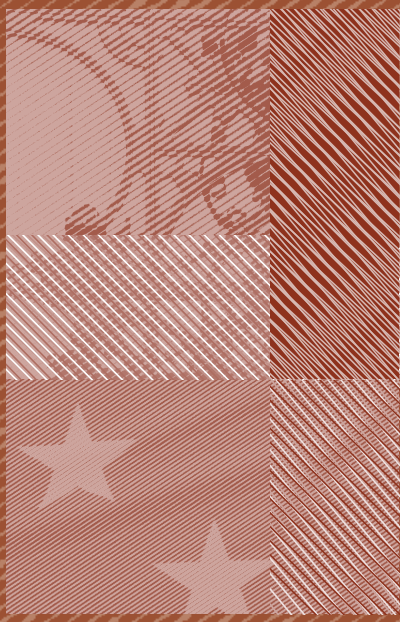
INSTITUTIONAL DRIVERS OF CAPITAL FLOWS

2015

Irma Alonso Álvarez



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BANCO DE ESPAÑA

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Abstract

This paper empirically analyzes the role of institutional factors in shaping the dynamics of gross capital flows. We build an institutional quality index and test its relevance for both gross capital inflows and outflows using a panel of 56 countries, differentiating between high-income and low-income economies, over the period 1996-2012. We find that institutional quality is a significant factor affecting the behavior of both foreign and domestic investors. Countries with better governance and public sector credibility tend to attract more flows. Causality is confirmed through IV estimates for a sub-sample of 25 countries. In addition, we show that some governance features matter more than others. Specifically, the most relevant institutional indicators are Government Effectiveness and Regulatory Quality, which capture the government's ability to implement adequate, sound and credible policies. Finally, we assess the role of institutional quality during periods of financial stress. The analysis suggests that domestic investors in countries with a sound institutional framework tend to retrench more capital, mitigating the negative effects of declining gross capital inflows. Therefore, sound institutions incentivize the build-up of external assets in high-income countries by promoting larger outflows in normal times. They also facilitate the repatriation of such assets during crises.

Keywords: gross capital flows, institutions, government effectiveness, regulatory quality, capital retrenchment and crises.

JEL Classification: F21, F32 y F33.

Resumen

Este trabajo analiza de forma empírica el papel que desempeñan los factores institucionales en la determinación de los flujos brutos de capital. Se construye un índice de calidad institucional y se evalúa su impacto en la evolución de las entradas y de las salidas de capital brutas, utilizando un panel de 56 países y distinguiendo entre economías de altos ingresos y de bajos ingresos, entre 1996 y 2012. Se muestra que la calidad institucional es un factor significativo para explicar el comportamiento tanto de inversores extranjeros como de inversores nacionales. Los países con un entorno más favorable en términos de gobernanza y de credibilidad del sector público tienden a atraer más flujos de capital. Gracias al análisis econométrico de variables instrumentales, se confirma la existencia de causalidad para una submuestra de 25 países. Asimismo, señalamos que determinados rasgos institucionales son más importantes que otros. En concreto, los indicadores institucionales más relevantes son Eficacia gubernamental y Calidad regulatoria, que captan la capacidad del Gobierno para implantar políticas adecuadas, fiables y creíbles. Por último, se evalúa el papel de la calidad institucional en períodos de estrés financiero. El análisis sugiere que los inversores nacionales residentes en países con un marco institucional sólido tienden a repatriar más capital, mitigando parcialmente los efectos negativos de una menor entrada de flujos de capital brutos. Por tanto, una buena calidad institucional incentiva la acumulación de activos externos en los países de altos ingresos, mediante una mayor salida de capitales en tiempos normales, pero también facilita la repatriación de dichos activos en épocas de crisis.

Palabras clave: flujos brutos de capital, instituciones, eficacia gubernamental, calidad regulatoria, repatriación de capital y crisis.

Códigos JEL: F21, F32 y F33.

1 Introduction

Cross border capital flows play an increasingly important role in the global economy. In order to reap the benefits associated with capital inflows, many governments followed a capital account liberalization strategy in the past decades. Economic theory suggests that international capital flows boost productive capacity, promote competitiveness and enhance efficiency. While capital flows can bring potential benefits to the financial system, they also carry risks due to their volatility, size and the channels of contagion that they create. To prevent the materialization of these risks, a better understanding of capital flows is imperative.

While there is extensive empirical research on net capital flows, it is only recently that a new strand of literature has paved the way for research on gross capital flows. Following Forbes and Warnock (2012), and Broner et al (2013), we differentiate between the behavior of domestic agents investing abroad (gross capital outflows) and foreign agents investing in the reporting country (gross capital inflows)[1]. As gross financial flows have substantially increased in the last decade and domestic agents and foreign agents can be motivated by different factors, this distinction is all the more relevant. On the other hand, a country´s economic performance is highly influenced by its institutional and political environment (Acemoglu, Johnson and Robinson, 2005). Building on these ground-breaking papers, we contribute to the literature by showing the role played by institutional factors in determining gross capital flows in the long term but also during periods of financial stress.

Gross capital flows play a significant role as a transmission channel of financial stability, as we have witnessed during the global financial crisis. Capital flow volatility increased in the last decade as cross border flows skyrocketed from 2001 until the global financial crisis, when they contracted sharply, and then surged again in 2010. Figure 1 shows that there is a high correlation between the behavior of non-residents buying net domestic assets and residents buying net foreign assets due to the significant financial integration among these economies. However, when looking at the flows of emerging economies (Figure 2), this correlation is much lower and this difference is even more relevant if we take a particular emerging economy. As net flows reflect only a small part of international movements, it is of interest to analyze the behavior of foreign and domestic agents separately.

Figure 1: Gross capital flows evolution in high income countries

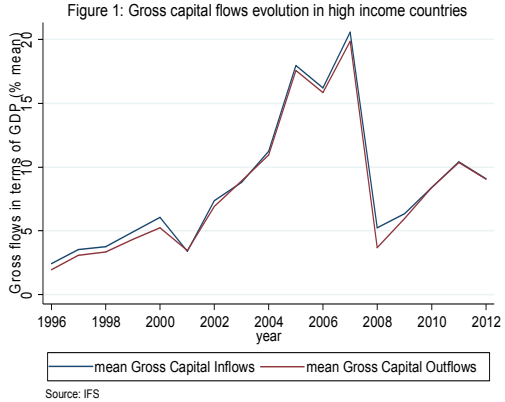
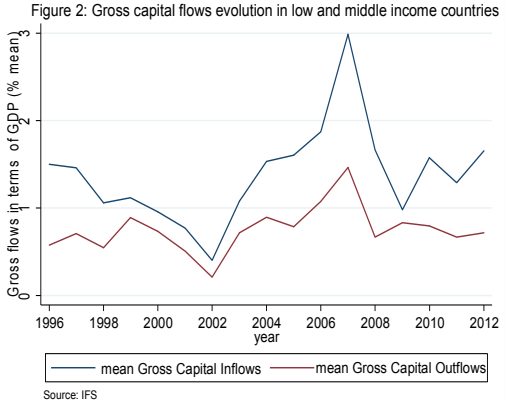


Figure 2: Gross capital flows evolution in low and middle income countries



1. Gross capital inflows are defined as the difference between the purchases and sales of domestic assets by non-residents, which are the sum of all liabilities (FDI, portfolio and other investment). Analogously, gross capital outflows are the difference between the purchases and sales of foreign assets by residents, which can be decomposed into FDI, portfolio and other investment assets.

The objective of this paper is to assess the role of institutions as a driver of global capital flows over the last twenty years, highlighting the significant changes in the behavior of domestic and foreign investors during periods of financial stress. The focus is on two questions. How relevant are institutions to explain the pattern of flows in the long term? And, in periods of financial stress, do markets discriminate among economies according to their institutions? Our main hypothesis relies on the fact that foreign agents might base their decisions not only on economic pull factors but also on institutional pull factors. In contrast to the neoclassical theory for which the crucial factor of institutional quality was the security of property rights, we base our analysis on a broad definition of "good governance". Institutional quality refers to the governance infrastructure of countries, defined broadly as "the traditions and institutions by which authority is exercised", (Kaufman, Kraay and Mastruzzi, 2004). This definition includes the political process, civil liberties, the ability of governments to implement sound and credible policies and the respect for institutions. The neoclassical theory predicts that capital flows to countries with a higher marginal rate of return. But institutional quality can affect the expected net value of investment as it takes into consideration property rights and the credibility of government policy. An improvement in institutional quality should attract more capital inflows if investors look for safer investments (flight to quality hypothesis). In contrast, institutions also affect domestic decisions. There is a trade-off. On the one hand, a sound institutional framework creates a market-friendly environment, boosting domestic demand and foreign investment. On the other hand, if the political ability or the property rights of a country improve, domestic agents might allocate more resources in their residence country instead of abroad, which effect prevails is a matter that should be empirically tested.

To assess the relevance of these hypotheses, we build a database comprising of quarterly data for 56 countries, differentiating between high-income and low and middle-income states, over the period 1996-2012. As far as we know, there has not been a systematic attempt to analyze the linkage between gross capital flows and governance, but only on the relation between foreign direct investment (FDI) and institutional quality. Globerman and Shapiro (2002) conclude that governance is a relevant driver of both inward and outward FDI for developed and developing countries over 1995-1997. Buchanan et al (2012) find that institutional quality is positively associated with FDI and negatively correlated to FDI volatility. There has not been much discussion regarding the impact of institutional factors during financial crises. We contribute to the literature by creating an institutional quality index over 1996-2012 and assessing its impact on the behavior of gross capital flows and their components. Our main findings are the following. First, employing fixed effect models, our results clearly suggest that institutional quality is an important driver of gross capital flows, mainly driven by the dynamics of FDI and portfolio flows. Countries with better quality public services tend to attract more investment and, in high-income countries, create an adequate environment to boost economic activity and investment abroad. Indeed, IV estimates suggest the existence of a causal link for a sub-sample of 25 countries. Secondly, Government Effectiveness and Regulatory Quality seem to be the most important determinants of capital flows. Finally, institutional quality turns out to be also relevant during periods of financial stress. Domestic investors tend to retrench more capital flows if they live in countries with a sound institutional framework, which compensates for the negative effects of declining capital inflows. Therefore, good institutions incentivize the build-up of external savings, by promoting larger outflows, in normal times in high-income countries. And, then, they also facilitate the repatriation of such assets during crises.

This paper is related to different lines of literature. First, it is closely related to the considerable empirical research on the determinants of net capital flows during the last

decades. These analyses distinguish between push and pull factors. The former focuses on the relevance of external factors such as international liquidity or risk aversion. In this context, Calvo, Leiderman and Reinhart (1993) emphasize the importance of external factors, such as lower international rates and the recession in the United States, to explain the significant capital inflows to Latin American economies in the nineties. Dixit and Pindyck´s (1994) focus on the role of investor risk appetite. More recently, scholars have drawn attention to the effects of "global liquidity". Bruno and Shin (2013) consider the importance of the leverage cycle of global banks. A different strand of literature highlights the relevance of pull factors, such as sound macroeconomic policies and institutional quality. This is the case of Papaioannou (2009) which shows how institutions and the initial level of institutional quality affect international lending. Finally, Fratzscher (2012) concludes that both pull and push factors are relevant depending on the period of time. Global drivers seem to play an important role in periods of financial stress, whereas specific factors are more relevant in periods of economic recovery.

The empirical results of these papers can partially explain the Lucas Paradox. The standard neoclassical theory predicts that capital flows to poor countries where the marginal rate of return is higher. But the evidence does not support this argument as capital has not moved from rich to poor countries, but within developed countries: this is referred as the Lucas Paradox. However, when modifying perfect market assumptions, the paradox disappears. There are different theories: a group analyses international capital market imperfections whereas another part of the literature focuses on differences in fundamentals and institutions. Alfaro, Kalemli-Ozcan and Volosovych (2008) conclude that low institutional quality is the ultimate explanation. The Lucas Paradox can also be explained by the increasing demand for global safe assets. According to Caballero (2010), emerging economies face a deficit of safe assets, partly explained by their limited institutional capacity and the lack of development of their local bond markets. Therefore, flows tend to move from emerging economies to developed markets in search of sound financial assets, specifically triple A instruments. Even if related with this strand of literature, our analysis cannot give a conclusive explanation to the Lucas Paradox since the data used focuses exclusively on one direction flows without controlling for the counterpart country. In addition, we analyze the behavior of gross capital flows and not net capital flows as Lucas did.

The most recent literature has turned its attention to gross capital flows and their behavior during periods of financial stress. Forbes et al (2012) identify periods of extreme flow volatility and define the following episodes: "surges" and "flight"- increase in gross capital inflows and outflows respectively- and "stops" and "retrenchment"- decreases in gross capital inflows and outflows respectively. According to Broner et al (2013), capital flows are pro-cyclical and tend to collapse during periods of financial crises. Finally, Milesi-Ferreti and Tille (2011) conclude that the global financial crisis led to a "great retrenchment" of capital flows, especially in 2008Q4, affecting to a lesser extent emerging economies.

The rest of the paper is structured as follows. The next section presents the data. Section 3 describes the baseline empirical model and reports fixed effect estimates. This section is divided into two parts. The first subsection analyzes the effect of institutional quality on capital flows and tackles the endogeneity bias of institutional indicators using instrumental variable estimates, whereas the second subsection introduces the different characteristics of institutional governance. In section 4, we analyze the impact of crises on capital flow drivers introducing a dummy in our baseline model and interacting it with institutional quality. We complement this analysis distinguishing between global and domestic crises. Section 5 concludes and highlights some policy implications.

