



Foreign direct investment, financial markets, and political corruption

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Received June 2007
Accepted October 2007

Abstract

Purpose – The purpose of this paper is to investigate whether foreign direct investment (FDI) can stimulate financial development in countries with corrupt dominant élites. Financial markets have not been expanded in many developing countries despite their proven positive effect on economic growth. Although three voluminous and parallel lines of research investigate the impact of financial markets, FDI, and political corruption on economic growth, no research up to now has examined the combined effect of foreign investment and corruption on financial development.

Design/methodology/approach – To investigate the causal links, a multivariate Error Correction Model (ECM) is applied on a sample of 22 developing countries, over the period of 1976-2003.

Findings – Overall, the study provides some preliminary evidence that FDI may jump-start financial development in developing countries. Furthermore, the results indicate that most of the causal links are found in developing countries which experience a higher level of corruption in the form of excessive patronage, nepotism, job reservations, “favor-for-favors”, secret party funding, and suspiciously close ties between politics and business.

Research limitations/implications – The study, however, does not provide any evidence that FDI can reduce political corruption. Much additional theoretical and empirical research is needed to explore whether FDI can influence political and economic traditions and stimulate financial markets.

Originality/value – The study is the first empirical attempt to examine the causal link between FDI and financial markets in interaction with political corruption.

Keywords International investments, Financial markets, Corruption

Paper type Research paper

1. Introduction

Two broad and separate literatures have scrutinized the effect of foreign direct investment (FDI) on economic growth and financial development on economic growth[1]. However, only a few studies have examined the interaction between FDI and financial development[2]. More importantly, previous studies rarely examine how FDI and financial development would interact in the presence of political corruption and corporate control by an entrenched elite.

Financial development requires a substantial amount of infrastructure for market support. This infrastructure would not develop where the dominant élite consider it as a threat to their power and position. The reasons for such opposition by the ruling élite



JEL classification – F23, G15, G18

The authors would like to thank the Editor of this journal and the anonymous referee for helpful comments.

include the fact that they are adequately capitalized and prefer to limit opportunities for new competitive investors.

La Porta *et al.* (1998), La Porta *et al.* (1999, 2000, 2002), Mauro (1995), and Morck *et al.* (2000) underline the distribution of corporate control and the role of financial elite as the major obstacles to financial development and economic growth. Rajan and Zingales (2003) and Morck and Yeung (2004) confirm that the financial elite can use their strong political influence and alter the institutional framework to favor themselves and their firms. Studies by Claessens *et al.* (2000) on Asian countries, and Barca and Becht (2001) and Faccio and Lang (2002) on European countries support the detrimental effect of financial elite on financial development.

In the presence of the corporate control by the financial elite, many economists believe that the inflow of foreign goods and capital can play a crucial role in development of financial markets. To survive under vigorous foreign competition, the entrenched elite have no choice other than to eliminate unnecessary financial regulations and support the institutions necessary for a more competitive domestic market.

La Porta *et al.* (2000) and Glaeser, La Porta *et al.* (2004) stress that the development of financial markets need some outside stimulus from courts, government agencies, or other market participants. They point out that the integration of world capital markets makes financial markets' reforms more likely. Rajan and Zingales (2003) also emphasize that the only force that can ultimately make the financial elites adopt more market friendly policies is the inflow of foreign goods and capital. Morck *et al.* (2005), in their comprehensive survey of the literature, indicate that foreign direct investment is correlated with financial development, social and political modernization, and lower barriers to entry for new domestic entrepreneurs.

Although theoretically many economists underline political corruption as an important obstacle against financial development and growth, to our knowledge no previous studies have empirically examined the interaction between political corruption, FDI, and financial development. Furthermore, the majority of empirical studies addressing the impact of FDI and financial development on economic growth use cross-country and panel data regressions. Yet, the inferences drawn from these studies are undermined by the following key factors:

- potential biases induced by simultaneity;
- difficulty in constructing accurate proxies for financial development;
- averaging the data over five-year periods in panel regressions;
- aggregation bias; and finally
- not allowing different countries to exhibit different patterns of causality.

Glaeser *et al.* (2004) point to these problems and state "To us, the principle conclusion is that, at least in the OLS regressions, the evidence that institutions cause economic growth, as opposed to growth improving institutions, is non-existence"[3].

