Capital Account Liberalization and Foreign Direct Investment

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Abstract

We examine the impact of capital account policies on FDI inflows. Using an annual panel dataset of 83 developing and developed countries for 1984-2000, we find that capital account openness is positively but only very moderately associated with the amount of FDI inflows after controlling for other macroeconomic and institutional measures. To a large extent, other country characteristics seem to determine FDI inflows instead of capital account policies. Furthermore, we find that capital controls are easily circumvented in corrupt and politically unstable regimes. We conclude that liberalizing the capital account is not sufficient to generate increases in inflows unless it is accompanied by a lower level of corruption or a decrease in political risk.

Key Words: Foreign direct investment, capital controls, capital flows, capital account liberalization.
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1. Introduction

During the past thirty years, foreign direct investment (FDI) has grown in importance with a large number of developing countries able to attract inward FDI in increasing volumes. The theoretical literature that examines FDI identifies a number of channels through which FDI inflows will be beneficial to the receiving economy.[1] Yet, the empirical literature has lagged behind and has had more trouble identifying these advantages in practice. Most prominently, a large number of applied papers have looked at the FDI-growth nexus.[2]

The consensus that is slowly emerging is that FDI is beneficial when compared to other types of capital inflows such as portfolio investment or syndicated bank loans, though some maintain that even this beneficial effect is limited.[3] Additional research efforts are devoted to identifying other features unique to FDI, such as its relative permanence or the positive externalities it generates.[4] Notwithstanding these fragile conclusions, most countries continue to vigorously pursue policies aimed to encourage more FDI inflows; these include very significant tax breaks and other types of subsidies granted to multinationals in return for setting up domestic operations.[5] The multilateral

[1] For a recent theoretical contribution, with a discussion of its empirical applicability, see Chakrabarti, 2003.

[2] While most papers identify FDI as a source of technological diffusion, productivity increases, and growth accelerations, the real significance of these effects is still in debate with a minority of papers disagreeing with all these positive conclusions. A prominent contribution, Borensztein et al. (1998), argues that FDI will lead to increased GDP growth only beyond a threshold level of accumulated human capital stock. With the availability of better data, the last few years have seen an especially large number of empirical papers devoted to this question (e.g., Alfaro et al., 2004; Bengoa and Sanchez-Robles, 2003; Durham, 2004; Hsiao and Shen, 2003; and Li and Liu, 2005, Vu et al., 2007).

[3] Gray (2004) even goes so far as to suggest that countries should restrict FDI inflows, but his position is clearly in the minority among academic economists writing in English.

[4] For widely-cited examples, see Aitken and Harrison (1999), Fernández-Arias and Hausmann (2001), and Sarno and Taylor (1999).

[5] For a critical look at these domestic tax/subsidy policies, see Hanson (2001). For a discussion of the empirical evidence on tax policy's impact on FDI inflows see Hines (1996); and for a more recent survey,

public organizations, in particular the Organization for Economic Cooperation and Development (OECD), the World Trade Organization (WTO) and the International Monetary Fund (IMF), have also been vocal supporters of FDI promotion policies. One of the more common policies the international institutions frequently prescribe within this context is liberalization of the capital account.[6]

Yet, very little empirical work has been done to examine the impact of capital account policies on FDI inflows. While neo-classical modeling suggests that capital account liberalization will increase FDI inflows, this might not be the case if the neo-classical assumptions of perfect information, a complete menu of contingent contracts and competitive markets are relaxed. Developing countries - with their underdeveloped financial markets, lack of corporate transparency, insufficient national data-collection and dissemination, and susceptibility to large fluctuations in exchange rates - might be particularly vulnerable to perverse impacts of capital account liberalizations. In this paper, we aim to examine macroeconomic data to investigate the relationship between capital account policies and the inflows of foreign direct investment.

Table 1 presents recent trends in FDI inflows both as a percentage of output and as a percentage of fixed capital formation. Apparent is the worldwide trend increase in the importance of FDI (using both measures) throughout the 1980s and 1990s in all geographical regions, with FDI inflows after 2000 increasing to 4-5 times the level experienced during the 1980s. Yet, in several regions, net FDI flow peaked in 1995-1999 period and current levels are still below that peak. As is seen in figure 1 for emerging markets, more recent figures reveal that while 2001-2003 have indeed been years of

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Mooij and Ederveen (2003). Gastanaga et al. (1998) analyze other host-country policies that aim to encourage FDI inflows.

[6] For the IMF's role in promoting capital account liberalization, see Joyce and Noy (2005).

decline, FDI flows into this group have soared again in 2004 and are predicted to continue soaring through 2006. Their level today is appreciably higher than during the previous peak in 2001.[7] If those trends continue, then understanding the determinants of foreign direct investment flows will only become even more important.

Section 2 provides a brief survey of the extensive empirical work on the determinants of FDI inflows and of the very few papers that have looked at the nexus of FDI and capital account policies highlighting our contribution. Section 3 presents our empirical model and the data we use. Section 4 analyzes the results and Section 5 concludes.

2. Empirical Literature

Recent contributions to the literature on the determinants of FDI inflows are summarized in table 2. This literature is quite large, with much of it focusing on an OECD dataset of out-bound bi-lateral dataset of FDI flows. A recent survey of this literature and the micro-empirical literature on the industrial-organizational foundations of FDI is provided in Blonigen (2005). Another strand in the literature on capital flows examines the impacts of capital account policies on other variables such as the volumes of short-term capital flows (the so-called 'hot money') or the volume and price of investment in the receiving country. Notable recent contributions in this strand include Henry (2003), Edwards and Rigobon (2005) on the Chilean case, Carvalho and Garcia (2006) on the Brazilian case, and a recent survey by Forbes (2006).

