to be generally less sensitive to day-to-day market volatility but may react more aggressively than retail-oriented mutual funds do when faced with extreme shocks.[2] In this regard, the regional policy makers should pay attention to the recent pull-out of institutional investors from emerging Asia because this, as suggested by the IMF study, might associate with the presence of some fundamental weaknesses in these markets that might trigger extreme shocks in the region. To throw light on understanding the sell-off episode in early 2016, this study attempts to empirically ascertain the determinants of capital flows of institutional and retail investors in the region separately.

II. LITERATURE ON UNDERSTANDING CAPITAL FLOWS BY INVESTOR TYPES

The important roles of capital flows to the financial stability of the emerging market economies have been well documented in the economic literature (e.g. Obstfeld, 2012). Among numerous works attempting to reveal the underlying driving factors of capital flows, the approaches to the problem and also

[2] Details can be found in the IMF Global Financial Stability Report published in April 2014.

the focuses of these studies are very different, depending on their particular interest in these issues.[3] For instance, instead of looking at the aggregate cross-border capital flows, some studies attempt to identify drivers of a particular type of asset flows in order to have a more granular picture of the problem.[4] Meanwhile, there are also some attempts that aim to differentiate the behaviour pattern of private sector capital flows against those from public sector.[5] Recently, there is a growing interest in the literature that emphasizes the behavioural differences between institutional and retail investors in understanding the patterns of cross-border capital flows. For example, IMF (2014) shows that retail investors are more engaged in momentum trade and in general more sensitive to market volatility than institutional investors. With increasing data availability and growing role of emerging markets in the global economies, such development could provide policymakers a more comprehensive picture for understanding capital flows that might be helpful in their policy deliberation.

In light of the importance of understanding capital flows by investor types in the literature, this paper tries to explore the determinants of the cross-border capital flows by different investors using the EPFR data for emerging Asia from 2004 to early 2016. In particular, the study aims at examining whether institutional investors are less sensitive to market volatility under normal level of market stress and instead tend to respond more to market volatility when market stress is extremely high in emerging Asia. In addition, the result of this study would also shed light on whether institutional investors, regardless of bond and equity, are more responsive to the change in expected growth differential between the recipient emerging Asian economies and the US than retail investors.

III. THE DETERMINANTS OF PORTFOLIO FLOWS

As shown in Charts 1 and 2, there are some behavioural differences between institutional and retail investors in their portfolio exposure to the region in different episodes. The degree of such differences apparently depends on market sentiments, which might be characterised by the levels of market stress in the financial markets. For example, as shown in Charts 3a and 3b, institutional investors, of bond funds in particular, tend to pull out from the region when the

[3] Koepke (2015) provides a comprehensive discussion about the empirical literature of this subject.

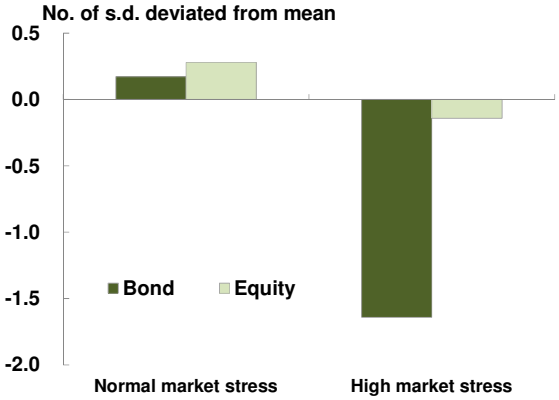
[4] For examples, Broner et al. (2013) studies portfolio flows particularly, while Biglaiser and DeRouen (2006) focuses on foreign direct investment.

[5] For example, Alfaro et al. (2011) shows that flows from private sectors are more driven by economic factors, while flows from public sources are less driven by economic incentives).

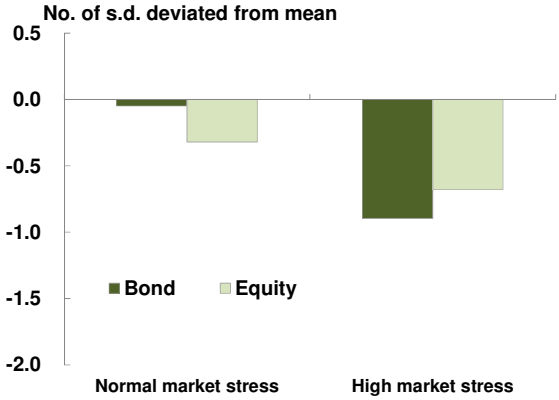
market is at extreme high level of volatility but stay put in the region when the market is under normal stress.[6] For retail investors, both bond and equity fund flows seem to leave the region when markets are volatile, no matter under high or normal market stress.

