ERASMUS UNIVERSITY ROTTERDAM
ERASMUS SCHOOL OF ECONOMICS
MSc Economics & Business
Master Specialization Financial Economics

[International Capital Flows: *Sensitivity to the common factor driving capital flows to emerging and developing countries from 2001Q1 to 2017Q1*]

Author: P.J. Barendregt
Student number: 375416
Thesis supervisor: Dr. V. Volosovych
Second assessor:
Finish date:

Abstract

After the seminal paper of Lucas (1990), academics emphasized different factors as the reason of capital inflows into developed countries. This paper employs a principal component analysis with a dataset of quarterly gross capital flows (2001Q1-2017Q1) to analyze the behavior of these flows across 50 emerging markets and developing countries. We measure the co-movement in capital flows and explain which push factors determine this common factor. We confirm that there is co-movement in capital inflows to emerging economies and developing countries, especially in the categories *direct investment flows* and *other investment flows* we see a high common variance. Furthermore, we confirm that the explanatory power of global push factors in explaining the common dynamics differs across capital flow types. Although we did not find the foreign investor base to be as important as in other papers, we find market characteristics (especially for direct investment flows), economic and institutional fundamentals, and the location of a country (especially for direct investment flows and other investment flows) necessary in explaining the sensitivity to the common factor driving capital flows to emerging and developing countries. Lastly, we find development to be especially important for other investment flows/banking flows. Our findings suggest that emerging economies and developing countries should primarily focus on their market liquidity and institutional quality to gain from global push factors.

Keywords: Push factors, pull factors, capitals flows, emerging economies, principal component analysis.

Table of Contents

Abstract **3**

1 Introduction **8**

2 Literature review **11**

2.1 General *11*
2.2.1 Push Factors of Portfolio Equity Investment Flows 14
2.2.2 Push Factors of Direct Investment Flows 15
2.2.3 Push Factors of Portfolio Bond Investment Flows 16
2.2.4 Push Factors of Other Investment Flows 17

2.3 Co-movement/ Common Dynamics and Sensitivity to Global Push Factors *18*

2.4 Summary Literature Review *21*

3 Conceptual Framework and Methodology **24**

3.1 Panel data *24*

3.2 Model specification *25*
3.2.1 PCA 25

3.3 Data collection *26*

3.4 Dependent and independent variables *28*
3.4.1 Gross Capital Flows 28
3.4.2 Push and Pull factors 29
3.4.3 Economic and institutional fundamentals, development characteristics, market characteristics, and topographical characteristics 33
3.4.4 Summary statistics 38

4 Results **40**

4.1 First Principal Component *40*
4.1.1 Principal Component 1 - Direct Investment Flows 40
4.1.2 Principal Component 1 - Other Investment Flows 41
4.1.3 Principal Component 1 - Portfolio Equity Investment Flows 42
4.1.4 Principal Component 1; Portfolio Bond Investment Flows 43

4.2 Sensitivity to common factors (first component) *43*

4.3 Second Principal Component *44*
4.3.1 Principal Component 2 - Direct Investment Flows 45
4.3.2 Principal Component 2 - Other Investment Flows 45
4.3.3 Principal Component 2 - Portfolio Equity Investment Flows 45
4.3.4 Principal Component 2 - Portfolio Bond Investment Flows 45

4.4 Sensitivity to common factors (second component) *46*

5 Conclusion **47**

5.1 Empirical results *47*

5.2 Limitations *49*

5.3 Concluding remarks and follow-up research *50*

Bibliography **51**

Graphs **58**

Appendix (1) **61**

Appendix (2): First principal component **66**

Sensitivity to first component: Direct Investment Flows 66
Sensitivity to first component: Portfolio Bond Investment Flows 66
Sensitivity to first component: Portfolio Equity Investment Flows 67
Sensitivity to first component: Other Investment Flows 68

Appendix (3): Second principal component **69**

Sensitivity to second component: Direct Investment Flows 69
Sensitivity to second component: Portfolio Bond Investment Flows 69
Sensitivity to second component: Portfolio Equity Investment Flows 69
Sensitivity to second component: Other Investment Flows 69

Tables **71**

List of Tables

TABLE 1 DEFINITIONS OF THE INDEPENDENT VARIABLES 22
TABLE 2: SUMMARY STATISTICS 38
TABLE 3:REGRESSION OF FIRST PRINCIPAL COMPONENT FOREIGN DIRECT INVESTMENT FLOWS 71
TABLE 4: REGRESSION OF FIRST PRINCIPAL COMPONENT OTHER INVESTMENT FLOWS 72
TABLE 5: REGRESSION OF FIRST PRINCIPAL COMPONENT PORTFOLIO EQUITY INVESTMENT FLOWS 73
TABLE 6: REGRESSION OF FIRST PRINCIPAL COMPONENT PORTFOLIO BOND INVESTMENT FLOWS 74
TABLE 7: REGRESSION OF MARKET CHARACTERISTICS FOREIGN DIRECT INVESTMENT FLOWS (FIRST PRINCIPAL COMPONENT) 75
TABLE 8: REGRESSION OF MARKET CHARACTERISTICS OTHER INVESTMENT FLOWS (FIRST PRINCIPAL COMPONENT) 75
TABLE 9: REGRESSION OF MARKET CHARACTERISTICS PORTFOLIO EQUITY INVESTMENT FLOWS (FIRST PRINCIPAL COMPONENT) 76
TABLE 10: REGRESSION OF MARKET CHARACTERISTICS PORTFOLIO BOND INVESTMENT FLOWS (FIRST PRINCIPAL COMPONENT) 76
TABLE 11: REGRESSION OF FUNDAMENTALS FOREIGN DIRECT INVESTMENT FLOWS 77
TABLE 12: REGRESSION OF FUNDAMENTALS FOREIGN DIRECT INVESTMENT FLOWS (PART 2) 79
TABLE 13: REGRESSION OF FUNDAMENTALS OTHER INVESTMENT FLOWS 81
TABLE 14: REGRESSION OF FUNDAMENTALS OTHER INVESTMENT FLOWS (PART 2) 83
TABLE 15: REGRESSION OF FUNDAMENTALS PORTFOLIO EQUITY INVESTMENT FLOWS 85
TABLE 16: REGRESSION OF FUNDAMENTALS PORTFOLIO EQUITY INVESTMENT FLOWS (PART 2) 87
TABLE 17: REGRESSION OF FUNDAMENTALS PORTFOLIO BOND INVESTMENT FLOWS 89
TABLE 18: REGRESSION OF FUNDAMENTALS PORTFOLIO BOND INVESTMENT FLOWS (PART 2) 91
TABLE 19: REGRESSION OF SECOND PRINCIPAL COMPONENT FOREIGN DIRECT INVESTMENT FLOWS 93
TABLE 20: REGRESSION OF SECOND PRINCIPAL COMPONENT OTHER INVESTMENT FLOWS 94
TABLE 21: REGRESSION OF SECOND PRINCIPAL COMPONENT PORTFOLIO EQUITY INVESTMENT FLOWS 95
TABLE 22: REGRESSION OF SECOND PRINCIPAL COMPONENT PORTFOLIO BOND INVESTMENT FLOWS 96
TABLE 23: REGRESSION OF MARKET CHARACTERISTICS FOREIGN DIRECT INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) 97
TABLE 24: REGRESSION OF MARKET CHARACTERISTICS OTHER INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) 97
TABLE 25: REGRESSION OF MARKET CHARACTERISTICS PORTFOLIO EQUITY INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) 98
TABLE 26: REGRESSION OF MARKET CHARACTERISTICS PORTFOLIO BOND INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) 98
TABLE 27: REGRESSION OF FUNDAMENTALS FOREIGN DIRECT INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) 99
TABLE 28: REGRESSION OF FUNDAMENTALS FOREIGN DIRECT INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) (PART 2) 101
TABLE 29: REGRESSION OF FUNDAMENTALS OTHER INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) 103
TABLE 30: REGRESSION OF FUNDAMENTALS OTHER INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) (PART 2) 105
TABLE 31: REGRESSION OF FUNDAMENTALS PORTFOLIO EQUITY INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) 107
TABLE 32: REGRESSION OF FUNDAMENTALS PORTFOLIO EQUITY INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) (PART 2) 109
TABLE 33: REGRESSION OF FUNDAMENTALS PORTFOLIO BOND INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) 111
TABLE 34: REGRESSION OF FUNDAMENTALS PORTFOLIO BOND INVESTMENT FLOWS (SECOND PRINCIPAL COMPONENT) (PART 2) 113

List of Figures

FIGURE 1: GROSS CAPITAL FLOWS (PER FLOW TYPE) FROM 2001Q1 TO 2017Q1 28
FIGURE 2: THE FIRST PRINCIPAL COMPONENT OF EVERY CAPITAL FLOW TYPE. 40
FIGURE 3: THE SECOND PRINCIPAL COMPONENT OF EVERY CAPITAL FLOW TYPE 44
FIGURE 4: CAPITAL FLOWS (PER FLOW TYPE) FROM 2001Q1 TO 2017Q1 58
FIGURE 5: SCREE PLOT FOREIGN DIRECT INVESTMENT FLOWS 2000Q1-2017Q1 58
FIGURE 6: SCREE PLOT OTHER INVESTMENT FLOWS 2000Q1-2017Q1 58
FIGURE 7: SCREE PLOT PORTFOLIO BOND INVESTMENT FLOWS 2000Q1-2017Q1 59
FIGURE 8: SCREE PLOT PORTFOLIO EQUITY INVESTMENT FLOWS 2000Q1-2017Q1 59
FIGURE 9: DIRECT INVESTMENT FLOWS + PRINCIPAL COMPONENTS 2001Q1-2017Q1 59
FIGURE 10: PORTFOLIO BOND INVESTMENT FLOWS + PRINCIPAL COMPONENTS 2001Q1-2017Q1 60
FIGURE 11: OTHER INVESTMENT FLOWS + PRINCIPAL COMPONENTS 2001Q1-2017Q1 60
FIGURE 12: PORTFOLIO EQUITY INVESTMENT FLOWS + PRINCIPAL COMPONENTS 2001Q1-2017Q1 60

List of Equations

EQUATION 1 25
EQUATION 2 26
EQUATION 3 26
EQUATION 4 31
EQUATION 5 31
EQUATION 6 35
EQUATION 7 35

1 Introduction

Capital and its allocation are one of the most popular sectors of economic theory and practice. Capital can be described as "wealth in the form of money or other assets owned by a person or organization or available for a purpose such as starting a company or investing"[1]. However, in this paper we use international capital flows, which are the financial side of international trade (Feldstein, 1999). Capital plays an essential role in both trade and production, which are central aspects in economic theories. Capital flows from one country to another to invest for future benefits. Although the majority of the financial transactions involve industrial countries rather than least developed countries (LDC), capital flows to emerging economies are an interesting area to research (UNCTAD, 2016). The neoclassical theory predicts under the assumptions of a common production function and diminishing returns to capital, that capital would flow from rich countries to poor countries. However, researchers see the opposite, and this theoretical inconsistency/stylized fact has become known as the Lucas Paradox. Since Lucas' seminal paper (Lucas, 1990), much research has been done on the drivers of capital flows.

The empirical literature on the determinants of capital flows has focused on the role of external and internal factors. In the existing literature, we see that push factors (external) dominate in the explanations of capital flows to emerging and developing economies. For example, Forbes and Warnock (2012) and Fratzscher (2011), who build on the research of Calvo, Leiderman, and Reinhart (1993, 1996) and Chuhan, Claessens, and Mamingi, 1998), show how global conditions can drive capital flows to emerging economies. In the earlier papers, there was no clear motivation for the push and pull factors by economic theory. However, there is a relation between the external and internal drivers of capital and welfare gains (Markovitz, 1952). Most important push factors in the literature are risk aversion, interest rates in advanced economies, and the growth differential between advanced economies and emerging economies. Alfaro et al. (2008) find the quality of institutions as an essential pull factor to explain patterns in global capital flows. Most explanations for the capital flow dynamics are based on annual data from the twentieth century. Later, researchers extract common dynamics in the gross capital inflows. Although it is not necessary to determine specific factors driving the commonality[2] (especially when using the latent factor model), Cerutti et al. (2015), who build on previous research, find that the commonality relates to 'traditional' push factors from the previous literature. However, these commonalities were not equally clear for all components of capital flows.

[1] Oxford University Press; *Oxford Collections Dictionary, 'capital',* https://www.oxfordlearnersdictionaries.com/definition/english/capital_1?q=capital

[2] *Proportion of the variance of an individual country explained by the extracted factors.*

The academic literature has made less progress in understanding the mechanisms by which global factors impact emerging market capital inflows. Developing countries are in explanations often treated as a homogeneous group. However, developing countries are quite heterogeneous in their economic structures, level of development, and the degree of openness. Those characteristics affect the importance of various capital flows drivers, which could be valuable in explaining patterns in global capital flows. Some papers are researching why some developing countries are more sensitive to common components/cyclical pull and push factors than others. However, there is a lack of papers giving a more profound understanding of how fundamental country characteristics (including topographic characteristics), market characteristics and the level of development affect the importance of various capital flows drivers. A research in this field would be valuable. This paper contributes to the debate on the relative role of fundamentals, financial market characteristics, and topographical characteristics in affecting how some emerging economies gain more from changes in global factors, by answering the following question:

To what extent can economic and institutional fundamentals (including the level of development), market characteristics, and topographical characteristics, affect the sensitivity to the common factor of global capital flows to emerging and developing countries during the period 2000Q1-2017Q1?

We conduct a systemic analysis on the sensitivity of 50 emerging economies and developing countries to the global push factors. We use multi-dimensional data, a combination of time series and cross-sectional data. Cross-sectional datasets are widely used in analyzing drivers of capital flows. We collect quarterly data on Foreign Direct Investments, Portfolio Investments, and Other Investments, over a 16-year period (2001Q1 to 2017Q1). To cast some light on the co-movement of capital flows to emerging economies, we make use of a data analysis technique called principal component analysis (PCA), to extract the common factors underlying quarterly variations in the capital flows to emerging economies. We measure the co-movement in capital flows to emerging and developing countries to get an indication of the extent to which individual countries are dependent on the global nature of capital flows. If the capital flows to different emerging economies move independently, then we can infer country-specific factors drive the capital inflows. If they move together, then we infer that countries are perceived as subject to common (global) factors. We investigate the role of potential (traditional) push and pull factors in driving the common factors estimated for each type of capital inflow. By using linear regressions with push and pull factors on the principal components (PC), we try to find the captured fraction of the observed co-movement in the data by these (macro) developments in advanced economies. Lastly, we research the sensitivity to cyclical push and pull factors, by using multiple linear regressions of the country loadings from the principal component analysis and (time-invariant) characteristics.

To preview on our main results, we find that there are commonalities in capital flows, mostly in other investment flows (mostly banking flows) and direct investment flows. Based on the results in this paper, it is now possible to state that institutional fundamentals explain part of the sensitivity to the common factors of all capital flow types. In this paper, sensitivity to a common factor reflects the degree of co-movement of a particular country. Market characteristics are especially important for direct investment flows and portfolio equity flows. Topographical characteristics seem to be essential for sensitivity to the common factor of direct investment flows and other investment flows. The level of development of a country/economy is only important for other investment flows including banking flows. Interesting is the fact that we did not find any market characteristics having a significant influence on the sensitivity to the common factor of portfolio bond flows. The most important common factor of direct investment flows is explained by, the probability of a recession, US commercial bank assets (commercial bank loans), and the expected US policy rate. The first two variables were the same for other investment flows, next to US excess liquidity (M2) and the growth difference between advanced and emerging economies. For portfolio equity investments, we find the expected US policy rate, MSCI EM return, the value of the dollar to be important in explaining the variance. We find interest related variables to be necessary for the portfolio bond investments, namely, 10-Year US Treasury yield, US yield curve, and the expected US policy rate. Next to the interest related variables, US excess liquidity (M2) plays an important role. We hope that our research will be useful in solving the difficulty of explaining capital dynamics.

The structure of the paper is as follows: first of all, chapter 2 provides a literature review on capital flows in general, push factor of capital flows (per type), co-movement/common dynamics, and the sensitivity to global (common) factors. Chapter 3 consists of the conceptual framework, methodology, and a description of the data/variables. Chapter 4 presents the results of the data analysis per principal component and capital flow type. Chapter 5 summarizes the research findings and indicates the implications of the findings. Furthermore, it describes the limitations of this research and considers some suggestions for further research on this topic.

2 Literature review

The purpose of this chapter is to contextualize the study by focusing on the reasons for capital flows, the distinction between net capital flows and gross capital flows, the link between push and pull factors and the economic theory, the dominance of push and pull factors, push factors per capital flow component, common dynamics, and the sensitivity to capital flow drivers. We will end this section with a summary.

2.1 General

Kouri and Porter (1974) describe capital flows as the mechanism through which domestic excess demand for money is removed. They demonstrate that changes in domestic income, changes in monetary policy, and changes in foreign interest rates will all affect this demand/supply. It is crucial to distinguish gross capital flows and net capital flows when we research the dynamics of capital flows. The current account captures the net financial flows, resulting from the trade in real goods and services. Underlying changes in gross flows are excluded, including changes in reserves, and capital transfers. Transactions only associated with trade in financial assets are one of the most prominent elements of financial activity. Net capital flows limitedly describe financing activity and intermediation patterns (Borio & Disyatat, 2011). Gross capital inflows are a result of the economy that is incurring more external liabilities (Bluedorn et al.,2013). Gross capital flows represent the foreign investment inflows and the resident investment outflows; therefore, the gross inflows are equal to net sales of domestic financial instruments to foreign residents (Koepke, 2019). In contrast to net capital flows, gross capital flows capture two-way capital flows, both changes in assets and liabilities in the financial account. Gross capital flows collapsed during the financial crisis in 2008, while global current accounts were only affected slightly. Gross capital flows are more useful than net capital flows in this paper because they better characterize a country's integration in global financial markets (Borio & Disyatat, 2011).

Obstfeld and Rogoff (1995) use the intertemporal approach for the current account balance. This approach describes the current account balance as the outcome of forward-looking dynamic saving and investment decisions. Net capital flows can be seen as an intertemporal trade between goods, services, and assets. These flows enable to attain improved intertemporal consumption. On the other hand, benefits from net capital flows can be approached by looking at the production side. The fact that it enables funds to flow from countries with low return on capital towards countries with a high return on capital results in a more efficient allocation of capital.

When we look at gross capital flows, there is no intertemporal trade between assets and goods/services, but between assets and assets. Production benefits arise because a riskier and more productive allocation of capital is possible (Arrow, 1971). Private individuals in a country can use portfolio diversification to share risk internationally. A resident's or business's income is thereby less exposed to the risk that

threatens a particular area. This diversification enables more consumption smoothing (Obstfeld & Rogoff, 1994).

In the current literature, a variety of dependent variables is used to capture the capital flows. Wei (2000) and Wei et al. (2002) use (bilateral) foreign direct investments and bank loans (% GDP), Lane and Milesi-Feretti (2001) use net foreign assets (% GDP), Mody and Murshid (2005) use the total of foreign direct investment flows, portfolio investment flows, and loans (% GDP). Chinn and Ito (2007) and Prasad and Rajan (2008) use the current account balance and foreign direct investments (% GDP). Kalemli-Ozcan et al. (2010) use net capital income flows. However, Alfaro et al. (2007) and Cerutti et al. (2015) use the gross capital inflows (% GDP), in total and by component from the balance of payment, taken from the International Financial Statistics issued by the International Monetary Fund.

When the first papers with a push/pull-framework were published, there was no clear motivation for these factors by economic theory. However, there is a relation between the external and internal drivers of capital and welfare gains described above, which can be explained by economic theory. According to Markovitz's (1952) modern portfolio theory, risk-averse investors can construct an efficient frontier of portfolios. Markovitz shows that it is possible to construct a portfolio with a constant return and minimization of the variance, or the other way around, by constructing a portfolio with constant variance (market risk) and maximization of return (Elton & Gruber, 1997).

An implication of changes in expected risk and returns in an international context can be adjustments in asset prices or capital flows. It is challenging to observe expectations; therefore, Chuhan, Claessens and Mamingi (1998) find factors to proxy expectations from advanced economies of risk and return of investing in emerging and developing economies. They use both country-specific and global factors. Country-specific factors reflect risks (or opportunities) in a specific emerging market economy, for example, credit ratings or the rate of return on the stock market. Global factors could affect other investment opportunities than investments in emerging and developing economies. As those factors could influence the preference of risk and return, there could be a shift along the efficient frontier as described in the modern portfolio theory (Koepke, 2019). If investors prefer lower risk/return investments, this shift will be away from the high-risk assets from emerging economies. An important note is that there is a difference between drivers of portfolio investments and foreign direct investments, as the last one is more subject to strategic decisions by multinationals (Koepke, 2019).

Since Lucas' seminal paper (Lucas, 1990), a lot of research has been done on the drivers of capital flows. Prasad et al. (2007), Gourinchas et al. (2013), and Alfaro et al. (2014) show that capital often flows to developing countries with low productivity growth and away from developing countries with high productivity growth. Precisely, what this correlation reflects remains unclear, Gourinchas et al. (2013)

argue that this correlation reflects higher savings in high growth countries. Alfaro et al. (2014) argue that the correlation reflects mostly public transactions, which might be driven by political as opposed to economic factors. Fernandez-Arias (1996) and Taylor and Sarno (1997) find external factors primarily drive capital flows. On the other hand, Ghosh and Ostry (1993) and Chuhan et al. (1998) state that domestic economic fundamentals are at least as necessary.

Fernandez-Arias (1996) investigates whether the attractive domestic conditions pull the capital flows towards a country or whether (unfavorable) conditions in developed countries push the flows. He shows that the sustainability of capital flows is exposed to external factors, even if the domestic conditions improve. Creditworthiness seems to be an essential factor. Consecutively, this factor is driven by other external factors, especially international interest rates. In conclusion, creditworthiness is not a real domestic condition. Furthermore, he suggests that an increase in international interest rates does not immediately result in a massive capital outflow but reduced capital inflows.

The findings in Fratzscher's paper (2013) indicate that push factors have extended a significant effect on capital flows to emerging markets. He finds that both shocks to liquidity and risk, and the macroeconomic situation in advanced economies are essential factors. Furthermore, he finds more substantial effects during the crisis in 2007, which continued in the recovery period. Fratzscher emphasizes that pull factors are strongly related to the push factors, especially the quality of institutions and macroeconomic policies in a country. Next to the macroeconomic fundamentals, these factors were essential drivers in the period 2009/2010. On the other hand, financial openness plays a minor role in exposure to global movements. Improving institutions could help to reduce this exposure.

Ghosh and Ostry (1993) research the influence of economic fundamentals and speculative forces on capital flows. For the major part of the developing countries, they find that economic fundamentals are crucial in explaining capital flows. With different approaches, they show that the effective capital mobility in developing countries may be quite high. Instead of estimating the degree of capital mobility in developing economies, these economies are more often assumed to be more open or closed because it is easier to analyze (Haque & Montiel, 1990).

Chuhan et al. (1996) examine the behavior of four components of capital flows to both developing and industrial countries. They find equal importance for domestic and external factors in explaining portfolio bond and equity flows to Latin America. However, for Asian countries, they find domestic variables to be more important in explaining portfolio investment flows. Calvo et al. (1993) show the effect of domestic factors, next to the importance of US interest rates as a push factor of capital flows. Similar to Alfaro et al. (2007), they also describe the importance of some domestic characteristics. They find that institutional quality is of great importance in explaining capital flows. Next to the institutions, they find

some other less critical variables, for example, human capital, asymmetric information, and governmental policies. Aizenman, Binici, and Hutchison (2014) distinguish emerging markets with robust and fragile fundamentals. They find that the more robust fundamentals (which include higher levels of international reserves) are more impacted by external news, such as news about the tapering of the asset purchase program by the US Federal Reserve. Ghosh, Qureshi, and Zalduendo (2014) differentiate between asset flows and liability flows. They find that liability flows are more sensitive to global factors. This sensitivity could be explained by the fact that residents will respond more directly to domestic factors than non-residents, and on the other hand, non-residents will be more sensitive to global factors. In the next part, we will distinguish between literature about portfolio equity and bond flows, and direct investment, and other investment flows.

In conclusion, push and pull factors are related in several ways. In the existing literature, we see that push factors dominate in the explanations of capital flows to emerging and developing economies. In the next part (2.2.1 – 2.2.4), we will focus on push factors in three major categories. First of all, global risk aversion, secondly interest rates in advanced economies, and thirdly output growth in advanced economies.

2.2.1 Push Factors of Portfolio Equity Investment Flows

Rey (2013) finds that there is a robust negative relationship between global risk aversion and portfolio equity flows. This means that during calm periods, when uncertainty and global risk aversion are low, more capital flows into emerging economies. She finds that a global financial cycle in capital flows, asset prices, and credit growth, co-moves with a measure for risk aversion of markets, the market volatility index (VIX). Fratzscher (2012) analyses daily data of 65 countries, both emerging economies and advanced economies. Fratzscher finds a similar relationship; his results indicate that global changes in liquidity and risk conditions had a substantial effect on portfolio equity flows. An increasing level of risk would push flows from emerging economies to advanced economies. This evidence is consistent with the flight-to-safety hypothesis (Dooley, 1988). Koepke (2014) also finds this strong relationship between the risk appetite and the supply of capital from advanced economies.

Baek (2006) constructed a risk appetite index and finds that portfolio investments in Asian countries are primarily pushed by external factors, such as the risk appetite of investors. Domestic economic conditions seem less critical. However, this type of market risk appetite does not play a role in portfolio investment flows to Latin America. Baek did not distinguish equity securities and debt securities in portfolio flows. The difference of the influence could be since that portfolio investments in Latin America mostly consist of debt securities, and equity securities in Asia. The government mostly issues debt securities, while the private sector issues equity securities. Equity markets can be monitored less easily, which can lead to the difference found by Baek (2006).

Fernandez-Arias (1996), Montiel and Reinhart (1999), and Baek (2006) find there is a strong relationship between the US and Japanese interest rates and portfolio investment flows, even after controlling for domestic characteristics. Koepke (2018) also finds this negative relationship between the global interest rates and the supply of capital from advanced economies. He extended his research by focusing on the expected Fed policy interest rate. These results indicate that not only a rise in interest rates have an effect, but precisely the market expectations of the Fed policy rate have an impact on portfolio investment inflows.

Next to global risk aversion and the interest rates in advanced economies, growth differential is a critical factor in explaining capital flows to emerging economies (Ahmed and Zlate, 2014). Baek found some evidence for a positive relationship between the output growth in advanced economies and portfolio equity flows, a year after Albuquerque et al., in 2006.