2 Data and methodology

The dataset used covers 56 countries, including 34 high-income countries and 22 low and middle-income countries over the period 1996-2012, using quarterly data. This period allows us to analyze the behavior of capital flows during the Russian and Asian crises (1998-1999) and during the global financial crisis (2008-2009). As Broner et al (2013), we divide our sample into groups depending on their income levels as classified by the World Bank in July 2010. According to 2008 gross national income (GNI) per capita, lower-middle income groups are those economies with a GNI per capita between $976 and $3,855, upper-middle income groups between $3,856- $11,905 and high income groups above $11,906. As only six countries of our sample (Colombia, India, Indonesia, Peru, The Philippines and Thailand) belong to the lower-middle income group, we will use low and middle-income to refer to both lower-middle and upper middle-income countries. Thanks to income differentiation, we are able to show that some institutional quality features play a different role depending on the country´s level of income[2]. Table 1 reports the countries analyzed. Our database excludes countries that did not report the Balance of Payments or with a limited time series, which in the case of being related to a bad performance of institutions, can lead to a sample selection issue. The data can be separated into capital flows, institutional proxies and control variables.

2.1 Capital flows data:

Capital flows data are taken from the International Financial Statistics of the IMF. This source has several advantages. First, it allows us to disaggregate flows by instruments: foreign direct investment (FDI), portfolio and other investment flows. Secondly, it uses the Balance of Payment data, enabling us to use quarterly data. This data frequency allows us to capture the impact of short-term changes on investor decision making, such as the fall of Lehman Brothers, and to assess the relevance of institutions during the global financial crisis. However, contrary to other sources, this data does not give a decomposition of private and public issuers and holders of debt for most countries over long periods of time. Following Broner el al (2013) and Alberola, Erce and Serena (2012), we distinguish between financial investment by non-residents in the reporting economy (Gross capital inflows, CI)-including investment and disinvestment- and by residents abroad (Gross capital outflows, CO)-taking into account net purchases. Gross capital inflows are measured as the sum of all liability inflows -direct investment (Ifdi), portfolio (Iportfolio) and other investment inflows (Ioinv)-. Analogously, gross capital outflows are calculated as the sum of outflows of direct investment (Ofdi), portfolio (Oportfolio) and other investment inflows (Ooinv). We not only focus on aggregate capital inflows and outflows, but also on their components as their drivers might be different. These eight measures of capital flows are normalized by the reporting country GDP to control for their economic size, and then standardized by de-meaning and by dividing the standard deviation at the country level, following Broner et al (2013).

2.2 Institutional indicators:

In order to assess the role of institutional quality as a determinant of capital flows, we use a set of institutional variables from the Worldwide Governance indicators, estimated by Kaufman et al (1999)[3]. Contrary to other database used by the literature, such as the "political

2. High-income countries include also some European economies that have been under financial stress during the European debt crisis.

3. They use an unobserved component model to collect perceptions of governance gathered through a wide variety of cross-country surveys and poll of experts from different sources

risk rating" calculated by the International Country Guide, the data is publicly available. In addition, it reports six dimensions of governance for a large number of countries over 1996-2012: (1) Voice and Accountability, (2) Political Stability and Lack of Violence, (3) Government Effectiveness, (4) Regulatory Quality, (5) Rule of Law and (6) Control of Corruption. Voice and Accountability reflects aspects of the political process and political rights. Political Stability and Lack of Violence capture the likelihood of an unconstitutional change in government with or without violence. Government Effectiveness includes the credibility of policies and the quality of public services and civil services and its independence from political pressures. Regulatory Quality focuses on the ability to implement policies to boost private sector development. The respect of citizens and the state for the institutions is captured by Rule of Law-which analyzes the quality of property rights, the police and the likelihood of crime and violence- and Control of Corruption, which determines how public power is exercised. This broad definition of governance allows us to test the importance of different dimensions of institutional quality as determinants of capital flows[4]. This dataset has been used in several papers as a proxy for institutional quality in order to assess the effect of institutions on FDI. (See Globerman and Shapiro (2002), Buchanan et al (2012) and Daude and Stein (2007)).

As these indicators are highly correlated, we need to make some transformations. First of all, we create an institutional quality index by extracting a component of the six governance indicators, using a principal component analysis. From a principal component regression, we choose the first component as it turns out to be the component with most predicting power[5]. Table 2 in Appendix reports the results of the principal component regression. The creation of this index has several advantages. First, the aggregation of different aspects of governance tends to reduce measurement errors. As these six indicators are closely correlated, the index might be more accurate than its components. Secondly, this index enables us to analyze the impact of institutional quality on gross capital flows. Lastly, it sorts out multicollinearity issues. Then, in order to discriminate between the different features of governance, there are two options: either including each institutional variable one by one in our baseline model or using a backward demeaning transformation-subtracting each institutional variable by its backward mean at the country level. We opt to choose the latter. If various institutional features determine simultaneously gross capital flows, there might be an omitted variable bias when including them one by one, especially relevant as they are highly correlated. Therefore, we are able to reduce multicollinearity by using a backward demeaning transformation, as shows the correlation matrix in Table 3. Thanks to this transformation, we can analyze the effect of variations in institutional quality features on investor´s decisions.

A disadvantage of using Worldwide Governance indicators is that these variables are based on subjective perceptions. However, as pointed out by Kaufman, Kraay and Mastruzzi (2004), objective measures of governance across countries might not exist, for instance in the case of corruption, or they may not be comparable between countries. This is partly due to the differences between "de jure" and "de facto" situations regarding institutional quality. In addition, one can argue that in fact investors´ decisions are based on subjective perceptions of governance, due to the lack of objective information. Another drawback is that their estimates do not convey information about global trends of governance since the global average is equal to zero. Nevertheless, Kaufmann, Kraay and Mastruzzi (2009) argue that there is no evidence of systemic trends related to world average governance when analyzing individual data sources. The results vary depending on the source and on the type of

4. All scores lie between -2.5 and 2.5, higher scores indicating better governance quality before the transformation.
5. As many researchers, like Jolliffe (1982), have stressed the principal components with low variance can also be important in predicting outcomes and in determining causal relationships.

governance indicator. In addition, it has the advantage of keeping some of the cardinal information of the underlying data, while providing information about changes in the relative positions of countries over time. Therefore, relative and absolute changes in a country's governance are likely to be similar.

2.3 Control variables data

We choose pull factors widely used in the literature-the country´s GDP growth, the spread of long term interest rates, public debt to GDP, credit to GDP, the ratio of reserves including gold to GDP, credit to GDP and the quadratic term of credit to GDP - and relevant push factors- the volatility index (VIX), the world GDP growth and US long term interest rates. Some variables have been excluded following a stepwise procedure as they turn out to be insignificant. This is the case for inflation, primary balance and commercial openness. In addition, we exclude the financial openness index (Chinn-Ito Index) from the baseline model due to its lack of variability for high-income economies and we only use it in a robustness check model. The data appendix provides information about the sources and definitions of all variables. (Table 4)

In order to assess the role of institutional quality during periods of financial stress, we use a dummy on a quarterly basis to identify periods of crises using the database from Laeven and Valencia (2008, 2012). Our crisis indicator takes into consideration banking, currency and sovereign debt crises[6], distinguishing between domestic and global crises. The latter corresponds to the Russian and Asian crises (1998 and 1999) and the Global Financial Crisis (GFC). Table 5 takes into consideration and provides details of the exact periods of crises per country.

2.4 Descriptives:

Table 6 in Appendix reports descriptive statistics of capital flows and governance indicators, whereas Table 3 shows the correlation matrix of control variables. As shown in Table 6, cross-country institutional quality varies across countries. For instance, institutional quality index ranges from -6.05 for Venezuela in 2010 to 3.5 for Finland in 2004; higher scores indicating better governance. Figure 3 shows the cross-country variation. In 2012, the country with the worst political institutions was Venezuela whereas Finland and Sweden benefitted from a sound governance framework. In addition, the "within" country variation in this panel data is also relevant, as observed in Figure 4. While Argentina and Greece have witnessed a worsening of their governance indicators, Estonia and Korea have substantially improved in terms of governance.

6. Laeven and Valencia define banking crises when a large part of the private sector (financial and non financial companies) is in default or facing liquidity issues, and, therefore non-performing loans surge and most capital is exhausted. A country experiences currency crisis when its currency depreciates at least 30 percent in nominal terms, if it represents a 10 percent increase in the rate of depreciation compared to the previous year. Finally, debt crises include the year of sovereign defaults to private lending.

3 Determinants of capital flows. Panel estimates

3.1 Institutional quality index

3.1.1 EMPIRICAL MODEL

Due to the lack of a benchmark model to analyze capital flow drivers, we use a general model controlling for common determinants of capital flows and introduce institutional quality index. As a starting point, in order to assess the role of institutional quality in shaping capital flows, our baseline model is:

$$Y_{it} = \beta_0 + \beta_1 IQindex_{it-1} + \beta_2' pullfactors_{it-1} + \beta_3' pushfactors_{it} + \mu_i + \tau_t + \varepsilon_{it} \qquad (1)$$

$$where\ Y_{it} = \{CI_{it}; CO_{it}; Ifdi_{it}; Iportfolio_{it}; Ioinv_{it}; Ofdi_{it}; Oportfolio_{it}; Ooinv_{it}\}$$

Where Y_{it} is in terms of GDP for country i in year and quarter t. The main interest of this empirical analysis is on the sign and magnitude of β_1 as $IQindex_{it}$ represents the institutional quality index that captures the level of governance quality. β_0 is the constant term; $pullfactors_{it-1}$ is a vector of domestic variables (7x1) that affect capital flows. It includes (the country´s GDP growth, the spread of long term interest rates, public debt to GDP, gross external debt to GDP, the ratio of reserves including gold to GDP, credit to GDP and the quadratic term of credit to GDP). Global variables are included in the vector (3x1) $pushfactors_{it}$, which includes (the VIX level, world GDP growth and US long term interest rates). We include a country fixed specific effect, μ_i, to control for time-invariant unobserved heterogeneity effects and year and quarterly dummies, τ_t, to control for unobserved shocks that affect all countries. The use of lagged variables in pull factors[7] and country and year fixed effects mitigates endogeneity issues. In addition, we run fixed effects (within) regressions with Discroll-Kraay standard errors to control for heteroskedasticity, serial correlation and cross-sectional dependence[8].

3.1.2 MAIN RESULTS

Table 7 reports the results. Focusing on our main contribution, the role of institutional variables, we find that gross capital flows are highly associated with institutional quality. As expected, an improvement in political institutions attracts more capital inflows (CI) if foreign investors look for safer investments. Indeed, the expected net present value of investments in countries with better governance can improve thanks to a reduction of uncertainty. Foreign agents can consider countries with institutional vulnerabilities riskier. This is true for all income countries and for the two sub-samples analyzed. With regards to gross capital outflows (CO), the sign of institutional quality is also positive and significant for high-income economies, signaling that improvements in governance will facilitate the build-up of external savings. A sound institutional framework creates a market friendly environment and incentivizes the growth of domestic companies with the capacity to invest abroad, boosting domestic investment overseas and therefore gross capital outflows. This is true for high-income countries. However, for low-income economies, institutional quality is negative and insignificant. When controlling for capital account openness (Table 8), governance turns out to be negative and significant, which indicates that in poorer economies there may be a crowding-out effect. As institutional quality improves, domestic investors may decide to invest

7. There are good reasons to believe that push factors do not face endogeneity issues.
8. Indeed, Pesaran´s CD test rejects the null hypothesis of spatial independence.

in their own country instead of abroad, restricting capital outflows. But, as the economy becomes richer, policymakers should expect higher capital outflows when there is better governance[9].

Turning to control variables, country specific variables are key drivers of gross capital inflows (CI), as shown in Table 7. Countries with sounder economic fundamentals, reflected in higher GDP growth and lower public and external debt, attract more capital flows. These results are in line with those published in recent papers[10].Regarding gross capital outflows (CO), a worsening of economic fundamentals in the reporting country, such as the increase of the perception of sovereign risk, leads to higher capital outflows, as expected. Finally, we find a significant non-linear effect of credit to GDP on both gross capital inflows and outflows. A higher level of financial integration has a positive effect on attracting foreign capital flows in high income and low and middle-income countries. However, this positive effect disappears and becomes negative for high levels of credit to GDP (158% in high income economies and 70% in low and middle income economies) since these high levels might incentivize the creation of bubbles and future crises.

Global factors are also relevant to explain gross capital flow patterns. While the coefficient estimates of world growth has the expected positive sign, an increase in global risk (measured by the VIX) reduces gross capital inflows and outflows for all income countries[11]. More specifically, global risk is highly correlated with periods of "stop"-a decline in gross capital inflows and "retrenchment", a decrease in gross capital outflows (Forbes, 2012). Finally, a lower interest rate in the United Stated tends to boost capital flows into emerging economies but also into other advanced economies since investors will look for alternative safe assets with higher returns.

As a robustness check, we estimate a similar model controlling for financial openness and we get very similar estimates. Table 8 reports these results. Financial openness is positive and significant, which points out that capital controls mitigate both gross capital inflows and gross capital outflows. Regarding governance, the sign of coefficient estimates do not vary. Nevertheless, the coefficient of institutional quality for gross capital outflows becomes significant and negative in low and middle-income economies. In these countries, an improvement in institutional quality reduces gross capital outflows. As pointed out, domestic investors may prefer to invest in their own country instead of abroad when their institutional domestic conditions improve. Finally, we run an additional specification. We estimate the same regression as equation 1, using annual data. This regression allows us to demonstrate that our results are robust to annual data and R-squared is higher than using quarterly data, as shown in Table 9. Capital flows are less sensitive to global factors due to the lack of inertia of these control variables and their high volatility. This is consistent with the fact that push factors can better explain short run movements whereas country specific variables matter more in the long run. Our main results are robust to this new specification.

