

International Bank Flows: Determinants and Institutional Role

Elias Papaioannou*

London Business School

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ABSTRACT

This paper studies the determinants of bilateral bank flows during the last two decades. Specific focus is placed on the quantitative impact of composite and specific institutional arrangements in driving foreign bank capital. The empirical analysis reveals the following key findings: 1) The empirical gravity model applies equally well in explaining financial as trade flows. 2) Conditioned on standard gravity factors (distance, GDP, population), well-functioning institutions is the single most important driving force for international bank flows. Specifically, foreign banks invest substantially more in countries with uncorrupt bureaucracies, high-quality legal systems, and a non-government controlled banking system. 3) The European Integration process has almost doubled cross-border lending activities between member states. These results are robust to various econometric methodologies and are not driven by the substantial variation in institutional performance among industrial and developing nations. The results validate and complement recent evidence on the key role of institutions on financial patterns and economic development. The evidence also offer an empirical explanation to Lucas' (1990) famous question of why capital doesn't flow from rich to poor countries.

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* *Correspondence:* Elias Papaioannou, London Business School, Regent's Park, London NW1 4SA. *E-mail:* epapaioannou@london.edu

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Non-technical Summary

One of the key and most controversial characteristics of the recent wave of globalization has been the spike in cross-border financial flows. Yet, the neoclassical prediction that capital should move from wealthy to capital-scarce countries, where the expected capital returns are high, has not been validated. Robert E. Lucas, Jr. (1990) posed a famous inquiry "*why doesn't capital fly from rich to poor countries*" and argued that productivity and human capital differences can not explain the substantially low levels of foreign capital flows to emerging and underdeveloped countries.

Capital flows have been recently regarded both as a remedy and a curse for emerging economies economic setbacks. The unambiguous association of capital flow volatility with recent episodes of financial turmoil have challenged the theoretically sound capital flows-development link. Understanding therefore the underlying factors that influence the behavior of foreign investors is vital. In addition it is particularly useful to investigate whether well-defined and enforced institutions play any role in pulling foreign capital. For example the IMF and the World Bank have constantly urged their members to implement painful institutional reforms, tackle corruption, improve their bureaucracy and privatize state-owned enterprises to attract foreign capital. In line with this reasoning are recent models (e.g. Shleifer and Wolfenzon, 2002) that argue that a poorly operating legal environment magnifies the agency costs of separation of ownership and control.

The aim of the present study is twofold. First, it identifies the driving forces of cross-border capital flows and second it quantifies the effect of institutional arrangements in the capital-recipient country in magnetizing foreign capital. It does that by empirically studying bilateral capital flows from banks located in nineteen developed countries to all sectors (banking, private and public) in fifty-five states.

The panel evidence are striking and very robust: 1) The institutions augmented gravity equation that predicts that capital flows between two countries are positively associated to their "size" (population, GDP) and inversely related to their "distance" (that captures transaction and information costs) can explain more than half of the overall variability in the volume of bilateral bank lending, 2) The role of institutions in attracting cross-border bank capital is economically very large. A one percent increase in an indicator

that measures the overall institutional quality in the capital recipient country is on average associated with a 2 percent spike in cross-border bank lending. Specifically, 3) an uncorrupted and efficient bureaucracy, 4) a high-quality legal environment, and 5) a non-government controlled banking system in the recipient country are necessary conditions for foreign investors (banks), when making their capital allocation decisions.

The empirical analysis also documents that 6) European Union (EU) membership has almost doubled cross-border banking activities among member-states, 7) The quantitatively large institutional effect applies both to developed and emerging countries. 8) Finally, and in line with some previous studies, asset flows tend to be complements with liability flows.

These results crucially contribute to the fast-growing literature on the determinants of various types of capital flows by showing that besides other factors (like distance, level of GDP, ethnolinguistic ties) institutions in the recipient country are of foremost importance. Therefore new theoretical work on international capital movements need to directly model the institutional effect. Second the findings add to the institutions, law and finance research by demonstrating that the legal system, culture, bureaucratic quality and corruption exert a significant effect not only to corporate finance patterns, but also to the liquidity of financial intermediaries in the capital recipient country. Third, by establishing a strong institutions-capital flows nexus, the empirical evidence hint to a likely mechanism through which well-defined and enforced institutions contribute to economic growth.

The policy-implications of those results are also considerable: structural policies aiming to improve inefficient bureaucracies, tackle corruption, and enhance legal system competence seem to be rewarded by foreign banks, who invest substantially more in investor-friendly countries. Therefore such policies can spur investment and growth opportunities, by enhancing the liquidity of financial intermediaries.

1 Introduction

This paper empirically investigates the determinants of cross-border bank flows and quantifies the effect of institutions on international banking activities. I augment the widely-applied in international trade literature, "gravity equation" with both composite and specific institutional measures, trying to answer the famous question posed by Robert E. Lucas (1990), "*why doesn't capital fly from rich to poor nations?*" My results hint at a very straightforward, yet not very pervasive answer: a poorly performing institutional structure is a major impediment for foreign capital flows.

Although this explanation might sound obvious, relevant empirical evidence on the institutions-capital flows nexus is limited. This is most likely due to both data unavailability on bilateral capital flows and on institutional performance, and the absence of well-developed theory. The contribution of this paper is thus twofold: First, it contributes to the nascent, but fast-growing, literature, on the determinants of international capital movements (e.g. Razin, 2002, Portes and Rey, 2002) by studying the driving forces of international banking activities. Second, it provides the first comprehensive empirical study of how the overall institutional environment and specific institutions impact foreign (bank) capital.

Using quarterly observations on bilateral banking activities from nineteen ("source") to fifty-five ("recipient") countries from the mid-eighties until 2002, the panel regressions reveal the following key results: 1) The institutions augmented gravity equation can explain more than half of the overall variability (in terms of R^2) in bilateral bank flows, 2) The role of institutions in attracting cross-border bank flows is not only statistically significant, but also economically very large. A one percent increase in the overall institutional quality index in the capital recipient country is associated with a more than 2 percent escalation in the volume of bilateral bank lending. Specifically, when I decompose the effect of the institutional structure in recipient country, the results show that: 3) an uncorrupted and efficient bureaucracy are necessary for magnetizing foreign capital, and 4) foreign investors appear unwilling to invest in countries with inefficient legal systems, most likely because agency costs are amplified. Quantitatively a 5 per cent improvement in a measure of judicial efficiency in the capital receiving country is followed by a one per cent rise in bilateral bank flows. 5) Government ownership and control of the banking sector strongly hamper foreign investment in the banking sector. 6) International institu-

tions are similarly quite important for foreign lending. European Union (EU) membership has almost doubled cross-border banking activities among member-states. These results are robust to various econometric methodologies and the quantitatively large institutional effect applies both to developed (OECD) and developing (non-OECD) countries.

International capital movements have skyrocketed in the last decades and have become the major source of finance for most developing countries. There are ample evidence and numerous theoretical models stressing the importance of foreign credit and financial globalization on economic performance. Identifying and quantifying what determines the volume of international capital flows is therefore of vital importance. Foreign capital can drastically impact economic performance through various mechanisms. First, consistent with the neoclassical tradition (e.g. Lucas, 1990), empirical evidence (e.g. Bosworth and Collins, 1999; Razin, 2002) demonstrate that capital flows boost domestic investment. Capital-scarce countries need foreign credit to relax domestic firm financing constraints, lower the cost of finance and enable high-quality monitoring of managers and entrepreneurs (Obstfeld, 1998). Moreover, a high volume of international banking activities enhances the liquidity of domestic financial intermediaries, which in turn fosters investment and growth (e.g. Loyaza, Beck, and Levine, 2002; Beck and Levine, 2003). Second, financial integration can spur growth by increasing diversification opportunities (Obstfeld, 1994; Acemoglu and Zilibotti, 1997). Third, capital flows enable countries to finance international trade and realize the gains of specialization (Rose and Spiegel, 2003).¹

In the era of globalization, capital flows have been regarded both as an anathema and as a panacea for developing countries' structural problems. While the capital flows-growth nexus is difficult to challenge on a theoretical basis (see Prasad et al., 2003 for some "mixed" empirical results), there is evidence (e.g. Frankel and Rose, 1996) pointing out a link between foreign capital flows and recent financial crises.² Understanding the driving forces of foreign capital movements, can also help us explain the large capital flow reversals during a crisis and the reasons behind their high volatility.

¹For a review on the "direct" and "indirect" channels of financial integration on growth see Prasad, Rogoff, Wei, and Kose (2000). They also document that capital flows do not necessarily cause higher growth (although the correlation between growth and capital flows is positive and significant).

²Frankel and Rose (1996), Obstfeld (1998). For theoretical models see Aghion, Bacchetta and Banerjee (2001) and Caballero and Krishnamurthy (2002).

1.1 Related Literature

This paper is related to three distinguishable areas of research (see Graph 1 for a graphical illustration).

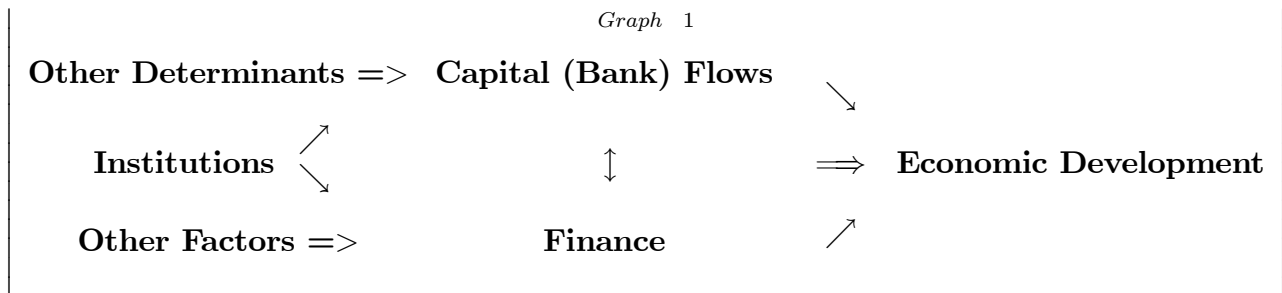
First is the literature on the determinants of cross-border capital flows. The gravity model which predicts that foreign capital movements between two countries are positively related to the size (level of GDP, population) of each country and inversely related to their distance has served as the benchmark for most recent studies on international capital flows. Distance proxies for information and other indirect costs, while size captures diversification opportunities. Portes, Oh, and Rey (2001), Portes and Rey (2002), and Mody, Sadka, and Razin (2003) show that the gravity specification works quite well in explaining cross-border debt, equity and FDI flows respectively.³ Similarly Buch (2002) and Rose and Spiegel (2003) show that the gravity model performs equally well in explaining international banking activities. Although information costs could also be correlated with poorly performing institutions, current research has, however, not focused on institutional role. One notable exception is the work of Shang-Jin Wei (Wei, 2001; Wei and Wu, 2001; Wei and Gelos, 2002); he investigates how corruption and low-transparency in the recipient country influence foreign investors behavior. The present study supplements this literature by examining the driving forces and by quantifying the key role of institutional factors of international bank flows. The results stress the need for future theoretical work linking institutions with international capital movements. In addition, future empirical studies need to incorporate the institutional role on international capital movements.

Second it contributes to the burgeoning institutions and growth literature. Although, there is little doubt that well-functioning institutional arrangements promote economic growth (e.g. Knack and Keefer, 1997, Hall and Jones, 1999, Acemoglu, Johnson, and Robinson, 2001), there is still little empirical evidence on how the institutions-growth nexus works. My analysis provides robust results for a strong institution-capital flow nexus and as such reveals a mechanism through which institutional performance contributes to economic development. Since the finance and development (Levine and Zervos, 1998; Beck and Levine, 2003) and the capital flows and growth (e.g. Bosworth and Collins, 1999) studies have empirically established that financial intermediaries' liquidity and high levels

³A distinct literature has focused on US banks' international extension of credit (e.g. Goldberg and Johnson, 1990; Dahl and Shrieves, 1999). Institutions are absent from those studies, which primarily focus on macro developments in the United States and recipient countries.

of foreign capital crucially contribute to economic growth.⁴, the empirical evidence reveal an important mechanism through which institutions can foster growth.

Third, the results add to the fast-growing literature on the role of institutions on finance. Hayek (1960) argued that the common law tradition offers investors and entrepreneurs a more flexible and adaptable business environment. In a series of influential papers, La Porta et al. (1997, 1998, 1999, 2002) have empirically verified this argument and established a causal effect of investor protection to finance. Well-defined and properly enforced creditor and shareholder rights appear to be a prerequisite for liquid and active capital markets (La Porta et al. 1997, Burger and Warnock, 2004), merger and acquisition activity (Rossi and Volpin, 2002), and large project finance deals (Esty and Megginson, 2003). The present study demonstrates that legal efficiency and well-enforced institutions are also a necessary condition for international banking activities.⁵



The rest of the paper is structured as follows: In the next section, I discuss the theoretical background of my empirical study. Section 3 presents the empirical methodology and the data. Section 4 provides a preliminary analysis of the panel descriptives, while

⁴Specifically, Levine, Loyaza and Beck (2000) provide evidence that financial development is associated with higher productivity and faster capital accumulation. Rajan and Zingales (1998) and Claessens and Leuven (2004) use industry level data to document that financial development promotes growth by relaxing market imperfections and reducing the cost of finance, especially to capital intense firms. For a review of the finance and growth literature, see Levine (2003). Likewise, Razin (2002), and Bosworth and Collins (1999) show that capital flows have a robust causal effect on domestic investment and growth. Both studies document that besides FDI, which has the largest positive impact on the economy among all types of capital flows, bank lending (loan flows) contributes to growth and investment more than portfolio inflows.

⁵The law and finance and the associated corporate governance literature has taken a contractual approach to finance (Shleifer and Vishny, 1997), which is seen as a nexus of incomplete contracts. Well-functioning institutions are required to mitigate the agency problem caused by the separation of ownership and control and promote financial development. Foreign investors typically face greater agency costs due to remoteness, linguistic barriers and asymmetric information. My results support the intuition that an efficient legal environment is important for international investors by showing a strong preference of foreign banks to invest in investor friendly and uncorrupt countries.

section 5 presents and confers the main regression results. In section 6, I quantify the effect of particular institutional arrangements (namely the law, corruption, government ownership of banks, and European Union membership) on cross-border bank flows and show that institutional performance applies to both developed and emerging countries. In section 7, I perform some necessary robustness checks, while in section 8 I summarize and conclude.

2 Theoretical Background

International economics theory has not modelled institutions explicitly, but has analyzed them in the broad context of transaction costs. Obstfeld and Rogoff (2000) present a model that generates substantial levels of portfolio home bias by introducing transaction costs solely in the goods market. These costs are however unlikely to fully account for the large levels of portfolio home bias⁶. Martin and Rey (*forthcoming* 2004) build a representative agent model introducing frictions in the asset market.⁷ An empirical gravity equation for financial flows arises naturally from these models, which allow one to include asymmetric information and inefficient institutional arrangements in their transaction costs.⁸ My results support this theoretical prediction, since population, financial development, and distance (which proxies for information costs) enter the regressions with coefficients that are both consistent with theory and statistically significant. Although Martin and Rey (*forthcoming* 2004) and the related empirical work of Portes and Rey (2002) focus on costs arising from asymmetric information, institutions can also mitigate or amplify asset trade frictions. For example, a high quality legal system minimizes monitoring costs; corporate transparency and advanced accounting standards mitigate information costs; bureaucratic and judicial efficiency similarly alleviate agency costs by settling disputes arising from contract incompleteness.

⁶This was a major critique to Obstfeld and Rogoff's paper. See the discussion, particularly Charles Engel's (2000) comments.

⁷In Martin and Rey model, demand for country A's assets is separated between domestic and external. External demand from country B for assets in A is inversely related to (asset) transaction costs. These costs include financial intermediaries' fees and hedging expenses, along with information and consequently monitoring costs. In addition, demand from country B for assets in A are a function of the size of domestic (country A) capital markets, since a larger market implies better diversification opportunities. Finally, flows from B to A are larger the larger the population in B.

⁸In the discussion of Obstfeld and Rogoff (2000), Maurice Obstfeld admitted that trade costs can be interpreted quite broadly, including language costs and legal system inefficiencies.

Shleifer and Wolfenzon (2002) in contrast directly model legal system effectiveness on financial patterns. They build an agency model where an entrepreneur has a profitable project and seeks external finance. The entrepreneur maximizes her personal wealth, which is a function of the fraction of the project she decides to maintain, the project's profitability, and the amount she is able to divert. Diversion in turn depends on the efficacy of the legal system. Looting becomes costly with well-defined investor's rights and especially with an efficient judiciary that safeguards those rights. Investors, *ex ante*, anticipate this behavior and are unwilling to invest in low quality legal environment countries. Investor-unfriendly countries are therefore characterized by concentrated ownership and underdeveloped equity markets.⁹ This model also provides a theoretical answer to Lucas' question (1990): capital does not flow to countries with low levels of investor protection. Large agency costs make the *effective* production technology less efficient and as a result foreign investors (banks in the present study) are unwilling to lend to countries marked by a poorly functioning legal system. My results demonstrate a strong causal effect of numerous legal system effectiveness indicators to the level of cross-border lending activities and therefore, offer the first comprehensive empirical validation for this theoretical prediction..