Albuquerque et al. (2005) highlight the importance of changes in global (productivity) growth in explaining capital flows. Baek (2006) finds a different role of world economic growth across Asia and Latin America. He only finds a significant positive relationship between the growth of the world economy and portfolio flows in Asian countries. However, he did not find this relation when using estimated net total portfolio investment inflows, as a dependent variable. De Vita and Kyaw (2008) find an (unexpected) significant positive effect of foreign output growth based on the individual effect, but not on the time effect or the effects combined. This positive sign is unexpected as a recession in advanced economies makes it more attractive to look for investment opportunities in emerging and developing economies. Forbes and Warnock (2012) confirm this positive relationship, according to their research, an increase in global economic growth would result in foreigners to invest abroad. On the other hand, they find that domestic growth increases the probability of receiving this money from foreign investors.

2.2.2 Push Factors of Direct Investment Flows

Rey (2015) finds a positive relation between global risk aversion and direct investment flows. For foreign direct investment flows, she finds the strongest (positive) correlation with the VIX in Latin America. These flows are positively correlated with VIX in the whole world. Miranda-Agrippino and Rey (2012) earlier found a strong (negative) correlation between the global factor and VIX. However, Milesi-Ferretti and Tille (2011) find a negative relation between global risk aversion and foreign direct investment flows. Broner et al. (2013) do not find an apparent positive or negative effect of changes in global risk aversion. Results of Albuquerque et al. (2005) were insignificant.

Gupta and Ratha (2000) use a quantitative analysis over the period 1978-1997 and find a positive relationship between changes in mature economy rates and foreign direct investment flows. Furthermore, they find a positive relationship between foreign direct investments and private portfolio flows to a country. Later, Albuquerque et al. (2005) find a negative relationship between interest rates and foreign direct investment flows. Most of the papers before 2000 did not find any significant effect of interest rates on direct investment flows into advanced economies (World Bank, 1997, Montiel & Reinhart, 1999, Hernandez et al., 2001).

Albuquerque et al. (2005) research to what extent foreign direct investment flows depend on worldwide (risk) factors by constructing a globalization measure. They find that this measure steadily increased for both developing and advanced economies. Another interesting finding from their research on financial integration is that despite the similar behavior compared to equity; foreign direct investment flows do not rely on developed stock markets in the recipient country.

Montiel and Reinhart (1999) do not find a significant relationship between capital controls and the overall volume of capital flows. However, they find a relation between capital control and the composition of the flows; these controls increase the foreign direct investment inflows while it decreases the portfolio flows in the short term. Bekaert and Harvey (1997) showed earlier that the importance of global factors changes if markets are more liberalized.

De Vita et al. (2008) find a significant positive effect of global output growth on both the individual effects and the time effects for foreign direct investment flows. Forbes et al. (2012) have an interesting point; they did not find the same strong effect of economic growth on the point in time at which foreign investments are sold, and the money is transferred back. Contagion seems to play an essential role in explaining periods of reduction in foreign investments. Albuquerque et al. (2005) find a robust significant negative effect of global growth on foreign direct investment inflows for both industrial and developing countries. This effect was still significant and negative when adding wages, stock-market traded value, and balance of payment restrictions. The effect of global growth on foreign direct investment inflows was still negative but not significant anymore when adding a dummy for revenues from privatization transactions.

2.2.3 Push Factors of Portfolio Bond Investment Flows

Baek (2006), Milesi-Ferretti and Tille (2011), Fratzscher (2012), Broner, Didier, Erce and Schmukler (2013), Rey (2013), Ananchotikul and Zhang (2014), and Koepke (2014) find strong evidence for a negative relationship between portfolio bond investment flows and global risk aversion.

Baek (2006) finds a negative relationship between VIX and portfolio bond investment flows; however, this was not significant. On the other hand, Milesi-Ferretti and Tille (2011) find a significant

relationship. Fratzscher (2012) finds a similar relationship using daily data of 65 countries, from both emerging economies and advanced economies. Broner, Didier, Erce, and Schmukler (2013) show that gross capital flows are very volatile and pro-cyclical, foreigners investing more during expansions. They find a strong relationship between VIX and portfolio bond investment flows. During economic downturns, they see a considerable retrenchment. According to their research, the impact of a shock on domestic and foreign investors is different as a result of asymmetric information. Milesi-Ferretti and Tille (2011) think that this retrenchment leads to an increase in home bias in portfolio investments. Ananchotikul and Zhang (2014) show that global risk aversion has a significant effect on the volatility of asset prices (more important than domestic factors), using a Dynamic Conditional Correlational Multivariate GARCH framework. They also show that portfolio flows to emerging economies affect asset prices in a particular country.

Calvo et al. (1993), Fernández-Arias (1996), Taylor and Sarno (1997), Montiel and Reinhart (1999), Baek (2006), De Vita and Kyaw (2008), and Bluedorn et al. (2013) show strong evidence for a negative relationship between interest rates in advanced economies and portfolio bond investment flows. Calvo et al. find that the low interest rates in the early 1990s lead to a recovery of portfolio bond flows to Latin American economies. Ahmed and Zlate (2014) analyze the effect of the difference between the interest rates in emerging economies and advanced economies. They find that a vast difference could increase capital flows. Koepke (2014) finds that the expectations for US monetary policy are especially crucial for portfolio bond flows. The results from his research suggest a change in portfolio bond flows arise from a change of expectations, rather than a change in US interest rates.

Baek (2006), De Vita and Kyaw (2008), and Forbes and Warnock (2012) find some (insignificant) evidence for a positive relationship between growth in advanced economies and portfolio bond investment flows.

2.2.4 Push Factors of Other Investment Flows

In the current literature, the focus is mainly on banking flows, when it comes to *Other Investments.* Jeanneau and Micu (2002), Ferucci et al. (2004), Takáts (2010), Milesi-Ferretti and Tille (2011), and Rey (2013) find strong evidence for a negative relationship between global risk aversion and banking flows. After the critical events starting in October 2007 in the financial sector, there was a large decrease in capital flows. Notably, there was a substantial drop in banking flows as a result of the change in global risk perception (Milesi-Ferretti and Tille, 2011).

The findings on the influence of the interest rates in advanced economies on banking flows are more mixed than the other flow types. For example, Ghosh et al. (2014) find a negative relationship, while Jeanneau and Micu (2002) find a positive relationship between interest rates and banking flows to

emerging economies. Herrmann and Mihaljek (2013) find some evidence for the effect of differences in interest rates on banking flows; however, this was not clear for all regions.

2.3 Co-movement/ Common Dynamics and Sensitivity to Global Push Factors

In the following part (2.3), we will focus specifically on a set of papers which describe co-movement and commonalities in capital flows, and the countries' sensitivity to these common dynamics. A major existing part of the literature from the last decades highlights global characteristics and co-movement of capital inflows across countries. Calvo et al. (1993) write one of the first papers in which co-movement across countries is described. Contessi et al. (2013) and Rey (2015) show that different types of capital flows behave differently. Rey shows commonality in capital flows except for direct investment flows and a subset of Asian and African countries. Rothenberg and Warnock show that net capital flow dynamics may be driven by capital inflows or outflows, which in turn may be related to different factors. Hence capital in- and outflows require to be studied separately.

Calvo et al. argued to role of US interest rates, the recession, and the US industrial production slowdown particularly. They derive two principal components for a series of exchange rates and reserves and use them on a series of global variables. They find that less favorable global conditions could induce capital outflow from developing countries.
Chuhan, Claessens, and Mamingi (1998) choose a different methodology; they investigate the behavior of capital flows directly. Chuhan et al. use monthly US capital flows to nine Latin American and nine Asian countries to investigate factors explaining these capital flows. They use a simultaneous equation error component model to take into account the temporal and cross-sectional heterogeneity of panel data, and to account for the possibility of simultaneity among variables.

Gonzales-Rozada and Yeyati (2008) find that the evolution of global factors explains the variability of bond spreads. Essential factors in this paper are risk appetite (the spread of high yield corporate bonds in advanced economies), global liquidity (international interest rates), and contagion (systematic events). These exogenous factors play an important role in the evolution of refinancing conditions/borrowing costs for emerging economies.

Byrne and Fiess (2011) find interest rates to be important in explaining sensitivity to the common factor/component of global capitals flow to emerging economies. Sahay et al. (2014) find that countries with good/strong macroeconomic fundamentals were less affected by adverse shocks/events (depreciation of exchange rates, fall in equity prices, and rise in bond yields). Although they do not find a single fundamental that always matters for all countries, they find that in general, countries with larger markets are better able to absorb negative shocks/events. These countries are less affected because

investors could move capital towards other countries without significant changes in prices. The IMF also find fundamentals and growth to be important by using panel data (IMF, 2011).

Similarly, Ahmed et al. (2014) find that investors do discriminate across emerging markets based on macroeconomic fundamentals. Mishra et al. (2014) research whether countries with weaker fundamentals, economic characteristics, and financial structure are harder hit by negative events. They find countries with stronger macroeconomic fundamentals to be less affected by these adverse events. Currencies and bond yields were more stable (less deterioration) in countries with strong fundamentals, larger financial markets, better growth prospects, and a higher degree of financial integration. However, the effect of strong fundamentals was less critical to stock prices. They also find that especially countries with tight macroprudential policies fared better.

On the other hand, Eichengreen and Gupta (2014) did not find that those better macroeconomic fundamentals affecting the sensitivity to global factors driving capital flows to emerging and developing economies, by looking at the correlations between changes in bilateral nominal exchange rates and a set of fundamentals. It is challenging to derive a general conclusion from the empirical literature about the sensitivity to global capital flow dynamics. Especially because most studies focus on the (short term) effect on prices instead of the effect on capital flow dynamics. Ghosh et al. (2014) research the effect on net capital flows, although the results were not all statistically significant, they find that local fundamentals determine the sensitivity to global factors. They find a higher real interest rate and more substantial external financing need of the recipient country as an implication for larger inflows. Cerutti et al. (2015) study gross capital flows, which leads to different policy conclusions.

Kose et al. (2003) investigate the common dynamic properties of business cycle fluctuations across countries, regions, and the world. They use a Bayesian dynamic latent factor model to extract the common dynamics. Cerutti et al. (2015) use this method for their research on why some emerging countries gain more inflows from changes in conditions in advanced economies. They find economies which are more open being more sensitive to global push factors. Cerutti et al. distinguish macroeconomic fundamentals, institutional fundamentals, and market characteristics. The sensitivity to common dynamics varies widely between emerging economies and between capital flows type. Cerutti et al. (2015) find that differences in financial market characteristics are more important than macroeconomic fundamentals and institutional fundamentals during the period 2001-2013. However, for portfolio bond flows, they find better macroeconomic fundamentals (for example trade openness) to play a significant role in explaining higher sensitivity to common dynamics. Cerutti et al. did not find evidence for low sensitivity to common dynamics as a result of the high quality of institutions and low public debt. This is in line with findings of Aizenman et al. (2014).

Furthermore, Cerutti et al. find a relation between the level of reserves and the type of foreign exchange regime and the sensitivity. They also find that more liquid equity markets seem to gain more inflows from changes push factors. This research topic was not completely new. At the beginning of this century, there were comparable papers in which they research if (financial) contagion depends on the sensitivity to similarities in macroeconomic (risk) factors (Kodres et al., 2002). According to Hernandez et al. (2001), there could be contagion because of real sector linkage, financial sector linkage, or unidentified channels. They research if there is contagion via trade links, macroeconomic similarities, or financial linkages (direct linkage, via financial markets, liquidity problem, or information asymmetries). They find the effect of trade links to be the most important in explaining the differences in gaining from changes in capital inflows. Forbes et al. (2012) describe contagion effects as another kind of push factors, outside the control of policymakers in a specific country. As factors which do not influence all countries together. Forbes et al. divide the effects into effects due to trade channels/linkages, financial channels/linkages, and country similarities. They find these effects to be the largest through trade channels for foreign direct investment flows, and through financial linkages for portfolio investment flows.

Forbes and Warnock (2012) are one of the first to focus on the gross capital inflows instead of the more readily available net inflows. They examine the drivers of common components in capital inflows. They find global factors (especially global risk) significantly associated with waves in international capital flows. A decrease in global risk predicts a surge in capital inflows by foreigners. They find domestic macroeconomic characteristics to be generally less critical.
Markus Eller, Florian Huber, and Helene Schuberth (2015) use a dynamic factor model as well. They use a stochastic volatility model with a sample of 35 countries during the period 1994 to 2014, to analyze the relationship between global macroeconomic factors and country-specific capital flow dynamics. They extract macroeconomic-, financial sector-, and capital flow variables. Eller et al. find global financial factors to be important in explaining capital flow volatility. Furthermore, they find a time-varying pattern of capital flows. The co-movement of these variables indicate the importance of global (capital flow) factors.

Byrne and Fiess (2016) use the PANIC approach to separate a panel time series of capital inflows into a common factor, a country-specific fixed effect for each country. They also address the importance of studying in- and outflows separately. Byrne et al. use data from Euromoney Bondware and Loanware from 1993Q1 until 2009Q1. They identify essential commonalities in capital inflows, depending upon whether considering aggregate or disaggregate capital flows. Byrne and Fiess find a relation between US long-run real interest rates and common elements of bank flows and equity flows. Consistent with Forbes and Warnock (2012), they find an important role for risk/uncertainty and commodity prices in driving capital flows. Corresponding with the findings of North (1994) and Alfaro et al. (2008), Byrne

et al. find de jure financial openness (Chinn-Ito index) and institutions to explain why some countries receive capital inflows. They find less evidence for a common factor in bond flows. On the other hand, Rey (2015) finds (very) strong commonality in liability flow per region, except for FDI flows into all regions and PEI flows into Asia.

2.4 Summary Literature Review

In conclusion, push and pull factors are related in several ways. In the existing literature, we see that push factors dominate in the explanations of capital flows to emerging and developing economies. In the earlier papers, there was no clear motivation for the push and pull factors by economic theory; however, there is a relation between the external and internal drivers of capital and welfare gains (Markovitz, 1952).To research the effect of push and pull factors, some researchers use gross capital flows, and other researches use net capital flows. The current account captures the net financial flows, resulting from the trade in real goods and services. Net capital flows limitedly describe financing activity and intermediation patterns (Borio & Disyatat, 2011). Gross capital flows represent the foreign investment inflows and the resident investment outflows (Koepke, 2019). Gross capital flows characterize a country's integration in global financial markets (Borio & Disyatat, 2011).

In the current literature, researches find a robust negative relationship between global risk aversion for portfolio equity flows, portfolio bond flows, other investment flows (banking flows). For direct investment flows, the evidence was mixed and often not significant. For portfolio investment flows, both equity and bond investments, there was a strong negative relationship between the interest rates in advanced economies and capital flows to emerging and developing economies. For banking flows, this relationship was less clear, and for direct investment flows, the evidence was even more mixed. Researchers find some evidence for a positive relationship between the output growth in advanced economies, and portfolio investment flows (both equity and bond investments) to emerging and developing countries.

Domestic output growth turns out to be an essential pull factor for all components of capital flows, especially for banking flows and direct investment flows. Alfaro et al. (2014) argue output growth is a 'best' internationally-comparable measure of return to an international investor. Researchers also find a negative relationship between country risk indicators and capital flows, especially banking flows.

In recent years, researchers find common dynamics in capital flows. However, these commonalities were not equally clear for all components of capital flows. The sensitivity to common dynamics varies widely between emerging economies and between capital flows type. Differences in financial market characteristics are more important than macroeconomic fundamentals and institutional fundamentals during the period 2001-2013. However, for portfolio bond flows, they find better macroeconomic fundamentals (for example trade openness) to play a significant role in explaining higher sensitivity to common dynamics (Cerutti et al., 2015).

Table 1 Definitions of the independent variables

Economic/Institutional Fundamentals and Development characteristics

GDP Growth	Annual %
Rule of Law	Index 0 to 1 and Index 0 to 10[3]
Regulatory Quality	Index 0 to 1 and Index 0 to 10
Government Effectiveness	Index 0 to 10
Political Stability	Index 0 to 10
Control of Corruption	Index 0 to 10
Trade Openness	(Export+Import)/GDP
External/Public Debt	% GDP
Reserves	% GDP
International Reserves	% External debt
FX regime (coarse)	Index 1(completely fix) to 6 (most flexible)
FX regime (fine)	Index 1 to 15
ERSI	Exchange Rate Stability Index, Index 0 to 1 (Aizenman et al., 2010)
MII	Monetary Independence Index, Index 0 to 1 (Aizenman et al., 2010)
FOI	Financial Openness Index (Chinn-Ito), Index 0 to 1 (Chinn & Ito, 2008)
Trilemma Index (Triangle)	Surface of a diamond, with the sides 'Exchange Rate Stability Index', 'Monetary Independence Index', 'Financial Openness Index', and 'International reserves'.
Development group	Development index 1 to 6 (see Section Data)
Government Effectiveness	Index 0 to 1
Political Stability	Index 0 to 1
External Debt	% GNI

(Frequency: average over 2001-2016)

Market characteristics

Foreign openness	NIIP % GDP
Stock Market Capitalization *(DI,PEI)*	% GDP
Bond Market Capitalization *(DI,PBI)*	% GDP
Private Credit *(OI)*	% GDP
Stock Market Turnover ratio *(DI,PEI)*	Trading volume / market capitalization
Funding coming from Advanced Economies	Total, Equity, and Bonds, share of funding coming from Advanced Economies (%).
MSCI EM Dummy / MSCI FM Dummy *(DI,PEI,OI)*	
EMBI EM Dummy *(PBI,OI)*	Country listed in these indexes during 2001-2016

(DI=Direct Investment inflows, PEI=Portfolio Equity Investment inflows, PBI=Portfolio Bond Investment inflows, Other Investment inflows)
(Frequency: average over 2001-2015)

Topographical characteristics

Located next to an AE	Land connected to an AE (according to World Bank definition)	Dummy
Landlocked country	Completely enclosed by other countries, no sea shore	Dummy
Island		Dummy
Size	Surface in square kilometers	
Climate	Köppen Classification	Dummy
Region	Continents	Dummy

(AE: Advanced Economy)

[3] Governance performance: 0=weak, 5=neutral, 10=strong.

Push and Pull factors

US VIX	CBOE Volatility Index
MSCI EM Return	Q/Q return
EMBI Return	Q/Q return
MSCI World Return	Q/Q return
10Y Bond Yield	10-year Treasury note
US Yield Curve	10-year Treasury note - 3-month US Treasury Yield Spread
US TED Spread	3-month US Treasury Bill Rate - 3-month US DEP. LIBOR
Commodity Prices	Q/Q growth All Commodity Price Index, includes both Fuel and Non-Fuel Price Indices
Non-Fuel Commodity Prices	Q/Q growth Non-Fuel Price Index, includes Food and Beverages and Industrial Inputs Price Indices
Oil Price	Q/Q growth Crude Oil simple average of three spot prices; Dated Brent, West Texas Intermediate, and the Dubai Fateh
Expected US Policy Rate	Q/Q growth (US Policy Rate - 30 Day Federal Funds 6 Month)
GDP Growth in AEs	Average Q/Q GDP growth of the US, EU, UK (unweighted)
GDP Growth in EMs	Average Q/Q GDP growth of the Brazil, Russia, India, China, South-Africa (unweighted)
Probability of US Recession	Predicted difference 10-year and 3-month Treasury rates, 12 months ahead (See description in section Data)
US Commercial Bank Assets	The assets and liabilities of approx. 875 US chartered banks and foreign-related institutions (billions US $).
US CPI	Index, 1995=100
Trade-weighted value US $	Index, 1973Q2=100
Reserves	as a percentage of GDP

(Frequency: quarterly)

3 Conceptual Framework and Methodology

In this thesis, we will use multi-dimensional (panel) data, a combination of time series and cross-sectional data. This means observations of multiple phenomena obtained over multiple periods for the same individuals (countries) (Diggle et al., 2002). Cross-sectional datasets are widely used in analyzing drivers of capital flows. We will collect data on Foreign Direct Investments, Portfolio Investments, and Other Investments, over a 16-year period (2001Q1 to 2017Q1). We will analyze the effect of the independent variables, which are mentioned in table [1].

Three periods in this 16-year time frame can be distinguished, a pre-crisis period (2001Q1-2007Q3), a crisis-period (2007Q4-2009Q4), and a post-crisis period (2010Q1-2017Q1). The crisis-period can be divided into three stages, the first stage from the last quarter in 2007 until the third quarter of 2008, the second stage from the last quarter of 2008 until the first quarter of 2009, and the third stage from the second quarter of 2009 until the end of 2009 (Baldwin, 2009). These three stages make the sample period a representative period to research the capital flows into emerging economies. Important events, such as the collapse of Lehman Brothers characterize the first stage. We see a decline in banking flows during this period. The second stage was characterized by global panic, which resulted in the liquidation of holdings abroad, especially emerging economies were affected significantly. The third stage was a period of non-bank capital flows in Asian and Latin American emerging economies (Baldwin, 2009). Compared to other flow types, foreign direct investment flows were relatively less affected by crisis events (Tyson et al., 2014). During the post-crisis period, global foreign direct investments reached new ultimate high levels. At the beginning of this period, the rise in FDI flows was mainly driven by Latin American emerging economies. Asian countries reached new records in 2015, mainly driven by South/East Asian countries. The end of the post-crisis period was characterized by flattening FDI inflows in African countries because of low commodity prices (UNCTAD, 2016). During the pre-crisis period, portfolio flows were increasing until they dropped during the crisis. In the post-crisis period, they recovered but remained volatile (Tyson et al., 2014).

3.1 Panel data

We will use panel data because there are some advantages. First of all, a more accurate estimation of the parameters. Compared to cross-sectional or time-series data (similar to a panel with T=1 or N=1), panel data is usually more efficient in estimating, because of the higher variability and degrees of freedom (Hsiao, 1995). Maybe surprisingly, panel data could simplify the estimation of the parameters (Hsiao, 1995). Another advantage is the greater capacity to capture an individual's (country) complex behavior, because of the multi-dimensionality. With panel data, it is possible to uncover dynamic relations more efficiently. This greater capacity is also because it is easier to control for the effect of omitted variable bias (left out relevant variables) (Hsiao, 1995). One of the difficulties when using panel

data could be missing data points because time series are not always continuous. We only use the continuous data time series, so we end up with different sets of countries per subcategory of capital flows.

3.2 Model specification

3.2.1 PCA

This paper aims to cast some light on the co-movement of capital flows to emerging economies. For this cause, we make use of a data analysis technique called principal component analysis (PCA). We use principal components analysis (PCA) to extract the common factors underlying quarterly variations in the capital flows to emerging economies. This is a technique to reduce the dimensionality of the data, to increase the interpretability of underlying relationships/patterns without losing too much information. If the capital flows to different emerging economies move independently, then we can infer that country-specific factors drive the inflows. If they move together, then we infer that countries are perceived as subject to common (global) factors. This provides us with evidence on how capital flows into emerging and developing countries. By using PCA, we create new variables based on detected patterns (Chinn & Ito, 2006). We will estimate the following model:

Equation 1

$$y_{i,t} = \beta_i^1 PC1_t + \beta_i^2 PC2_t + (\beta_i^3 PC3_t) + \varepsilon_{i,t}$$

Where $y_{i,t}$ is the inflow of a specific type (direct investments, portfolio equity investments, portfolio bond investments, other investments) to country *i* in quarter *t,* normalized by GDP. $PC1_t$ is the factor affecting all emerging economies in the sample at time *t.* β_i^x*,* are the country-specific factor loadings for each principal component. $\varepsilon_{i,t}$ is the country-specific residual factor.

A principal component analysis is suitable because we have multiple variables (countries) at a continuous level, there is a linear relationship between the variables (important because a PCA is based on Pearson correlation coefficients), and the data is suitable for data reduction. As a test of model fit/sampling adequacy, we use the Kaiser-Meyer-Olkin (KMO) measure. This measure indicates the proportion of variances caused by underlying factors. If the KMO value is below 0.5, a PCA is not very useful. We normalize the data, so there will be no significant outliers. To see the importance of the principal components graphically, we use a scree plot. It plots the number of components against the eigenvalues to detect the point where the curve changes drastically, which indicates the maximum number of components to retain (Zwick & Velicer, 1982). The scree plots for all capital flow types are presented in *figure 5* to *8*.

After extracting the principal components, we investigate the role of potential push and pull factors in driving the common factors estimated for each type of capital inflow. We examine the association between the common/principal components on the one hand and (cyclical) real economy/financial influences on the other hand, by using a linear regression with push and pull factors on the principal components (PC);

Equation 2

$$PC_t = \alpha Push_t + \beta Pull_t + \gamma Flow\ Type\ Specific\ Factors_t + \varepsilon_t$$

PC_t is the predicted component from the principal component analysis on the (normalized) inflows of a specific type in quarter *t*. This is a factor affecting all emerging and developing countries in the sample at time *t*. The predicted component is representative of a general pattern across the countries (*a linear combination)*. The push and pull factors (including type-specific factors) in quarter *t* are described in table [1]. Next, we exclude the insignificant push and pull factors. We end up with a set of (significant) factors per principal component. A considerable benefit of a principal component regression is that by using principal components, we avoid the problem of multicollinearity between the countries. Performing a principal component analysis produces linear combinations of uncorrelated predictors (Jolliffe & Cadima, 2016).

Last, we will research the sensitivity to the common factor (cyclical push and pull factors), by using a multiple linear regression of the common proportion of an individual country *i* explained by a given principal component. All characteristics used in equation 7 are listed in table [1]. These characteristics are not time-variant in this regression.

Equation 3

$$\beta_i = \alpha Economic/InstitutionalFundamentals_i + \beta MarketCharacteristics_i + \gamma TopographicalCharacteristics_i + \varepsilon_i$$

(i=1, 2….50)

For the time-variant characteristics, we take the average over the sample period. Because of the limited amount of observations in this regression, we check these characteristics in smaller groups. For all regressions in our research, we check for the assumptions (linear relationship, multivariate normality, no or little multicollinearity, no auto-correlation, homoscedasticity).

3.3 Data collection

Gross capital inflow data is obtained from the IMF's Balance of Payment Statistics. From the IMF's World Economic Outlook, we extract the data of Real GDP growth and commodity prices. From Datastream we extract the following quarterly variables: US Yield Curve, US TED Spread, 10Y Bond Yield, US commercial bank assets, the trade-weighted value of the dollar, (expected change in) Fed Policy Rate, MSCI World Return, MSCI EM Return, and the EMBI Return. The source of these

variables is the US Federal Reserve, except for the MSCI returns (MSCI Inc.) and the EMBI return (J.P. Morgan). The data to construct the variable representing the probability of a US recession is obtained from the Federal Reserve Bank of New York. Furthermore, from the World Bank's World Development Indicators, we obtain public debt, reserves, annual real GDP growth, and the variables to construct the trade openness and the development index. Next, we obtain the data for the FX-regime variable from Ilzetzki, Reinhart, Rogoff (2016). Institutional quality data is obtained from the International Country Risk Guide from the Political Risk Services Group and the World Bank's Worldwide Governance Indicators database from Kaufmann, Kraay, and Mastruzzi (2010). From the World Bank Financial Development Database, we obtain the stock market capitalization as a percentage of GDP, the stock market turnover ratio, domestic credit to the private sector as a percentage of GDP, corporate bond issuance volume to GDP. The average share of funding over the sample period coming from advanced economies is obtained from the IMF's Coordinated Portfolio Investment Survey. Data for the Trilemma Index is obtained from the updated dataset of Aizenman et al. (2010). Information for the EMBI-dummy and MSCI EM/FM-dummies is obtained from JP Morgan's and Morgan Stanley's annual market classification reviews. Topographical data is obtained from the United Nations Statistics Division, CIA World Book (2009), and 'CLIMATE-DATA.ORG'.

