Capital flows to converging European economies: crises, reforms and FDI[11]

Randolph L Bruno
University of Birmingham and IZA
E-mail: r.l.bruno@bham.ac.uk

Nauro F Campos
Brunel University, CEPR and IZA
E-mail: nauro.campos@brunel.ac.uk

Abstract

This paper examines the determinants of foreign private capital inflows in Europe. Using the Hausman-Taylor panel estimator and data for the 27 European Union members, yearly since 1990, it compares determinants of capital flows into old (EU15) vis-à-vis new Member States (NMS). In addition to standard factors (infrastructure, institutions, etc), it focuses on the relative roles of economic crises and structural reforms. Three main conclusions emerge: (1) since 1990, NMS have received more inflows than the EU15, of which mostly is FDI, but the variance of these inflows is larger (until 2007) in NMS than in the EU15, (2) infrastructure, market size and institutions affect inflows to both EU15 and NMS, and (3) the negative effects of crises on FDI inflows are significantly stronger in the NMS than in the EU15.

1. INTRODUCTION

The aim of this paper is to contribute to our understanding of the determinants (or drivers) of foreign capital inflows to European economies, with emphasis on a comparison between the <u>old</u> (that is, EU15) and the <u>new</u> Member States of the European Union (hereafter NMS.)

The convergence process in the new Members States has been shored up in large part by deep financial integration and large capital inflows.[12] Although the propitious external financing conditions of the last two decades helped the catching-up and convergence of many countries, the 2007 financial crisis questions the sustainability of the prevailing model of financially-driven economic convergence and raises a number of important questions (Berglof et al 2009; IMF 2010). Among these new pressing questions, we highlight: which are the main factors explaining the success in attracting capital flows across European economies, what is the effect of crises and structural reforms in this process, and which policies can contribute to the management of capital flows in a post-2007 crisis world.

This paper uses macroeconomic country level data on unilateral net inflows and hence tries to complement the other large strand of literature, namely that based on firm or industry data and bilateral flows. We put together a unique panel data set covering all EU27 members, yearly since 1990, and encompassing an extensive set of determinants of international capital flows suggested by economic theory (per capita GDP levels, infrastructure quality, institutions, etc). We pay special attention to the relative roles of economic crises, on the one hand, and structural reforms, on the other. The emphasis is also on trying to differentiate these effects for main types of international capital inflows (foreign direct investment, portfolio and equity.)

The related literature is very rich and can be divided in two major strands, one focusing on the drivers of capital inflows and the other on their main economic consequences (benefits and costs). At the risk of a gross over generalization, one can say that the "drivers literature" tend to focus on identifying the set of FDI determinants in the so-called transition economies using macro country-level data, while on the other hand the "outcomes literature" focuses on the benefits and costs from international capital inflows using mostly industry and firm-level data.

Focusing exclusively on Europe,[13] Guiso et al. (2004) study the economic growth payoffs from financial development using industry level data for 61 countries (1981-1995) and firm-level data for 26 countries (1996-2001). Using the Rajan-Zingales methodology their results indicate that the payoffs of financial integration are higher in Europe than elsewhere. Brezigar-Masten, Coricelli and Masten (2008) study whether financial integration has non-linear effects on economic growth using macroeconomic and industry-level data for Europe. They offer strong evidence for threshold effects: the benefits from international capital flows are significant only above a certain level of financial development. Prasad et al. (2007) present cross-country and firm-level evidence suggesting that countries that rely mostly on foreign financing grow more slowly than countries that rely on domestic savings. This constitutes a challenge to standard economic theory and a powerful illustration of the Lucas paradox (Lucas 1990), on why capital does not flow from rich to poor countries. Yet, Prasad et al. stress that Europe is unique because capital actually flows "downhill" (that is, in accord with neoclassical predictions.) Abiad et al. (2009) use cross-country regressions to show that financial integration has a positive effect on economic growth in Europe, but not anywhere else: "the mystery remains since even after allowing for conventionally measured institutional thresholds, the European difference is significant" (2009, p. 245). Finally, Friedrich et al. (2010) ask whether emerging Europe is different and conclude that this is indeed the case (the growth dividend from international capital inflows are significantly larger than elsewhere) and, after examining several plausible competing explanations, attribute this finding to political integration. In short, a rich literature investigates whether the growth payoffs of international capital flows are significantly higher in the Europe but attention so far has concentrated on comparisons with respect to developing countries (while in this paper we focus on the contrast between NMS and EU15).

Although the second strand of related literature addresses the same central question as we do in this paper ("what drives capital inflows?"), it has so far not been overly concerned with the issue of whether or not (emerging) Europe is actually different, which is indeed the focus of our paper. The literature on the determinants of capital inflows in the so-called called transition economies is arguably more voluminous than that on their growth dividend.[14] Bevan and Estrin (2004) and Resmini (2000) examine the drivers for FDI into 11 transition countries in a panel setting. These authors put forward the notion that the prospect of European

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[12] On capital flows and convergence see Henry (2007). Villegas-Sanchez (2009) presents evidence showing that FDI and equity inflows foster economic convergence, while debt flows tend to slow it down.

[13] See Kose et al. (2009) for an extensive review of the literature on financial integration and economic growth across the globe.

[14] See Blonigen (2005) for a detailed review of the econometric literature on FDI determinants, across the world.

Union membership played an important role in attracting export-platform FDI. Garibaldi et al. (2001) examine the overall level as well as the composition of private capital flows. One of their main findings is that although the allocation of FDI across transition countries is well explained by macroeconomic and initial condition variables, a similar degree of explanatory success cannot be replicated for portfolio investment.[15] Campos and Kinoshita (2003) examine FDI inflows determinants across 25 transition countries stressing the importance of institutions in this process. The present paper builds upon recent cross-country and quantitative work from Campos and Kinoshita (2010) but differ in that instead of contrasting the transition economies to Latin America up to 2004, here we compare the drivers of international capital flows in the EU15 vis-à-vis the new Members States since 1990. The main finding from Campos and Kinoshita (2010) refers to the role of structural reforms, in general, and financial liberalization, in particular. They also find that "foreign investors are attracted to countries with more stable macroeconomic environment, higher levels of economic development, and better infrastructure" (2010, p. 329). As it can be seen by this cursory look at the literature on FDI inflows drivers to the transition countries (which includes the vast majority of NMS), the relative importance of economic crises has received relatively scant attention thus far.

Our main finding is the identification of important differences within the European Union countries: since 1990 NMS have received more capital inflows than the EU15 and these are mostly FDI with a much smaller share of portfolio (which is not the case for EU15). The volatility of FDI to NMS is significantly higher than that of portfolio inflows and, further, it is also significantly higher than the variances of the EU15's FDI or portfolio inflows. Finally, the effects of crises and reforms on FDI inflows (negative and positive, respectively) are substantially and significantly stronger in the NMS than in the EU15 countries.

The paper is organized as follows: Section 2 provides a brief conceptual discussion of the main factors highlighted by economic theory as relevant in driving capital inflows. Section 3 provides details of the construction of the data set and identifies various stylised facts regarding capital inflows, reforms and crises with emphasis on comparing EU15 with the NMS. It also explains the main features of the econometric methodology we use. Section 4 presents the main econometric results. Section 5 concludes.

2. CONCEPTUAL FRAMEWORK

What are the main factors that help one country attract capital inflows rather than another? Such questions are of greater interest with regards to foreign direct investment than to portfolio flows, as the later should be more responsive to straightforward differentials in rates of return. Hence in what follows we centre the discussion on potential drivers of FDI. The vast theoretical work on the determinants of FDI focuses on ownership advantages, location advantages, and benefits of internalization (Dunning, 1993). Past studies can be classified largely into two groups. One focuses on an analysis of the determinants endogenous to the multinational investing firm such as the size of the firm and R&D intensity, and asks why a firm becomes a foreign investor. The other group examines factors exogenous to the foreign investors, namely, location advantages of the host country such as market size and level of economic development. In the rest of the section, we focus on the latter group as this paper examines the determinants of FDI that are exogenous to the investor but endogenous to the host country.

The literature indicates that the key FDI location determinants are the classical sources of comparative advantages of the host country. Firms choose the investment site that minimizes the cost of production.[16] Notably, host country's market size and relative factor prices (i.e., natural resources, labour cost, and human capital) all affect the expected profitability of foreign investment.

The emerging consensus is that it depends on the motives of foreign investors and, thus, which of three types of FDI they are undertaking.[17] One first type of FDI is called market-seeking FDI, whose purpose is to serve local and regional markets. It is also called horizontal FDI, as it involves replication of production facilities in the host country.[18] Tariff-jumping or export-substituting FDI is a variant of this type of FDI. Because the reason for horizontal FDI is to better serve a local market by local production, market size and market growth of the host economy play important roles. Impediments to accessing local markets, such as tariffs and transport costs, also encourage this type of FDI.

A second type of FDI is called resource-seeking: when firms invest abroad to acquire resources not available in

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[15] The distinction between pull and push factors is useful in this context. FDI is mainly driven by country-specific determinants, while portfolio investment is mainly driven by external determinants (such as interest rates differentials). See Jevčák, Setzer and Suardi (2010) for an application to the EU New Member States.

[16] Wheeler and Mody (1992) provide a comprehensive summary of these classical sources of comparative advantages.

[17] See Dunning (1993).

[18] The mode of horizontal FDI is typically "greenfield investment."

the home country, such as natural resources, raw materials, or low-cost labour. Especially in the manufacturing sector, when multinationals directly invest in order to export, factor-cost considerations become important. In contrast to horizontal FDI, vertical or export-oriented FDI involves relocating parts of the production chain to the host country. Availability of low-cost labour is a prime driver for export-oriented FDI. Naturally, FDI in the resource sector, such as oil and natural gas, is attracted to countries with abundant natural endowments.

The third type of FDI, called efficiency-seeking, occurs when the firm can gain from the common governance of geographically dispersed activities in the presence of economies of scale and scope. Bevan and Estrin (2000) found that prospective membership in the EU, because it is conductive to the establishment of regional corporate networks, seems to have attracted more efficiency-seeking FDI to those countries after the initial announcement of the progress of EU accession.

Together, the factors attracting each type of FDI suggest that the countries with a large market, abundant natural resources, and close proximity to the major Western markets would attract larger amounts of FDI inflows. FDI would thus go to countries with favourable initial conditions. However, research suggests that other factors also matter.

Based on a survey of Western manufacturing companies, Lankes and Venables (1996) find that the main purpose of FDI in transition economies before 1995 varied substantially across countries. They observed a noticeable shift from projects to serve local markets to those serving export markets. Export-oriented FDI was then expected to increase as the market integration with the EU progressed.