3 Methodology and Data

I use a similar methodology to that of previous works on the determinants of cross-border trade and asset flows. Buch (2000) and Rose and Spiegel (2003) study the effect of Basel-driven legislation and trade linkages on international banking activities respectively. Their results suggest that a gravity model should be the benchmark of any similar analysis on cross-border bank lending.

3.1 Gravity Equation

The benchmark specification for my analysis on the drivers of international banking activities takes the following form:

⁹These results are in line with the empirical evidence presented by La Porta et al. (1997, 1999).

$$\begin{aligned}
\ln(F_{i,j,t}) &= \beta_1 \ln(GDP_{i,t}/POP_{i,t} * GDP_{j,t}/POP_{j,t}) + \beta_2 \ln(POP_{i,t} * POP_{j,t}) \\
&+ \beta_3 \ln(AREA_i * AREA_j) + \beta_4 \ln(DIST_{i,j}) + \beta_5 TIE_{i,j} + \beta_6 BORDER_{i,j} \\
(1) \quad &+ \gamma INST_{j,t} + \delta RATE_{i,t} + \Psi OTHER_{j,t} + a_t + \varepsilon_{i,j,t}
\end{aligned}$$

where the dependent variable is the logarithm of gross flows from banks located in country i to all sectors in country j in period (quarter) t . $\ln(GDP_{i,t}/POP_{i,t} * GDP_{j,t}/POP_{j,t})$, is the logarithm of the product of per capita GDP converted to US dollars in the source (i) and host country (j) respectively. $\ln(POP_{i,t} * POP_{j,t})$ is the logarithm of the product of populations in the two countries in quarter t , while $\ln(AREA_i * AREA_j)$ denotes the log of the product of land areas (in square kilometers). These variables are included to capture the "size effect". Specifically, per capita GDP proxies for the level of financial and economic development¹⁰, while population for the market-size of the two countries. $DIST_{i,j}$ denotes the distance between the two countries and $TIE_{i,j}$ is a dummy variable that takes the value one when the two countries have common colonial history or speak the same language.¹¹ The specification also includes a border dummy ($BORDER_{i,j}$), which equals one if the two countries are adjacent. The employed empirical model (1) mimics the specification used by Glick and Rose (2002), and Rose (2003a, 2003b).¹²

$INST_{j,t}$ is the composite institutions index (to be discussed in the following subsection) of the recipient country, j . If in line with theory, institutional performance is important for attracting foreign capital, we expect the γ coefficient to be positive and significant. In Section 6 I decompose the aggregate institutional indicator with specific measures (legal system efficacy, corruption, bureaucratic quality, and government ownership of banks) to quantify how each of these factors affects the level of cross-border bank flows.

$RATE_{i,t}$ is the interest rate (discount or lending rate) in recipient country; it is cap-

¹⁰Clearly one could come up with better proxies of financial development (market capitalization, domestic credit to GDP, etc.). GDP is preferred due to data availability and comparability with previous studies (IFS database does not include market capitalization and private credit at a quarterly basis even for many developed countries).

¹¹It is common in the trade literature to include numerous variables that measure ethno-linguistic ties rather than aggregate them. Including distinct dummies for common language, common country, common colonizer, or other type of ethno-linguistic relationship (e.g. Glick and Rose, 2002) does not alter the results.

¹²Employing the size variables in the source and recipient country distinctly (e.g. Portes and Rey, 2002, Mody, Razin and Sadka, 2002,) instead of their products yields almost identical results. These results are available upon request.

turing macroeconomic developments in industrial countries. $OTHER_{j,t}$ is a vector of additional controls for economic conditions in the recipient country (j). It includes variables, such as inflation, GDP growth, etc. Finally, to control for unobserved world effects and the upward trend on global capital flows, I include period (year, quarter) fixed effects (a_t).

3.2 Data

My dataset consists of quarterly observations, starting from the first quarter of 1984 until the end of 2002. The observations include bank flow data from nineteen "source"-lending countries (i) to fifty-five recipient nations (j). The "source" countries are financially developed nations while recipient countries include both OECD and developing (and some underdeveloped) states. A full list with all sample countries is provided in Appendix A.

The data can be separated into three categories: 1) the cross-border bank flow data, $F_{i,j,t}$, 2) institutional performance measures, $INST_{j,t}$ (composite and specific), and 3) data on other controls. In this sub-section I briefly discuss the Bank of International Settlements (BIS) capital flow data and institutional performance indicators. A complete list with all variables employed, source, and a brief description are included in Appendix B.

3.2.1 Dependent Variable - Bank Flows

Data on bank flows is taken from the Bank of International Settlement's (BIS) International Locational Banking Statistics (IBS). The BIS IBS database reports aggregate assets (and liabilities) of banks in 32 jurisdictions ("the *reporting area*") in more than 100 countries ("the *vis-à-vis countries*").¹³ Data includes on-balance sheet exposure and captures cross-border loans and deposits, debt securities, and other assets, flowing to all sectors (banking and non-banking) in the recipient country (j). Flows are estimated by the BIS as the exchange rate adjusted changes in total assets (and liabilities).¹⁴ Due to

¹³Data includes assets and liabilities for non-residents plus assets and liabilities for residents, denominated in foreign currency. The dataset has many gaps, especially in underdeveloped and emerging countries.

¹⁴A concern with previous versions of the BIS data was how to construct flows from the stock data. Simply taking first differences could be very misleading, since a devaluation either at the source or the recipient country might cause a sharp increase or decrease in total assets, even if no capital movements take place. Since reporting countries report the currency in which the assets and liabilities are denominated,

insufficient coverage for 13 (mainly developing and "off-shore" centres) countries I am left with 19 "source" (*i*) countries.¹⁵ However, due to the hub nature of international banking activities, the data covers almost all international bank lending.¹⁶ The BIS dataset has not been heavily explored, most likely due to some limitations in earlier versions. In recent releases, however, the BIS has addressed most of its previous problems¹⁷ and data quality has drastically improved.¹⁸

3.2.2 Composite & Specific Institutional Indicators

Most indexes that measure legal efficiency, corruption, and other institutional arrangements are either purely cross country or exhibit limited time variability. While this is not a problem per se, an indicator ideally should also exhibit time variability to capture the dynamic effect of improved institutional arrangements on bank lending. Therefore, for my benchmark estimates I use the composite institutional index constructed by Political Risk Services (PRS),¹⁹ namely the International Country Risk Guide (ICRG) "*political risk*" indicator. This indicator exhibits quarterly variability and can be directly merged with the BIS quarterly data. In addition it starts in the early eighties (1984), perfectly matching BIS starting date.²⁰ The "*Political Risk*" indicator is a composite index of political, legal, social, and bureaucratic institutions. It is based on PRS staff subjective assessment of various institutional arrangements and ranges from zero to one hundred, with lower values suggesting poorly performing institutions. Panel A of Appendix B provides a de-

the BIS has constructed an estimate of the flows, which I employ as my dependent variable. As the BIS acknowledge, this adjusting is not perfect, since flows might have occurred at different exchange rates (see for more details Wooldridge, 2002). However, it is the best proxy possible and far better than attempts to individually construct flows (e.g. Van Rijckeghem and Weder, 2001).

¹⁵These countries started reporting international banking activities after 2000.

¹⁶The BIS reports that countries are asked to contribute only "*...when their cross-border banking business becomes substantial.*" (p.5. BIS 2003b)

¹⁷For example after mid-2002 the BIS has made adjustments for measurement differences across countries. It has also recently added some off-balance sheet items, such as "trustee business". For more details, see BIS (2003a,b) and Wooldridge (2002).

¹⁸Unfortunately there are many zeros in the data, which makes the logarithmic transformation impossible. In the robustness section, I address the excess zeros and missing observations problem and show that the importance of institutions in cross-border bank flows is very robust. Other limitations of the dataset, -which are common to most capital flows studies- are: i) the data does not capture indirect exposure to recipient countries, and ii) insufficient coverage of "off-balance sheet" exposure.

¹⁹Political Risk Services, is a risk rating corporation that assess investment risk at a particular country. So although measurement error might be present, it is exactly the type of data that institutional investors, like banks in this sample, take into account, when making their asset allocation and lending decisions.

²⁰Actually the BIS dataset starts in 1977. Data coverage during the first decade, however, is limited to a couple of industrial countries.

tailed list of the individual components of the index. PRS also produce an "*Economic*" and a "*Financial Risk*" assessment based on specific macroeconomic, trade, and financial sector developments. Since I use those indicators to proxy and control for macroeconomic developments, panel A of appendix B also reports their components.

Gelos and Wei (2002) and Alfaro, Kalemli-Ozcan, and Volosovych (2003) have used the ICRG indexes to study the impact of institutions on foreign investor's behavior. However both studies use averages and therefore don't utilize the time variability; moreover these studies do not concentrate on bilateral flows as the present study does. To my knowledge, this is the first paper that links cross-border capital flows with these indexes in a panel data framework. These indexes have been used in the finance literature by Erb, Harvey, and Viskanta (1996a, 1996b) and Perotti and Van Oijen (2001). The former study find that the risk indicators are correlated with future stock and bond returns, while the latter show that political risk is strongly related to stock market turnover.²¹ The empirical growth literature has also used components of the ICRG product with considerable success. Examples include the classical growth studies of Knack and Keefer (1995) and Hall and Jones (1999).²²

Since the aim of the paper is not only to investigate the driving forces and institutional role on driving cross-border capital flows, but also to identify and quantify which type of institutional arrangements are of foremost importance, I use other variables that directly measure legal system efficiency, bureaucratic quality, and corruption.²³ Specifically, I use the widely-used anti-director's rights index, compiled by La Porta et al. (1998) to measure the *de jure* quality of laws in place. For the actual, *de facto*, performance of the legal system I rely on three variables from the recent work of Djankov et al. (2002, 2003). These are *i*) a measure of contract enforceability, *ii*) the time it takes to evict a tenant for non-payment, and *iii*) the time it takes to start up a new business. Djankov et al. (2003) show that these variables, which exhibit substantial cross-country variability, are good

²¹Erb, Harvey and Viskanta (1996a) give detailed correlations and a lucid analysis of the different available indicators of country risk. ICRG measures are not only the best in explaining expected equity and bond returns, but are also the only indicators that exhibit quarterly variability.

²²These papers decompose the ICRG "*political risk*" index and use only the scores on *i*) law and order, *ii*) bureaucratic quality, *iii*) corruption, *iv*) risk of expropriation, and *v*) government repudiation of contracts. Hall and Jones name their composite index Government Anti-diversion policies index. The index I use is broader since it includes religious tensions, war, ethnic conflict, etc. For more details see Panel of Appendix B.

²³See Acemoglu and Johnson (2003) for an effort to "unbundle" institutions and empirically quantify the impact of specific institutional characteristics on economic development.

proxies for the operational performance of the legal system and bureaucratic quality.²⁴ For corruption I use an aggregate index compiled by Transparency International.

3.2.3 Other

Common language, ethno-linguistic, and geographical variables that are included in (1) originally come from the CIA Factbook and have been taken from Andrew Rose's webpage.²⁵ GDP, population and other macro variables are taken from IMF's International Financial Statistics. European Union (EU) and OECD entry dates are taken from the webpages of these organizations.

4 Descriptive Analysis

Figure 1 shows a scatter-plot of the (cross-time) mean of aggregate bank flows (in assets) relative to the (mean) level of GDP in the recipient country (j). The size effect appears remarkably strong. Richer and financially developed countries engage more in cross-border bank lending activities. Table 1 presents the descriptive statistics, while Table 2 provides the correlation matrix of the variables employed. Cross-country institutional performance differs enormously. For example, Canada, Chile, and the United Kingdom get a score of 5 in the (zero to six scale) anti-director's rights index, while Belgium gets a zero, while Germany and Italy get a disappointing one. The variability of the *de facto* legal quality indicators (contract enforceability and tenant eviction time) is even higher. For example in ten sample-countries²⁶ it takes more than a year to enforce one of the simplest legal cases, tenant eviction for nonpayment.

The correlation structure suggests a notable association between the composite institutional index and bank flows. The ICRG "*political risk*" index is substantially correlated with flows both in assets and in liabilities (correlations of 0.31 and 0.34 respectively). Figure 2 plots the cross country scatter of aggregate bank flows against the mean composite institutions index. There is a clear positive association.

²⁴Acemoglu and Johnson (2003) use the "legal formalism" indicator, also compiled by Djankov et. al (2003), as a proxy for the quality of contracting institutions-law; the results are robust to the use of this index.

²⁵Note that I have corrected some mistakes in the original dataset as reported in Andrew Rose's web page.

²⁶Argentina, Japan, Italy, Poland, Austria, Bulgaria, Colombia, Israel, Norway, and Hungary.

The composite institutional index is, in turn, highly correlated with corruption and contract enforceability (correlations above 0.70), although these factors enter with just a 4% loading (see Appendix B). Its correlation with the other legal and political institutional variables is much lower. Since the aim is to identify which type of institutions magnetize foreign capital, figures 3, 4 and 5 plot contract enforceability, corruption and bureaucratic quality measures against aggregate bank flows. All figures suggest a positive association between well-functioning institutions and international banking activities.

The composite institutional index ranges from 33 (in the Philippines in the first quarter of 1991) to 97 (in Switzerland and the Netherlands in various periods). The within country variability, which is particularly desirable in a panel context, is also substantial: The Philippines, for example, begin in 1984 with a very low score of 38 (out of 100). It then experiences a notable institutional improvement and reaches a score of 76 at the end of 1997 and then fall to 65 (in the last quarter of 2002). Figure 6 further explores the time-variation of the aggregate institutions indicator. It shows the evolution of the ICRG "*political risk*" index in the Philippines together with the volume of cross-border lending by US banks (which is the largest creditor to this country) from 1984 till the end of 2002. It is evident that after the substantial improvement of political institutions in the late eighties, capital started to flow to Philippines at a much higher rate than before. Although the Philippines was affected by all three major developing countries' financial crises in the nineties (Tequila crisis of 1994, the East Asian crisis of 1997, and the *contagious* Russian default in 1998-9), improved institutions attracted foreign investor's funds.

5 Results

I begin the regression analysis estimating (1) using plain (cross-section time-series) OLS. I then move to more elaborate panel-data techniques. Although it is common for estimates to differ substantially depending on the estimation methodology,²⁷ the gravity factors and institutional measures appear remarkably robust, especially regarding their statistical significance. Throughout the regression analysis, t statistics based on standard errors adjusted for clustered panel-wise (country pairs) heteroskedasticity are reported.

In this section I concentrate on the time-varying aggregate (composite) institutions

²⁷See for example Rose (2003).

index (ICRG "*political risk*" indicator), while in the next section I try to "*unbundle*" institutions and estimate the effect of particular institutional arrangements on cross-border bank lending.

5.1 Pooled OLS

Table 3 presents the benchmark OLS estimates. The gravity model works pretty well in explaining bilateral bank flows. Although the fit is not as good as in the trade literature (where the R^2 is around 0.65), we can explain more than forty percent of the overall variability in bilateral bank flows just with standard gravity factors, namely distance, ethnolinguistic ties, land area, income, population and per capita GDP. I present several perturbations in Panel A of Table 3 (and in subsequent tables). The standard gravity regressors consistently enter with stable and well-behaved coefficients. Distance enters with a coefficient around -0.6 to -0.8 , which is close, yet smaller than that in recent papers examining trade flows.²⁸ Although it might be puzzling to interpret a negative effect of distance to asset trade, since transaction fees are typically small, distance seems to proxy well for information asymmetries and other non-standard costs.²⁹ Similarly the coefficient for the logarithm of the product of land areas between the two countries is around -0.2 , close to the results of Rose (2003a, 2003b). As predicted by theory (Martin and Rey, 2003) and along with previous studies on equity (Portes and Rey, 2002) and FDI flows (Mody, Razin, and Sadka, 2003) the coefficients on the other size measures are positive and significant. Richer and more financially developed nations (proxied by the log of per capita GDP) engage much more in cross-border lending activities as do larger -in terms of population- countries³⁰. So in spite of the neoclassical model prediction, capital not only doesn't flow to poor nations, but is directed towards relatively wealthy nations. Martin and Rey (forthcoming 2004) attribute this peculiar result to increased diversification opportunities in richer nations, while Gertler and Rogoff (1990) argue that

²⁸Buch, Kleinert, and Toubal (2003) provide a thorough review of both the theoretical foundations and recent empirical results on the impact of distance on bilateral trade and asset flows.

²⁹Portes and Rey (2002) show that when other factors that more directly capture information costs (telephone traffic, foreign newspapers sales) enter an equity flows gravity specification, the coefficient of distance decreases substantially (although it is still negative and significant).

³⁰The only standard gravity variable that does not enter positively and significantly (as it does in the empirical trade analyses) is the common border dummy. Yet this is not puzzling, since we expect adjacency to be much more important in goods trade. For comparability with previous studies I maintain the common border dummy in all the specifications, although it is always insignificant. Excluding the common border dummy yields identical coefficients to all other regressors.

because wealth can serve as collateral, capital market imperfections are mitigated in affluent countries.