The main goal of this study is to investigate whether foreign direct investment can stimulate financial markets in developing countries despite the resistance of the entrenched elites. To address the above issues, this study investigates the interrelationship between FDI, financial development, and economic growth, in developing countries that endure political corruption, by applying a multivariate Error

Correction Model (ECM). We focus on FDI rather than other capital inflows because the resilience of FDI, compared to other capital accounts during the financial crisis, have made FDI the private capital inflow of choice in many developing countries.

To explore the causality links we examine a cross section of 22 developing countries for the period of 1976-2003. Our Granger causality tests find strong evidence of causal links from FDI to financial development. Our findings also reveal that the majority of countries for which we find a Granger causal link from FDI to financial market have encountered a high level political corruption defined as excessive patronage, nepotism, job reservations, “favor-for-favors”, secret party funding, and suspiciously close ties between politics and business.

The rest of this paper is organized as follows: Section 2 reviews the econometric framework; section 3 describes the data; section 4 reports the results; and section 5 presents our conclusion and summary.

2. Econometric framework

Consider the following multivariate autoregressive process:

$$y_t = \gamma_0 + \sum_{k=1}^p \gamma_k y_{t-k} + e_t \quad (1)$$

where: y_t = an (n.1) vector containing each of the n variables included in the VAR, γ_0 = an (n.1) vector of intercept terms, γ_k = (n.n) matrices of coefficients, e_t = an (n.1) vector of white noise error terms, and p is the lag length.

If the variables in the model contain unit roots, the Error Correction Model (ECM) model is used to examine the long-run or cointegrating relationships between the time series as well as the existence and the direction of causality between the variables[4]. Formally, the (n y_t) vector $y_t = (y_{1t}, y_{2t}, \dots, y_{nt})$ has an error correction representation if it can be expressed in the form:

$$\Delta y_t = \gamma_0 + \gamma y_{t-1} + \gamma_1 \Delta y_{t-1} + \gamma_2 \Delta y_{t-2} + \dots + \gamma_p \Delta y_{t-p} + \varepsilon_t. \quad (2)$$

Where γ is a matrix with elements γ_{jk} such that one or more of the γ_{jk} are not equal to zero, and γy_{t-1} is the error correction representation of variables in y_t :

$$\gamma y_{t-1} = \Delta y_t - \gamma_0 - \sum \gamma_{t-1} - \varepsilon_t. \quad (3)$$

The first step in estimating the ECM is to detect the cointegration among the time series. Cointegration necessitates that the variables to be integrated of the same order. The augmented Dickey and Fuller (1979) test is commonly applied to find the order of integration, and Johansen (1988) likelihood ratio or a “trace” test is the common procedure to detect the cointegration vectors among the time series[5].

3. Data

To investigate the Granger causality links between foreign direct investments (FDI) and financial markets, we use annual data over the period of 1976-2003 for a panel of 22 developing countries[6]. The main criteria for including a country in our panel is the existence of continuous data in the natural log form during the period of study.

To measure FDI, we use the ratio of net inflow of investment to GDP. The net inflow of investment is equal to investment required to obtain a lasting management interest (10 percent or more of voting stock) in an enterprise operating in a foreign country. The net FDI inflow is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.

Several measures have been proposed in the empirical literature for measuring financial development. To measure financial development we focus on three variables proposed by King and Levine (1993a), Levine and Zervos (1998) and Levine *et al.* (2000). These variables are:

- (1) Liquid liability (LLY) is the ratio of liquid liability of financial system to GDP. LLY represents the overall size of the financial sector without distinguishing between central bank, deposit money banks, and other financial institutions.
- (2) Bank Credit (BANKCR) is equal to the ratio of domestic credit provided by the banking sector to GDP.
- (3) Private Sector Credit (PC) is equal to the ratio of domestic credit provided by financial intermediaries to GDP.

This measure includes domestic credit provided by the banking sector and other financial intermediaries and is a broader measure of financial intermediation. To control for other country specific macroeconomic conditions, we use real GDP per capita. Data on FDI, GDP per capita and all measures of financial development are transformed to natural logarithm form. Data on net FDI inflow, GDP per capita and all measures of financial development were obtained from World Bank Development Indicators Database Online.

