First draft: October 4, 1999
This draft: December 11, 2000

# Negative Alchemy?
# Corruption, Composition of Capital Flows and Currency Crises

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**Abstract**

Crony capitalism and self-fulfilling expectations by international creditors are often suggested as two rival explanations for currency crisis. This paper examines a possible linkage between the two that has so far not been explored: corruption may affect a country's composition of capital inflows in a way that makes it more likely to experience a currency crisis that is triggered/aided by international investors' self-fulfilling expectations. Using data on bilateral foreign direct investment (FDI) and bilateral bank loans, this paper finds clear evidence that corrupt countries tend to have a particular composition of capital inflows that is relatively light in FDI. Earlier studies have indicated that a country that has such a capital inflow structure is more likely to run into a subsequent currency crisis (in part through self-fulfilling expectations of the international creditors). Thus, this paper has illustrated one particular channel through which crony capitalism can increase the chance of a currency/financial crisis.

Keywords: corruption, crony capitalism, capital inflows, and currency crisis.
JEL Classification Code: F2

The author is The New Century Chair in International Economics and Senior Fellow at Brookings Institution, a Research Fellow at Harvard University's Center for International Development, the National Bureau of Economic Research (U.S.) and the Center for Economic Policy Research (Europe).

Acknowledgements: This research project is supported in part by a grant from the OECD Development Center. I thank Helmut Reisen for arranging the grant and Jeffrey Frankel, Helmut Reisen, Dani Rodrik, Andrei Shleifer, and seminar participants at Harvard, NBER and Brookings for offering helpful comments, and Yi Wu, Rachel Rubinfeld and Hedy Sladovich for superb research and editorial assistance. The views in the paper are personal, and may not be shared by the Brookings, the OECD Development Center, or any other organization that I am or have been associated with.

## 1. Motivation

This paper studies the impact of corruption on a country's composition of capital inflows. The importance of this composition was recently highlighted by the currency crises in East Asia, Russia and Latin America. Several studies (starting with Frankel and Rose, 1996, and followed by Radlet and Sachs, 1998, and Rodrik and Velasco, 1999) have shown that the composition of international capital inflows is correlated with the incidence of currency crises. In particular, the lower the share of foreign direct investment in total capital inflows, or the higher the short-term debt to reserves ratio, the more likely a currency crisis becomes. One possible reason for this is that bank lending or other portfolio investment may be more sentiment-driven than direct investment. Hence, a small (unfavorable) change in the recipient countries' fundamentals may cause a large swing in the portfolio capital flows (e.g., from massive inflows to massive outflows). This can strain the recipient country's currency or financial system sufficiently to cause or exacerbate its collapse (Radelet and Sachs, 1998; Rodrik and Velasco, 1999; Reisen, 1999).

There are at least two views on the causes of the crises. On the one hand, it is increasingly common to hear the assertion that so-called crony capitalism may be partly responsible for the onset and/or the depth of the crises (Johnson, 1999)[1]. On the other hand, many researchers argue that (fragile) self-fulfilling expectations by international creditors are the real reason for the currency crisis. Crony capitalism and self-fulfilling expectations are typically presented as rival explanations.

There may be a linkage between the two hypotheses. The extent of corruption in a country may affect that country's composition of capital inflows in a way that makes it more vulnerable to international creditors' shifts in expectations. Corruption here refers to the extent to which firms (or private citizens) need to pay bribery to government officials in their interactions (for permits, licenses, loans, and so forth)[2].

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[1] For surveys of the literature on corruption and economic development, see Bardhan (1997), Kaufmann (1997), and Wei (1999). More recent papers on corruption include Wei (2000c) and Bai and Wei (2000). None of the surveys covers any empirical study that links crony capitalism with currency crisis.

[2] We use the term "crony capitalism" interchangeably with "corruption." Strictly speaking, "crony capitalism" refers to an economic environment in which relatives and friends of government officials are placed in positions of power and government decisions on allocation of resources are distorted to favor friends and relatives. In reality, "crony capitalism" almost always implies a widespread corruption as

There is a small number of previous papers that have looked at the effect of corruption on foreign direct investment. Mixing corruption with twelve other variables to form a composite indicator, Wheeler and Mody (1992) failed to find a significant relation between corruption and foreign investment. However, the insignificant result may be due to a high noise-to-signal ratio in the composite indicator. Using U.S. outward investment to individual countries, Hines (1995) did find that foreign investment is negatively related to host country corruption, which he interpreted as evidence of the effect of the U.S. Foreign Corrupt Practices Act. Using a matrix of bilateral international direct investment from twelve source countries to forty five host countries, Wei (2000a) found that the FDI flows from the U.S. and those from other source countries are not statistically different. But more importantly, corruption not only has a negative and statistically significant coefficient, it has an economically large effect on inward foreign direct investment. For example, in a benchmark estimation, an increase in corruption from the level of Singapore to that of Mexico would have the same negative effect on inward foreign investment as raising the marginal corporate tax by fifty percentage points. Using firm-level data, Smarzynska and Wei (2000) found that host country corruption induces foreign investors to favor joint ventures (over wholly-owned forms). None of the above papers has a measure of government policies towards FDI. Such data are not readily available. The current paper employs two new indexes of government policies towards FDI that are complied from investment guides for individual countries produced by PricewaterhouseCoopers (2000).

While FDI is an important element of this study, the main focus is to examine the effect of corruption on the composition of capital inflows (FDI versus borrowing from foreign banks, in particular). There are no studies that have examined this question. This paper will fill that void.

Before proceeding to a more formal analysis, it may be useful to have a quick glance of the data. The argument that capital flow composition matters requires that different capital flows have level of volatility. For every member country of the IMF for which relevant data are available for 1980-1996, we compute the standard deviations of

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private firms and citizens in such an environment find it necessary to pay bribes to government officials in order to get anything done.

three ratios (portfolio capital inflow/GDP, borrowing-from-banks/GDP, and inward FDI/GDP). The results are summarized in Table 1 and visually presented in Figure 1. For the subset of OECD countries (with membership up to 1980), the volatility of FDI/GDP ratio is substantially smaller than the other two ratios. For non-OECD countries as a group, the FDI/GDP ratio is also much less volatile than the loan/GDP ratio, although it is higher than the portfolio flow/GDP ratio. The lower part of the same table presents the volatility of the three ratios for a number of individual countries that featured prominently in the recent currency crises. Each country shows a loan/GDP ratio that is at least twice and as much as fifteen times as volatile as the FDI/GDP ratio. For each of these countries, the portfolio capital/GDP ratio is also more volatile than the FDI/GDP ratio. If the sample period is extended to include 1997-98, the differences in volatility would be even more pronounced (not reported). Therefore, the data is consistent with the hypothesis that FDI is less sentiment-driven and hence more stable as a source of foreign capital.

Corruption is bad for both international direct investors and creditors. Corrupt borrowing countries are more likely to default on bank loans, or to nationalize (or otherwise diminish the value of) the assets of foreign direct investors. When this happens, there is a limit on how much international arbitration or court proceedings can help to recover the assets, as there is a limit on how much collateral the foreign creditors or direct investors can seize as compensation[3].