Columns (2), (3) and (4) add the composite institutional index to the gravity equation. I use the natural logarithm of the composite institutional indicator to directly interpret the coefficient as elasticity.³¹ Not only is the γ coefficient statistically significant, but its magnitude is economically very large. Its scale implies that a one percent increase (decrease) in institutional efficiency is followed by a rise (decline) of approximately 3.5 percent in the level of international banking activities. This effect appears remarkably large. A country that experiences an institutional improvement from a score of 50 to 55, as it happened in Argentina in 1984-5, is expected to experience an increase in bilateral lending of 35 percent.³² The fit of the model has substantially increased and the R^2 has jumped from 0.45 to 0.50. In columns (3) and (4) I also control for macroeconomic developments both in the "source" (i) and the "recipient" (j) country. Numerous studies (Calvo, Leiderman, Reinhart 1993, 1994; Frankel and Roubini, 2001) have documented a significant effect of global interest rates on "North to South" capital flows. Consistent with these evidence, the coefficient on the lending rate in the source country is significantly negative, suggesting that periods of high interest rates in the industrial world are indeed associated with lower levels of bank lending activities. Note that the coefficient on the composite institutions index has not changed and is still significantly positive.

A particular concern can arise due to omitted variables in the recipient country (j). Most previous work on the determinants of cross-border capital flows has failed to find significant macroeconomic factors in the recipient country that drive foreign capital. One, however, could argue that the composite institutions indicator captures (at least in part) a poorly performing economic environment. Although I further address omitted variables concerns in the sensitivity analysis section (Section 7), in column (4), I add inflation in the recipient country (j). The specification also includes a high income and regional dummies to control for unobserved cross-country heterogeneity.³³ The coefficient on inflation is negative and significant, but extremely small in magnitude. Other macroeconomic controls

³¹The results are very similar when I use the actual value (instead of the natural logarithm) of the composite indicator. These results are available upon request.

³²In the first quarter of 1984 Argentina had a score of 50. However after the end of the military dictatorship and the Falklands war (1984), Argentina experienced a fast institutional improvement. So at the fourth quarter of 1984, Argentina received a score of 55, while at the end of 1985 a score of 58.

³³The high income and the regional dummies comes from World-Bank's country classification.

such as growth appear insignificant, confirming previous studies.³⁴ The γ coefficient on the institutional index has only marginally decayed and retains its statistical significance, implying that even after controlling for gravity factors, regional characteristics and macro developments, well-functioning institutions significantly affect the volume of international capital flows.

In figure 7 I try to further clarify how vital is institutional quality for international banking activities. The dotted line plots the predicted evolution of bank lending from US banks to the Philippines, if the Philippines had not experienced the substantial institutional improvement after the late eighties. In contrast the solid line plots the predicted foreign bank lending with the actual institutions score in each period, while the volatile dashed line plots the real level of gross cross-border lending (in log terms). The simulated time-series when the Philippines had the initial institutions index clearly underpredicts the actual lending activities, while the predicted series on the real institutional performance has a much better fit.

5.2 Alternative Estimators

The second panel of Table 3 presents the benchmark results based on alternative panel methodologies. The first column reports Tobit estimates. Truncation is a concern, since by construction the level of bilateral lending cannot take negative values, and is in fact quite often zero.³⁵ Substantial variability, however, yields Tobit estimates almost identical to OLS. The composite institutions index has still a highly significant coefficient, which suggests that a one percent improvement in the institutional index is followed by a more than 2 percent ($\gamma = 2.3$) increase in cross-border bank lending activities. Column (2) reports the "between" estimation results. Although this estimation removes the time series dimension (by using mean values), it is useful to identify which countries receive on average the bulk of international bank capital. The estimated coefficients imply an even larger effect of institutions to the level of bilateral bank lending activities, which is consistent with the recent cross-sectional results of Alfaro et al. (2003) on the fundamental

³⁴Frankel and Roubini (2001) describe this peculiar finding as follows: "...(*research*) came to a surprising conclusion: the most important identifiable factors behind the flows were US interest rates and other macroeconomic variables external to the emerging market countries. Capital was heading South because low rates of return were on offer in the North. This was a surprising conclusion because the more common belief at the time was that domestic factors within the emerging market countries were responsible, particularly pro-market policy reforms.."

³⁵I address the problem of zeros in the sensitivity analysis section (Section 7.2).

role of institutional quality in explaining why capital doesn't fly to poor nations..

An important policy question is whether foreign investors (banks) "reward" structural policies that improve the institutional environment, through increased lending. The fixed-effects "*within*" estimator tries to directly answer this enquiry. The "*within*" coefficients should be interpreted cautiously, since this estimation ignores time invariant factors, such as distance, ethnolinguistic ties, while we *ex ante* know that these factors are important for explaining cross-border lending. Yet, the coefficient on the composite institutional index is still positive and significant, suggesting that institutional advancement indeed yields increased international bank flows.

Another approach, which fully utilizes the panel information, would be to estimate a FGLS random-effects model. This approach introduces country-pair fixed-effects, but also allows for time invariant regressors. Random-effect estimates are typically more efficient, since they use information both "*between*" and "*within*" panels. However, their consistency crucially relies on the assumption that country-pair effects are not correlated with the disturbances.³⁶ Random-effect estimates are given in column (8). The statistical significance of all regressors has not changed, although their magnitude has somewhat decreased. The effect of institutions' is still highly significant, although their effect has somewhat decreased: a one percent institutional improvement is followed by a 0.5 percent increase in cross-border lending volume.³⁷

5.3 Dynamic Analysis

Another important econometric consideration concerns the structure of the error term. Since flows are estimated by the BIS as the exchange rate adjusted change in total assets, first-differencing might lead to an autocorrelated error term, which would in turn lead to biased estimators.³⁸ Table 4 reports estimates that control for residual autocorrelation. Columns (1) and (2) of Table 4 give the Prais-Winsten and GLS estimates. The estimated coefficients on the composite institutions index and other controls have remained

³⁶Unfortunately, in this case, a Hausman specification test is not particularly helpful. Many time-invariant factors are significant and one cannot distinguish whether the observed fixed-effects correlation with the error term of the within estimator is due to factors omitted in the within estimation (distance, ethnolinguistic ties, etc.), but included in the random-effects or other truly unobserved factors. For more details see Baltagi (1995) and Green (2002) and the discussion in Glick and Rose (2002).

³⁷Following Wei (2000), I have also estimated the basic model adding only "source" or "recipient" country fixed effects. The "quasi-fixed" effect results are similar and for brevity are not reported.

³⁸A similar problem is typical in investment regressions (see Henry, 1999).

unchanged implying that autocorrelation is not an important drawback of previous results. Although autocorrelated disturbances are not present if we pool all data together, persistence might occur in specific country-pairs. Feasible GLS estimates that control for panel-specific autocorrelation (and heteroskedasticity) are given in the last column (4). The estimated coefficients are similar to OLS. When high income and regional constants are included, the estimated coefficient on institutions drops, but is still statistically significant and economically sizable. A one percent increase in institutional performance leads to an almost one and a half ($\gamma = 1.34$) increase in gross bank flows.

6 Further Evidence

The previous section presented compelling evidence that countries with well-functioning institutions attract more foreign bank capital. In this section I investigate which institutions are of foremost importance.³⁹ Then I separate between developed (OECD) and non-developed nations to investigate whether the documented strong institutional significance appears solely from the large variation in institutional and economic performance across rich and poor nations. Finally the results reveal that the same underlying factors influence bank flows both in assets and in liabilities, confirming previous models and empirical studies on their complementarity.⁴⁰

6.1 Specific Institutional Characteristics

Table 5, Panel A gives OLS estimates where the composite institutions index has been replaced with specific institutional measures. Although these more direct institutional measures do not exhibit time variability, institutional persistence suggests that we do not lose much from the use of only one observation per country. To control for macroeconomic developments in the recipient country the specification also includes (the log of) a comprehensive index of economic progress: the "*Economic Risk*" indicator compiled by

³⁹These specific institutional indicators are purely cross-sectional. One could argue, therefore, that estimation and inference in a panel context is problematic. A solution is to estimate cross-section regressions on mean values. Results based on the "between estimator" imply an even higher impact of institutional performance on international banking activities. These results are available upon request.

⁴⁰For brevity I report only OLS estimates. The results do not change when alternative panel data techniques are employed (as in Section 5). Those results are available upon request.

ICRG.⁴¹ As expected economic conditions are positively related to capital flows.⁴²

6.1.1 Corruption

Theory has stressed the malignant role of corruption (Shleifer and Vishny, 1994, Wei, 2001) in attracting foreign capital. Wei (1999) argues that due to its arbitrariness and secrecy corruption is more distortionary than taxation for foreign investors.⁴³ The results presented in the subsequent sections validate this assertion by showing a very strong negative effect of corruption to international banking activities. In the first column of Table 5, I add a corruption measure in 2000.⁴⁴ In line with previous theoretical work and basic intuition (see Prasad et al, 2003 for a review), higher levels of corruption are associated with lower levels of bank lending. The point estimate implies that if Peru, which scores a poor 4.7 score (in a 0 – 10 scale), manages to tackle corruption and reach the level of Costa Rica (8.3), then bank flows will permanently increase by almost 1% $[(8.33 - 4.70) * 0.265 = 0.962]$ at a quarterly basis. Moreover, the coefficients on the other gravity controls remain unaffected and retain their statistical and economic significance. For example, the coefficient on log distance is still approximately -0.7 , while ethnolinguistic ties and size measures (population, GDP) enter positively and significantly.

This result, partially at least, contradicts the cross-sectional evidence provided by Wei and Wu (2001), who document either an insignificant or a positive effect of corruption on international bank lending activities. This is most likely due to differences in the sample and the employed methodology. Moreover the analysis of Wei and Wu (2001) concentrates on the different impact of corruption on the various types of capital flows rather than on estimating the exact effect on bank lending. However, the documented in Table 5 negative impact of corruption on bilateral lending is in line with their simple model with regard to the determinants of capital flows in general and with their estimated results on FDI flows.⁴⁵

⁴¹This is a weighted sum of the following macroeconomic factors: GDP growth, inflation, fiscal balance, current account and GDP per capita. For more details see Appendix B.

⁴²Note, however, that when specific macro variables are used, the effect is either insignificant (GDP or investment growth) or very small (inflation). This contradiction, which is in line with previous evidence (e.g. Frankel and Roubini, 2001) is most likely due to different factor effects across countries and data pooling.

⁴³Shleifer and Vishny (1994) conclude "*...To invest in a Russian company, a foreigner must bribe every agency involved in foreign investment... The obvious result is that foreigners do not invest in Russia.*"

⁴⁴Lower levels of corruption correspond to higher values of this index.

⁴⁵Their analysis focuses on the relationship of corruption with the type of international flow. For

6.1.2 Legal System & Bureaucratic Quality

In columns (2), (3), (4), and (5) I directly check Shleifer and Wolfenzon (2002) theoretical predictions. A poorly-performing legal environment should cause lower levels of international lending due to higher agency costs. The shareholder's protection indicator, compiled by La Porta et al. (1998), proxies for the *de jure*, while trial duration for the *de facto* efficacy of the legal system.⁴⁶ Both variables have significant coefficients suggesting that an efficient legal environment is necessary to attract foreign capital. This result holds even after controlling for economic performance and corruption in the recipient country (column 4), suggesting that macroeconomic performance, corruption and legal efficiency play an important and distinguishable role in pulling foreign capital. Although anti-director's rights appear insignificant in a couple of specifications, most likely due to small variability and multicollinearity with the other controls, the variables that measure the actual efficiency (the *de facto* legal system performance) of the legal environment (contract enforceability and trial duration) are always significant. This clearly suggests that modifying and upgrading anachronistic laws is a necessary yet not sufficient condition to attract foreign (bank) capital. What is of foremost importance is actual law enforcement. The results are similar when I use the (log of the) time it takes to start-up a new business, which proxies for the quality of bureaucracy and other micro distortions (like direct and indirect barriers to entry, etc.). The results in column (5) imply that bureaucratic efficiency, corruption, and legal efficiency are jointly important in attracting foreign bank capital.

6.1.3 Government Ownership of Banks

In Table 5, Panel B, I assess and quantify the effect of government control of the banking sector in the recipient country (j). The indicator of state ownership of banks is taken from La Porta, Lopez-de-Silaens and Shleifer (2002), who document that government ownership of banks is associated with lower levels of financial development and slower investment and GDP growth. Sapienza (2003) shows that state owned banks charge lower interest

example, Wei and Wu (2001) document that countries with high levels of corruption receive a higher portion of bank lending relative to FDI. Moreover and in spite of the statistical insignificance of the corruption coefficient, Wei and Wu too acknowledge that it is peculiar that foreign banks seem to invest more in corrupt countries.

⁴⁶See Djankov et al. (2003) who show that these measures are indeed good proxies for the legal system quality in general.

rates than privately-run banks and that political factors heavily influence their lending practices. However government ownership of banks can increase cross border bank lending activities and enhance the liquidity of the banking sector, since the government implicitly or explicitly can guarantee that its bank will not default. If this "*development*" prediction holds, then one would expect, other things being equal, higher international lending to state-owned banks.⁴⁷

The results presented in panel B of Table 5 reject the "*development*" conjecture and support "*public-choice*" theories of state-ownership that stress the inefficiencies generated by government active involvement in the market. The empirical evidence not only go in line with the findings of La Porta et al. (2002) and Sapienza, but also advance the "public-choice" result of these studies: Foreign banks realize that state-controlled financial institutions promote political rather than profit maximizing objectives and consequently government ownership of banks appears to heavily impede international banking lending. Controlling for corruption and legal system quality, increasing the government's share in the banking system by one percent decreases the level of cross-border bank lending by an almost similar magnitude. (0.84 percent).

In columns (3) to (5) the dependent variable is not aggregate flows from banks in the "source" (i) to all sectors in j , but flows only to the banking sector in the recipient country (j). Undoubtedly, one would expect the health and structure of the banking system in the recipient country (j) to be a crucial factor driving inter-bank international capital flows. Indeed, the negative impact of state ownership is much higher in inter-bank (international) activities. In the last columns I use the La Porta et al (2002) measures of bank soundness and Beck, Demirguc-Kunt, and Levine's estimate of bank's overhead costs to investigate the direct effect of those performance indicators on cross-border bank lending. The results imply that international banking institutions are unwilling to invest or lend to inefficient and vulnerable banks (see also Figures 8 and 9, which plot the log of inter-bank flows against government control of banking system and the bank soundness indicator respectively).

These results offer an intuitive explanation of financial intermediaries' illiquidity in

⁴⁷See La Porta, Lopez-de-Silaens and Shleifer (2002) distinction between "development" and "public-choice" theories of state ownership. "Development" theories stress the benefits due to government ownership and control, while the "public-choice" tradition emphasizes the negative consequences of state active involvement in the credit market.

relatively poor countries: government control of the banking system discourages foreign lending and consequently hampers bank liquidity. Numerous studies (see for a review, Levine, 2003) point out that banking system's liquidity has a strong causal effect to growth. My evidence, therefore, suggest that privatization will drive foreign bank capital and relax banking system's liquidity constraints, fostering in turn growth and investment (see also Perotti and Van Oijen, 2001).⁴⁸

6.2 Developed vs. Developing Countries - EU membership

A major concern regarding most empirical analyses on institutions is whether the estimated effect is driven by the substantial variability between rich and developing (or underdeveloped) countries. The critique states that institutions are strongly correlated with other, difficult to observe, economic (or financial) factors that distinguish industrial from underdeveloped countries. Therefore I reestimate the basic econometric model (1) only in OECD and non-OECD countries. Moreover investigating how the econometric model fits OECD member countries can be quite informative not only to check the robustness of the institutions-capital flows link, but also to quantify the effect of EU membership on cross-border lending activities.

Table 6 provides estimates for institutional effect on bilateral bank flows in current (end 2003) OECD member countries.⁴⁹ As before, the estimation is not particularly sensitive to the employed methodology. All gravity variables, (distance, ethnolinguistic ties, per capita GDP, land area, and population) enter with stable coefficients suggesting that our basic model still performs well. High interest rates in the "source" country (i) and soaring inflation in the "recipient" country(j) are both associated with lower bank flows. The γ coefficient on the aggregate institutions index is highly significant and the most conservative estimate (random effects) implies that a one percent institutional improvement is followed by an almost two percentage increase in international bank flow volume. Columns (2) to (5) include two dummies for European Union (EU) membership: the first takes a value of one when one of the two counterparts is an EU member; the

⁴⁸In Appendix C, I provide additional results from reestimating the previous regressions by adding the composite institutions index. Although the ICRG "*political risk*" index (partially) measures corruption, bureaucratic efficiency, and legal system efficiency, these factors are just a small part of this much broader index. Multicollinearity is clearly a problem, but this should bias coefficients downwards. Corruption is still negatively related with bank flows as is legal efficiency and government ownership of banks.