3.1.3 DECOMPOSING BY COMPONENTS

Do institutional variables affect the three categories of capital flows in the same way? The literature points out that the drivers of different types of flows differ. Whereas FDI tends to be

9. These results are robust when GDP per capita in 1996 is controlled for.
10. See Alberola, Erce and Serena (2012), and Fratzscher (2012). Broner et al (2013) highlight the prociclacity of gross capital flows. Alberola et al (2012) find that gross capital inflows are "positively associated to higher ratings and GDP growth, and negatively correlated with the current account".
11. Alberola et al (2012) and Ahmed and Zlate (2014) report similar results.

associated with a long-term relationship, portfolio and other investment flows are said to be more sensitive to domestic conditions. Therefore, a more detailed analysis is necessary, focusing on the differences between specific components.

Table 10 shows the results decomposed by type of instrument. What we observe is that our main results are chiefly driven by the behavior of FDI for both gross capital inflows and gross capital outflows for all income countries, and by portfolio flows in advanced economies. It is easily understandable that institutional quality is a likely determinant of FDI inflows. First, sound governance is associated with a good business environment, which should attract more FDI. Second, corruption tends to increase investment costs and reduce the net present value of investment. With respect to capital outflows, a sound institutional framework incentivizes a market-friendly environment, boosting the creation of multinationals that will invest in their own country but also abroad. Therefore, foreign direct outflows are positively associated with the institutional quality index, as well as other investment and portfolio flows in high-income countries.

What we find most interesting is the differential effect of institutional quality on FDI depending on the level of income. While institutional quality is a key determinant to attract FDI from foreign investors in low-income countries, it is insignificant in high-income countries. According to the OLI paradigm (Dunning, 2001), FDI can be explained by ownership advantages-related to acquisition of strategic assets and efficiency gains-, location advantages-explained by access to resources and to markets and cost motives- and internalization factors-due to uncertainty and incomplete contracts. A possible explanation is that location factors are a decisive determinant in less developed economies whereas specific advantages (technology, specialized human capital or know-how) are more common drivers to explain FDI patterns in more developed economies. Location advantages include resources endowment, lower labor costs and institutional degree of development in host countries. FDI investors might discriminate among developing countries according to their institutional quality, as they tend to invest more in countries with credible and sound institutions while poor governance will deter inward FDI. This behavior is consistent with the economic theory as poor institutions increase negotiation and enforcement costs. As a result, agents prefer locations where their institutional framework facilitates the development of their firm specific advantages. This is in line with the results of Buchanan et al (2012), Daude and Stein (2007) and Busse and Hefeker (2007) which provide evidence that FDI inflows are positively associated to institutional quality. Moreover, sound institutions reduce FDI volatility. Globerman and Shapiro (2002) also show that institutions have a positive impact on foreign direct outflows for relatively developed economies. They point out that there are “diminishing returns” to institutional improvements: the poorer the economy, the higher the impact of governance on attracting FDI flows.

3.1.4 DEALING WITH ENDOGENEITY

Even if the use of lagged variables for pull drivers of capital flows and the introduction of country dummies mitigate endogeneity issues, it is of interest to carry an endogeneity exercise. We use a sub-sample to assess the relevance of the potential bias of OLS estimates and to determine a causal relationship between institutional drivers and capital flows. Indeed, we need to address reverse causation as higher capital inflows might encourage governments to implement reforms and to improve institutional standards. In addition, institutional estimates can be based on a qualitative assessment, influenced by the amount of inflows received. Capital flows and institutional quality may also be determined by an omitted variable. Therefore, we complement our analysis with instrumental variable models.

To do so, we need to find an appropriate instrument, relevant and exogenous. As stressed by Bazzi and Clemens (2013), in order to avoid invalid or weak instruments, one needs to account for well-known published results to show that instrumental variables are based on a sound theoretical framework and to test their validity. As an instrumental variable, we use settler mortality rates from Acemoglu, Johnson and Robinson (2000 and 2001), a broadly used instrument for institutional quality. Acemoglu et al argue that institutions can be determined by European colonization strategy, driven by two factors: the disease environment facing Europeans and the contemporary indigenous population density. European settlers moved to countries with favorable health conditions and established political and economic institutions very similar to European institutions. On the contrary, in areas where Europeans faced high mortality rates, colonizers were more likely to set up extractive institutions. They also note that the local population density is an important factor to determine today´s institutions. The lower the population density, the higher the probability of developing sound institutions. The probability of capturing local population to do hard work is higher in densely populated areas. On the contrary, in areas less populated, settlers had to move there and establish sound institutions. Therefore, mortality rates of European settlers in 1500 are a valid instrument for property rights institutions. Alfaro et al (2008) used as well the log of European settler mortality rates as an instrument for institutions.

Notice that other potential instrumental variables have been excluded. We decide not to use the origin of a country´s legal system because it is found to be a weak instrument. La Porta et al (1997) show that contractual institutions are largely influenced by the origin of a country´s legal system. English legal system countries tend to protect property rights better than countries with a French legal tradition. However, Acemoglu et al argue that is a poor instrument for institutional quality. Bazzi and Clemens criticize that "legal origins" have been used as an instrument for different endogenous variables in the growth literature and conclude that "instrumentation can be valid in at least one of these studies, and at worst none". Similarly, ethnic fragmentation from Easterly and Levine (1997) is a good proxy for political stability but not for institutional quality.

Table 11 reports IV models using only the log of European settler mortality as an instrument for institutional quality. To do so, we use a sub-sample of 25 countries due to the lack of available data for the rest of countries. In panel A, we present the two-stage least squares estimates. As shown in column 1 to 6, an improvement in the institutional quality index has a causal effect on most types of capital flows. Indeed, one standard deviation in institutional quality increases 0.26 standard deviations in gross capital inflows and 0.22 in gross capital outflows, 0.19 in FDI inflows, 0.25 in other investment, 0.35 in FDI outflows and 0.15 in other investment outflows in terms of GDP. Nevertheless, it seems that there is no a causal link between institutions and portfolio flows for this sub-sample since it turns out to be not significant[12].

The first stage results (panel B) show that the settler mortality rate is a significant correlate of institutional quality at the 1% confidence level. Regression diagnostics are shown in panel E. In the first stage regression results, the Kleibergen-Paap underidentification and Wald tests, robust to heteroskedasticity, reject their null hypothesis at 95% level, suggesting that the instrument used is adequate to identify the equation[13]. In addition, applying the Staiger-Stock rule of thumb, the first stage F statistic is larger than 10, implying that our

12. However, we fail to reject the null that institutional can be treated as exogenous for portfolio outflows.

13. What we do is to test the null hypothesis of weak instruments against the alternative that it is strong. Keibergen and Paap proprosed a heteroskedastic-robust statistic, which is the first stage F-statistic, that the instruments are zero.

instrument is not weak and, hence, it is relevant.[14]. Panel C reports the OLS counterpart results using the same sub-sample. The coefficient estimates turn out to be lower but not consistent since we reject the null that institutional quality may be treated as exogenous except in the estimation of other investment outflows used as a dependent variable[15]. Comparing between IV and OLS estimates in the sub-sample used in the endogeneity exercise, we conclude that the qualitative endogeneity bias of OLS estimates is not so important since the sign of IV and OLS models do not change. Even if we assume the existence of a quantitative bias, we observe that the different sensitivity of types of flows to institutional quality does not vary substantially. Indeed, in this sub-sample the IV estimates suggest that FDI outflows are the most sensitive flows to institutional quality. The same result is obtained in the OLS model, given a lower magnitude.

As a robustness check, we estimate the same model of panel A using a limited information maximum likelihood (LIML) method. Recent research suggests LIML performs better in the presence of weak instruments (Hahn, Hausman, and Kuersteiner 2004). Fuller´s LIML estimates using a constant of 1 are reported in Panel D, which is the best unbiased estimator. The estimates are almost equal than in the case of 2sls.

From this endogeneity exercise, we conclude that the qualitative endogeneity bias of IV estimates is not as relevant as expected since the signs of IV and OLS models do not change significantly. Even if we assume the existence of a quantitative bias, we observe that the different sensitivity of different flows is partially maintained when comparing IV and OLS estimates of the sub-sample analyzed. In addition, the main interest of this analysis is to focus on the significance and the sign of the institutional coefficient estimates. Nevertheless, further research on IV would be interesting.

3.2 Changes in institutional quality

3.2.1 EMPIRICAL MODEL

Institutional quality does matter to explain gross capital flows. But, are the different dimensions of governance equally relevant, or are some institutional features more significant for investors? To discriminate among different aspects of institutional quality, we modify our baseline model, introducing the six different indicators that affect governance. To do so, we estimate the following equation:

$$Y_{it} = \beta_0 + \beta_1' Institutions_{it-1} + \beta_2' pullfactors_{it-1} + \beta_3' pushfactors_{it} + \mu_i + \tau_t + \varepsilon_{it} \qquad (2)$$

$$where\ Y_{it} = \{CI_{it}; CO_{it}; Ifdi_{it}; Iportfolio_{it}; Ioinv_{it}; Ofdi_{it}; Oportfolio_{it}; Ooinv_{it}\}$$

And the vector β_1' reports the estimates of the six "backward demeaned" governance indicators of the World Bank (Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption), which capture changes in the different aspects of institutional quality. β_0 is the constant term; $pullfactors_{it}$ and $pushfactors_{it}$ are the vectors that include domestic and global factors, which affect capital flows. The main interest is on the sign of the vector of the coefficients

14. Staiger and Stock (1997) advocate the use of the first stage F statistic to investigate the strength of the instruments as there is a close correspondence between the expected value of the first-stage F-statistic and bias of the IV estimator, relative to the bias of the OLS estimator. These tests deal with weak instruments issues, which happen when the correlations between the endogenous regressors and the excluded instruments are non zero but small.
15. To do so, we run an endogeneity test under the null hypothesis that institutional quality can actually be treated as exogenous.

estimates of β_1' in order to account for the different aspects of institutional quality. We include a country fixed specific effect, μ_i, and a time fixed effect, τ_t, as in the equation of Section 3.1.

3.2.2 MAIN RESULTS

Table 12 presents the outcome decomposed by different dimensions of institutional quality. Government Effectiveness and Regulatory Quality are the institutional variables with the most explanatory power. These two dimensions of governance measure the government´s ability to implement adequate and credible policies. However, the former is oriented to the quality and independence of the public sector whereas the latter focuses on the policies that affect the private sector. Indeed, gross capital inflows (CI) are positively associated with Government Effectiveness and Regulatory Quality for the whole sample and for the sub-sample of high-income countries. However, while Government Effectiveness seems to be a key driver in high-income countries, Regulatory Quality is more relevant in low and middle-income countries. This implies that foreign agents invest more capital in countries with a sound policy and better quality public services, whereas the use of discretionary power might deter capital flows. Nevertheless, in the case of low-income countries, Regulatory Quality seems to be the institutional driver of gross capital inflows, which is also a variable related to the ability of government to implement sound policies but focusing more on private sector enhancement. This result suggests that foreign investors might discriminate in favor of countries with sound market-friendly policies when investing in poorer countries. Behaving cautiously, they will prefer to invest in countries with better bank supervision, few price controls and a perception of low burden of bureaucracy. Moreover, foreign investors will also benefit from the strength of local firms in host countries.

With regards to gross capital outflows (CO), they are positively associated with Government Effectiveness for all countries and high-income countries. A lower burden of bureaucracy and a better quality of public services not only have a positive influence on foreign investors (CI), but also on domestic agents interested in investing abroad (CO). An improvement in indicators related to the political process, civil liberties, political rights and the quality of public service provision positively affects domestic agents investing abroad. It is easily understandable that a better quality of bureaucracy and the respect of civil liberties improve the business environment, and, hence, the investment of domestic agents abroad. Nevertheless, Government Effectiveness has the opposite effect in low and middle-income countries. Domestic investors might decide to retrench capital to invest in their country of residence when the credibility and quality of the public sector improve. In addition, political stability is negatively correlated, which illustrates that an improvement in crime rates or in domestic violence leads to a reduction of capital outflows. Moreover, the coefficient of political stability seems to be driven by low and middle-income country patterns. This can be explained by a shift in the decision-making of investors, who prefer to invest internally instead of abroad when some institutional requirements are met. However, as the economy becomes richer, this effect fades. Control variables have the expected sign and are robust to this new specification.

Finally, capital flows are not affected by Voice and Accountability. Therefore, foreign agents are more interested in specific market friendly policies and in government credibility than in civil rights or the type of government in the countries in which they invest. This accords with the strand of the literature that argues that there is no a clear causal effect between democracy and growth.

3.2.3 DECOMPOSING BY COMPONENTS

To account for the role of institutional quality in explaining the behavior of foreign and domestic agents, we analyze the impact of changes in the six different dimensions of governance on the different types of capital flows. As before, our results are mainly driven by the relevance of Government Effectiveness and Regulatory Quality. While portfolio and FDI inflows are sensitive to changes in Regulatory Quality, Government Effectiveness affects portfolio and foreign direct investment outwards. Table 13 in Appendix provides these results.