Another important variable for explaining the geographical distribution of FDI is a pattern of persistence over time. Compared to other forms of capital flows such as portfolio investment, the time series of FDI are generally more stable due to the high sunk cost nature of FDI. FDI is often accompanied by physical investment that is irreversible in the short run. Thus, a large amount of FDI in the country today implies a large amount of FDI tomorrow. Also, FDI is persistent over time due to agglomeration economies. If agglomeration economies are substantial, new investors mimic past investment decisions by other investors in choosing where to invest. By locating "next" to other firms, they benefit from positive spillovers from investors already producing in the host country. Common sources for these positive externalities are knowledge spillovers, highly specialized labour, and intermediate inputs.[19] There is much evidence on the value of agglomeration economies, although existing studies tend to focus on FDI in the United States or U.S. FDI abroad. A seminal work by Wheeler and Mody (1992) makes a strong case for agglomeration (and market size) in U.S. investors' location decisions.

Factor-endowment theory suggests that differences in endowments among countries are central in explaining the geographical pattern of inward FDI. On the other hand, the theory of agglomeration economies suggests that once countries attract the first mass of investors, the process will be self-reinforcing.

A growing body of literature in economic growth argues that good economic institutions raise economic growth by promoting higher investment, higher educational attainment, and lower mortality. In the context of private capital inflows, institutions underpin local business operating conditions, but they differ from "physical" supporting factors such as transport and communication infrastructures. One possibility is that a fair, predictable, and expedient judiciary, an efficient bureaucracy and less corruption may help attract FDI.

The risk of investment in terms of economic and political environment also affects the expected returns to the investment. In this respect, greater macroeconomic and political stability of the host country could attract more foreign investment (Bevan and Estrin, 2004).

How these various dimensions are usually dealt with in the empirical work? In order to test for these different hypotheses, we include various classical determinants of FDI as the first set of explanatory variables. Namely, we measure country or market size by log of population. If investment decisions are of market-seeking nature (i.e., sell in the local market), then we would expect this effect to be positive. Natural resources endowment may also be an important factor, particularly for resource-driven FDI. We use (log of) the percentage of fuel and natural gas in total exports as a proxy for natural resource dependence. Log GDP per capita captures the level of development across countries, which reflects among other things differences in initial conditions. Inflation is the proxy we use for macroeconomic stability. We expect a negative sign on the coefficient of (log) inflation as low inflation is perceived by foreign investors as a favourable signal and it should thus lead to more capital inflows. High-quality infrastructure is another factor that allures foreign investors to a country. We use (log of) the number of mobile phone subscribers as our main infrastructure variable. Availability of a modern communications network is important to help integrate the domestic market and, given that other important

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[19] Industrial conglomerations arise because of technological spillovers, the advantages of thick markets for specialized skills, and backward and forward linkages. The new economic geography emphasizes the linkages effects: users and suppliers of intermediate inputs cluster near each other because larger market provides greater demand for goods and supply of inputs.

elements of the national infrastructure (for instance, ports, roads and internet services) are often complementary to telephones lines, this variable provides a useful proxy for the overall quality of infrastructure in the host country. We have also paid special attention to incorporating various aspects of financial reform (the contrast between de jure and de facto measures) as well as of economic crises (encompassing both the occurrence of a crises episode and its severity in terms of output loss). In the next section, we provide a fuller discussion of these important measurement issues.

3. DATA AND METHODOLOGY

The objective of this section is to present the data set and the econometric methodology used in this paper. The panel data set covers the period 1990-2010 for all current 27 EU members. Table A.1 lists the countries and provides their EU accession dates and income level classification. It also highlights the distinction between the so-called "Old" and "New" member states (i.e. EU15 and NMS). The former is defined as countries that were EU members by April 2004, and the latter as countries which became members of the European Union after 1st May 2004.

Let us start by highlighting some facts our data suggests about emerging Europe and the nature and speed of its convergence process. First of all, the economies of the two groups (EU15 and NMS) still differ quite substantially. It is worth noting that although the GDP in New Member States experienced a steady growth after entering the EU, the differences in the living standards between Old and New members are still quite visible. Comparing per capita GDP growth or labour productivity since 1990 (Figure 2), one concludes there is weak evidence of convergence (although admittedly this ignores that some NMS have grown much faster than others and have, as a sub-group, converge to the EU15.)

3.1 DATA

The data collection effort centred on different forms of international capital flows, which correspond to our "left hand side variables", and on their determinants, our "right hand side variables". With respect to the latter, we consider standard capital flows' determinants, financial reforms and crises indicators together with selected institutional variables.

The three main forms of international capital flows we consider are: foreign direct investment (FDI), portfolio equity flows and portfolio debt. Data on FDI were taken from UNCTAD World Investment Report (2010) and from The World Bank Global Development Finance (2010). These represent the most used sources of FDI data.[20] Portfolio equity and debt flows are from the latest International Monetary Fund, Coordinated Portfolio Investment Survey (IMF; CPIS 2010). This is a rich dataset. The majority of data are available from 2001 to 2008 and they include e.g. currency breakdown of portfolio investment to bilateral investment series. It is important to note that, in the econometric exercise, all international capital flows data were normalized as a share of GDP.

In our sample, FDI represent the major part of capital inflows in both Old and New EU, amounting on average to the 3% and 5% of GDP in the period considered. Among the Old EU countries, the greatest attractor of capital inflows unsurprisingly was Luxembourg (15%), followed by Ireland, Netherlands and Sweden (all around 5%); while Malta (8.5%), Bulgaria (8%), Estonia (7.6%) and Cyprus (6.8%) were the best performers among New Members. Luxembourg received also the greatest amount of equity and debt flows, respectively 231% and 60% of GDP, while the Old EU averages (excluding Luxembourg) were of 1.15% and 0.88% of GDP. Clearly, Luxembourg is an important outlier and the analysis in the next section is accordingly carried out excluding Luxembourg (from the EU15 and all-countries samples). In the New EU, equity inflows were 0.04% of GDP while debt represented 0.12%. In short, FDI in NMS is a much larger component of capital flows than in EU15 where portfolio debt and equity flows have important shares. Moreover, FDI in NMS is more volatile than in EU15, while debt and equity is much less volatile than in EU15.[21] Regarding the time path of the series, Figure 1 highlights that FDI inflows peak in 2000 in Old EU and in 2005 in New Members.

We now turn to the standard determinants of international capital flows. In particular, from the World Bank World Development Indicators (WB, WDI 2010) and from the latest available Penn World Tables (PWT 6.3),

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[20] Another well known source for FDI data is represented by International Monetary Fund, International Financial Statistics (IMF IFS). These data was not used here because of poorer coverage in the early years (until 1996) and because Belgium and Luxembourg are treated as a single country for the period 1990-2005.
[21] The hypothesis of unequal variances of capital inflows to the EU15 versus to the NMS can not be rejected at the conventional 95% confidence level until year 2007. As Figure 1 strongly suggests, the average shares of capital on GDP are significantly larger in NMS than in the EU15, again at the conventional 95% confidence level.

we obtain information about structural features, such as the size of the market (i.e. log GDP), development stage (i.e. log GDP per capita),[22] and percentage of fuel exports over total exports (as a proxy for natural resources dependence). Data on macroeconomic stability (i.e. inflation) and physical infrastructures (i.e. telephone lines, internet users and cellular phones) originate respectively from the International Monetary Fund, World Economic Outlook (IMF, WEO 2010) database, and from the World Telecommunication ICT Dataset (2010). Note that all infrastructure data were normalized to population, in order to ensure comparability.

In terms of a general assessment of capital inflows, although the EU15 economies represent a better environment in terms of market size, macroeconomic stability and physical infrastructure, the NMS are rapidly catching-up in all these fronts. Also note that the NMS may be better in attracting resource seeking investments, as the average share of fuel exports on total exports was 5.5%, compared to 3.5% for the EU15.

To construct our indexes of financial reforms, we employed two major data sources: Beck and Demirgüç-Kunt (2009) and Abiad et al. (2008). We follow Campos and Kinoshita (2010) and use the data reported in Beck and Demirgüç-Kunt (2009) to construct various indexes of financial development. The first index, an Overall Financial Development Index (fd1), is the arithmetic average of the normalized values of three variables for overall financial development, which are: the ratio of liquid liabilities to GDP (llgdp), the ratio to GDP of credit issued to the private sector (pcrdbofgdp) and the ratio of commercial bank assets to the sum of commercial bank assets and central bank assets (dbacba). The second index (fd2) is reflects the efficiency of the banking sector (be) and corresponds to the arithmetic average of the normalized value of the ratio of overhead costs to total bank assets (overhead) and net interest margin (netintmargin), the latter calculated as the difference between bank interest income and interest expenses divided by total assets.[23]

Figures 3 and 4 show the catching-up of NMS countries with respect to financial development indicators. In particular, the first graph highlights the development of the credit market and its increased liquidity, while the second show that the banking sector has quickly become more efficient, especially until 2006.

Regarding Abiad et al.(2008), it covers 91 economies over 1973–2005 and it collects information on de jure financial development along seven different dimensions, providing also two synthetic indexes of financial reform and five dummy variables for financial sector's policy changes. The dimensions considered are credit controls and reserve requirements (i.e. dc, cc, cco); interest rate controls (i.e. ico); entry barriers (i.e. eb); state ownership (i.e. pr); policies on securities markets (i.e. sm); banking regulations (i.e. bs) and restrictions on the capital account (i.e. intlc). The first financial reform index (i.e. fr) is constructed as the summing these up and it ranges from 0 to 21. The second index (i.e. ffn) is the normalized version of fr. As the previous financial development indexes, also this one is obtained following the Lora (1998) procedure and it ranges from 0 to 1.

As for economic crises, the data we use is from Laeven and Valencia (2008, 2010). Together, the two datasets cover more than 250 countries from 1976 to 2008 and have information about the initial and end years of systemic banking crises, the initial year of currency and debt crises.[24] This shows that the vast majority of the EU15 countries experienced a systemic banking crisis between 2007 and 2008, while Finland and Sweden did it in 1991. All NMS, with exception made for Cyprus and Malta, suffered from banking crisis during the 1990s and Slovenia, Hungary and Latvia were involved in the 2008 crisis.

The Laeven and Valencia datasets also provide information on output loss, fiscal costs, financial markets and economic performance during systemic banking crises. On average, output loss in the EU15 was higher than in NMS (1.75% of GDP versus 1.25%) while the opposite is true for fiscal costs (i.e. 8.2% of GDP versus 8.85% of GDP).