It saves much time to use secondary data, and it makes the collection for a complete dataset more feasible. However, there are also downsides to using this type of data, especially in the case of emerging and developing countries. In those countries, the data collection is not what it is like in advanced economies. The collection is likely less careful so that there could be differences because of measurement errors and different definitions and data standards. These differences could lead to a bias because it is likely that the less developed a country, the worse the data quality would be. The secondary data sources which are used, seem to be of good quality. To minimize the trouble of bad quality data and measurement differences, we had a close look at the metadata of the most critical variables.

The sample draws on data from 50 countries, including both emerging economies and developing economies, during the period 2001Q1 to 2017Q1. We construct a dataset containing countries in the following five continents, Latin-America, Africa, Asia, Europe, and North-America. At first glance, Fiji seems to fit in the dataset for the continent Australia/Oceania; however, it was later identified as an outlier in terms of both dependent and independent variables. By constructing the sample, we follow a combination of (recent) published papers in this research area (Ghosh et al., 2017, Hannan, 2017, Cerutti et al., 2015, Alfaro et al., 2007, Calderon et al., 2002). We excluded a couple of frontier markets and countries because of a lack of data to fit our research. For example, when more than the first three years in the time series were missing. With a sample of 16 years of quarterly data, there is a maximum of 3200 observations per variable. Because of the difference between the number of periods per country, we have to deal with unbalanced panel data. Countries with more than one quarter missing will be excluded

from the principal component analysis. We assume the other data to be missing randomly. Most of the methods and commands can be applied without causing inconsistencies in the estimators (Baltagi, 2008).

3.4 Dependent and independent variables

The most crucial dependent variable used in this paper are the capital inflows. Further, there are two categories of independent variables in this paper, first of all, the cyclical push and pull factors which explain the changes in the capital inflows in emerging economies and developing economies. Second, a category of dependent variables which explain the sensitivity of emerging economies to cyclical push and pull factors. All inflows and push and pull factors are quarterly data, economic structure, institutional fundamentals, market characteristics are based on yearly data. All amounts are in US $.

Gross capital inflow data is obtained from the IMF's Balance of Payment Statistics. These capital inflows can be divided into different components, Direct Investment flows, Portfolio Equity flows, Portfolio Bond flows, and Other Investment flows. These flows can again be subdivided into assets and liabilities. These quarterly data inflows are scaled by the yearly GDP of a specific country.

3.4.1 Gross Capital Flows

The international investments can be divided into three categories, direct investments, portfolio investments, and other investments. Furthermore, we separate portfolio investments into portfolio equity investments and portfolio bond investments. We do not take financial derivatives into account in this research because of their particular nature (Garber, 1998). As an illustration, *Figure 1* reports the (aggregate) gross capital inflows to 50 emerging and developing countries in the sample period (2001Q1-2017Q1), where flows are expressed as a percentage of GDP.

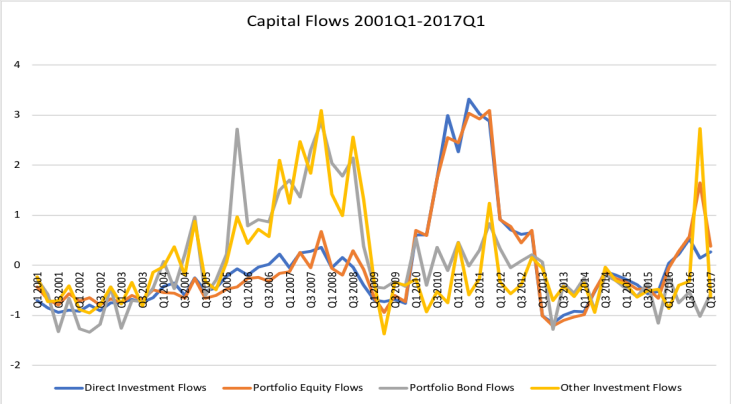


Figure 1: Gross Capital Flows (per flow type) from 2001Q1 to 2017Q1

IMF's data on direct investments cover both inward and outward investments. The investor holds at least 10% of the (ordinary) shares in a non-resident entity to obtain a lasting interest[4]. Most data on direct investments is collected quarterly or in annual sample surveys. Other methods used are a census, a combination of census and sample surveys, banking supervision data, company reports/financial statements, exchange control, data from investment approval authorities, International Transactions Reporting System, and media reports. Transactions between fellow enterprises are not always (entirely) covered. Some countries only partly apply the 10% rule for direct investments. This means that they account for a 10 percent threshold of voting power or equity ownership. Direct investments do require the control of the direct investor; it is purely based on ownership (IMF, 2006).

The category *portfolio investments* covers investments in debt and equity securities. Instruments which are classified as direct investments and reserve assets are excluded, for example in the case that a foreign investor holds equity securities, which account for less than 10% of the capital of a company. In comparing direct investments and portfolio investments, a significant difference is that direct investments are more focused on the long-term and portfolio investments are more focused on the short term. In addition to the term, investors making portfolio investments do not have the intentions to exert influence on management[5]. Data on portfolio investments are derived from International Transactions Reporting System (ITRS), stock exchange data, surveys of custodians, Coordinated Portfolio Investment Survey (CPIS), other surveys, administrative-based or regulatory reports. The data covers transactions in equity and investment fund shares, and debt securities.

Last, we have a residual category covering all transactions which are not covered by the previous categories (including reserve assets). *Other investments* consist mostly of banking flows, including trade credits, currency loans, and deposits[6]. Other investment data is extracted from surveys, administrative-based or regulatory reports, or ITRS/Bank reports. In some cases, data is obtained from the balance sheets of banks. We expect more considerable measurement differences in this category because the data is spread over different institutions.

3.4.2 Push and Pull factors

When it comes to push and pull factors, in this paper, the existing literature serves as a guideline. In the next part (3.3.2), we will discuss the different factors, with the expected direction of the relationship with capital flows. In 3.3.3, we will discuss the economic fundamentals and institutional fundamentals, development characteristics, market characteristics, and topographical characteristics.

[4] OECD; Glossary of statistical terms, 'foreign direct investment', https://stats.oecd.org/glossary/detail.aso?ID=1028
[5] External Debt Statistics: Guide for Compilers and Users (Draft), IMF, Washington DC, March 2000, Appendix III, Glossary of Terms.
[6] https://www.imf.org/external/region/tlm/rr/pdf/Jan12.pdf

3.4.2.1 US VIX

As a measure for global risk aversion, we use the market volatility index of the S&P 500 (VIX). An increasing level of risk would, consistent with the flight-to-safety hypothesis, push flows from emerging economies to advanced economies. Rey (2013), Fratzscher (2012), and Koepke (2014) find a robust negative relationship between VIX and portfolio equity flows. They find a similar relation for portfolio bond flows, even when using a different measure for risk aversion (US BBB-rated corporate bond spread over Treasuries). So, we expect the same strong relation between capital flows and USVIX as a push factor. An increase in uncertainty (VIX) will result in a decrease in cross-border capital flows (Rey, 2013). Later, Rey (2015) researches the relation between VIX and the global cycle in capital flows. She finds co-movement of capital flows and the volatility index. Especially credit flows seem to be sensitive to the global financial cycle.

3.4.2.2 MSCI World / MSCI EM Return / EMBI Return

To capture the effect of capital flows (portfolio equity flows) with a return-chasing motive, we use the MSCI EM for a measure of return on equity investments in the destination country (Portes & Rey, 2005). For the same reason, we include the EMBI return, to capture this effect for portfolio bond flows. MSCI World is included to capture the return on equity for advanced economies. If the MSCI World return decreases, emerging economies will be used as a 'flight-to-safety'. We use the lagged quarter-on-quarter (Q/Q) return for both variables. We expect MSCI EM and EMBI returns to be pull factors, and MSCI World to be a push factor.

3.4.2.3 10Y Bond Yield

We use the 10-year US government bond yield, as a measure of the relative cost of investing in cross-border bonds compared to investing in US bonds (Cerutti et al., 2015). Fernandez-Arias (1996), Montiel and Reinhart (1999), and Baek (2006), and Koepke (2014) find a negative relationship between interest rates and portfolio equity flows. Taylor et al. (1997) and Mody et al. (2001) find a similar result for portfolio bond flows. Lower interest rates in advanced economies will push capital flows towards emerging and developing economies. We expect the interest rate to be a significant push factor.

3.4.2.4 Expected Policy Rate

The policy rate is the interest rate set by a monetary authority to affect the change in the economy's monetary variables, such as consumer prices. An upward shift in the Fed's expected policy rate could trigger a reduction in portfolio flows into emerging economies, since funding costs are expected to increase (Koepke, 2018). The Expected Policy Rate is calculated as the Q/Q growth of the difference between (US Policy Rate and 30 Day Federal Funds 6 Month (Koepke, 2018).

3.4.2.5 TED Spread

US TED spread is used as a measure for the attractiveness of the funding conditions or as a measure of liquidity (Fratzscher, 2012). The US TED (3 months) spread is calculated by taking the difference between the LIBOR and the Treasury Bill. This variable is especially relevant for the subcategory 'other investments' because this category also captures banking flows.

3.4.2.6 US Yield Curve

The US Yield Curve is used as a measure of growth prospects in the US (Ciarlone et al., 2009). The US Yield Curve reflects the term structure of interest rates, a relation between yields and maturities. We use the yield curve, which compares the three-month and 10-year US Treasury notes. The flatter the US yield curve, the less profitable investment opportunities there are in the US. This again could result in a search for opportunities outside the US (Cerutti, Claessens, and Ratnovski (2014).

3.4.2.7 Probability of US Recession

The probability of a US recession (12 months ahead) is predicted by the Treasury Spread, twelve months ahead using monthly averages. The Treasury Spread is the difference between the 10-year and 3-month Treasury rates (Estrella & Trubin, 2006). This is shown in the following probit equation,

Equation 4

$$Rec\_prob = Recessm_{t+12} = F(\alpha + \beta * spread_t)$$

where $spread_t$ is the difference between the 10-year and 3-month Treasury rates in month *t,* α and β are constants, *F* is the cumulative normal distribution function;

Equation 5

$$F(z) = \int_{-\infty}^{z} \frac{1}{\sqrt{2\pi}} * exp\left(-\frac{x^2}{2}\right) dx$$

The constants are estimated over a 50-year period, $\alpha = -0.6045$ and $\beta = -0.7374$ (Estrella & Trubin, 2006).

3.4.2.8 Trade-weighted value of the US dollar

We use the trade-weighted value of the US dollar to determine the purchasing value of the US dollar, expressed in terms of goods and services you can buy with one dollar. This measure is used to capture the effects of appreciation/depreciation of the dollar against other currencies. If the dollar becomes less valuable, exports become cheaper while imports to the US become more expensive (Rogoff, 1996).

3.4.2.9 Commodity Prices / Non-Fuel Commodity Prices / Oil Price

Commodity prices are considered a push factor in the existing literature, influencing the relative price of imports in terms of exports (Brana et al., 2010). Emerging economies are net exporters of commodities (Reinhart & Reinhart, 2008). For the commodity prices, we take the Q/Q growth rate of the aggregate commodity price, including both fuel and non-fuel price indices. Besides, we take the return of non-fuel price indices and the oil price separately. The oil price is the price of crude oil (petroleum), using a simple average of three spot prices (Dated Brent, West Texas Intermediate, and the Dubai Fateh). Commodity prices can, to some extent, influence the foreign direct investment flows. We will use the lagged value of commodity prices.

3.4.2.10 GDP Growth in AEs / GDP Growth in EMs

GDP Growth in AEs as a proxy for economic activity, the lagged value of the unweighted average Q/Q real GDP growth of the US, EU, and the UK. A slowdown in growth in advanced economies means that investors will look for better growth opportunities in emerging and developing economies (Reinhart et al., 2008). On the other hand, we also include GDP Growth in emerging economies (used as a measure of economic development in emerging economies). It is calculated as the unweighted average of the Q/Q GDP growth of Brazil, Russia, India, China, South-Africa. We will use the lagged value of real GDP growth in emerging economies.

3.4.2.11 Reserves

The international reserves are seen as an indicator of liquidity by lenders. So, these reserves are expected to be an essential pull factor of portfolio bond flows and other investment flows, which include bank lending.

3.4.2.12 Commercial Bank Assets

US commercial bank assets, including loans and leases in bank credit. If we look at the financial business cycle, we see more lenient credit standards during boom periods. A decrease in US commercial bank assets would result in a fall in capital flows to emerging economies (Jesus & Gabriel, 2006).

3.4.2.13 US CPI

The (seasonally adjusted) US Consumer Price Index (CPI) consists of the pricing level of all items, minus food and energy. We would expect that more inflation in the US would result in higher interest rates, which makes it more attractive to make portfolio bond investments in the US instead of emerging economies (Fisher, 1930). However, Mishkin (1992) describes results indicating that a strong Fisher effect will only appear in case inflation and interest rates have trends. Chen (2015) even describes the 'Fisher Paradox' in China, based on data between 1980 and 2012.

3.4.3 Economic and institutional fundamentals, development characteristics, market characteristics, and topographical characteristics.

We will follow the existing literature on sensitivities to global factors (Cerutti et al., 2015, furthermore, we will use the variables/channels from papers which describe the contagion effect to global factors (Hernandez et al., 2001, Glick & Rose, 1999, Dungey et al., 2011, Broner et al., 2005, Claessens et al., 2011). Contagion is known as the simultaneous existing effect of idiosyncratic shocks spread across different countries (Dungey et al., 2006). Are there shared characteristics which explain the sensitivity to cyclical pull and push factors of capital flows? For the economic structure, institutional fundamentals, and market characteristics, we follow the existing literature. Important additions are the development index and a group of topographical characteristics for each recipient market.

An example of research on contagion effects is the paper of Kodres et al. (2002), which states that the amount of financial contagion depends on the sensitivity to similarities in macroeconomic risk factors. According to Hernandez et al. (2001), there could be contagion because of real sector linkage, financial sector linkage, or unidentified channels. They research if there is contagion via trade links, macroeconomic similarities, or financial linkages (direct linkage, via financial markets, liquidity problem, or information asymmetries). They find trade links to be the most important (see literature). They find trade openness to be specifically important for foreign direct investment flows. The relation between trade openness and economic growth is extensively researched and discussed in many papers. Trade openness can potentially intensify economic growth because of better access to goods and services, and the diffusion of technology and knowledge (Keho, 2017). Developing countries can benefit from trade with advanced economies.

Furthermore, they find the exchange rate regime, the fiscal position, and financial development to be responsible for the amount of contagion. This confirms the findings of Glick and Rose (1999), that there is a relation between the FX regime and the level of contagion. We would also include variables to capture the effect called ‘neighborhood effects’. According to Hernandez, this captures financial links due to institutional arrangements.

3.4.3.1 Economic/Institutional fundamentals and development characteristics

First, the following World Bank’s World Development Indicators, public debt, reserves, annual real GDP growth, and the variables to construct the trade openness and the development index. The country’s trade openness is equal to the sum of the imports and exports divided by the GDP [Table 1].

Institutional quality is proxied by the regulatory quality and the rule of law. We also use government effectiveness, control of corruption, political stability as a robustness check. For each of the countries, a score between 0 and 1 is given (Kaufmann, Kraay and Mastruzzi, 2010). Furthermore, we use data

from the International Country Risk Guide for regulatory quality and the rule of law because the WGI[7] are not reproducible, (sometimes) too complicated, and difficult to compare over time and space (Howell, 2011).

Rule of Law is "The authority and influence of law in society, especially when viewed as a constraint on individual and institutional behavior; (hence) the principle whereby all members of a society (including those in government) are considered equally subject to publicly disclosed legal codes and processes".[8] The variable is an observation of the extent to which one has confidence in and adheres to rules of society. Important aspects are the quality of property rights, contract enforcement, police, and courts. Contract enforcement means the risk that the judicial system will not enforce contractual agreements. Another risk is the risk of expropriation that the state will expropriate or confiscate assets of private businesses (Kaufmann & Kraay, 2018)[9]. Regulatory Quality shows the ability of a government to formulate and implement sound policies and regulations that enable and promote developments in the private sector (Kaufmann & Kraay, 2018). An important aspect of regulatory quality is a regulatory burden, the risk that normal business operations become more expensive due to policies and regulations (Kaufmann & Kraay, 2018). Government Effectiveness shows the quality of public services, civil service, policy formulation, and implementation. This means the existence of infrastructure disruption, state failure, policy instability (Kaufmann & Kraay, 2018). Political Stability is an observation of the likelihood of political instability and politically motivated violence (protests/riots, terrorism, interstate wars, civil wars) (Kaufmann & Kraay, 2018). Busse and Hefeker (2007) find changes in political institutions and policy to affect investment behavior. Control of Corruption is an observation of the extent to which public power is exercised for private gain. Corruption is the risk that one will face bribery, embezzlement or other corrupt practices, which can occur on different levels (Kaufmann & Kraay, 2018). This phenomenon plagues many emerging and developing economies. This threatens a company's ability to operate in a country, which is an obstacle to economic development (Cieślik & Goczek, 2018). Vaal and Ebben (2009) find a strong negative relationship between corruption and economic growth.

Data for the Trilemma Index is obtained from the updated dataset of Aizenman et al. (2010). We use the average (2001-2015) surface of a triangle, with the following sides: 'Exchange Rate Stability Index' (ERSI), 'Monetary Independence Index' (MII), and 'Financial Openness Index' (FOI). All the indexes have (normalized) values between 0 and 1. The ERSI-variable is based on the standard deviation of change in the exchange rate between home and base country. The MII-variable focuses on the correlation between the money market interest rate in the home and base country. The extent and

[7] World Bank Group: The Worldwide Governance Indicators.
[8] http://www.oed.com/view/Entry/277614?redirectedFrom=rule+of+law#eid
[9] http://info.worldbank.org/governance/wgi/#home

intensity of capital account controls is measured by the FOI-variable (Chinn-Ito index). The data is extracted from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions. The Chinn-Ito index is normalized between 0 and 1. Higher values mean greater monetary policy independence, greater exchange rate stability against the currency of the base country, and more openness to cross-border capital transactions (Aizenman et al., 2010).

Equation 6

$$MII = 1 - \frac{corr(i_i, i_j) - (-1)}{1 - (-1)} \qquad \text{(Aizenman et al., 2010),}$$

i refers to home countries and j to the base country.

Equation 7

$$ERSI = \frac{0.01}{0.01 + stdev(\Delta \log(exch\_rate))} \qquad \text{(Aizenman et al., 2010),}$$

Annual standard deviations of the monthly exchange rate between the home country and the base country.

Next to the triangle, we use the variables MII, ERSI, and FOI separately in the regression with country loadings (including interaction variables MII+ERSI and MII+FOI). These interactions are important because these variables can have a different (/opposite) influence on the push and pull factors influencing the common factor (direct and indirect). For example, greater financial openness and greater exchange rate stability could lower the inflation level, while greater monetary independence is more associated with higher levels of inflation (Aizenman et al., 2010).

The FX-regime data from Ilzetzki, Reinhart, Rogoff (2017), provide a measure of foreign exchange rate restrictions for 194 countries over 1946-2016. The coarse classification is an index from 1 to 6, where one means there is no separate legal tender, and five means freely floating. The fine classification is an index from 1 to 15. We take the average over the period 2001-2016. Both Aizenman et al. (2010) and Ilzetzki et al. (2017) start with constructing the annual measure of the exchange rate stability, using the exchange rate's monthly standard deviation against a base country. However, there are some differences in their calculations, for example, in dealing with the downward bias. The correlation between both measures in our sample is about 70%. We use them both to get a clear, more robust outcome.

The development index is based on the following World Bank Development Indicators: GNI per capita (PPP, current international $), GINI index (World Bank estimate), life expectancy at birth, infant mortality rate per 1,000 live births, prevalence of undernourishment as a percentage of population, current health expenditure (% of GDP), current health expenditure per capita (PPP), access to electricity (% of population), fixed telephone subscriptions per 100 people, individuals using the internet as a percentage of population, the duration of compulsory education, educational attainment, percentage of the 25+ population which at least completed primary education, and lastly the percentage of the 25+

population which at least completed upper secondary. From every variable, we take the lowest value in the world and the highest possible value of a variable. Then we divide the values into five equal groups. A lower value means a lower group for most of the variables, except for infant mortality rate, the prevalence of undernourishment, and the GINI coefficient. We then take the sum of group levels per country; if a country has the maximum possible value for a variable, it gets the score six instead of five. The US receives a score of 57 over the period 2001-2015, where Namibia has a score of 26 over the same period. On the one hand, countries with similar levels of development are more sensitive to cyclical push and pull factors. However, it can also be argued that the information asymmetry in less developed countries is higher. The lower development could, therefore, result in a more considerable influence of cyclical push factors (Lhost, 2004).

3.4.3.2 Market characteristics

For the market characteristics, we mainly follow the paper of Cerutti et al. (2015). First of all, Foreign openness, which is proxied by the country's net international investment position as a percentage of GDP, which is equal to the difference between a country's external financial assets and liabilities (Bivens, 2004). A country with a high share of foreign assets, which is also a barometer for the financial condition and creditworthiness, is expected to be more sensitive to global push factors. Second, the variables from the World Bank Financial Development Database, the stock market capitalization as a percentage of GDP, the stock market turnover ratio, domestic credit to the private sector as a percentage of GDP, corporate bond issuance volume to GDP.

The turnover ratio, as a proxy for market liquidity, is equal to the sum of shares traded over a period divided by the stock market capitalization. For these variables, we take the average over the period 2001-2016. Furthermore, we use the average share of funding over the sample period coming from advanced economies, including a distinction between debt securities and equity securities. This variable represents the composition of the foreign investor base. Finally, we include three dummies for liquidity, if countries are listed in the JP Morgan's EMBI Emerging index, Morgan Stanley's MSCI EM index, and MSCI FM index over the sample period.

3.4.3.3 Topographical characteristics

To research if the location influences the sensitivity to external factors, we include a collection of topographical features. The first topographical variable we use is the climate zone, which is based on the Köppen classification. This data is obtained from the climate-model by climate-data.org, built with data collected from 1983 to 2012. Secondly, the surface of the land in square km is extracted from the United Nations Statistics Division. Lastly, data for dummies about islands, landlocked countries,

countries located next to an advanced economy, or Northern/Southern hemisphere countries are obtained from the CIA World Book (2009).

We start with the following countries included in the sample: Albania, Argentina, Aruba, The Bahamas, Belarus, Belize, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Cape Verde, Chile, Colombia, Costa Rica, Croatia, Ecuador, El Salvador, Georgia, Guatemala, Hungary, India, Indonesia, Jordan, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia FYR, Malaysia, Mauritius, Mexico, Moldova, Mongolia, Namibia, Nicaragua, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Romania, Russian Federation, South Africa, Sri Lanka, Thailand, Turkey, Ukraine, Uruguay, Vietnam.

To be able to use the Principal Component Analysis, we will use smaller samples per type of capital flows. We still try to have a representative sample for Emerging Economies. The following countries are used in the analysis of Direct Investment flows: Cape Verde, Mauritius, Uganda, Bulgaria, Georgia, Latvia, Lithuania, Poland, Romania, Bosnia and Herzegovina, Moldova, Ukraine, Argentina, Belize, Colombia, Ecuador, Guatemala, Nicaragua, Uruguay, India, Jordan, Malaysia, Pakistan, Russian Federation, Sri Lanka, Turkey.

For the analysis of Portfolio Equity flows, we will use Mauritius, Bulgaria, Croatia, Georgia, Hungary, Macedonia FYR, Romania, South Africa, Argentina, Brazil, Ecuador, Uruguay, India, Indonesia, Kazakhstan, Pakistan, Philippines, Sri Lanka, Thailand, Turkey.

For the analysis of Portfolio Bond flows, we will use Colombia, Uganda, Belarus, Georgia, Poland, Moldova, Ukraine, South Africa, Brazil, Chile, Guatemala, Peru, Uruguay, Mexico, Indonesia, Kazakhstan, Pakistan, Philippines, Sri Lanka, Thailand, Turkey.

For the last part, the Other Investment flows, we will use Cape Verde, Namibia, Albania, Bulgaria, Hungary, Latvia, Lithuania, Poland, Romania, Bosnia and Herzegovina, Moldova, Ukraine, Bolivia, Chile, Colombia, Guatemala, Nicaragua, Panama, Mexico, Indonesia, Kazakhstan, Kyrgyz Republic, Russian Federation, Sri Lanka, Turkey.