What is more interesting, though, is a more detailed analysis of the institutional drivers of FDI for low-income countries (Table 13). For these economies, inward FDI is strongly associated with Government Effectiveness and Regulatory Quality. Daude and Stein (2007) get a similar result: "regulatory quality and governance effectiveness seem to be the most relevant governance dimensions". However, we also find a correlation of FDI with Control of Corruption. Investors will invest more money in states with few corruption and democracy problems. Wei (2000) confirms the negative effect of corruption on FDI, comparing it to an increase in tax rates on multinational firms. Finally, there is no clear evidence among scholars on the correlation between democracy and FDI. While some analysts provide evidence on the positive effect (Wei, 2000), Li and Resnick (2003) conclude that FDI inflows are negatively affected. In our analysis, Voice and Accountability turns out to be not significant. By contrast, outward FDI is only negatively affected by an improvement in Political Stability.

3.3 Summing up

Institutional quality is a significant factor to explain the behavior of both foreign and domestic investors. Table 14 summarizes the main results. As hypothesized, an increase in political institutions attracts more capital flows and improves domestic conditions, in high-income countries, that will enhance the creation of multinationals, more willing to invest abroad. Secondly, the most relevant institutional indicator seems to be Government Effectiveness, which captures the quality of public services and policy formulation and the government´s commitment to such policies, followed by Regulatory Quality. Regulatory Quality only affects gross capital inflows, but it plays a key role in low and middle-income countries, which is consistent with the fact that foreign investors might discriminate in favor of market-oriented governments in poorer economies. We will now focus on our second objective: During periods of financial stress, do markets discriminate among economies according to their institutions?

4 Institutional quality during periods of financial stress

To assess the extent to which markets discriminate among economies according to their institutions, we include a dummy for crisis in our baseline model and interact it with institutional quality. Then we distinguish between global and domestic crises. The former refers to the Russian and Asian crises (1998-1999) and the global financial crisis (2008-2009). Our expanded regression is as follows:

$$Y_{it} = \beta_0 + \beta_1 IQ_{it-1} + \beta_2' pull_{it-1} + \beta_3' push_{it} + \beta_4 crisis + \beta_5 crisis * IQ_{it-1} + \mu_i + \tau_t + \varepsilon_{it} (3)$$

$$where\ Y_{it} = \{CI_{it}; CO_{it}; Ifdi_{it}; Iportfolio_{it}; Ioinv_{it}; Ofdi_{it}; Oportfolio_{it}; Ooinv_{it}\}$$

And crisis stands for a dummy that includes banking, currency, and sovereign debt crises following Laeven and Valencia (2008 and 2012), β_5 reports the estimate of the interaction of institutional quality index with crisis. β_0 is the constant term. Country-specific indicators and global factors are included in the vectors $pullfactors_{it}$ and $pushfactors_{it}$, respectively. We include a country fixed specific effect, μ_i, and a time fixed effect, τ_t, as in the equation of Section 3.1.

Table 15 reports fixed-effect estimates. The signs of institutional quality and the significant control variables do not change significantly. As expected, the dummy crisis has a negative impact on both gross capital inflows and outflows. Moreover, the coefficient of crisis is significant for all countries and for the sub-sample of low and middle-income countries. While there is a generalized contraction in both gross capital inflows and gross capital outflows, the dynamics vary. All else equal, gross capital inflows contract on average more than gross capital outflows during periods of financial crises (Forbes (2012) and Broner et al (2013)). That is, capital inflows by foreigners tend to decline more than capital outflows by domestic agents during periods of stress. However, there is a differential behavior in poorer countries during periods of financial stress. Firstly, the intensity of capital flow contraction is higher than in high-income countries. Secondly, gross capital outflows tend to contract more than gross capital inflows in low and middle-income countries, as shown in Table 15.

Focusing on the sign of β_5, the interaction term between crisis and institutional quality, the results suggest that countries with a better institutional framework are likely to experience lower capital outflows (or a greater retrenchment) than their counterparts during periods of financial stress. This effect is especially relevant in low and middle-income countries. This pattern is explained by the behavior of domestic agents investing abroad. Investors decide to disinvest and to repatriate funds, as Milessi-Ferretti and Tille (2011) stressed when analyzing the global financial crisis. However, our analysis differs mainly in two dimensions. First, whereas their results are based solely on the global financial crisis, we expand this analysis by including currency, debt and banking crises over 1996- 2012. Secondly, our purpose is to analyze the impact of institutional quality on the behavior of gross capital flows during periods of crises. Indeed, we find that the "great retrenchment", a decrease in gross capital outflows, tends to be more relevant in economies with sound and credible political institutions, at least in low and middle-income economies and in the whole sample. This is easily understandable. As investors are very sensitive to uncertainty, they will opt to increase their portfolio home bias, leading to a retrenchment towards domestic assets.

This trend will be more important if their residence is located in states with a better regulatory quality environment and a sound system of protection of property rights and contract enforcement. By contrast, we do not appreciate a differential effect for gross capital inflows. There is no evidence that a better institutional quality mitigates "sudden stops", a sharp decrease in gross capital inflows. Finally, our results are mainly driven by portfolio and other investment outflow patterns. This accords with evidence that shows that other investment flows are the most volatile type of flow, followed by other portfolio. All these results are robust to the inclusion of capital account openness[16].

To dig deeper into the role played by political institutions during periods of shocks, we expand estimation 3, distinguishing between global and domestic crises, the former referring to the Russian and Asian crises (1998-1999) and the GFC (2008-2009). Table 16 shows that the retrenchment of domestic outflows is relevant in both global and domestic crises. However, the estimates suggest that reversal in flows towards domestic assets in countries with good institutional quality is larger during global crises than during domestic crises for the whole sample. The main reason is that even if capital flows behave in a similar way during periods of financial crises, their intensity varies. Domestic investors retrench capital flows more intensively during global shocks than domestic crises. In this context, countries with less vulnerable political institutions benefit from a more intense reversal of capital flows. This accords with Broner et al (2013) who show that "capital flows react more strongly during years of global crises that during years of domestic crises". However, in low and middle-income countries, the intensity of capital retrenchment is higher during domestic crises than global crises. Finally, we estimate the same regression as in equation 3, but taking only into consideration the global financial crisis (GFC). As shown in table 17, we get very similar results. The retrenchment of capital flows is relevant during the GFC. During this specific period of time, the interaction term is also significant for high-income countries, more heavily hit by the financial crisis. However, as its coefficient is much lower than in poorer countries, we can conclude that institutional quality seems to play a more important role for domestic investors in low-income countries during periods of financial crises.

From this analysis, we can draw two conclusions. First, there is a generalized reversal of capital flows during periods of crises, regardless of whether it is a domestic or a global crisis. Indeed, crises seem to affect the relation of gross capital flows and their determinants in the short term since investors seem to behave in a more cautious way, disinvesting their positions abroad. Secondly, political institutions also matter during periods of stress. Specifically, domestic investors in countries with a sound institutional framework tend to retrench more capital, mitigating the negative effects of declining gross capital inflows. Therefore, the real impact on the economy is reduced. This partly accords with Fratzscher's results (2012). He showed that states with "strong macro fundamentals and with good institutions experienced smaller outflows (or more capital inflows) during the crisis than countries with weak fundamentals and high country risk". However, our results do not only focus on GFC but on different types of crises. In addition, institutional quality seems to be more relevant in low and middle-income economies during periods of stress. Finally, there is no evidence that better institutional quality might also mitigate "sudden stops", a sharp decrease in gross capital inflows.

16. These results are provided under request.

These results are relevant for policy-makers. The retrenchment in gross capital outflows can help cushion financial shocks by reducing the need for a large current account adjustment. Indeed, gross capital reversals from domestic investors partially compensates the effects of "sudden stops", the reduction in gross capital inflows, leading to a lower reduction in net capital flows, and, therefore, reducing its negative impact on the real economy and on the financial requirements of countries.

5 Conclusions

This paper analyzes the institutional drivers of capital flows in a panel data of 56 countries over a period of almost twenty years. Our main objective is to answer: How relevant are institutions to explain the pattern of flows? And, in periods of financial stress, do markets discriminate among economies according to their institutions?

Our main contribution is that institutional quality matters in the long-term pattern of flows and helps us to better understand domestic agents´ behavior during periods of financial stress. Indeed, the fixed-effect estimates imply that institutional quality has a positive impact on both gross capital inflows and gross capital outflows. As hypothesized, an improvement in political institutions attracts more capital flows and boosts domestic conditions in high-income countries, which in turn enhance the creation of multinationals, more willing to invest abroad. However, for low and middle-income economies, institutional quality is negative and insignificant for gross capital outflows. When controlling for capital account openness, governance turns out to be significant and negative, which indicates that in poorer economies domestic investors may decide to invest in their own country instead of abroad, restricting capital outflows. But, as the economy becomes richer, policymakers should expect higher capital outflows if governance improves. In addition, using a sub-sample of 25 countries, the IV estimates infer the existence of a causal effect of institutional quality on gross capital flows.

Moreover, the most relevant institutional indicators seem to be Government Effectiveness and Regulatory Quality, which capture the government´s ability to implement sound and credible policies. While the former is oriented to the quality of public services and policy formulation and the government´s commitment to such policies, the latter refers to private sector enhancement policies. Government Effectiveness has a positive impact on both gross capital inflows and outflows. Therefore, a lower burden of bureaucracy and better quality public services not only have a positive influence on foreign investors, but also on domestic agents interested in investing abroad. On the contrary, the use of discretionary power might deter capital flows. Regulatory Quality also plays a key role in explaining gross capital inflows, especially in low and middle-income countries. By contrast, democratic aspects do not seem to play a significant role in explaining foreign agents´ investment decisions. This result suggests that foreign agents are more interested in specific market friendly policies and in government credibility than in civil rights or the type of regime of the countries in which they invest. This is in line with the strand of literature that argues that there is no clear effect between democracy and growth.

Our results are mainly driven by the behavior of FDI and portfolio flows. What is more interesting is the differential impact of institutional quality on FDI depending on the level of income. While governance is a key driver of FDI in low and middle-income countries, it has no impact on high-income countries. The underlying explanation lies in the determinants of FDI. In less developed economies, location factors- access to natural resources, lower labor costs- play an important role. Among these location factors, recent research (Dunning, 2006) highlights the relevance of institutional development. Indeed, we find that inward FDI in low and middle-economies is associated with better Government Effectiveness, Regulatory Quality and Control of Corruption. By contrast, FDI in more developed economies is mainly affected by specific advantages, such as technology advantages and specialized human capital.

Turning to the role of institutional variables during periods of crises, we find that political institutions also matter when explaining the behavior of domestic agents investing abroad. More specifically, countries with a better institutional framework are likely to experience lower capital outflows (or a greater retrenchment) than their counterparts during periods of financial stress, regardless of whether it is a domestic or a global crisis. This pattern is explained by the behavior of domestic investors. As investors are very sensitive to uncertainty, they will opt to increase their portfolio home bias, leading to a "retrenchment" of capital invested abroad towards domestic assets. This trend is more important if their residence is located in states with sound and credible political institutions and a better system of protection of property rights. By contrast, there is no clear evidence that institutional quality plays a differential role during periods of crises to explain gross capital inflow patterns. Therefore, institutional factors incentivize the build-up of external assets in high-income countries, by promoting larger capital outflows, in normal times. But, they also facilitate the repatriation of such assets in periods of crises. The retrenchment of gross capital outflows can counteract the negative effect of declining gross capital inflows, cushioning financial shocks by reducing the need for a large current account adjustment. Therefore, the impact on the real economy and on the financial requirements of countries will be lower.

To attract more gross capital flows or to cushion financial shocks, policymakers can improve institutional quality and, in particular, Government Effectiveness and Regulatory Quality. In order to increase the quality of public service and bureaucracy, governments should focus on strengthening competitive pressures, applying results oriented to budgeting and pursuing innovative practices linked to efficiency. Transparency, openness and increasing the degree of independence of public institutions are key factors to boost people´s trust in government credibility and in its policies. Reducing administrative burdens and integrating better regulation policies aimed at boosting private sector activity should also be taken into consideration. However, additional work is necessary. Specifically, empirical research on the impact of institutional quality on the volatility of capital flows could bring interesting results. In addition, an analysis of a sample selection issue is also a fruitful line of investigation. Finally, another line of research could focus on the relative importance of institutional and economic factors in determining capital flows.

APPENDIX

5.1 Countries analyzed

Table 1

List of countries. Classification by Region and Income (WTI)

High income countries (34) (GNI pc> $11,906)			**Low and middle income countries (22)** ($976<GNI pc< $11,905)			
OECD (27)		**non-OECD (7)**	**Asia** (6)	**Africa** (1)	**Eastern Europe** (7)	**Latin America** (8)
Australia*	Japan	Cyprus	China*	South Africa*	Bulgaria	Argentina*
Austria	Korea*	Estonia	India*		Latvia	Brazil*
Belgium	Luxembourg	Hong Kong*	Indonesia*		Lithuania	Colombia*
Canada*	Netherland	Israel	Thailand*		Turkey	Chile*
Czech Republic	New Zealand*	Malta*	Malaysia*		Poland	Mexico*
Denmark	Norway	Singapore*	Philippines		Romania	Peru*
Finland	Portugal	Slovenia			Russia	Uruguay*
France*	Slovakia					Venezuela*
Germany	Spain					
Greece	Sweden					
Hungary	Switzerland					
Iceland	United Kingdom*					
Ireland	United States*					
Italy						

This table presents the 56 countries of our sample. It is divided into groups according to their income levels as classified by the World Bank of July 2010 In addition, * denotes the countries used in the IV subsample.