To measure the political resistance to financial development, we use the corruption index provided by International Country Risk Guide (ICRG). This index measures actual or potential corruption in the form of excessive patronage, nepotism, “favor for favor”, secret party funding, and suspiciously close ties between politics and business.

A detailed description of all data is included in the Appendix.

4. Empirical results

Table I reports ADF tests of level and first differenced series for each of the 22 countries. According to ADF tests all time series contain unit roots except for FDI series in Egypt, Guatemala, and Malaysia, and PC series in Ecuador, Honduras and Turkey. The ADF tests indicate that all series are stationary after the first- differencing.

Concluding that series are I(1), we applied the Johansen (1988) likelihood ratio or a “trace” test to detect the cointegration vectors among the time series. Cheung and Lai (1993) indicate that Johansen likelihood ratio (LR) tests are biased toward finding cointegration in finite-samples too often. The finite-sample bias depends on the sample size, the dimension of the variable system, and the lag order. Using response surface analysis in Monte Carlo simulation, Cheung and Lai (1993) point out the asymptotic critical values of Johansen’s LR test can be corrected for finite-samples using a scaling factor as follows:

$$CR_F = CR_\infty \left[\frac{T}{(T - nk)} \right] \quad (4)$$

Table I.
ADF unit root tests

Country	FDI		LLY		BANKCR		PC		GDP	
	Level	First dif.	Level	First dif.	Level	First dif.	Level	First dif.	Level	First dif.
Brazil	-1.21	-5.56*	0.19	-0.30*	-2.15	-5.40*	-2.97	-5.218	-1.75	-3.11*
Chile	-1/76	-5.68*	-1.04	-5.17*	-2.81	-3.55*	-2.49	-7.91*	-1.08	-4.53*
Colombia	-2.05	-5.40*	-1.68	-3.73*	-1.96	-4.55*	-1.92	-4.19*	-2.04	-3.79*
Costa Rica	-1.35	-8.14	0.71	-4.13*	-1.47	-4.76*	-1.18	-4.43*	-1.26	-3.42*
Dominican Republic	-2.47	-7.72*	0.47	-4.50*	-1.15	-4.27*	-1.25	-5.15*	-0.89	-4.13*
Ecuador	-2.23	-6.77*	1.00	-4.95*	-1.42	-4.21*	-3.98*	-3.54*	-1.81	-5.53*
Egypt	-3.83*	-5.90*	-2.59	-3.72*	-1.96	-4.68*	1.14	-5.12*	0.89	-3.07*
Ghana	-1.55	-4.57*	-2.29	-5.36*	-1.92	-5.15*	-0.43	-3.42*	-1.58	-4.19*
Guatemala	-4.53*	-7.57*	-0.91	-5.40*	-1.33	-3.49*	-1.89	-4.88*	0.98	-1.14
Honduras	-1.52	-6.16*	-2.42	-4.32*	-1.70	-3.73*	-4.49*	-3.19*	-1.36	-3.63*
Kenya	-2.03	-7.55*	-1.40	-3.50*	-1.93	-5.64*	-1.40	-4.67*	-0.97	-5.13*
Korea	-1.73	-5.18*	-1.92	-3.77*	-0.57	-4.16*	1.01	-4.30*	-1.26	-4.74*
Malaysia	-3.6*	-3.11*	0.59	-3.90*	-1.45	-4.84*	-1.37	-5.49*	-1.89	-4.33*
Mexico	-1.94	-5.83*	-0.86	-4.49*	-2.31	-5.89*	-1.56	-4.45*	0.86	-3.80*
Morocco	-2.5	-8.45*	-2.36	-3.18*	-1.80	-7.93*	-1.38	-5.15*	1.02	-9.52*
Nigeria	-1.19	-10.08*	1.41	-7.33*	-1.66	-3.77*	-2.94	-5.30*	-1.56	-2.80
Pakistan	-1.72	-4.58*	2.05	-4.43*	-1.58	-3.55*	-2.16	-4.91*	-2.11	-1.75
Paraguay	-1.59	-5.25*	-1.60	-4.67*	-2.43	-3.65*	-1.24	-4.40*	-1.56	-3.11*
Philippines	-1.83	-8.39*	-0.70	-2.77*	-1.74	-3.41*	-2.17	-2.77*	-1.45	-3.7*
Singapore	-1.99	-4.60*	-0.20	-3.88*	-1.83	-3.73*	-2.11	-3.47*	-2.56	-3.84*
Thailand	-1.9	-4.55*	-2.69	-3.52*	-1.54	-3.11*	-1.90	-3.20*	-1.12	-2.67
Turkey	-1.29	-9.38*	0.16	-4.70*	-1.24	-5.05*	-3.25*	-4.45*	-2.09	-3.26*