⁴⁹The results are almost identical if we use the pre-1995 OECD member countries or the G-7 or G-10 countries.

second equals one when both countries are EU members.⁵⁰ The EU Single Market and the subsequent Financial Service Action Plan (started in 1999) aimed to remove (direct and indirect) barriers in cross-border movements of capital by harmonizing banking law and financial services' regulations and codes. Moreover, the single currency has minimized exchange rate risk. The results confirm that EU membership has led to an expansion of banking activities across member countries. The effect of joint EU membership is quite large. Joint EU membership almost doubles bank flows ($\exp(0.64) - 1 = 0.89$) according to feasible GLS estimation that controls for panel-specific residual autocorrelation and heteroskedasticity.⁵¹ In contrast, bilateral lending between an EU and a non-EU member country is estimated to be much smaller leading to an approximately 15% increase in bank lending activities ($\exp(0.148) - 1 = 0.15$), which in many specifications insignificant.

Table 7 strengthens the results on the large impact of joint EU membership on bilateral bank lending. According to the most conservative estimate (column 1) joint EU membership leads to an almost 50% ($\exp(0.374) - 1 = 0.453$) increase in bank flows. But the effect of corruption, bureaucratic and legal quality is still significant, even in the wealthy OECD sub-sample.⁵² Anti-director's rights, contract enforceability and trial duration always have significant and well-behaved coefficients. The same holds for corruption and government involvement in the banking sector. The results given in column 5 that jointly check for the effect of those factors on international banking activities imply that a one percent improvement in legal efficiency, proxied by trial duration, is associated by 0.16% increase in bank flows; a ten per cent decline in government ownership of banks is associated with a remarkably high 6.7% increase.⁵³

⁵⁰Rose (2003a) uses a similar dummy specification in a gravity model to assess the impact of international institutions on bilateral trade flows.

⁵¹Inserting EU member dummies in the full sample (and not just in the OECD subsample as in Tables 6 and 7) yields larger and even more significant coefficients. One needs to account for the large economic differences. Therefore I report the most conservative estimates, since I want to avoid EU membership capturing an OECD or rich countries effect.

⁵²Interestingly all employed institutional indicators exhibit substantial variability even within the OECD (and G-7 or G-10) sub-sample.

⁵³Even when the specific institutional measures enter the RHS together with the composite institutional index (results given in Appendix C), all coefficients retain their economic magnitude and their statistical significance, confirming the strong impact of these institutional arrangements on international bank flows.

6.3 Liability Flows

In Table 8 the basic specification is re-estimated, but now the dependent variable is the logarithm of liability flows from i to j . Interestingly the model performs quite good for bank flows in liabilities as well. This result might seem puzzling, since international borrowing is less risky than investing and low-quality institutions in the recipient country shouldn't be an important factor for the borrower.

The results given in Table 8 imply that institutions, and all other gravity factors, are important drivers not only of investment, but also of borrowing flows. Foreign liabilities of country i , held by residents in j , can serve as collateral for country j and therefore increase bilateral lending by reducing the riskiness of foreign investment. In addition due to the hub structure of the international banking system, financially developed countries (mainly Germany, the United States, Japan, and the United Kingdom) are at the same time both lenders and borrowers. This finding extends previous results of Moshirian and Van der Laan (1998) and Buch (2000) on the behavior of US, UK and German banks. It is also consistent with the model and empirical results of Ruffin and Rassek (1986), who document that large US multinational corporations have no significant effect on the US net capital account position, since their foreign investment and financing decisions go in hand and are not independent. The results shown in Table 8 suggest that capital inflows and outflows are mutually dependent and are strong complements; Institutional performance can therefore explain both international lending and borrowing.

7 Sensitivity Analysis

The previous evidence has revealed a strong institutions-bank flows link. Institutions broadly defined, legal efficiency, corruption, government ownership of banks and EU membership in particular crucially influence the investment decision of foreign banks. In this section I provide some sensitivity checks, by adding more controls and addressing some limitations of the BIS data.

7.1 Additional Controls

7.1.1 Economic and Financial Risk

The correlogram given in table 2 entails a large correlation between the "*political risk*" measure and the two other "risk" factors, compiled by PRS: the ICRG "*economic*" and "*financial risk*" indicators.⁵⁴ One could therefore suspect that the previously estimated coefficients (using the ICRG index) actually capture "*economic*" or "*financial*" risk rather than institutional role. Although in the previous section (Table 5 & Table 7-Panel B) legal efficiency, corruption, and government ownership of banks all appeared to have a significant effect on cross-border bank flows even after controlling for "*economic risk*", in this subsection I check which type of risk is most important for foreign banks when making their international capital allocation decisions. For example, Erb, Harvey and Viskanta (1996a, 1996b) find that the "*economic risk*" index carries the bulk of information, while "*political risk*" is the least informative in predicting future equity and bond returns.

The results presented in Panel A of Table 9 reveal a different picture than on the Erb, Harvey and Viskanta studies. Political risk, i.e. institutions, is the most important factor for foreign banks when making their international capital allocation decisions. The first three columns in Table 9 give the estimated coefficients for the basic gravity model, augmented with each of the three risk indicators. As expected, all three risk characteristics are key drivers of foreign (bank) capital. The coefficient for "*political risk*" is however the largest; additionally the specification with this composite institutions index has the best explanatory power (in terms of R^2). In column (4), I jointly estimate the effect of "*economic*" and "*political risk*" while in column (5) I include all three factors. The results should be interpreted cautiously, due to high multicollinearity. However, in all specifications, the institutional risk factor has the coefficient with the largest economic magnitude and statistical significance, confirming that institutional arrangements are the most important factor for international bank flows.

7.1.2 Human Capital

One of the main reasons that capital doesn't flows to poor countries is undoubtedly the low level of human capital that reduce the rate of capital returns. Lucas (1990) argued

⁵⁴In my sample, the correlation between "*political risk*" and "*economic risk*" is 0.685 and with "*financial risk*" is 0.737.

that human capital differences can explain a big part of the low capital flows puzzle, yet is by no means the sole answer. Alfaro et al. (2003) present evidence that human capital differences can empirically explain a substantial part of the puzzle, although their cross-country regressions reveal that low-quality institutions is a much more serious impediment. Since human capital is highly correlated both with wealth and well-functioning institutions, the previous estimates might be capturing part of the effect of education. In panel B of Table 9, I add secondary schooling to control for human capital and experiment with other proxies for legal efficiency and government ownership of banks.⁵⁵ In all specifications the coefficient for schooling is positive and significant. Consistent with a neoclassical production function and Lucas' (1990) point, more educated societies, other things equal, engage more in international banking activities and have consequently more liquid (and efficient) financial intermediaries. However, neither the effect of the aggregate institutions index nor that of all other specific institutional measures (corruption, anti-director's rights, government stake at the banking sector, legal efficacy) has lost its significance, suggesting that wealth (proxied by the log of GDP), human capital (proxied by schooling) and institutions (captured by the ICRG "*political risk*" indicator) all contribute to the explanation on why capital doesn't flow to capital-scarce countries.

7.2 Data Limitations

The BIS dataset includes many zeros, especially in some developing and non-developed countries. Since a log transformation has been applied these observations have not been considered until now. A careful analysis of the BIS data reveals that these zeros indeed represent non reporting gaps rather than actual zero flows. Yet, I re-estimate the previous specification replacing zeros with a value of one, yielding a log value of zero flows. Table 10 reproduces some of the previous estimates. Naturally, the overall fit of the model has worsened. The magnitude and statistical significance of all estimated coefficients has however remained unchanged. In fact, the estimated γ coefficient on the composite institutions index has increased. Corruption is still negatively associated with capital inflows, while the anti-director's rights index and the log of time to evict a tenant for non-payment are still significant, with well-behaved coefficients.

⁵⁵Specifically I use the log of the time to collect a bounced check (instead of time to evict a tenant for non-payment) and government ownership of commercial banks at the 20 per cent level (instead of government ownership of all banking institutions at the 50 per cent level). For more details on the sources and specific definitions of these variables see Appendix B.

Table 11 shows some additional robustness checks. It is particularly interesting to check whether the factors that influenced international investment decisions have changed over time. This is interesting since many economies have only recently lifted capital account restrictions and since the volume of cross-border flows has drastically increased in the nineties. For columns (1) to (4) I therefore split the sample into two periods, investigating whether the effect of institutions, corruption and legal efficiency have changed over time. The econometric model, in general, and the effect of institutional arrangements, in particular, is robust, implying that gravity factors and institutions played a crucial role throughout the eighties and nineties.

In the last four columns of Table 11 I check whether the results are influenced by the fundamental role of the United States, the United Kingdom, and Japan, in the global financial system.⁵⁶ All typical gravity equation regressors enter the specification with well-behaved coefficients. More importantly, the aggregate measure of political institutions in the recipient country (j) always has a significantly positive coefficient, even when controlling for legal efficiency and corruption. Government ownership of banks and corruption are negatively associated with bank lending, while a well-performing legal system magnetizes foreign capital.

8 Conclusion

Few doubt that institutions, to a smaller or greater extent influence financial and economic development. The challenge for empirical research is to quantify which type and through which channels institutions influence economic activity. This paper demonstrates that an important channel of influence of institutions both for finance and growth is that of attracting foreign capital. Controlling for size, distance and other macroeconomic developments, the results reveal that countries with high-quality institutions engage more in asset trade and consequently face less binding financing constraints.

This paper quantifies the role of both broadly defined institutional arrangements, and that of specific institutional characteristics. The results are robust to various methodologies and perturbations: Foreign banks tend to prefer investing and allocating credit

⁵⁶For example, a concern regarding the paper by Portes, Rey and Oh (2001) on the determinants of equity flows was the fact that US was the only counterpart. Portes and Rey (2002) address this limitation by using bilateral equity flows data from fourteen countries and find similar results.

to uncorrupted countries that are also characterized by a well-functioning legal system. Government ownership of banks amplifies agency costs and is associated with lower levels of international bank lending. Finally, financial securities' and banking law harmonization policies that European countries have implemented together with the minimization of exchange rate risk, have spurred cross-border bank lending activities within the European Union.

Enhancing domestic liquidity by attracting foreign capital has recently become a cornerstone of economic policy in many developing countries, who usually lack credit to finance domestic investment. My results suggest that structural policies aiming to improve inefficient bureaucracies, tackle corruption, and enhance legal system competence are crucial to attract foreign bank capital and consequently to spur investment and growth. This policy-recommendation does not only apply to developing economies. Improving institutional performance is followed by a substantial increase in lending activities, even in wealthy countries that have relatively well-performing legal and bureaucratic systems (OECD).

From a theoretical standpoint the evidence provided confirm the predictions of Shleifer and Wolfenzon's (2002) model, who stress the necessity of an efficient legal system for financial development. They also offer a plausible explanation to the Lucas (1990) inquiry on "*why capital doesn't fly from rich to poor nations*". The answer lies in poor nation's relatively poorly performing institutions, corruption, inefficient government policies and low-quality law! Although it is unlikely that institutions alone can explain the large equity home-bias and the low levels of international diversification, the results imply that institutional performance should be a necessary ingredient for any serious theoretical and empirical effort to analyze cross-border capital movements.

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Figures 1 – 5

Figures 1 to 5 plot the cross-time mean of the natural logarithm of cross-border bank flows against: 1) the mean value of the log of real GDP in recipient country (Figure 1), 2) The mean value of the aggregate institutions index “ICRG political risk” measure (Figure 2), 3) A measure of corruption (higher value indicates lower level of corruption) in the recipient country (Figure 3), 4) A measure of contract enforceability in the recipient country (Figure 4), and 5) the time it is required to start-up a new business, which proxies for bureaucratic quality (Figure 5). For detailed variable definitions and sources, check Appendix B. For country abbreviations see Appendix A.