In the following discussion, we focus only on those papers that have examined the capital account - FDI nexus which is also the focus of our work. Desai et al. (2004), using

[7] Mody (2004) offers more analysis of FDI flows over time and across regional groupings.

firm level data from the U.S., find that American multinationals manage to circumvent capital controls by adjusting their reported intra-firm trade, affiliate profits and dividend repatriations. On the other hand, they identify a number of ways in which capital controls make operations more costly to the foreign affiliate, and thereby reduce FDI inflows significantly. American affiliates are about 15% smaller in countries with capital controls and, importantly, this reduction disappears once countries open up their capital accounts.

Montiel and Reinhart (1999) examine the impact of capital account policies and sterilized foreign exchange interventions on the volume and composition of capital flows using a policy index they developed for the years 1990-1996. They conclude that imposing capital controls had no impact on volumes of flows but did shift the composition of flows toward short term – 'hot money' – flows. Alfaro et al. (2005), and Aizenman and Noy (2003), also find that capital controls have no impact on aggregate capital flow volumes. Aizenman and Noy (2006), find that while capital controls have no impact on FDI gross flows, controls on the current account do have an indirect impact on FDI inflows through their impact on goods trade.

The paper closest to ours is Asiedu and Lien (2004). In this paper, the authors use a cross-country macro panel of net FDI flows to examine the impact of external policies (controls on the capital account, exchange rate regime and a surrender of export proceeds requirement) on net FDI flows. They present mixed findings with some evidence that FDI flows are impacted by capital account policies but only in specific geographical regions.

In light of these puzzling and often conflicting results and the prominence of policy debates on these issues, it is clear that more research into the capital flows / capital account policies nexus is desirable. Our paper is different from the previous literature

described above in several ways. First, as our dependent variable we use net FDI inflows (FDI inflows minus repatriated investments) instead of the Asiedu and Lien (2004) measure of net FDI flows (net FDI inflows minus direct-investment-abroad/net-FDI-outflows) or Aizenman and Noy's (2006) measure of FDI gross flows. Secondly, we use a different measure of capital controls that was recently developed in Chinn and Ito (2006) rather than the dichotomous measure used in almost all of the previous literature.

Thirdly, measures of capital controls are based on a *de jure* state, but it is likely that the *de facto* state of enforcement of these regulations is of considerable importance in identifying any empirically observable link. It is also probable that the *de facto* state is influenced by institutional characteristics of the receiving economy. Consequently, we examine the impact of institutional factors – corruption and political stability - on the degree of association between capital controls and the flows of FDI. Finally, as is described and reasoned in the following sections, our data coverage and empirical estimation methodology are different.

3. Methodology and Data

3.1. Data

We collected a macroeconomic annual panel data for 62 developing and 21 developed countries from 1984 to 2000.[8] Blonigen and Wang (2005) argue that pooling developed and developing countries is inappropriate in empirical FDI studies. Besides other differences, they find that the factors that affect FDI inflows are different across the

[8] We use dummy variables to fill most of the missing observations but still have several missing observations, so we have an unbalanced panel. If there were more than 3 missing observations for one country for a single variable, we used a binary replacement variable to enable us to include the observations in the regressions.

two groups. We therefore conduct all of our analyses separately for developed and developing countries.[9]

Data for FDI is taken from the IMF's *Balance of Payments Statistics* database. The measure we use is for net FDI inflows (foreign direct investment inflows minus repatriated foreign investments). FDI is defined by the IMF as investment by foreigners that acquire a management interest (10% or more of voting stock). It is the sum of equity capital, reinvestment of earnings, and other long- and short-term capital.[10]

An analysis of available data on capital controls is available in Edison et al. (2004). The most popular source for data is the IMF's publication, *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAR). Most authors use a binary variable on the existence/absence of restrictions on the capital account taken from the AREAR data. As is argued in Edison et al. (2004) and Chinn and Ito (2006), this dichotomous measure is imperfect since there are a variety of ways and grades in which the capital account can be restricted. As a complete dataset on the full menu of capital restrictions makes cross-country empirical estimation impractical, we focus on a continuous index that includes other components of external policies for which data is available in the AREAR database.

The indicator of capital account openness we employ was developed in Chinn and Ito (2006). They used the data reported in the AREAR on the existence of multiple exchange rates, restrictions on the current and capital accounts (where the latter is

[9] Developed countries are defined based on the World Bank's classification system.
[10] The net FDI flows variable that is conventionally employed (taken from the IMF's *Balance of Payments Statistics* or the World Bank's *World Development Indicators*) is the net FDI inflows we use minus net FDI outflows. That measure thus includes also outward FDI (investment by domestic resident firms in foreign countries and the repatriation of that investment). Outward FDI (net FDI outflows) is most likely determined by other factors so we do not include it. More details are available in: International Monetary Fund (2001).

measured as the proportion of the last five years without controls) and requirements to surrender export proceeds in order to capture the intensity of controls on capital account transactions. Their index of openness is the first standardized principal component of the four variables above, and in practice ranges from -2.0 in the case of most control to 2.5 in the case of most liberalization. We generate a new variable, KAOPN, to eliminate the negative sign: KAOPN = (CHINNITO+2)/4.5. This data is available for 108 developed and developing countries for 1970-2000.

The additional macroeconomic and institutional data used for control variables in the regressions is taken from the World Bank's *World Development Indicators* and the PRS Group's *International Country Risk Guide,* respectively. Details on the variables' definitions and sources are available in the appendix.

3.2 Methodology

We start with a standard FDI determination model:

$$FDI_{it} = \alpha_t D_t + \beta X_{it} + \varepsilon_{it} \qquad (1)$$

with time fixed-effects (D_t) and a comprehensive list of independent variables (X_{it}) obtained from the previous research that is detailed in table 2. We follow a downward piecewise algorithm in pairing down our specification in order to avoid omitted variables. We gradually eliminate variables with high multi-colinearity, using the Variance Inflation Factors test (VIF). The test uses the diagonal elements of the covariance matrix in a regression and is given by: $VIF_i = (1 - R_{ik}^2)^{-1}$, where R_{ik}^2 is the R^2 from regressing the X_i on *k* other variables. When there is perfect multi-colinearity, R_{ik}^2 equals to one, and the

VIF approaches infinity. Kennedy (2003) recommends that any variable with VIF greater than ten be eliminated.