Notes: FDI = Log of foreign direct investment as a percentage of GDP; LLY = log of liquid liability as a percentage of GDP; BANKCR = log of domestic credit by banking sector as a percentage of GDP; PC = log of private credit as a percentage of GDP; GDP = log of GDP per capita in constant dollars. The values in the Table represent the augmented Dickey-Fuller statistics for the hypothesis of unit roots in levels and first difference respectively. The optimum lag lengths were determined according to Schwarz criteria; * shows rejection of unit root test at 5 percent level of significance

Where CR_F is the approximate finite-sample critical value, CR_∞ is the asymptotic critical value at the corresponding significance level estimated by Johansen and Juselius (1990), T is the effective number of observations, n is the number of variables in the estimated system, and k is the lag parameter. As the value of T becomes large, the value of scaling factor would approach 1, and CR_F would converge to its asymptotic value.

Table II presents the estimated Trace statistics testing the cointegration between series. To run cointegration tests, we assumed all series contain deterministic trend. Furthermore, I-T in front of trace Statistics implies intercept and trend, and I implies only intercept in the cointegration equations[7]. The Johansen cointegration test results are sensitive to the lag length. To determine the lag length, we selected the optimum lag length recommended by Schwarz criterion. The appropriate lag length is four.

The asymptotic critical value for Trace test at 5 percent significance level with 24 effective data, four lags and three variables is 29.79 when the cointegration relation has only intercept and 42.95 when the cointegration relation has intercept and trend. Our 5 percent significance level finite-sample corrected critical values are 59.59 and 85.83 respectively.

Country	Cointegration tests Variables: PC, FDI, GDP Section A Trace statistics		Cointegration tests Variables: BANKCR, FDI, GDP Section B Trace statistics		Cointegration tests Variables: LLY, FDI, GDP Section C Trace statistics	
	Brazil	64.87	I-T	52.1	I-T	82.96
Chile	47.29	I	103.74 *	I-T	45.77	I
Colombia	32.21	I	31.5	I	53.32	I
Costa Rica	74	I-T	33.41	I	65.16	I-T
Dominican Republic	66.66 *	I	31.72	I	20.99	I
Ecuador	45.23	I	41.06	I	54.15	I
Egypt	54.25	I-T	55.34	I-T	72.89	I-T
Ghana	65.33	I-T	65.26	I	61.88 *	I
Guatemala	70.23 *	I	67.46 *	I	43.46	I
Honduras	36.27	I	43.85	I	49.46	I
Kenya	48.99	I-T	75.02 *	I	62.75 *	I
Korea	88.22 *	I	100.60 *	I	59.81 *	I
Malaysia	96.25 *	I	90.42 *	I	45.11	I
Mexico	48.73	I	33.69	I	47.13	I
Morocco	38.00	I	59.41 *	I-T	46.71	I
Nigeria	41.78	I	86.85 *	I	42.91	I-T
Pakistan	65.00 *	I	69.18 *	I	59.81 *	I
Paraguay	70.52 *	I	61.49 *	I	95.84 *	I
Philippines	48.35	I	48.97	I	43.93	I
Singapore	35.13	I	89.35 *	I	54.63	I
Thailand	42.91	I-T	45.82	I	39.75	I
Turkey	30.72	I	89.35 *	I	54.62	I

Notes: * Denotes rejection of the null hypothesis of no cointegration at 5 percent level of significance; I implies trend; I-T implies intercept and trend in cointegration relations. The asymptotic critical values are 29.79 for intercept and 42.95 for intercept and trend at 5 percent significance level. Finite-sample corrected critical values are 59.59 and 85.83 respectively

Table II.
Johansen cointegration tests

The Trace statistics in section A of Table II suggest that, when financial development is measured by Private Credit (PC), the null hypothesis of no cointegration relation among FDI, PC, and GDP per capita can be rejected for Dominican Republic, Guatemala, South Korea, Malaysia, Pakistan and Paraguay.