Figure 1

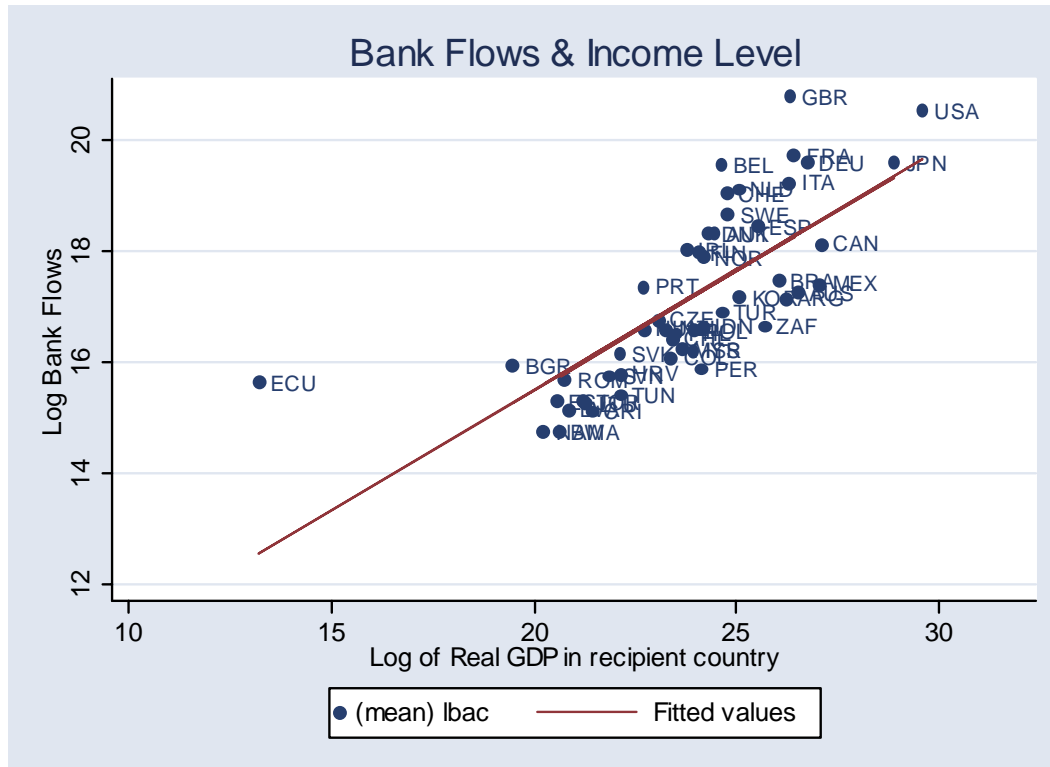


Figure 2

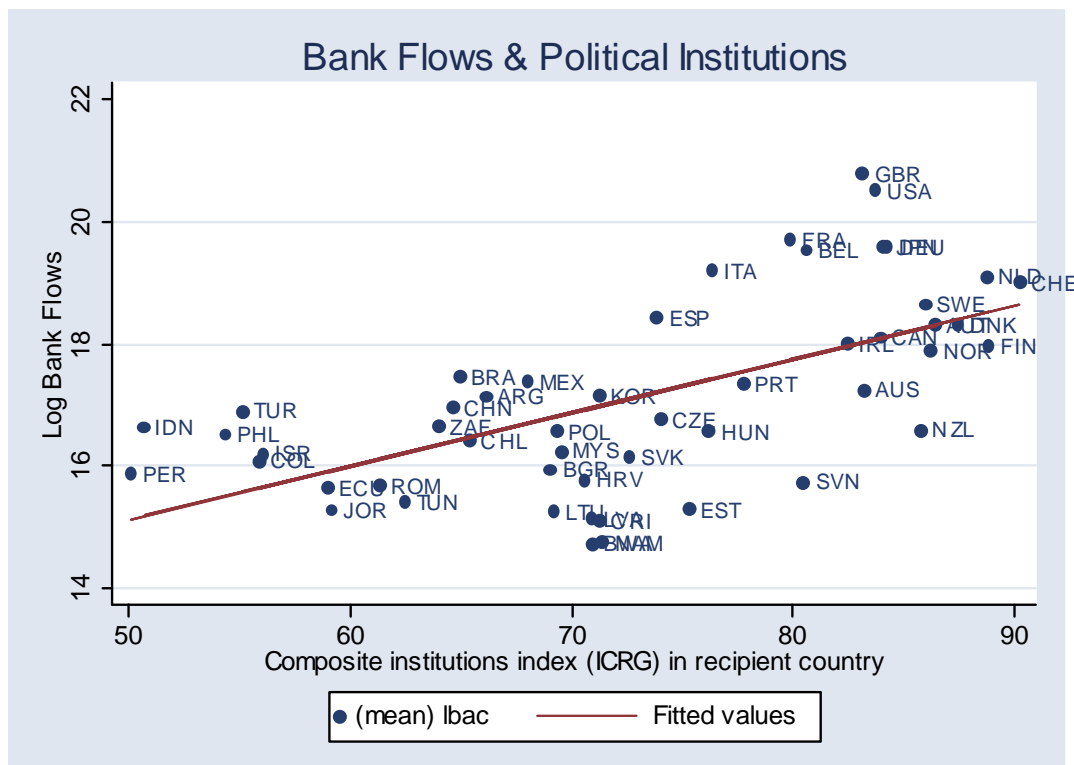


Figure 3

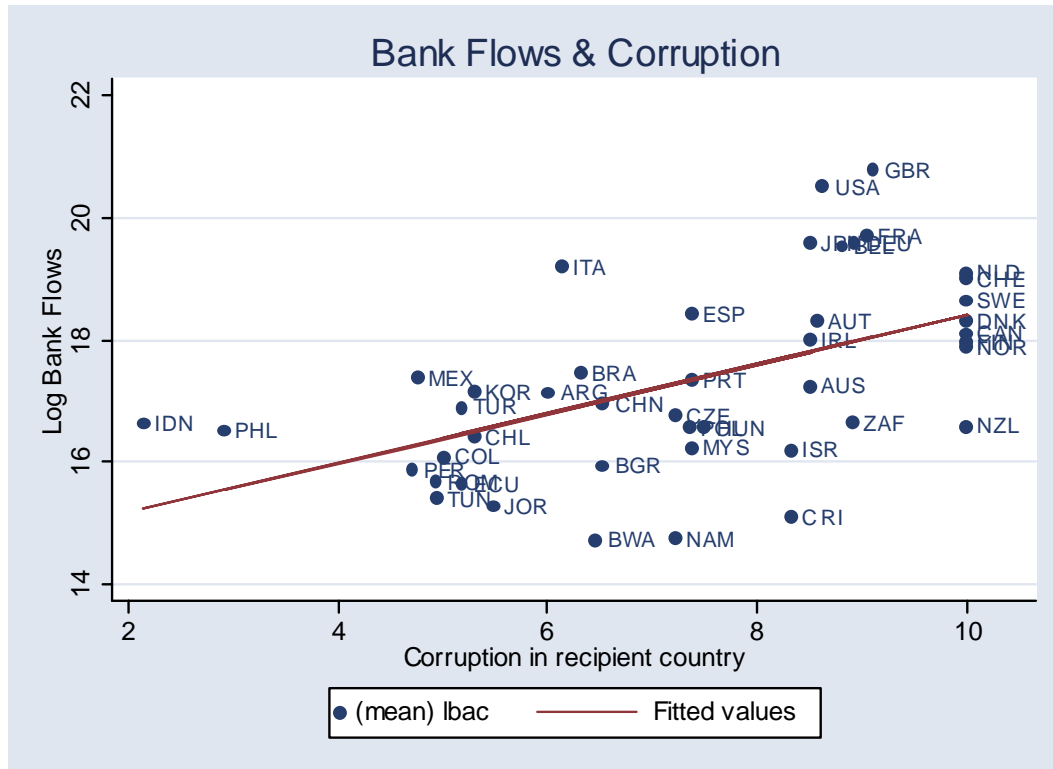


Figure 4

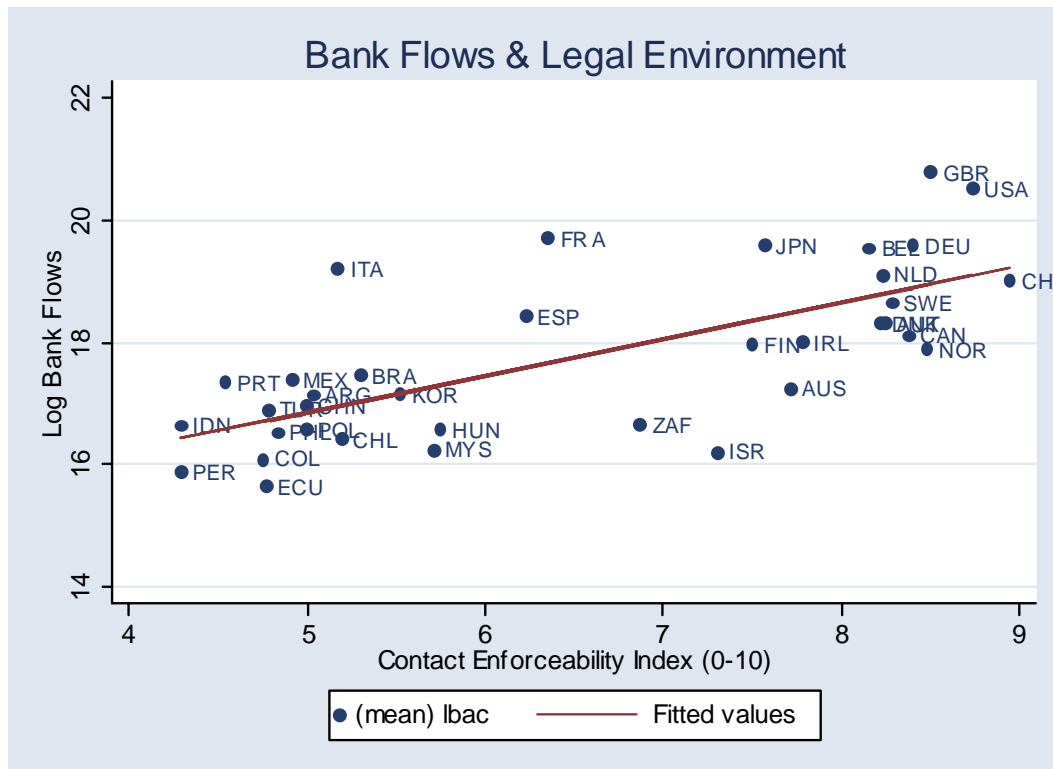


Figure 5

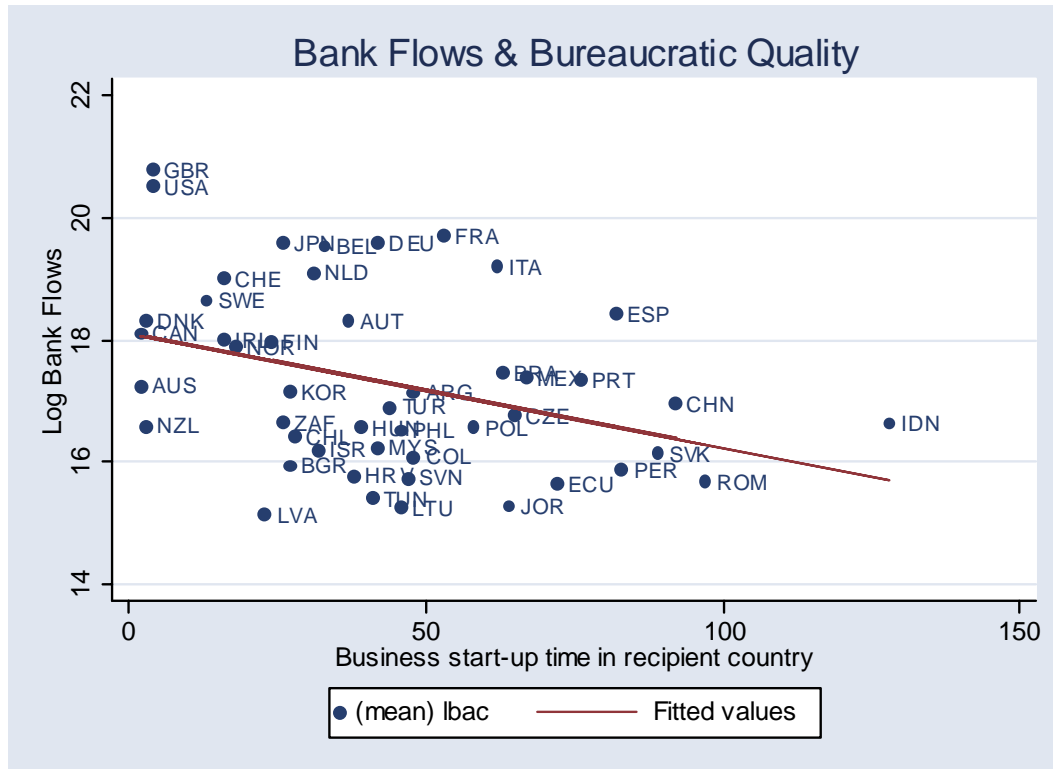


Figure 6

Figure 6 plots the volume of international bank lending activities (in millions of US Dollars) from the United States to Philippines and the evolution of political institutions in Philippines (0-100 ICRG "political risk" indicator"). For detailed variable definitions and sources, check Appendix B.

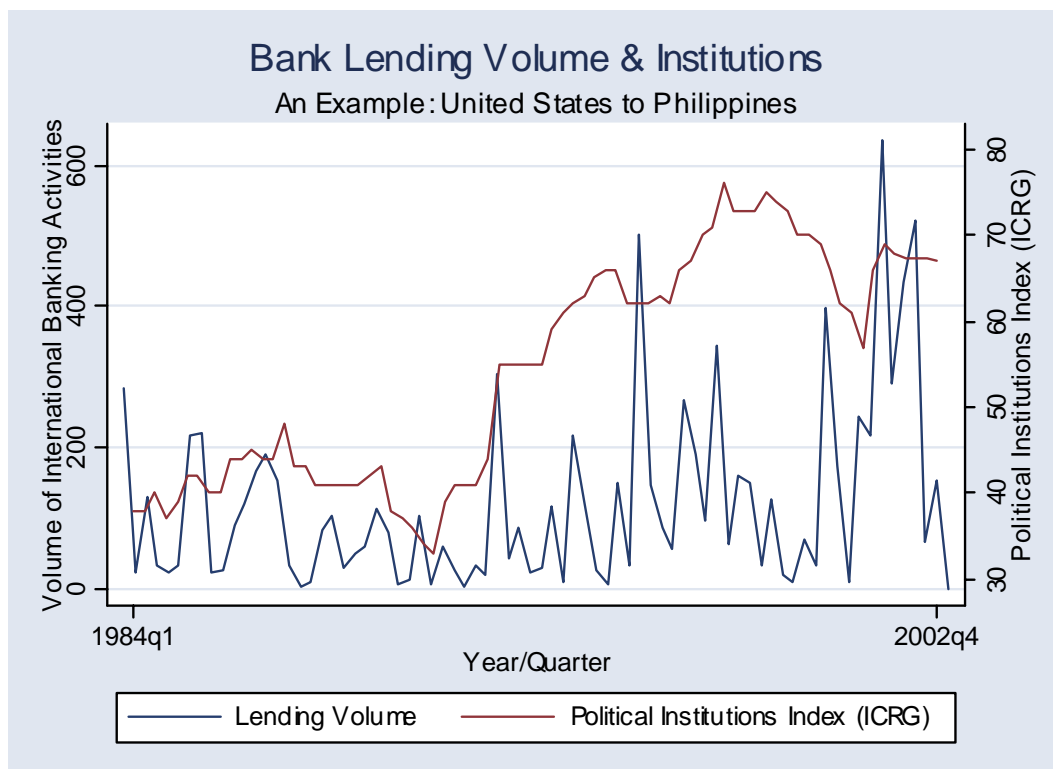
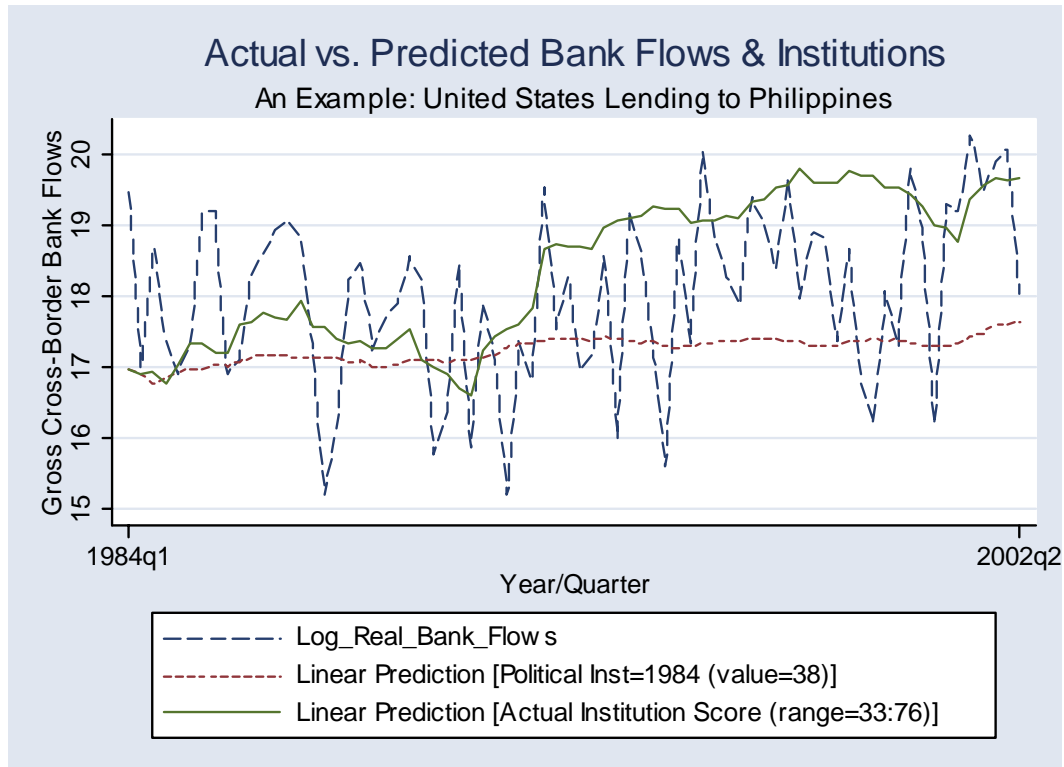


Figure 7

The solid line represents a linear prediction of the log of gross cross-border bank flows (in assets) from the United States to Philippines based on the specification given in Table 1 (column 5). The dotted line is the simulated evolution of gross cross-border bank flows (in assets) if Philippines throughout the sample period (1984-2002) had the level of political institutions in 1984 (a score of 38 in the 0-100 ICRG “political risk” index). The dashed line gives the actual log value of gross cross-border bank flows in the same period.



Figures 8 & 9

Figures 8 and 9 plot the cross-time mean of the natural logarithm of cross-border inter-bank (bank to bank) flows against: 1) government ownership of banking institutions in the recipient country in 1995 (Figure 1), 2) An indicator of bank soundness in recipient country in 1999 (Figure 2). For detailed variable definitions and sources, check Appendix B. For country abbreviations see Appendix A.

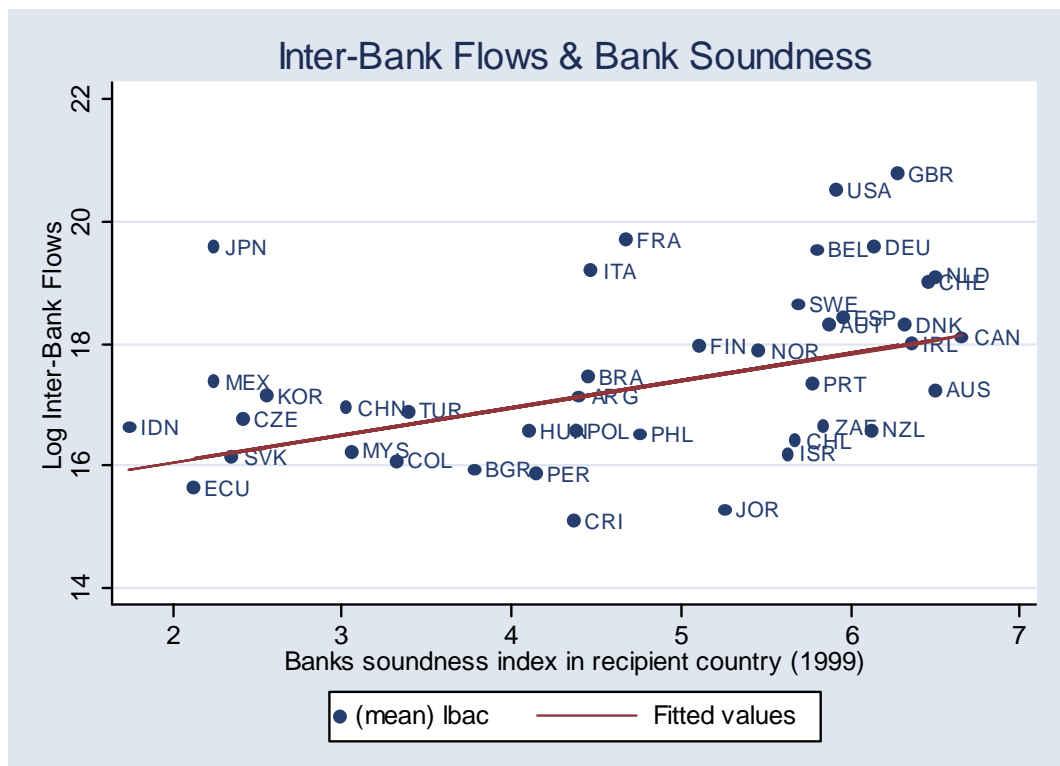
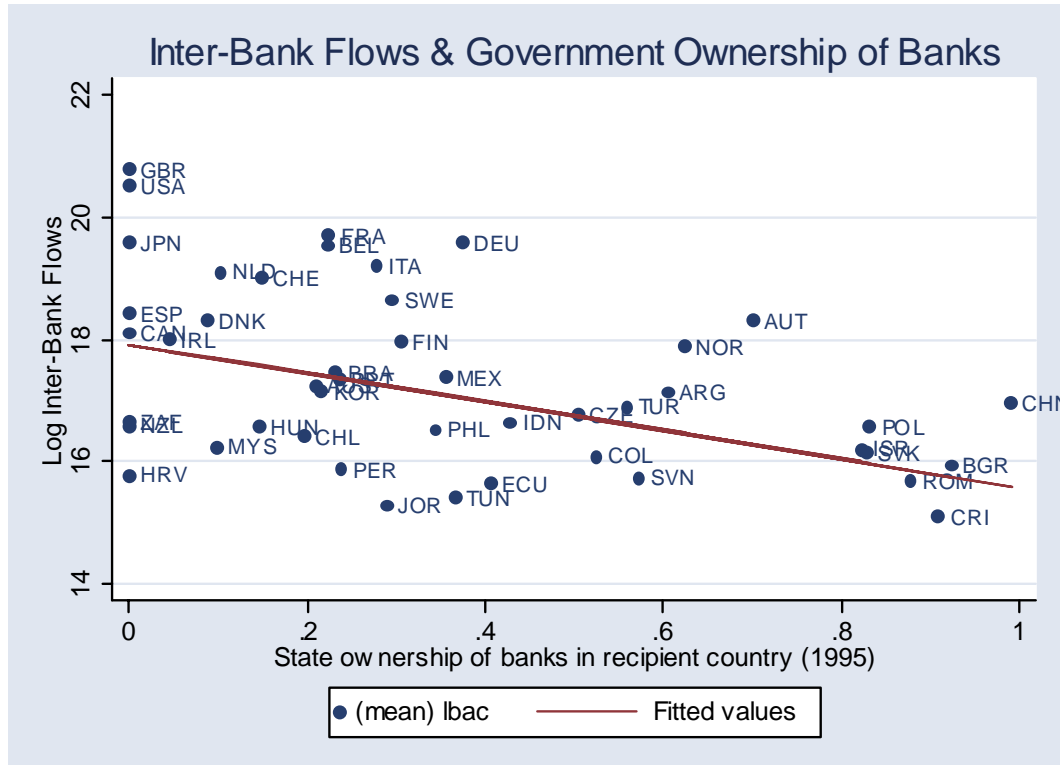


Table 1**Summary Statistics**

Column 1 reports the panel mean, column 2 the standard deviation and columns 3 and 4 the minimum and maximum value respectively. The last two columns list the panelwise number of observations and the number of country pairs. Precise variable definitions and sources are given in Appendix B.