For the developing countries dataset, we obtain 18 variables with VIF < 10. The 18 explanatory variables are: corruption (CORR —with the higher value denoting less corruption); financial risk rating (FIN—with higher value denoting less financial risk), political risk rating (POLI—with higher value denoting less political risk), exports (EXP), GDP growth rate (GDPG), GDP per capita (GDPPCL), GDP growth volatility (GDPGV), interest rate controls (INTR), lagged value of FDI net inflows (FDIL), gross fixed capital formation (GFCF), inflation (INFL), economic stability (ECON), life expectancy (LIFE), literacy rate (LITER), government consumption (GCONS), ratio of deposit money bank assets to GDP (DMAGDP), private credit by deposit money banks and other institutions to GDP (PCDMO), and exchange rate volatility (EXCHAV).[11]

We also add fixed effect (time and country effects) and the capital control variables of interest to obtain:

$$FDI_{it} = \alpha_t D_t + \gamma_i D_i + \beta X_{it} + \delta KAOPN_{it} + \varepsilon_{it} \qquad (2)$$

Finally, in order to examine whether the impact of capital controls on FDI inflows is sensitive to different institutional and political-economic differences in the destination economies, we estimate equation (2) and also include KACOR (interaction between capital openness and corruption), KAFIN (capital openness and financial risk), and KAPOL (capital openness and political instability).

[11] In a previous version, we also included regressions with a more parsimonious specification that includes only 11 explanatory variables whose coefficients have a p>0.5 of being different from zero. Results, however, are insensitive to the elimination or inclusion of these variables.

Results

In table 3, we first describe and report on our benchmark specifications – these regressions include all of the control variables but do not include the capital account policy variables. We report separately specifications for developing (non-developed) and developed countries (fixed effects and OLS). We obtain the following general results: For the developing country sample, there is evidence of a negative impact of corruption on FDI inflows, and a negative effect of financial risk with the opposite effect for political risk.[12] These results disappear in a fixed effect specification since these variables do not change much over time. For this sample, we also observe a positive association between exports and FDI inflows, a negative impact of past GDP growth volatility and a positive impact of gross fixed capital formation. All these results correspond closely with much of the previous research described in table 2. For the developed countries sample, we observe a similar pattern for exports and GDP growth volatility. In addition, we see some counter-intuitive evidence of a positive impact of inflation, and a negative impact of GDP growth. The explanatory power (adjusted R^2) of these models is between 0.34 and 0.57. All the regression specifications results described hence (in tables 4-6) also contain all of the control variables described above (in table 3).

In table 4, we report the full specification of our empirical model including the capital account openness variable. In all instances (developing and developed countries and in the fixed and OLS specifications) the capital account openness measure is positively associated with the amount of FDI inflows after controlling for all other macroeconomic and institutional measures.

[12] See Aizenman and Noy (2004) for a similar result and a theoretical model explaining it.

For the OLS estimates, the coefficient for the developing countries sample is smaller. But, once we control for country-specific time-invariant effects (fixed effects), we find that the impact of capital account openness is much bigger for developing countries. Since in our sample period, changes in capital account policies were much more prevalent in the developing countries sample, the disappearance of the capital policies' effect in the developed country panel is not surprising. For the developed country sample, any identified impact of capital openness is apparently due to country specific characteristics that we are unable to control for.

As for the economic significance of this effect, we find that an increase of one standard deviation in the capital openness index will increase FDI inflows by 0.71% and 0.32% (of the receiving country's GDP) for the developing and developed countries samples, respectively.[13] While statistically significant, it appears that capital account liberalization increases FDI inflows only modestly.

Tables 5 and 6 investigate the interaction between the institutional factors, as proxies for enforcement of the capital account regulations, and the regulations themselves in determining the amount of FDI inflows. In table 5, we note that the previously reported clear-cut positive association between capital account openness and FDI inflows no longer holds once we control for the interactions of institutions/enforcement. The most interesting result, in our view, is that capital openness seems to be effective in generating more FDI inflows only if the level of corruption is low. Apparently, either capital controls are more easily circumvented in corrupt environment or capital openness, in and of itself, is not enough to generate increases in inflows unless it is accompanied by

[13] These calculations are based on the coefficients obtained in specifications 4.2 and 4.4, respectively.

decrease in the level of corruption. We obtain similar results for political risk. Liberalized capital account is only efficient in generating more inflows in an environment of low political risk.

Interestingly, these results for corruption and political risk hold for both OLS and fixed effects suggesting that the effect is of importance over time, as well. In table 6 we present similar results for the developed countries sample.

In a first attempt to establish robustness, We provide, in appendix B, the results of the benchmark regressions using the conventional binary indicator for capital account openness that is based on the data from the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions*. For all the control variables, results are very similar to the previously reported regressions. The coefficient for the binary indicator of capital account openness, on the other hand, is now occasionally negative and significant (in the OLS specification for developing countries and in the fixed effects specification for developed countries). This can suggest that capital account openness leads to decreases in the volumes of FDI inflows. More probable, in our view, is that this binary measure is too crude a measure of the capital account regime and that our result, where the degree of capital account openness does not matter unless one accounts for corruption and institutional stability is the more likely possibility.