The Trace statistics in section B of Table II suggest that, when financial development is measured by Bank Credit (BANKCR), the null hypothesis of no cointegration equation can be rejected for Chile, Guatemala, Kenya, South Korea, Malaysia, Morocco, Nigeria, Pakistan, Paraguay, Singapore, and Turkey. Finally, The Trace statistics in section C of Table II suggest that, when financial development is measured by liquid liability (LLY), the null hypothesis of no cointegration equation can be rejected for Ghana, Kenya, South Korea, Pakistan, and Paraguay.

Next, we proceed by examining the links between FDI and financial development. For countries that show evidence of cointegration, we carry out causality tests using the error correction model (ECM). For countries that do not show any evidence of cointegration, we carry out causality tests using the first-differenced series and the VAR model.

Table III presents the results of causality tests[8]. We use four lags to detect the dynamic relationship between FDI and financial development in both models. The error correction terms are reported under EC. The Wald χ^2 statistics testing the causality links from FDI to financial development are reported under FDI, and the Wald χ^2 statistics testing the causality links from GDP per capita to financial development are reported under GDP.

Section A of Table III shows causality test results when financial development is measured by private credit. The error correction terms representing the long-term response of financial markets to changes in FDI or GDP per capita are significant only for Korea. The Wald statistics suggest that FDI stimulates financial development in Brazil, Chile, Costa Rica, Mexico, Morocco, Nigeria, and Philippines. It is worth mentioning that Brazil and Mexico were the dominant recipients of FDI in Latin America, and Morocco was one of the dominant recipients of FDI in the Arab region in 1998[9].

In section B of Table III financial development is measured by bank credit. The error correction terms, indicating the long-run response of financial markets to changes in FDI or GDP per capita, are significant only for Kenya, Korea, Morocco and Singapore. The Wald statistics find evidence of causal links from FDI to financial development in Chile, Kenya, Korea, Mexico, Nigeria, and Turkey.

Liquid liability is used as the financial indicator in section C of Table III. The error correction term is significant only for Paraguay. The dynamic interactions are much weaker than section A and B. The Wald statistics find evidence of causality only for Brazil, Nigeria, and Philippines.

In general, we find evidence of causality from FDI to one of our three financial market indicators in ten out of the 22 countries in our sample. These countries are: Brazil, Chile, Costa Rica, Kenya, Korea, Mexico, Morocco, Nigeria, Philippines, and Turkey.

Our final goal is to explore a pattern between the causality links and the political corruption.

To carry this goal, we examine the political corruption indices of the countries for which we find a causal link from FDI to financial development. The corruption index