One may argue that domestic investors have an informational advantage over international investors. Among international investors, international direct investors may have an informational advantage over international portfolio investors (and presumably banks). International direct investors could obtain more information about the local market by having managers from the headquarters stationing in the country that they invest in. As a consequence, the existence of cross-border informational asymmetry may lead to a bias in favor of international direct investment. This is the logic underlying Razin, Sadka and Yuen's theory of (1998) of "pecking order of international capital flows." However, the existence of corruption could temper this effect. The need for

[3] In the old days, major international creditors and direct investors might rely on their navies to invade a defauting countries to seize more collateral. Such is no longer a (ready) option today.

international investors to pay bribery and deal with extortion by corrupt bureaucrats tends to increase with the frequency and the extent of their interactions with local bureaucrats. Given that international direct investors are more likely to have repeated interactions with local officials (for permits, taxes, health inspections, and so forth) than international banks or portfolio investors, local corruption would be more detrimental to FDI than other forms of capital flows. Along the same line, direct investment involves greater sunk cost than bank loans or portfolio investment. Once an investment is made, when corrupt local officials start to demand bribery (in exchange for not setting up obstacles), direct investors would be in a weaker bargaining position than international banks or portfolio investors. This *ex post* disadvantage of FDI would make international direct investors more cautious *ex ante* in a corrupt host country than international portfolio investors[4].

There is a second reason for why international direct investment is deterred more by local corruption than international bank credit or portfolio investment. The current international financial architecture is such that international creditors are more likely to be bailed out than international direct investors. For example, during the Mexican (and subsequent Tequila) crisis and the more recent Asian currency crisis, the IMF, the World Bank, and the G7 countries mobilized a large amount of funds for these countries to prevent or minimize the potentially massive defaults on bank loans. So an international bailout of the bank loans in an event of a massive crisis has by now been firmly in market expectations. [In addition, many developing country governments implicitly or explicitly guarantee the loans borrowed by the private sector in the country[5]]. In comparison, there have are no comparable examples of international assistance packages for the recovery of nationalized or extorted assets of foreign direct investors except for an insignificant amount of insurance that is often expensive to acquire. This difference further tilts the composition of capital flows and makes banks more willing than direct investors to do business with corrupt countries.

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[4] Tornell (1990) presented a model in which a combination of sunk cost in real investment and uncertainty leads to under-investment in real projects even when the inflow of financial capital is abundant.

[5] McKinnon and Pill (1996 and 1999) argue that the government guarantee generates "moral hazard" which in turn leads the developing countries to "overborrow" from the international credit market.

Both reasons suggest the possibility that corruption may affect the composition of capital inflows in such a way that the country is more likely to experience a currency crisis. Of course, the composition of capital flows impacts economic development in ways that go beyond its effect on the propensity for a currency crisis. Indeed, many would argue that attracting FDI as opposed to international bank loans or portfolio investment is a more useful way to transfer technology and managerial know-how.

As some concrete examples, Table 2 shows the total amount of inward foreign direct investment, foreign bank loans, portfolio capital inflows, and their ratios for New Zealand, Singapore, Uruguay and Thailand. Figure 2 summarizes the comparison by pie charts. On the one hand, New Zealand and Singapore (are perceived to) have relatively low corruption (the exact source is explained in the next section) and relatively low loan/FDI and portfolio investment/FDI ratios. On the other hand, Uruguay and Thailand (are perceived to) have relatively high corruption and relatively high loan/FDI and portfolio investment/FDI ratios. So these examples are consistent with the notion that local corruption is correlated with patterns of capital inflows. Of course, these four countries are just examples. As such, there are two questions that need to be addressed more formally. First, does the association between corruption and composition of capital flows generalize beyond these four countries? Second, once we control for a number of other characteristics that affect the composition of capital inflows, would we still find the positive association between corruption and the loan/FDI ratio?

We organize the rest of the paper in the following way. Section 2 presents a simple model that serves as a motivation for the subsequent regression specification. Section 3 describes the data. Section 4 presents the methodology and the statistical results of the analyses. And Section 5 concludes.

## 2. A Minimalist Story

In the main empirical part of the paper, the connection between corruption and the ratio of FDI and non-FDI capital flows is examined. In this section, a simple model is used to demonstrate how such a reduced-form specification can be justified. For

simplicity, let us consider that there are two types of international capital flows: direct investment and bank credit.

Let us suppose that the government in the capital-importing country, k, maximizes the following two-period objective function:

$$U[G(k, 1)] + \delta\, U[G(k, 2)]$$

where G(k, 1) and G(k, 2) are expenditures by the government in Country k in Period 1 and Period 2, respectively, and $\delta$ is the subjective discount factor. For simplicity, we assume that the tax revenues in the two periods, T(k, 1) and T(k, 2), are exogenously given. Let B(k) and D(k) are first-period borrowing by Country k from international banks and first-period direct investment in Country k, respectively. To abstract from unnecessary complications, we assume that bank credit and FDI are merely two forms of additional funding sources. No production is explicitly modeled. In this case, the gap between the first-period expenditure and tax revenue has to be met by the inflow of international capital:

$$G(k, 1) = T(k, 1) + B(k) + D(k)$$

In the second period, the international credit has to be repaid. Moreover, international direct investors are assumed to recoup both the investment and the gross profit.

$$G(k, 2) = T(k, 2) – R[B(k)]\, B(k) – R[D(k)]\, D(k)$$

where R[B(k)] and R[D(k)] are the gross returns that international creditors and international director investors would demand from Country k. Suppose R* is the gross return on the risk free bond (say, the US government bond as an approximation), then, we assume that

$$R[B(k)] = R^* + \theta\, B(k)$$

and

$$R[D(k)] = R^* + \theta D(k) + \rho(k) D(k)$$

Both $\theta$ and $\rho(k)$ are positive. $\rho(k)$ should be thought of proportional to Country k's perceived level of corruption. The positive $\theta$ reflects the assumption that the warranted returns on either bank credit or direct investment increases with the size of the capital inflow. $\rho(k)$ appears in the return on the direct investment but not in that on bank credit because corruption represents a greater risk to direct investment than to bank loans (for the two reasons described in the previous section: Relative to bank lending, FDI face greater sunk costs and less protection from the international financial system).

A few points are worth noting here. First, we assume that the bank credit is obtained and later paid back by the government. Borrowing from international credit market in reality can be done by either private or public sector. Many researchers have observed that the distinction between private and public borrowing is very thin since private borrowing from the international credit market often carries implicit and sometimes explicit guarantee from the government of the borrowing country. Second, while direct investment is supposed to be for the "long term," investors eventually would want to recoup both the initial investment and the cumulative profits along the way.

The government's maximization problem yields the following two first-order conditions:

$$U'[G(k, 1)] - \delta U'[G(k, 2)] [R^* + 2 \theta B(k) ] = 0$$

and

$$U'[G(k, 1)] - \delta U'[G(k, 2)] [R^* + 2 \theta B(k) + 2 \rho(k) D(k) ] = 0$$

This implies a particular relationship between the composition of capital inflow for Country k and its corruption level:

$$B(k) / D(k) = [ \theta + \rho(k) ] / \theta$$

Hence, the higher is the corruption level in country k, the less FDI it would receive relative to its bank borrowing. While this model is very simple and perhaps overly simplistic, it does capture the basic message relatively well.

## 3. Data

The key components of international capital flows in the empirical investigation are bilateral direct investment and bilateral bank loans. To our knowledge, other forms of capital flows are not available on a bilateral basis for a broad set of capital-exporting countries examined in this paper.

The **bilateral foreign direct investment (FDI)** data is an average over three years (1994-96) of the stock of foreign direct investment from 13 source countries to 30 host countries. Table 3 presents a list of all source and host countries in our sample. The data come from the OECD's International Direct Investment 1998. [The original data also have the source countries themselves as the hosts of FDI. But these country pairs do not have comparable bilateral lending data. To keep comparability, we restrict our analysis to those country pairs that are common to both data sets. To reduce year-to-year fluctuation in the data due to measurement error, the simple average over 1994-96 (year-end stocks) is used.

The **bilateral bank lending** data is an average over three years of the outstanding loans from 13 lending countries to 83 borrowing countries. After excluding missing observations, there are altogether 793 country pairs. The data come from the Bank for International Settlement's Consolidated International Claims of BIS Reporting Banks on Individual Countries, and are given in millions of dollars. To reduce measurement errors in a given year, we use the simple average over three years (1994-96, year-end outstanding amounts).