3.4.4 Summary statistics

Table 2: Summary statistics

Push/Pull	***Obs***	***Mean***	***Std. Dev.***	***Min***	***Max***
Commercial Loans US *(US Commercial Banks Assets)*	65	6094,357	1467,693	4138,354	8811,699
Trade-Weighted Value US$	65	84,244	11,020	69,530	111,163
US CPI	65	216,562	19,078	193,567	250,884
US Bond Yield	65	1,920	1,156	-0,617	3,590
US TED Spread	65	0,469	0,500	0,002	2,612
Yield Spread	65	2,031	1,091	-0,512	3,578
Probability of US Recession	65	0,083	0,117	0,003	0,463
US Yield Curve	65	1,423	1,732	0,000	5,890
MSCI EM Return	65	0,020	0,124	-0,277	0,331
MSCI World Return	65	0,010	0,085	-0,223	0,190
EMBI Return	65	0,022	0,043	-0,057	0,133
Oil Price	65	0,032	0,182	-0,649	0,454
All Commodities	65	0,004	0,032	-0,150	0,081
US VIX	65	20,110	8,022	11,150	45,450
Commodity Price (change)	65	0,016	0,107	-0,366	0,186
Non-Fuel Commodities	65	0,011	0,066	-0,254	0,144
Oil Price (change)	65	0,027	0,166	-0,454	0,365
GDP Growth AE	65	0,006	0,021	-0,050	0,045
GDP Growth AE (lag)	65	0,006	0,021	-0,050	0,045
GDP Growth EM (lag)	65	0,028	0,057	-0,115	0,115
Expected US Policy Rate	65	0,002	0,010	-0,013	0,043
US M2	65	8964,3	1779,9	7296,6	12631,9

Fundamentals	***Obs***	***Mean***	***Std. Dev.***	***Min***	***Max***
Trade Openness	50	0,881	0,344	0,259	1,747
External Debt	50	48,706	39,478	0,000	186,450
FXC	50	1,987	0,728	1,000	3,267
FXF	50	6,879	3,458	1,000	12,267
International Reserves / External Debt	40	44,408	27,404	8,753	118,617
GDP Growth	50	4,098	1,594	-0,717	7,793
Reserves	50	0,030	0,015	0,008	0,070
Development	50	2,431	0,575	1,000	3,000
Trilemma	50	20,523	14,123	6,553	68,290
ERSI	50	0,537	0,295	0,000	1,000
MII	50	0,442	0,131	0,000	0,617
FOI	50	0,538	0,313	0,000	1,000
Political Stability	50	5,229	1,312	1,928	7,335
Government Effectiveness	50	4,720	1,509	0,549	7,481
Regulatory Quality	50	4,984	1,105	3,172	7,354
Regulatory Quality 2	50	0,649	0,138	0,358	0,924
Rule of Law	50	5,189	1,141	2,560	7,884
Rule of Law 2	50	0,552	0,156	0,267	0,867
Control of Corruption	50	4,725	1,247	2,855	7,605
Market characteristics					
Foreign openness	50	-0,345	0,577	-2,152	2,477
Stock Market Capitalization %GDP	50	28,826	38,922	0,000	204,776
Bond Market Capitalization %GDP	50	0,940	1,231	0,000	5,516
Private Credit	50	45,861	27,806	0,000	141,187
Stock Market Turnover ratio	50	28,243	43,538	0,000	200,203
Funding coming from Advanced Economies (Equity)	50	0,583	0,235	0,097	0,902
Funding coming from Advanced Economies (Bond)	50	0,766	0,123	0,462	0,935
Funding coming from Advanced Economies (Total)	50	0,674	0,151	0,351	0,908
Topographical characteristics					
Surface (KM2)	50	1026820,000	2567534,000	180,000	16377742,000

4 Results

In this chapter, we will discuss the variables explaining the common factors per subcategory, a) direct investment flows, b) other investment flows, c) portfolio equity flows and d) portfolio bond flows to emerging economies. Financial derivatives are excluded since they have played a minor role during the observation period. After the discussion of each principal component, we will discuss the fundamentals/characteristics which make countries more sensitive to the common factor[10].

4.1 First Principal Component

It turns out that direct investment flows and other investment flows have the highest share of common variance. The principal components of other investment flows and direct investment flows with an eigenvalue larger than 1 explain 74.18% and 74.56% of the total variation in the correlation matrix. The principal components with an eigenvalue larger than 1 of portfolio bond flows and portfolio equity flows explain 66.60% respectively 70.25% of the variation. *Figure 2* presents the first predicted principal component of our four panel time-series dataset. We see that the factor of portfolio bond flows is characterized by a different pattern than the other flow types.

We start to discuss the variables explaining the variation in these first components. The signs of the coefficients of push variables are expected to be negative, and the signs of pull variables to be positive.

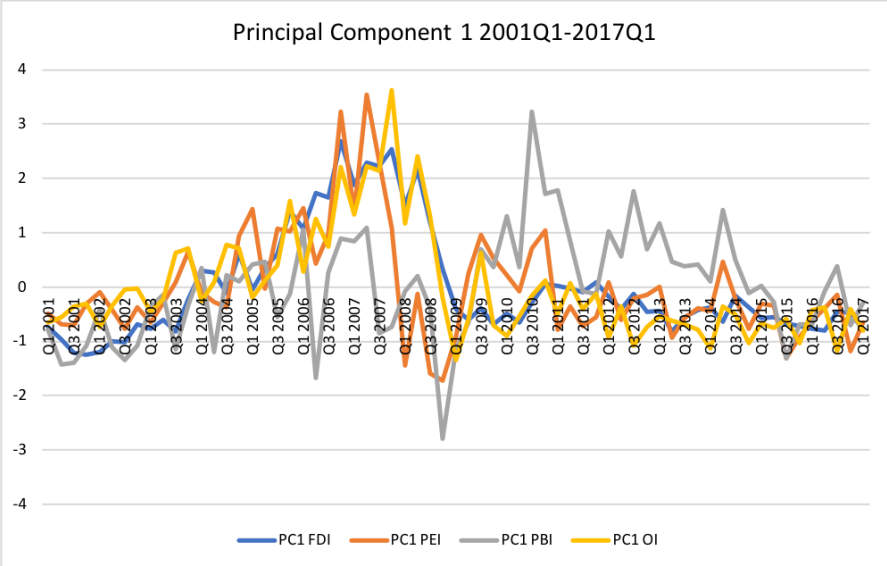


Figure 2: The first principal component of every capital flow type.

4.1.1 Principal Component 1 - Direct Investment Flows[11]

The first principal component of the direct investment flows explains 32.87% of the total variation. It can be interpreted as a "parallel shift factor" in the direct investment flows to emerging economies and

[10] *The degree of common variance explained by the extracted principal component.*
[11] Table 3

thus reflects determinants which are common to all emerging economies. From the regression on the first component, we find four crucial (significant) factors explaining this component. First of all, we find a positive relationship between the first component and the probability of a US recession. This means if the chance is increasing, emerging economies are receiving more direct investment flows. They will use emerging economies as a flight-to-safety. Next, we find a positive relationship between the first principal component and the US Yield Curve. This is the opposite of what we expected from the literature. The steeper the US Yield Curve, the more profitable investment opportunities in the US will be (Cerutti et al., 2014). However, the negative relationship between the expected policy rate and the first component is as expected. A higher expected policy rate (the difference between Policy Rate and 30-Day Federal Funds 6 Month Futures), would reduce direct investment flows into emerging economies. This is because both opportunity and funding costs are expected to increase in the next quarter (Koepke, 2018). This positive relationship even persists if we delete the 10% poorest countries in the regression, although the effect was less strong. Fourth, we find a (negative) relationship between the first principal component and the trade-weighted value of the US dollar against major currencies. This variable summarizes the effect of depreciation and appreciation effects of the US dollar. The value of the dollar has a direct effect on imports and exports. The last positive (significant) relationship we find is between the US commercial banks assets (commercial loans) and the principal component. If we look at the financial business cycle, we see more lenient credit standards during boom periods. A decrease in US commercial bank assets would result in a drop in capital flows to emerging economies (Jesus & Gabriel, 2006). These five variables explain 85.17% of the variation in the first principal component of direct investment flows.

4.1.2 Principal Component 1 - Other Investment Flows[12]

The first principal component of the other investment flows explains 27.53% of the total variation. We find five variables explaining 64.04% of the variation in the first component of other investment flows, including banking flows. First of all, we find a positive relationship between the probability of a US recession (the difference between 10-year and 3-month Treasury rates) and the principal component. As mentioned above, this means that if the probability of a US recession is increasing, emerging economies are receiving more other investment flows. Second, we find a negative relationship between uncertainty (VIX) and the principal component. Consistent with the existing literature, this means that higher uncertainty will lead to a decrease in cross-border banking-flows. We see that cross-border bank lending activities sharply slowed down during the recent crises (Choi & Furceri, 2018). Third, we find a positive relationship between the US commercial bank assets (loans and leases) and the first principal component. More lenient credit standards would lead to an increase in other investment flows. Fourth, we find a negative relationship between the principal component and the difference between the lagged

[12] Table 4

aggregate real GDP growth rate of advanced economies and emerging economies. This is consistent with the existing literature (Ahmed & Zlate, 2014). Last, we find a negative relationship between money supply (M2) and the first principal component. An increase in global money supply (M2) would indicate excess liquidity in the US, which is available for buying securities. This increase would result in higher security prices. An increase in the money supply would typically lower interest rates.

4.1.3 Principal Component 1 - Portfolio Equity Investment Flows[13]

The first principal component of the portfolio equity flows explains 24.94% of the total variation. We find five significant variables explaining 70.64% of the variation in the first principal component of portfolio equity flows. Two of the variables are interest-related, beginning with the US Yield Curve (positive relationship). This is not consistent with the existing literature. We would expect, the flatter the US Yield Curve, the less profitable investment opportunities in the US will be (Cerutti et al., 2014). This would result in an increase in capital flows into emerging and developing economies. However, we see the same decrease in the power of this relationship by excluding the poorest 10% as we saw with direct investment flows. Second, we find a negative relationship between the expected policy rate and the principal component. This relationship is consistent with the findings in the existing literature. A lower expected US policy rate means that opportunity- and funding costs are expected to decrease. This means that there is a smaller barrier to invest in emerging economies, which would increase portfolio equity flows into emerging economies (Koepke, 2018). The third significant negative relationship is between the principal component and the trade-weighted value of the US dollar against major currencies. The trade-weighted value is used to determine the US dollar purchasing value. An increase in the value of the dollar means that exports to countries outside the US become more expensive, while imports become less expensive. The fourth and fifth variables are related to the stock market returns (MSCI World and MSCI EM). We find a positive relationship for both variables; this is not like what we expected. We expected MSCI EM to be a pull factor and MSCI to be a push factor. When we have a closer look at the returns, most of the years, we see emerging markets and the developed markets moving in the same direction. However, next to the fact that this was not the case in 2013/2014, emerging markets move more extreme compared to the developed markets[14]. We checked if there was a significant relationship between the principal component and the difference between the MSCI World return and the MSCI EM return, but there was not. It is plausible that the effect will be as expected when we use a larger timeframe.

[13] Table 5
[14] https://www.msci.com/documents/10199/178e6643-6ae6-47b9-82be-e1fc565ededb

4.1.4 Principal Component 1; Portfolio Bond Investment Flows[15]

The first principal component of the portfolio bond flows explains 19.78% of the total variation, which means that we see a bit less co-movement. We find a set of related variables explaining 45.68% of the variance in the principal component. First of all, we find a significant positive relationship between the principal component and the US CPI (excluding energy). We would expect that more inflation in the US would result in higher interest rates, which makes it more attractive to make portfolio bond investments in the US instead of emerging economies. More inflation in the US means a stable US economy, which is a reason for investors to lower their exposure to emerging economies. The relationship is negative for direct investment flows. The coefficient of US CPI even becomes stronger in the regression with portfolio bond flows if we delete the 10% poorest countries. Furthermore, we find another variable in a similar category, the US money supply (M2) (negative sign). An increase in global money supply (M2) would indicate excess liquidity in the US, which is available for buying securities. This increase would result in higher security prices. An increase in the money supply would typically lower interest rates. Third, we find a negative sign for commercial banking assets (commercial loans). This is also a sign we did not expect because more lenient credit standards would lead to an increase in portfolio bond flows. However, the power of this effect decreases if we exclude the 10% poorest countries. Last, we find a negative relationship between the expected US policy rate and the principal component. This relationship is consistent with the findings in the existing literature. A lower expected US policy rate means that opportunity- and funding costs are expected to decrease (Koepke, 2018). We also checked the interest-related variables separately from the other variables. We find a negative relationship between the principal component and US Yield Curve, 10-year US Treasury yield, and the expected US policy rate. These signs are all consistent with the existing literature and our expectations. The 10-year US Treasury yield captures the relative cost of investing in bonds outside the US. A steeper US yield curve reflects more profitable investment opportunities in the US (Cerutti et al., 2014).

4.2 Sensitivity to common factors *(first component)*[16]

In the next part, we investigate what makes a country more sensitive to changes in principal components/ common factors. Why do some countries always gain (relatively) more inflows when conditions in advanced economies change? We regress the common proportion explained by the principal component for each flow type (separately) each time on three variables based on fundamentals, topographical characteristics, and market characteristics. We use this method due to the smaller number of observations. The results are subject to limitations as a result of the small sample. After the separate regressions, we combine the significant variables in one regression. For the purpose of clarity and

[15] Table 6
[16] Appendix (2), Table 7-22

readability, the secondary details with regard to the sensitivity to the principal component is placed in *Appendix (2).*

The results show that the sensitivity to common dynamics differs across countries, based on macroeconomic fundamentals, topographical characteristics, institutional fundamentals, and market characteristics. First of all, we find that for direct investment flows to emerging economies; the topographical location plays an important role. If an emerging economy is located next to an advanced economy or when it does not have a shore, it is more sensitive to the common factor. Next, we find especially institutional fundamentals (regulatory quality and the rule of law) to be important in explaining the sensitivity to the common factor of all capital flow types. Furthermore, for portfolio equity flows, financial integration (the intensity of capital account control) and monetary independence play a vital role in explaining the degree of co-movement. For both direct investment flows and portfolio equity flows the market liquidity are essential to explain the sensitivity. Interestingly, there are no market characteristics which have a significant influence on the sensitivity to the common factor of portfolio bond flows. Last, for other investment flows (including banking flows) we find, next to the topographical location, the level of development to be necessary. However, the evidence of good fundamentals is not very robust.

4.3 Second Principal Component

In this paragraph, we will discuss the variables which could explain the second principal component per sub-category. It is more difficult to give an economic explanation to the second principal components, than to the first principal component/ global common factor. We will try to describe what the second principal component represents. *Figure 3* presents the second principal component of our four panel time series data set. The factor of portfolio equity flows is characterized by a sharp increase towards the beginning of 2007, preceded by a decrease in the factor of other investment flows.

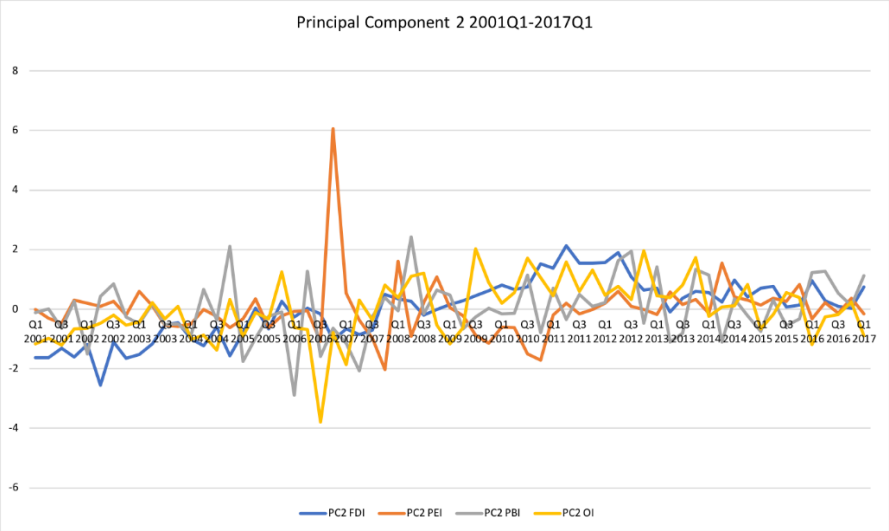


Figure 3: The second principal component of every capital flow type.

4.3.1 Principal Component 2 - Direct Investment Flows[17]

The second principal component of the direct investment flows explains 10.66% of the total variation. The three most important variables to explain this principal component are the global money supply (M2), US consumer price index (US CPI), and the US commercial bank assets. The US yield curve is a bit less important in explaining the principal component.

First of all, we find a positive relationship between the second principal component and the US CPI. Secondly, the relationship between the principal component and M2 is negative. Next, we find a negative relationship between the principal component and the US commercial bank assets. Lastly, the relationship between the principal component and the US yield curve is negative.

4.3.2 Principal Component 2 - Other Investment Flows[18]

The second principal component of the other investment flows explains 10.87% of the total variation. The US yield curve seems to be an essential factor to explain the principal component; this relation is negative. Furthermore, we find that US CPI and commodity prices (commodity prices (+) and oil price (-)) also explain part of the variation. Next, there is a negative relationship between the trade-weighted value of the US dollar against major currencies. Lastly, there is a positive influence of the US volatility index on the second principal component of other investment flows.

4.3.3 Principal Component 2 - Portfolio Equity Investment Flows[19]

The second principal component of the portfolio equity flows explains 11.83% of the total variation. The R-squared in the regression with all variables is much lower compared to the same regression for the first component (20.91 compared to 73.84). We do not find any significant variables explaining the variation in this principal component.

4.3.4 Principal Component 2 - Portfolio Bond Investment Flows[20]

Similar to the first principal component of the portfolio bond flows, we find a bit less co-movement for the second principal component compared to the other sub-categories. The second principal component for portfolio bond flows explains 9.53% of the total variation. The US yield curve seems to explain an important part of this principal component. We find the same sign for this relationship as in the regression with the first principal component. We find the lagged GDP growth of emerging economies to explain a small part. However, this relationship is only significant at a 10%-level.

[17] Table 19
[18] Table 20
[19] Table 21
[20] Table 22

4.4 Sensitivity to common factors *(second component)*[21]

In this part, we investigate what makes a country more sensitive to change in the second principal component. We again regress the estimated country loadings for each asset (separately) each time on three variables on fundamentals, topographical characteristics, and market characteristics. These results are subjected to the same limitations as a result of the small sample. Similar to paragraph 4.2, the secondary details with regard to the sensitivity to the second principal component is placed in *Appendix (3)*.

The results show that the sensitivity to common dynamics differs across countries, based on macroeconomic fundamentals, topographical characteristics, institutional fundamentals, and market characteristics. First of all, we find that for smaller emerging and developing countries which are not located next to advanced economies, and with less liquid markets, a higher proportion of common variance explained by the second principal component. Furthermore, the geographical location has an essential influence on the sensitivity to the second principal component of other investment flows. For bond investment flows, the market size seems to be a crucial factor to explain the sensitivity to the second principal component. Next, the monetary independence index, which focuses on the correlation between the money market interest rate in the home and base country, and the rule of law explain part the sensitivity. Lastly, the geographical location is less important in explaining sensitivity to changes the proportion of variance explained by the second principal component of portfolio equity flows. Both (institutional) fundamentals and market characteristics seem to play a more critical role in explaining the difference why some countries gain more from an increase in the second principal component.

[21] Appendix (3), Table 23-34

5 Conclusion

Capital and its allocation are one of the most popular sectors of economic theory and practice. This paper aims to cast some light on common dynamics of capital flows to emerging economies. For this cause, we make use of a data analysis called principal component analysis. We undertake a systematic empirical study to evaluate the role of potential push and pull factors in driving the common factors estimated for each type of capital flows. We examine the association between the common/principal components on the one hand and (cyclical) real economy/financial influences on the other hand, by using linear regressions with push and pull factors on the principal components. Lastly, we research the sensitivity to cyclical push and pull factors by using multiple linear regressions of the country loadings from the principal component analysis. With these analyses, we try to answer the following question: *To what extent can economic and institutional fundamentals (including the level of development), market characteristics, and topographical characteristics, affect the sensitivity to the common factor of global capital flows to emerging and developing countries during the period 2000Q1-2017Q1?*

5.1 Empirical results

It turns out that direct investment flows and other investment flows have the highest share of common variance. We find that if the probability of a US recession is increasing, emerging economies are receiving more direct investment flows. Investors will use emerging economies as a flight-to-safety. Furthermore, if we look at the financial business cycle, we find more lenient credit standards during boom periods (in the US). A decrease in US commercial bank assets would result in a drop in capital flows to emerging economies (Jesus & Gabriel, 2006). The evidence from this study suggests that a higher expected policy rate would also reduce direct investment flows to emerging economies. This is because both opportunity and funding costs are expected to increase the next quarter (Koepke, 2018). The results of this study indicate that 'Other investment flows' could be explained in the same way by the probability of a US recession and US commercial bank assets (loans and leases). Consistent with these findings, we find that a positive difference between the lagged aggregate real GDP growth rate of advanced economies and emerging economies resulted in a fall in capital flows to emerging economies. Furthermore, we find that higher uncertainty will lead to a decrease in cross-border banking flows. We see that cross-border lending activities sharply slowed down during the recent crisis (Choi & Furceri, 2018). Besides, the results support the idea that excess liquidity in the US would typically result in higher security prices and a drop in other investment flows to emerging economies. The evidence from this study intimates that a lower expected US policy rate (lower opportunity and funding costs), which means a smaller barrier to invest in emerging economies and resulted in an increase of portfolio equity flows into emerging economies (Koepke, 2018). MSCI EM returns suggest that stock market returns in emerging economies are a vital pull factor of portfolio equity investment flows to emerging economies. On the other hand, MSCI World returns were not a real push factor for portfolio equity flows to these

economies. Furthermore, the results indicate that an increase in the value of the dollar will result in more expensive exports to countries outside the US. The evidence from this study points towards the idea that especially interest-related variables are essential in explaining portfolio bond investment flows. We find the 10-year US Treasury yield, the US yield curve, and the expected US policy rate to be push factors of portfolio bond investment flows. The 10-year US treasury yield captures the relative cost of investing in bonds outside the US. A steeper US yield curve reflects more profitable investment opportunities in the US (Cerutti et al., 2014). Lastly, as mentioned above, a lower expected US policy rate means that the opportunity and funding costs are expected to decrease. Similar to 'Other investment flows', we find that excess liquidity in the US would typically result in higher security prices and a drop in portfolio bond investment flows to emerging economies.

Although it is more difficult to give an economic explanation to the second principal component, we find a couple of relationships between the component and macroeconomic variables. The three most important variables to explain the second principal component of direct investment flows are the US excess liquidity (M2)[-], US consumer price index (US CPI) [+], and the US commercial bank assets [-]. For the second principal component of other investment flows, the US yield curve [-], US consumer price index [+], commodity prices [+], trade-weighted value of US dollar [-], and uncertainty (VIX) [+]. The most important variable to explain the second principal component of portfolio bond investment flows is the US yield curve [-]. It is difficult to explain the second principal component of portfolio equity investment flows.

The evidence from this study implies that more open markets and (stock) markets with a higher turnover ratio are more sensitive to the common factor of direct investment flows. Furthermore, topographical characteristics seem to explain sensitivity to the common factor. Next to the climate zone, the location next to an advanced economy and whether a country is landlocked has a significant positive influence on the degree of co-movement, as a result of the greater chance of contagion and the ease of investing close to home. Obviously, (more isolated) islands appear to be less sensitive to global factors. The results of this study suggest that countries where both government and private actors are accountable under the law, laws are just, there is an open government, and there is an accessible and impartial dispute resolution, gain (relatively) more inflows when conditions in advanced economies change. For the portfolio equity flows, the evidence from this study implies that more mature markets (listed in the MSCI EM-index) and with a higher stock market turnover ratio (more liquid), are more sensitive to changes in the common factor. These findings are consistent with the results in the paper of Cerutti et al. (2015). Furthermore, the effect of the variation in the institutional fundamentals on the global push factors is also consistent with the findings of Cerutti et al. (2015). Lastly, the financial integration of a country plays an important role in the explanation. For portfolio bond investment flows, we did not find any market characteristics to have a significant influence on the sensitivity to the common factor. The results of this study support the idea that regulatory quality and the rule of law explain a large part of

the sensitivity to the common factor. Furthermore, the size of the country seems to be important in explaining the variation in country loadings. For other investment flows, we find that the level of development has a significant influence on the sensitivity to the common factor. The results of this study also indicate that the geographical location and the institutional fundamentals determine to a large extent the sensitivity. However, the evidence of good fundamentals is not very robust.
The evidence from this study intimates that for the explanation of the sensitivity to the second principal component, the geographical location of a country is less important. We found that the market size and market liquidity play an essential role in explaining the sensitivity to the second principal component of direct investment flows. In contrast with the findings in the first principal component of direct investment flows, fundamentals are less important in the second one. For portfolio equity investments, fundamentals and market characteristics seem to be more critical. On the other hand, countries with a large bond market gain more from changes in the principal component of portfolio bond investment flows.

Returning to the question posed at the beginning of this study, it is now possible to state that institutional fundamentals explain part of the sensitivity to the common factors of all capital flow types. Market characteristics are especially important to direct investment flows and portfolio equity flows. Topographical characteristics seem to be important for sensitivity to the common factor of direct investment flows and other investment flows. The level of development of a country/economy is only important for other investment flows (including banking flows). Interesting is the fact that we did not find any market characteristics having a significant influence on the sensitivity to the common factor of portfolio bond flows. The most important common factor of direct investment flows is explained by, the probability of a recession, US commercial bank assets, and the expected US policy rate. The first two variables were the same for other investment flows, next to US excess liquidity (M2) and the growth difference between advanced and emerging economies. For portfolio equity investments, we find the expected US policy rate, MSCI EM return, and the value of the US dollar to be necessary in explaining the variance. (Obviously,) we find interest related variables to be important for the portfolio bond investments, namely, 10-Year US Treasury yield, US yield curve, and the expected US policy rate. Next to the interest related variables, US excess liquidity (M2) plays an important role. We hope that our research will be useful in solving the difficulty of explaining capital dynamics.

5.2 Limitations

Despite convincing evidence that the aforementioned factors affect capital inflows in the chosen period of time, there are some limitations which can affect the result of this study. Therefore, these potential weaknesses/shortcomings need to be considered. First, most notable limitation lies in the fact that the number of countries used in the analysis is limited. Although 50 countries were selected to run the analysis on aggregate capital flows and per flow type, several developing countries do not provide

information about their economic indicators. There were also a couple of countries which were not useful to extract a common factor. In the end, the analyses are run with at least 20 countries per flow type. Furthermore, there are limitations on specific variables, for example, the GDP growth in Emerging and Developing countries as a pull factor, which is based on the unweighted average Q/Q real GDP growth of the BRICS. This is because there was no quarterly GDP data available for most of the countries in the sample. Quarterly GDP data for Russia was only available from 2003Q1. A weak point of the measure of uncertainty (VIX) is that capital flows itself will, to some extent, influence VIX; however, this effect will be limited. The downside of using the World Bank's Worldwide Governance Indicators is that they are not reproducible, too complicated, arbitrary, comprising hidden biases. Furthermore, there is a lack of comparability and actionability and conceptual clarity (Thomas, 2010). Lastly, the characteristics used in the analysis could change during the 16-year period. Notwithstanding the limitations of the methodology used, it was an important study on the sensitivity to cyclical push and pull factors driving capital flows to emerging and developing countries.

5.3 Concluding remarks and follow-up research

Further studies, which take common dynamics in capital flows to emerging and developing countries into account, will need to be undertaken. We propose that further research should be undertaken in the following areas: first, explaining country outcomes, including the distribution of capital flows into different sectors, such as agriculture, infrastructure, and healthcare. Second, research by using more high-frequency data to get a better view of (the drivers of) capital flows. The quarterly/yearly aggregate of capital flows could be less accurate. Furthermore, further research to better understand the macroeconomic impact of push factors at the country level. If a country has a (large) group of large domestic investors, it can mitigate the prices and economic impact during crises. A similar study as in this paper but using a Bayesian Latent Factor Model instead of a Principal Component Analysis would also be interesting. With this methodology, it is possible to examine regional and country-specific flows simultaneously with the flows from all developing countries together. It would be interesting to include the level of development in this study.

Bibliography

Agrast, M. D., Botero, J. C., Ponce, A., Pratt, C. S., & World Justice Project. (2018). *Rule of law index 2017-2018*. Washington, D.C: World Justice Project. Retrieved from: https://worldjusticeproject.org/sites/default/files/documents/WJP_ROLI_2017-18_Online-Edition.pdf

Ahmed, S., & Zlate, A. (2014). Capital flows to emerging market economies: A brave new world?. *Journal of International Money and Finance*, *48*, 221-248.