Figure 5 shows output loss (oloss) expressed as percentage of GDP and computed by extrapolating trend real

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[22] With reference to PWT 6.3, following the recommendations of Summers and Heston (1991, p.344), we the real GDP data obtained from the chained series of relative prices, in order to mitigate the so-called 'Laspeyres fixed-based problem'.

[23] The normalization procedure we use is the one suggested by Lora (1998) and it involves the following steps. First, calculate the absolute maximum and the absolute minimum of each series. This means finding the maximum (minimum) value across all countries and years. Second, calculate the range of each variable, subtracting the absolute minimum from the absolute maximum. Third, if the underlying variable is a "goody" (i.e. the higher its value reflect more financial development), subtract the absolute minimum from the actual values of the series and divide it by the range of the variable; if the indicator is a "baddie" (i.e. the higher values indicate lower financial development), subtract the actual values of the series from the absolute maximum and divide it by the range. In this case, the "goodies" are: llgdp, pcrdbofgdp, dbacba and the "baddies" are overhead and netintmargin. See Campos and Kinoshita (2010) for more details. It should be clear that this normalization provides an easy way to make comparisons which are free of scale problems. Consequently, in either a goody or a baddie, the best country performer (i.e. the one having the relative higher financial development level) has a normalized value of 1, so that the closer the value to 1 the better.

[24] According to Laeven and Valencia (2008), a "systemic banking crisis" occurs when a country's corporate and financial sectors experience a large number of defaults and financial institutions and corporations face great difficulties repaying contracts on time. As a result, non-performing loans increase sharply and all or most of the aggregate banking system capital is exhausted. A "currency crisis" is identified by a nominal depreciation of the currency of at least 30 percent that is also at least a 10 percent increase in the rate of depreciation compared to the year before. A "debt crisis" is associated to sovereign defaults to private lending and to debt rescheduling.

GDP growth, up to the year preceding the crisis, and taking the sum of the differences between actual real GDP and trend real GDP expressed as a percentage of trend real GDP for the first four years of the crisis (including the crisis year).[25]

Regarding the measures of institutions, we employed different sources. From the Polity IV Project, which collects 30 political related variables for all states with a population above 500,000 people over the period 1800-2009, we selected three measures: the duration of the political regime measured in years (durable), the index of polity fragmentation (fragment) and the level of democracy in the country (democ). The first indicator reflects the absence of political crisis, the second is a measure of potential political instability and the latter indicates the strength of democracy. In particular, fragment is coded on a 0-3 scale, where 0 represents "no overt fragmentation" and 3 "serious fragmentation", while democ ranges from 1 to 10, with 10 indicating a high level of democracy. From Transparency International we use Corruption Perception Index (ticpi), which is a measure of perceived corruption among public officials and politicians. It is available for more than 150 countries, from 1995 to 2009, and it coded on a 0-10 scale, with 10 indicating the lowest perceived level of corruption.

The institutional evolution in the EU countries is fascinating. Figure 6 illustrates the democratization process of the New EU members and how quickly political convergence has been achieved.

3.2 ECONOMETRIC METHODOLOGY

Our study draws on the existing literature on the determinants of cross-country private capital flows, discussed above. Specifically, we investigate three main categories of determinants. First, we look into traditional or classical factors such as market size, infrastructure, and macroeconomic environment. Second, we assess whether structural reforms play a significant role in attracting foreign investors. Third, we look at the role of economic crises.

In our baseline model, we specify capital inflows (FDI or portfolio) as a function of three main groups of variables: a set of classical determinants, financial reforms, and economic crises. The baseline econometric model is as follows:

$$Y_{it} = \lambda X_{it} + \varepsilon_{it}$$
$$\varepsilon_{it} = \eta_i + \gamma_t + u_{it},$$
(1)

where Y_{it} is the dependent variable which is measured as FDI and portfolio inflows as a percentage share of GDP in country i at year t. X_{it} includes (1) classical factors (market size, natural resource abundance, infrastructure, inflation, institutional differences), (2) structural reform variables (depth of the financial market and banking sector efficiency) and (3) indicators for the occurrence and severity of economic crises. In addition, η_i represents unobservable country-specific attributes and γ_t is a vector of time-specific effects (e.g., time dummies).

It is a well-known concern in the literature that some of the regressors may be potentially endogenous or predetermined. For example, FDI might be attracted to a country that has a more liberalized financial market but at the same time financial liberalization may be enhanced by the presence of FDI. If we were to run the ordinary least squares (OLS) regression on (1), the estimate would be biased as the error term is correlated with the regressors.

The main strategy to address this problem is to rely on fixed effects model estimation. By so doing, we control for unobserved country-specific fixed characteristics that might affect private capital inflows. In this case, one estimates whether within country the progress in financial sector reforms is associated with greater FDI inflows. However, the fixed effects model yields biased OLS coefficients when endogeneity is severe. In order to address

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[25] Gross fiscal costs (fc) as percentage of GDP is computed over the first five years following the crisis using data from Hoelscher and Quintyn (2003), Honohan and Laeven (2005), IMF Staff reports, and publications from national authorities and institutions. Financial market performance is indicated by the peak nonperforming loans (i.e. npl) that is the highest level of nonperforming loans as percentage of total loans during the first five years of the crisis. Economic performance during the crisis (i.e. mingdp) is the lowest real GDP growth rate during the first three years of the crisis. As all these variables (oloss, fc, npl and mingdp) are calculated over more than one year but the available information corresponds to one single entry, we decided to impute the costs of the crisis to the median year of the original time-window chosen by Laeven and Valencia. This solution, although somewhat arbitrary, has the advantage of exploiting all the available information (i.e. initial and final crisis' year and its costs) in the simplest way. Finally, it must be clarified that for the losses of output related to the 2007-2008 crisis, we were forced to impute all the costs to 2008. The reason is threefold. First, if the crisis started in 2007 (this is the case only for United Kingdom) and we take the standard 4-years window, 2008 is the year that should be selected according to our rule. Second, in the majority of the cases, the crises began in 2008 and they have not ended yet or, at least, no information about their ending year is available. Finally, GDP data from international sources are available at most until 2008. Putting these things together, it is easy to see that 2008 is the only employable year.

concerns about the potential endogeneity of the regressors, we adopt a Hausman-Taylor type estimator.

The Hausman Taylor estimator fits panel data random-effects models in which some of the covariates are correlated with the unobserved individual-level random effect and therefore conduce to bias estimates:

$$Y_{it} = \lambda X_{it} + \varepsilon_{it}$$
$$\varepsilon_{it} = \eta_i + \gamma_t + u_{it} \tag{2}$$
$$\mathrm{cov}(X_{it}, \eta_i) \neq 0 \Rightarrow \mathrm{cov}(X_{it}, \varepsilon_{it}) \neq 0$$

We consider that the institutional variables in our model (e.g. Democracy and corruption from Transparency International) might be potentially endogenous and we use HT in order to instruments them. In fact, the estimator, originally proposed by Hausman and Taylor (1981) and Amemiya and MaCurdy (1986), is based on instrumental variables: to comply with HT estimator we assume that some of the explanatory variables are correlated with the individual-level random effects, η[i], but that none of the explanatory variables are correlated with the idiosyncratic error u[i,t][26].

$$Y_{it} = \lambda X_{it} + \varepsilon_{it}$$
$$\varepsilon_{it} = \eta_i + \gamma_t + u_{it}$$
$$\mathrm{cov}(X_{it}, \eta_i) \neq 0 \Rightarrow \mathrm{cov}(X_{it}, \varepsilon_{it}) \neq 0 \tag{3}$$
$$\mathrm{cov}(X_{it}, u_{it}) \neq 0$$

These baseline results are reported in tables 2 and 4 in the following section.

4. ECONOMETRIC RESULTS

The objective of this section is to present and discuss our main econometric results. First we introduce our baseline results (in that they focus on a set of standard capital inflows determinants) and then we investigate the relative of economic crises and financial reforms vis-à-vis these standard determinants.

4.1 BASELINE RESULTS

Our baseline results refer to a set of standard drivers or determinants of capital inflows. This set includes (a) market size and the level of economic development (measured by the log of the country's population and per capita GDP, respectively), (b) the level of macroeconomic instability (measured by the log of annual inflation rates), (c) the quality of infrastructure and the level of human capital, (d) institutional differences and (e) and the relative importance of natural resources in each economy. The explanatory power of these factors should differ whether we are focusing on differences over time, EU15 versus NMS and within each one of these two groups. For the baseline estimates we also report both fixed-effects and Hausman-Taylor estimates as well as results for both FDI and portfolio inflows so as to provide a clear view of how the results change (or do not change) along such lines.

Tables 1 and 2 present our results for the standard set of determinants of FDI inflows for both the NMS (upper-panel of these tables), the EU15 (middle panel), and the EU27 (shown in the bottom-half of the tables). Table 1 reports fixed-effects, while Table 2 has Hausman-Taylor estimates.

The results reported in Table 1, show that the quality of the infrastructure, market size and institutional differences (democracy and EU accession) are important driver of FDI inflows to the EU15 and to the NMS. The log-log functional form generates estimates that can be read as elasticities; accordingly, a 10 percent increase in mobile phone users would, once all other factors are treated as constant, increase the inflows of FDI into the NMS by about 2 percent and into the EU15 by 1.5 percent. For the NMS sample we find that the more institutionally developed countries seem to attract more FDI, while an opposite result obtains for the EU15.[27] Indeed, when we measured institutions by the Corruption Transparency International index, the opposite result emerges for the EU15 (Column 3): countries with better institutions tend to attract significantly more FDI inflows. As noted, this is because our institutional proxies tend to correlated highly with a range of other institutional factors that also encourage capital inflows, such as regulatory transparency, low contract

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[26] Even if this hypothesis might appear to be too strong we mainly address our endogeneity concern on the institutional variable, that being rather time invariant they well be correlated with the country level random effects. We thank Ansgar Belke for this suggestion.

[27] As noted above, the EU15 countries receive the maximum score in the democracy measure throughout with one exception, namely the Belgium elections in 2007. This small relative decline is the main reason for this result.

enforcement costs, respect to property rights, and respect to the rule of law. Interestingly, EU membership plays a more important role for the case of FDI inflows within the EU15 than among NMS.[28] Pooling all countries (i.e., focusing on the EU27), one finds that infrastructure differences seem to play the role of main determinant of FDI inflows.