To further examine robustness we also utilize a different way to examine the differential impact of capital account openness on FDI inflows for high/low corruption or high/low politically stable regime. We divide the sample into low/high corruption observations with the median corruption level used as a threshold. We re-ran key

specifications separately for each sub-sample (high/low level of corruption), and then compare the coefficients on the capital account variable. As can be expected in light of our previous results, capital account openness does lead to more FDI inflows in low corruption country-year observations but may lead to even less FDI inflows in high corruption states.[14]

Very similar conclusions also result from dividing the sample into low/high financial and political stability environments. For developing countries, a financially and politically stable environment allows the economy to reap the benefits of capital account openness with additional FDI inflows. This is never the case for financially and politically unstable regimes, in which openness does not result in any statistically observable increase in FDI inflows. All of these results are available upon request.

Since we view these set of results as an interesting contribution to the literature, we verify their robustness using two other measures of political stability and a proxy for corruption. We use and index of political freedom (the measure sums up the political rights and civil liberties indices available from *Freedom House*) and an index that measures the durability of a political regime (based on past regime changes – this measure is the DURABLE index from the Polity IV dataset). We utilize a measure of the degree of democracy in a political regime as a proxy for corruption since a alternative direct measure of corruption with similar panel coverage is not available.[15] Results

[14] This result holds for developing countries. For developed countries, we again see a more beneficial impact of openness in low corruption states but the difference and statistical significance are much lower.
[15] This measure aggregates annual measures for both institutionalized democracy (DEMOC) and autocracy (AUTOC)….this procedure provides a single regime score that ranges from +10 (full democracy) to -10 (full autocracy)." (Marshall and Jaggers, 2000, p. 12).

remain qualitatively identical and similarly significant with the coefficients slightly bigger for the Freedom House index and slightly smaller for the Polity IV measure.

The measurement of capital controls is fraught with difficulty.[16] While the measure we have used is somewhat more nuanced than the oft-used binary measure obtained from IMF publications, we clearly need to establish the robustness of our results using alternative measures. In recent work, Edwards (2006) constructed an index of *de jure* capital mobility by combining information from Quinn (2003) and Mody and Murshid (2002) with information from country-specific sources. This new index has a scale from 0 to 100, where higher numbers denote a higher degree of *de jure* capital mobility.[17] The results obtained using the Edwards capital openness index are qualitatively very similar to the ones we obtained from the Chinn-Ito index and are presented in an appendix (tables C-E).[18]

It might be the case that the magnitude of foreign direct investment inflows dictate or change the incentives of governments in adopting capital account policy – a problem of endogeneity. We carry out endogeneity tests for developing and developed countries. First, capital openness is regressed against all other variables, and residual of this regression is saved. In the second step, we regress the structural equation on capital openness and all other variables with the residual of the first regression added. If there is an endogeneity problem, this residual will be significantly different from zero.[19] The p-value of the estimated coefficient for this residual is 0.852 for developing countries and 0.470 for developed countries. Based upon these results, we fail to reject the null

[16] See Edison et. al. (2004).
[17] For details on this index, see Edwards (2006). The data is available for 1970-2004 for 163 countries (with many missing observations).
[18] The statistical significance of the results is somewhat weaker.
[19] This is a modified Hausman test described in Kennedy (2003), 172-173.

hypothesis that this residual is not significantly different from zero and, hence, we conclude that there is no evidence of endogeneity, and 2SLS estimation is not needed.

In order to ensure that endogeneity is indeed not biasing our results, we also run the main specifications using an estimation methodology that accounts for a possible endogeneity in the RHS variables. We implement the commonly used Arellano and Bond (1991) GMM dynamic two-step panel estimator. In tables 7 and 8, where these results are reported, we also report the statistics for autocorrelation and the Sargan test of over-identifying restrictions (these are derived in Arellano and Bond, 1991). The results we obtain are qualitatively and quantitatively almost identical to those we obtained using the fixed effect least squares estimator while, as can be expected, the increased efficiency of the GMM algorithm leads to much higher t-statistics. This confirms our previous finding that endogeneity does not appear to bias our result.

We also carry out a Granger-causality test. Capital openness is regressed against three lagged values of FDI and its own three lags in addition to the other control variables. The p-value of the F test for joint significance of the three FDI lags is 0.428 for developing countries and 0.368 for developed countries. We thus fail to reject the null hypothesis that the coefficients of these lags are not significantly different from zero. We conclude that FDI does not appear to Granger-cause capital openness, and simultaneous equation estimations are not needed.

5. Conclusion and Caveats

Our basic finding from the benchmark model is clear and intuitive; the capital account openness measure is positively but moderately associated with the amount of

FDI inflows after controlling for other macroeconomic and institutional measures. Yet, the clear-cut positive association between capital account openness and FDI inflows no longer holds once we control for the interactions with institutional quality and enforcement. Capital controls are easily circumvented in corrupt and politically unstable environments; and capital account liberalization will generate increases in FDI inflows only in environments with a lower level of corruption and political risk.

Furthermore, our measure of capital controls examines the rules that govern capital flows that are 'on the books' (a *de jure* measure). It is plausible that the degree of enforcement of these regulations differs across countries and across time. We expect enforcement of these regulations to interact with the *de jure* measure in its impact on actual flows; though *de jure* rules might also have a separate impact since there is a degree of uncertainty with regard to future enforcement policy. While we tried to control for enforcement using institutional proxies, their correlation with actual enforcement is unclear.

We believe more detail on the intensity of rules may provide a more nuanced picture of the impact of regulations on *de facto* FDI inflows than one is able to discern using the cruder measures of capital controls that are generally used. Specific case studies that report with more detail on the impacts of the exact regulations in place might shed more light on these questions. Clearly, the main drawback of this approach is a difficulty to discern the general applicability of specific case studies without a large volume of such studies.