Aizenman, J., Chinn, M. D., & Ito, H. (2010). The emerging global financial architecture: Tracing and evaluating new patterns of the trilemma configuration. *Journal of international Money and Finance*, *29*(4), 615-641.

Aizenman, J., Binici, M., & Hutchison, M. M. (2014). *The transmission of Federal Reserve tapering news to emerging financial markets* (No. w19980). National Bureau of Economic Research.

Albuquerque, R., Loayza, N., & Servén, L. (2005). World Market Integration through the Lens of Foreign Direct Investors. *Journal of International Economics* 66(2), 267-295.

Alfaro, L., Kalemli-Ozcan, S., & Volosovych, V. (2007). Capital flows in a globalized world: The role of policies and institutions. In *Capital controls and capital flows in emerging economies: Policies, practices and consequences* (p. 19-72). University of Chicago Press.

Alfaro, L., Kalemli-Ozcan, S., & Volosovych, V. (2008). Why doesn't capital flow from rich to poor countries? An empirical investigation. *The Review of Economics and Statistics*, *90*(2), 347-368.

Alfaro, L., Kalemli-Ozcan, S., & Volosovych, V. (2014). Sovereigns, upstream capital flows, and global imbalances. *Journal of the European Economic Association*, *12*(5), 1240-1284.

Ananchotikul, N., & Zhang, M. L. (2014). *Portfolio Flows, Global Risk Aversion and Asset Prices in Emerging Markets* (No. 14-156). International Monetary Fund.

Arrow, K. J. (1971). The theory of risk aversion. *Essays in the theory of risk-bearing*, 90-120.

Baek, I. M. (2006). Portfolio investment flows to Asia and Latin America: Pull, push or market sentiment?. *Journal of Asian Economics*, *17*(2), 363-373.

Baldwin, R. (2009). The great trade collapse: What caused it and what does it mean?. *The great trade collapse: Causes, consequences and prospects*, *100*(105), 1.

Baltagi, B.H. (2008). Econometric analysis of panel data. *Journal of forecasting*, *27*(2), 153-173.

Bekaert, G., and Harvey, C. (1997), Emerging Equity Market Volatility, *Journal of Financial Economics, 43*, 29-78.

Bekaert, G., & Harvey, C. R. (1998). *Capital flows and the behavior of emerging market equity returns.* (No. w6669). National bureau of economic research.

Bivens, L. J. (2004). Debt and the Dollar: The United States damages future living standards by borrowing itself into a deceptively deep hole. *EPI Issue Brief*, *203*.

Bluedorn, M. J. C., Duttagupta, R., Guajardo, J., & Topalova, P. (2013). *Capital flows are fickle: anytime, anywhere* (No. 13/183). International Monetary Fund.

Borio, C., & Disyatat, P. (2011). Global imbalances and the financial crisis: Link or no link?.

Brana, S., & Lahet, D. (2010). Determinants of capital inflows into Asia: The relevance of contagion effects as push factors. *Emerging Markets Review*, *11*(3), 273-284.

Broner, F. A. & Rigobon, R. (2005). Why are Capital Flows so Much More Volatile in Emerging Than in Developed Countries?. *Documentos de Trabajo (Banco Central de Chile)*, (328), 1.

Broner, F.A., Didier, T., Erce, A., and Schmukler, S.L. (2013). Gross Capital Flows: Dynamics and Crises. *Journal of Monetary Economics* 60, no. 1: 113-133.

Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European journal of political economy*, *23*(2), 397-415.

Byrne, J. P., & Fiess, N. (2011). International capital flows to emerging and developing countries: national and global determinants. *Scottish Institute for Research in Economics*. SIRE Discussion Paper SIRE-DP-2011-03.

Byrne, J. P., & Fiess, N. (2016). International capital flows to emerging markets: National and global determinants. *Journal of International Money and Finance*, *61*, 82-100.

Calderon, C. A., Chong, A., & Loayza, N. V. (2002). Determinants of current account deficits in developing countries. *Contributions in Macroeconomics*, *2*(1).

Calvo, G. A., Leiderman, L., & Reinhart, C. M. (1993). Capital inflows and real exchange rate appreciation in Latin America: the role of external factors. *Staff Papers*, *40*(1), 108-151.

Central Intelligence Agency. (2009). *The CIA World Factbook 2010*. Skyhorse Publishing Inc..

Cerutti, E., Claessens, S., & Ratnovski, L. (2014). *Global liquidity and drivers of cross-border bank flows* (No. 14-69). International Monetary Fund.

Cerutti, E., Claessens, S., & Puy, M. D. (2015). *Push factors and capital flows to emerging markets: why knowing your lender matters more than fundamentals* (No. 15-127). International Monetary Fund.

Chen, C. (2015). "Fisher Effect" Theory and "Fisher Paradox" in China's Economy. *Open Journal of Social Sciences*, *3*(10), 80.

Chinn, M. D., & Ito, H. (2006). What matters for financial development? Capital controls, institutions, and interactions. *Journal of development economics*, *81*(1), 163-192.

Chinn, M. D., & Ito, H. (2008). A new measure of financial openness. *Journal of comparative policy analysis*, *10*(3), 309-322.

Chuhan, P., Perez-Quiros, G., & Popper, H. (1996). *International capital flows: do short-term investment and direct investment differ?*. The World Bank.

Chuhan, P., Claessens, S., & Mamingi, N. (1998). Equity and bond flows to Latin America and Asia: the role of global and country factors. *Journal of Development Economics*, *55*(2), 439-463.

Ciarlone, A., Piselli, P., & Trebeschi, G. (2009). Emerging markets' spreads and global financial conditions. *Journal of International Financial Markets, Institutions and Money*, *19*(2), 222-239.

Cieślik, A., & Goczek, Ł. (2018). Control of corruption, international investment, and economic growth–Evidence from panel data. *World Development*, *103*, 323-335.

Claessens, S., Kose, M. A., & Terrones, M. E. (2011, May). Financial cycles: what? how? when?. In *International Seminar on Macroeconomics* (Vol. 7, No. 1, pp. 303-344). Chicago, IL: University of Chicago Press.

Contessi, S., De Pace, P., & Francis, J. L. (2013). The cyclical properties of disaggregated capital flows. *Journal of international Money and Finance*, *32*, 528-555.

De Vaal, A., & Ebben, W. (2011). Institutions and the relation between corruption and economic growth. *Review of Development Economics*, *15*(1), 108-123.

De Vita, G., & Kyaw, K. S. (2008). Determinants of capital flows to developing countries: a structural VAR analysis. *Journal of Economic Studies*, *35*(4), 304-322.

Diggle, P., Diggle, P. J., Heagerty, P., Heagerty, P. J., Liang, K. Y., & Zeger, S. (2002). *Analysis of longitudinal data*. Oxford University Press.

Dooley, M. P. (1988). Capital flight: a response to differences in financial risks. *Staff Papers*, *35*(3), 422-436.

Eller, M., Huber, F., & Schuberth, H. (2016). *Understanding the evolution of global capital flows*. Mimeo. Retrieved from: http://macro.soc.uoc.gr/docs/Year/2016/papers/paper_1_162.pdf

Elton, E. J., & Gruber, M. J. (1997). Modern portfolio theory, 1950 to date. *Journal of Banking & Finance*, *21*(11-12), 1743-1759.

Estrella, A., & Trubin, M. (2006). The yield curve as a leading indicator: Some practical issues. *Current Issues in Economics and Finance*, 12(5), 2-3.

Fernandez-Arias, E. (1996). The new wave of private capital inflows: push or pull?. *Journal of development economics*, *48*(2), 389-418.

Ferrucci, G., Herzberg, V., Soussa, F., & Taylor, A. (2004). Understanding capital flows to emerging market economies. *Financial Stability Review*, *16*, 89-97.

Fisher, I. (1930), The theory of interest (MacMillan, New York).

Forbes, K. J., & Warnock, F. E. (2012). Capital flow waves: Surges, stops, flight, and retrenchment. *Journal of International Economics*, *88*(2), 235-251.

Fratzscher, M. (2012). Capital flows, push versus pull factors and the global financial crisis. *Journal of International Economics*, *88*(2), 341-356.

Garber, P. M. (1998). *Derivatives in international capital flows* (No. w6623). National Bureau of Economic Research.

Ghosh, A. R., & Ostry, J. D. (1993). Do capital flows reflect economic fundamentals in developing countries?. IMF Working Paper No. 93/34.

Ghosh, A. R., Qureshi, M. S., Kim, J. I., & Zalduendo, J. (2014). Surges. *Journal of International Economics*, *92*(2), 266-285.

Ghosh, M. A. R., Ostry, M. J. D., & Qureshi, M. S. (2017). *Managing the tide: How do emerging markets respond to capital flows?*. International Monetary Fund.

Ghosh, M. A. R., Qureshi, M. S., & Sugawara, N. (2014). *Regulating capital flows at both ends: does it work?* (No. 14-188). International Monetary Fund.

Glick, Reuven and Andrew Rose (1999). "Contagion and Trade. Why Are Currency Crises Regional?" *Journal of International Money and Finance*, 18, August, 603-618. Earlier versions issued as CEPR Discussion Paper 1947 and NBER Working Paper 6806.

Gourinchas, P. O., & Jeanne, O. (2013). Capital flows to developing countries: The allocation puzzle. *Review of Economic Studies*, *80*(4), 1484-1515.

Gupta, D. D., & Ratha, D. (2000). *What Factors Appear to Drive Private Capital Flows to Developing Countries? And how Does Official Lending Respond?* Vol. 2392. World Bank Publications.

Hannan, S. A. (2017). The drivers of capital flows in emerging markets post global financial crisis. *Journal of International Commerce, Economics and Policy*, *8*(02), 1750009.

Haque, N. U., Lahiri, K., & Montiel, P. J. (1990). A macroeconometric model for developing countries. *Staff Papers*, *37*(3), 537-559.

Herrmann, S., & Mihaljek, D. (2013). The determinants of cross-border bank flows to emerging markets: New empirical evidence on the spread of financial crises. *Economics of Transition*, *21*(3), 479-508.

Hernandez, L., Mellado, M. P. & Valdes, R. (2001). *Determinants of Private Capital Flows in the 1970s and 1990s: Is there Evidence of Contagion?* IMF Working Paper no. 01/64.

Howell, L. D. (2011). International country risk guide methodology. *East Syracuse, NY: PRS Group*. Retrieved from (01/07/2018): http://www.prsgroup.com/wp-content/uploads/2012/11/icrgmethodology.pdf

Hsiao, C. (1995). Panel analysis for metric data. In *Handbook of statistical modeling for the social and behavioral sciences* (pp. 361-400). Springer, Boston, MA.

Hsiao, C. (2006). Panel Data Analysis–Advantage and Challenges [iepr Working Paper no. 06.49]. *Institute of Economic Policy Research (iepr), Los Angeles, CA*.

Ilzetzki, E., Reinhart, C. M., & Rogoff, K. S. (2017). *Exchange arrangements entering the 21st century: Which anchor will hold?* (No. w23134). National Bureau of Economic Research.

International Monetary Fund. Balance of Payments Division. (2006). *Balance of Payments Statistics: Yearbook* (Vol. 57). The Fund.

International Monetary Fund (2011), *Global Financial Stability Report*, World Economic and Financial Surveys. Washington DC: International Monetary Fund, April.

Jaffee, D., & Stiglitz, J. (1990). Credit rationing. *Handbook of monetary economics*, *2*, 837-888.

Jeanneau, S., & Micu, M. (2002). Determinants of international bank lending to emerging market countries. *Bank for International Settlements.* BIS Working Papers No. 112.

Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: a review and recent developments. *Phil. Trans. R. Soc. A*, *374*(2065), 20150202.

Kalemli-Ozcan, S., Reshef, A., Sørensen, B. E., & Yosha, O. (2010). Why does capital flow to rich states?. *The Review of Economics and Statistics*, *92*(4), 769-783.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). The worldwide governance indicators: A summary of methodology, data and analytical issues. World Bank Policy Research Working Paper No. 5430. *World Bank: Washington, DC*.

Keho, Y. (2017). The impact of trade openness on economic growth: The case of Cote d'Ivoire. *Cogent Economics & Finance*, *5*(1), nr. 1332820.

Kodres, L. E., & Pritsker, M. (2002). A rational expectations model of financial contagion. *The journal of finance*, *57*(2), 769-799.

Koepke, R. (2018). Fed Policy Expectations and Portfolio Flows to Emerging Markets, *Journal of International Financial Markets, Institutions and Money, 55,* 170-194.

Koepke, R. (2019). What drives capital flows to emerging markets? A survey of the empirical literature. *Journal of Economic Surveys, 33(2),* 516-540.

Lane, P. R., & Milesi-Ferretti, G. M. (2001). The external wealth of nations: measures of foreign assets and liabilities for industrial and developing countries. *Journal of international Economics*, *55*(2), 263-294.

Lhost, J. (2004). *The cause, effects, and implications of financial contagion*. Retrieved from (01/08/2018): http://economics.about.com/ cs/moffattentries/a/contagion_3.htm

Lucas, R. E. (1990). Why doesn't capital flow from rich to poor countries?. *The American Economic Review*, *80*(2), 92-96.

Markowitz, H. (1952). Portfolio selection. *The journal of finance*, *7*(1), 77-91.

Milesi-Ferretti, G. M., & Tille, C. (2011). The great retrenchment: international capital flows during the global financial crisis. *Economic Policy*, *26*(66), 289-346.

Miranda-Agrippino, S., & Rey, H. (2012). *World Asset Markets and Global Liquidity, presented at the Frankfurt ECB BIS Conference*. February 2012, mimeo, London Business School.

Mishkin, F. S. (1992). Is the Fisher effect for real?: A reexamination of the relationship between inflation and interest rates. *Journal of Monetary economics*, *30*(2), 195-215.

Mishra, P., Moriyama, K., N'Diaye, P. M. B., & Nguyen, L. (2014). *Impact of Fed tapering announcements on emerging markets*(No. 14-109). International Monetary Fund.

Mody, A., Taylor, M. P., & Kim, J. Y. (2001). Modelling fundamentals for forecasting capital flows to emerging markets. *International Journal of Finance & Economics*, *6*(3), 201-216.

Mody, A., & Murshid, A. P. (2005). Growing up with capital flows. *Journal of international economics*, *65*(1), 249-266.

Montiel, P., & Reinhart, C. M. (1999). Do capital controls and macroeconomic policies influence the volume and composition of capital flows? Evidence from the 1990s. *Journal of international money and finance*, *18*(4), 619-635.

Moon, H. R., & Perron, B. (2012). Beyond panel unit root tests: Using multiple testing to determine the nonstationarity properties of individual series in a panel. *Journal of Econometrics*, *169*(1), 29-33.

Obstfeld, M., & Rogoff, K. (1994). *The intertemporal approach to the current account* (No. w4893). National Bureau of Economic Research.

Obstfeld, M., & Rogoff, K. (1995). Exchange rate dynamics redux. *Journal of political economy*, *103*(3), 624-660.

Portes, R., & Rey, H. (2005). The determinants of cross-border equity flows. *Journal of international Economics*, *65*(2), 269-296.

Prasad, E., & Wei, S. J. (2007). The Chinese approach to capital inflows: patterns and possible explanations. In *Capital Controls and Capital Flows in Emerging Economies: Policies, Practices and Consequences* (pp. 421-480). University of Chicago Press.

Prasad, E. S., & Rajan, R. G. (2008). A pragmatic approach to capital account liberalization. *Journal of Economic Perspectives*, *22*(3), 149-72.

Reinhart, Carmen M., and Vincent R. Reinhart. 2008. "Capital Flow Bonanzas: An Encompassing View of the Past and Present." NBER Working Paper no. w14321.

Rey, H. (2013, August). "Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence." Economic Policy Symposium, Jackson Hole, Wyo.

Rey, H. (2015). *Dilemma not trilemma: the global financial cycle and monetary policy independence* (No. w21162). National Bureau of Economic Research.

Rogoff, K. (1996). The purchasing power parity puzzle. *Journal of Economic literature*, *34*(2), 647-668.

Sahay, M. R., Arora, M. V. B., Arvanitis, M. A. V., Faruqee, M. H., N'Diaye, M. P., & Griffoli, M. T. M. (2014). *Emerging market volatility: Lessons from the taper tantrum* (No. 14-19). International Monetary Fund.

Takáts, E. (2010). Cross-border bank lending to emerging market economies. *The Global Crisis and Financial Intermediation in Emerging Market Economies*, 11-29.

Taylor, M. P., & Sarno, L. (1997). Capital flows to developing countries: long-and short-term determinants. *The World Bank Economic Review*, *11*(3), 451-470.

Thomas, M. A. (2010). What do the worldwide governance indicators measure?. *The European Journal of Development Research*, *22*(1), 31-54.

Tyson, J., Griffith-Jones, S., & te Velde, D. W. (2014). Post-crisis trends in private capital flows to developing countries. *ODI, janvier*.

United Nations Conference on Trade and Development (UNCTAD) (2016), World Investment Report 2016: Investor Nationality – Policy Challenges *(New York and Geneva: United Nations)*. Retrieved from http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=1555.

United Nations Conference on Trade and Development (UNCTAD) (2016), THE LEAST DEVELOPED COUNTRIES REPORT 2016 - The path to graduation and beyond: Making the most of the process. *(New York and Geneva: United Nations).* Retrieved from: https://unctad.org/en/PublicationChapters/ldc2016_ch1_en.pdf

Valdés, M. R. O., Hernández, M. L., & Melado, M. P. (2001). *Determinants of Private Capital Flows in the 1970's and 1990's: Is there Evidence of Contagion?*(No. 1-64). International Monetary Fund.

Wei, S. J. (2000). *Corruption, composition of capital flows, and currency crises*. The World Bank.

Wei, S. J., & Wu, Y. (2002). Negative alchemy? Corruption, composition of capital flows, and currency crises. In *Preventing currency crises in emerging markets* (pp. 461-506). University of Chicago Press.

World Bank. 1997. "Private Capital Flows to Developing Countries: the Road to Financial Integration." World Bank Policy Research Report, Oxford University Press, Oxford.

Zwick, W. R., & Velicer, W. F. (1982). Factors influencing four rules for determining the number of components to retain. *Multivariate behavioral research*, *17*(2), 253-269.

Graphs

Figure 4: Capital Flows (per flow type) from 2001Q1 to 2017Q1

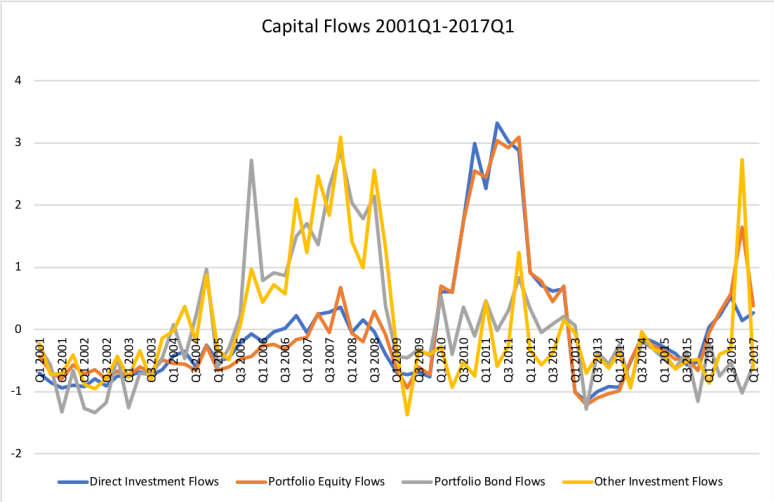


Figure 5: Scree plot Foreign Direct Investment Flows 2000Q1-2017Q1

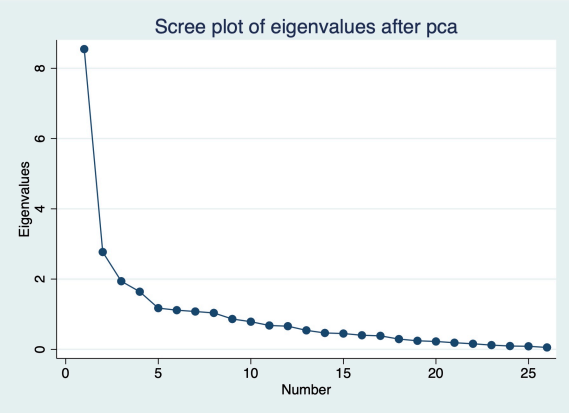


Figure 6: Scree plot Other Investment Flows 2000Q1-2017Q1

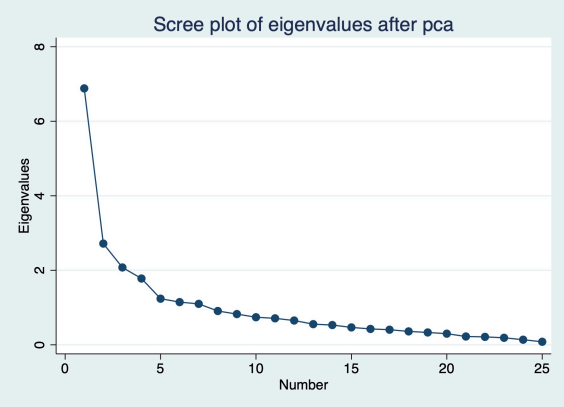


Figure 7: Scree plot Portfolio Bond Investment Flows 2000Q1-2017Q1

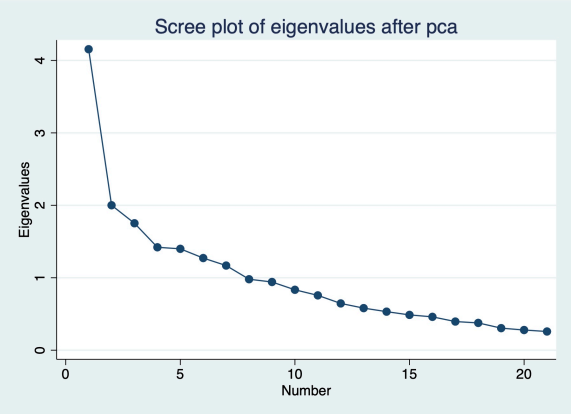
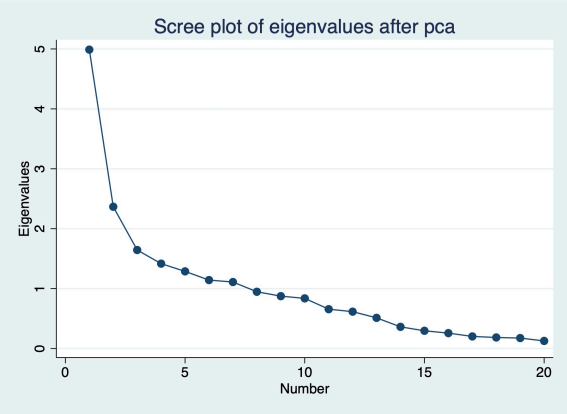


Figure 8: Scree plot Portfolio Equity Investment Flows 2000Q1-2017Q1



For extra clarity, *figure 1* and *2* are combined per capital flow type in the *figures 9* to *12*. These are only to present the course of the lines in one graph, the quantities on the vertical axis are different. The investment flows are shown as a percentage of GDP.

Figure 9: Direct Investment Flows + Principal Components 2001Q1-2017Q1

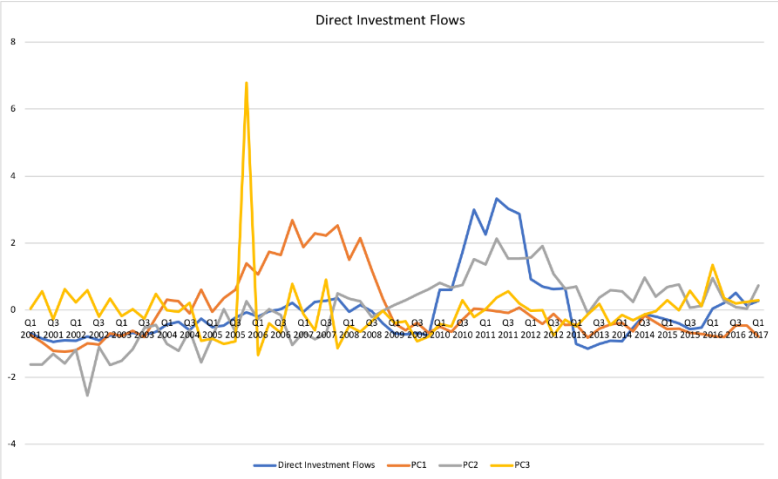


Figure 10: Portfolio Bond Investment Flows + Principal Components 2001Q1-2017Q1

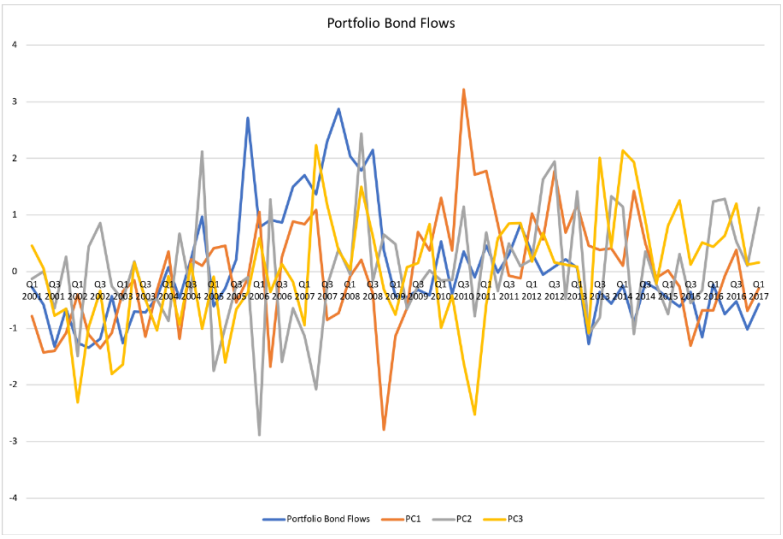


Figure 11: Other Investment Flows + Principal Components 2001Q1-2017Q1

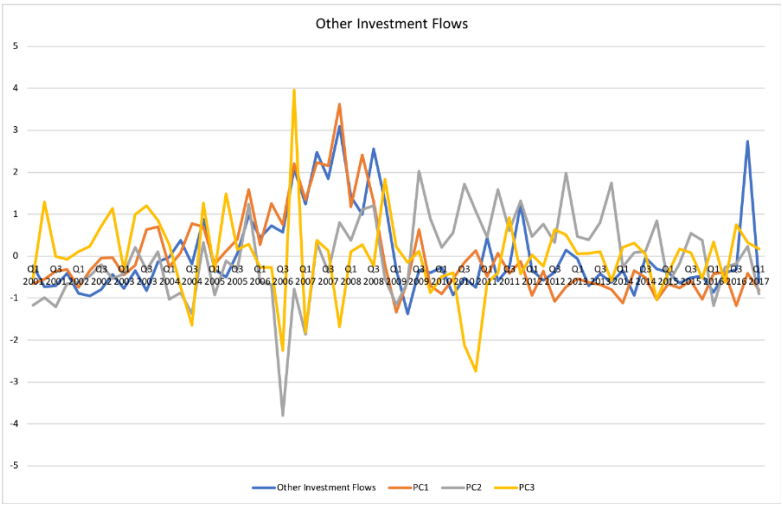
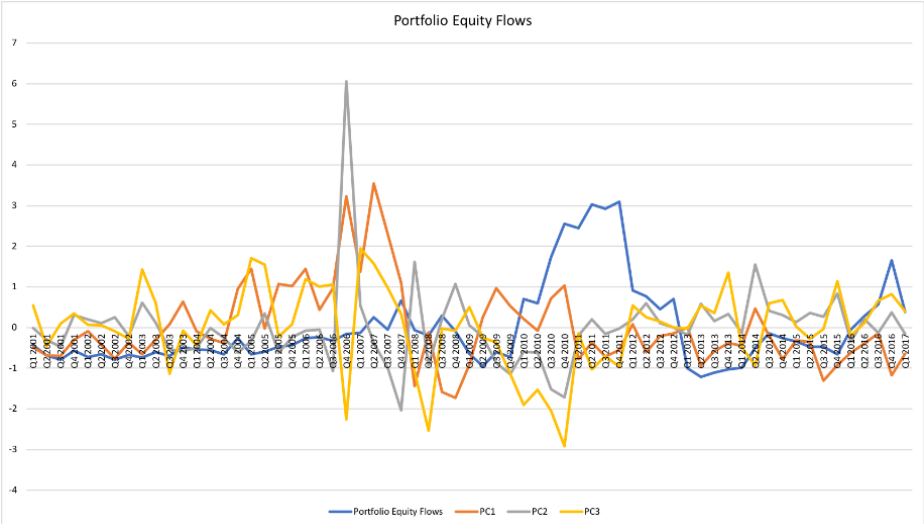


Figure 12: Portfolio Equity Investment Flows + Principal Components 2001Q1-2017Q1



Appendix (1)

Hypotheses

1.