If asked what the fundamental determinants of capital inflows in Europe are, our results would suggest that institutional and infrastructure differences are large elements in such answer (we also find that population size is positively correlated with FDI in NMS and it is insignificant or negative in the EU15[29]). Tables 3 and 4 confirm the importance of these factors also for portfolio inflows. Note that there is more divergence between the FE and Hausman-Taylor results suggest that these are less robust than the results for FDI. Also of interest, institutions still matters but in a different way: better institutions attract more portfolio inflows in the EU15, while worse institutions seem to attract more portfolio inflows in the NMS (although the Hausman-Taylor preserves the signs of these effects, they loose statistical significance).

There is one additional determinant of FDI inflows to the NMS worth discussing, namely that while FDI inflows are attracted in the NMS to those economies that have a relatively high share of their exports in primary goods (agriculture and energy), this factor has the stronger and opposite (repelling) effect on portfolio inflows. It should also be said that, as many researchers before us, we found trying to explain portfolio inflows to be more difficult than, for example, trying to explain FDI inflows (when using country-level variables).

Finally, there is also one additional determinant of capital inflows to the EU15 worth discussing, which is the role of per capita GDP. We do find some evidence that richer countries in the EU15 tend to receive more portfolio inflows than poorer countries within the EU15, and that the same can be said regarding FDI inflows. This is a quite interesting result because it adds a novel element on the discussion of the "European difference" in section 2 above. In this debate it is argued that the reason that emerging Europe differs is because capital moves downhill, that is, it moves from richer to poorer countries (or from low to high return on capital's economies). In this light, our result provides some food for thought.

A final issue to be raised before concluding the discussion of our baseline results regards the role of human capital. The latest literature on the determinants of capital inflows often highlights the role of various threshold factors reflecting different degrees of absorptive capacity. Two that have received the most attention are financial development (only once the financial sector has reached a certain level can the benefits of financial integration materialize) and human capital (the lack of domestic skills able to utilise the new techniques brought in by foreign investors can be blamed for the lack of benefits from financial integration). We deal extensively with financial development below, so here we try to check human capital differences would be important across the EU countries in our sample. Although we do not find that this factor plays an important role (one can say that this is not surprising giving that the levels of formal education are very high in the sample), we do find that it is rather closely correlated to mobile phones. For this reason, when we argue that mobile phone subscriptions are an important explanatory factor for capital inflows in Europe and that they proxy for infrastructure, we have in mind a broader definition of the latter.

4.2 WHAT ROLE FOR CRISES AND REFORMS?

Taking into account (or controlling for) a standard set of reasons to attract capital inflows in different countries, what roles can structural reforms and economic crises play? Tables 5 to 7 present our main results addressing this question.

Table 5 presents Hausman-Taylor results for the role of financial reforms on attracting FDI inflows in both the NMS and the EU15 countries, as well as for the EU27. One main distinction we try to respond to is one that has received a lot of attention in the financial liberalization literature, namely that of de jure versus de facto measures. Kose et al (2010) argue that this difference account for much of the current debate on the benefits of financial liberalisation. De jure measures are those that reflect the changes in the laws and regulations that govern capital flows, while de facto measures try to capture not only the letter of these laws, but also how countries differ in terms of how they understand, interpret, absorb, implement and enforce such laws. Hence, we report results for both types of measures.

As it can be seen in Table 5, our results suggest that financial reform has played a very limited role in attracting or repelling FDI in the EU15 since 1990. One of the few noteworthy results is that shallower financial systems

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[28] We also tested whether for the effect of NATO membership but found broader support for EU membership instead (Belke et al., 2009).
[29] It is rather surprising in that we find that FDI is attracted to larger markets across the NMS. Studies focusing solely on the transition economies do not tend to find such strong results, but in our case the inclusion of Cyprus and Malta may help understand this effect. Moreover, it is quite difficult too to fully disentangle market size from level of development effects, given that there are no lower middle income countries in our sample.

tend to be associated with smaller inflows of FDI in the NMS. This may be driven of course by foreign investors searching for higher profit rates which may be more easily found in other environments. The similar results we obtain for portfolio inflows in Table 6 (and for fd1 which is a composite measure of the quantity of financial services or of the size of the financial sector) may be used to back up such line of interpretation. In order to test the differential impact on NMS and EU15 of the financial system measures (namely international capital flows, financial reform de jure (ffn), financial reform de facto (fd1 or be) and Beck & Demirgüç-Kunt (2009) measure of deposit ratio) we report their interaction with the level of development (see "[X] Log Per Capita GDP PPP" in Tables 5 and 6 for the EU27 sample only[30]). On the one hand the results in Table 5 document a positive effect of openness to international capital flows on FDI only for countries with real GDP per capital above the 7400\$[31] (PPP 2005) threshold, i.e. we exclude some of the NMS. On the other hand, Table 6 reports a positive impact of international capital flows, financial development (fd1) and Beck & Demirgüç-Kunt ratio on portfolio investment only for countries with real GDP per capita (PPP 2005) above the 4675\$[32], 28000\$[33] and 13800\$[34] thresholds, respectively. To summarize, there is a differential impact of financial systems variables on FDI and NMS, due to their different level of development -in our example measured by GDP per capita (PPP 2005).

Table 7 present the Hausman-Taylor results for the role of economic crises on FDI (the results can not be obtained for portfolio inflows as the crises variables are all dropped because of collinearity.) For the New Member States the results are very clear: banking and currency crises play major roles in stopping capital inflows. As the results indicate, although crisis occurrence seems to be the major factor, crisis severity also plays an important role. We do not find an equally important role for crises in the EU15.

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[30] The computation of the overall effect of the financial system variables on the FDI or portfolio flows can be obtained by composing the coefficients via the following factorisation: Financial Reform{Beta(FR)+[Beta(Interaction)] X [Level of Development]}. Details available upon request.
[31] E.g. Latvia after 1999 and Romania after 2004.
[32] This is for all EU 27 countries in the analysed time span.
[33] E.g. Spain after 2005 and UK after 2002.
[34] E.g. Slovak Republic after 2004 and Poland after 2007.

5. CONCLUSIONS

There is now a large literature examining the drivers of private capital inflows into the countries of emerging Europe. The bulk of this literature either studies exclusively NMS, restrict their samples to the transition economies, and/or compare them with other groups of developing countries. Our paper is one of the first to provide a comparison of capital inflows drivers between old (EU15) and new EU members (NMS). In order to examine the determinants of foreign private capital inflows (FDI and portfolio) to European economies, we assembled a panel data set encompassing all 27 EU countries, yearly since 1990. It covers standard set of drivers of international capital flows as well as measures of economic crises and structural reforms, both de jure and de facto.

In our view, the reader should take four main conclusions out of our analysis. The first is that on average the NMS have received substantially more capital inflows than the EU15 since 1990. Yet the composition of these stocks is predominantly made up of FDI (in stark contrast to the EU15 and also to other developing countries) with a smaller share of portfolio (which is surely not the case for EU15).

Secondly, we stress that the volatility of FDI to NMS is large and, it seems to us, has not received much attention from academicians and policy-makers. One reason governments prefer to try to attract FDI inflows, rather than portfolio, is precisely because the former is widely perceived to be more resilient. We find the variance of FDI to NMS is significantly higher than that of portfolio inflows and, further, it is also significantly higher than the variances of the EU15's FDI or portfolio inflows (up to 2007).

Thirdly, financial structural reforms have a differential impact on NMS and EU15, the reason being that we identified important non-linear effects. When controlling for the interaction of our financial reform variables with the level of development -in our example measured by the GDP per capita (PPP 2005)- we document the existence of a threshold effect, i.e. countries with a relatively low level of development might not fully benefit from rapid financial reforms or international capital flows (as documented in tables 5 and 6).

Finally we find that the effects of crises –namely systemic banking and currency crises- on FDI inflows are substantially negative and significantly stronger in the NMS than in the EU15 countries (where they are insignificant). Currency crises, however, seem to have played a negative impact on the EU27 as whole, as documented in table 7. Our results suggest that economic crises have played an important role in determining the intensity and direction of capital inflows and that their impact was different for NMS and EU15.

There are a number of important possibilities for further research that our results open up, which we here highlight three. One is to assess how comparable are the results emanating from the "gravity literature." Using bilateral data we can surely do a better job at least in explaining portfolio inflows (if indeed these are more responsive to straightforward differentials in rates of return on capital). The second is to push for improvements in the available measures of both capital flows and some of its main drivers (reforms and crises in particular). One principal way in which FDI is distinguished from portfolio inflows is the 10% ownership rule (inflows that generate ownership shares above this figure are counted as FDI, while those that do not reach this percentage are counted as portfolio inflows.) With foreign inflows shifting from manufacturing to the financial and construction sectors in the 2000s and (with the lift of restrictions to FDI in the banking sector, mostly among the transition economies) the attendant rise of cross-border loans from parent banks in the EU15 directly to their affiliates in the NMS, a finer delineation among these different types of flows than that currently available would be of substantial assistance. The third and last implication is to encourage further investigation of the volatility of these capital flows, as opposed to the so far almost exclusive focus on their mean values. Explicitly modelling their variance should also assist, because of similarities in the underlying methodologies, in disentangling the short- from the long-run effects of some key factors chiefly reforms, but also to a more limited extent, economic crises.