Chart 3: Fund flows under different levels of market stress[1]
(Sample: January 2007－January 2016)

a. Institutional funds



b. Retail funds



Notes:
1. The charts show the average levels of standardised fund flows under different levels of market stress. Market is considered as under stress when the volatility level exceeds its historical median value. "Normal market stress" represents the period when the volatility measure of the corresponding asset type is in the range of its 51st to 90th percentile, whereas "high market stress" refers to the period with volatility measure exceeding its 90th percentile.
2. The TYVIX index and the VIX index compiled by the CBOE are used to gauge market volatility of the global bond and equity markets respectively.
3. Fund flows of each emerging Asian economy are standardised by the same method as that for the data used in Charts 1 and 2.

Sources: Bloomberg and EPFR.

Besides market stress levels, the literature also suggests that institutional investors tend to be more affected by economic fundamentals, such as growth prospect of the recipient economy, than retail investors who are more likely to engage in momentum trade.[7] As seen from Chart 4, institutional fund flows, regardless of bond and equity, are more correlated with the change in expected growth differential between the recipient emerging Asian economies and the US.

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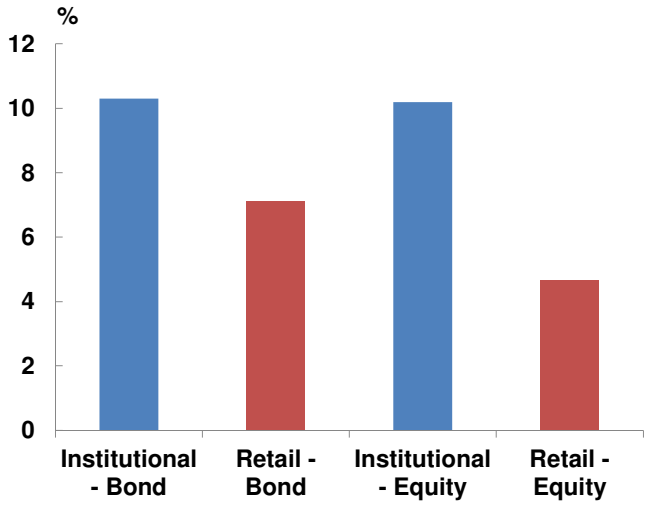
[6] Market is considered as under stress when the volatility level exceeds its historical median value. "Normal market stress" represents the period when the volatility measure of the corresponding asset type is in the range of its 51st to 90th percentile, whereas "high market stress" refers to the period with volatility measure exceeding its 90th percentile.

[7] For examples, Karceski (2002) shows that retail investors of mutual funds place a heavy weight on past performance in their decision to invest in mutual funds, while BIS (2007) indicates that institutional investors like sovereign wealth funds and insurance companies generally have longer-term investment mandates and larger capacity which allow them to override short-term fluctuations.

Chart 4: Correlation between fund flows and expected growth differential[1]
(Sample: January 2007 – January 2016)



Notes:
1. The chart shows the average correlation between standardised fund flows and change in growth differential between the recipient emerging Asian economies and the US in the previous month.
2. Fund flows of each emerging Asian economy are standardised by the same method as that for the data used in Charts 1 and 2.

Sources: Consensus Forecasts, EPFR and HKMA staff estimates.

a. The model

Bearing the above factors in mind, we separately estimate the determinants of (i) flows of institutional bond funds, (ii) flows of retail bond funds, (iii) flows of institutional equity funds and (iv) flows of retail equity funds to emerging Asian economies by a panel model with fixed-effect. While this specification is similar to the one used in IMF (2014)[8], a popular model specification in the literature for estimating the determinants of portfolio flows to emerging market economies, we make some modifications to the model in order to capture the differences in the behavioural patterns of portfolio fund flows by both institutional and retail investors during high market stress. Specifically, our model for each asset class flows of different investors is shown as follows:

$$Flow_{i,t} = \alpha_i + \beta_1 V_t + \beta_2 HS_t \times V_t + \beta_3 R_{i,t-1} + \beta_4 EGD_{i,t-1} + \beta_5 LO_t + \beta_6 CR_{i,t-1}\varepsilon_{i,t} \qquad (1)$$

[8] The model is modified from equation (2.1) of IMF (2014)

where:

- $Flow_{i,t}$ is the standardised capital flows to economy i at time t.[9] There are altogether four types of portfolio flows that are modelled separately in four regressions (i.e. flows of institutional bond funds, institutional equity funds, retail bond funds and retail equity funds).

