

# Modelling the Time Varying Determinants of Portfolio Flows to Emerging Markets<sup>1</sup>

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## Abstract

This paper uses a model with time varying regression coefficients to study the determinants of portfolio equity flows to emerging markets over the period 2000-2011. Time varying coefficients capture changes in the relative importance of the drivers of portfolio flows due either to changes in investment strategies used for portfolio allocation or to changes in the population of investors. The empirical results show that the relative importance of the different drivers of flows changed over time. Among push factors, global economic and financial conditions and global uncertainty are important drivers of flows. While some pull factors are important, suggesting that investors discriminate on the basis of country specific factors, the results suggest that, in some periods, investors search for yield by allocating more funds to countries with higher risk premia.

JEL Codes: F32, F34, G01, G11.

Keywords: capital flows, risk aversion, emerging markets, financial stability.

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<sup>1</sup> The views presented in the paper are those of the authors and do not necessarily represent the views of the European Central Bank or the Eurosystem.

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## Extended Abstract

The surge in portfolio flows to emerging markets that coincided with the recovery from the Great Financial Crisis led to a renewed debate on the drivers of these flows, on their potential consequences in recipient economies and on the optimal policy responses.

While under normal circumstances capital flows have beneficial effects for emerging market economies, occasionally, past waves of strong portfolio inflows preceded episodes of financial instability, such as, for example, the Mexican crisis in 1994 and the Asian crisis in 1997. The potential negative financial stability consequences of strong and volatile portfolio flows raise the issue of choosing appropriate policy actions to safeguard financial stability in recipient economies. The analysis of the drivers of capital flows and in particular disentangling between push and pull factors is a crucial step in designing these policies.

If country specific characteristics (pull factors) attract capital flows, the adoption of appropriate domestic policies in emerging markets could affect the flows and smooth their consequences on the macro-financial conditions of the recipient economy. Conversely, if external common conditions (push factors) drive flows, domestic macro policies in recipient countries have little impact on flows. As a consequence, other forms of defence, such as, for example, the introduction of capital controls, become attractive for policy makers in emerging markets.

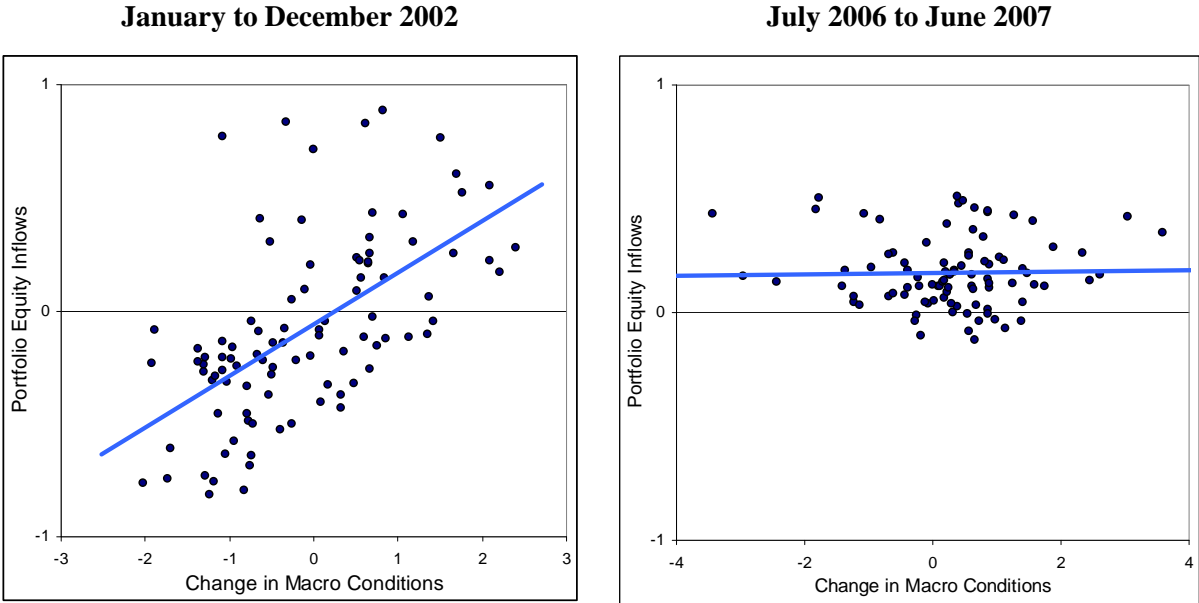
On top of disentangling between push and pull factors, however, it is also important to assess the potential volatility of the flows, as optimal policies depend also on the persistence of the flows. To this aim, in addition to disentangling between volatile and stable drivers of the flows, it is crucial to take into consideration that the drivers can change across periods due, for example, to changes in market conditions and/or changes in investors' allocation strategies.