5.2 Data Appendix

5.2.1 CAPITAL FLOWS

Capital flows data are taken from the International Financial Statistics of the IMF. The variables used as capital inflows are Direct Investment in the Reporting Economy (line78 bed), Portfolio Investment Liabilities (line 78 bgd), Other Investment Liabilities (line 78 bid). Then we aggregate them to calculate gross capital inflows. Analogously, capital outflows are calculated using Direct Investment Abroad (line78 bfd), Portfolio Investment Assets (line 78 bfd), Other Investment Assets (line 78 bwd). Gross capital outflows are the sum of these three components.

5.2.2 WORLDWIDE GOVERNANCE INDICATORS

Kraufman, Kraay and Mastruzzi (2004) define Worldwide Governance indicators as follows:

1. Voice and Accountability (VA)-"capturing perceptions of the extent to which a country´s citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and a free media".

2. Political Stability and Absence of Violence/Terrorism (PV)-"capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism".

3. Government Effectiveness (GE)-"capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government´s commitment to such policies."

4. Regulatory Quality (RQ)-"capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development."

5. Rule of Law (RL) - "capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence".

6. Control of Corruption (CC) - "capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests".

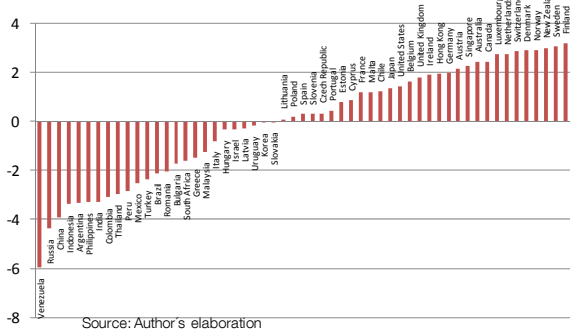
5.2.3 INSTITUTIONAL QUALITY INDEX

Table 2
Principal component regression

	All countries							
Dependent variables	CI	CO	Ifdi	Iportfolio	Ioinv	Ofdi	Oportfolio	Ooinv
Component								
c1	**0.23*****	**0.15****	**0.28*****	**0.20****	-0.01	**0.25*****	**0.11***	0.09
	[0.072]	[0.060]	[0.048]	[0.091]	[0.081]	[0.063]	[0.058]	[0.060]
c2	-0.19**	-0.08	-0.01	-0.18	-0.09	-0.24**	-0.14	-0.00
	[0.084]	[0.083]	[0.133]	[0.117]	[0.112]	[0.115]	[0.089]	[0.079]
c3	-0.10	-0.36**	0.01	-0.22	0.18*	0.06	-0.17	-0.25**
	[0.142]	[0.136]	[0.124]	[0.175]	[0.099]	[0.104]	[0.136]	[0.103]
c4	0.06	-0.27***	-0.06	-0.07	-0.00	-0.08	0.13	-0.28**
	[0.091]	[0.096]	[0.164]	[0.099]	[0.106]	[0.094]	[0.145]	[0.118]
c5	0.29**	0.05	0.35**	-0.16	0.32	-0.06	-0.28	0.22
	[0.122]	[0.147]	[0.152]	[0.164]	[0.191]	[0.157]	[0.189]	[0.140]
c6	0.40*	0.36**	-0.16	0.14	0.28	0.33**	0.69***	-0.07
	[0.225]	[0.161]	[0.185]	[0.210]	[0.202]	[0.154]	[0.143]	[0.141]
Other control variables included								
Observations	2,992	2,996	3,016	3,017	2,993	3,015	3,008	3,005
R-squared from OLS estimates	0.21	0.16	0.12	0.10	0.13	0.13	0.13	0.10

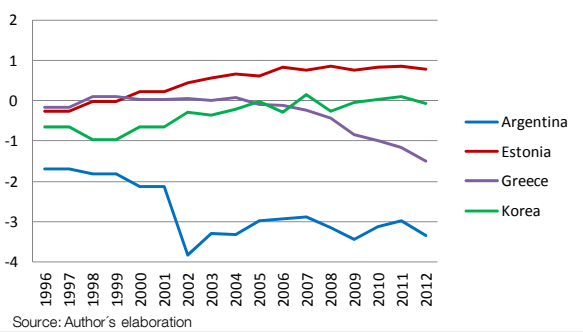
This table presents the results of the principal component regression. The dependent variables are reported for our baseline sample. However, we include the six components, stemmed from a principal component analysis of the six governance indicators, controlling for push factors (GDP growth, spread long term interes, public debt, gross external debt, reserves GDP, credit GDP and squared credit GDP) and push factors (vix variation, world GDP growth and US 10 year Treasury bill rates). The data covers 56 countries over the 1996-2012 period.Discroll-Kraay robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively.

Figure 3: Institutional quality index. 2012



Source: Author´s elaboration

Figure 4: Evolution of Institutional quality index



Source: Author´s elaboration

Table 3

Correlation matrix

	Gdp growth	Spread interes	Public debt GI	External debt GI	Reserves GI	Credit GDP	Credit GDP^2	VIX	World gdp grov	US10yanual	IQ index	VA	PS	GE	RQ	RL	CC
Gdp growth	1																
Spread interest lt	-0.1275	1															
Public debt GDP	-0.2063	0.1258	1														
External debt GDP	-0.0843	-0.0733	-0.0956	1													
Reserves GDP	0.1685	-0.0778	-0.1256	-0.0797	1												
Credit GDP	-0.2278	-0.3269	0.1147	0.2218	0.0003	1											
Credit GDP^2	-0.2222	-0.2242	0.0636	0.187	-0.0329	0.9469	1										
VIX	-0.3454	0.1489	-0.0253	0.0008	0.0023	0.0266	0.0366	1									
World gdp growth	0.5163	-0.0803	-0.0031	-0.0249	-0.027	-0.0741	-0.0792	-0.6572	1								
US10yanual	0.2059	0.0039	-0.1219	-0.0869	-0.1158	-0.2183	-0.2163	-0.298	0.3511	1							
IQ index	-0.2136	-0.4406	0.1336	0.2721	-0.1015	0.6293	0.496	-0.022	0.0053	-0.0423	1						
VA	0.0694	-0.0421	-0.1034	0.0118	-0.0256	-0.1767	-0.1367	-0.0515	0.05	0.0447	0.0951	1					
PS	0.1463	-0.0321	-0.2209	-0.0092	0.0914	-0.2226	-0.1828	0.0157	0.0276	0.0348	0.0049	0.4252	1				
GE	0.2008	-0.1468	-0.2439	-0.1974	0.3327	-0.1389	-0.1519	-0.009	0.0285	0.0305	-0.0374	0.1736	0.2797	1			
RQ	-0.014	-0.4554	-0.1058	-0.0072	0.0111	0.1007	0.0149	0.0057	-0.0002	-0.0112	0.3092	0.2369	0.1692	0.3977	1		
RL	0.0258	-0.3091	-0.1871	0.0489	0.2199	0.1128	0.0974	0.0076	-0.0111	-0.0443	0.3005	0.4605	0.5086	0.4251	0.4782	1	
CC	0.1547	-0.0468	-0.1273	0.007	0.1289	-0.2142	-0.1891	-0.0296	0.0603	0.1117	0.0302	0.3939	0.2852	0.4168	0.2602	0.453	1

This table reports correlation structure for all variables employed in most models analyzed. The data covers 56 countries over 1996-2012. Institutional variables are reported VA (Voice and Accountability), PS (Political Stability); GE (Government Effectiveness), RQ (Regulatory Quality), RL (Rule of Law), CC (Control of Corruption), after the transformation explained in 2.2. IQ index stands for institutional quality index.

5.2.4 CONTROL VARIABLES

Table 4

Control variables and information sources

Variable	Definition	Sources
Pull factors		
GDP growth	Domestic gdp growth	IMF, national accounts
Spread interest rates lt	Spread between each country long term interest rates and US long term interest rates	Datastream
Public debt GDP	Public debt to gdp	IMF, national accounts
External debt GDP	Gross external debt to gdp	Datastream
Current account	Current account to gdp	IMF, national accounts
Reserves GDP	Ratio of total sum of reserves including gold to gdp	IMF
Credit gdp	Private credit to gdp	IMF, national accounts
Credit GDP^2	Squared term of credit to GDP	IMF
Push factors		
VIX	Annual Chicago Board Option Exchange Market volatility index	CBOE
Worlg gdp growth	World gdp growth	IMF, WEO
US 10y annual	US 10-year Treasury Bills interest rate	Bloomberg

Source: Author's elaboration

5.2.5 CRISIS YEARS

Table 5: Crisis years

High income countries	**Years**
Austria	2008-2012
Belgium	2008-2012
Czech Republic	1996
Canada	2008
Denmark	2008, 2009
France	2008-2012
Germany	2008-2012
Greece	2008-2012
Hungary	2008-2012
Iceland	2008-2010
Ireland	2008-2012
Italy	2008-2012
Japan	1997
Korea	1997, 1998, 2008
Luxembourg	2008-2012
Netherlands	2008-2012
Portugal	2008-2012
Slovakia	1998
Slovenia	2008-2011
Spain	2008-2012
Sweden	2008, 2009
Switzerland	2008, 2009
United Kingdom	2007-2009
United states	2007-2011
Low and middle income countries	**Years**
Argentina	2001, 2002, 2007
Brazil	1999, 2002
Bulgaria	1996
China	1998
Colombia	1998
India	2008, 2009
Indonesia	1997, 1998, 1999
Latvia	2008-2012
Malaysia	1997, 1998
Mexico	2008
Philippines	1997, 1998
Poland	2008
Romania	1996
Russia	1998, 2008, 2009
South Africa	2008
Thailand	1997, 1998
Turkey	1996, 2000, 2001
Uruguay	2002, 2003
Venezuela	2002, 2004,2010

Source: Author´s elaboration

Table 6

Descriptive statistics

	All countries			
Variables	mean	median	max	min
CI	6.020421	1.855524	421.2789	-225.357
CO	5.5386	1.151574	411.5301	-242.8225
Iportfolio	1.981412	0.4216403	263.9653	-259.3751
Ifdi	2.181401	0.6521972	357.0399	-14.68249
Ioinv	1.822672	0.5123302	196.8226	-126.1844
Ofdi	1.901671	0.2696054	336.5611	-15.06009
Oportfolio	1.742563	0.287113	243.1358	-240.9393
Ooinv	1.879424	0.3838827	265.7225	-132.9283
Institutional quality index	0.0028539	0.29763	3.502515	-6.050933
Voice and Accountability	0.76934	0.9896075	1.82637	-1.681624
Political Stability	0.3950872	0.6478677	1.668068	-2.39011
Government Effectiveness	0.9477637	0.9934573	2.429651	-1.189068
Regulatory Quality	0.9289314	1.044137	2.247344	-1.608095
Rule of Law	0.7980568	0.9291674	1.99964	-1.68562
Control of Corruption.	0.8477202	0.8569242	2.585616	-1.240667
	High income			
CI	8.817042	2.690819	421.2789	-225.357
CO	8.378463	2.015113	411.5301	-242.8225
Iportfolio	3.02139	0.7951693	263.9653	-259.3751
Ifdi	3.017312	0.6789804	357.0399	-14.68249
Ioinv	2.713497	0.8904093	196.8226	-126.1844
Ofdi	2.928078	0.5241957	336.5611	-15.06009
Oportfolio	2.676353	0.7209999	243.1358	-240.9393
Ooinv	2.772747	0.6192296	265.7225	-132.9283
Institutional quality index	1.448431	1.55197	3.502515	-1.505417
Voice and Accountability	1.177658	1.263639	1.82637	-0.369701
Political Stability	0.8720912	0.9833883	1.668068	-1.623045
Government Effectiveness	1.452968	1.587448	2.429651	0.0586451
Regulatory Quality	1.354531	1.353447	2.247344	0.3053589
Rule of Law	1.357517	1.450227	1.99964	0.1528877
Control of Corruption.	1.437454	1.494094	2.585616	-0.2542657
	Low and middle income			
CI	1.386197	1.206128	14.95719	-9.651725
CO	0.756557	0.5157577	10.98381	-7.217114
Iportfolio	0.2642398	0.1703245	5.767459	-7.310705
Ifdi	0.794494	0.6239136	8.588666	-1.914478
Ioinv	0.3405922	0.2308996	11.45121	-11.22121
Ofdi	0.1977159	0.0815608	4.158336	-4.398902
Oportfolio	0.1839683	0.0509536	4.64746	-2.330623
Ooinv	0.3861864	0.2074898	8.205899	-8.154372
Institutional quality index	-2.352071	-2.462138	1.386763	-6.050933
Voice and Accountability	0.1041667	0.1822989	1.244145	-1.681624
Political Stability	-0.4009237	-0.3612384	1.057762	-2.39011
Government Effectiveness	0.1046927	0.0347307	1.277847	-1.189068
Regulatory Quality	0.2187029	0.2669109	1.644733	-1.608095
Rule of Law	-0.1355547	-0.1596369	1.366822	-1.68562
Control of Corruption.	-0.1364105	-0.236962	1.561873	-1.240667

This table reports descriptive statistics for capital flows and institutional indicators employed. It covers 56 countries over 1996-2012. Capital flows are normalized by the reporting country's gdp. Results for all the sample, as well as separately by income are reported. The Data Appendix provides variable definitions and sources.