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Figure 1: FDI Inflows to NMS and EU15, 1990-2010

FDI Inflows as % of GDP

Source: UNCTAD, World Investment Report (2010)
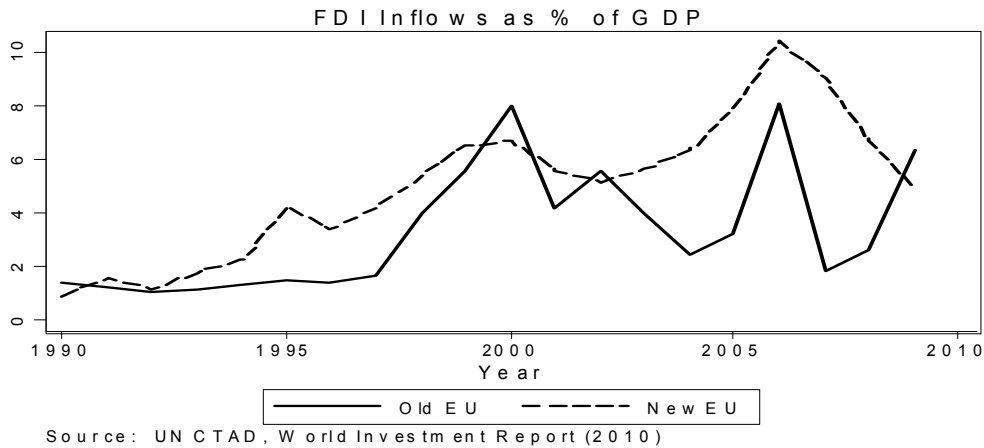
Figure 2: Labour Productivity, NMS and EU15, 1990-2008

Labour Productivity in Industry in PPP constant 2005 Intl. Dollars

Source: World Bank WDI (2010) and AMECO (2010)
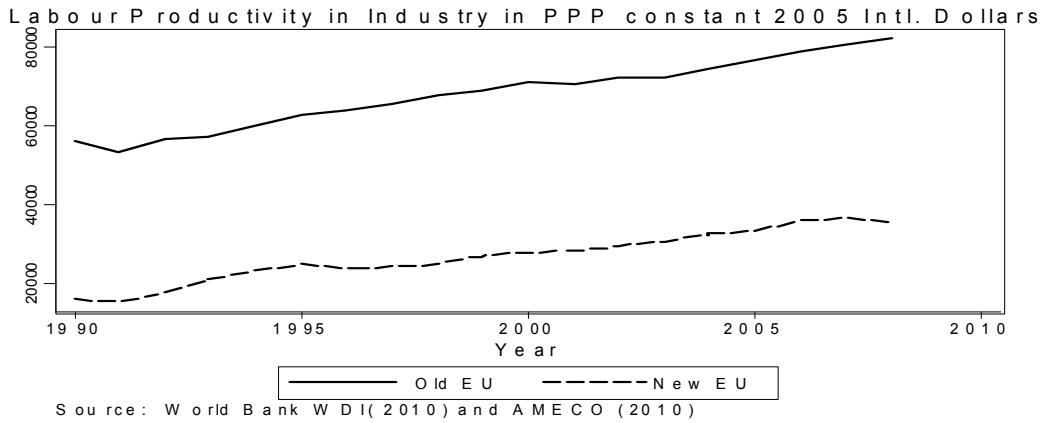
Figure 3: Financial Sector Depth (size), NMS and EU15, 1990-2008

Financial Development Index 1

Source: Authors' calculations from Beck and Demirgüç-Kunt (2009)
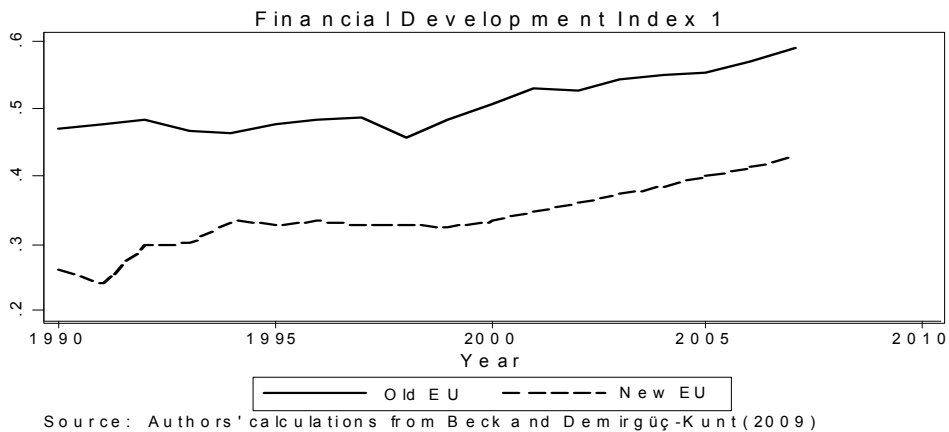
Figure 4: Financial Sector Efficiency, NMS and EU15, 1990- 2008

Financial Development Index 2

Source: Authors' calculations from Beck and Demirgüç-Kunt (2009)
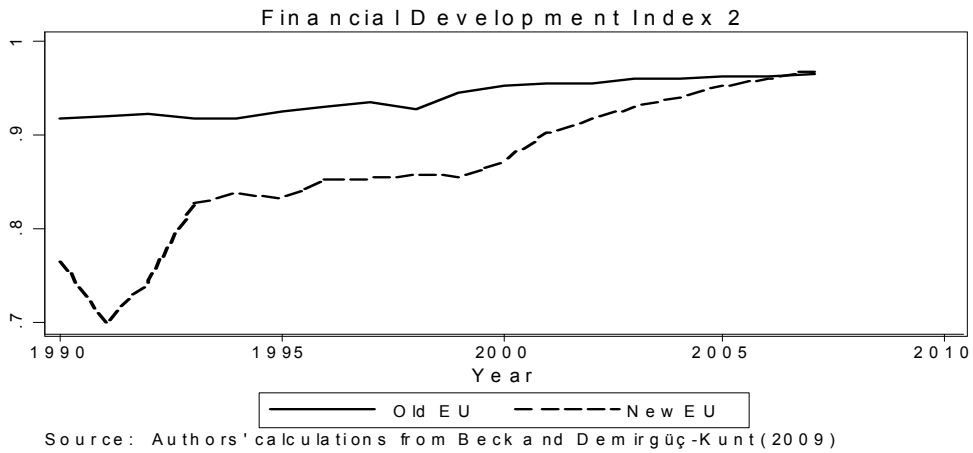
Figure 5: Severity of Banking Crises, NMS and EU15, 1990- 2010

Output Loss due to Banking Crisis

Source: Laeven and Valencia (2008) (2010)
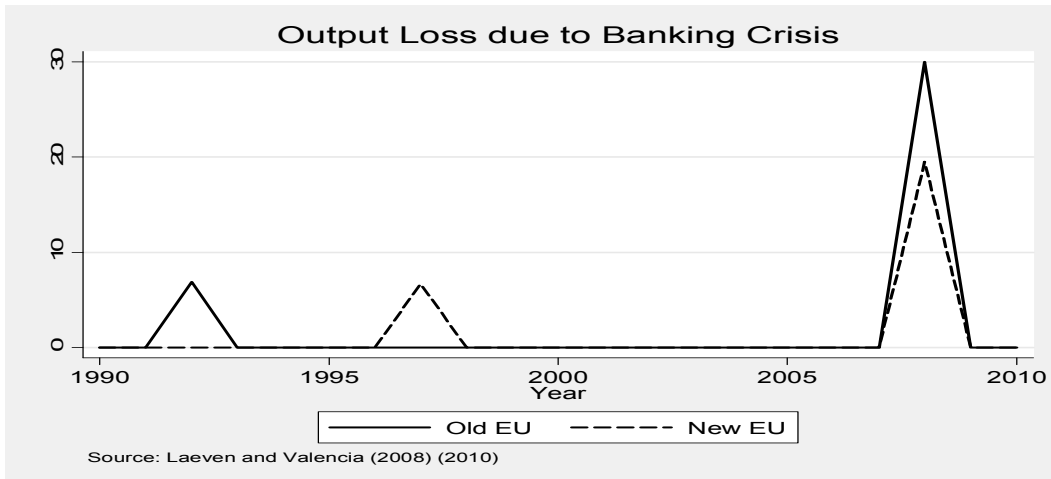
Figure 6: Institutional Development (Democracy), NMS and EU15, 1990- 2009

Institutionalized Democracy
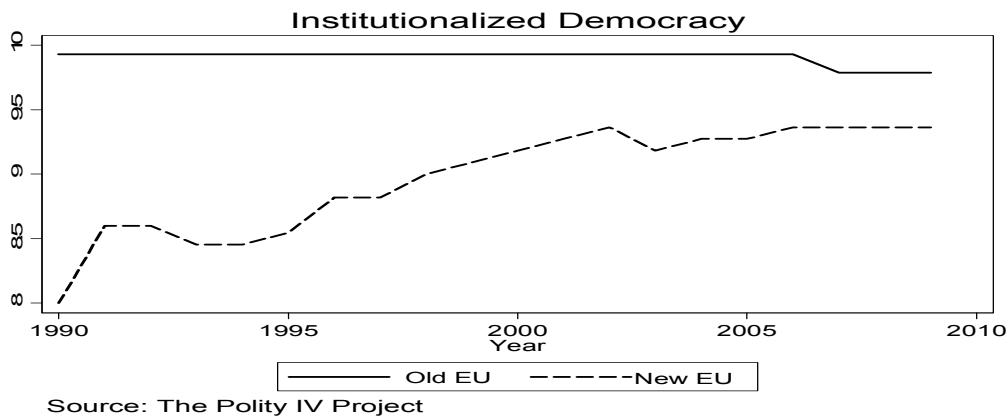

Source: The Polity IV Project

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Table A.1: Sample of Countries

Country	EU Membership, Old Member accession before 1st May 2004, EU15	Date of EU Accession	Income Group
Austria	Old Member (EU15)	1 January 1995	High income: OECD
Belgium	Old Member (EU15)	23 July 1952	High income: OECD
Bulgaria	New Member	1 January 2007	Upper middle income
Cyprus	New Member	1 May 2004	High income: nonOECD
Czech Republic	New Member	1 May 2004	High income: OECD
Denmark	Old Member (EU15)	1 January 1973	High income: OECD
Estonia	New Member	1 May 2004	High income: nonOECD
Finland	Old Member (EU15)	1 January 1995	High income: OECD
France	Old Member (EU15)	23 July 1952	High income: OECD
Germany	Old Member (EU15)	23 July 1952	High income: OECD
Greece	Old Member (EU15)	1 January 1981	High income: OECD
Hungary	New Member	1 May 2004	High income: OECD
Ireland	Old Member (EU15)	1 January 1973	High income: OECD
Italy	Old Member (EU15)	23 July 1952	High income: OECD
Latvia	New Member	1 May 2004	Upper middle income
Lithuania	New Member	1 May 2004	Upper middle income
Luxembourg	Old Member (EU15)	23 July 1952	High income: OECD
Malta	New Member	1 May 2004	High income: nonOECD
Netherlands	Old Member (EU15)	23 July 1952	High income: OECD
Poland	New Member	1 May 2004	Upper middle income
Portugal	Old Member (EU15)	1 January 1986	High income: OECD
Romania	New Member	1 January 2007	Upper middle income
Slovak Republic	New Member	1 May 2004	High income: OECD
Slovenia	New Member	1 May 2004	High income: nonOECD
Spain	Old Member (EU15)	1 January 1986	High income: OECD
Sweden	Old Member (EU15)	1 January 1995	High income: OECD
United Kingdom	Old Member (EU15)	1 January 1973	High income: OECD