H0: Risk aversion has no impact on the common factor of capital flows to emerging economies.

H0.a: Risk aversion has no impact on the common factor of direct investment flows to emerging economies. (rejected)

H0.b: Risk aversion has no impact on the common factor of other investment flows to emerging economies. (rejected)

H0.c: Risk aversion has no impact on the common factor of portfolio equity investment flows to emerging economies. (rejected)

H0.d: Risk aversion has no impact on the common factor of portfolio bond investment flows to emerging economies. (accepted)

H1: Risk aversion has a negative impact on the common factor of capital flows to emerging economies.

H1.a: Risk aversion has a negative on the common factor of direct investment flows to emerging economies.

H1.b: Risk aversion has a negative impact on the common factor of other investment flows to emerging economies.

H1.c: Risk aversion has a negative impact on the common factor of portfolio equity investment flows to emerging economies.

H1.d: Risk aversion has a negative impact on the common factor of portfolio bond investment flows to emerging economies.

2.

H0: Interest rates in advanced economies have no impact on the common factor of capital flows to emerging economies.

H0.a: Interest rates in advanced economies have no impact on the common factor of direct investment flows to emerging economies. (rejected)

H0.b: Interest rates in advanced economies have no impact on the common factor of other investment flows to emerging economies. (accepted)

H0.c: Interest rates in advanced economies have no impact on the common factor of portfolio equity investment flows to emerging economies. (rejected)

H0.d: Interest rates in advanced economies have no impact on the common factor of portfolio bond investment flows to emerging economies. (rejected)

H1: Interest rates in advanced economies have no impact on the common factor of capital flows.

H1.a: Interest rates in advanced economies have a negative on the common factor of direct investment flows to emerging economies.

H1.b: Interest rates in advanced economies have a negative impact on the common factor of other investment flows to emerging economies.

H1.c: Interest rates in advanced economies have a negative impact on the common factor of portfolio equity investment flows to emerging economies.

H1.d: Interest rates in advanced economies have a negative impact on the common factor of portfolio bond investment flows to emerging economies.

3.

H0: Growth differential between advanced economies and emerging economies has no impact on the common factor of capital flows.

H0.a: Growth differential between advanced economies and emerging economies has no impact on the common factor of direct investment flows to emerging economies. (rejected)

H0.b: Growth differential between advanced economies and emerging economies has no impact on the common factor of other investment flows to emerging economies. (rejected)

H0.c: Growth differential between advanced economies and emerging economies has no impact on the common factor of portfolio equity investment flows to emerging economies. (accepted)

H0.d: Growth differential between advanced economies and emerging economies has no impact on the common factor of portfolio bond investment flows to emerging economies. (accepted)

H1: Growth differential has a negative impact on the common factor of capital flows.

H1.a: Growth differential between advanced economies and emerging economies has a positive on the common factor of direct investment flows to emerging economies.

H1.b: Growth differential between advanced economies and emerging economies has a positive impact on the common factor of other investment flows to emerging economies.

H1.c: Growth differential between advanced economies and emerging economies has a positive impact on the common factor of portfolio equity investment flows to emerging economies.

H1.d: Growth differential between advanced economies and emerging economies has a positive impact on the common factor of portfolio bond investment flows to emerging economies.

4.

H0: Commodity prices have no impact on the common factor of capital flows to emerging economies.

H0.a: Commodity prices have no impact on the common factor of direct investment flows to emerging economies. (rejected)

H0.b: Commodity prices have no impact on the common factor of other investment flows to emerging economies. (accepted)

H0.c: Commodity prices have no impact on the common factor of portfolio equity investment flows to emerging economies. (accepted)

H0.d: Commodity prices have no impact on the common factor of portfolio bond investment flows to emerging economies. (rejected)

H1: Commodity prices have a negative impact on the common factor of capital flows to emerging economies.

H1.a: Commodity prices have a negative on the common factor of direct investment flows to emerging economies.

H1.b: Commodity prices have a negative impact on the common factor of other investment flows to emerging economies.

H1.c: Commodity prices have a negative impact on the common factor of portfolio equity investment flows to emerging economies.

H1.d: Commodity prices have a negative impact on the common factor of portfolio bond investment flows to emerging economies.

5.

H0.b: US credit standards have no effect on the common factor of other investment flows to emerging economies. (rejected)

H1.b: More lenient US credit standards would result in a rise in other investment flows to emerging economies

6.

H0.c: Stock market returns in advanced economies have no effect on the common factor of portfolio equity investment flows to emerging economies. (rejected)

H1.c: Stock market returns in advanced economies have a negative effect on the common factor of portfolio equity investment flows to emerging economies.

Sensitivity to common factor.

7.

H0: Emerging economies with better macroeconomic fundamentals (e.g. lower public debt, higher level of reserves or deeper financial markets, higher economic growth) gain equal from changes in the common factor of

... direct investment flows. (rejected)

... other investment flows. (rejected)

... portfolio equity flows. (rejected)

... portfolio bond flows. (rejected)

H1: Emerging economies with better macroeconomic fundamentals gain more from changes in the common factor.

8.

H0: Emerging economies with better institutional fundamentals gain equal from changes in the common factor

... direct investment flows. (rejected)

... other investment flows. (rejected)

... portfolio equity flows. (rejected)

... portfolio bond flows. (rejected)

H1: Emerging economies with better institutional fundamentals gain more from changes in the common factor.

9.

H0: More developed (emerging) economies gain equal from changes in the common factor

... direct investment flows. (accepted)

... other investment flows. (rejected)

... portfolio equity flows. (accepted, rejected at 10%-level)

... portfolio bond flows. (accepted)

H1: More developed (emerging) economies gain more from changes in the common factor.

10.

H0: Emerging economies with more open markets gain equal from changes in the common factor. (*accepted*)

H1: Emerging economies with more open markets gain more from changes in the common factor.

11.

H0: Emerging economies with larger markets gain equal from changes in the common factor.

H0.b: Emerging economies with a larger banking sector gain equal from changes in the common factor of other investment flows. (accepted)

H0.c: Emerging economies with larger stock markets gain equal from changes in the common factor of portfolio equity flows. (accepted)

H0.d: Emerging economies with larger bond markets gain equal from changes in the common factor of portfolio bond flows. (accepted, but rejected for second principal component)

H1: Emerging economies with larger markets gain more from changes in the common factor.

H1.b: Emerging economies with a larger banking sector gain more from changes in the common factor of other investment flows.

H1.c: Emerging economies with larger stock markets gain more from changes in the common factor of portfolio equity flows.

H1.d: Emerging economies with larger bond markets gain more from changes in the common factor of portfolio bond flows.

12.

H0: Emerging economies with more liquid markets gain equal from changes in the common factor

... direct investment flows. (rejected)

... other investment flows. (rejected)

... portfolio equity flows. (rejected, accepted for second component)

... portfolio bond flows. (accepted)

H1: Emerging economies with more liquid markets gain more from changes in the common factor.

13.

H0: Emerging economies with a large foreign investment base coming from advanced economies gain equal from changes in the common factor

... direct investment flows. (accepted)

... other investment flows. (accepted)

... portfolio equity flows. (accepted)

... portfolio bond flows. (accepted, but rejected for second principal component)

H1: Emerging economies with a large foreign investment base coming from advanced economies gain more from changes in the common factor.

14.

H0: The (topographical) location of emerging economies has no influence on how much these countries gain from changes in the (global) common factor. (rejected)

H1: The (topographical) location of emerging economies has an important influence on how much these countries gain from changes in the (global) common factor.

a. direct investment flows, b. other investment flows, c. portfolio equity investment flows, d. portfolio bond investment flows.

Appendix (2): First principal component

Sensitivity to first component: Direct Investment Flows[22]

First of all, we will discuss the sensitivity to the first principal component of direct investment flows. We find that countries with more liquid markets (stock market turnover ratio) to be more sensitive to the first principal component of direct investment flows. Together with variable representing foreign openness, 25.2% of the variance is explained. We also find (most) topographical characteristics to be significant in the separate regressions. Climate zone, the location next to an advanced economy, and being completely surrounded by other countries (no sea shore) have a significant positive influence on the sensitivity to the global common factor (degree of co-movement). The positive sign of the variable which represents the location next to an advanced economy is consistent with our expectations, because of the higher chance of contagion. The fact that if a country was only surrounded by sea (islands), has a negative influence on the country loadings. Because these countries are more isolated, we expected them to be less sensitive to global factors.

Furthermore, we find both the rule of law and the triangle-variable to have a slightly significant influence on the degree of co-movement. A higher score on the rule of law means that both the government and private actors are accountable under the law. Furthermore, a high score also means that laws are clear, publicized, stable, and just. Next, in countries with high scores on the rule of law, representatives are competent, ethical, and independent. Last, a high score includes efficient and fair authorization, administration, and enforcement of laws (Agrast et al., 2018). The triangle-variable represents the financial trilemma; a country has to choose between monetary independence, financial integration, and exchange rate stability. This is consistent with our expectations because there is an essential relationship between the financial trilemma and inflation, and output growth (Aizenman et al., 2010).

We find the fact that if an emerging economy is located next to an advanced economy this is the most crucial variable in explaining the sensitivity to the global push factors. Together with the fact whether a country is completely surrounded by other countries, it explains 30% of the sensitivity. According to this finding, it could be that investors from advanced economies invest more easily/efficiently in emerging economies if they are closer to their home country.

Sensitivity to first component: Portfolio Bond Investment Flows[23]

We do not find market characteristics to have a significant influence on the sensitivity to the common factor of portfolio bond inflows. However, we find a set of fundamentals to have a significant influence on this sensitivity. First of all, we find two topographical characteristics which are significant on a 5%-

[22] Table 7 (market characteristics), 11, 12 (fundamentals)
[23] Table 10 (market characteristics), 17, 18 (fundamentals)

and 1%-level, the location on the northern or southern hemisphere and the size of the country (surface). Consistent with our expectations, the countries located in the northern hemisphere, are more sensitive to global factors.

Another set is related to the financial trilemma; we find the exchange rate regime to be relevant in explaining sensitivity to the common factor. The exchange rate variable from Ilzetzki et al. (2017) is significant on a 5%-level. A high exchange rate coarse classification (FXC) means it is freely floating/falling. Consistent with our expectations, the sign of this variable is positive, a country having a freely floating exchange rate will make a country more sensitive to the common factor. Next, we find financial integration (FOI) and exchange rate stability to be significant. These two explain 32% of the sensitivity to the common factor. Greater financial openness could influence the sensitivity to the common factor because financial openness influences inflation, which is (indirectly) related to the common factor (Aizenman et al., 2010). We also find a significant (5%-level) relationship between the common factor and the interaction term of monetary independence and exchange rate stability. This could be since these effects partly work the other way, so the resultant can have a significant influence on the sensitivity. Last, we find the variables capturing the regulatory quality and the rule of law to be significant on a 1%- and 5%-level in the separate regressions. Together with the size of the country, they explain almost 45% of the variation in the degree of co-movement.

Sensitivity to first component: Portfolio Equity Investment Flows[24]

For the common factor of portfolio equity flows, we find the MSCI EM-dummy and the stock market turnover ratio to be significant at a 1%-level in the separate regressions. The sign of the MSCI EM-dummy is positive, which means that if a country is listed in this index, it is more sensitive to the common factor. This could be explained by the type of investors which choose to invest in more mature markets listed in the MSCI index. The higher the stock market turnover ratio (more liquid), the more sensitive a country is to the changes in the common factor. This is consistent with the findings of Cerutti et al. (2015).

Furthermore, we find some fundamentals which could explain the sensitivity to the global factors. First of all, the location of the receiving economy is essential; we find the variable representing whether the country is located in the northern or southern hemisphere to be significant. Second, we also find a significant relationship between the degree of co-movement and the variables representing regulatory quality and government effectiveness. The effect of the variation in these institutional fundamentals on the global push factors is also consistent with the findings of Cerutti et al. (2015). Last, financial

[24] Table 9 (market characteristics), 15, 16 (fundamentals)

integration and the monetary independence index appear to be crucial variables in explaining the sensitivity to the common factor.

Sensitivity to first component: Other Investment Flows[25]

For the common factor of other investment flows, we only find the MSCI FM-dummy (from the market characteristics) to have a significant influence on the sensitivity to the common factor. Furthermore, the location of a country seems to be crucial. Next to the climate zone and location on the norther or southern hemisphere, we find that if a country is located next to an advanced economy, it will be more sensitive to the global common factor. On the other hand, islands will be less sensitive to this factor. If we put these topographical characteristics together in a regression, we see that they partly capture the same. Another interesting finding, the development group, based on a set of 10 development-related indicators, seems to have a significant influence (1%-level) on the sensitivity. Next, we find monetary independence index to have a significant (5%) influence on the sensitivity to common factors.

[25] Table 8 (market characteristics), 13, 14 (fundamentals)

Appendix (3): Second principal component

Sensitivity to second component: Direct Investment Flows[26]

First of all, we will discuss the sensitivity to the second principal component of direct investment flows. The opposite from the first component, the sign of market liquidity is negative. We find that countries with more open markets gain more from an increase in the second principal component. The topographical location is also vital in explaining the sensitivity to the second principal component of direct investment flows, the dummy for the fact if a developing country is located next to an advanced economy and the dummy for climate zone are significant at a 5%-level. Furthermore, the interaction between monetary independence and financial openness seems to play a significant (5%-level) role.

Sensitivity to second component: Portfolio Bond Investment Flows[27]

We find that the size of the bond market of a specific country has significant influence (1%-level) on the sensitivity to the second principal component of portfolio bond investment flows. Together with investments coming from advanced economies, the bond market size explains 20% of the variance the second principal component. Furthermore, landlocked countries are less sensitive to changes in the second component. Last, we find fundamentals, such as the rule of law and monetary independence, to be essential in explaining the degree of co-movement.

Sensitivity to second component: Portfolio Equity Investment Flows[28]

For the second principal component of portfolio equity flows, we find the size of the stock market and international reserves as a percentage of external debt to be slightly significant (10%-level). Most interesting, there are a couple of institutional fundamentals which are crucial to the common proportion explained by the second principal component (control of corruption and government effectiveness at a 10%-level, rule of law at a 5%-level, and the regulatory quality and political stability at a 1%-level). Compared to direct investment flows, the geographical location has a much smaller influence on the sensitivity to the second principal component of portfolio equity flows.

Sensitivity to second component: Other Investment Flows[29]

For the second principal component of other investment flows, we find the geographical location to be quite an important factor explaining the sensitivity. The climate zone has significant influence (5%-level) on the second principal component. Together with the regulatory quality and the geographical location (climate zone), 31.4% of the variance can be explained. Next to the climate zone, there are other

[26] Table 23 (market characteristics), 27, 28 (fundamentals)
[27] Table 26 (market characteristics), 34, 33 (fundamentals)
[28] Table 25 (market characteristics), 31, 32 (fundamentals)
[29] Table 24 (market characteristics), 29, 30 (fundamentals)

geographical characteristics which explain the sensitivity to the principal component, such as the factor location next to an advanced economy and if a country has a shoreline or not (this explains 20.3% of the variance). The positive signs mean that if a country is entirely landlocked and located next to an advanced economy, a larger part of the variance is explained by the second principal component. Next to the previously mentioned fundamentals, the rule of law and control of corruption are slightly significant (on a 10%-level). Finally, trade openness and GDP growth are slightly significant.

Tables

Table 3:Regression of First Principal Component Foreign Direct Investment Flows

Push/Pull	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Commercial Loans US	3.923***	2.224**	6.563***		5.862***	1.784**	0.431**
	(0.827)	(1.008)	(0.632)		(0.580)	(0.762)	(0.176)
Trade-weighted Value US$	-2.259***	-1.725***		-1.934***		-1.406***	-1.777***
	(0.511)	(0.186)		(0.176)		(0.229)	(0.158)
US CPI	-7.035**	-1.886*					
	(2.692)	(1.087)					
Yield Spread	0.060	0.132					
	(0.365)	(0.361)					
Probability of US Recession	0.677***	0.240		0.746**		0.501*	0.724**
	(0.215)	(0.253)		(0.293)		(0.262)	(0.279)
US Yield Curve	2.134***	2.250***		2.164***		2.052***	2.360***
	(0.629)	(0.439)		(0.200)		(0.326)	(0.211)
MSCI EM Return	-0.177	0.040					
	(0.179)	(0.159)					
MSCI World Return	-0.182	0.120					
	(0.197)	(0.208)					
Oil Price (QQ)	-0.338		-0.169				
	(0.228)		(0.267)				
All Commodities (QQ)	-0.130		0.015				
	(0.259)		(0.365)				
US VIX	-0.059		-1.223***		-1.513***	-0.224	
	(0.293)		(0.363)		(0.345)	(0.245)	
Commodity Price (change)	1.825**		1.748				
	(0.898)		(1.588)				
Non Fuel Commodities (change-	-0.673**		-0.957				
	(0.314)		(0.581)				
Oil Price (change)	-1.119		-0.861				
	(0.780)		(1.090)				
GDP Growth AE	0.102		0.342		-0.405**	-0.304**	
	(0.246)		(0.361)		(0.177)	(0.138)	
GDP Growth AE (lag)	0.571*		1.196**				
	(0.334)		(0.478)				
GDP Growth EM (lag)	-0.441		-0.816*				
	(0.294)		(0.427)				
Expected US Policy Rate	-0.902***		-0.246	-0.720***		-0.725***	-0.739***
	(0.191)		(0.212)	(0.255)		(0.217)	(0.248)
M2	3.161		-7.336***		-6.628***	-1.557*	
	(2.577)		(0.640)		(0.609)	(0.873)	
Constant	0.066	0.066	0.066	0.066	0.066	0.066	0.066
	(0.135)	(0.168)	(0.192)	(0.153)	(0.197)	(0.143)	(0.148)
Observations	65	65	65	65	65	65	65
R-squared	0.905	0.819	0.780	0.839	0.733	0.869	0.852

Dependent variable: Predicted principal component 1. All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 4: Regression of First Principal Component Other Investment Flows

Push/Pull	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Commercial Loans US	2.586	2.345	4.361***		4.097***	3.656***	3.407***	3.473***	3.491***
	(1.907)	(1.877)	(0.664)		(0.792)	(0.742)	(0.830)	(0.658)	(0.724)
Trade-weighted Value US$	-1.122**	-1.009***					-0.183		
	(0.510)	(0.260)					(0.245)		
US CPI	-4.918	-2.486							
	(3.879)	(2.178)							
US TED Spread	0.656	0.005							
	(0.610)	(0.480)							
Yield Spread	0.351	0.355							
	(0.566)	(0.586)							
Probability of US Recession	0.644**	0.527		1.248**		0.464	0.730**	0.557**	0.520*
	(0.274)	(0.431)		(0.485)		(0.314)	(0.363)	(0.272)	(0.298)
US Yield Curve	1.375	1.621*							
	(0.889)	(0.876)							
Oil Price (QQ)	-0.425		-0.336						
	(0.330)		(0.317)						
All Commodities (QQ)	-0.317		-0.461						
	(0.313)		(0.353)						
US VIX	-0.280		-0.976***		-1.042***	-1.046***	-0.909***	-0.951***	-0.979***
	(0.270)		(0.254)		(0.301)	(0.305)	(0.249)	(0.261)	(0.290)
Commodity Price	2.362		1.901						
	(1.531)		(1.572)						
Non-Fuel Commodities	-0.741		-0.866						
	(0.553)		(0.531)						
Oil Price	-0.901		-0.166						
	(1.244)		(1.231)						
GDP Growth AE	0.059		0.104						
	(0.351)		(0.350)						
GDP Growth AE (lag)	0.647		1.026**				0.767***		
	(0.429)		(0.466)				(0.220)		
GDP Growth EM (lag)	0.159		-0.028					0.648***	
	(0.381)		(0.422)					(0.184)	
Expected US Policy Rate	-0.729**		0.105				-0.280		
	(0.325)		(0.216)				(0.229)		
M2	1.961		-5.416***		-5.236***	-4.646***	-4.390***	-4.346***	-4.401***
	(2.384)		(0.662)		(0.805)	(0.727)	(0.820)	(0.653)	(0.725)
MSCI EM Return		0.324							
		(0.326)							
MSCI World Return		0.218							
		(0.238)							
EMBI Return		0.036							
		(0.268)							
Growth Differential AE/EM									-0.407**
									(0.190)
Constant	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084
	(0.165)	(0.206)	(0.186)	(0.292)	(0.214)	(0.210)	(0.185)	(0.195)	(0.205)
Observations	65	65	65	65	65	65	65	65	65
R-squared	0.819	0.668	0.740	0.222	0.596	0.618	0.716	0.675	0.640

Dependent variable: Predicted principal component 1. All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 5: Regression of First Principal Component Portfolio Equity Investment Flows

Push/Pull	(1)	(2)	(3)	(4)	(5)	(6)
Commercial Loans US	0.142	0.352	2.675***	0.370		
	(1.340)	(0.896)	(0.738)	(0.865)		
Trade-weighted Value US$	-0.492	-0.525**		-0.522*	-0.609***	-0.749***
	(0.560)	(0.222)		(0.271)	(0.173)	(0.187)
US CPI	0.727	-0.219				
	(2.662)	(1.139)				
US Bond Yield	-0.083	-0.606				
	(0.801)	(0.815)				
Yield Spread	0.249	0.841				
	(0.620)	(0.612)				
Probability of US Recession	0.131	-0.178				
	(0.286)	(0.272)				
US Yield Curve	1.705*	1.690**		1.541***	1.560***	1.690***
	(0.988)	(0.728)		(0.495)	(0.282)	(0.307)
MSCI EM Return	0.483***	0.498***		0.450***	0.383***	
	(0.174)	(0.123)		(0.157)	(0.138)	
MSCI World Return	0.672**	1.023***		0.710***	0.769***	
	(0.252)	(0.184)		(0.214)	(0.178)	
Oil Price (QQ)	0.123		0.094			
	(0.318)		(0.332)			
All Commodities (QQ)	0.535		0.293			
	(0.472)		(0.550)			
US VIX	0.227		-0.609**	0.104		
	(0.372)		(0.247)	(0.301)		
Commodity Price (change)	-1.097		-0.511			
	(0.952)		(1.441)			
Non-Fuel Commodities	0.131		0.441			
	(0.358)		(0.429)			
Oil Price	0.517		0.406			
	(0.761)		(1.062)			
GDP Growth AE	0.385		0.873*			
	(0.417)		(0.501)			
GDP Growth AE (lag)	0.546		1.312*	0.176		
	(0.580)		(0.665)	(0.158)		
GDP Growth EM (lag)	-0.233		-0.714			
	(0.500)		(0.567)			
Expected US Policy Rate	-0.684		-0.543	-0.662**	-0.603**	-1.031***
	(0.412)		(0.341)	(0.319)	(0.268)	(0.218)
M2	-0.655		-3.395***	-0.318		
	(2.618)		(0.829)	(1.007)		
MSCI World(-)EM						0.079
						(0.182)
Constant	0.027	0.027	0.027	0.027	0.027	0.027
	(0.174)	(0.176)	(0.207)	(0.163)	(0.160)	(0.189)
Observations	65	65	65	65	65	65
R-squared	0.738	0.669	0.563	0.715	0.706	0.582

Dependent variable: Predicted principal component 1. All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 6: Regression of First Principal Component Portfolio Bond Investment Flows

Push/Pull	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Commercial Loans US	-4.225***	-3.456**	1.182*	-3.997***		-4.303***	
	(1.242)	(1.305)	(0.626)	(1.266)		(1.003)	
Trade-weighted Value US$	0.048	-1.165***		-0.739***			
	(0.467)	(0.194)		(0.270)			
US CPI	11.292***	3.740**		7.228***	4.347***	10.928***	
	(2.682)	(1.511)		(2.604)	(1.050)	(1.725)	
US Bond Yield	-0.734	-0.627					-0.734**
	(1.025)	(0.967)					(0.314)
Yield Spread	0.457	0.690					
	(0.827)	(0.752)					
Probability of US Recession	-0.086	0.022					
	(0.264)	(0.265)					
US Yield Curve	-0.350	0.411					-0.843**
	(1.076)	(0.788)					(0.338)
EMBI Return	0.291	0.299*					
	(0.228)	(0.177)					
Oil Price (QQ)	0.367		0.085				
	(0.308)		(0.436)				
All Commodities (QQ)	-0.009		0.157				
	(0.379)		(0.501)				
US VIX	-0.106		-0.079				
	(0.363)		(0.355)				
Commodity Price (change)	0.285		3.212*				
	(1.343)		(1.786)				
Non-Fuel Commodities	0.171		-0.621				
	(0.667)		(0.733)				
Oil Price (change)	-0.181		-2.633**				
	(0.946)		(1.190)				
GDP Growth AE	0.564		0.588				
	(0.441)		(0.525)				
GDP Growth AE (lag)	0.455		0.261				
	(0.510)		(0.521)				
GDP Growth EM (lag)	-0.609		-0.603				
	(0.444)		(0.473)				
Expected US Policy Rate	-0.117		-0.519**		-0.681**	-0.468*	-0.550*
	(0.268)		(0.231)		(0.287)	(0.237)	(0.290)
M2	-6.861***		-0.700	-3.109*	-3.969***	-6.354***	
	(2.249)		(0.669)	(1.713)	(1.068)	(1.079)	
Constant	-0.088	-0.088	-0.088	-0.088	-0.088	-0.088	-0.088
	(0.183)	(0.195)	(0.230)	(0.193)	(0.211)	(0.190)	(0.232)
Observations	65	65	65	65	65	65	65
R-squared	0.619	0.461	0.307	0.439	0.316	0.457	0.176