Country	Dependent variable PC				Dependent variable BANKOR				Dependent variable LLY			
	Section A		Section B		Section C		Section D		Section E		Section F	
	EC	FDI	GDP	EC	FDI	GDP	EC	FDI	GDP	EC	FDI	GDP
Brazil	-	42.02*	8.74**	-	6.34	1.14	-	36.61*	7.8*	-	36.61*	7.8*
Chile	-	9.23*	7.90**	-0.29	16.54*	6.54	-0.29	3.99	8.13**	-	3.99	8.13**
Colombia	-	6.18	3.22	-	5.17	2.88	-	0.74	1.35	-	0.74	1.35
Costa Rica	-	7.86*	2.75	-	4.84	0.99	-	3.15	0.45	-	3.15	0.45
Dominican Republic	0.01	0.46	1.04	-	0.32	2.90	-	1.18	2.47	-	1.18	2.47
Ecuador	-	0.28	0.82	-	0.79	1.37	-	2.20	0.61	-	2.20	0.61
Egypt	-	2.58	10.16*	-	4.12	3.02	-	1.36	2.26	-	1.36	2.26
Ghana	-	0.01	0.49	-	0.09	1.43	-	1.59	0.20	-	1.59	0.20
Guatemala	-0.02	5.54	13.30*	0.11	6.24	19.08*	0.11	1.05	2.11	-	1.05	2.11
Honduras	-	0.48	1.88	-	0.99	0.86	-	1.68	2.16	-	1.68	2.16
Kenya	-	4.33	1.98	0.44*	7.78**	9.27*	0.44*	1.30	1.26	-	1.30	1.26
Korea	-0.59*	3.72	5.33	-0.85*	8.21**	10.17*	-0.85*	0.19	1.13	-	0.19	1.13
Malaysia	0.03	5.69	6.11	0.03	3.15	7.68**	0.03	4.02	12.36*	-	4.02	12.36*
Mexico	-	5.64*	1.82	-	13.30*	6.91	-	2.49	1.58	-	2.49	1.58
Morocco	-	11.42*	2.58	-0.31*	3.57	5.85	-0.31*	0.36	2.36	-	0.36	2.36
Nigeria	-	19.95*	3.30	0.33	7.61**	1.81	0.33	16.11*	5.39	-	16.11*	5.39
Pakistan	-0.12	5.74	2.62	0.00	5.20	6.21	0.00	4.14	1.49	-	4.14	1.49
Paraguay	0.01	1.96	0.05	-0.69	2.02	1.41	-0.69	3.38	5.44	-	3.38	5.44
Philippines	-	10.07\$	4.28	-	4.67	1.40	-	20.81*	5.98	-	20.81*	5.98
Singapore	-	0.72	9.05	-0.44*	3.94	8.05*	-0.44*	1.98	1.83	-	1.98	1.83
Thailand	-	2.83	9.31*	-	0.07	1.49	-	3.10	6.02	-	3.10	6.02
Turkey	-	4.32	2.18	0.17	7.65*	1.92	0.17	2.39	1.63	-	2.39	1.63

Notes: This Table presents the error correction coefficients and Wald χ^2 statistics testing the joint significance of lagged values of variable j in the equation of variable i . All tests contain four lagged values of FDI, the financial development indicator, and GDP per capita. * and ** denote the statistical significance at 5 percent and 10 percent levels, respectively

Table III.
Causality tests

measures excessive patronage, secret party funding, and suspiciously close ties between politics and business. The index varies from one to six where one indicates the highest and six shows the lowest degree of political corruption within a country.

Table IV compares corruption indices and the causality links between FDI and financial indicators. Column two of the Table indicates the average corruption index for a country during 1984-2003. The results show that, among the ten countries for which we find evidence of causality from FDI to financial development, only Costa Rica with a corruption index of 4.57 benefits from a low level of political corruption. The corruption indices for six out of these ten countries (Nigeria, Philippines, Kenya, Mexico, Turkey, and Morocco) are below 3, implying strong political corruption. The political corruption indices for South Korea, Chile and Brazil are 3.15, 3.40 and 3.45 respectively. Although these indices are slightly higher than 3, they still point to relatively strong political corruption.

Overall, our study provides some preliminary evidence that FDI may jumpstart financial development in developing countries. Furthermore, the results indicate that most of the causal links are found in developing countries which experience excessive patronage and strong ties between politics and business.

Glaeser *et al.* (2004) argue that although institutions are byproducts of the social and political history of a country, they develop as the society grows richer. They provide evidence that even countries that suffer from political dictatorship have an increasing chance to improve their institutions and emerge from poverty by accumulating human

Country	Corruption index	Does FDI cause financial development?
Paraguay	1.36	No
Nigeria	1.64	Yes
Pakistan	1.95	No
Honduras	2.02	No
Philippines	2.14	Yes
Egypt	2.23	No
Guatemala	2.43	No
Thailand	2.59	No
Ghana	2.61	No
Colombia	2.68	No
Kenya	2.68	Yes
Mexico	2.73	Yes
Turkey	2.73	Yes
Morocco	2.80	Yes
Ecuador	2.98	No
Dominican Republic	3.05	No
South Korea	3.14	Yes
Chile	3.41	Yes
Brazil	3.45	Yes
Malaysia	3.73	No
Singapore	4.55	No
Costa Rica	4.57	No

Notes: The corruption index measures excessive patronage, secret party funding, and suspiciously close ties between politics and business. The index varies from 1 to 6 where 1 indicates the highest and 6 shows the lowest degree of political corruption within a country

Table IV.

and physical capital and becoming richer. Our findings support this view. Our results suggest that inflow of foreign investment may be considered another factor that, through making a country richer, can improve financial institutions despite political and financial corruptions. Our study, however, does not provide any evidence that FDI can reduce political corruption. Much additional theoretical and empirical research is needed to explore if FDI can influence political and economic traditions and stimulate financial markets.