Table 1. Dependent Variable: Log of FDI inflows (% GDP)	Estimation Method: Fixed-Effects with Heretoskedasticity - Robust and Country-Clustered Standard Errors				
Sample: NMS					
Log Per Capita GDP PPP	-0.111		0.792	0.039	0.094
	[0.17]		[0.99]	[0.03]	[0.19]
Log inflation rate	0.074	0.022	0.152	-0.202	0.033
	[0.99]	[0.33]	[1.79]	[2.11]	[0.47]
Log Nat Resources Exports	0.029	0.124	0.116	-0.080	0.137
	[0.38]	[2.44]*	[0.95]	[0.36]	[2.21]
Log Per Capita Mobile Phones	0.202	0.191	0.200		0.190
	[12.22]**	[8.60]**	[1.47]		[7.00]**
Democracy (Polity IV)	0.112	0.138		0.586	0.140
	[1.61]	[2.02]		[2.64]*	[2.25]*
EU member	0.030	-0.002	-0.143	0.259	-0.006
	[0.17]	[0.02]	[0.86]	[0.64]	[0.05]
Log population		5.626	9.210	1.878	5.541
		[3.23]**	[0.94]	[0.26]	[3.58]**
Corruption Transparency Intl			0.052		
			[0.79]		
Constant	1.679	-86.558	-149.277	-33.057	-86.260
	[0.29]	[3.17]**	[0.96]	[0.28]	[3.86]**
Observations	160	170	114	165	160
Number of Country	11	11	12	11	11
Adjusted R-squared	0.4	0.43	0.12	0.29	0.43
Sample: EU 15					
Log Per Capita GDP PPP	1.226		2.886	4.041	2.537
	[1.67]		[2.34]*	[3.74]**	[2.54]*
Log inflation rate	0.173	0.216	0.239	0.080	0.190
	[1.26]	[1.34]	[1.79]	[0.43]	[1.30]
Log Nat Resources Exports	0.039	0.048	-0.180	0.076	0.105
	[0.22]	[0.22]	[0.66]	[0.40]	[0.53]
Log Per Capita Mobile Phones	0.157	0.247	0.262		0.183
	[2.04]	[3.55]**	[2.40]*		[2.28]*
Democracy (Polity IV)	-0.372	-0.188		-0.343	-0.400
	[20.48]**				[15.08]**
EU member	0.711				0.656
	[3.41]**				[3.15]**
Log population		-0.795	-10.126	-9.654	-9.290
		[0.18]	[2.62]*	[1.59]	[2.03]
Corruption Transparency Intl			0.231		
			[1.95]		
Constant	-8.656	15.194	138.677	100.541	132.985
	[1.11]	[0.21]	[2.40]*	[1.30]	[1.87]
Observations	229	239	170	232	229

Number of Country	14	14	14	14	14
Adjusted R-squared	0.27	0.26	0.2	0.24	0.28
Sample: EU 27					
Log Per Capita GDP PPP	0.345		0.553	1.227	0.170
	[0.55]		[0.84]	[2.20]*	[0.30]
Log inflation rate	0.120	0.057	0.183	-0.092	0.077
	[1.61]	[0.82]	[2.76]*	[1.05]	[1.05]
Log Nat Resources Exports	0.071	0.092	-0.005	0.000	0.105
	[0.93]	[2.50]*	[0.05]	[0.00]	[1.81]
Log Per Capita Mobile Phones	0.204	0.183	0.229		0.184
	[4.45]**	[5.10]**	[2.93]**		[4.17]**
Democracy (Polity IV)	0.054	0.113		0.541	0.109
	[0.64]	[1.38]		[2.37]*	[1.34]
EU member	0.116	0.174	-0.233	0.146	0.172
	[0.67]	[1.33]	[1.45]	[0.73]	[1.12]
Log population		3.788	0.008	4.135	3.401
		[2.10]*	[0.00]	[1.85]	[1.64]
Corruption Transparency Intl			0.126		
			[1.36]		
Constant	-2.858	-61.243	-4.953	-83.119	-56.693
	[0.47]	[2.09]*	[0.14]	[2.38]*	[1.79]
Observations	389	409	284	397	389
Number of Country	25	25	26	25	25
Adjusted R-squared	0.29	0.3	0.15	0.23	0.3

Robust t statistics in brackets * significant at 5%; ** significant at 1%.

Table 2. Dependent Variable: Log of FDI inflows (% GDP)	Estimation Method: Hausman-Taylor Estimator (institutional variables as endogenous)				
Sample: NMS					
Log Per Capita GDP PPP	-0.111		0.792	0.039	0.094
	[0.20]		[1.03]	[0.05]	[0.18]
Log inflation rate	0.074	0.022	0.152	-0.202	0.033
	[1.13]	[0.36]	[2.01]*	[1.95]	[0.51]
Log Nat Resources Exports	0.029	0.124	0.116	-0.080	0.137
	[0.45]	[2.00]*	[1.25]	[0.60]	[1.91]
Log Per Capita Mobile Phones	0.202	0.191	0.200		0.190
	[4.77]**	[6.06]**	[1.94]		[4.64]**
Democracy (Polity IV)	0.112	0.138		0.586	0.140
	[1.55]	[2.09]*		[5.42]**	[2.00]*
EU member	0.030	-0.002	-0.143	0.259	-0.006
	[0.17]	[0.01]	[0.73]	[0.83]	[0.04]
Log population		5.626	9.210	1.878	5.541
		[3.45]**	[1.26]	[0.60]	[3.23]**
Corruption Transparency Intl			0.052		
			[0.65]		
Constant	1.292	-98.084	-167.174	-36.994	-97.546
	[0.26]	[3.43]**	[1.28]	[0.66]	[3.14]**
Observations	160	170	114	165	160
Number of Country	11	11	12	11	11
Sample: EU 15					
Log Per Capita GDP PPP	1.226		2.886	4.423	2.537
	[1.79]		[2.28]*	[5.42]**	[2.79]**
Log inflation rate	0.173	0.216	0.239	0.005	0.190
	[1.52]	[1.98]*	[1.92]	[0.05]	[1.68]
Log Nat Resources Exports	0.039	0.048	-0.180	0.146	0.105
	[0.24]	[0.31]	[0.86]	[0.88]	[0.65]
Log Per Capita Mobile Phones	0.157	0.247	0.262		0.183
	[2.68]**	[4.73]**	[2.52]*		[3.08]**
Democracy (Polity IV)	-0.372	-0.188		-0.333	-0.400
	[0.90]	[0.60]		[0.79]	[0.97]
EU member	0.711	0.805			0.656
	[2.64]**	[3.06]**			[2.44]*
Log population		-0.795	-10.126	-9.654	-9.290
		[0.25]	[2.14]*	[2.28]*	[2.16]*
Corruption Transparency Intl			0.231		
			[2.33]*		
Constant	-9.015	14.476	130.297	111.403	125.464
	[1.07]	[0.29]	[1.93]	[1.84]	[2.00]*
Observations	229	239	170	232	229
Number of Country	14	14	14	14	14
Sample: EU 27					

Log Per Capita GDP PPP	0.345		0.553	1.227	0.170
	[0.80]		[0.85]	[2.92]**	[0.39]
Log inflation rate	0.120	0.057	0.183	-0.092	0.077
	[2.00]*	[0.98]	[2.63]**	[1.34]	[1.24]
Log Nat Resources Exports	0.071	0.092	-0.005	0.000	0.105
	[1.02]	[1.54]	[0.05]	[0.00]	[1.48]
Log Per Capita Mobile Phones	0.204	0.183	0.229		0.184
	[5.59]**	[6.94]**	[3.19]**		[4.92]**
Democracy (Polity IV)	0.054	0.113		0.541	0.109
	[0.67]	[1.44]		[5.87]**	[1.31]
EU member	0.116	0.174	-0.233	0.146	0.172
	[0.81]	[1.49]	[1.18]	[0.78]	[1.19]
Log population		3.788	0.008	4.135	3.401
		[2.79]**	[0.00]	[2.26]*	[2.31]*
Corruption Transparency Intl			0.126		
			[1.90]		
Constant	-3.677	-60.961	-5.832	-83.574	-56.563
	[0.81]	[2.79]**	[0.17]	[3.03]**	[2.43]*
Observations	389	409	284	397	389
Number of Country	25	25	26	25	25

Absolute value of z statistics in brackets* significant at 5%; ** significant at 1%.

Table 3. Dependent Variable: Log of Portfolio inflows (% GDP)	Estimation Method: Estimation Method: Fixed-Effects with Heretoskedasticity-Robust and Country-Clustered Standard Errors				
Sample: NMS					
Log Per Capita GDP PPP	0.783		0.739	2.408	0.995
	[1.17]		[1.78]	[3.41]**	[1.53]
Log inflation rate	-0.009	-0.047	-0.009	-0.106	-0.012
	[0.20]	[0.89]	[0.15]	[1.91]	[0.27]
Log Nat Resources Exports	-0.206	-0.130	-0.067	-0.177	-0.151
	[7.01]**	[2.87]*	[0.90]	[3.13]*	[4.27]**
Log Per Capita Mobile Phones	0.256	0.331	0.214		0.268
	[2.22]	[3.51]**	[1.89]		[2.41]*
Democracy (Polity IV)	-0.084	-0.060		-0.055	-0.082
	[1.47]	[0.90]		[0.87]	[1.28]
EU member	0.252	0.249	0.295	0.162	0.207
	[2.20]	[1.86]	[2.03]	[0.96]	[1.70]
Log population		5.195	18.088	3.752	4.944
		[1.02]	[1.89]	[0.59]	[1.06]
Corruption Transparency Intl			-0.008		
			[0.16]		
Constant	-8.749	-81.736	-288.653	-82.441	-87.198
	[1.40]	[1.03]	[1.98]	[0.82]	[1.19]
Observations	86	96	82	86	86
Number of Country	11	11	12	11	11
Adjusted R-squared	0.65	0.55	0.55	0.61	0.66
Sample: EU 15					
Log Per Capita GDP PPP	1.801		1.040	3.588	1.065
	[3.85]**		[1.75]	[5.73]**	[1.78]
Log inflation rate	0.066	-0.051	0.057	0.112	0.057
	[2.36]*	[1.72]	[2.00]	[2.01]	[1.95]
Log Nat Resources Exports	0.086	-0.155	0.029	0.131	0.031
	[0.77]	[1.35]	[0.25]	[0.73]	[0.26]
Log Per Capita Mobile Phones	0.431	0.531	0.444		0.440
	[7.04]**	[9.64]**	[6.68]**		[7.38]**
Democracy (Polity IV)	0.062	0.101		0.133	0.065
	[4.44]**	[7.40]**		[7.38]**	[6.57]**
Log population		5.852	3.797	2.711	3.804
		[4.16]**	[2.72]*	[0.92]	[2.69]*
Corruption Transparency Intl			0.003		
			[0.07]		
Constant	-19.403	-98.180	-74.050	-83.725	-75.051
	[4.00]**	[4.22]**	[3.70]**	[1.87]	[3.65]**
Observations	111	124	111	111	111
Number of Country	14	14	14	14	14
Adjusted R-squared	0.89	0.82	0.9	0.76	0.9
Sample: EU 27					