- V_t is the logarithm of the measure of global market volatility of the asset. The VIX index, which represents the option-implied volatility of the S&P 500 index, is used in the regressions of equity flows. Meanwhile, the TYVIX index, which gauges the volatility of the US Treasury market, is used in the regressions of bond flows. Retail investors are expected to reduce their exposures in the region when market volatility is high; while institutional investors are expected to be less sensitive to the market volatility.

- HS_t is a binary dummy variable determined by the commonly used indicator of global risk aversion, the Citi Macro Risk Index (Citi MRI).[10] The dummy variable equals to 1 when the Citi MRI exceeds its 85th percentile, indicating that the global market is highly risk-averse; it equals to 0 otherwise.[11] The interaction term $HS_t \times V_t$ gauges a different behavioural response to market volatility when the global market is under high stress. Institutional investors are expected to respond more significantly to market volatility during high stress scenarios, while retail investors are also expected to have an additional albeit smaller response to volatility under high stress conditions.

- $R_{i,t-1}$ is the return of the corresponding asset type in economy i at t-1. Return of benchmark stock index in each emerging Asian economies is used in the regressions of equity flows; while the change in the total return index of

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[9] Bond and equity flows to each economy in each month are standardised by subtracting the mean of the past 36 months and then dividing the de-meaned value by the standard deviation of the sample. Following Broner et al. (2013), bond and equity flows of each economy are standardised such that the results will not be dominated by a country with exceptionally large size of fund flows. Meanwhile, given the significant growth in portfolio flows to the region over the past decade, standardisation of the fund flows by a small rolling window is more appropriate to capture the swings in capital flows (otherwise the standard deviation and mean based on the whole sample would be too big to reflect the swings during the early years and too small for the most recent years). Moreover, the growing number of funds in EPFR database over the past decade also adds to the need for a rolling-window standardisation. However, the results appear not to be very sensitive to the number of months used in the rolling sample as we have also estimated the model again with the 24-month window and got similar results.

[10] The Citi Macro Risk Index measures risk aversion in global financial markets. It is an equally weighted index of emerging market sovereign spreads, US credit spreads, US swap spreads and implied FX, equity and swap rate volatility. The index is expressed in a rolling historical percentile and ranges between 0 (low risk aversion) and 1 (high risk aversion).

[11] For robustness check, we have also tried several threshold levels, ranging from 80th percentile to 95th percentile. All of them produce similar qualitative results.

each emerging Asian economies in the family of the HSBC Asian Local Bond Index is used in the regressions of bond flows. Retail investors, who are more likely to be involved in momentum trade, is likely to increase their exposure to the region if the recent return is lucrative, while fund flows from institutional investors are less likely to be affected by the recent return.

- $EGD_{i,t-1}$ is the change in the expected growth differential between economy i and the US in the next year. Monthly growth forecasts for the next year surveyed by the Consensus Forecasts are used to calculate the growth differential. Considering that institutional investors tend to focus more on economic fundamentals such as growth prospect of the recipient economy, an increase in growth differential between the region and the US would pull more funds from institutional investors to the region. Such pull effect is expected to be less significant for retail investors as they are less concerned about the distant future.

- LO_t is the change in US dollar LIBOR-OIS spread, which is used to gauge the US dollar liquidity risk; fund flows to the region is expected to decrease when global US dollar liquidity risk is high. $CR_{i,t-1}$ is the change in sovereign long-term foreign currency credit rating of economy i;[12] bond funds are expected to be more sensitive to the change in sovereign credit rating. These variables are used as controls to gauge the global liquidity risk and country risk respectively.