Variable	Mean	Std. Dev.	Min	Max	Observations	Number of panels
Asset Flows	104.90	1755.80	-53458	71131	61255	914
Liability Flows	79.25	1694.56	-48742	67342	61394	916
Logarithm of Asset flows	17.49	2.27	13.82	24.99	50830	903
Logarithm of Liability Flows	17.56	2.27	13.82	24.93	51443	907
Log Distance	7.79	1.07	4.80	9.42	72200	950
Log of Land Area	25.10	2.40	20.28	32.13	70756	931
Log of Population	33.35	1.89	28.93	40.50	72200	950
Log of GDP per capita	44.11	2.41	26.51	52.99	48389	931
Lending Rate in Source Country	9.58	4.24	1.85	30.00	67950	950
<i>Institutions in Recipient Country</i>						
Composite Political Institutions (0-100)	72.55	13.22	33.00	97.00	65379	950
ICRG Economic Risk (0-50)	35.72	6.07	10.50	49.50	65379	950
ICRG Financial Risk (0-50)	37.40	8.25	8.00	50.00	65379	950
Antidirector's Rights Index (0-6)	2.97	1.32	0.00	5.00	49096	646
Contract Enforceability Index (0-10)	6.49	1.57	4.29	8.94	50540	665
Composite Corruption Index in 2000 (0-10)	7.28	2.02	2.14	10.00	63536	836
Time to start-up a new business in Recipient Country	43.44	28.24	2	128	66424	874
Time to evict a tenant for non-payment	267.42	217.13	33	1080	70756	931
Time to collect a bounced check	252.29	206.77	7	1003	70756	931
Government Ownership of Banks	0.35	0.29	0.00	0.99	64980	855

Table 2
Correlation Matrix

Panel A - Capital Flows and Gravity Control Variables

	Log Asset Flows	Log Liability Flows	Log Distance	Common Border	Linguistic Ties	EU members	Log Area Product	Log Population Product	Log GDP p.c. Product	Lending Rate	Log Composite Institutions
Logarithm of Asset flows	1.000										
Logarithm of Liability Flows	0.688	1.000									
Log Distance	-0.273	-0.217	1.000								
Common Border	0.224	0.230	-0.483	1.000							
Ethnolinguistic Ties	0.124	0.130	-0.009	0.295	1.000						
Both countries are EU members	0.275	0.310	-0.502	0.167	-0.030	1.000					
Log of Product of Land Areas	-0.004	0.067	0.544	-0.061	0.099	-0.386	1.000				
Log of Product of Populations	0.308	0.364	0.404	-0.013	0.023	-0.071	0.618	1.000			
Log of Product of GDP p.c.	0.294	0.351	0.059	0.071	0.122	-0.106	0.259	0.112	1.000		
Lending Rate in Source Country	-0.074	-0.069	-0.103	0.074	0.003	0.116	0.067	-0.009	0.081	1.000	
Log of Composite Institutions in Recipient	0.309	0.344	-0.317	0.154	0.036	0.239	-0.099	-0.223	0.362	-0.038	1.000

Panel B - Institutional Performance Measures in Recipient Country

	Log Composite Institutions	Log Economic Risk	Log Financial Risk	EU membership	Corruption	Log Start-up Time	Government Ownership of Banks	Antidirector Rights	Contract Enforceability	Log Evict Tenant	Log Check Collection
Log of Composite Institutions Index	1.000										
Log of ICRG Economic Risk Index	0.685	1.000									
Log of ICRG Financial Risk Index	0.737	0.780	1.000								
EU membership	0.319	0.287	0.231	1.000							
Corruption	0.736	0.540	0.553	0.273	1.000						
Log of start-up business time	-0.488	-0.340	-0.370	-0.026	-0.605	1.000					
Government Ownership of Banks	-0.343	-0.277	-0.285	-0.187	-0.298	0.393	1.000				
Antidirector's Rights	0.035	0.012	0.016	-0.174	0.191	-0.431	-0.360	1.000			
Contract Enforceability	0.700	0.570	0.584	0.209	0.889	-0.703	-0.261	0.139	1.000		
Log of evict time	-0.237	-0.082	-0.099	-0.025	-0.269	0.547	0.534	-0.267	-0.349	1.000	
Log of check collection time	-0.259	-0.270	-0.241	-0.075	-0.314	0.248	0.441	-0.177	-0.399	0.274	1.000

Table 3
Benchmark Estimates

The dependent variable is the natural logarithm of gross asset flows from country i ("source" country) to county j ("recipient" country). Estimation in Panel A is performed by OLS. Panel B gives Tobit, "Between", "Within", and "Random Effects" panel estimates. Time period (year, quarter) fixed effect dummies and a constant term are included, but their coefficients are not reported. T-statistics based on robust standard errors (adjusted for clustering by country pairs) are given in italics. Definitions and sources for all variables are given in Appendix B.

Panel A

	OLS			
	(1)	(2)	(3)	(4)
Log Distance	-0.794 <i>-13.27</i>	-0.627 <i>-11.63</i>	-0.648 <i>-11.46</i>	-0.624 <i>-9.9</i>
Common Border	-0.066 <i>-0.41</i>	-0.065 <i>-0.43</i>	-0.041 <i>-0.26</i>	-0.027 <i>-0.17</i>
Ethnolinguistic Ties	0.585 <i>4.42</i>	0.578 <i>5.05</i>	0.585 <i>5.12</i>	0.616 <i>5.43</i>
Log Product Land Area	-0.186 <i>-6.74</i>	-0.208 <i>-8.73</i>	-0.194 <i>-8</i>	-0.203 <i>-8.32</i>
Log Product Real p.c. GDP	0.388 <i>11.9</i>	0.258 <i>9.31</i>	0.840 <i>28.36</i>	0.847 <i>28.2</i>
Log Product Population	0.789 <i>24.14</i>	0.844 <i>28.96</i>	0.249 <i>8.88</i>	0.249 <i>9.1</i>
Log Composite Institutions		3.431 <i>15.63</i>	3.516 <i>15.6</i>	3.339 <i>14.62</i>
Lending Rate-Source Country			-0.064 <i>-4.63</i>	-0.062 <i>-4.49</i>
Inflation-Recipient Country				0.000 <i>-1.76</i>
Adjusted R squared	0.452	0.501	0.505	0.507
Observations	38688	38086	35546	35546
Regional & Income Dummies	No	No	No	Yes

Panel B

	Tobit	"Between"	"Within"	"Random Effects"
	(5)	(6)	(7)	(8)
Log Distance	-0.731 <i>-61.22</i>	-0.677 <i>-12.41</i>		-0.760 <i>-16.48</i>
Common Border	-0.248 <i>-6.43</i>	-0.137 <i>-0.71</i>		0.396 <i>2.14</i>
Ethnolinguistic Ties	0.455 <i>18.45</i>	0.582 <i>4.79</i>		0.933 <i>8.12</i>
Log Product Land Area	-0.165 <i>-31.47</i>	-0.139 <i>-5.29</i>		-0.088 <i>-3.91</i>
Log Product Real p.c. GDP	0.842 <i>136.23</i>	0.761 <i>23.66</i>	-0.853 <i>-5.76</i>	0.779 <i>29.85</i>
Log Product Population	0.168 <i>34.17</i>	0.222 <i>8.38</i>	0.024 <i>2.85</i>	0.113 <i>15.11</i>
Log Composite Institutions	2.333 <i>37.9</i>	3.781 <i>11.25</i>	0.220 <i>2.67</i>	0.598 <i>7.73</i>
Lending Rate-Source Country	-0.077 <i>-22.82</i>	-0.090 <i>-4.05</i>	0.024 <i>5.48</i>	0.006 <i>1.48</i>
Adjusted R squared	0.29	0.764	0.115	0.399
Observations	35546	35546	35546	35546
Regional & Income Dummies	Yes	No	No	No

Table 4
Benchmark Estimates - Dynamic Analysis

The dependent variable is the natural logarithm of gross asset flows from country i ("source" country) to county j ("recipient" country). Column 1 reports the Prais-Winsten estimators that control for first order residual autocorrelation. Column 2 gives estimated GLS coefficients adjusted for first-order serial correlation. Column 3 reports coefficients estimated by "random effects" estimation adjusted for first-order autocorrelation in the error term. Column 4 reports Feasible GLS estimates that control for panel-specific (country-pairs) autocorrelation and contemporaneous cross-panel residual correlation. Time period (year, quarter) fixed effect dummies and a constant term are included, but their coefficients are not reported. T-statistics based on robust standard errors (adjusted for clustering by country pairs) are given in italics. Definitions and sources for all variables are given in Appendix B.

	(1) Prais-Winsten	(2) GLS	(3) Random Effects	(4) Feasible GLS
Log Distance	-0.692 <i>-14.00</i>	-0.704 <i>-45.35</i>	-0.797 <i>-18.92</i>	-0.650 <i>-47.51</i>
Ethnolinguistic Ties	0.376 <i>3.07</i>	0.355 <i>8.90</i>	0.740 <i>6.20</i>	0.270 <i>8.02</i>
Log Product Land Area	-0.155 <i>-5.63</i>	-0.168 <i>-20.10</i>	-0.111 <i>-4.70</i>	-0.138 <i>-18.79</i>
Log Product Real p.c. GDP	0.249 <i>8.70</i>	0.272 <i>37.60</i>	0.144 <i>14.22</i>	0.146 <i>24.82</i>
Log Product Population	0.769 <i>24.77</i>	0.776 <i>78.91</i>	0.744 <i>27.04</i>	0.738 <i>88.96</i>
Log Composite Institutions	3.184 <i>15.12</i>	3.072 <i>38.53</i>	0.776 <i>7.62</i>	1.358 <i>17.26</i>
Lending Rate-Source Country	-0.081 <i>-6.37</i>	-0.074 <i>-14.59</i>	-0.001 <i>-0.18</i>	-0.081 <i>-19.75</i>
Inflation-Recipient Country	0.000 <i>-1.26</i>	0.000 <i>-1.88</i>	0.000 <i>-2.70</i>	0.000 <i>-1.80</i>
Wald chi square	3076.49	15930.21	3056.73	49289.36
Observations	26765	26760	26765	26760
Number of Panels (country-pairs)	682	687	687	687
Regional & Income Dummies	No		No	Yes
Residual Autocorrelation Coefficient	0.534		0.22	panel specific

Table 5
Specific Institutional Arrangements (I)

The dependent variable is the natural logarithm of gross asset flows from country i ("source" country) to county j ("recipient" country). Estimation is performed by OLS. Time period (year, quarter) fixed effect dummies and a constant are included, but their coefficients are not reported. T-statistics based on robust standard errors (adjusted for clustering by country pairs) are reported in italics. Definitions for all variables are given in Appendix B.

Panel A: Corruption, Legal System & Bureaucratic Quality

	(1)	(2)	(3)	(4)	(5)
Log Distance	-0.678 <i>-11.33</i>	-0.784 <i>-13.10</i>	-0.824 <i>-12.18</i>	-0.807 <i>-13.54</i>	-0.836 <i>-12.40</i>
Common Border	-0.038 <i>-0.24</i>	-0.273 <i>-1.74</i>	-0.288 <i>-1.71</i>	-0.250 <i>-1.55</i>	-0.243 <i>-1.45</i>
Ethnolinguistic Ties	0.372 <i>3.21</i>	0.390 <i>3.34</i>	0.282 <i>2.46</i>	0.322 <i>2.83</i>	0.230 <i>2.04</i>
Log Product Land Area	-0.198 <i>-7.81</i>	-0.206 <i>-7.77</i>	-0.189 <i>-7.01</i>	-0.225 <i>-8.65</i>	-0.202 <i>-7.52</i>
Log Product Real p.c. GDP	0.151 <i>6.34</i>	0.139 <i>6.69</i>	0.124 <i>6.24</i>	0.155 <i>7.68</i>	0.120 <i>6.17</i>
Log Product Population	0.909 <i>29.22</i>	0.911 <i>28.41</i>	0.891 <i>27.46</i>	0.911 <i>28.28</i>	0.907 <i>28.24</i>
Lending Rate-Source Country	-0.075 <i>-5.54</i>	-0.083 <i>-5.98</i>	-0.088 <i>-6.43</i>	-0.082 <i>-6.10</i>	-0.088 <i>-6.47</i>
Log of Economic Risk in Recipient	1.512 <i>6.05</i>	0.919 <i>3.24</i>	0.801 <i>2.80</i>	1.024 <i>3.65</i>	0.902 <i>3.13</i>
Corruption	0.265 <i>7.40</i>	0.316 <i>10.75</i>	0.147 <i>3.28</i>	0.273 <i>8.50</i>	0.165 <i>3.74</i>
Antidirector's Rights		0.083 <i>2.32</i>	0.075 <i>2.21</i>	0.063 <i>1.80</i>	0.027 <i>0.70</i>
Contract Enforceability			0.248 <i>4.97</i>		0.137 <i>2.38</i>
Log of evict time				-0.274 <i>-4.04</i>	
Log of start-up business time					-0.192 <i>-3.06</i>
Adjusted R squared	0.5267	0.5411	0.5436	0.5471	0.5482
Observations	34188	31947	30674	31947	30674

Table 5 (cont).
Specific Institutional Arrangements (II)

The dependent variable is the natural logarithm of gross asset flows from country i ("source" country) to county j ("recipient" country). Estimation is performed by OLS. Time period (year, quarter) fixed effect dummies and a constant are included, but their coefficients are not reported. T-statistics based on robust standard errors (adjusted for clustering by country pairs) are reported in italics. Definitions for all variables are given in Appendix B.

Panel B: Government Ownership of Banks

	(1)	(2)	(3)	(4)	(5)
	Aggregate Asset Flows		Flows to Banking Sector Only		
Log Distance	-0.828	-0.830	-0.888	-0.794	-0.859
	<i>-13.66</i>	<i>-12.33</i>	<i>-14.31</i>	<i>-11.60</i>	<i>-13.43</i>
Common Border	-0.079	-0.247	-0.167	-0.111	0.019
	<i>-0.47</i>	<i>0.00</i>	<i>-0.93</i>	<i>-0.56</i>	<i>0.10</i>
Ethnolinguistic Ties	0.218	0.227	0.259	0.050	0.157
	<i>1.57</i>	<i>1.96</i>	<i>1.84</i>	<i>0.38</i>	<i>1.10</i>
Log Product Land Area	-0.109	-0.178	-0.125	-0.159	-0.161
	<i>-3.84</i>	<i>-6.81</i>	<i>-4.14</i>	<i>-5.28</i>	<i>-4.87</i>
Log Product Real p.c. GDP	0.261	0.122	0.280	0.126	0.274
	<i>8.60</i>	<i>6.32</i>	<i>8.80</i>	<i>6.14</i>	<i>7.69</i>
Log Product Population	0.680	0.853	0.693	0.794	0.744
	<i>20.55</i>	<i>24.93</i>	<i>19.58</i>	<i>20.67</i>	<i>19.14</i>
Lending Rate - Source Country	-0.098	-0.092	-0.082	-0.091	-0.074
	<i>-6.75</i>	<i>-6.91</i>	<i>-5.39</i>	<i>-6.57</i>	<i>-4.69</i>
Log of Economic Risk in Recipient	2.524	0.568	2.947	0.814	
	<i>10.38</i>	<i>2.06</i>	<i>10.97</i>	<i>2.76</i>	
Government Ownership of Banks	-1.446	-0.844	-1.482	-0.924	-1.384
	<i>-7.88</i>	<i>-4.05</i>	<i>-7.89</i>	<i>-4.51</i>	<i>-6.53</i>
Corruption		0.115		0.092	
		<i>2.47</i>		<i>6.57</i>	
Antidirector's Rights		0.026		-0.003	
		<i>0.73</i>		<i>-0.09</i>	
Contract Enforceability		0.257		0.381	
		<i>4.32</i>		<i>1.85</i>	
Soundness of Banks (1999)					0.230
					<i>5.29</i>
Bank Overhead Costs (1995)					-9.836
					<i>-3.96</i>
Adjusted R squared	0.4995	0.5488	0.5015	0.5513	0.4966
Observations	26592	26592	25545	23355	25383

Table 6
Political Institutions in OECD countries - Various Methodologies

The dependent variable is the natural logarithm of gross asset flows from country i ("source" country) to county j ("recipient" country). Columns 1 and 2 give OLS estimates; column 3 random-effects estimates; column 4 "between effects" estimation results and column 5 Feasible GLS estimates that correct for panel-specific heteroskedasticity and autocorrelation. Time period (year, quarter) fixed effect dummies and a constant term are included, but their coefficients are not reported. T-statistics based on robust standard errors (adjusted for clustering by country pairs heteroskedasticity) are given in italics. Estimation is performed only on current (2003) OECD member countries. Definitions and sources for all variables are given in Appendix B.