Log Per Capita GDP PPP	1.508		0.240	2.949	0.847
	[2.47]*		[0.45]	[6.01]**	[1.71]
Log inflation rate	0.063	-0.023	0.037	-0.054	0.030
	[1.46]	[0.63]	[1.25]	[1.24]	[0.95]
Log Nat Resources Exports	-0.164	-0.109	-0.095	-0.129	-0.110
	[2.82]**	[4.64]**	[3.57]**	[4.00]**	[3.69]**
Log Per Capita Mobile Phones	0.348	0.402	0.319		0.357
	[4.06]**	[5.95]**	[4.69]**		[4.71]**
Democracy (Polity IV)	-0.141	-0.038		-0.038	-0.077
	[3.53]**	[0.65]		[0.60]	[1.32]
EU member	-0.031	0.167	0.270	0.046	0.151
	[0.35]	[1.54]	[2.40]*	[0.37]	[1.75]
Log population		7.262	10.811	6.960	7.235
		[4.21]**	[5.14]**	[3.09]**	[3.91]**
Corruption Transparency Intl			-0.004		
			[0.11]		
Constant	-14.509	-117.595	-177.891	-142.089	-125.302
	[2.42]*	[4.19]**	[5.60]**	[4.22]**	[4.46]**
Observations	197	220	193	197	197
Number of Country	25	25	26	25	25
Adjusted R-squared	0.69	0.66	0.72	0.66	0.75

Robust t statistics in brackets * significant at 5%; ** significant at 1%.

Table 4. Dependent Variable: Log of Portfolio inflows (% GDP)	Estimation Method: Hausman-Taylor Estimator (institutional variables as endogenous)				
Sample: NMS					
Log Per Capita GDP PPP	0.783		0.739	2.408	0.995
	[1.22]		[1.35]	[4.62]**	[1.51]
Log inflation rate	-0.009	-0.047	-0.009	-0.106	-0.012
	[0.14]	[0.77]	[0.18]	[1.80]	[0.20]
Log Nat Resources Exports	-0.206	-0.130	-0.067	-0.177	-0.151
	[3.93]**	[2.00]*	[0.98]	[2.56]*	[2.32]*
Log Per Capita Mobile Phones	0.256	0.331	0.214		0.268
	[3.06]**	[4.97]**	[2.20]*		[3.20]**
Democracy (Polity IV)	-0.084	-0.060		-0.055	-0.082
	[0.96]	[0.65]		[0.60]	[0.95]
EU member	0.252	0.249	0.295	0.162	0.207
	[1.78]	[2.13]*	[2.37]*	[1.06]	[1.44]
Log population		5.195	18.088	3.752	4.944
		[1.42]	[2.60]**	[0.98]	[1.37]
Corruption Transparency Intl			-0.008		
			[0.15]		
Constant	-8.686	-91.293	-324.156	-88.890	-96.066
	[1.47]	[1.42]	[2.65]**	[1.29]	[1.48]
Observations	86	96	82	86	86
Number of Country	11	11	12	11	11
Sample: EU 15					
Log Per Capita GDP PPP	1.801		1.040	3.588	1.065
	[5.88]**		[2.76]**	[7.51]**	[2.83]**
Log inflation rate	0.066	-0.051	0.057	0.112	0.057
	[1.70]	[1.24]	[1.53]	[1.94]	[1.52]
Log Nat Resources Exports	0.086	-0.155	0.029	0.131	0.031
	[1.36]	[2.16]*	[0.45]	[1.34]	[0.49]
Log Per Capita Mobile Phones	0.431	0.531	0.444		0.440
	[10.82]**	[13.92]**	[11.31]**		[11.52]**
Democracy (Polity IV)	0.062	0.101		0.133	0.065
	[0.76]	[1.34]		[1.10]	[0.84]
EU member	0.000	0.000			0.000
	[.]	[.]			[.]
Log population		5.852	3.797	2.711	3.804
		[5.28]**	[3.08]**	[1.42]	[3.11]**
Corruption Transparency Intl			0.003		
			[0.10]		
Constant	-19.730	-94.205	-71.580	-82.336	-72.583
	[5.88]**	[5.33]**	[4.12]**	[3.05]**	[4.19]**
Observations	111	124	111	111	111
Number of Country	14	14	14	14	14

Sample: EU 27					
Log Per Capita GDP PPP	1.508		0.240	2.949	0.847
	[3.91]**		[0.71]	[10.21]**	[2.36]*
Log inflation rate	0.063	-0.023	0.037	-0.054	0.030
	[1.59]	[0.63]	[1.21]	[1.36]	[0.85]
Log Nat Resources Exports	-0.164	-0.109	-0.095	-0.129	-0.110
	[4.13]**	[3.20]**	[2.51]*	[3.02]**	[3.03]**
Log Per Capita Mobile Phones	0.348	0.402	0.319		0.357
	[6.99]**	[12.05]**	[7.40]**		[8.02]**
Democracy (Polity IV)	-0.141	-0.038		-0.038	-0.077
	[2.23]*	[0.63]		[0.56]	[1.35]
EU member	-0.031	0.167	0.270	0.046	0.151
	[0.32]	[2.13]*	[3.19]**	[0.45]	[1.69]
Log population		7.262	10.811	6.960	7.235
		[6.69]**	[9.54]**	[5.36]**	[6.54]**
Corruption Transparency Intl			-0.004		
			[0.12]		
Constant	-14.405	-115.521	-175.013	-141.303	-123.513
	[3.62]**	[6.64]**	[10.25]**	[7.11]**	[7.24]**
Observations	197	220	193	197	197
Number of Country	25	25	26	25	25

Absolute value of z statistics in brackets * significant at 5%; ** significant at 1%.

Table 5.FDI and Financial Reform. Dependent Variable: Log of FDI inflows (% GDP)	Estimation Method: Hausman-Taylor Estimator (institutional variables as endogenous)				
Sample: NMS					
Log population	0.604	2.846	-3.472	5.450	7.086
	[0.10]	[0.48]	[0.68]	[3.12]**	[3.40]**
Log Per Capita GDP PPP	-1.550	-1.631	-0.540	0.217	0.165
	[1.79]	[1.88]	[0.61]	[0.38]	[0.24]
Log inflation rate	-0.026	-0.009	0.081	0.037	0.037
	[0.33]	[0.12]	[1.05]	[0.54]	[0.55]
Log Nat Resources Exports	0.320	0.362	0.187	0.116	0.161
	[1.51]	[1.69]	[1.08]	[1.61]	[2.15]*
Log Per Capita Mobile Phones	0.193	0.192	0.207	0.198	0.174
	[2.81]**	[3.01]**	[3.95]**	[4.56]**	[3.45]**
Democracy (Polity IV)	0.167	0.178	0.178	0.124	0.132
	[1.99]*	[2.10]*	[2.02]*	[1.67]	[1.61]
EU member	0.191	0.173	0.112	0.016	-0.027
	[0.73]	[0.68]	[0.49]	[0.09]	[0.15]
International capital flows	0.104				
	[0.97]				
Financial reform (de jure ffn)		1.013			
		[1.16]			
Financial reform (de facto fd1)			-1.830		
			[1.84]		
Deposit Ratio (Beck)				-0.834	
				[2.35]*	
Financial reform (de facto be)					0.709
					[1.11]
Constant	5.198	-27.784	65.866	-96.193	-125.731
	[0.06]	[0.30]	[0.70]	[3.06]**	[3.31]**
Observations	98	98	121	152	153
Number of Country	8	8	10	11	11
Sample: EU 15					
Log population	-12.210	-10.555	-8.813	-13.254	-9.799
	[2.03]*	[1.70]	[1.96]*	[3.05]**	[2.23]*
Log Per Capita GDP PPP	2.531	2.340	3.620	3.670	2.752
	[2.42]*	[2.06]*	[3.61]**	[3.81]**	[2.87]**
Log inflation rate	0.138	0.171	0.179	0.096	0.207
	[1.20]	[1.44]	[1.42]	[0.80]	[1.79]
Log Nat Resources Exports	-0.147	0.007	0.265	0.219	0.099
	[0.77]	[0.03]	[1.47]	[1.34]	[0.57]
Log Per Capita Mobile Phones	0.269	0.241	0.156	0.200	0.171
	[3.66]**	[2.67]**	[2.47]*	[3.34]**	[2.77]**
EU member	0.523	0.755	0.574	0.658	0.528
	[1.90]	[2.63]**	[1.81]	[2.42]*	[1.85]
Democracy (Polity IV)	-	-	-0.379	-0.370	-0.397

	(1)	(2)	(3)	(4)	(5)
			[0.92]	[0.92]	[0.97]
International capital flows	-0.868				
	[3.69]**				
Financial reform (de jure ffn)		-1.474			
		[1.29]			
Financial reform (de facto fd1)			-2.283		
			[1.63]		
Deposit Ratio (Beck)				-4.064	
				[2.94]**	
Financial reform (de facto be)					-2.446
					[1.60]
Constant	170.849	144.761	107.889	180.389	133.476
	[1.91]	[1.57]	[1.63]	[2.85]**	[2.08]*
Observations	202	202	210	218	222
Number of Country	14	14	14	14	14

Sample: EU 27

	(1)	(2)	(3)	(4)	(5)
Log population	3.663	3.88	-0.907	3.384	3.249
	[1.45]	[1.23]	[0.31]	[2.05]*	[1.75]
Log Per Capita GDP PPP	1.432	0.446	0.027	1.562	0.939
	[1.72]	[0.45]	[0.03]	[1.27]	[0.93]
Log inflation rate	0.086	0.075	0.121	0.071	0.078
	[1.18]	[1.02]	[1.70]	[1.08]	[1.17]
Log Nat Resources Exports	-0.067	0.046	0.193	0.103	0.088
	[0.45]	[0.32]	[1.52]	[1.43]	[1.20]
Log Per Capita Mobile Phones	0.233	0.219	0.189	0.197	0.156
	[4.38]**	[3.68]**	[4.28]**	[5.05]**	[3.68]**
Democracy (Polity IV)	0.011	0.123	0.107	0.075	0.084
	[0.09]	[1.07]	[1.03]	[0.85]	[0.84]
EU member	0.275	0.324	0.099	0.244	0.143
	[1.47]	[1.66]	[0.57]	[1.64]	[0.93]
International capital flows	4.697				
	[2.37]*				
International capital flows [X] Log Per Capita GDP PPP	-0.528				
	[2.45]*				
Financial reform (de jure ffn)		4.743			
		[0.49]			
Financial reform (de jure ffn) [X] Log Per Capita GDP PPP		-0.579			
		[0.57]			
Financial reform (de facto fd1)			-26.828		
			[2.08]*		
Financial reform (de facto fd1) [X] Log Per Capita GDP PPP			2.472		
			[1.85]		
Deposit Ratio (Beck)				10.534	
				[0.93]	
Deposit Ratio (Beck) [X] Log Per Capita GDP PPP				-1.28	
				[1.04]	

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Financial reform (de facto be)					4.512
					[0.44]
Financial reform (de facto be) [X]					-0.536
Log Per Capita GDP PPP					[0.49]
Constant	-70.513	-66.299	14.244	-67.791	-60.964
	[1.68]	[1.20]	[0.28]	[2.20]*	[1.81]
Observations	300	300	331	370	375
Number of Country	22	22	24	25	25

Absolute value of z statistics in brackets * significant at 5%; ** significant at 1%.