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Appendix A. Data Definitions and Sources

Code	Definition of Variable	Source
FDI inflows	net inflows of investment that acquires a management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor.	IMF - BOPS [a]
KAOPN1	Capital controls index	Chinn and Ito (2005)
KAOPN2	Capital controls index	Edwards (2006)
CORR	Corruption	PRS - ICRG [b]
FIN	financial risk rating	PRS - ICRG
POLI	political risk rating	PRS - ICRG
EXP	Exports	WB – WDI [c]
GDPG	GDP growth	WB - WDI
GDPPCL	GDP per capita	WB - WDI
GDPGV	GDP growth volatility	Authors calculations
INTR	interest rate controls	Abiad and Mody (2005)
GFCF	gross fixed capital formation	WB - WDI
INFL	Inflation	WB - WDI

[a] The IMF's *Balance-of-Payments Statistics.*
[b] The PRS Group's *International Country Risk Guides.*
[c] The World Bank's *World Development Indicators.*

Appendix B. FDI Determinants with Capital Openness
(Table 4 with the conventional binary capital openness variable)
Dependent Variable: FDI inflows

Variable	Developing Countries		Developed Countries	
	OLS (1)	FE (2)	OLS (3)	FE (4)
KAOPN	-.7137***	-.6016	.1533	-.5699***
	(.2641)	(.4289)	(.1460)	(.1539)
CORR	.1800**	-.2040	.0670	.0593
	(.0781)	(.1360)	(.1160)	(.1344)
FIN	.0136	.0218	-.0390*	.0278
	(.0182)	(.0234)	(.0218)	(.0263)
POLI	.0147	.0237	-.0199	-.0631
	(.0102)	(.0186)	(.0153)	(.0185)
FDIL	.2888	.1516	.6473***	.3123***
	(.1769)	(.1676)	(.0658)	(.0750)
No. of obs	553	553	256	256
F-Stat	7.62	.1135	6.48	5.23
Prob > F	.0000	.8435	.0000	.0000
R-squared	.2760	.3383	.3802	.3413
Root MSE	1.906	1.845	2.126	2.132

The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in the parentheses. All specifications also include the following control variables: corruption, financial risk index, political risk index, exports (% of GDP), GDP growth rate, GDP per capita, GDP growth volatility, interest rate controls, lagged value of FDI net inflows, gross fixed capital formation, and inflation. Complete results are available from the authors upon request.

Appendix C. FDI Determinants with Capital Openness
(Table 4 with the Edwards Index)
Dependent Variable: FDI inflows

Variable	Developing Countries		Developed Countries	
	OLS (1)	FE (2)	OLS (3)	FE (4)
KAOPN2	.0095*	.0031	.0264***	.0045
	(.0050)	(.0062)	(.0040)	(.0152)
CORR	.1902*	.0728	.3348	.4644*
	(.0986)	(.1915)	(.2171)	(.2969)
FIN	-.0344**	-.0274	-.0338	-.0159
	(.0167)	(.0173)	(.0354)	(.0464)
POLI	.0254**	.0122	-.0109	.0306
	(.0119)	(.0187)	(.0287)	(.0381)
FDIL	.3451***	.1896	.3855***	.2914**
	(.1229)	(.1172)	(.1184)	(.1218)
No. of obs	773	776	307	310
F-Stat	11.24	10.94	8.84	8.44
Prob > F	.0000	.0000	.0000	.0000
R-squared	.3560	.4561	.5822	.5721
Root MSE	2.1209	2.023	1.9010	1.987

The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in the parentheses. All specifications also include the following control variables: corruption, financial risk index, political risk index, exports (% of GDP), GDP growth rate, GDP per capita, GDP growth volatility, interest rate controls, lagged value of FDI net inflows, gross fixed capital formation, and inflation. Complete results are available from the authors upon request.

Appendix D. FDI Determinants with Capital Openness and Interaction Terms
Developing Countries
(Table 5 with the Edwards Index)

Dependent Variable: FDI inflows

Variable	OLS			FE		
	(1)	(2)	(3)	(4)	(5)	(6)
KAOPN2	-.0083	.0246	-.0110	-.0317**	.0119	-.0379**
	(.0133)	(.0171)	(.0166)	(.0127)	(.0198)	(.0193)
KACOR	-.0062			.0119***		
	(.0050)			(.0044)		
KAFIN		-.0005			-.0003	
		(.0005)			(.0006)	
KAPOL			.0004			.0007**
			(.0003)			(.0003)
CORR	-.0966	.1916*	.1878*	-.4720	.0823	.0526
	(.2604)	(.0985)	(.0981)	(.3167)	(.1938)	(.1912)
FIN	-.0331**	-.0095	-.0326**	.0261*	-.0126	-.0242*
	(.0164)	(.0269)	(.0168)	(.0158)	(.0332)	(.0174)
POLI	.0249**	.0238**	.0094	.0090	.0109	-.0209
	(.0118)	(.0120)	(.0167)	(.0181)	(.0191)	(.0254)
FDIL	.3512***	.3524***	.3522***	.1816	.1884	.1869
	(.1223)	(.1228)	(.1229)	(.1161)	(.1173)	(.1168)
No. of obs	773	773	773	776	776	776
F-Stat	11.13	11.22	11.04	11.16	10.81	10.95
Prob > F	.0000	.0000	.0000	.0000	.0000	.0000
R-squared	.3501	.3568	.3571	.4617	.4562	.4587
Root MSE	2.119	2.121	2.121	2.014	2.024	2.019