**Corruption**. By its very nature (of secrecy and illegality), the level of corruption is difficult to measure. There are three types of measures of corruption available, all are perception-based subjective indexes. The first is a rating given by consulting firms' in-house consultants or "experts." Representative indexes are produced by the Business International (BI, now part of the Economist's Economic Intelligence Unit), and by

Political Risk Services (which call its product "International Country Risk Group" or ICRG rating). The second type is based on survey of business executives (or other people in the country in question). The rating for a country is typically the average of the respondent's ratings. Examples of this include indexes in the Global Competitiveness Report (GCR) and World Development Report (WDR), which will be explained in more detail shortly. The third type is based on an average of existing indexes. The best known example is the index produced by Transparency International (TI), a Germany-based non-governmental organization devoted to fighting corruption. A drawback of this type of index is that mixing indexes with different country coverage and methodologies could potentially introduce more noise to the measure.

Overall, corruption ratings based on surveys of firms are preferable to those based on the intuition of in-house experts. First, the executives who respond to the GCR or WDR surveys presumably have more direct experience with the corruption problem than the consultants who each typically have to rate many countries. Second, to the extent each individual respondent has idiosyncratic errors in his/her judgement, the averaging process in the WDR or WCR indexes can minimize the influence of such errors. In this paper, we use the indexes from the GCR and WDR surveys as our basic measure of corruption.

The GCR Index, is derived from the Global Competitiveness Report 1997 produced jointly by the Geneva-based World Economic Forum and Harvard Institute for International Development. The survey for the report was conducted in late 1996 on 2827 firms in 58 countries. The GCR Survey asked respondents (in Question 8.03) to rate the level of corruption in their country on a one-to-seven scale, based on the extent of "irregular, additional payments connected with imports and exports permits, business licenses, exchange controls, tax assessments, police protection or loan applications." The GCR Corruption Index is based on the country average of the individual ratings.

The WDR Index, is derived from a World Bank survey in 1996 of 3866 firms in 73 countries in preparation for its World Development Report 1997. Question 14 of that survey asks: "Is it common for firms in my line of business to have to pay some irregular, 'additional' payments to get things done?" The respondents were asked to rate the level of corruption on a one-to-six scale. The WDR corruption index is based on the country average of the individual answers. For both corruption indexes, the original sources are

such that a higher number implies lower corruption. To avoid awkwardness in interpretation, they are re-scaled in this paper so that a high number now implies high corruption.

Since each index covers only a (different) subset of countries for which we have data on FDI or other forms of capital flows, it may be desirable to form a composite corruption index that combines the two indexes. The two indexes are derived from surveys with similar methodologies and similar questions. The correlation between the two is 0.83. We follow a simple three-step procedure to construct the composite index: (a) Use GCR as the benchmark; (b) Compute the ratio of GCR to WDR for all countries that are available in both GCR and the WDR; and (3) For those countries that are covered by WDR but not GCR (which is relatively rare), we convert the WDR rating into the GCR scale by using the ratio in (b).

**Government policies towards foreign direct investment.** We rely on detailed descriptions compiled by the PricewaterhouseCoopers (PwC) in a series of country reports titled, "Doing Business and investing in China" or in whichever country that may be the subject of the report. The "Doing Business and investing in …" series is written for multinational firms intending to do business in a particular country. They are collected in one CD-Rom titled "Doing Business and Investing Worldwide" (PwC, 2000). For each potential host country, the relevant PwC country report covers a variety of legal and regulatory issues of interest to foreign investors, including "Restrictions on foreign investment and investors" (typically Chapter 5), "Investment incentives" (typically Chapter 4), and "Taxation of foreign corporations" (typically Chapter 16).

With a desire to convert textual information into numerical codes, we read through the relevant chapters for all countries that the PwC covers. For "restrictions on FDI," we create a variable taking a value from zero to four, based on the presence or absence of restrictions in the following four areas:

> *(a) Existence of foreign exchange control. (This may interfere with foreign firms' ability to import intermediate inputs or repatriate profits abroad).*

*(b) Exclusion of foreign firms from certain strategic sectors (particularly, national defense and mass media).*

(c) *Exclusion of foreign firms from additional sectors that would otherwise be considered harmless in most developed countries.*

(d) *Restrictions on foreign ownership (e.g., they may not have 100% ownership).*

Each of the four dimensions can be represented by a dummy that takes the value one (in the presence of the specific restriction) or zero (in the absence of the restriction). We create an overall "FDI Restriction" variable that is equal to the sum of these four

triction" is zero if there is no restriction in any of the four categories, and four if there is restriction in each category.

Similarly, we create an "FDI incentives" index based on information in the following areas.

*(a) Existence of special incentives to invest in certain industries or certain geographic areas.*

*(b) Tax concessions specific to foreign firms (including tax holidays and tax rebates, but excluding tax concessions specifically designed for export promotion, which is in a separate category).*

*(c) Cash grants, subsidized loans, reduced rent for land use, or other non-tax concessions, specific to foreign firms.*

*(d) Special promotion for exports (including existence of export processing zones, special economic zones, etc).*

An overall "FDI incentives" variable is created as the sum of the above four dummies. So it can take a value of zero if there is no incentive in any of the four categories, and four if there are incentives in all of them.

Our coding of the incentives/restrictions measures are still coarse, and may not capture the true variations of the government policies. Nonetheless, it is important to have a way to control for these types of government policies in a statistical analysis of

international capital flows. Our contribution is to create the first-of-this-kind index. We let the data speak to the usefulness of such an index.

Table 3 lists all the countries in our sample. Table 4 presents the pair-wise correlation among the three measures of corruption and GDP per capita.

## 4. Statistical Analyses

To study the effect of corruption on the composition of capital inflows is equivalent to asking whether corruption may have differential impact on different forms of capital flows. In this section, we proceed by examining sequentially foreign direct investment, international bank lending, and ratio between the two.

### 4.1 Corruption and foreign direct investment

We first examine the effect of local corruption on the volume of inward foreign direct investment. Our specification can be motivated by a simple optimization problem solved by a multinational firm. Let K(j) be the stock of investment the multinational firm intends to allocate to host country j. Let t(j) be the rate of corporate income tax in host country j, b(j) be the rate of bribery the firm has to pay per unit of output, and r be the rental rate of capital. Let f[K(j)] be the output of the firm in host country j. There are N possible host countries that the firm can invest in. The firm chooses the level of K(j) for j=1,2,…, N, in order to maximize its total after-tax and after-bribery profit:

$$\pi = \sum_{j=1}^{N} \{[1 - t(j) - b(j)] f[K(j)] - rK(j)\}$$

Note that as a simple way to indicate that tax and corruption are distortionary, we let [1-t(j)-b(j)] pre-multiply output rather than profit. The optimal stock of FDI in country j, K(j), would of course be related to both the rate of tax and that of corruption in the host country: K=K[t(j),b(j)], where $\partial K/\partial t < 0$ and $\partial K/\partial b < 0$ [6].

Let FDI(k,j) be the bilateral stock of foreign direct investment from source country k to host country j. In our empirical work, we start with the following benchmark specification:

$$\log[FDI(k,j)] = \Sigma_i \alpha(i)D(i) + \beta_1 \text{ tax}(j) + \beta_2 \text{ corruption}(j) + X(j)\delta + Z(k,j)\gamma + e(k,j)$$

where D(i) is a source country dummy that takes the value of one if the source country is i (i.e., if k=i), and zero otherwise; X(j) is a vector of characteristics of host country j other than its tax and corruption levels; Z(k,j) is a vector of characteristics specific to the source-host country pairs; e(k,j) is an iid error that follows a normal distribution; and $\alpha(i)$, $\beta_1$, $\beta_2$, $\delta$, and $\gamma$ are parameters to be estimated.