5.3 Panel data estimates

5.3.1 DETERMINANTS OF CAPITAL FLOWS. INSTITUTIONAL QUALITY INDEX

Table 7

Panel data estimates. Gross capital flows

	All countries		High income		Low and Middle Income	
Dependent variables	CI	CO	CI	CO	CI	CO
INSTITUTIONAL VARIABLES						
Institutional quality index	**0.187****	0.063	**0.228****	**0.462*****	**0.289*****	-0.081
	[0.079]	[0.063]	[0.114]	[0.112]	[0.090]	[0.073]
CONTROL VARIABLES						
PULL FACTORS						
Gdp growth	0.031***	0.006	0.026**	0.008	0.025**	0.004
	[0.009]	[0.008]	[0.012]	[0.011]	[0.011]	[0.009]
Spread interest lt	0.005	0.018**	-0.033	0.013	0.015**	0.014*
	[0.007]	[0.008]	[0.035]	[0.037]	[0.007]	[0.007]
Public debt GDP	-0.007***	-0.003	-0.004	-0.000	-0.002	0.003
	[0.003]	[0.002]	[0.004]	[0.004]	[0.003]	[0.002]
External debt GDP	-0.000	-0.001	-0.000	-0.000	-0.011***	-0.007**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.003]	[0.003]
Reserves GDP	-0.000	0.001	0.001	-0.000	-0.010*	0.005
	[0.002]	[0.003]	[0.004]	[0.003]	[0.006]	[0.011]
Credit GDP	0.004	0.001	0.009	0.003	0.015**	0.013
	[0.005]	[0.004]	[0.007]	[0.006]	[0.007]	[0.008]
Credit GDP^2	-0.000**	-0.000**	-0.000*	-0.000	-0.000**	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
PUSH FACTORS						
VIX	-0.047***	-0.036***	-0.041***	-0.040***	-0.053***	-0.029***
	[0.008]	[0.008]	[0.010]	[0.010]	[0.011]	[0.009]
World gdp growth	0.093	0.073	0.082	0.102*	0.117	0.026
	[0.065]	[0.061]	[0.067]	[0.057]	[0.073]	[0.075]
US10yannual	-0.212***	-0.153*	-0.200*	-0.185*	-0.208**	-0.099
	[0.075]	[0.081]	[0.102]	[0.097]	[0.101]	[0.101]
Observations	2,720	2,729	1,547	1,552	1,173	1,177
R-squared from OLS estimates	0.22	0.17	0.25	0.27	0.26	0.09
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variables are capital Inflows by foreign agents (CI) and capital outflows by domestic agents (CO), normalized by country´s GDP and then standardized by de-meaning and dividing by the standard deviation at the country level. All the regressions include country fixed effects and year and quarter dummies. The results are reported for all the sample, as well as separately by income.The data covers 56 countries over the 1996-2012 period. Discroll-Kraay robust standard errors are reported in parantheses.*** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively.

Table 8

Robustness check. Financial openness index. Gross capital flows

	All countries		High income		Low and Middle Income	
Dependent variables	CI	CO	CI	CO	CI	CO
INSTITUTIONAL VARIABLES						
Institutional quality index	**0.186****	0.015	**0.253****	**0.472*****	**0.273****	**-0.149****
	[0.083]	[0.066]	[0.108]	[0.121]	[0.103]	[0.066]
CONTROL VARIABLES						
PULL FACTORS						
Gdp growth	0.031***	0.005	0.027**	0.009	0.025**	0.005
	[0.009]	[0.008]	[0.011]	[0.009]	[0.011]	[0.009]
Spread interest lt	0.004	0.017**	-0.032	0.015	0.015**	0.014**
	[0.006]	[0.007]	[0.031]	[0.033]	[0.007]	[0.007]
Public debt GDP	-0.005*	-0.001	0.000	0.003	-0.002	0.004
	[0.003]	[0.002]	[0.004]	[0.004]	[0.003]	[0.002]
External debt GDP	-0.003***	-0.003***	-0.003***	-0.002***	-0.011***	-0.008**
	[0.001]	[0.001]	[0.001]	[0.001]	[0.003]	[0.003]
Reserves GDP	0.001	0.003	0.007*	0.006*	-0.010*	0.005
	[0.002]	[0.004]	[0.004]	[0.004]	[0.006]	[0.011]
Credit GDP	0.007	0.003	0.018***	0.012*	0.015*	0.012
	[0.005]	[0.004]	[0.007]	[0.006]	[0.008]	[0.009]
Credit GDP^2	-0.000**	-0.000**	-0.000***	-0.000**	-0.000*	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Capital account openness index	0.011	0.066**	0.149**	0.184**	0.017	0.074
	[0.043]	[0.032]	[0.063]	[0.072]	[0.052]	[0.046]
PUSH FACTORS						
VIX	-0.046***	-0.034***	-0.040***	-0.038***	-0.053***	-0.030***
	[0.008]	[0.008]	[0.010]	[0.010]	[0.011]	[0.009]
World gdp growth	0.093	0.072	0.081	0.100*	0.117	0.027
	[0.066]	[0.062]	[0.068]	[0.057]	[0.073]	[0.074]
US10yannual	-0.208***	-0.145*	-0.193*	-0.172*	-0.209**	-0.100
	[0.077]	[0.083]	[0.105]	[0.100]	[0.101]	[0.101]
Observations	2,677	2,686	1,504	1,509	1,173	1,177
R-squared	0.23	0.17	0.26	0.28	0.26	0.09
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variables are capital Inflows by foreign agents (CI) and capital outflows by domestic agents (CO), normalized by country´s GDP and then standardized by de-meaning and dividing by the standard deviation at the country level. All the regressions include country fixed effects and year dummies. We control for a new variables: capital account openness index (Chinn-Ito Financial Index).The results are reported for all the sample, as well as separately by income.The annual data covers 56 countries over 1996-2012. Discroll-Kraay robust standard errors are reported in parantheses. *** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively

Table 9

Robustness check. Annual data. Gross capital flows

	All countries		High income		Low and Middle Income	
Dependent variables	CI	CO	CI	CO	CI	CO
INSTITUTIONAL VARIABLES						
Institutional quality index	**0.50****	**0.52***	**0.70***	**1.01****	0.70	0.08
	[0.219]	[0.283]	[0.390]	[0.361]	[0.419]	[0.485]
CONTROL VARIABLES						
PULL FACTORS						
Gdp growth	0.03*	-0.00	0.04**	0.03	0.02	-0.02
	[0.018]	[0.021]	[0.019]	[0.021]	[0.025]	[0.022]
Spread interest lt	0.00	0.02	-0.08	-0.02	0.02	0.02
	[0.015]	[0.016]	[0.078]	[0.075]	[0.014]	[0.019]
Public debt GDP	-0.01**	-0.01	-0.00	0.00	-0.01*	-0.00
	[0.004]	[0.003]	[0.005]	[0.007]	[0.004]	[0.004]
External debt GDP	-0.00	-0.00	-0.00	-0.00	-0.01	-0.01**
	[0.001]	[0.001]	[0.001]	[0.001]	[0.007]	[0.005]
Reserves GDP	0.00	0.01	0.01***	0.01***	-0.03**	-0.00
	[0.004]	[0.006]	[0.005]	[0.004]	[0.015]	[0.014]
Credit GDP	0.00	-0.00	0.02	0.01	0.01	0.00
	[0.009]	[0.006]	[0.013]	[0.011]	[0.018]	[0.016]
Credit GDP^2	-0.00	-0.00	-0.00**	-0.00*	-0.00	-0.00
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
PUSH FACTORS						
VIX	0.01	0.01	-0.10***	-0.07**	0.05*	0.03
	[0.014]	[0.013]	[0.032]	[0.029]	[0.026]	[0.024]
World gdp growth	0.07	0.10**	-0.23*	-0.12	0.13**	0.01
	[0.042]	[0.039]	[0.118]	[0.105]	[0.053]	[0.041]
US10yannual	0.05**	0.05**	0.23***	0.17***	0.08*	-0.13***
	[0.020]	[0.022]	[0.057]	[0.059]	[0.042]	[0.039]
Observations	642	645	363	365	279	280
R-squared	0.34	0.32	0.42	0.45	0.42	0.24
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variables are capital Inflows by foreign agents (CI) and capital outflows by domestic agents (CO), normalized by country´s GDP and then standardized by de-meaning and dividing by the standard deviation at the country level. All the regressions include country fixed effects and year and quarter dummies. The results are reported for all the sample, as well as separately by income.The data covers 56 countries over the 1996-2012 period. Discroll-Kraay robust standard errors are given in parantheses.*** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively.

5.3.3 DETERMINANTS OF CAPITAL FLOWS. DECOMPOSING BY COMPONENTS.

Table 10

Panel data estimates. Capital flows by components.

				ALL COUNTRIES		
Dependent variables	lfdi	lportfolio	loinv	Ofdi	Oportfolio	Ooinv
Institutional quality index	**0.289*** **	0.069	-0.006	**0.127** **	0.089	0.045
	[0.044]	[0.076]	[0.078]	[0.055]	[0.060]	[0.066]
Gdp growth	0.029***	0.007	0.025***	0.002	-0.007	0.012
	[0.009]	[0.005]	[0.009]	[0.009]	[0.007]	[0.008]
Spread interest lt	0.007	-0.017***	0.021***	-0.015**	-0.011	0.025***
	[0.006]	[0.006]	[0.008]	[0.007]	[0.008]	[0.008]
Public debt GDP	-0.002	-0.004**	-0.006***	0.002	0.002	-0.005**
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
External debt GDP	0.000	0.000	-0.001***	-0.000	-0.000*	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Reserves GDP	0.010**	-0.014**	0.001	0.012***	-0.003	-0.002
	[0.004]	[0.006]	[0.002]	[0.003]	[0.004]	[0.004]
Credit GDP	0.002	0.007**	-0.001	-0.004	0.001	0.001
	[0.004]	[0.004]	[0.004]	[0.004]	[0.003]	[0.003]
Credit GDP^2	0.000	-0.000***	-0.000	-0.000	-0.000**	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
VIX	-0.015***	-0.046***	-0.025**	-0.004	-0.038***	-0.024***
	[0.003]	[0.009]	[0.010]	[0.007]	[0.007]	[0.007]
World gdp growth	-0.015	-0.040	0.140***	0.047	-0.076	0.094**
	[0.039]	[0.067]	[0.050]	[0.058]	[0.056]	[0.046]
US10yannual	-0.095*	-0.125	-0.150*	-0.029	-0.075	-0.145**
	[0.052]	[0.087]	[0.088]	[0.083]	[0.064]	[0.070]
Observations	2,744	2,745	2,721	2,745	2,741	2,733
R-squared	0.10	0.14	0.14	0.12	0.12	0.11
				HIGH INCOME		
Institutional quality index	-0.209	**0.365***	0.095	**0.323** **	**0.432*** **	**0.283** **
	[0.132]	[0.196]	[0.170]	[0.135]	[0.125]	[0.139]
Gdp growth	0.020*	0.009	0.024	0.005	-0.006	0.018
	[0.010]	[0.012]	[0.015]	[0.012]	[0.012]	[0.012]
Spread interest lt	0.007	-0.030	0.017	-0.034*	0.034	-0.023
	[0.025]	[0.031]	[0.039]	[0.017]	[0.040]	[0.023]
Public debt GDP	0.002	-0.012***	0.000	0.011***	0.002	-0.004
	[0.004]	[0.003]	[0.003]	[0.004]	[0.004]	[0.003]
External debt GDP	0.000	0.000	-0.001***	-0.000	-0.000	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Reserves GDP	0.001	-0.010*	0.003	0.004	-0.009	0.000
	[0.003]	[0.005]	[0.003]	[0.004]	[0.005]	[0.004]
Credit GDP	-0.006	0.021***	0.000	-0.011	0.002	0.008
	[0.007]	[0.006]	[0.006]	[0.007]	[0.005]	[0.005]
Credit GDP^2	0.000	-0.000***	0.000	0.000	-0.000	-0.000*
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
VIX	-0.003	-0.055***	-0.013	0.000	-0.058***	-0.025***
	[0.006]	[0.009]	[0.011]	[0.009]	[0.008]	[0.009]
World gdp growth	0.018	-0.122	0.160***	0.008	-0.119*	0.164***
	[0.045]	[0.074]	[0.060]	[0.061]	[0.069]	[0.051]
US10yannual	-0.051	-0.184**	-0.097	0.040	-0.174**	-0.176*
	[0.097]	[0.086]	[0.101]	[0.110]	[0.067]	[0.089]
Observations	1,551	1,552	1,548	1,552	1,552	1,552
R-squared	0.10	0.17	0.16	0.14	0.21	0.19
				LOW AND MIDDLE INCOME		
Institutional quality index	**0.534*** **	0.001	0.084	-0.015	-0.047	-0.030
	[0.053]	[0.073]	[0.081]	[0.083]	[0.083]	[0.073]
Gdp growth	0.026**	-0.002	0.024***	0.001	-0.006	0.007
	[0.011]	[0.007]	[0.008]	[0.009]	[0.008]	[0.008]
Spread interest lt	0.022***	-0.034***	0.036***	-0.012*	-0.027***	0.025***
	[0.007]	[0.006]	[0.009]	[0.007]	[0.006]	[0.007]
Public debt GDP	-0.009***	0.004	-0.002	-0.003	0.004	0.002
	[0.003]	[0.003]	[0.003]	[0.002]	[0.004]	[0.002]
External debt GDP	0.003	0.005	-0.016***	0.005**	0.007*	-0.011***
	[0.003]	[0.004]	[0.003]	[0.003]	[0.004]	[0.003]
Reserves GDP	0.015**	-0.018**	-0.012**	0.030***	0.007	-0.005
	[0.007]	[0.008]	[0.005]	[0.008]	[0.008]	[0.010]
Credit GDP	-0.011**	0.004	0.020**	0.001	0.008	0.010
	[0.005]	[0.006]	[0.008]	[0.006]	[0.008]	[0.007]
Credit GDP^2	0.000**	-0.000*	-0.000*	-0.000	-0.000**	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
VIX	-0.029***	-0.033***	-0.039***	-0.011	-0.012*	-0.023***
	[0.007]	[0.011]	[0.013]	[0.007]	[0.007]	[0.007]
World gdp growth	-0.032	0.067	0.118*	0.103	-0.026	-0.011
	[0.062]	[0.061]	[0.064]	[0.062]	[0.043]	[0.054]
US10yannual	-0.147*	-0.046	-0.195	-0.130	0.069	-0.099
	[0.076]	[0.127]	[0.124]	[0.084]	[0.087]	[0.096]
Observations	1,193	1,193	1,173	1,193	1,189	1,181
R-squared	0.19	0.20	0.18	0.15	0.07	0.06
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variables are Capital Inflows by foreign agents decomposed by instruments: foreign direct inflows (lfdi), portfolio inflows (lportfolio) and other investment (loinv) and capital outflows by domestic agents, decomposed by instruments: foreign investment (Ofdi), portfolio (Oportfolio) and other investment (Oinv). These variables are normalized by country's GDP and then standardized by de-meaning and by dividing by the standard deviation at the country level. All the regressions include country fixed effects and year and quarter dummies. Discroll-Kraay robust standard erros in parentheses.

*** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively.

5.3.4 DETERMINANTS OF CAPITAL FLOWS. IV ESTIMATES

Table 11:
IV estimates

	All countries											
Dependent variables	CI		CO		Ifdi		Ioinv		Ofdi		Ooinv	
Panel A: second stage results	(1)		(2)		(3)		(4)		(5)		(6)	
Institutional quality index	**0.256*** **	[0.062]	**0.224*** **	[0.079]	**0.192*** **	[0.060]	**0.247*** **	[0.053]	**0.351*** **	[0.078]	**0.147***	[0.076]
Gdp growth	-0.002	[0.008]	-0.003	[0.010]	0.015	[0.012]	0.002	[0.008]	-0.018	[0.012]	0.011	[0.011]
Spread interest lt	0.051**	[0.022]	0.047***	[0.017]	0.049**	[0.023]	0.048**	[0.019]	0.005	[0.018]	0.059***	[0.017]
Public debt GDP	-0.007*	[0.004]	0.008**	[0.004]	-0.008*	[0.005]	-0.004	[0.003]	0.009***	[0.003]	0.002	[0.003]
External debt GDP	-0.002**	[0.001]	-0.003**	[0.001]	-0.001	[0.001]	-0.003***	[0.001]	-0.001	[0.002]	-0.002**	[0.001]
Reserves GDP	0.008	[0.005]	0.001	[0.004]	0.007	[0.005]	0.007*	[0.004]	0.002	[0.005]	0.004	[0.004]
Credit GDP	-0.000	[0.007]	0.004	[0.008]	-0.016**	[0.007]	0.004	[0.006]	-0.024***	[0.007]	0.010	[0.008]
Credit GDP^2	0.000	[0.000]	-0.000	[0.000]	0.000**	[0.000]	-0.000	[0.000]	0.000**	[0.000]	-0.000	[0.000]
VIX	-0.056***	[0.009]	-0.035***	[0.009]	-0.009**	[0.004]	-0.040***	[0.011]	0.003	[0.008]	-0.021***	[0.006]
World gdp growth	0.192**	[0.075]	0.146**	[0.061]	0.067	[0.046]	0.147***	[0.057]	0.135**	[0.055]	0.105***	[0.037]
US10yannual	-0.241**	[0.119]	-0.084	[0.122]	0.016	[0.058]	-0.215*	[0.126]	-0.003	[0.096]	-0.071	[0.091]
Panel B: first stage results												
Log European settler mortality	-1.293***	[0.064]	-1.199***	[0.061]	-1.171***	[0.065]	-1.239 ***	[0.064]	-1.172 ***	[0.065]	-1.199 ***	[0.061]
Panel C: OLS Estimates												
Institutional quality index	0.03	[0.048]	0.05	[0.057]	0.09*	[0.047]	0.12***	[0.041]	0.15***	[0.042]	0.09*	[0.057]
Panel D: LIML estimates on Institutional quality index												
Fuller LIML (k=1)	0.255***	[0.062]	0.223***	[0.078]	0.192***	[0.060]	0.247***	[0.053]	0.351***	[0.078]	0.147*	[0.076]
Panel E: Diagnostics												
F test excluded restrictions	370.68		383.21		327.78		370.5		327.68		383.05	
Kleibergen-Paap LM test (p-value)	0.0002		0.0002		0.0002		0.0002		0.0002		0.0002	
Endogeneity test (p-value)	0.0015		0.007		0.0239		0.007		0.0126		0.1841	
Observations	1,183		1,188		1,203		1,184		1,204		1,192	
R-squared (IV estimates)	0.25		0.18		0.13		0.17		0.15		0.13	

Panel A reports second stage results of two stage least squares estimates, using as an IV the log settler mortality for institutional quality. Panel B and C report the first stage and the OLS estimates, respectively. In Panel D, we estimate the effect of institutional quality on capital flows, using Fuller's limited information maximum likelihood method. Regression diagnostics are shown in Panel E. All regressions include a constant and the same control variables than in Panel A, even if not reported. The dependent variables are Gross capital inflows (CI), gross capital outflows (CO), fdi inflows, other investment inflows, fdi outflows and other investment outflows, standardized by countries. Robust to hereroskedasticity , aurocorrelation and cross-sectional correlation standard errors in brackets denoting *** p<0.01, ** p<0.05, * p<0.1 significance

Table 12

Panel data estimates decomposing by institutional features. Gross capital flows

	All countries		High income		Low and Middle income	
Dependent variables	CI	CO	CI	CO	CI	CO
INSTITUTIONAL VARIABLE						
Voice and Accountability	0.19	0.30	0.19	0.14	0.26	0.32
	[0.260]	[0.204]	[0.398]	[0.284]	[0.322]	[0.262]
Political Stability	-0.19*	**-0.24****	**-0.48*****	**-0.35****	0.06	-0.06
	[0.084]	[0.098]	[0.165]	[0.168]	[0.116]	[0.143]
Government Effectiveness	**0.39****	**0.36*****	**0.47****	**0.66*****	-0.12	**-0.58****
	[0.150]	[0.120]	[0.224]	[0.196]	[0.278]	[0.279]
Regulatory Quality	**0.47*****	-0.11	**0.46***	0.31	**0.72****	-0.18
	[0.151]	[0.155]	[0.254]	[0.211]	[0.289]	[0.256]
Rule of Law	-0.31	-0.05	-0.53	0.05	-0.40	-0.39
	[0.262]	[0.287]	[0.490]	[0.542]	[0.300]	[0.273]
Control of Corruption	0.09	0.00	0.16	0.13	0.01	-0.08
	[0.148]	[0.109]	[0.234]	[0.145]	[0.231]	[0.195]
CONTROL VARIABLES						
PULL FACTORS						
Gdp growth	0.03***	0.01	0.03**	0.01	0.03**	0.01
	[0.010]	[0.009]	[0.012]	[0.011]	[0.012]	[0.009]
Spread interest lt	0.01	0.02**	-0.04	-0.00	0.02**	0.01**
	[0.006]	[0.008]	[0.035]	[0.037]	[0.007]	[0.007]
Public debt GDP	-0.01***	-0.00*	-0.00	-0.00	-0.00	0.00
	[0.003]	[0.002]	[0.003]	[0.004]	[0.003]	[0.003]
External debt GDP	-0.00	-0.00	-0.00	-0.00	-0.01***	-0.01***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.004]	[0.004]
Reserves GDP	0.00	0.00	0.00	0.00	-0.01**	0.01
	[0.003]	[0.004]	[0.003]	[0.003]	[0.006]	[0.013]
Credit GDP	0.00	0.00	0.01	-0.00	0.02***	0.02**
	[0.005]	[0.004]	[0.005]	[0.005]	[0.008]	[0.008]
Credit GDP^2	-0.00**	-0.00**	-0.00*	-0.00	-0.00**	-0.00**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
PUSH FACTORS						
VIX	-0.05***	-0.04***	-0.04***	-0.04***	-0.05***	-0.03***
	[0.009]	[0.008]	[0.010]	[0.009]	[0.011]	[0.009]
World gdp growth	0.09	0.07	0.09	0.11*	0.12	0.03
	[0.065]	[0.062]	[0.066]	[0.055]	[0.074]	[0.076]
US 10 years	-0.22***	-0.15*	-0.21**	-0.19*	-0.23**	-0.12
	[0.075]	[0.080]	[0.102]	[0.096]	[0.098]	[0.103]
Observations	2,617	2,626	1,499	1,504	1,118	1,122
R-squared(from OLS estimates)	0.23	0.17	0.26	0.27	0.27	0.11
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variables are capital Inflows by foreign agents (CI) and capital outflows by domestic agents (CO), normalized by country´s GDP and then standardized by de-meaning and dividing by the standard deviation at the country level. All the regressions include country fixed effects and year dummies. The results are reported for all the sample, as well as separately by income.The data covers 56 countries over the 1996-2012 period. Discroll-Kraay robust standard errors are given in brackets.

*** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10%.

5.3.6 CHANGES IN INSTITUTIONAL QUALITY. DECOMPOSING BY COMPONENTS.

Table 13

Panel data estimates decomposing by institutional features. Capital flows by components

				ALL COUNTRIES		
Dependent variables	lfdi	lportfolio	loinv	Ofdi	Oport	Ooinv
Voice and Accountability	0.21	-0.34	0.13	0.10	0.26	0.16
	[0.228]	[0.244]	[0.193]	[0.202]	[0.234]	[0.184]
Political Stability	-0.09	-0.17	0.00	-0.10	-0.25	-0.08
	[0.113]	[0.130]	[0.089]	[0.129]	[0.165]	[0.091]
Government Effectiveness	0.14	-0.06	0.25	**0.53****	**0.84*****	-0.23
	[0.194]	[0.257]	[0.190]	[0.209]	[0.172]	[0.167]
Regulatory Quality	**0.53****	**0.49****	-0.01	-0.05	0.26	-0.01
	[0.205]	[0.221]	[0.209]	[0.211]	[0.223]	[0.130]
Rule of Law	-0.34	0.15	-0.09	-0.27	**-0.62****	0.28
	[0.299]	[0.233]	[0.229]	[0.295]	[0.251]	[0.239]
Control of Corruption	0.34	0.14	-0.21	0.07	**-0.40****	0.23
	[0.247]	[0.180]	[0.162]	[0.162]	[0.177]	[0.139]
Other control variables included						
Observations	2,641	2,642	2,618	2,642	2,638	2,630
R-squared from OLS estimates	0.10	0.14	0.14	0.12	0.13	0.12
				HIGH INCOME		
Voice and Accountability	0.35	-0.60	0.48	0.42	0.15	0.15
	[0.439]	[0.400]	[0.422]	[0.394]	[0.486]	[0.257]
Political Stability	-0.23	**-0.37****	-0.28	**0.31***	-0.35	**-0.28***
	[0.243]	[0.178]	[0.208]	[0.180]	[0.218]	[0.159]
Government Effectiveness	-0.49	0.08	0.42	0.21	**1.23*****	0.02
	[0.291]	[0.322]	[0.283]	[0.291]	[0.307]	[0.198]
Regulatory Quality	0.17	**1.01*****	-0.21	-0.04	**0.69***	-0.01
	[0.393]	[0.312]	[0.358]	[0.392]	[0.414]	[0.250]
Rule of Law	-0.72	0.13	0.23	-0.79	**-0.89***	0.64
	[0.612]	[0.433]	[0.468]	[0.611]	[0.446]	[0.391]
Control of Corruption	0.27	0.18	-0.16	0.40	-0.13	**0.33****
	[0.365]	[0.293]	[0.186]	[0.255]	[0.175]	[0.161]
Other control variables included						
Observations	1,503	1,504	1,500	1,504	1,504	1,504
R-squared from OLS estimates	0.10	0.17	0.17	0.15	0.23	0.20
				LOW AND MIDDLE INCOME		
Voice and Accountability	0.36	-0.16	-0.05	0.17	0.19	0.11
	[0.246]	[0.324]	[0.208]	[0.280]	[0.349]	[0.263]
Political Stability	-0.08	0.02	**0.31*****	**-0.38*****	-0.06	0.14
	[0.138]	[0.161]	[0.090]	[0.124]	[0.207]	[0.132]
Government Effectiveness	**0.70****	-0.10	**-0.61****	0.43	-0.25	**-0.70****
	[0.275]	[0.385]	[0.294]	[0.288]	[0.287]	[0.325]
Regulatory Quality	**0.70****	0.16	**0.60*****	0.06	0.27	0.08
	[0.290]	[0.277]	[0.207]	[0.261]	[0.396]	[0.273]
Rule of Law	-0.18	-0.01	**-0.54****	-0.21	**-0.79***	-0.16
	[0.380]	[0.295]	[0.233]	[0.345]	[0.398]	[0.350]
Control of Corruption	**0.60***	-0.09	-0.15	-0.19	-0.48	0.03
	[0.349]	[0.210]	[0.259]	[0.241]	[0.325]	[0.252]
Other control variables included						
Observations	1,188	1,188	1,168	1,188	1,184	1,176
R-squared from OLS estimates	0.19	0.20	0.20	0.16	0.08	0.07

The dependent variables are Capital Inflows by foreign agents decomposed by instruments: foreign direct inflows (lfdi), portfolio inflows (lportfolio) and other investment (loinv) and capital outflows by domestic agents, decomposed by instruments: foreign investment (Ofdi), portfolio (Oportfolio) and other investment (Oinv). These variables are normalized by country's GDP and then standardized by de-meaning and by dividing by the standard deviation at the country level. All the regressions include country and year dummies and the control variables included in Table 7 (GDP growth, spread long term interest, public debt, gross external debt, reserves GDP, credit GDP, credit GDP^2, vix variation, world GDP growth and US 10 year Treasury bill rates). The results are absolute values of heretoreskedasticity, autocorrelation and cross-sectional correlatio adjusted standard errors. *** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively

5.3.7 SUMMING UP

Table 14

Panel data estimates. Summarizing the main results.