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	Random Effects	Between Effects	FGLS
Log Distance	-0.691 <i>-9.75</i>	-0.572 <i>-8.33</i>	-0.56 <i>-10.86</i>	-0.776 <i>-10.51</i>	-0.615 <i>-32.85</i>
Common Border	-0.160 <i>-0.91</i>	-0.126 <i>-0.75</i>	0.009 <i>0.05</i>	-0.413 <i>-2.33</i>	-0.263 <i>-5.70</i>
Ethnolinguistic Ties	0.330 <i>2.28</i>	0.534 <i>3.81</i>	0.96 <i>8.19</i>	0.437 <i>3.40</i>	0.635 <i>17.54</i>
Log Product Land Area	-0.183 <i>-5.92</i>	-0.174 <i>-5.71</i>	-0.153 <i>-6.30</i>	-0.187 <i>-5.44</i>	-0.166 <i>-19.82</i>
Log Product Real p.c. GDP	0.372 <i>9.4</i>	0.381 <i>10.16</i>	0.07 <i>6.85</i>	0.510 <i>7.82</i>	0.313 <i>30.03</i>
Log Product Population	0.789 <i>23.67</i>	0.792 <i>21.81</i>	0.815 <i>29.54</i>	0.786 <i>19.18</i>	0.795 <i>76.77</i>
Lending Rate-Source Country	-0.077 <i>-5.16</i>	-0.078 <i>-5.40</i>	0.01 <i>0.48</i>	-0.073 <i>-2.56</i>	-0.063 <i>-12.64</i>
Inflation-Recipient Country	-0.006 <i>-2.73</i>	-0.001 <i>-0.33</i>	0.000 <i>-0.03</i>	0.010 <i>1.38</i>	-0.004 <i>-3.97</i>
Log Composite Institutions	3.917 <i>10.57</i>	3.909 <i>10.79</i>	1.98 <i>13.94</i>	3.155 <i>3.11</i>	3.379 <i>22.12</i>
One country EU member		0.324 <i>2.42</i>	-0.145 <i>-1.12</i>	0.355 <i>2.26</i>	0.148 <i>3.85</i>
Both countries EU members		0.916 <i>5.51</i>	0.20 <i>3.10</i>	0.718 <i>3.17</i>	0.640 <i>12.94</i>
Adjusted R squared					
<i>within</i>			0.1468		
<i>between</i>			0.5292	0.84	
<i>overall</i>	0.48	0.509	0.4214		
Observations	25709	25709	25709	25709	25709
Number of Panels		487	487	487	487

Table 7
Specific Institutional Arrangements in OECD countries

The dependent variable is the natural logarithm of gross asset flows from country i ("source" country) to county j ("recipient" country). Estimation is performed by OLS. Time period (year, quarter) fixed effect dummies and a constant are included, but their coefficients are not reported. T-statistics based on robust standard errors (adjusted for heteroskedasticity clustering by country pairs) are reported in italics. Estimation is performed only on current (2003) OECD member countries. Definitions and sources for all variables are given in Appendix B.

	(1)	(2)	(3)	(4)	(5)
Log Distance	-0.677	-0.908	-0.511	-0.727	-0.616
	<i>-8.18</i>	<i>-13.91</i>	<i>-7.94</i>	<i>-9.90</i>	<i>-9.03</i>
Common Border	-0.143	-0.273	-0.094	-0.128	-0.095
	<i>-0.79</i>	<i>-1.70</i>	<i>-0.55</i>	<i>-0.77</i>	<i>-0.56</i>
Ethnolinguistic Ties	0.317	0.325	0.504	0.379	0.381
	<i>2.60</i>	<i>2.76</i>	<i>3.65</i>	<i>2.60</i>	<i>2.72</i>
Log Product Land Area	-0.236	-0.192	-0.229	-0.146	-0.229
	<i>-7.73</i>	<i>-6.55</i>	<i>-7.65</i>	<i>-4.71</i>	<i>-7.32</i>
Log Product Real p.c. GDP	0.205	0.244	0.295	0.364	0.269
	<i>6.09</i>	<i>9.50</i>	<i>8.02</i>	<i>9.69</i>	<i>7.66</i>
Log Product Population	0.853	0.799	0.877	0.734	0.873
	<i>23.76</i>	<i>21.96</i>	<i>23.39</i>	<i>19.86</i>	<i>22.97</i>
Lending Rate-Source Country	-0.089	-0.095	-0.070	-0.087	-0.075
	<i>-6.50</i>	<i>-7.04</i>	<i>-4.93</i>	<i>-5.74</i>	<i>-5.42</i>
Log of Economic Risk	0.458	2.238	0.502	2.395	0.811
	<i>1.15</i>	<i>8.60</i>	<i>1.32</i>	<i>7.05</i>	<i>2.02</i>
One country EU member	0.083	0.200	0.134	0.240	0.068
	<i>0.64</i>	<i>1.67</i>	<i>1.04</i>	<i>1.71</i>	<i>0.54</i>
Both countries EU members	0.374	0.403	0.612	0.573	0.391
	<i>2.17</i>	<i>2.42</i>	<i>3.76</i>	<i>3.16</i>	<i>2.37</i>
Antidirector's Rights	0.182				
	<i>5.38</i>				
Contract Enforceability	0.333	0.144			
	<i>8.70</i>	<i>4.01</i>			
Log of evict time		-0.413			-0.160
		<i>-6.64</i>			<i>-1.80</i>
Corruption			0.357		0.291
			<i>9.87</i>		<i>7.13</i>
Government Ownership of Banks				-1.494	-0.667
				<i>-6.78</i>	<i>-2.42</i>
Adjusted R squared	0.523	0.515	0.512	0.498	0.520
Observations	23033	25317	25317	25317	25317

Table 8
Liability Flows

The dependent variable is the natural logarithm of gross liability flows from country i ("source" country) to county j ("recipient" country). Estimation is performed by OLS. Time period (year, quarter) fixed effect dummies and a constant are included, but their coefficients are not reported. T-statistics based on robust standard errors (adjusted for heteroskedasticity clustering by country pairs) are reported in italics. Definitions and sources for all variables are given in Appendix B.

	(1)	(2)	(3)	(4)	(5)
Log Distance	-0.871 <i>-10.64</i>	-0.975 <i>-14.02</i>	-0.793 <i>-11.35</i>	-0.841 <i>-11.82</i>	-0.796 <i>-11.98</i>
Common Border	-0.420 <i>-2.13</i>	-0.338 <i>-1.88</i>	-0.182 <i>-1.03</i>	-0.260 <i>-1.43</i>	-0.194 <i>-1.11</i>
Ethnolinguistic Ties	0.292 <i>1.74</i>	0.226 <i>1.47</i>	0.257 <i>1.85</i>	0.204 <i>1.43</i>	0.251 <i>1.77</i>
Log Product Land Area	-0.163 <i>-4.22</i>	-0.180 <i>-5.31</i>	-0.183 <i>-5.89</i>	-0.187 <i>-5.88</i>	-0.191 <i>-6.26</i>
Log Product Real p.c. GDP	0.307 <i>6.37</i>	0.234 <i>6.33</i>	0.135 <i>3.82</i>	0.129 <i>3.74</i>	0.154 <i>4.51</i>
Log Product Population	0.821 <i>21.92</i>	0.723 <i>18.66</i>	0.809 <i>21.18</i>	0.806 <i>20.46</i>	0.801 <i>20.82</i>
Lending Rate-Source Country	-0.065 <i>-3.88</i>	-0.084 <i>-5.3</i>	-0.083 <i>-5.46</i>	-0.086 <i>-5.56</i>	-0.080 <i>-5.35</i>
Log Composite Institutions	4.791 <i>9.01</i>				
Log of Economic Risk in Recipient		2.755 <i>7.96</i>	1.571 <i>5.15</i>	1.309 <i>3.71</i>	1.596 <i>4.79</i>
Antidirector's Rights		0.080 <i>1.69</i>		-0.015 <i>-0.33</i>	
Log of evict time		-0.383 <i>-5.47</i>		-0.178 <i>-2.29</i>	-0.290 <i>-3.48</i>
Corruption			0.244 <i>5.81</i>	0.250 <i>5.86</i>	0.253 <i>6.73</i>
Log of start-up business time			-0.170 <i>-3.1</i>	-0.094 <i>-1.52</i>	
Government Ownership of Banks					-0.016 <i>-0.07</i>
Adjusted R squared	26754	24611	26057	24611	26093
Observations	0.4499	0.4689	0.4701	0.4963	0.4880

Table 9
Additional Controls

The dependent variable is the natural logarithm of gross asset flows from country i ("source" country) to county j ("recipient" country). Estimation is performed with OLS. Panel A controls for Financial and Economic Risk, while Panel B for Human capital. Time period (year, quarter) fixed effect dummies, a common border dummy, an ethnolinguistic ties dummy and a constant term are included, but their coefficients are not reported. T-statistics based on robust standard errors (adjusted for clustering by country pairs) are given in italics. Definitions and sources for all variables are given in Appendix B.

Panel A: Political, Economic and Financial Risk

	(1)	(2)	(3)	(4)	(5)
Log Distance	-0.750 <i>-13.13</i>	-0.717 <i>-12.39</i>	-0.627 <i>-11.63</i>	-0.635 <i>-11.72</i>	-0.639 <i>-11.78</i>
Log Product Land Area	-0.163 <i>-6.34</i>	-0.178 <i>-7.00</i>	-0.208 <i>-8.73</i>	-0.195 <i>-8.15</i>	-0.197 <i>-8.23</i>
Log Product Real p.c. GDP	0.806 <i>25.79</i>	0.786 <i>25.84</i>	0.844 <i>28.96</i>	0.844 <i>28.92</i>	0.849 <i>29.28</i>
Log Product Population	0.283 <i>9.16</i>	0.315 <i>10.28</i>	0.258 <i>9.31</i>	0.240 <i>8.67</i>	0.239 <i>8.64</i>
Log Economic Risk in Recipient Country	3.171 <i>14.54</i>			1.227 <i>5.10</i>	1.502 <i>5.82</i>
Log Financial Risk in Recipient Country		2.173 <i>12.77</i>			-0.491 <i>-2.45</i>
Log Composite Institutions (Political Risk) in Recipient Country			3.431 <i>15.63</i>	2.854 <i>11.68</i>	3.083 <i>11.71</i>
Adjusted R squared	0.4796	0.4738	0.5006	0.51	0.5042
Observations	38086	38086	38086	38086	38086

Panel B: Human Capital

	(1)	(2)	(3)	(4)	(5)
Log Distance	-0.742 <i>-12.4</i>	-0.733 <i>-11.17</i>	-0.844 <i>-12.42</i>	-0.803 <i>-14.12</i>	-0.849 <i>-12.65</i>
Log Product Land Area	-0.163 <i>-6.12</i>	-0.159 <i>-5.38</i>	-0.164 <i>-5.74</i>	-0.148 <i>-5.53</i>	-0.155 <i>-5.38</i>
Log Product Real p.c. GDP	0.207 <i>7.72</i>	0.167 <i>6.88</i>	0.121 <i>6.31</i>	0.195 <i>7.8</i>	0.124 <i>6.55</i>
Log Product Population	0.782 <i>24.83</i>	0.827 <i>24.15</i>	0.860 <i>26.51</i>	0.747 <i>23.22</i>	0.838 <i>24.79</i>
Lending Rate-Source Country	-0.092 <i>-7.02</i>	-0.092 <i>-6.75</i>	-0.099 <i>-7.14</i>	-0.099 <i>-7.62</i>	-0.101 <i>-7.43</i>
Schooling in Recipient Country	0.156 <i>7.44</i>	0.116 <i>4.19</i>	0.180 <i>6.54</i>	0.142 <i>6.78</i>	0.169 <i>5.84</i>
Log Composite Institutions	2.474 <i>11.62</i>			2.023 <i>8.86</i>	
Corruption		0.274 <i>7.88</i>	0.231 <i>6.47</i>		0.221 <i>6.23</i>
Log of time to collect a bounced check		-0.108 <i>-1.7</i>			
Antidirector's Rights			0.046 <i>1.2</i>		0.021 <i>0.55</i>
Government Ownership of Comm. Banks				-1.159 <i>-6.4</i>	-0.497 <i>-2.3</i>
Adjusted R squared	0.529	0.5242	0.5476	0.5367	0.5498
Observations	25971	26030	24984	25971	24984

Table 10 - Sensitivity Analysis

The dependent variable is either the natural logarithm of gross asset flows (Asset Flows) of gross flows in liabilities (Liability Flows) from country i ("source" country) to country j ("recipient" country). Time period (year, quarter) fixed effect dummies and a constant term are included, but their coefficients are not reported. Estimation is performed by OLS. T-statistics based on robust standard errors (adjusted for heteroskedasticity clustering by country pairs) are reported in italics. Definitions and sources for all variables are given in Appendix B. Zeros of the original BIS dataset are included.

	(1) Liability Flows	(2) Asset Flows	(3) Asset Flows	(4) Asset Flows	(5) Asset Flows
Log Distance	-1.898 <i>-13.49</i>	-1.467 <i>-11.02</i>	-1.750 <i>-13.69</i>	-1.396 <i>-11.13</i>	-1.624 <i>-12.57</i>
Common Border	-1.798 <i>-4.60</i>	-0.935 <i>-2.42</i>	-1.266 <i>-3.73</i>	-0.653 <i>-1.79</i>	-1.107 <i>-3.17</i>
Ethnolinguistic Ties	1.088 <i>3.70</i>	0.885 <i>2.95</i>	0.351 <i>1.20</i>	0.277 <i>0.96</i>	0.194 <i>0.68</i>
Log Product Land Area	-0.430 <i>-6.81</i>	-0.425 <i>-6.89</i>	-0.406 <i>-6.74</i>	-0.487 <i>-8.07</i>	-0.403 <i>-6.89</i>
Log Product Real p.c. GDP	1.640 <i>21.98</i>	1.740 <i>23.51</i>	1.533 <i>20.41</i>	1.757 <i>21.78</i>	1.644 <i>20.47</i>
Log Product Population	0.485 <i>6.49</i>	0.487 <i>7.09</i>	0.358 <i>5.71</i>	0.329 <i>4.90</i>	0.247 <i>3.73</i>
Lending Rate-Source Country	-0.169 <i>-5.33</i>	-0.190 <i>-6.02</i>	-0.223 <i>-7.65</i>	-0.204 <i>-7.01</i>	-0.223 <i>-7.81</i>
Log Composite Institutions in Recipient Country	4.588 <i>6.92</i>	5.944 <i>9.19</i>	5.319 <i>8.34</i>	2.217 <i>3.63</i>	3.387 <i>5.68</i>
Inflation-Recipient Country	-0.001 <i>-2.18</i>	-0.001 <i>-1.21</i>	-0.001 <i>-0.83</i>	-0.001 <i>-0.95</i>	-0.001 <i>-0.37</i>
Log of evict time			-0.330 <i>-2.56</i>		
Antidirector's Rights			0.380 <i>4.59</i>		0.175 <i>2.12</i>
Corruption				0.385 <i>4.49</i>	0.282 <i>3.16</i>
Log of start-up business time				-0.554 <i>-5.15</i>	-0.404 <i>-3.68</i>
Adjusted R squared	0.3554	0.3707	0.3906	0.3872	0.3999
Observations	39424	39484	34433	34433	34433