IV. EMPIRICAL ANALYSIS

a. Data of fund flows

Data of fund flows retrieved from the monthly country flows database of Emerging Portfolio Fund Research (EPFR) Global are used in this empirical study. As of March 2016, the EPFR tracks activity of more than 40000 equity funds and about 23000 bond funds, representing more than 95% of emerging-market-focused bond and equity funds in the world. While the constituents of the EPFR database are mostly mutual funds, the EPFR also tracks other types of funds such as ETFs and closed-end funds. These fund flows data

[12] We quantified the Standard & Poor's long-term sovereign credit rating of each emerging Asian economies by following the methodology of constructing comprehensive credit rating measure in Gande and Parsley (2005).

can be categorised by investor types, namely "institutional" and "retail". Specifically, funds are classified as "institutional" if they are marketed to or focused on institutional investors only, or if they have a minimum investment requirement of US$100,000.[13] According to the EPFR, as of March 2016, institutional funds account for more than 40% of the total number of funds in its universe. While the data of equity fund flows can start earlier, those of bond fund flows in the EPFR database only begin from 2004; therefore our sample covers the period from January 2004 to January 2016.

b. Results

The specification in model (1) is designed to identify the determinants of capital flows of different types investors. The behaviour differences of different investors in the responses towards market volatility, recent asset return and other particular factors are captured by the differences in the relative size, sign and significance of the estimated coefficients in the corresponding equations.

Key results regarding the behavioural differences between institutional and retail investors are summarised in Table 1 as below:

[13] It should be noted that such classification of institutional investors may include some ETFs that are purchased and owned by retail investors. In addition, the EPFR database covers only a limited type of individual institutional investors as it does not include insurance companies, hedge funds and sovereign wealth funds in its data collection. Despite the limitations, our empirical results based on this dataset are broadly in line with IMF (2014), which uses proprietary databases of individual institutional investors in its estimations.

Table 1: Estimated coefficients of model (1)
(Sample: January 2007 to January 2016)

	Bond		**Equity**	
	Institutional	*Retail*	*Institutional*	*Retail*
Market volatility (V_t)	-1.13***	-1.19***	0.21	-0.42***
Market volatility when under high stress ($HS_t \times V_t$)	-0.33***	-0.17**	-0.23***	-0.19***
Recent return ($R_{i,t-1}$)	0.02	0.13***	0.01	0.03***
Change in expected growth differential ($EGD_{i,t-1}$)	0.38***	0.06	0.53***	0.21**
Change in LIBOR-OIS spread (LO_t)	-2.46***	-2.43***	0.2	-0.46***
Change in credit rating ($CR_{i,t-1}$)	0.98***	0.92**	0.67	0.76**

Note: *** and ** implies that the estimated coefficient is significant at 1% and 5% levels respectively.
Source: HKMA staff estimates.

1. Retail investors of both bond and equity funds tend to reduce their positions in the region when market volatility increases, as evidenced by the negative and significant estimated coefficients of market volatility (*V*) in the regressions of retail bond and equity funds. The same coefficient in the regression of institutional bond funds is also negative and significant, but its magnitude is slightly smaller than that of the retail bond funds, indicating that institutional investors of bond funds may be less sensitive to market volatility under normal market stress. Meanwhile, institutional investors of equity funds do not appear to be materially affected by market volatility during normal market stress as that coefficient in the regression of institutional equity funds is insignificant.

2. Nevertheless, institutional investors tend to react more when the market is under high stress. The estimated coefficients of the interaction term (*HS*×*V*), which represents the degree of additional reaction of fund flows during episodes of high level of global risk aversion, are significantly negative in the regressions of institutional funds. The same coefficients in the regressions of retail bond and equity funds are also negative and significant, but with a smaller value.

3. Retail investors tend to engage more in momentum trading, while institutional investors, who usually focus more on long-term return and valuation, appear not care about it. This is supported by the significant and positive estimated coefficients of the asset return (*R*) in the regressions of retail bond and equity funds, while the same coefficients for institutional funds are insignificant.

4. Institutional investors tend to focus more on forward-looking fundamentals in making investment decisions than retail investors do. This is demonstrated by the significant, positive and larger estimated coefficients of the expected growth differential (between the recipient emerging Asian economies and the US) for next year (*EGD*) in the regressions of institutional funds.

V. CONCLUDING REMARKS

In this study, we examine the behavioural differences between institutional and retail investors by estimating the determinants of their portfolio flows with a fixed-effect model. Our results show that while retail investors in general tend to be more sensitive to volatility under normal market stress, institutional investors, in particular bond investors, tend to respond more when market stress is extremely high. Moreover, institutional investors tend to engage less in momentum trading but focus more on economic fundamentals in making investment decisions. The retreat of institutional investors in the market turbulence during the period between second half 0f 2015 and early 2016 therefore may signal a significant deterioration in institutional investors' view on the economic outlook for the emerging Asia at that time.

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