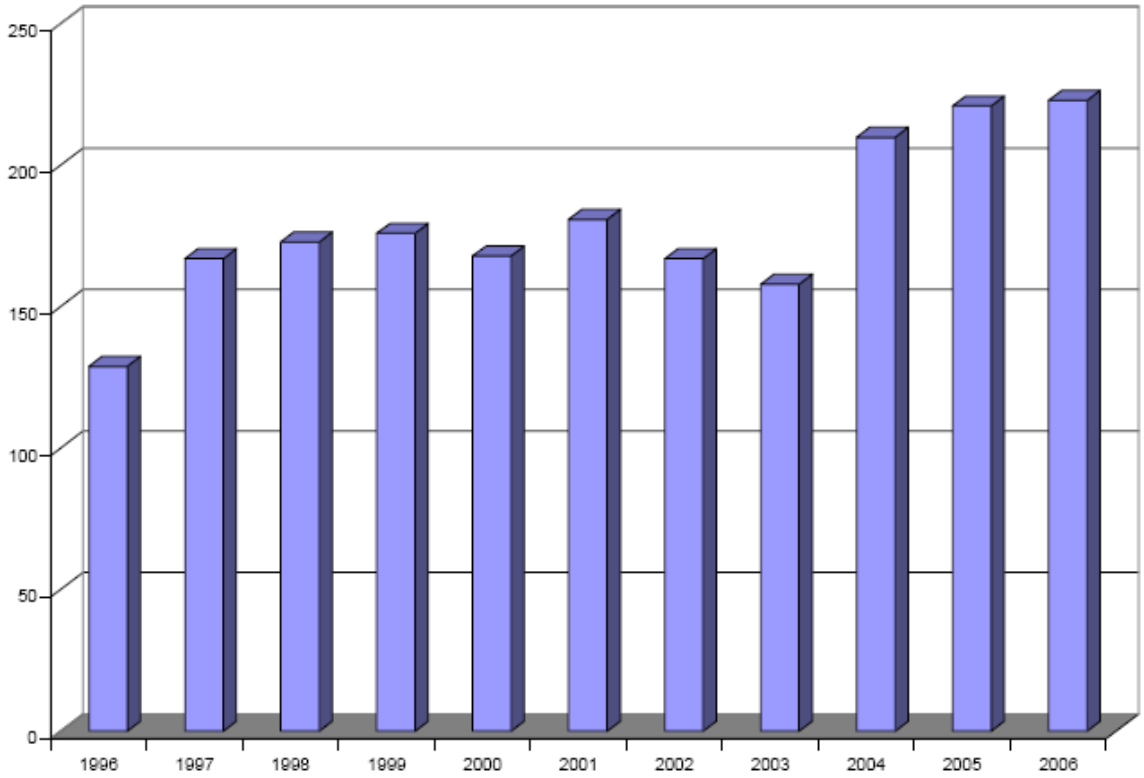
The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in the parentheses. All specifications also include the following control variables: corruption, financial risk index, political risk index, exports (% of GDP), GDP growth rate, GDP per capita, GDP growth volatility, interest rate controls, lagged value of FDI net inflows, gross fixed capital formation, and inflation. Complete results are available from the authors upon request.

Appendix E. FDI Determinants with Capital Openness and Interaction Terms
Developed Countries
(Table 6 with the Edwards Index)
Dependent Variable: FDI inflows

Variable	OLS			FE		
	(1)	(2)	(3)	(4)	(5)	(6)
KAOPN2	-.0555*	.0994	-.2169*	-.0802**	.0216	-.3348***
	(.0329)	(.0571)	(.0825)	(.0392)	(.0845)	(.0999)
KACOR	.0141**			.0157**		
	(.0059)			(.0071)		
KAFIN		-.0016			-.0004	
		(.0012)			(.0019)	
KAPOL			.0028***			.0041***
			(.0010)			(.0012)
CORR	-.9270**	.3661*	.2691	-.8459	.4638	.4785
	(.4964)	(.2124)	(.2138)	(.5324)	(.2985)	(.2918)
FIN	-.0188	.1080	0038	-.0091	.0282	.0192
	(.0353)	(.1008)	(.0346)	(.0402)	(.0379)	(.0461)
POLI	.0323	-.0034	-.1913***	.0491	.0432	-.2819***
	(.0296)	(.0274)	(.0729)	(.0409)	(.0414)	(.0871)
FDIL	.3775***	.3825***	3769***	.2881**	.2916**	.2856**
	(.1161)	(.1179)	(.1133)	(.1197)	(.1217)	(.1143)
No. of obs	307	307	307	310	310	310
F-Stat	8.33	8.66	9.05	8.45	8.20	8.92
Prob > F	.0000	.0000	.0000	.0000	.0000	.0000
R-squared	.5882	.5841	.5950	.5774	.5722	.5905
Root MSE	1.899	1.909	1.883	1.978	1.990	1.948

The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in the parentheses. All specifications also include the following control variables: corruption, financial risk index, political risk index, exports (% of GDP), GDP growth rate, GDP per capita, GDP growth volatility, interest rate controls, lagged value of FDI net inflows, gross fixed capital formation, and inflation. Complete results are available from the authors upon request.

Figure 1: FDI Inflows into Emerging Markets and Developing Countries



Data in billion $US. Data is from the IMF's *Global Financial Stability Report*, 2006. Data for 2005 is estimated and for 2006 is predicted (predictions taken from the IMF's *World Economic Outlook*).

Table 1. World Distribution of FDI

	FDI net inflows (% of GDP)				FDI net inflows (% of Fixed Capital Formation)			
	1980-1989	1990-1994	1995-1999	2000-2003	1980-1989	1990-1994	1995-1999	2000-2003
World	1.12	2.00	3.97	5.05	4.60	8.86	15.33	24.72
East Asia	2.61	4.60	6.10	5.26	10.28	19.05	22.66	20.84
South-East Asia	2.70	4.19	5.51	3.27	7.88	16.35	21.22	12.75
Latin America	0.75	2.21	4.12	3.64	3.31	9.36	18.19	17.80
Africa	0.76	1.19	4.61	2.87	3.56	6.64	13.64	14.33
Middle East and North Africa	0.73	1.23	0.74	1.62	2.80	5.61	3.35	7.53
Other	1.21	1.26	3.66	4.64	4.53	6.84	16.58	19.64

Data is taken from the World Bank's *World Development Indicators 2004*: BX.KLT.DINV.DT.GD.ZS and BX.KLT.DINV.DT.GI.ZS.