This is a quasi-fixed-effects regression in that source country dummies are included. They are meant to capture all characteristics of the source countries that may affect the size of their outward FDI, including their size and level of development. In addition, possible differences in the source countries' definition of FDI are controlled for by these fixed effects under the assumption that the FDI values for a particular country pair under these definitions are proportional to each other except for an additive error that is not correlated with other regressors in the regression. We do not impose host country fixed effects as doing so would eliminate the possibility of estimating all the interesting parameters including the effect of corruption.

Using the combined GRC/WDR rating as the measure of corruption, the regression is run and reported in the first column of Table 5. Most variables have the expected signs and are statistically significant. A rise in host country tax rate is associated with less inward FDI. Government incentives and the restrictions on FDI have a positive and a negative coefficient, respectively, consistent with our intuition. Most importantly, corruption has a negative and statistically significant effect on FDI.

We perform several robustness checks. First, we add host country random effects to the specification. The regression result is reported in the second column of Table 5. The point estimate on corruption declines slightly, but remains negative and significant.

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[6] More sophisticated generalization includes endogenizing the level of corruption (and tax) such as those in Shleifer and Vishny (1993) or Kaufmann and Wei (1999). These generalizations are outside the scope of

We also adopt an alternative measure of corruption from the Transparency International and repeated the regressions (Columns 3-4 in Table 5). The qualitative results are unchanged.

4.2 Corruption and Composition of Capital Inflows

We now move to the central empirical question in the paper: does corruption affects the composition of capital inflows? This is equivalent to asking whether corruption affects FDI and international bank loans differently. We start by examining the relationship between corruption and bilateral bank loans, in a manner analogous to our previous studies of bilateral FDI (except that government policies towards FDI and tax rate on foreign-invested firms are omitted)[7].

Table 6 reports four regressions, with different specifications (just source country fixed effects, or with additional host country random effects), or with difference sources of corruption measures (GCR/WDR and Transparency International Index). The results are basically consistent (and somewhat surprising). When corruption is measured by the GCR/WDR index, it has a positive and statistically significant coefficient. In other words, in contrast with the previous results on FDI, corruption in borrowing countries seems to be associated with a higher level of borrowing from international banks. When corruption is measured by the TI index, it still has a positive coefficient, although the estimate is not statistically different from zero when host country random effects are added.

Putting the results on FDI and bank loans together, it would seem natural to expect that corruption would raise the ratio of bank loans to FDI. To verify that this is indeed the case, we also check directly the connection between the ratio of bank loans to FDI and host country corruption. We perform a fixed-effects regression of the following sort:

$$\text{Log}(\text{Loan}_{jk} / \text{FDI}_{jk}) = \begin{matrix}\text{source country} \\ \text{fixed effects}\end{matrix} + \beta\, \text{corruption}_k + X_{jk}\Gamma + e_{jk}$$

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the current paper.

[7] We have not found a consistent data source on government policies towards international bank borrowing across countries, nor are we able to construct such a series from the PwC country reports.

The regression results are reported in the first four columns in Table 7. As expected, the coefficient on corruption is positive and statistically significant at the 5 percent level. Based on the first regression in Table 7, Figure 3 presents a partial scatter plot of loan-to-FDI ratio against corruption, controlling for several characteristics of the host countries as described in the regression. A visual inspection of the plot suggests that positive association between corruption and capital composition is unlikely to go away if we omit any one or two observations. Hence, the evidence suggests that a corrupt country tends to have a composition of capital inflows that is relatively light in FDI and relatively heavy in bank loans.

Also note that because FDI is more relationship-intensive (as proxied by physical and linguistic distances) than bank loans, the coefficients on geographic distance and the linguistic tie dummy are positive and negative, respectively.

One might be concerned with possible endogeneity of the corruption measure. For example, survey respondents may perceive a country to be corrupt in part because they observe very little FDI going there. In this case, the negative association between the FDI-to-loan ratio and corruption can be due to a reverse causality.

In this subsection, we perform instrumental variable (IV) regressions on our key regressions. Mauro (1995) argued that ethnolinguistic fragmentation is a good IV for corruption. His ethnolinguistic indicator measures the probability that two persons from a country are from two distinct ethnic groups. The greater the indicator, the more fragmented the country. In addition, La Porta, etc. (1998) argued that legal origin or colonial history has an important impact on the quality of government bureaucracy. These variables are used as instruments for the corruption measure. A first-stage regression suggests that ethnically more fragmented countries are more corrupt. In addition, countries with a French legal origin (which includes colonies of Spain and Portugal) are more corrupt than former British colonies.

The IV regressions are reported in the last two columns of Table 7. A test of over-identifying restrictions does not reject the null hypothesis that the instruments are uncorrelated with the error term. The results from these two IV regressions are still consistent with the notion that corruption deters FDI more than bank loans. Therefore,

countries that are more corrupt tend to have a capital inflow structure that relies relatively more on bank borrowing than FDI.

Our sample is potentially censored. A source country may choose not to invest at all in a particular host country precisely because of the corruption level and other characteristics of that country. In that case, either FDI or bank lending or both may be zero. The regression procedure used so far would drop these observations. However, our left-hand-side variable, the ratio of bank loans to FDI, does not lend itself naturally to a Tobit specification. For this reason, the following transformation of the ratio is constructed as the left-hand-side variable: log(bank lending+0.1) – log(FDI + 0.1). The results are presented in Table 8. With this new variable, there is a small increase in the number of observation (from 225 to 231). The most important message from Table 8 is that the earlier conclusion remains to be true: corruption tilts the composition of capital inflows away from FDI and towards international bank loans.

Portfolio and Direct Investments from the U.S.

While bilateral data on portfolio investment other than bank credits are not available for the whole set of capital-exporting countries examined in the previous sub-sections, we can obtain data on portfolio investment originating from the US (to a set of developing countries). In this subsection, the data on US outward capital flows is used to examine whether the portfolio-to-direct investment ratio in a capital-receiving country is affected by its corruption level. We have to caution at the onset that the number of observations is small (between 35 to 39 depending on the regression specification). So the power of the statistical tests is likely to be low.

Six fixed-effects regressions are performed and reported in Table 9. In the first three columns, we use the GCR/WDR indicator of corruption. We see again that, at least for this sub-sample, the portfolio-investment-to-FDI ratio is also positively related to the capital-importing country's corruption level. The more corrupt a country, the less FDI it receives (relative to portfolio capital). However, when we use the TI corruption index (in the last three columns), the coefficients on corruption are no longer statistically significant although they are always positive. The insignificance can be consistent with a

genuinely zero coefficient or can be a result of a low power of the test due to the small sample size.

## 5. Conclusion

Corruption affects the composition of capital inflows in a way that is not favorable to the country. A corrupt country receives substantially less foreign direct investment. However, it may not be as much disadvantaged in obtaining bank loans. As a result, corruption in a capital-importing country tends to tilt the composition of its capital inflows away from foreign direct investment and towards foreign bank loans. The data supports this hypothesis. This result is robust across different measures of corruption and different econometric specifications.

There are two possible reasons for this effect. First, foreign direct investments are more likely to be exploited by local corrupt officials *ex post* than foreign loans. As a result, less FDI would go to corrupt countries *ex ante*. Second, the current international financial architecture is such that there is more insurance/protection from the IMF and the G7 governments for bank lenders from developed countries than for direct investors.

Previous research (starting with Frankel and Rose, 1996) has shown that a capital inflow structure that is relatively low in FDI is associated with a greater propensity of a future currency crisis. It may be that international bank loans (or other portfolio flows) swing more than direct investment in the event of bad news (real, or self-generated by international investors) about economic or policy fundamentals. If so, this paper has provided evidence for one possible channel through which corruption in a developing country may increase its chances of running into a future crisis.