To exemplify how the drivers of the flows can change across periods, figure 1 shows the correlation between changes in business conditions in recipient countries and portfolio equity inflows in 2002, and between mid 2006 and mid 2007, for a set of large emerging market economies. In 2002, a period characterised by elevated economic uncertainty and low risk appetite due to weak growth in the US and a series of corporate scandals, portfolio equity inflows were correlated with improvements in macro conditions of the recipient country. Conversely, there was no correlation between portfolio inflows and changes in macro conditions between mid 2006 and mid 2007, the period of exceptionally low risk *premia* that anticipated the Great Financial Crisis.

This paper contributes to the literature on the determinants of capital flows by studying how the drivers of the flows change across periods. To this aim, I use a model with time varying regression coefficients that capture changes in the relative importance of the drivers of portfolio flows. The latter can change for several reasons, including changes in investment strategies used in portfolio allocation, changes in the population of investors, changes in market structures affecting allocation strategies. While models with time varying coefficients have been used in several fields in economics and

finance, to my knowledge this is the first time that they are applied to the analysis of the determinants of capital flows.

**Figure 1: Change in macro conditions (x-axis) and net portfolio equity investment (y axis)**



Source: EPFR and OECD.

Note: portfolio equity inflows in country *i* are expressed in percent of asset under management in country *i*. Change in macro conditions is measured by the orthogonalised (with respect to the G10) change in the OECD composite leading indicator of country *i*. Countries included: India, China, Brazil, Russia, South Korea, Mexico, South Africa and Turkey.

The model with time varying coefficients contributes to the analysis of the determinants of capital flows mainly in three ways. First, it can endogenously detect periods when the relative importance of the drivers of the flows changes, therefore providing indications on the frequency and the circumstances when international investors revise their portfolio allocation strategies. This information can be used to assess the potential volatility of capital flows. Second, it addresses problems that arise in the calculation of the contribution of different factors to the flows when regression coefficients are constant and the time varying importance of the determinants is neglected. Third, the model can detect risks and anomalies related to the drivers of the flows, therefore providing useful information to assess financial stability risks. For example, it could identify periods when yield differentials play a strong role in driving flows, suggesting that investors engage in carry trades and risk appetite is elevated.

The empirical part of the paper studies the determinants of monthly portfolio equity to eight large emerging market economies over the period 2000-2011. The importance of portfolio flows increased after the financial crisis. In addition, portfolio flows are expected to play an increasing role in the coming years, as institutional investors in advanced economies might be expected to adjust their

portfolios by allocating more weight to emerging markets due to structural reasons. Therefore, understanding the drivers of equity flows, the largest component of portfolio flows, becomes increasingly important.

The analysis focuses on the role of push factors, such as risk aversion, overall risk (or uncertainty), global liquidity and global macro conditions, and pull factors such as macro-financial conditions, in driving equity flows. Following Bekaert, Hoerova and Lo Duca (2011), a popular indicator of risk aversion in financial markets, the VIX index, is decomposed into expected stock market volatility (that we call “overall risk” or “uncertainty”) and a residual, the so-called variance premium (see, for example, Carr and Wu (2009)), that reflects risk aversion and other non-linear pricing effects, perhaps even Knightian uncertainty. Therefore, this paper further contributes to the literature on the determinants of capital flows by using a novel measure of risk aversion and by differentiating between the role of risk aversion and overall risk in driving flows.

The main findings of the empirical analysis are as follows. The empirical results show that the relative importance of the different drivers of flows changed over time. Among push factors, global economic and financial conditions and global uncertainty are important drivers of flows. While some pull factors are important, suggesting that investors discriminate on the basis of country specific factors, the results suggest that, in some periods, investors search for yield by allocating more funds to countries with higher risk premia.