Table 2. Macroeconomic Determinants of Foreign Direct Investment Inflows in Developing Countries

Authors	Sample	Capital Controls data	Impact on FDI
Aizenman and Noy (2006)	81 countries, 1982-1998	AREAR	GDP per capita (+), goods trade (+), trade in incomes (+), foreign growth (+), corruption (-),
Albuquerque et al. (2005)	74 developing, 1970-1999		G3 interest rates (-), US yield curve slope (-), World growth (-), GDP growth (+), trade openness (+), financial depth (+), government consumption (-), GDP growth volatility (-)
Asiedu and Lien (2004)	96 developing, 1970-2000	AREAR	Trade openness (+), GDP per capita (-, + for square), fixed domestic investment (+), telephones (+), oil exports (-), political instability (-)
Chakrabarty (2001)	Cross-section 1994		Sensitivity analysis: only GDP per capita, and GDP in PPP$ are robust.
Desai et al., (2004)	Micro data on US MNE	AREAR; Shatz, 2000	
Gastanga et al. (1998)	49 developing, 1970-95	AREAR	Controls (-), tax rate (-), tariff (-), past growth (+), future growth (+)
Montiel and Reinhart (1999)	15 emerging, 1990-1996	Reinhart and Reinhart, 1998	Nothing significant on volume of FDI. Composition changes with capital controls, US interest rate and monetary policy
Wei (2000)	Bilateral cross-section		Corruption (-), tax (-), population (+), distance (-), linguistic tie (+), wage (+)

Table 3. FDI Determinants without Capital Openness
Dependent Variable: FDI inflows

Variable	Developing Countries		Developed Countries	
	OLS (1)	FE (2)	OLS (3)	FE (4)
CORR	.1852*	.0756	.3224	.4836*
	(.0995)	(.1866)	(.2156)	(.2734)
FIN	-.0356**	-.0263	.0062	-.0126
	(.0163)	(.0174)	(.0315)	(.0457)
POLI	.0272**	.0126	.0034	.0306
	(.0127)	(.0183)	(.0279)	(.0383)
EXP	.0224*	.0275	.0393***	.1126
	(.0086)	(.0182)	(.0075)	(.0758)
GDPG	.0282	.0256	.1243**	.0809
	(.0213)	(.0259)	(.0591)	(.0688)
GDPPCL	-.00003	-.0002	-.00009***	.00004
	(.00003)	(.0003)	(.00004)	(.0002)
GDPGV	-.0815*	-.1487	-.3502**	-6654
	(.0494)	(.1544)	(.1414)	(1.558)
INTR	-.00003	4.87e-06	-.0098	-.0038
	(.00003)	(.00004)	(.0066)	(.0064)
FDIL	.3634***	.1912*	.3954***	.2906**
	(.1232)	(.1166)	(.1241)	(.1225)
GFCF	.0306***	.0705***	-.0684	-.0202
	(.0098)	(.0224)	(.0502)	(.0878)
INFL	-.00003	-.00027***	.0645**	.0763**
	(.00005)	(.00008)	(.0306)	(.0380)
ECON	.0013	.0032	.0047	-.0065
	(.0246)	(.0325)	(.0132)	(.0143)
LIFE	.00004	.00008	-.0005	.0008
	(.0002)	(.00056)	(.0062)	(.0054)
LITER	-.0021	-.0046	.0087	.0045
	(.0153)	(.0312)	(.0435)	(.0137)
GCONS	.0215	.0425	.0534	.0823
	(.0943)	(.1296)	(.1346)	(.2539)
DMAGDP	.0058	.0073	.0035	.0067
	(.0233)	(.0423)	(.0153)	(.0372)
PCDMO	.0007	.0009	.00006	-.00003
	(.0013)	(.0045)	(.0003)	(.0024)
EXCHAV	.0154	.0362	.0233	.0465
	(.1326)	(.1546)	(.1435)	(.1439)
No. of obs	773	776	307	310
F-Stat	11.02	11.26	7.87	8.45
Prob > F	.0000	.0000	.0000	.0000
R-squared	.3435	.4534	.5439	.5732
Root MSE	2.132	2.012	1.954	1.993

The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in parentheses.

Table 4. FDI Determinants with Capital Openness

Dependent Variable: FDI inflows

Variable	Developing Countries		Developed Countries	
	OLS (1)	FE (2)	OLS (3)	FE (4)
KAOPN1	.7323*	1.196***	1.303**	.4063
	(.4082)	(.4438)	(.5605)	(.6151)
CORR	.1874*	.0835	.3369	.4816*
	(.0995)	(.1868)	(.2165)	(.2968)
FIN	-.0363**	-.0321	-.0135	-.0186
	(.0168)	(.0176)	(.0323)	(.0459)
POLI	.0276**	.0099	-.0102	.0275
	(.0124)	(.0187)	(.0277)	(.0398)
FDIL	.3574***	.1836	.3843***	.2903**
	(.1225)	(.1155)	(.1240)	(.1227)
No. of obs	772	776	307	310
F-Stat	11.23	10.45	10.19	8.56
Prob > F	.0000	.0000	.0000	.0000
R-squared	.3536	.4623	.5754	.5787
Root MSE	2.132	2.016	1.925	1.925

The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in parentheses. All specifications also include all the control variables included in table 3. Complete results are available from the authors upon request.