In the literature on the causes of currency crises, crony capitalism and self-fulfilling expectations by international creditors are often proposed as two rival hypotheses. Indeed, authors that subscribe to one view often do not accept the other. The evidence in this paper suggests a natural linkage between the two. Crony capitalism, through its effect on the composition of a country's capital inflows, make it more vulnerable to the self-fulfilling expectations type of currency crisis.

Corruption could also lead to a financial crisis by weakening domestic financial supervision and producing a deteriorated quality of banks' and firms' balance sheets. This possibility itself can be a topic for a useful research project.

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## Appendix 1: Source and Construction of the Variables

**Bilateral Bank Loans**
Source: Bank for International Settlements
Data are in millions of US$ and are for the end of December. Loans to offshore banking centers are omitted.

**Bilateral Foreign Direct Investment**
Source: OECD, International Direct Investment Statistics Yearbook 1998, Diskettes. Data are in millions of US$ (converted into US$ using the yearly average exchange rates from annex III of the book).

**Distance**
Greater Circle Distance (in kilometers) between economic centers (usually capital cities) in a pair of countries based on the latitude and longitude data.
Source for latitude and longitude: Rudloff, updated from Pearce and Smith.
Argentina: used the average latitude and longitude of Buenos Aires, Cordoba, and Rosario
Australia: used the average latitude and longitude of Canberra, Sydney, and Melbourne
Bahrain: used the latitude and longitude data from the city of Muharraq
Bermuda: used the latitude and longitude data from Kindley Air Force Base
Bhutan: the latitude and longitude data are from http://www.kingdomofbhutan.com/kingdom.html
Canada: used the average latitude and longitude of Toronto, Vancouver, and Montreal
Equatorial Guinea: used the latitude and longitude data from the city of Santa Isabel
Greenland: used the latitude and longitude data from the city of Peary Land
India: used the average latitude and longitude of New Delhi, Bombay, and Calcutta
Israel: used the latitude and longitude data from Lod Airport (near Java and Tel Aviv)
Mauritius: used the latitude and longitude data from the city of Diego Gracia
Netherlands: used the latitude and longitude data from the city of De Bilt
Slovak: used the latitude and longitude data from the city of Poprad
Sudan: used the average latitude and longitude of Atbara Khartoum and El Fasher
Switzerland: used the latitude and longitude data from the city of Zurich
Brazil: used the average latitude and longitude of Brasilia, Rio de Janeiro, and Sao Paulo.
Panama: used the latitude and longitude data from Panama city
Russia: used the average latitude and longitude of Moscow, St. Petersburg and Nizhni Novogorodo. The data for Nzhni Novogorodo is from http://www.unn.runnet.ru/nn/whereis.htm
Kazakhstan: used the average latitude and longitude of Almaty, Chimkent, and Karaganda.
United States: used the latitude and longitude data from Kansas City, Missouri

**Linguistic Tie**
Source of major languages: CIA world facts book, from
http://www.odci.gov/cia/publications/factbook/
Dummy = 1 if the two countries share a common language or have a former colonial relation.
Kuwait (English): English is listed as widely spoken.
African countries, used the official languages. Additional languages are assigned for some countries in addition to the official languages. These include: Namibia (German), Mauritania (French), Mauritius(French), Costa Rica (English), Dominica (French), Libya (Italian), Trinidad/Tobago (French, Spanish), Oman (English), Qatar (English), Brunei (English), Papua New Guinea (English), Jordan (English), Israel (English), and Sri Lanka (English).

**Corruption – GCR Index**
Source: Global Competitiveness Report 1997

Transformation: values in this paper = 8 – original values.

**Corruption – WDR Index**
Original Source: World Development Report 1997.
Data are from Kaufmann and Wei (1999).
Transformation: values in this paper = 8 – original values.

**Corruption -- TI Index**
Source: Transparency International (http://www.gwdg.de/~uwvw/icr.htm) 1998 index.
Transformation: Values in this paper = 10 - minus the original values. Thus, a bigger number means more corruption.

**Gross Domestic Product (GDP) and GDP Per Capita**
Source: World Bank SIMA/GDF & WDR central database.
GDP data are GDP at market prices (constant 1995 US$).
GDP per capita data are calculated using GDP divided by population.

**Monthly Exchange Rate (end of period)**
Source: IMF, International Financial Statistics, via the World Bank SIMA databases.

**Government Deficit to GDP Ratio**
Source: World Bank SIMA/GDF & WDI central database.

**US bilateral data:**
Source: US Treasury Department website: http://www.ustreas.gov/tic/ticsec.shtml
Sum of the US portfolio investments in other countries(Gross sale by foreigners to US residents, foreign bonds and foreign stocks) from 1994-96.
All amounts in millions of dollars.

**Legal origins:**
Source: La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998).

**Accounting Standard**
Source: La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998).

**Corporate Tax rates:**
Source: PwC(2000), updated from GCR (1997).

**Table 1: Standard Deviations over 1980-1996 of FDI/GDP, Bank Loan/GDP, and Portfolio Flow/GDP**

| | S.D. of FDI/GDP | S.D. of Loans/GDP | S.D. of Portfolio/GDP |
|---|---|---|---|
| **OECD (20 countries)** | | | |
| Mean | 0.0073 | 0.0208 | 0.0199 |
| Median | 0.0062 | 0.0174 | 0.0192 |
| **Emerging markets: 73 countries** | | | |
| Mean | 0.0218 | 0.0437 | 0.0109 |
| Median | 0.0102 | 0.0346 | 0.0037 |
| **Whole sample: 93 countries** | | | |
| Mean | 0.019 | 0.039 | 0.013 |
| Median | 0.009 | 0.033 | 0.009 |

| **Selected Countries** | S.D. of FDI/GDP | S.D. of Loans/GDP | S.D. of Ptf/GDP |
|---|---|---|---|
| Indonesia | 0.007 | 0.017 | 0.009 |
| Korea | 0.002 | 0.037 | 0.014 |
| Malaysia | 0.023 | 0.034 | 0.023 |
| Mexico | 0.007 | 0.033 | 0.026 |
| Philippines | 0.009 | 0.026 | 0.017 |
| Thailand | 0.007 | 0.028 | 0.012 |

Notes:
1: Sources: Total inward FDI flows, total bank loans, and total inward portfolio investments: IMF Balance of Payment Statistics; GDP: World Bank's GDF & WDI Central Databases.

2. Only countries that have at least eight non-missing observations during 1980-1996 for all three variables are kept in the sample.

**Table 2: Quality of Public Governance and the Composition of Capital Inflows**

| | New Zealand | Singapore | Uruguay | Thailand |
|---|---|---|---|---|
| Corruption (Ti Index) | 0.6 (less corrupt) | 0.9 | 5.7 | 7.0 (more corrupt) |
| Ratios (ave. over 94-96) | | | | |
| Loan / FDI | 0.11 | 0.44 | 1.77 | 5.77 |
| Portfolio / FDI | 0.07 | 0.09 | 1.40 | 1.76 |
| Absolute amount (ave. over 94-96) | | | | |
| Loan | 920 | 10500 | 794 | 2500 |
| Portfolio | 610 | 2200 | 627 | 761 |
| FDI | 8400 | 23600 | 448 | 432 |

1. Source: Total inward loans, portfolio investment, and FDI are from the IMF's Balance of Payment Statistics. The reported numbers are averages over 1994-96.