Table 11
Sensitivity Analysis

The dependent variable is the natural logarithm of gross asset flows from country i ("source" country) to country j ("recipient" country). Columns 1 and 2 report estimated coefficients and t-statistics before 1994, while columns 3 and 4 after 1994. Column 5 excludes all observations where the source or the recipient country is the US, UK, or Japan. Columns 6, 7 and 8 exclude all observations where the source or the recipient country is the US. Estimation is performed by OLS. Time period (year, quarter) fixed effect dummies and a constant term are included, but their coefficients are not reported. T-statistics based on robust standard errors (adjusted for heteroskedasticity clustering by country pairs) are reported in italics. Definitions for all variables are given in Appendix B.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>before 1994</i>		<i>after 1994</i>		<i>Excl. G3</i>		<i>Excl. US</i>	
Log Distance	-0.569	-0.576	-0.686	-0.697	-0.587	-0.654	-0.687	-0.753
	<i>-8.42</i>	<i>-8.73</i>	<i>-11.13</i>	<i>-11.76</i>	<i>-10.10</i>	<i>-11.25</i>	<i>-12.24</i>	<i>-13.56</i>
Common Border	-0.177	-0.089	0.097	0.048	0.490	0.020	-0.023	0.007
	<i>-1.02</i>	<i>-0.50</i>	<i>0.53</i>	<i>0.27</i>	<i>3.25</i>	<i>0.12</i>	<i>-0.14</i>	<i>0.04</i>
Ethnolinguistic Ties	0.565	0.409	0.592	0.383	0.302	0.572	0.388	0.388
	<i>4.30</i>	<i>3.28</i>	<i>4.81</i>	<i>3.26</i>	<i>2.67</i>	<i>4.78</i>	<i>3.26</i>	<i>3.24</i>
Log Product Land Area	-0.227	-0.260	-0.170	-0.234	-0.185	-0.211	-0.218	-0.230
	<i>-7.27</i>	<i>-8.41</i>	<i>-6.67</i>	<i>-9.01</i>	<i>-7.75</i>	<i>-8.41</i>	<i>-8.73</i>	<i>-9.03</i>
Log Product Real p.c. GDP	0.773	0.199	0.881	0.176	0.676	0.802	0.818	0.779
	<i>21.95</i>	<i>7.48</i>	<i>27.16</i>	<i>6.87</i>	<i>21.57</i>	<i>24.54</i>	<i>23.56</i>	<i>23.02</i>
Log Product Population	0.255	0.856	0.224	0.947	0.237	0.233	0.145	0.221
	<i>8.74</i>	<i>23.91</i>	<i>6.90</i>	<i>28.19</i>	<i>8.13</i>	<i>8.45</i>	<i>6.62</i>	<i>9.20</i>
Lending Rate-Source Country	-0.074	-0.075	-0.060	-0.066	-0.092	-0.071	-0.085	-0.080
	<i>-5.39</i>	<i>7.47</i>	<i>-2.88</i>	<i>-3.25</i>	<i>-6.70</i>	<i>-4.99</i>	<i>-6.37</i>	<i>-5.84</i>
Log Composite Institutions	3.289	2.128	4.156	1.483	2.744	3.329	1.234	2.543
	<i>14.38</i>	<i>-5.85</i>	<i>12.09</i>	<i>3.99</i>	<i>13.32</i>	<i>14.52</i>	<i>4.38</i>	<i>10.86</i>
Corruption		0.179		0.267			0.453	
		<i>4.94</i>		<i>7.75</i>			<i>1.86</i>	
Log of evict time		-0.279		-0.357			-1.094	
		<i>-4.00</i>		<i>-5.44</i>			<i>-6.29</i>	
Government Ownership of Banks								
Adjusted R squared	0.5186	0.5432	0.504	0.5391	0.4508	0.4847	0.523	0.5058
Observations	14016	13777	22618	20569	25456	32124	30877	31223

Appendix A -- Sample Countries

Source Countries/Reporting Area (19 countries):

Austria (AUT), Belgium (BEL), Denmark (DNK), Finland (FIN), France (FRA), Germany (DEU), Ireland (IRL), Italy (ITA), Netherlands (NLD), Norway (NOR), Portugal (start 1997 q4) (PRT), Spain (ESP), Sweden (SWE), Switzerland (CHE), United Kingdom (GBR), United States (USA), Japan (JPN), Canada (CAN), Australia (start 1997 q4) (AUS).

Recipient/Vis-à-vis countries (51 Countries):

Argentina (ARG), Australia (AUS), Austria (AUT), Belgium (BEL), Bulgaria (BGR), Brazil (BRA), Botswana (BWA), Canada (CAN), Switzerland (CHE), Chile (CHL), China (CHN), Colombia (COL), Costa Rica (CRI), Czech Republic (CZE), Germany (DEU), Denmark (DNK), Ecuador (ECU), Spain (ESP), Estonia (EST), Finland (FIN), France (FRA), United Kingdom (GBR), Croatia (HRV), Hungary (HUN), Indonesia (IDN), Ireland (IRL), Israel (ISR), Italy (ITA), Jordan (JOR), Japan (JPN), Korea, Republic of (KOR), Lithuania (LTU), Latvia (LVA), Mexico (MEX), Malaysia (MYS), Namibia (NAM), Netherlands (NLD), Norway (NOR), New Zealand (NZL), Peru (PER), Philippines (PHL), Poland (POL), Portugal (PRT), Romania (ROM), Slovak Republic (SVK), Slovenia (SVN), Sweden (SWE), Tunisia (TUN), Turkey (TUR), United States (USA), South Africa (ZAF).

Appendix B – Variable Definition and Data Sources

Panel A – ICRG Indexes

ICRG Political Risk Components	Weights	ICRG Economic Risk Components	Weights	ICRG Financial Risk Components	Weights
Government Stability	4 points	GDP per Head of Population	5 points	Foreign Debt as a Percentage of GDP	10 points
Government Unity	4 points	Real Annual GDP Growth	10 points	Foreign Debt Service as a Percentage of Exports of Goods and Services	10 points
Legislative Strength	4 points	Annual Inflation Rate	10 points	Current Account as a Percentage of Goods and Services	15 points
Popular Support	4 points	Budget Balance as a Percentage of GDP	10 points	Net Liquidity as Months of Import Cover	5 points
Socioeconomic Conditions	4 points	Current Account Balance as a Percentage of GDP	15 points	Exchange Rate Stability	10 points
Unemployment	4 points	Total Economic Risk	50 points	Total Financial Risk	50 points
Consumer Confidence	4 points				
Poverty	4 points				
Investment Profile	4 points				
Contract Viability/Expropriation	4 points				
Profits Repatriation	4 points				
Payment Delays	4 points				
Internal Conflict	4 points				
Civil War	4 points				
Terrorism/Political Violence	4 points				
Civil Disorder	4 points				
External Conflict	4 points				
War	4 points				
Cross-Border Conflict	4 points				
Foreign Pressures	4 points				
Corruption	6 points				
Military in Politics	6 points				
Religion in Politics	6 points				
Law and Order	6 points				
Ethnic Tensions	6 points				
Democratic Accountability	6 points				
Bureaucracy Quality	4 points				
Total Political Risk	100				

For more details see <http://www.prgroup.com/icrg/icrg.html>

Panel B – BIS Data

Variable name

Variable Description and Source

Bank Flows

- Assets
 - Liabilities
- Change on international financial claims (liabilities) of bank offices resident in the “reporting area” to vis a vis countries. Claims (and liabilities) represent exposure both vis-à-vis non-residents as well as exposure to residents in foreign country. Primarily assets include on balance-sheet items (plus some off-balance sheet items in the area of trustee business); Assets include mainly deposits and balances placed with banks, loans and advances to banks and non-banks and holdings of securities and participation. Liabilities primarily include deposit and loans received from banks and non-banks, and funds received on a trust basis in banks own names and banks’ own issues of securities in the international markets.

Inter-Bank Asset Flows

Change on international financial claims of bank offices resident in the “reporting area” only to banking institutions to vis a vis countries.

Note: Banks contributing to the BIS statistical database report only stocks and not flows. The BIS estimates flows by the change of stocks, adjusted by exchange rate changes. (which is feasible, since individual banks also report the currency of international assets and liabilities)
Source: *Locational Banking Statistics, Bank of International Settlements; fall 2003 (includes both public and not-yet publicly available data.*

Panel C – Other

Variable name

Variable Description and Source

Discount Rate

Bank Rate/Discount rate is the rate at which the central banks lend or discount eligible paper for deposit money banks.
Source: IMF IFS line 60

Lending rate

Lending rate is the bank rate that usually meets the short and medium term financing needs of the private sector.

Inflation Rate

Calculated as the change in CPI.
Source: IMF IFS line 60P

GDP growth

Estimates as the percentage change in GDP.
Source: IMF IFS line 64

Log real GDP per capita

Logarithm of GDP volume, converted to US dollars and adjusted with local CPI.
Source: IMF IFS 99B

Log Area

Log of land Area in square kilometers.
Source: Gallup, Mellinger and Sachs.

Log Population

Downloadable at <http://www.cid.harvard.edu/ciddata/ciddata.html>

Values correspond to mid-year estimates. A linear interpolation is used to fill in missing observations.
Source: IMF IFS line 99Z.

Linguistic Tie Dummy

Dummy equals one if the two countries share a common language or have former colonial relation.
Source: Andrew Rose (2002), *originally from CIA Factbook*;

Downloadable at <http://www.odci.gov/cia/publications/factbook/index.html>. <http://faculty.haas.berkeley.edu/aroze/html>

Log Distance

Log of greater circle distance between economic centres (usual, but not always capital cities) in a pair of countries.
Source: Andrew Rose (2002), *originally from CIA Factbook*

Downloadable at <http://www.odci.gov/cia/publications/factbook/index.html>. <http://faculty.haas.berkeley.edu/aroze/html>

Variable name	Variable Description and Source
Anti-director rights index	<p>An index aggregating shareholder rights. The index is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote to the firm; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10 percent (the sample median); or, (6) shareholders have preemptive rights that can only be waived by a shareholders' vote. The index ranges from 0 to 6.</p> <p>Source: <i>La Porta et al. (1998)</i>. Downloadable from http://icg.som.yale.edu/data/datasets.shtml</p>
Creditor rights index	<p>An index aggregating different creditor rights. The index is formed by adding 1 when: (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; (2) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; and, (4) the debtor does not retain the administration of its property pending the resolution of the reorganization. The index ranges from 0 to 4.</p> <p>Source: <i>La Porta et al. (1998)</i>. Downloadable from http://icg.som.yale.edu/data/datasets.shtml</p>
Legal Origin	<p>Identifies the legal origin of each Company Law or Commercial Code of each country. There are five possible origins: (1) English Common Law; (2) French Commercial Code; (3) German Commercial Code; (4) Scandinavian Commercial Code; and (5) Socialist/Communist laws.</p> <p>Source: <i>La Porta et al. (1998)</i>, originally from <i>Reynolds and Flores [1989]</i>, <i>CIA World Factbook [2001]</i>. Downloadable from http://icg.som.yale.edu/data/datasets.shtml</p>
Government Ownership of Banks	<p>Share of the assets of the top 10 banks in a given country controlled by the government at the 50 percent level in 1995. Government ownership at the 50 percent level is defined as the government having at least 50 percent ownership. The percentage of the assets owned by the government in a given bank is calculated by multiplying the share of each shareholder in that bank by the share the government owns in that shareholder, and then summing the resulting shares.</p>
Government Ownership of Commercial Banks at 20 percent	<p>Source: <i>La Porta et al. [2002]</i>, Downloadable from http://icg.som.yale.edu/data/datasets.shtml</p> <p>Share of the assets of the top 10 banks, excluding development banks, in a given country controlled by the government at the 20 percent level in 1995. A bank is controlled by the government if government banking is larger than 20 percent and the state is the largest shareholder.</p>
Bank Overhead Costs	<p>Source: <i>La Porta et al. [2002]</i>, Downloadable from http://icg.som.yale.edu/data/datasets.shtml</p> <p>The accounting value of a bank's overhead costs as a share of its total assets. The data is obtained from individual bank's balance sheets. The measure refers to 1995.</p>
Soundness of Banks	<p>Source: <i>La Porta et al. [2002]</i>, Downloadable from http://icg.som.yale.edu/data/datasets.shtml, originally from <i>Beck, Demirgüç-Kunt and Levine (2001)</i>.</p> <p>An index of WCR's assessing the soundness of banks in terms of their "general health and sound balance sheets."</p>
Schooling	<p>Scale from 1 to 7, where higher scores indicate stronger agreement with the statement. The score refers to the index in 1999</p> <p>Source: <i>La Porta et al. [2002]</i>, Downloadable from http://icg.som.yale.edu/data/datasets.shtml originally from <i>World Economic Forum (1999)</i>.</p> <p>Average years of secondary schooling in 1980.</p>
Logarithm of time to start-up a new business	<p>Source: <i>La Porta et al. (2002)</i>, originally compiled by <i>Barro and Lee (2001)</i>.</p> <p>The time it takes to obtain legal status to operate a firm, in business days. A week has five business days and a month has twenty two. For the regressions I use the natural logarithm.</p> <p>Source: <i>Djankov et al. (2002)</i>; Downloadable from http://icg.som.yale.edu/data/datasets.shtml</p>

Variable Name	Variable Description and Source
Corruption	<p>A composite index for the year 2000 that draws on 14 data sources from seven institutions: the World Economic Forum, the World Business Environment Survey of the World Bank, the Institute of Management Development (in Lausanne), PricewaterhouseCoopers, the Political and Economic Risk Consultancy (in Hong Kong), the Economist Intelligence Unit and Freedom House's Nations in Transit. The score ranges between 10 (highly clean) and 0 (highly corrupt).</p> <p>Source: Djankov et al (2003), originally from <i>Transparency International (2001)</i>.</p> <p>Downloadable from http://iicg.som.yale.edu/data/datasets.shtml</p>
Contract Enforceability	<p>The relative degree to which contractual agreements are honoured and complications presented by language and mentality differences. Scale: 0-10 (higher scores indicating higher degree of enforceability)</p> <p>Source: Djankov et al (2003), originally from <i>Business Environmental Risk Intelligence</i>;</p> <p>Downloadable from http://iicg.som.yale.edu/data/datasets.shtml</p>
Logarithm of trial duration a) To evict a tenant for non payment b) to collect a bounced check	<p>Estimated duration, in calendar days, between the moment the plaintiff files the complaint and the moment the landlord repossesses the property (for the eviction case) or the creditor obtains payment (for the check collection case). For the regressions I use the natural logarithm.</p> <p>Source: Djankov et al (2003); Downloadable from http://iicg.som.yale.edu/data/datasets.shtml</p>

Appendix C: Additional Regressions

Appendix gives some additional regression results, when the vector of explanatory variables include both the composite institutional indicator ("ICRG political risk") and other measures of specific institutions. The coefficients should be interpreted cautiously, since there is by construction multicollinearity between the composite index and corruption, bureaucratic quality, legal system efficiency. (There factors are imbedded in the composite index). However, in spite of this high multicollinearity almost all coefficients have retained their statistical significance, suggesting that the effect of institutional performance in explaining cross-border bank flows is very strong. For further details see notes on Table 5.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Distance	-0.599	-0.760	-0.868	-0.710	-0.728	-0.878	-0.698	-0.618
Common Border	-10.84	-12.91	-16.10	-13.32	-13.42	-1.85	-10.09	-9.13
Ethnolinguistic Ties	-0.035	-0.287	-0.321	0.082	-0.057	-0.277	-0.140	-0.099
Log Product Land Area	-0.22	-1.73	-2.14	0.52	-0.37	-16.49	-0.82	-0.58
Log Product Real p.c. GDP	0.481	0.333	0.399	0.371	0.470	0.328	0.362	0.384
Log Product Population	4.30	3.04	3.68	3.42	3.98	3.07	2.62	2.77
Lending Rate-Source Country	-0.219	-0.221	-0.236	-0.230	-0.183	-0.233	-0.207	-0.226
Corruption	-9.05	-9.21	-9.78	-9.37	-7.52	-9.70	-6.51	-7.23
Antidirector's Rights	0.170	0.132	0.187	0.204	0.227	0.160	0.319	0.272
Contract Enforceability	7.23	6.60	8.84	7.77	8.58	7.59	9.02	7.68
Log of start-up business time	0.908	0.888	0.861	0.897	0.796	0.882	0.823	0.872
Government Ownership of Banks	29.42	29.86	29.03	30.48	26.25	29.55	21.92	22.95
Log Composite Institutions	-0.069	-0.070	-0.085	-0.070	-0.074	-0.087	-0.081	-0.076
One country EU member	-5.14	-5.27	-6.51	-5.27	-5.50	-6.73	-5.87	-5.56
Both countries EU members	0.277							0.246
Adjusted R squared	9.06							5.81
Observations		0.105	0.159			0.105		
		3.29	4.64			2.85		
		0.262						
		7.73						
			-0.263			-0.118	-0.270	-0.154
			-4.48			-1.81	-3.37	-1.80
				-0.386		-0.224		
				-9.86		-4.45		
					-1.360		-0.669	-0.675
					-8.37		-2.45	-2.48
	1.875	2.361	3.127	2.622	2.825	2.827	3.472	1.445
	7.070	10.620	14.180	11.830	11.820	12.710	10.10	3.60
							0.156	0.086
							1.21	0.68
							0.491	0.427
							2.93	2.61
	0.5294	0.5498	0.552	0.5237	0.5173	31947	25317	25317
	34346	32882	31947	35219	35028	0.5569	0.511	0.522