Table 6. Portfolio Flows and Financial reform Dependent Variable: Log of portfolio inflows (% GDP)	Estimation Method: Hausman-Taylor Estimator (institutional variables as endogenous)				
Sample: NMS					
Log population	-45.549	-44.796	-21.347	4.846	3.096
	[3.44]**	[3.10]**	[2.62]**	[1.32]	[0.86]
Log Per Capita GDP PPP	-2.689	-2.083	1.098	0.972	1.413
	[1.94]	[1.46]	[1.29]	[1.43]	[2.03]*
Log inflation rate	-0.160	-0.145	-0.058	-0.006	-0.034
	[1.98]*	[1.68]	[0.84]	[0.10]	[0.53]
Log Nat Resources Exports	-0.174	-0.197	-0.195	-0.148	-0.170
	[0.86]	[0.91]	[1.25]	[2.21]*	[2.65]**
Log Per Capita Mobile Phones	0.024	-0.092	0.092	0.257	0.277
	[0.18]	[0.65]	[0.94]	[2.96]**	[3.33]**
Democracy (Polity IV)	-0.026	-0.032	-0.061	-0.089	-0.106
	[0.24]	[0.29]	[0.70]	[1.01]	[1.21]
EU member	0.881	0.875	0.449	0.203	0.216
	[3.82]**	[3.62]**	[2.51]*	[1.39]	[1.46]
International capital flows	-0.355				
	[1.70]				
Financial reform (de jure ffn)		0.410			
		[0.20]			
Financial reform (de facto fd1)			-4.424		
			[3.57]**		
Financial reform (de facto be)				0.596	
				[0.72]	
Deposit Ratio (Beck)					-1.620
					[3.15]**
Constant	690.416	672.219	363.402	-94.571	-65.935
	[3.42]**	[3.04]**	[2.51]*	[1.44]	[1.03]
Observations	46	46	64	85	79
Number of Country	8	8	10	11	11
Sample: EU 15					
Log population	2.324	2.031	3.322	3.432	3.276
	[1.25]	[1.17]	[2.45]*	[2.79]**	[2.38]*
Log Per Capita GDP PPP	0.903	0.998	1.473	0.916	1.183
	[1.73]	[2.05]*	[3.39]**	[2.38]*	[2.66]**
Log inflation rate	0.045	0.039	0.050	0.049	0.068
	[1.14]	[1.05]	[1.25]	[1.33]	[1.69]
Log Nat Resources Exports	0.098	0.040	0.069	0.042	0.051
	[1.23]	[0.52]	[1.04]	[0.66]	[0.80]
Log Per Capita Mobile Phones	0.477	0.442	0.451	0.466	0.426
	[10.54]**	[10.11]**	[11.26]**	[11.84]**	[10.72]**
EU member	0	0	-68.854	0	0
	[.]	[.]	[3.54]**	[.]	[.]

	(1)	(2)	(3)	(4)	(5)
Democracy (Polity IV)			0.072	0.061	0.063
			[0.94]	[0.80]	[0.82]
International capital flows	-15.598				
	[1.78]				
Financial reform (de jure ffn)		2.639			
		[3.21]**			
Financial reform (de facto fd1)			-0.615		
			[1.24]		
Financial reform (de facto be)				0.908	
				[2.08]*	
Deposit Ratio (Beck)					0.892
					[1.12]
Constant	0	-45.429	0	-65.836	-66.277
	[.]	[1.85]	[.]	[3.78]**	[3.47]**
Observations	83	83	102	110	103
Number of Country	14	14	14	14	14

Sample: EU 27

	(1)	(2)	(3)	(4)	(5)
Log population	5.337	6.269	0.949	4.317	7.03
	[3.03]**	[2.81]**	[0.45]	[3.76]**	[5.52]**
Log Per Capita GDP PPP	3.719	0.784	-0.115	-3.505	0.56
	[3.12]**	[0.60]	[0.20]	[3.44]**	[0.68]
Log inflation rate	-0.018	0.025	0.022	0.026	0.032
	[0.43]	[0.55]	[0.58]	[0.75]	[0.86]
Log Nat Resources Exports	0.06	0.095	0.02	-0.129	-0.106
	[0.66]	[0.96]	[0.25]	[3.80]**	[2.85]**
Log Per Capita Mobile Phones	0.432	0.306	0.367	0.386	0.36
	[7.40]**	[4.57]**	[7.87]**	[9.15]**	[7.68]**
Democracy (Polity IV)	-0.127	-0.057	-0.091	-0.106	-0.078
	[1.54]	[0.65]	[1.60]	[1.95]	[1.33]
EU member	0.307	0.265	0.131	0.077	0.148
	[2.36]*	[1.87]	[1.23]	[0.89]	[1.63]
International capital flows	9.29				
	[2.83]**				
International capital flows[X] Log Per Capita GDP PPP	-1.099				
	[2.98]**				
Financial reform (de jure ffn)		0.131			
		[0.01]			
Financial reform (de jure ffn)[X] Log Per Capita GDP PPP		0.098			
		[0.07]			
Financial reform (de facto fd1)			-35.599		
			[4.10]**		
Financial reform (de facto fd1) [X] Log Per Capita GDP PPP			3.478		
			[3.92]**		
Deposit Ratio (Beck)				-48.206	
				[5.18]**	
Deposit Ratio (Beck) [X]				5.061	

Log Per Capita GDP PPP				[5.03]**	
Financial reform (de facto be)					-2.529
					[0.29]
Financial reform (de facto be) [X]					0.297
Log Per Capita GDP PPP					[0.33]
Constant	-116.593	-109.091	-13.807	-35.658	-117.721
	[3.98]**	[2.65]**	[0.38]	[1.62]	[4.91]**
Observations	129	129	166	182	195
Number of Country	22	22	24	25	25

Absolute value of z statistics in brackets * significant at 5%; ** significant at 1%.

Table 7. FDI and Economic Crises. Dependent Variable: Log of FDI inflows (% GDP)	Estimation Method: Hausman-Taylor Estimator (institutional variables as endogenous)		
Sample: NMS			
Log population	1.307	3.116	0.983
	[0.32]	[0.76]	[0.23]
Log Per Capita GDP PPP	-0.591	-0.26	-0.609
	[0.94]	[0.41]	[0.92]
Log inflation rate	0.059	0.044	0.034
	[0.89]	[0.68]	[0.50]
Log Nat Resources Exports	0.337	0.339	0.375
	[2.21]*	[2.26]*	[2.41]*
Log Per Capita Mobile Phones	0.208	0.194	0.216
	[4.77]**	[4.44]**	[4.58]**
Democracy (Polity IV)	0.151	0.15	0.129
	[2.12]*	[2.15]*	[1.77]
EU member	0.036	-0.003	0.022
	[0.19]	[0.01]	[0.11]
Systemic Banking Crisis	-0.525		
	[2.17]*		
Currency Crisis		-1.161	
		[2.81]**	
Banking crisis output loss (% GDP)			-0.003
			[0.30]
Constant	-17.69	-52.388	-9.071
	[0.24]	[0.70]	[0.14]
Observations	142	142	140
Number of Country	10	10	10
Sample: EU 15			
Log population	-9.172	-9.632	-11.351
	[2.12]*	[2.22]*	[2.53]*
Log Per Capita GDP PPP	2.508	2.661	2.686
	[2.74]**	[2.86]**	[2.73]**
Log inflation rate	0.184	0.187	0.207
	[1.62]	[1.66]	[1.78]
Log Nat Resources Exports	0.1	0.096	0.059
	[0.61]	[0.59]	[0.35]
Log Per Capita Mobile Phones	0.182	0.179	0.219
	[3.06]**	[2.98]**	[3.35]**
Democracy (Polity IV)	-0.4	-0.399	-0.413
	[0.97]	[0.97]	[1.01]
EU member	0.676	0.718	0.458
	[2.48]*	[2.53]*	[1.47]
Systemic Banking Crisis	0.242		
	[0.43]		

Currency Crisis		0.409	
		[0.68]	
Banking crisis output loss (% GDP)			0.004
			[0.33]
Constant	123.877	129.566	157.068
	[1.96]*	[2.05]*	[2.40]*
Observations	229	229	217
Number of Country	14	14	14
Sample: EU 27			
Log population	2.227	2.098	1.273
	[1.24]	[1.18]	[0.69]
Log Per Capita GDP PPP	0.091	0.117	0.097
	[0.20]	[0.26]	[0.20]
Log inflation rate	0.103	0.099	0.111
	[1.59]	[1.54]	[1.69]
Log Nat Resources Exports	0.191	0.193	0.175
	[1.68]	[1.71]	[1.51]
Log Per Capita Mobile Phones	0.193	0.191	0.214
	[5.01]**	[4.98]**	[5.15]**
Democracy (Polity IV)	0.103	0.103	0.072
	[1.21]	[1.21]	[0.84]
EU member	0.13	0.106	0.029
	[0.84]	[0.68]	[0.18]
Systemic Banking Crisis	-0.337		
	[1.26]		
Currency Crisis		-0.785	
		[2.16]*	
Banking crisis output loss (% GDP)			-0.007
			[0.89]
Constant	-37.028	-35.241	-21.486
	[1.29]	[1.25]	[0.73]
Observations	371	371	357
Number of Country	24	24	24

Absolute value of z statistics in brackets * significant at 5%; ** significant at 1%.