2. The lower half of the table reports the absolute amount of the three inflows in millions of US dollar.

**Table 3: List of Countries in the Sample**

Source countries of FDI (and lending countries of loans):
Austria, Belgium, Canada, Finland, France, Germany, Italy, Japan, Luxembourg, Netherlands, Spain, United Kingdom, United States

Host countries of loan and FDI (FDI data only available for *countries):
Albania, Argentina*, Armenia, Australia*, Azerbaijan, Belarus, Benin, Bolivia, Brazil*, Bulgaria*, , Cameroon, Chad, Chile*, China*, Colombia*, Congo, Rep., Costa Rica*, Cote d' Ivoire, Czech Republic*, Ecuador, Egypt, Arab Rep.*, El Salvador, Estonia, Fiji, Georgia, Ghana, Greece*, Guatemala, Guinea, Guinea-Bissau, Honduras, Hungary*, Iceland*, India*, Indonesia*, Islamic Rep., Israel*, Jamaica, Jordan, Kazakhstan, Kenya, Korea, Rep.*, Kyrgyz Republic, Latvia, Lithuania, Madagascar, Malawi, Malaysia*, Mali, Mauritius, Mexico*, Moldova, Morocco*, Mozambique, Namibia, New Zealand*, Nicaragua, Niger, Nigeria, Pakistan, Paraguay, Peru, Philippines*, Poland, Portugal, Romania*, Russian Federation*, Senegal, Slovak Republic*, South Africa*, Taiwan*, Tanzania, Thailand*, Tonga, Tunisia, Turkey*, Uganda, Ukraine*, Uruguay, Uzbekistan, Venezuela*, Vietnam, Zambia, Zimbabwe

**Table 4: Correlation Matrix**

| | GDP per capita | TI | GCR | WDR |
|---|---|---|---|---|
| GDP per capita | 1 | | | |
| TI | -0.8233 | 1 | | |
| GCR | -0.7778 | 0.87 | 1 | |
| WDR | -0.7242 | 0.86 | 0.83 | 1 |

**Table 5: Corruption and Foreign Direct Investment**

| Methodology | Fixed Effects | Random Effects | Fixed Effects | Random Effects |
|---|---|---|---|---|
| | GCR/ WDR | | T I | |
| Measure of corruption | -0.277** | -0.256** | -0.209** | -0.212** |
| | (0.073) | (0.119) | (0.046) | (0.076) |
| Tax rate | -0.032** | -0.034* | -0.030** | -0.034* |
| | (0.011) | (0.019) | (0.011) | (0.019) |
| FDI incentives | 0.407** | 0.329** | 0.400** | 0.345** |
| | (0.096) | (0.162) | (0.095) | (0.157) |
| FDI restrictions | -0.336** | -0.324** | -0.324** | -0.308** |
| | (0.058) | (0.098) | (0.058) | (0.096) |
| Log (GDP) | 0.861** | 0.947** | 0.909** | 0.994** |
| | (0.053) | (0.091) | (0.055) | (0.091) |
| Log (Per capita GDP) | -0.018 | -0.094 | -0.125 | -0.218 |
| | (0.086) | (0.143) | (0.096) | (0.158) |
| Log distance | -0.553** | -0.854** | -0.557** | -0.844** |
| | (0.061) | (0.067) | (0.060) | (0.067) |
| Linguistic tie | 1.435** | 1.045** | 1.409** | 1.049** |
| | (0.211) | (0.195) | (0.210) | (0.195) |
| Exchange rate volatility | -0.247 | -3.088 | 0.210 | -2.354 |
| | (1.965) | (3.018) | (1.960) | (2.954) |
| Adjusted $R^2$/Over-all $R^2$ | 0.73 | 0.73 | 0.74 | 0.74 |
| No. of obs. | 628 | 628 | 628 | 628 |

Notes:
1. **, * and # indicate significant at the 5%, 10%, and 15% levels, respectively. Standard errors are in parentheses.
2. Fixed-effects regression: logFDI(k,j) = source country dummies + b X(k,j) + e(k,j); where FDI(k,j) is FDI from source country k to host country j. All regressions include source country dummies whose coefficients are not reported to save space.
3. The random-effects specification: Y(kj) = source country dummies + bX(kj) + u(j) + e(kj), where u(j) is the host-country random effect.
4. log(FDI), log(GDP) and log(per capita GDP) are averaged over 1994-1996. Exchange rate volatility = Standard deviation of the first difference in log monthly exchange rate (per US$) over 1994:1-1996:12.

**Table 6: Corruption and Bank Lending**

| Methodology | Fixed Effects | Random Effects | Fixed Effects | Random Effects |
|---|---|---|---|---|
| | GCR/ WDR | | T I | |
| Measure of corruption | 0.263** | 0.272** | 0.082# | 0.056 |
| | (0.064) | (0.084) | (0.053) | (0.069) |
| Ease in investing | 0.219** | 0.262** | 0.110 | 0.161 |
| Securities and bonds market | (0.088) | (0.115) | (0.089) | (0.116) |
| Log (GDP) | 1.004** | 1.054** | 0.984** | 1.052** |
| | (0.054) | (0.068) | (0.060) | (0.076) |
| Log (Per capita GDP) | 0.366** | 0.356** | 0.388** | 0.337** |
| | (0.063) | (0.081) | (0.096) | (0.125) |
| Log distance | -0.244** | -0.428** | -0.224** | -0.432** |
| | (0.072) | (0.082) | (0.076) | (0.085) |
| Linguistic tie | 0.633** | 0.818** | 0.556** | 0.776** |
| | (0.207) | (0.198) | (0.210) | (0.200) |
| Exchange rate volatility | -5.917** | -7.253** | -5.359** | -6.598** |
| | (1.564) | (1.966) | (1.618) | (2.060) |
| Adjusted $R^2$/Over-all $R^2$ | 0.72 | 0.73 | 0.71 | 0.72 |
| No. of observations. | 396 | 396 | 396 | 396 |

**Table 7: Composition of Capital Flows**

| Dependent variable: log(Loan) – log(FDI), averaged over 1994-96 | | | | | | |
|---|---|---|---|---|---|---|
| Methodology | Fixed Effects | Random Effects | Fixed Effects | Random Effects | IV Fixed effects | |
| | GCR/ WDR | | T I | | GCR/ WDR | |
| Measure of corruption | 0.455** | 0.475** | 0.294** | 0.300** | 0.214* | 0.206# |
| | (0.093) | (0.165) | (0.073) | (0.121) | (0.129) | (0.130) |
| Tax rate | 0.021 | 0.022 | 0.021 | 0.020 | | |
| | (0.017) | (0.032) | (0.018) | (0.029) | | |
| FDI incentives | 0.187 | 0.240 | -0.056 | -0.019 | 0.110 | 0.095 |
| | (0.153) | (0.262) | (0.160) | (0.254) | (0.156) | (0.157) |
| FDI restrictions | 0.448** | 0.453** | 0.458** | 0.446** | 0.336** | 0.333** |
| | (0.086) | (0.158) | (0.088) | (0.145) | (0.093) | (0.093) |
| Log (GDP) | -0.606** | -0.695** | -0.597** | -0.655** | -0.274** | -0.255** |
| | (0.108) | (0.189) | (0.110) | (0.174) | (0.115) | (0.118) |
| Log (Per capita GDP) | 0.158# | 0.193 | 0.272** | 0.302 | 0.035 | 0.033 |
| | (0.098) | (0.182) | (0.125) | (0.210) | (0.103) | (0.102) |
| Log distance | 0.350** | 0.544** | 0.357** | 0.525** | 0.123 | 0.111 |
| | (0.094) | (0.115) | (0.096) | (0.114) | (0.132) | (0.132) |
| Linguistic tie | -0.706** | -0.682** | -0.722** | -0.700** | -0.752** | -0.802** |
| | (0.307) | (0.288) | (0.313) | (0.292) | (0.289) | (0.295) |
| Exchange rate volatility | -0.260 | 0.269 | -1.351 | -0.755 | | -1.776 |
| | (2.058) | (3.511) | (2.216) | (3.488) | | (2.223) |
| Over-identifying restriction (P-value of the test) | | | | | 0.44 | 0.63 |
| Adjusted $R^2$/Over-all $R^2$ | 0.48 | 0.51 | 0.46 | 0.50 | - | - |
| No. of obs. | 225 | 225 | 225 | 225 | 180 | 180 |