Dependent variable: Predicted principal component 1. All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 7: Regression of Market Characteristics Foreign Direct Investment Flows (first principal component)

Market Characteristics	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Foreign Openness	-0.063					-0.061		
	(0.047)					(0.049)		
Stock Market TR	0.083***					0.110***		
	(0.020)					(0.026)		
Stock Market % GDP		-0.009					-0.007	
		(0.044)					(0.034)	
MSCI EM Dummy		-0.007				-0.129**		
		(0.111)				(0.050)		
Equity AE			-0.026				-0.025	
			(0.028)				(0.030)	
MSCI FM Dummy			-0.006				-0.009	
			(0.091)				(0.097)	
Total AE				-0.034				-0.039
				(0.048)				(0.051)
EMBI EM Dummy				0.012				0.026
				(0.139)				(0.144)
Bond Market % GDP					0.031			0.035
					(0.046)			(0.046)
Bond AE					-0.023			
					(0.038)			
Constant	0.329***	0.330***	0.331***	0.325***	0.324***	0.358***	0.331***	0.318***
	(0.035)	(0.050)	(0.050)	(0.060)	(0.041)	(0.043)	(0.053)	(0.061)
Observations	26	26	26	26	25	26	26	25
R-squared	0.252	0.003	0.019	0.023	0.036	0.310	0.020	0.049

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 8: Regression of Market Characteristics Other Investment Flows (first principal component)

Market Characteristics	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Foreign Openness	0.011					0.021		
	(0.033)					(0.038)		
Stock Market TR	-0.013					-0.015		
	(0.027)					(0.029)		
Stock Market % GDP		0.057					-0.022	
		(0.046)					(0.032)	
MSCI EM Dummy		-0.192				-0.109		
		(0.126)				(0.105)		
Equity AE			0.027				0.042	
			(0.029)				(0.037)	
MSCI FM Dummy			0.197**				0.187*	
			(0.087)				(0.092)	
Total AE				0.015				0.016
				(0.036)				(0.051)
EMBI EM Dummy				0.100				0.101
				(0.112)				(0.111)
Bond Market % GDP					0.031			-0.002
					(0.047)			(0.041)
Bond AE					-0.004			
					(0.053)			
Constant	0.275***	0.321***	0.212***	0.243***	0.275***	0.302***	0.215***	0.243***
	(0.043)	(0.050)	(0.047)	(0.051)	(0.043)	(0.051)	(0.049)	(0.051)
Observations	25	25	25	25	25	25	25	25
R-squared	0.006	0.083	0.247	0.075	0.019	0.057	0.254	0.075

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 9: Regression of Market Characteristics Portfolio Equity Investment Flows (first principal component)

Market Characteristics	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Foreign Openness	-0.030				-0.032	
	(0.037)				(0.036)	
Stock Market % GDP	0.030				0.048	
	(0.042)				(0.049)	
Equity AE		-0.061		-0.011	-0.046	
		(0.064)		(0.065)	(0.067)	
MSCI EM Dummy		0.257***				0.167***
		(0.059)				(0.055)
Total AE			-0.053			-0.059
			(0.051)			(0.054)
Stock Market TR			0.112***			0.078***
			(0.023)			(0.019)
MSCI FM Dummy				-0.160**		
				(0.062)		
Constant	0.249***	0.160***	0.249***	0.305***	0.249***	0.191***
	(0.045)	(0.044)	(0.035)	(0.056)	(0.045)	(0.042)
Observations	20	20	20	20	20	20
R-squared	0.039	0.418	0.402	0.179	0.087	0.550

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 10: Regression of Market Characteristics Portfolio Bond Investment Flows (first principal component)

Market Characteristics	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Foreign Openness	-0.016			-0.014	
	(0.025)			(0.024)	
Bond Market % GDP	-0.008		-0.012	-0.003	-0.008
	(0.024)		(0.019)	(0.026)	(0.022)
Bond AE		-0.039		-0.018	
		(0.027)		(0.025)	
EMBI EM Dummy		0.082			0.026
		(0.063)			(0.070)
Total AE			0.025		0.015
			(0.025)		(0.025)
Constant	0.198***	0.163***	0.198***	0.198***	0.187***
	(0.028)	(0.032)	(0.027)	(0.028)	(0.040)
Observations	21	21	21	21	21
R-squared	0.018	0.118	0.039	0.038	0.045

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 11: Regression of Fundamentals Foreign Direct Investment Flows

Fundamentals	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Trade Openness	0.010																
	(0.047)																
External Debt	-0.014																
	(0.062)																
FXC		0.006															
		(0.041)															
International Reserves/ External Debt		-0.043															
		(0.037)															
FXF			-0.001														
			(0.042)														
GDP growth			0.037														
			(0.031)														
Climate zone				0.045***													
				(0.010)													
Regulatory Quality				0.012									0.046				
				(0.033)									(0.055)				
Rule of Law					0.087									0.081*			
					(0.073)									(0.043)			
Control of Corruption					-0.046												
					(0.077)												
Rule of Law 2						0.040											
						(0.031)											
Reserves/GDP						0.035											
						(0.032)											
Regulatory Quality 2							0.027										
							(0.044)										
North-South							-0.064										
							(0.083)										
Island								-0.239**									
								(0.088)									
Surface (KM2)								-0.021									
								(0.014)									
Landlocked									0.206***								
									(0.054)								
Next to AE									0.212***								

									(0.074)								
Political Stability										0.016				-0.058			
										(0.056)				(0.042)			
Government Effectiveness										-0.038							
										(0.068)							
Private Credit											0.002						
											(0.036)						
Climate zone (2)											0.052***						
											(0.014)						
FOI												-0.000					
												(0.038)					
ERSI												-0.054					
												(0.042)					
MII													0.053				
													(0.047)				
Triangle															-0.051		
															(0.044)		
MIFO															0.022		
															(0.041)		
MIFO+																0.005	
																(0.038)	
MIERS																-0.059	
																(0.038)	
MIERS+																	-0.015
																	(0.030)
Region																	-0.066*
																	(0.038)
Development																	0.059
																	(0.063)
Constant	0.329***	0.329***	0.329***	0.087	0.329***	0.329***	0.405***	0.347***	0.223***	0.329***	0.072	0.329***	0.329***	0.329***	0.329***	0.329***	0.377**
	(0.041)	(0.040)	(0.040)	(0.059)	(0.039)	(0.039)	(0.108)	(0.042)	(0.054)	(0.041)	(0.078)	(0.039)	(0.040)	(0.038)	(0.040)	(0.039)	(0.140)
Observations	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
R-squared	0.004	0.045	0.034	0.375	0.078	0.086	0.037	0.110	0.290	0.018	0.355	0.072	0.059	0.121	0.058	0.087	0.180

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses.*
**** p<0.01, ** p<0.05, * p<0.1*

Table 12: Regression of Fundamentals Foreign Direct Investment Flows (part 2)

Fundamentals	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Trade Openness	0.009											
	(0.052)											
External Debt	-0.014											
	(0.065)											
FXC	-0.003											
	(0.051)											
International Reserves/ External Debt		-0.053										
		(0.036)										
FXF		0.011										
		(0.046)										
GDP growth		0.044										
		(0.028)										
Climate zone			0.042***									
			(0.011)									
Regulatory Quality			-0.025					0.019				
			(0.055)					(0.059)				
Rule of Law			0.044						0.107**	0.040	0.022	
			(0.063)						(0.046)	(0.048)	(0.049)	
Control of Corruption				0.004								
				(0.048)								
Rule of Law 2				0.043								
				(0.033)								
Regulatory Quality 2				0.013								
				(0.050)								
Reserves/GDP					0.033							
					(0.033)							
North-South					-0.047							
					(0.093)							
Island					-0.238**							
					(0.104)							
Surface (KM2)						-0.030**						
						(0.011)						
Landlocked						0.201***						
						(0.056)						
Next to AE						0.223***						
						(0.076)						
Political Stability							0.007		-0.067			
							(0.066)		(0.047)			
Government Effectiveness							-0.026					
							(0.075)					
Private Credit							-0.019					
							(0.040)					

ERSI								-0.041				
								(0.046)				
MII								0.032				
								(0.051)				
Triangle									-0.070*			
									(0.038)			
MIFO+										-0.007		
										(0.037)		
MIERS+										-0.021		-0.015
										(0.042)		(0.030)
MIFO											0.001	
											(0.032)	
MIERS											-0.046	
											(0.041)	
Region												-0.066*
												(0.038)
Development												0.059
												(0.063)
Constant	0.329***	0.329***	0.104	0.329***	0.403***	0.219***	0.329***	0.329***	0.329***	0.329***	0.329***	0.377**
	(0.042)	(0.040)	(0.065)	(0.041)	(0.122)	(0.056)	(0.041)	(0.040)	(0.037)	(0.040)	(0.040)	(0.140)
Observations	26	26	26	26	26	26	26	26	26	26	26	26
R-squared	0.004	0.098	0.387	0.061	0.154	0.312	0.027	0.087	0.233	0.072	0.095	0.180

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses.*
**** p<0.01, ** p<0.05, * p<0.1*

Table 13: Regression of Fundamentals Other Investment Flows

Fundamentals	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Trade Openness	0.063																
	(0.043)																
External Debt	-0.000																
	(0.047)																
FXC		-0.031															
		(0.040)															
International Reserves/ External Debt		-0.046															
		(0.044)															
FXF			-0.041														
			(0.040)														
GDP growth			-0.055														
			(0.039)														
Climate zone				0.044***													
				(0.009)													
Regulatory Quality				0.015									0.069				
				(0.032)									(0.043)				
Rule of Law					0.134*									0.114*			
					(0.076)									(0.064)			
Control of Corruption					-0.082												
					(0.069)												
Rule of Law 2						0.072*											
						(0.038)											
Reserves/GDP						0.058											
						(0.052)											
Regulatory Quality 2							0.044										
							(0.029)										
North-South							-0.252***										
							(0.043)										
Island								-0.237***									
								(0.064)									
Surface (KM2)								0.039**									
								(0.017)									
Landlocked									0.017								
									(0.072)								

Next to AE									0.309***								
									(0.066)								
Political Stability										-0.028			-0.065				
										(0.038)			(0.048)				
Government Effectiveness										0.073							
										(0.044)							
Private Credit											0.046						
											(0.035)						
Climate zone (2)											0.060***						
											(0.012)						
FOI												0.022					
												(0.043)					
ERSI												-0.043					
												(0.039)					
MII													0.089**				
													(0.034)				
Triangle														-0.049*			
														(0.028)			
MIFO														0.032			
														(0.042)			
MIFO+															0.044		
															(0.042)		
MIERS															-0.008		
															(0.047)		
MIERS+																0.003	
																(0.031)	
Region																-0.001	
																(0.024)	
Development																0.235***	
																(0.058)	
Constant	0.275***	0.275***	0.275***	-0.011	0.275***	0.275***	0.547***	0.294***	0.148***	0.275***	-0.015	0.275***	0.275***	0.275***	0.275***	0.275***	-0.312*
	(0.041)	(0.042)	(0.041)	(0.057)	(0.040)	(0.038)	(0.085)	(0.044)	(0.034)	(0.042)	(0.058)	(0.042)	(0.039)	(0.041)	(0.041)	(0.042)	(0.176)
Observations	25	25	25	25	25	25	25	25	25	25	24	25	25	25	25	25	25
R-squared	0.091	0.065	0.090	0.464	0.129	0.213	0.169	0.138	0.546	0.073	0.542	0.054	0.175	0.128	0.087	0.045	0.437

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses.* *** *p<0.01,* ** *p<0.05,* * *p<0.1*

Table 14: Regression of Fundamentals Other Investment Flows (part 2)

Fundamentals	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Trade Openness	0.068											
	(0.046)											
External Debt	-0.000											
	(0.047)											
FXC	0.010											
	(0.043)											
International Reserves/ External Debt		-0.051										
		(0.041)										
FXF		-0.042										
		(0.039)										
GDP growth		-0.061										
		(0.038)										
Climate zone			0.039***									
			(0.010)									
Regulatory Quality			-0.102					0.088				
			(0.073)					(0.053)				
Rule of Law			0.128						0.094	0.066	0.089	
			(0.080)						(0.095)	(0.052)	(0.054)	
Control of Corruption				-0.030								
				(0.050)								
Rule of Law 2				0.085								
				(0.057)								
Regulatory Quality 2				0.034								
				(0.036)								
Reserves/GDP					0.075**							
					(0.034)							
North-South					-0.345**							
					(0.126)							
Island					-0.225***							
					(0.058)							
Surface (KM2)						0.014						
						(0.015)						
Landlocked						0.018						
						(0.073)						
Next to AE						0.305***						
						(0.071)						
Political Stability							-0.057		-0.047			
							(0.046)		(0.078)			
Government Effectiveness							0.077*					
							(0.044)					
Private Credit							0.066					
							(0.045)					

ERSI								0.031				
								(0.051)				
MII								0.109**				
								(0.047)				
Triangle									-0.025			
									(0.050)			
MIFO+										0.020		
										(0.044)		
MIERS+										0.019		0.003
										(0.051)		(0.031)
MIFO											0.004	
											(0.049)	
MIERS											0.048	
											(0.057)	
Region												-0.001
												(0.024)
Development												0.235***
												(0.058)
Constant	0.275***	0.275***	0.020	0.275***	0.666***	0.150***	0.275***	0.275***	0.275***	0.275***	0.275***	-0.312*
	(0.042)	(0.041)	(0.059)	(0.041)	(0.146)	(0.035)	(0.041)	(0.040)	(0.041)	(0.042)	(0.041)	(0.176)
Observations	25	25	25	25	25	25	25	25	25	25	25	25
R-squared	0.093	0.150	0.513	0.166	0.369	0.550	0.159	0.187	0.139	0.107	0.127	0.437

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses.*
**** p<0.01, ** p<0.05, * p<0.1*

Table 15: Regression of Fundamentals Portfolio Equity Investment Flows

Fundamentals	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Trade Openness	0.037																
	(0.043)																
External Debt	-0.120***																
	(0.034)																
FXC		0.014															
		(0.054)															
International Reserves/ External Debt		0.042															
		(0.057)															
FXF			0.030														
			(0.042)														
GDP growth			0.039														
			(0.038)														
Climate zone				-0.005													
				(0.014)													
Regulatory Quality				-0.065									-0.054				
				(0.049)									(0.044)				
Rule of Law					-0.000									-0.017			
					(0.098)									(0.061)			
Control of Corruption					-0.075												
					(0.086)												
Rule of Law 2						-0.041											
						(0.039)											
Reserves/GDP						-0.035											
						(0.042)											
Regulatory Quality 2							-0.046***										
							(0.014)										
North-South							-0.264***										
							(0.049)										
Island								-0.023									
								(0.093)									
Surface (KM2)								0.056*									
								(0.030)									
Landlocked									0.093								
									(0.157)								
Next to AE									-0.037								

									(0.081)								
Political Stability										-0.000			-0.078				
										(0.032)			(0.053)				
Government Effectiveness										-0.133***							
										(0.027)							
Private Credit											0.003						
											(0.038)						
Climate zone (2)											-0.007						
											(0.022)						
FOI												-0.134***					
												(0.029)					
ERSI												-0.065*					
												(0.035)					
MII													-0.106***				
													(0.033)				
Triangle														0.001			
														(0.035)			
MIFO														-0.158***			
														(0.027)			
MIFO+															-0.160***		
															(0.023)		
MIERS															-0.032*		
															(0.016)		
MIERS+																-0.094*	
																(0.049)	
Region																-0.007	
																(0.046)	
Development																-0.163*	
																(0.077)	
Constant	0.249***	0.249***	0.249***	0.277***	0.249***	0.249***	0.540***	0.254***	0.250***	0.249***	0.280**	0.249***	0.249***	0.249***	0.249***	0.249***	0.675***
	(0.039)	(0.044)	(0.044)	(0.085)	(0.042)	(0.044)	(0.094)	(0.052)	(0.060)	(0.033)	(0.098)	(0.030)	(0.035)	(0.040)	(0.026)	(0.021)	(0.188)
Observations	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
R-squared	0.260	0.063	0.072	0.129	0.153	0.084	0.216	0.093	0.033	0.474	0.005	0.566	0.423	0.215	0.670	0.791	0.440

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 16: Regression of Fundamentals Portfolio Equity Investment Flows (part 2)

Fundamentals	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Trade Openness	0.044											
	(0.052)											
External Debt	-0.137*											
	(0.067)											
FXC	-0.028											
	(0.071)											
International Reserves/ External Debt		0.037										
		(0.055)										
FXF		0.019										
		(0.044)										
GDP growth		0.037										
		(0.034)										
Climate zone			-0.004									
			(0.012)									
Regulatory Quality			-0.054					-0.080*				
			(0.080)					(0.041)				
Rule of Law			-0.014						-0.016	-0.007	-0.039	
			(0.085)						(0.064)	(0.030)	(0.040)	
Control of Corruption				-0.066								
				(0.046)								
Rule of Law 2				-0.024								
				(0.038)								
Regulatory Quality 2				-0.041**								
				(0.016)								
Reserves/GDP					-0.026							
					(0.030)							
North-South					-0.254***							
					(0.069)							
Island					-0.078							
					(0.093)							
Surface (KM2)						0.060**						
						(0.025)						
Landlocked						0.103						
						(0.169)						
Next to AE						-0.041						
						(0.077)						
Political Stability							-0.005		-0.077			
							(0.032)		(0.053)			
Government Effectiveness							-0.136***					
							(0.028)					
Private Credit							0.032					
							(0.024)					

ERSI								-0.054				
								(0.050)				
MII								-0.079*				
								(0.042)				
Triangle									-0.003			
									(0.037)			
MIFO+										-0.150***		
										(0.028)		
MIERS+										-0.042		-0.094*
										(0.027)		(0.049)
MIFO											-0.124***	
											(0.028)	
MIERS											-0.058*	
											(0.030)	
Region												-0.007
												(0.046)
Development												-0.163*
												(0.077)
Constant	0.249***	0.249***	0.271***	0.249***	0.545***	0.251***	0.249***	0.249***	0.249***	0.249***	0.249***	0.675***
	(0.040)	(0.044)	(0.079)	(0.042)	(0.118)	(0.058)	(0.033)	(0.034)	(0.042)	(0.021)	(0.025)	(0.188)
Observations	20	20	20	20	20	20	20	20	20	20	20	20
R-squared	0.276	0.107	0.131	0.205	0.204	0.131	0.500	0.470	0.215	0.799	0.707	0.440

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses.*
**** p<0.01, ** p<0.05, * p<0.1*

Table 17: Regression of Fundamentals Portfolio Bond Investment Flows

Fundamentals	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Trade Openness	0.005																
	(0.024)																
External Debt	-0.004																
	(0.021)																
FXC		0.048															
		(0.032)															
International Reserves/ External Debt		-0.020															
		(0.024)															
FXF			0.045														
			(0.028)														
GDP growth			-0.009														
			(0.027)														
Climate zone				0.005													
				(0.009)													
Regulatory Quality				0.029									0.025				
				(0.021)									(0.023)				
Rule of Law					-0.039									-0.029			
					(0.045)									(0.049)			
Control of Corruption					0.052												
					(0.045)												
Rule of Law 2						0.009											
						(0.027)											
Reserves/GDP						0.009											
						(0.022)											
Regulatory Quality 2							0.000										
							(0.023)										
North-South							-0.114**										
							(0.050)										
Island								0.046									
								(0.072)									
Surface (KM2)								0.060***									
								(0.015)									
Landlocked									-0.013								
									(0.069)								
Next to AE									0.044								
									(0.062)								

Political Stability										0.002			0.043				
										(0.015)			(0.050)				
Government Effectiveness										0.036							
										(0.023)							
Private Credit											0.026*						
											(0.013)						
Climate zone (2)											0.005						
											(0.012)						
FOI												-0.042**					
												(0.018)					
ERSI												-0.067***					
												(0.022)					
MII													-0.015				
													(0.028)				
Triangle														-0.006			
														(0.020)			
MIFO														-0.036			
														(0.027)			
MIFO+															-0.037*		
															(0.020)		
MIERS															-0.044**		
															(0.020)		
MIERS+																-0.059***	
																(0.018)	
Region																-0.011	
																(0.026)	
Development																0.055	
																(0.048)	
Constant	0.198***	0.198***	0.198***	0.172***	0.198***	0.198***	0.333***	0.191***	0.185***	0.198***	0.170**	0.198***	0.198***	0.198***	0.198***	0.198***	0.103
	(0.028)	(0.026)	(0.026)	(0.058)	(0.027)	(0.028)	(0.072)	(0.026)	(0.039)	(0.027)	(0.074)	(0.023)	(0.027)	(0.027)	(0.026)	(0.025)	(0.108)
Observations	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
R-squared	0.001	0.126	0.158	0.074	0.052	0.012	0.142	0.248	0.036	0.092	0.060	0.320	0.071	0.040	0.106	0.201	0.209

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 18: Regression of Fundamentals Portfolio Bond Investment Flows (part 2)

Fundamentals	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Trade Openness	0.001											
	(0.024)											
External Debt	0.042											
	(0.028)											
FXC	0.067**											
	(0.029)											
International Reserves/ External Debt		-0.022										
		(0.022)										
FXF		0.053										
		(0.032)										
GDP growth		-0.012										
		(0.026)										
Climate zone			0.006									
			(0.008)									
Regulatory Quality			0.137***					-0.009				
			(0.043)					(0.027)				
Rule of Law			-0.119**						-0.023	-0.009	-0.013	
			(0.046)						(0.051)	(0.026)	(0.031)	
Control of Corruption				0.038								
				(0.037)								
Rule of Law 2				-0.003								
				(0.029)								
Regulatory Quality 2				-0.029								
				(0.041)								
Reserves/GDP					0.011							
					(0.021)							
North-South					-0.114**							
					(0.047)							
Island					0.006							
					(0.091)							
Surface (KM2)						0.056***						
						(0.018)						
Landlocked						-0.019						
						(0.060)						
Next to AE						0.017						
						(0.060)						
Political Stability							-0.007		0.046			
							(0.018)		(0.050)			
Government Effectiveness							0.035					
							(0.023)					
Private Credit							0.022					
							(0.014)					

ERSI								-0.064				
								(0.040)				
MII								0.006				
								(0.024)				
Triangle									-0.031			
									(0.022)			
MIFO+										-0.029		
										(0.025)		
MIERS+										-0.052***		-0.059***
										(0.016)		(0.018)
MIFO											-0.040*	
											(0.022)	
MIERS											-0.052*	
											(0.028)	
Region												-0.011
												(0.026)
Development												0.055
												(0.048)
Constant	0.198***	0.198***	0.168***	0.198***	0.332***	0.195***	0.198***	0.198***	0.198***	0.198***	0.198***	0.103
	(0.026)	(0.026)	(0.052)	(0.028)	(0.074)	(0.038)	(0.027)	(0.025)	(0.027)	(0.025)	(0.025)	(0.108)
Observations	21	21	21	21	21	21	21	21	21	21	21	21
R-squared	0.176	0.184	0.235	0.056	0.151	0.239	0.119	0.215	0.100	0.226	0.242	0.209

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses.*
**** p<0.01, ** p<0.05, * p<0.1*

Table 19: Regression of Second Principal Component Foreign Direct Investment Flows

Push/Pull	(1)	(2)	(3)
Commercial Loans US	-1.459*	-0.198	
	(0.833)	(0.574)	
Trade-Weighted Value US$	0.053	-0.823***	
	(0.362)	(0.144)	
US CPI	7.490***	0.834	
	(2.156)	(0.618)	
Yield Spread	-0.349	-0.172	
	(0.357)	(0.304)	
Probability of US Recession	-0.294	-0.071	
	(0.178)	(0.150)	
US Yield Curve	-0.713	-0.430	-0.399**
	(0.544)	(0.384)	(0.185)
MSCI EM Return	0.147	0.046	0.160
	(0.147)	(0.125)	(0.153)
MSCI World Return	-0.129	-0.132	
	(0.162)	(0.115)	
Oil Price (QQ)	0.047		
	(0.185)		
All Commodities (QQ)	0.159		
	(0.260)		
US VIX	0.092		
	(0.252)		
Commodity Price (change)	-0.871		
	(0.899)		
Non-Fuel Commodities	0.166		
	(0.355)		
Oil Price (change)	0.796		
	(0.641)		
GDP Growth AE	0.218		
	(0.260)		
GDP Growth AE (lag)	0.249		
	(0.348)		
GDP Growth EM (lag)	-0.166		
	(0.298)		
Expected US Policy Rate	0.122		
	(0.153)		
M2	-5.321***		0.857***
	(1.765)		(0.216)
Constant	-0.009	-0.009	-0.009
	(0.109)	(0.115)	(0.160)
Observations	65	65	65
R-squared	0.814	0.740	0.452

Dependent variable: Predicted principal component 2. All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 20: Regression of Second Principal Component Other Investment Flows

Push/Pull	(1)	(2)	(3)	(4)
Commercial Loans US	-1.471	-1.045	0.677	
	(1.600)	(1.430)	(0.632)	
Trade-weighted Value US$	0.348	-0.786***		
	(0.503)	(0.161)		
US CPI	6.529**	0.714		
	(2.967)	(1.660)		
US TED Spread	0.139	0.028		
	(0.523)	(0.250)		
US Bond Yield	-0.717	-0.348		
	(0.525)	(0.603)		
Yield Spread	0.033	-0.024		
	(0.531)	(0.586)		
Probability of US Recession	0.142	0.374**		
	(0.263)	(0.172)		
US Yield Curve	-1.852**	-1.175		-0.795***
	(0.897)	(0.845)		(0.231)
Oil Price (QQ)	-0.191		-0.352	
	(0.281)		(0.300)	
All Commodities (QQ)	-0.189		-0.090	
	(0.341)		(0.433)	
US VIX	-0.010		0.513**	
	(0.263)		(0.250)	
Commodity Price (change)	2.845**		4.661***	
	(1.386)		(1.500)	
Non-Fuel Commodities	-0.760		-1.430**	0.056
	(0.580)		(0.650)	(0.219)
Oil Price (change)	-1.880**		-3.328***	
	(0.871)		(0.984)	
GDP Growth AE	0.167		-0.074	
	(0.334)		(0.412)	
GDP Growth AE (lag)	0.688		0.285	
	(0.474)		(0.486)	
GDP Growth EM (lag)	-0.150		0.049	
	(0.406)		(0.425)	
Expected US Policy Rate	-0.027		-0.325*	
	(0.303)		(0.171)	
M2	-5.454**		-0.042	
	(2.199)		(0.710)	
Constant	-0.028	-0.028	-0.028	-0.028
	(0.155)	(0.171)	(0.183)	(0.187)
Observations	65	65	65	65
R-squared	0.612	0.411	0.374	0.221