Reverse causality: the results of causality tests from financial development to FDI

It is interesting to examine the reverse causality from financial development to FDI. Table V provides the results. In section A, private credit is used as the financial indicator; in section B, bank credit is used as the financial indicator; and finally in section C, liquid liability is used as the financial indicator. The results show that the causal link between FDI and financial development is bidirectional and suggest that development of financial institutions in a country can attract more foreign direct investment.

The results in section A suggest that financial development in terms of more private credit stimulated FDI in four out of the 22 countries in the sample: Colombia, Dominican Republic, Mexico, and Paraguay. The error correction terms are significant for Dominican Republic, Malaysia, and Paraguay.

The results in section B also find evidence of causality from financial development defined by more bank credit to FDI in seven countries: Colombia, Guatemala, Kenya, Nigeria, Paraguay, and Turkey. The error correction terms are significant for Guatemala, Kenya, Korea, Malaysia, Nigeria, and Paraguay. Finally the causality results in section C find evidence of causal link from liquid liability to FDI in Costa Rica, Egypt, Malaysia, Mexico, and Philippines. However, the error correction terms are not significant for any of these countries.

5. Summary and concluding remarks

Developed financial markets can facilitate growth by increasing the pool of funds, reducing the risk, and facilitating the transfer of funds from savers to investors. Despite this fact, financial markets have not developed in many developing countries. A growing part of the recent literature argues that one of the crucial obstacles against financial development is the lack of incentive by the corrupt financial and political elites. The well capitalized dominant elites and domestic monopolies consider financial markets a threat to their power and curb opportunities to new investors.

Glaeser *et al.* (2004) point out that democratization and constraint on government are not the necessary condition for institutional and economic development. They argue institutional development in China and many other poor countries in East Asia indicate that proper policies can be chosen even under political dictatorship. Their evidence supports the viewpoints of Lipset (1960), Barro (1999), and Przeworski (2004a, 2004b), that countries which became richer by accumulating human and physical capital under dictatorships, were consequently able to improve their institutions.

This study provides evidence that FDI may be considered another turn to jumpstart financial market development in the presence of political and financial corruption. Our empirical results find bidirectional causal links between FDI and financial development. Furthermore, we find more evidence of causal link from FDI to

Table V.

Country	Dependent variable				Dependent variable				Dependent variable			
	FDI		GDP		FDI		GDP		FDI		GDP	
	EC	PC	EC	PC	EC	PC	EC	PC	EC	PC	EC	PC
Brazil	-	1.94	3.95	7.29	-	5.07	3.01	3.03	-	5.07	3.01	3.03
Chile	-	3.81	5.04	-0.85	2.53	2.99	8.42**	4.54	-	2.99	8.42**	4.54
Colombia	-	15.68*	9.02**	-	18.86*	9.85*	6.03	2.83	-	9.85*	6.03	2.83
Costa Rica	-	5.07	10.52*	-	5.49	11.14*	17.95*	12.56*	-	11.14*	17.95*	12.56*
Dominican Republic	2.30*	56.98*	49.24*	-	0.91	1.19	1.78	0.38	-	1.19	1.78	0.38
Ecuador	-	0.18	0.03	-	0.57	0.84	3.47	4.21	-	0.84	3.47	4.21
Egypt	-	4.85	5.52	-	3.56	1.16	3.29	7.86**	-	1.16	3.29	7.86**
Ghana	-	0.39	0.37	-	0.39	0.87	0.16	0.59	-	0.87	0.16	0.59
Guatemala	-0.44	6.03	0.39	3.6*	8.51*	6.99	4.27	2.19	-	6.99	4.27	2.19
Honduras	-	0.19	0.08	-	1.49	0.35	0.58	2.50	-	0.35	0.58	2.50
Kenya	-	4.01	6.05	-11.9*	21.84*	23.97*	3.35	1.77	-	23.97*	3.35	1.77
Korea	4.11	0.73	0.99	9.31*	0.60	4.78	23.85*	0.87	-	4.78	23.85*	0.87
Malaysia	0.25*	4.92	19.68**	0.207*	6.27	19.84*	14.43*	7.53**	-	19.84*	14.43*	7.53**
Mexico	-	6.24	4.98**	-	6.35	3.42	2.43	8.99**	-	3.42	2.43	8.99**
Morocco	-	2.32	4.15	-1.01	3.14	3.80	3.03	2.12	-	3.80	3.03	2.12
Nigeria	-	1.93	1.75	1.99*	9.6*	14.08*	1.69	2.70	-	14.08*	1.69	2.70
Pakistan	0.15	2.97	0.73	-0.05	2.61	1.39	0.73	0.43	-	1.39	0.73	0.43
Paraguay	7.49*	23.1*	37.57*	7.55_	10.47*	14.22*	1.77	6.11	-	14.22*	1.77	6.11
Philippines	-	0.92	2.35	-	1.39	2.91	9.54*	9.62*	-	2.91	9.54*	9.62*
Singapore	-	2.33	4.67	0.92	2.27	5.76	4.97*	3.50	-	5.76	4.97*	3.50
Thailand	-	0.50	4.13	-	1.36	0.43	9.09*	4.87	-	0.43	9.09*	4.87
Turkey	-	1.25	1.54	1.65	10.24*	3.98	1.55	6.62	-	3.98	1.55	6.62