**Table 8: Transformed Ratio of Loans to FDI**

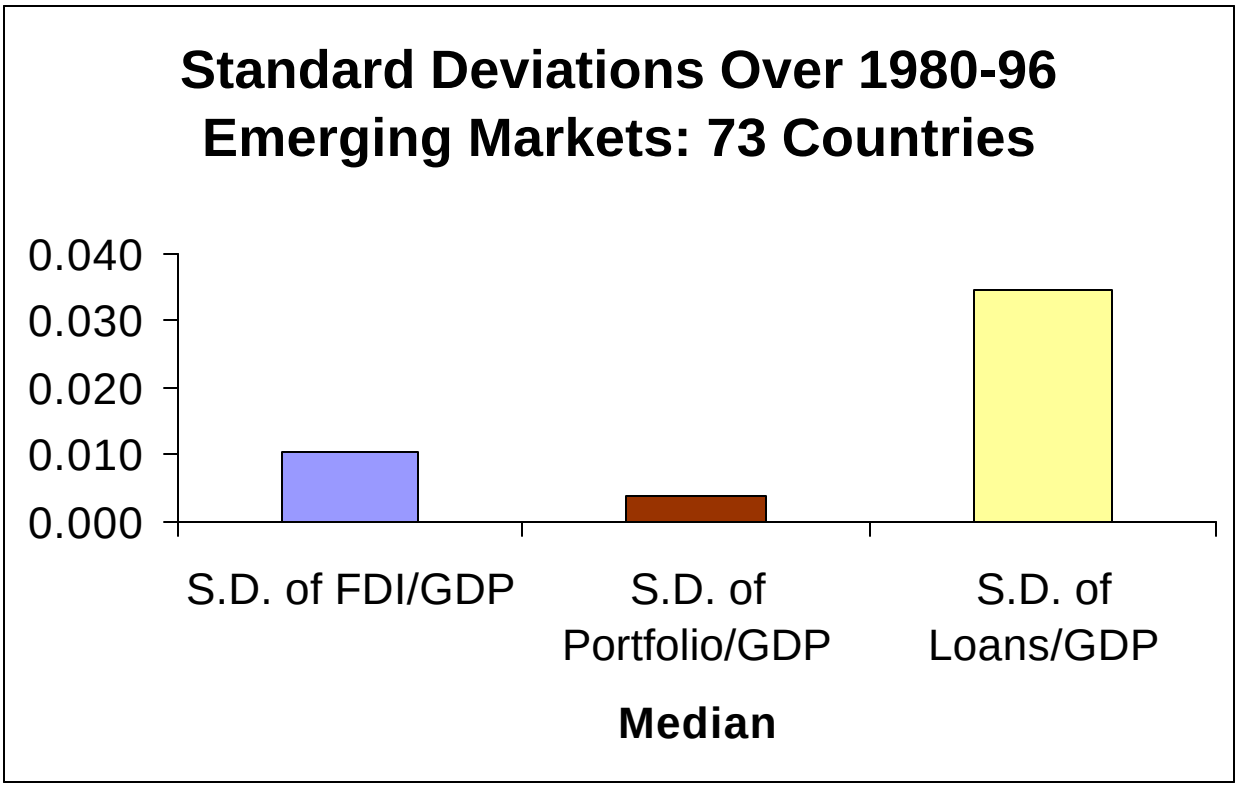
| Dependent variable: log(Loan+0.1) – log(FDI+0.1), averaged over 1994-96 | | | | | | |
|---|---|---|---|---|---|---|
| Methodology | Fixed Effects GCR/ WDR | Random Effects GCR/ WDR | Fixed Effects TI | Random Effects TI | IV Fixed effects GCR/ WDR | IV Fixed effects GCR/ WDR |
| Measure of corruption | 0.457** | 0.460** | 0.292** | 0.283** | 0.278** | 0.272* |
| | (0.110) | (0.166) | (0.087) | (0.133) | (0.140) | (0.141) |
| Tax rate | 0.011 | 0.014 | 0.012 | 0.012 | | |
| | (0.021) | (0.032) | (0.021) | (0.032) | | |
| FDI incentives | 0.035 | 0.068 | -0.196 | -0.166 | -0.014 | -0.024 |
| | (0.179) | (0.265) | (0.187) | (0.280) | (0.168) | (0.169) |
| FDI restrictions | 0.554** | 0.556** | 0.558** | 0.547** | 0.427** | 0.424** |
| | (0.101) | (0.158) | (0.103) | (0.159) | (0.102) | (0.102) |
| Log (GDP) | -0.628** | -0.687** | -0.615** | -0.657** | -0.323** | -0.310** |
| | (0.129) | (0.193) | (0.131) | (0.194) | (0.126) | (0.129) |
| Log (Per capita GDP) | 0.208* | 0.221 | 0.314** | 0.318 | 0.116 | 0.114 |
| | (0.117) | (0.184) | (0.149) | (0.232) | (0.111) | (0.111) |
| Log distance | 0.390** | 0.477** | 0.396** | 0.479** | 0.159 | 0.150 |
| | (0.113) | (0.133) | (0.115) | (0.135) | (0.145) | (0.146) |
| Linguistic tie | -0.501 | -0.509 | -0.513 | -0.522# | -0.751** | -0.785** |
| | (0.367) | (0.357) | (0.373) | (0.360) | (0.319) | (0.326) |
| Exchange rate volatility | 0.920 | 1.405 | -0.279 | 0.442 | | -1.231 |
| | (2.371) | (3.513) | (2.553) | (3.798) | | (2.453) |
| Adjusted $R^2$/Over-all $R^2$ | 0.47 | 0.51 | 0.45 | 0.50 | - | - |
| No. of obs. | 231 | 231 | 231 | 231 | 183 | 183 |

**Table 9: US-bilateral Portfolio Data**

| Dependent variable: log(portfolio investment) – log(FDI), averaged over 1994-96 | | | | | | |
|---|---|---|---|---|---|---|
| Measure of corruption | GCR/WDR | | | TI | | |
| Corruption | 0.224* | 0.223* | 0.239# | 0.118 | 0.135 | 0.128 |
| | (0.121) | (0.120) | (0.145) | (0.103) | (0.113) | (0.115) |
| Tax rate | | | -0.023 | | | -0.033 |
| | | | (0.036) | | | (0.033) |
| FDI incentives | | | -0.218 | | | -0.215 |
| | | | (0.255) | | | (0.249) |
| FDI restrictions | | | 0.214 | | | 0.167 |
| | | | (0.156) | | | (0.165) |
| Ease in investing securities and bonds market | | | 0.364* | | | 0.280 |
| | | | (0.203) | | | (0.199) |
| Log (GDP) | 0.304** | 0.311** | 0.371** | 0.289** | 0.287** | 0.344** |
| | (0.138) | (0.152) | (0.161) | (0.124) | (0.137) | (0.155) |
| Log (Per capita GDP) | 0.506** | 0.517** | 0.441** | 0.512** | 0.557** | 0.461** |
| | (0.100) | (0.100) | (0.152) | (0.163) | (0.177) | (0.202) |
| Log distance | -0.200* | -0.187# | -0.194# | -0.198** | -0.180# | -0.203# |
| | (0.101) | (0.113) | (0.129) | (0.085) | (0.107) | (0.127) |
| Linguistic tie | 0.870** | 0.814** | 1.004** | 0.853** | 0.797** | 0.984** |
| | (0.238) | (0.251) | (0.287) | (0.269) | (0.278) | (0.294) |
| Exchange rate volatility | | 3.515** | 3.990# | | 2.436 | 3.281 |
| | | (1.649) | (2.367) | | (2.254) | (2.739) |
| Government deficit | | 0.009 | 0.023 | | 0.006 | 0.005 |
| | | (0.034) | (0.047) | | (0.039) | (0.049) |
| $R^2$ | 0.52 | 0.56 | 0.60 | 0.51 | 0.54 | 0.58 |
| No. of obs. | 39 | 36 | 35 | 39 | 36 | 35 |

Notes: Portfolio and FDI values are sum of the flows over 1994-96.