	ALL COUNTRIES							
Dependent variables	CI	Ifdi	Iportfolio	Ioinv	CO	Ofdi	Oport	Ooinv
Institutional quality index	**0.187****	**0.289*****	0.069	-0.006	0.063	**0.127****	0.089	0.045
Other control variables included	[0.079]	[0.044]	[0.076]	[0.078]	[0.063]	[0.055]	[0.060]	[0.066]
Voice and Accountability	0.19	0.21	-0.34	0.13	0.30	0.10	0.26	0.16
	[0.260]	[0.228]	[0.244]	[0.193]	[0.204]	[0.202]	[0.234]	[0.184]
Political Stability	-0.19*	-0.09	-0.17	0.00	**-0.24****	-0.10	-0.25	-0.08
	[0.084]	[0.113]	[0.130]	[0.089]	[0.098]	[0.129]	[0.165]	[0.091]
Government Effectiveness	**0.39****	0.14	-0.06	0.25	**0.36*****	**0.53****	**0.84*****	-0.23
	[0.150]	[0.194]	[0.257]	[0.190]	[0.120]	[0.209]	[0.172]	[0.167]
Regulatory Quality	**0.47*****	**0.53****	**0.49****	-0.01	-0.11	-0.05	0.26	-0.01
	[0.151]	[0.205]	[0.221]	[0.209]	[0.155]	[0.211]	[0.223]	[0.130]
Rule of Law	-0.31	-0.34	0.15	-0.09	-0.05	-0.27	**-0.62****	0.28
	[0.262]	[0.299]	[0.233]	[0.229]	[0.287]	[0.295]	[0.251]	[0.239]
Control of Corruption	0.09	0.34	0.14	-0.21	0.00	0.07	**-0.40****	0.23
	[0.148]	[0.247]	[0.180]	[0.162]	[0.109]	[0.162]	[0.177]	[0.139]
Other control variables included								

This table summarizes the results of table 7, 10 and 13. We present our estimates using the institutional quality index, and then decomposed by institutional factors. The dependent variables are Capital Inflows by foreign agents (CI) decomposed by instruments: foreign direct inflows (Ifdi), portfolio inflows (Iportfolio) and other investment (Ioinv) and capital outflows by domestic agents (CO), decomposed by instruments: foreign investment (Ofdi), portfolio (Oportfolio) and other investment (Oinv). These variables are normalized by country's GDP and then standardized by de-meaning and by dividing by the standard deviation at the country level. All the regressions include country and year and quarterly dummies and the control variables included in Table 7 and 13. (GDP growth, spread long term interest, public debt, gross external debt, reserves GDP, credit GDP, credit GDP^2, vix variation, world GDP growth and US 10 year Treasury bill rates). The results are absolute values of heretoreskedasticity, autocorrelation and cross-sectional correlation adjusted standard errors.

*** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively

Table 15

Panel data estimates. Institutional quality during crises

	All countries		**High income**		**Low and middle income**	
Dependent variables	CI	CO	CI	CO	CI	CO
Institutional quality index	0.170*	0.066	0.152	0.392***	0.294***	-0.048
	[0.086]	[0.063]	[0.121]	[0.129]	[0.093]	[0.078]
Crisis	**-0.281****	**-0.212*****	-0.253	-0.214	**-0.480***	**-0.576****
	[0.109]	[0.079]	[0.166]	[0.194]	[0.286]	[0.266]
Crisis*Institutional quality	-0.040	**-0.120*****	0.027	-0.015	-0.112	**-0.247*****
	[0.032]	[0.031]	[0.068]	[0.077]	[0.073]	[0.093]
CONTROL VARIABLES						
PULL FACTORS						
Gdp growth	0.028***	0.005	0.025**	0.007	0.021**	0.003
	[0.009]	[0.008]	[0.013]	[0.011]	[0.010]	[0.008]
Spread interest lt	0.004	0.016**	-0.030	0.015	0.015**	0.013*
	[0.006]	[0.007]	[0.036]	[0.035]	[0.007]	[0.007]
Public debt GDP	-0.006**	-0.002	-0.003	0.000	-0.001	0.004
	[0.002]	[0.002]	[0.004]	[0.004]	[0.003]	[0.002]
External debt GDP	-0.000	-0.000	-0.000	-0.000	-0.011***	-0.007**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.003]	[0.003]
Reserves GDP	-0.001	-0.000	0.001	-0.000	-0.010*	0.003
	[0.002]	[0.003]	[0.004]	[0.003]	[0.006]	[0.009]
Credit GDP	0.005	0.001	0.009	0.002	0.016**	0.014*
	[0.005]	[0.003]	[0.007]	[0.006]	[0.007]	[0.008]
Credit GDP^2	-0.000**	-0.000**	-0.000*	-0.000	-0.000*	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
PUSH FACTORS						
VIX	-0.047***	-0.036***	-0.041***	-0.040***	-0.053***	-0.029***
	[0.008]	[0.008]	[0.010]	[0.010]	[0.011]	[0.008]
World gdp growth	0.094	0.073	0.083	0.103*	0.118	0.024
	[0.065]	[0.061]	[0.067]	[0.057]	[0.073]	[0.074]
US10yannual	-0.213***	-0.153*	-0.200*	-0.185*	-0.207**	-0.095
	[0.076]	[0.082]	[0.102]	[0.098]	[0.102]	[0.100]
Observations	2,720	2,729	1,547	1,552	1,173	1,177
R-squared	0.22	0.17	0.25	0.27	0.27	0.11
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variables are capital inflows by foreign agents (CI) and capital outflows by domestic agents (CO), normalized by country´s GDP and then standardized by de-meaning and dividing by the standard deviation at the country level. All the regressions include country, year andquarterly dummies. In addition, a crisis dummy is included and we interact it with institutional quality. The results are reported for all the sample, as well as separately by income. The data covers 56 countries over the 1996-2012 period. Discroll-Kraay robust standard errors are reported in brackets. *** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively

Table 16

Panel data estimates. Institutional quality during crises

	All countries		**High income**		**Low and middle income**	
Dependent variables	CI	CO	CI	CO	CI	CO
Institutional quality index	0.166*	0.063	0.148	0.385***	0.288***	-0.046
	[0.086]	[0.063]	[0.121]	[0.128]	[0.094]	[0.079]
Crisis	**-0.274****	**-0.207****	-0.263	-0.235	-0.477	**-0.576****
	[0.110]	[0.082]	[0.165]	[0.192]	[0.286]	[0.267]
Domestic crisis*Institutional quality	-0.016	**-0.102****	0.055	0.043	-0.085	**-0.257****
	[0.047]	[0.049]	[0.095]	[0.098]	[0.082]	[0.099]
Global crisis*Institutional quality	-0.063	**-0.139*****	0.012	-0.047	-0.153*	**-0.232****
	[0.040]	[0.036]	[0.066]	[0.070]	[0.081]	[0.105]
CONTROL VARIABLES						
PULL FACTORS						
Gdp growth	0.028***	0.005	0.025*	0.007	0.021**	0.003
	[0.009]	[0.008]	[0.013]	[0.011]	[0.010]	[0.008]
Spread interest lt	0.004	0.016**	-0.028	0.018	0.015**	0.013*
	[0.006]	[0.007]	[0.034]	[0.034]	[0.007]	[0.007]
Public debt GDP	-0.007***	-0.002	-0.003	0.000	-0.001	0.004
	[0.002]	[0.002]	[0.004]	[0.004]	[0.003]	[0.002]
External debt GDP	-0.000	-0.000	-0.000	-0.000	-0.011***	-0.007**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.003]	[0.003]
Reserves GDP	-0.001	-0.000	0.001	-0.000	-0.010*	0.003
	[0.002]	[0.003]	[0.003]	[0.003]	[0.006]	[0.009]
Credit GDP	0.005	0.001	0.010	0.003	0.016**	0.014
	[0.004]	[0.003]	[0.007]	[0.006]	[0.007]	[0.008]
Credit GDP^2	-0.000**	-0.000**	-0.000	-0.000	-0.000*	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
PUSH FACTORS						
VIX	-0.047***	-0.036***	-0.041***	-0.040***	-0.053***	-0.029***
	[0.008]	[0.008]	[0.010]	[0.010]	[0.011]	[0.008]
World gdp growth	0.095	0.073	0.083	0.103*	0.119	0.024
	[0.065]	[0.061]	[0.067]	[0.057]	[0.073]	[0.074]
US10yannual	-0.213***	-0.153*	-0.200*	-0.185*	-0.207**	-0.095
	[0.076]	[0.082]	[0.102]	[0.098]	[0.102]	[0.100]
Observations	2,720	2,729	1,547	1,552	1,173	1,177
R-squared	0.22	0.17	0.25	0.27	0.27	0.11
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variables are capital inflows by foreign agents (CI) and capital outflows by domestic agents (CO), normalized by country´s GDP and then standardized by de-meaning and dividing by the standard deviation at the country level. All the regressions include country, year and quarter dummies. In addition, a crisis dummy is included and we interact it, distinguishing between global and domestic crisis, with institutional quality. The results are reported for all the sample, as well as separately by income. The data covers 56 countries over the 1996-2012 period. Discroll-Kraay robust standard errors are given in brackets.*** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively

Table 17

Panel data estimates. Institutional quality during the global financial crisis (GFC)

	All countries		High income		Low and middle income	
Dependent variables	CI	CO	CI	CO	CI	CO
Institutional quality index	0.186**	0.065	0.225*	0.455***	0.293***	-0.066
	[0.079]	[0.063]	[0.113]	[0.110]	[0.091]	[0.076]
GFC	**-0.214*** **	**-0.170*** **	-0.007	-0.020	**-0.554*** **	**-0.975*** **
	[0.064]	[0.059]	[0.114]	[0.090]	[0.190]	[0.265]
GFC*Institutional quality	0.025	**-0.190*** **	-0.049	**-0.114** **	-0.071	**-0.469*** **
	[0.024]	[0.030]	[0.045]	[0.048]	[0.074]	[0.125]
CONTROL VARIABLES						
PULL FACTORS						
Gdp growth	0.031***	0.005	0.026**	0.008	0.024**	0.003
	[0.009]	[0.008]	[0.012]	[0.011]	[0.011]	[0.009]
Spread interest lt	0.004	0.018**	-0.032	0.015	0.014**	0.014*
	[0.007]	[0.007]	[0.035]	[0.036]	[0.007]	[0.007]
Public debt GDP	-0.007***	-0.003	-0.004	-0.001	-0.002	0.004
	[0.003]	[0.002]	[0.003]	[0.004]	[0.003]	[0.002]
External debt GDP	-0.000	-0.000	-0.000	-0.000	-0.011***	-0.007**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.003]	[0.003]
Reserves GDP	-0.000	-0.000	0.001	-0.000	-0.011*	-0.000
	[0.002]	[0.003]	[0.004]	[0.003]	[0.006]	[0.009]
Credit GDP	0.004	0.000	0.009	0.003	0.015**	0.012
	[0.005]	[0.003]	[0.007]	[0.006]	[0.007]	[0.008]
Credit GDP^2	-0.000**	-0.000**	-0.000*	-0.000	-0.000*	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
PUSH FACTORS						
VIX	-0.045***	-0.033***	-0.041***	-0.038***	-0.050***	-0.028***
	[0.008]	[0.008]	[0.010]	[0.010]	[0.010]	[0.008]
World gdp growth	0.078	0.050	0.075	0.084	0.097	0.014
	[0.064]	[0.060]	[0.066]	[0.055]	[0.072]	[0.073]
US10yannual	-0.198***	-0.131	-0.192*	-0.167*	-0.186*	-0.084
	[0.074]	[0.082]	[0.103]	[0.099]	[0.099]	[0.100]
Observations	2,720	2,729	1,547	1,552	1,173	1,177
R-squared	0.22	0.17	0.25	0.27	0.26	0.11
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variables are capital inflows by foreign agents (CI) and capital outflows by domestic agents (CO), normalized by country´s GDP and then standardized by de-meaning and dividing by the standard deviation at the country level. All the regressions include country quarter and year dummies. In addition, a crisis dummy for the global financial crisis (GFC) is included and we interact it with institutional quality. The results are reported for all the sample, as well as separately by income. The data covers 56 countries over the 1996-2012 period. Discroll-Kraay robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1 denote significance at the 1%, 5% and 10% respectively

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