Table 5. FDI Determinants with Capital Openness and Interaction Terms: Developing Countries

Dependent Variable: FDI inflows

Variable	OLS			FE		
	(1)	(2)	(3)	(4)	(5)	(6)
KAOPN1	-1.342*	1.364	-2.113	-1.024	.5256	-3.585*
	(.8151)	(1.557)	(1.696)	(.9827)	(1.715)	(1.912)
KACOR	.6778**			.8005***		
	(.2867)			(.3007)		
KAFIN		-.0225			.0194	
		(.0444)			(.0479)	
KAPOL			.0453*			.0784**
			(.0239)			(.0317)
CORR	-.0286	.1885*	.1896*	-.1268	.0806	.1025
	(.1345)	(.0998)	(.0985)	(.1951)	(.1862)	(.1867)
FIN	-.0368**	-.0275	-.0346**	.0316*	-.0403*	-.0296*
	(.0167)	(.0186)	(.0167)	(.0169)	(.0232)	(.0171)
POLI	.0287**	.0273**	.0132	.0086	.0117	-.0132
	(.0129)	(.0126)	(.0138)	(.0187)	(.0196)	(.0197)
FDIL	.3516***	.3566***	.3527***	.1802	.1836	.1783
	(.1222)	(.1227)	(.1223)	(.1258)	(.1259)	(.1168)
No. of obs	772	772	772	776	776	776
F-Stat	11.02	11.14	11.21	11.02	10.92	11.32
Prob > F	.0000	.0000	.0000	.0000	.0000	.0000
R-squared	.3643	.3586	.3575	.4634	.4645	.4676
Root MSE	2.103	2.135	2.113	2.013	2.132	2.015

The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in parentheses. All specifications also include all the control variables included in table 3. Complete results are available from the authors upon request.

Table 6. FDI Determinants with Capital Openness and Interaction Terms: Developed Countries

Dependent Variable: FDI inflows

Variable	OLS			FE		
	(1)	(2)	(3)	(4)	(5)	(6)
KAOPN1	-6.145**	1.341	-12.25**	-8.902***	-5.013	-26.62***
	(2.559)	(2.045)	(5.267)	(2.502)	(5.563)	(6.576)
KACOR	1.404***			1.894***		
	(.4682)			(.5273)		
KAFIN		.0013			.1282	
		(.0679)			(.1543)	
KAPOL			.1785***			.3643***
			(.0642)			(.0863)
CORR	-.9582**	.3364	.2518	-1.032***	.4243*	.3414
	(.4376)	(.2341)	(.2179)	(.2435)	(.2435)	(.3722)
FIN	.0024	-.0145	0191	-.0003	-.1305	.0165
	(.0312)	(.0514)	(.0326)	(.0485)	(.1567)	(.0446)
POLI	.0234	-.0106	-.1163***	.0672	.0354	-.2255***
	(.0306)	(.0329)	(.0401)	(.0725)	(.0408)	(.0638)
FDIL	.3714***	.3846***	3724***	.2746**	.2892**	.2695**
	(.1201)	(.1252)	(.1196)	(.1184)	(.1228)	(.1254)
No. of obs	307	307	307	310	310	310
F-Stat	9.98	10.01	9.92	8.78	8.82	10.97
Prob > F	.0000	.0000	.0000	.0000	.0000	.0000
R-squared	.5864	.5765	.5876	.5891	.5713	.5935
Root MSE	1.914	1.934	1.913	1.956	1.985	1.936

The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in parentheses. All specifications also include all the control variables included in table 3. Complete results are available from the authors upon request.

Table 7. A-B GMM Estimations: FDI Determinants with Capital Openness Developing Countries

Dependent Variable: FDI inflows

Variable	(1)	(2)	(3)	(4)
KAOPN1	1.4901***	-.6332	-.1755***	-9.158***
	(.0083)	(.4213)	(.4134)	(.6829)
KACOR		.7509***		
		(.1155)		
KAFIN			.0893**	
			(.0497)	
KAPOL				.1744***
				(.0098)
CORR	.0795	.2158*	-.0799	.0573*
	(.1834)	(.1256)	(.1732)	(.0335)
FIN	-.0286***	-.0461***	-.0892***	-.0304***
	(.0027)	(.0093)	(.0062)	(.0021)
POLI	.0294***	.02764***	.0360***	.0431
	(.0019)	(.0034)	(.0027)	(.0398)
FDIL1	.0784***	.0830***	.0719***	.4134***
	(.0016)	(.0027)	(.0046)	(1585)
FDIL2	-.0168***	-.0125***	-.0185***	.2984***
	(.0041)	(.0014)	(.0065)	(.0893)
No. of obs	859	859	859	859
No. of group	62	62	62	62
Sargan Over-identification statistic (150)	53.02	57.11	58.25	51.13
z-value for autocorrelation	-.20	-.22	-.13	.24

The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in parentheses. All specifications also include all the control variables included in table 3. Complete results are available from the authors upon request. The model is estimated with the two-step Arellano-Bond GMM dynamic panel methodology using two lags of the FDI variable.

Table 8. A-B GMM Estimations: FDI Determinants with Capital Openness Developed Countries

Dependent Variable: FDI inflows

Variable	(1)	(2)	(3)	(4)
KAOPN	-.6104	-13.54*	-24.11	-21.11*
	(.8927)	(8.013)	(28.55)	(13.98)
KACOR		1.930*		
		(1.152)		
KAFIN			.1245	
			(.1309)	
KAPOL				.2686**
				(.1314)
CORR	.1425	-1.275	.0606	-.1077
	(.1352)	(2.564)	(.1720)	(.1149)
FIN	-.0598***	-.0657	-.1171	-.0520
	(.0144)	(.0661)	(.1143)	(.0320)
POLI	.0189	.0127	.0319*	-.2181*
	(.0156)	(.0455)	(.0182)	(.1203)
FDIL1	.4132***	.4609***	.3173**	.4264***
	(.1006)	(.1215)	(.1569)	(1110)
FDIL2	.2984***	.2601	.3698***	.3217***
	(.0893)	(.1801)	(.1301)	(.1346)
No. of obs				
No. of group	292	292	292	292
Sargan Over-identification statistic (150)	21	21	21	21
	12.16	12.29	11.72	12.45
z-value for autocorrelation	-.1.49	-.16	-.78	-.38

The *, **, *** indicate 10%, 5%, and 1% significance levels, respectively. The standard errors are in parentheses. All specifications also include all the control variables included in table 3. Complete results are available from the authors upon request. The model is estimated with the two-step Arellano-Bond GMM dynamic panel methodology using two lags of the FDI variable.