**Figure 1: Relative Volatility of Different Capital Flows**



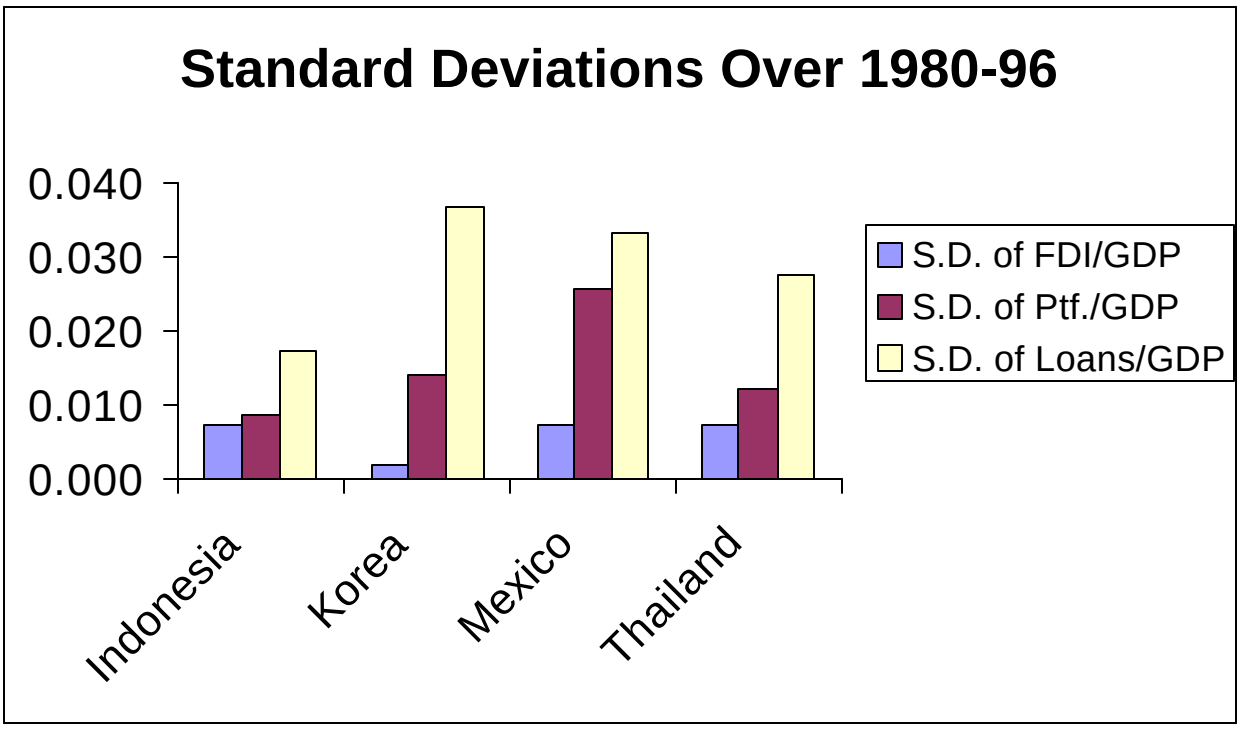



**Figure 2:Quality of Public Governance and the Composition of Capital Inflows**

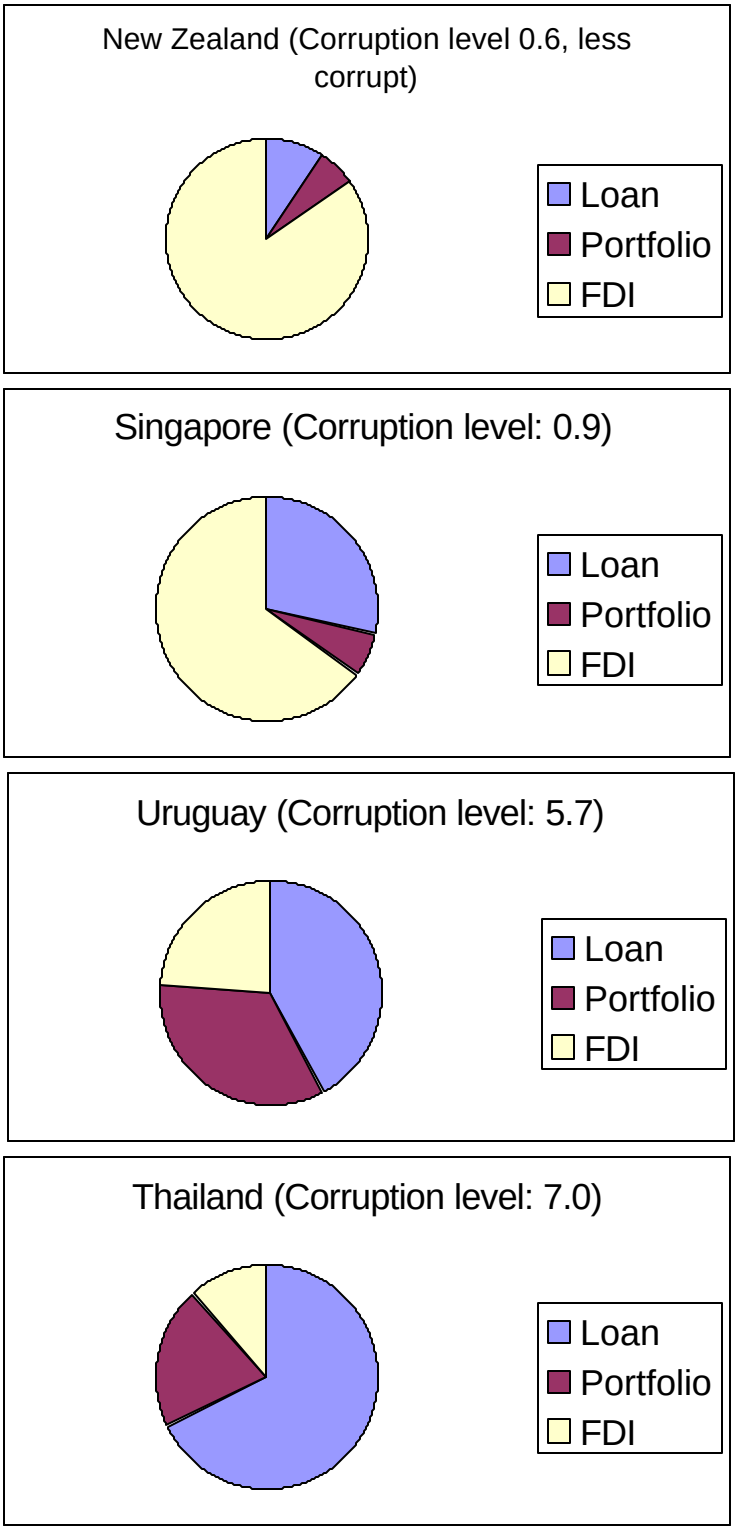


**Figure 3: Composition of Capital Inflows and Corruption**
(Partial correlation based on Table 7, Column 1)