Dependent variable: Predicted principal component 2. All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 21: Regression of Second Principal Component Portfolio Equity Investment Flows

Push/Pull	(1)	(2)	(3)
Commercial Loans US	-0.187	-1.296*	0.048
	(1.248)	(0.757)	(0.974)
Trade-weighted Value US$	-0.176	0.029	
	(0.491)	(0.141)	
US CPI	-0.651	1.650*	
	(2.598)	(0.955)	
US Bond Yield	0.174	0.228	
	(0.813)	(0.754)	
Yield Spread	-0.263	-0.370	
	(0.602)	(0.580)	
Probability of US Recession	0.082	0.092	
	(0.248)	(0.227)	
US Yield Curve	0.186	0.330	
	(0.776)	(0.721)	
MSCI EM Return	-0.159	-0.243	
	(0.236)	(0.165)	
MSCI World Return	0.036	-0.137	
	(0.286)	(0.235)	
Oil Price (QQ)	0.125		0.214
	(0.380)		(0.367)
All Commodities (QQ)	0.112		0.098
	(0.292)		(0.260)
US VIX	-0.258		-0.322
	(0.344)		(0.262)
Commodity Price (change)	-0.795		-1.013
	(1.317)		(1.139)
Non-Fuel Commodities	-0.109		-0.107
	(0.389)		(0.327)
Oil Price (change)	0.317		0.496
	(0.854)		(0.762)
GDP Growth AE	-0.040		0.005
	(0.329)		(0.396)
GDP Growth AE (lag)	0.385		0.546
	(0.752)		(0.881)
GDP Growth EM (lag)	-0.516		-0.608
	(0.537)		(0.601)
Expected US Policy Rate	0.126		0.248
	(0.260)		(0.230)
M2	0.899		-0.050
	(2.563)		(1.090)
Constant	-0.010	-0.010	-0.010
	(0.209)	(0.199)	(0.195)
Observations	65	65	65
R-squared	0.209	0.101	0.186

Dependent variable: Predicted principal component 2. All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 22: Regression of Second Principal Component Portfolio Bond Investment Flows

Push/Pull	(1)	(2)	(3)
Commercial Loans US	0.618	0.649	-0.484
	(1.252)	(0.893)	(0.510)
Trade-weighted Value US$	-0.052	0.012	
	(0.567)	(0.194)	
US CPI	-2.254	-1.077	
	(3.246)	(1.067)	
US Bond Yield	-1.388*	-0.940	
	(0.788)	(0.743)	
Yield Spread	0.456	0.177	
	(0.726)	(0.552)	
Probability of US Recession	0.137	0.244	
	(0.295)	(0.293)	
US Yield Curve	-1.733	-1.506*	
	(1.276)	(0.756)	
EMBI Return	-0.115	-0.005	
	(0.223)	(0.148)	
Oil Price (QQ)	-0.088		-0.075
	(0.290)		(0.282)
All Commodities (QQ)	-0.173		-0.038
	(0.350)		(0.371)
US VIX	-0.227		0.080
	(0.273)		(0.211)
Commodity Price (change)	0.122		0.306
	(1.771)		(1.823)
Non-Fuel Commodities	0.254		-0.004
	(0.531)		(0.596)
Oil Price (change)	-0.039		-0.153
	(1.322)		(1.278)
GDP Growth AE	-0.661		-0.681
	(0.460)		(0.450)
GDP Growth AE (lag)	-0.650		-0.699
	(0.545)		(0.505)
GDP Growth EM (lag)	0.686		0.701
	(0.528)		(0.496)
Expected US Policy Rate	0.164		0.056
	(0.283)		(0.189)
M2	1.034		0.905
	(2.914)		(0.575)
Constant	-0.041	-0.041	-0.041
	(0.176)	(0.166)	(0.174)
Observations	65	65	65
R-squared	0.254	0.175	0.159

Dependent variable: Predicted principal component 2. All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 23: Regression of Market Characteristics Foreign Direct Investment Flows (second principal component)

Market Characteristics	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Foreign Openness	0.036					0.037		
	(0.044)					(0.043)		
Stock Market TR	-0.040**					-0.026*		
	(0.015)					(0.013)		
Stock Market % GDP		-0.013					-0.022	
		(0.027)					(0.023)	
MSCI EM Dummy		-0.073				-0.064*		
		(0.047)				(0.033)		
Equity AE			-0.027				-0.023	
			(0.022)				(0.021)	
MSCI FM Dummy			0.047				0.040	
			(0.053)				(0.062)	
Total AE				-0.009				-0.005
				(0.030)				(0.034)
EMBI EM Dummy				-0.029				-0.040
				(0.079)				(0.085)
Bond Market % GDP					-0.029**			-0.029*
					(0.013)			(0.015)
Bond AE					0.000			
					(0.027)			
Constant	0.107***	0.123***	0.092***	0.115***	0.109***	0.121***	0.094**	0.122***
	(0.027)	(0.036)	(0.033)	(0.038)	(0.029)	(0.033)	(0.034)	(0.040)
Observations	26	26	26	26	25	26	26	25
R-squared	0.131	0.078	0.045	0.021	0.041	0.161	0.069	0.065

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 24: Regression of Market Characteristics Other Investment Flows (second principal component)

Market Characteristics	**(1)**
Total AE	0.036
	(0.030)
EMBI EM Dummy	-0.129**
	(0.047)
Bond Market % GDP	-0.004
	(0.028)
Constant	0.150***
	(0.038)
Observations	25
R-squared	0.182

Dependent variable: Proportion of variation explained by principal component . (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 25: Regression of Market Characteristics Portfolio Equity Investment Flows (second principal component)

Market Characteristics	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Foreign Openness	-0.029				-0.027	
	(0.027)				(0.028)	
Stock Market % GDP	-0.029				-0.044*	
	(0.019)				(0.025)	
Equity AE		0.028		0.019	0.038	
		(0.030)		(0.023)	(0.031)	
MSCI EM Dummy		-0.058				-0.063
		(0.071)				(0.063)
Total AE			0.035			0.037
			(0.031)			(0.033)
Stock Market TR			0.004			0.017
			(0.031)			(0.032)
MSCI FM Dummy				0.015		
				(0.078)		
Constant	0.118***	0.139**	0.118***	0.113**	0.118***	0.141**
	(0.037)	(0.056)	(0.037)	(0.044)	(0.037)	(0.054)
Observations	20	20	20	20	20	20
R-squared	0.076	0.044	0.047	0.018	0.122	0.078

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 26: Regression of Market Characteristics Portfolio Bond Investment Flows (second principal component)

Market Characteristics	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Foreign Openness	0.035			0.038	
	(0.024)			(0.026)	
Bond Market % GDP	0.047**		0.051***	0.054**	0.055***
	(0.021)		(0.008)	(0.022)	(0.018)
Bond AE		0.006		-0.025	
		(0.029)		(0.020)	
EMBI EM Dummy		-0.060			0.020
		(0.073)			(0.084)
Total AE			-0.041		-0.048
			(0.024)		(0.040)
Constant	0.095***	0.121***	0.095***	0.095***	0.087**
	(0.025)	(0.041)	(0.025)	(0.026)	(0.039)
Observations	21	21	21	21	21
R-squared	0.179	0.053	0.200	0.217	0.203

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 27: Regression of Fundamentals Foreign Direct Investment Flows (second principal component)

Fundamentals	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**
Trade Openness	-0.025																
	(0.026)																
External Debt	0.034																
	(0.034)																
FXC		-0.023															
		(0.022)															
International Reserves/ External Debt		0.032															
		(0.035)															
FXF			-0.019														
			(0.026)														
GDP Growth			-0.026														
			(0.022)														
Climate zone				-0.016													
				(0.011)													
Regulatory Quality				-0.021									-0.034				
				(0.032)									(0.039)				
Rule of Law					0.017									-0.026			
					(0.046)									(0.033)			
Control of Corruption					-0.033												
					(0.063)												
Rule of Law 2						-0.025											
						(0.029)											
Reserves/ GDP						-0.028											
						(0.024)											
Regulatory Quality 2							-0.007										
							(0.033)										
North-South							0.030										
							(0.057)										
Island								0.103									
								(0.160)									
Surface (KM2)								-0.024**									
								(0.009)									
Landlocked									-0.130**								
									(0.050)								

Next to AE									-0.123**								
									(0.053)								
Political Stability										-0.016				0.028			
										(0.039)				(0.027)			
Government Effectiveness										0.038							
										(0.034)							
Private Credit											-0.017						
											(0.031)						
Climate zone (2)											-0.020						
											(0.014)						
FOI												0.070**					
												(0.026)					
ERSI												0.015					
												(0.028)					
MII													-0.020				
													(0.026)				
Triangle															0.035		
															(0.037)		
MIFO															0.058*		
															(0.030)		
MIFO+																0.070**	
																(0.026)	
MIERS																0.024	
																(0.024)	
MIERS+																	0.005
																	(0.026)
Region																	0.039
																	(0.039)
Development																	-0.015
																	(0.051)
Constant	0.107***	0.107***	0.107***	0.194**	0.107***	0.107***	0.071	0.099***	0.168***	0.107***	0.207**	0.107***	0.107***	0.107***	0.107***	0.107***	0.027
	(0.028)	(0.028)	(0.028)	(0.083)	(0.029)	(0.028)	(0.073)	(0.027)	(0.049)	(0.028)	(0.090)	(0.025)	(0.028)	(0.028)	(0.024)	(0.024)	(0.057)
Observations	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
R-squared	0.047	0.065	0.065	0.123	0.024	0.086	0.012	0.074	0.200	0.036	0.107	0.266	0.042	0.033	0.297	0.284	0.110

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 28: Regression of Fundamentals Foreign Direct Investment Flows (second principal component) (part 2)

Fundamentals	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Trade Openness	-0.034											
	(0.032)											
External Debt	0.030											
	(0.039)											
FXC	-0.023											
	(0.031)											
International Reserves/ External Debt		0.041										
		(0.033)										
FXF		-0.028										
		(0.025)										
GDP Growth		-0.032										
		(0.021)										
Climate zone			-0.021									
			(0.013)									
Regulatory Quality			-0.076					-0.029				
			(0.052)					(0.039)				
Rule of Law			0.066						-0.050	-0.041	-0.021	
			(0.053)						(0.033)	(0.036)	(0.036)	
Control of Corruption				-0.006								
				(0.041)								
Rule of Law 2				-0.028								
				(0.033)								
Regulatory Quality 2				0.002								
				(0.040)								
Reserves/ GDP					-0.030							
					(0.034)							
North-South					0.012							
					(0.070)							
Island					0.111							
					(0.178)							
Surface (KM2)						-0.019*						
						(0.011)						
Landlocked						-0.133**						
						(0.051)						
Next to AE						-0.116**						
						(0.052)						
Political Stability							-0.024		0.036			

							(0.044)		(0.031)			
Government Effectiveness							0.048					
							(0.038)					
Private Credit							-0.018					
							(0.035)					
ERSI								0.007				
								(0.033)				
MII								-0.017				
								(0.030)				
Triangle									0.066**			
									(0.029)			
MIFO+										0.084**		
										(0.031)		
MIERS+										-0.010		0.005
										(0.029)		(0.026)
MIFO											0.074**	
											(0.029)	
MIERS											0.012	
											(0.025)	
Region												0.039
												(0.039)
Development												-0.015
												(0.051)
Constant	0.107***	0.107***	0.219**	0.107***	0.084	0.166***	0.107***	0.107***	0.107***	0.107***	0.107***	0.027
	(0.029)	(0.027)	(0.094)	(0.029)	(0.090)	(0.050)	(0.029)	(0.029)	(0.026)	(0.024)	(0.025)	(0.057)
Observations	26	26	26	26	26	26	26	26	26	26	26	26
R-squared	0.066	0.142	0.179	0.050	0.101	0.217	0.049	0.043	0.230	0.313	0.286	0.110

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses.*
**** p<0.01, ** p<0.05, * p<0.1*

Table 29: Regression of Fundamentals Other Investment Flows (second principal component)

Fundamentals	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**
Trade Openness	-0.047*																
	(0.023)																
External Debt	0.029*																
	(0.015)																
FXC		0.006															
		(0.017)															
International Reserves/ External Debt		0.022															
		(0.036)															
FXF			0.013														
			(0.019)														
GDP Growth			0.042*														
			(0.024)														
Climate zone				-0.022**													
				(0.008)													
Regulatory Quality				0.002									-0.019				
				(0.018)									(0.027)				
Rule of Law					-0.100*									-0.060			
					(0.057)									(0.051)			
Control of Corruption					0.081												
					(0.051)												
Rule of Law 2						-0.003											
						(0.020)											
Reserves/ GDP						0.017											
						(0.036)											
Regulatory Quality 2							0.003										
							(0.013)										
North-South							0.146										
							(0.133)										
Island								0.296***									
								(0.034)									
Surface (KM2)								0.002									
								(0.005)									
Landlocked									0.011								

									(0.070)								
Next to AE									-0.109**								
									(0.039)								
Political Stability										0.022			0.039				
										(0.026)			(0.038)				
Government Effectiveness										-0.041							
										(0.037)							
Private Credit											0.016						
											(0.021)						
Climate zone (2)											-0.031**						
											(0.012)						
FOI												-0.002					
												(0.024)					
ERSI												0.021					
												(0.029)					
MII													-0.029				
													(0.022)				
Triangle														0.028			
														(0.033)			
MIFO														-0.007			
														(0.022)			
MIFO+															-0.010		
															(0.025)		
MIERS															0.017		
															(0.033)		
MIERS+																0.006	
																(0.029)	
Region																-0.001	
																(0.025)	
Development																-0.080	
																(0.048)	
Constant	0.109***	0.109***	0.109***	0.252***	0.109**	0.109***	-0.049	0.085**	0.150**	0.109**	0.258***	0.109**	0.109**	0.109**	0.109**	0.109**	0.317
	(0.024)	(0.025)	(0.024)	(0.069)	(0.023)	(0.025)	(0.139)	(0.021)	(0.039)	(0.025)	(0.074)	(0.025)	(0.025)	(0.024)	(0.025)	(0.025)	(0.205)
Observations	25	25	25	25	25	25	25	25	25	25	24	25	25	25	25	25	25
R-squared	0.096	0.032	0.115	0.319	0.164	0.020	0.107	0.446	0.203	0.058	0.340	0.030	0.050	0.096	0.058	0.025	0.156

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 30: Regression of Fundamentals Other Investment Flows (second principal component) (part 2)

Fundamentals	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Trade Openness	-0.056*											
	(0.032)											
External Debt	0.030*											
	(0.015)											
FXC	-0.017											
	(0.028)											
International Reserves/ External Debt		0.027										
		(0.036)										
FXF		0.014										
		(0.019)										
GDP Growth		0.045*										
		(0.024)										
Climate zone			-0.018**									
			(0.007)									
Regulatory Quality			0.105					-0.016				
			(0.066)					(0.039)				
Rule of Law			-0.114						-0.049	-0.033	-0.032	
			(0.071)						(0.055)	(0.044)	(0.047)	
Control of Corruption				-0.008								
				(0.029)								
Rule of Law 2				0.003								
				(0.023)								
Regulatory Quality 2				0.001								
				(0.016)								
Reserves/ GDP					0.022							
					(0.022)							
North-South					0.155							
					(0.102)							
Island					0.323***							
					(0.035)							
Surface (KM2)						0.010						
						(0.007)						
Landlocked						0.011						
						(0.072)						
Next to AE						-0.112**						
						(0.041)						
Political Stability							0.017		0.029			

							(0.028)		(0.040)			
Government Effectiveness							-0.041					
							(0.038)					
Private Credit							0.011					
							(0.018)					
ERSI								0.006				
								(0.049)				
MII								-0.025				
								(0.042)				
Triangle									0.015			
									(0.037)			
MIFO+										0.003		
										(0.029)		
MIERS+										-0.005		0.006
										(0.045)		(0.029)
MIFO											0.002	
											(0.032)	
MIERS											-0.002	
											(0.049)	
Region												-0.001
												(0.025)
Development												-0.080
												(0.048)
Constant	0.109***	0.109***	0.224***	0.109***	-0.085	0.151***	0.109***	0.109***	0.109***	0.109***	0.109***	0.317
	(0.025)	(0.024)	(0.058)	(0.026)	(0.105)	(0.040)	(0.025)	(0.026)	(0.025)	(0.025)	(0.025)	(0.205)
Observations	25	25	25	25	25	25	25	25	25	25	25	25
R-squared	0.110	0.162	0.430	0.003	0.625	0.209	0.065	0.051	0.107	0.059	0.058	0.156

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 31: Regression of Fundamentals Portfolio Equity Investment Flows (second principal component)

Fundamentals	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**
Trade Openness	-0.078																
	(0.046)																
External Debt	0.118*																
	(0.062)																
FXC		0.003															
		(0.025)															
International Reserves/ External Debt		-0.042															
		(0.031)															
FXF			-0.007														
			(0.028)														
GDP Growth			0.069														
			(0.048)														
Climate zone				0.021													
				(0.013)													
Regulatory Quality				-0.036									-0.027				
				(0.033)									(0.036)				
Rule of Law					0.080									0.054			
					(0.077)									(0.035)			
Control of Corruption					-0.104												
					(0.081)												
Rule of Law 2						0.030											
						(0.032)											
Reserves/ GDP						0.040											
						(0.040)											
Regulatory Quality 2							0.103***										
							(0.008)										
North-South							-0.070*										
							(0.034)										
Island								-0.093*									
								(0.050)									
Surface (KM2)								0.019									
								(0.026)									
Landlocked									0.090								
									(0.176)								
Next to AE									0.039								
									(0.096)								

Political Stability										-0.117***				-0.103*			
										(0.037)				(0.049)			
Government Effectiveness										0.070*							
										(0.034)							
Private Credit											-0.030						
											(0.022)						
Climate zone (2)											0.030						
											(0.018)						
FOI												-0.009					
												(0.036)					
ERSI												0.034					
												(0.043)					
MII													0.023				
													(0.032)				
Triangle															-0.031		
															(0.026)		
MIFO															-0.000		
															(0.029)		
MIFO+																-0.013	
																(0.029)	
MIERS																0.047	
																(0.055)	
MIERS+																	0.033
																	(0.040)
Region																	0.004
																	(0.035)
Development																	0.079
																	(0.080)
Constant	0.118***	0.118***	0.118***	0.000	0.118***	0.118***	0.195***	0.137***	0.089**	0.118***	-0.008	0.118***	0.118***	0.118***	0.118***	0.118***	-0.090
	(0.032)	(0.037)	(0.035)	(0.047)	(0.036)	(0.036)	(0.067)	(0.046)	(0.031)	(0.032)	(0.050)	(0.037)	(0.038)	(0.033)	(0.038)	(0.037)	(0.162)
Observations	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
R-squared	0.283	0.065	0.179	0.182	0.115	0.100	0.435	0.078	0.067	0.291	0.157	0.049	0.042	0.258	0.036	0.080	0.108

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 32: Regression of Fundamentals Portfolio Equity Investment Flows (second principal component) (part 2)

Fundamentals	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Trade Openness	-0.088*											
	(0.048)											
External Debt	0.142*											
	(0.068)											
FXC	0.040											
	(0.030)											
International Reserves/ External Debt		-0.050										
		(0.031)										
FXF		0.008										
		(0.031)										
GDP Growth		0.072										
		(0.044)										
Climate zone			0.023									
			(0.013)									
Regulatory Quality			-0.019					-0.016				
			(0.067)					(0.038)				
Rule of Law			-0.021						0.056	0.023	0.076	
			(0.074)						(0.037)	(0.044)	(0.049)	
Control of Corruption				-0.066*								
				(0.037)								
Rule of Law 2				0.075**								
				(0.035)								
Regulatory Quality 2				0.116***								
				(0.008)								
Reserves/ GDP					0.048							
					(0.040)							
North-South					-0.152*							
					(0.082)							
Island					-0.118**							
					(0.053)							
Surface (KM2)						0.026						
						(0.029)						
Landlocked						0.094						
						(0.174)						
Next to AE						0.037						
						(0.100)						
Political Stability							-0.113***		-0.100*			

							(0.037)		(0.050)			
Government Effectiveness							0.072*					
							(0.034)					
Private Credit							-0.019					
							(0.023)					
ERSI								0.023				
								(0.049)				
MII								0.011				
								(0.039)				
Triangle									-0.012			
									(0.028)			
MIFO+										-0.030		
										(0.049)		
MIERS+										0.052		0.033
										(0.054)		(0.040)
MIFO											-0.072	
											(0.049)	
MIERS											0.104	
											(0.063)	
Region												0.004
												(0.035)
Development												0.079
												(0.080)
Constant	0.118***	0.118***	-0.010	0.118***	0.309**	0.089**	0.118***	0.118***	0.118***	0.118***	0.118***	-0.090
	(0.032)	(0.034)	(0.053)	(0.024)	(0.127)	(0.031)	(0.033)	(0.038)	(0.034)	(0.038)	(0.036)	(0.162)
Observations	20	20	20	20	20	20	20	20	20	20	20	20
R-squared	0.329	0.265	0.186	0.645	0.208	0.093	0.304	0.054	0.262	0.058	0.171	0.108

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses.*
**** p<0.01, ** p<0.05, * p<0.1*

Table 33: Regression of Fundamentals Portfolio Bond Investment Flows (second principal component)

Fundamentals	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**
Trade Openness	0.022																
	(0.023)																
External Debt	-0.029																
	(0.035)																
FXC		-0.042															
		(0.029)															
International Reserves/ External Debt		0.048															
		(0.029)															
FXF			-0.034														
			(0.033)														
GDP Growth			-0.017														
			(0.032)														
Climate zone				-0.008													
				(0.009)													
Regulatory Quality				-0.008									-0.016				
				(0.021)									(0.022)				
Rule of Law					-0.003									-0.052			
					(0.051)									(0.044)			
Control of Corruption					-0.016												
					(0.062)												
Rule of Law 2						-0.057**											
						(0.025)											
Reserves/ GDP						0.029											
						(0.021)											
Regulatory Quality 2							0.010										
							(0.028)										
North-South							-0.049										
							(0.059)										
Island								0.040									
								(0.105)									
Surface (KM2)								-0.007									
								(0.024)									
Landlocked									-0.119**								
									(0.044)								
Next to AE									-0.045								
									(0.059)								
Political Stability										0.006				0.042			

										(0.021)				(0.042)			
Government Effectiveness										-0.018							
										(0.029)							
Private Credit											-0.016						
											(0.015)						
Climate zone (2)											-0.008						
											(0.011)						
FOI												0.037					
												(0.032)					
ERSI												0.031					
												(0.027)					
MII													-0.042*				
													(0.022)				
Triangle															0.037		
															(0.040)		
MIFO															-0.006		
															(0.033)		
MIFO+																0.013	
																(0.033)	
MIERS																0.002	
																(0.023)	
MIERS+																	-0.003
																	(0.032)
Region																	0.015
																	(0.028)
Development																	0.000
																	(0.057)
Constant	0.095***	0.095***	0.095***	0.137**	0.095***	0.095***	0.154*	0.090***	0.127***	0.095***	0.137*	0.095***	0.095***	0.095***	0.095***	0.095***	0.050
	(0.028)	(0.026)	(0.027)	(0.061)	(0.028)	(0.024)	(0.082)	(0.028)	(0.043)	(0.028)	(0.073)	(0.026)	(0.026)	(0.027)	(0.027)	(0.028)	(0.133)
Observations	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
R-squared	0.040	0.154	0.079	0.054	0.024	0.252	0.031	0.018	0.118	0.018	0.050	0.112	0.114	0.054	0.080	0.012	0.022

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 34: Regression of Fundamentals Portfolio Bond Investment Flows (second principal component) (part 2)

Fundamentals	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Trade Openness	0.025											
	(0.024)											
External Debt	-0.066											
	(0.048)											
FXC	-0.056											
	(0.035)											
International Reserves/ External Debt		0.047										
		(0.030)										
FXF		-0.051										
		(0.032)										
GDP Growth		-0.011										
		(0.031)										
Climate zone			-0.008									
			(0.009)									
Regulatory Quality			0.044					0.014				
			(0.074)					(0.023)				
Rule of Law			-0.057						-0.060	-0.037	-0.039	
			(0.064)						(0.042)	(0.023)	(0.029)	
Control of Corruption				-0.013								
				(0.042)								
Rule of Law 2				-0.049*								
				(0.026)								
Regulatory Quality 2				0.011								
				(0.043)								
Reserves/ GDP					0.023							
					(0.029)							
North-South					-0.043							
					(0.051)							
Island					0.031							
					(0.105)							
Surface (KM2)						-0.005						
						(0.024)						
Landlocked						-0.119**						
						(0.045)						
Next to AE						-0.042						
						(0.062)						
Political Stability							0.014		0.037			

							(0.025)		(0.036)			
Government Effectiveness							-0.018					
							(0.028)					
Private Credit							-0.019					
							(0.021)					
ERSI								0.057				
								(0.036)				
MII								-0.061***				
								(0.018)				
Triangle									0.041			
									(0.037)			
MIFO+										0.026		
										(0.037)		
MIERS+										-0.023		-0.003
										(0.015)		(0.026)
MIFO											0.025	
											(0.036)	
MIERS											-0.021	
											(0.026)	
Region												0.015
												(0.035)
Development												0.000
												(0.060)
Constant	0.095***	0.095***	0.135**	0.095***	0.142*	0.126**	0.095***	0.095***	0.095***	0.095***	0.095***	0.050
	(0.027)	(0.026)	(0.063)	(0.026)	(0.078)	(0.044)	(0.028)	(0.025)	(0.027)	(0.028)	(0.028)	(0.113)
Observations	21	21	21	21	21	21	21	21	21	21	21	21
R-squared	0.159	0.201	0.091	0.200	0.069	0.120	0.038	0.227	0.158	0.073	0.068	0.022

Dependent variable: Proportion of variation explained by principal component. (Most) independent variables are 16-year averages (2000-2016) All regressions include a constant and are estimated by a Multiple Regression Analysis with White's correction of heteroskedasticity. Period: 2000Q1-2017Q1. *Robust standard errors in parentheses.*
**** p<0.01, ** p<0.05, * p<0.1*