Notes: This Table presents the error correction coefficients and Wald χ^2_k statistics testing the joint significance of lagged values of variable j in the equation of variable i . All tests contain four lagged values of Financial development indicator, FDI, and GDP per capita; * and ** denote the statistical significance at 5 percent and 10 percent levels, respectively

financial development in countries that are experiencing a high level of political corruption.

Notes

1. For financial development and growth see Bencivenga and Smith (1991), King and Levine (1993a, 1993b), Rajan and Zingales (2003), Durnev et al. (2001, 2004). For FDI and growth see Mansfield and Romeo (1980), Romer (1993), Jalilian (1996), Borenztein *et al.* (1998), Aitken and Harrison (1999), Rappaport (2000), Carkovic and Levine (2003), Kim and Seo (2003), and Evrensel and Kutun (2007).
2. For studies on FDI and financial development see Alfaro *et al.* (2004) and Carkovic and Levine (2003).
3. Glaeser *et al.* (2004), p. 285, first paragraph.
4. Vector error-correction model is well known in applied econometric literature, and is only discussed briefly here. For further review see Granger (1969) and Engle and Granger (1987).
5. See Johansen (1988), and Johansen and Juselius (1990).
6. The countries included are: Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Egypt, Ghana, Guatemala, Honduras, Kenya, Korea, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Paraguay, Philippines, Singapore, Thailand, and Turkey.
7. The cointegration test results did not change when we changed the assumption of only intercept in cointegration equation (I) to the assumption of intercept and trend (I-T).
8. All causality tests in this paper refer to Granger causality tests.
9. See World Bank document available at: www.worldbank.org/wbi/mdf/mdf2/proceedings/publicprivate.htm. Also see Rivera-Batiz (2000).

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Appendix. Data sources and descriptions

Foreign direct investment

Foreign direct investment is the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows in the reporting economy and is divided by GDP.

Source: World Bank Development Indicators Database Online (WDI)

Liquid liability

Money and quasi money (M2) divided by GDP. Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government.

Source: World Bank Development Indicators Database Online (WDI)

Bank credit

Domestic credit provided by banking sector divided by GDP. Domestic credit provided by the banking sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The banking sector includes monetary authorities and deposit money banks, as well as other banking institutions where data are available (including institutions that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other banking institutions are savings and mortgage loan institutions and building and loan associations.

Source: World Bank Development Indicators Database Online (WDI)

Private credit

Domestic credit to private sector divided by GDP. Domestic credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of non-equity

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securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises.

Source: World Bank Development Indicators Database Online (WDI)

GDP per capita

GDP constant dollar divided by mid year population.

Source: World Bank Development Indicators Database Online (WDI)

500

Political corruption index

This is an assessment of corruption within the political system. The measure takes financial corruption in the form of demands for special payments and bribes connected with import and export licenses, exchange controls, tax assessments, police protection, or loans. However, it is more concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, "favor-for-favors", secret party funding, and suspiciously close ties between politics and business.

Source: International Country Risk Guide (ICRG)

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