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FDI, Exchange Rate Volatility and Financial Development: Regional Differences In Emerging Economies

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Abstract

This paper evaluates the importance of an economy's financial development in determining the effect of exchange rate volatility on foreign direct investment (FDI) for a panel of 39 emerging economies over 35 years. Results show that the impact of exchange rate volatility on FDI in economies with lower financial development tends to be significant and positive, but the effect is not significant for countries with greater financial development. One explanation for such results is that firms may require less FDI to hedge against exchange rate uncertainty when financial markets are deeper.

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1. Introduction

Empirical and theoretical literature has documented and formalized the relationship between real exchange rate volatility and the ability of a country to attract foreign direct investment (FDI)[1]. However, most of the literature focuses on developed economies and ignores the role that financial development can play in determining the nature of the exchange rate volatility-FDI relationship. To address that gap, this paper uses panel data for 39 emerging economies over 35 years to study the impact of exchange rate volatility on FDI, and provides evidence that financial development in receiving economies can indeed alter the strength of that relationship[2].

The link between exchange rate volatility and FDI has multiple explanations. One theory relies on the idea that risk averse investors require higher returns to compensate them for the uncertainty generated by the volatility of exchange rates which reduces the expected value of FDI and so in turn results in less FDI overall (Cushman 1985; Goldberg and Kolstad 1995). According to this theory, FDI and exchange rate volatilities can be negatively correlated. Alternatively, however, in a scenario where FDI is used by multinationals to guarantee their ability to move production to markets with lower costs, real exchange rate volatility and FDI would be positively correlated (Aizenman 1993). For this mechanism to be effective, multinationals must make some kind of irreversible investment in the receiving economy before the realization of real shocks, and then make decisions on where to locate production after they observe cost options. Given that capital cannot be moved or resold–this is the irreversibility assumption–and its level must be decided on ex ante, there is value to investing in multiple locations. In this sense, FDI is a form of diversification, allowing firms to shift production abroad with greater flexibility ex post, thereby resulting in more FDI overall.

A final explanation for the relationship between FDI and exchange rate volatility, and one that is particularly relevant for this paper, is offered by trade theory. That framework suggests that FDI may be higher in countries experiencing uncertainty regarding the exchange rate because such uncertainty acts as a barrier to trade. In this case, multinationals increase their FDI to substitute for lower trade volumes in markets associated with higher volatility (Goldberg and Kolstad 1995). In essence, the theory is that multinationals engage in FDI to avoid uncertainty affecting the price of their traded goods as the exchange rate fluctuates. The purpose of this paper is to investigate an implication of that theory involving the level of financial development in receiving economies.

If it is true that exchange rate risk raises the cost of trade enough to lead firms to invest in a receiving economy to avoid that risk, financial development in the receiving economy could be a possible channel to help firms avoid risk to begin with. Specifically, financial development should reduce firms' incentive to increase FDI in response to higher uncertainty in exchange rates. The reason for such an effect is because developed financial markets in receiving countries could enable multinationals to hedge against exchange rate volatility, in turn lowering the level of investment needed to substitute for trade. Developed financial markets imply the existence of financial instruments and appropriate structures and insurance contracts that multinationals can take advantage of in the receiving country to alleviate the impact of exchange rate volatility on their trade volumes. Thus, if multinationals engage in FDI to avoid exchange rate fluctuations affecting the price of their traded goods, deeper financial markets would mitigate that need. This implies that there

[1]Note that this paper refers to real exchange rate volatility unless otherwise specified.

[2]The term "receiving economy" refers to an economy receiving FDI throughout the paper.

should be a positive correlation between FDI and exchange rate volatility, but one that is weaker for receiving countries with more financial development.

The impact of the host country's financial markets on subsidiaries' behavior has long been documented in the literature. In one example, Desai, Foley, and Hines (2004) highlight the fact that subsidiaries of multinationals face high external borrowing costs when operating in countries with underdeveloped financial markets. These higher costs, which could be associated with higher bankruptcy costs or a lack of creditors' rights in the host country, impact a subsidiary's decision of how to finance their activities, and typically encourage them to turn to their parent company for funding. One could therefore reason that if a subsidiary operates in a country whose financial markets are characterized by low borrowing costs and higher liquidity, their need to hedge against exchange rate risk is reduced, as would be their need to resort to loans from the parent company, and that would translate into lower FDI levels used for hedging purposes.

According to the WTO, up to 90% of trade relies on a market for credit and insurance whose size is around $10-12 trillion (Manova 2008; Auboin 2009). The reason this market is so large and vital for trade activity stems from the large costs needed initially for firms to engage in trade and the large risks they must undertake[3]. As a result, financial development is crucial in determining the size of the tradable sector in any economy. But the amount of investment by multinationals that is dedicated to overcome barriers to trade introduced by exchange rate volatility should decrease when the receiving economy is characterized by highly tradeable firms which the multinational can interact with. This interaction can promote trade and decrease the particular part of investment motivated by barriers to trade in the form of exchange rate uncertainty.

The available empirical evidence of the impact of exchange rate volatility on FDI is mixed, typically ignores the roles of financial markets, and focuses primarily on developed economies. Using bilateral quarterly data for the U.S., U.K., Japan and Canada, for example, Goldberg and Kolstad (1995) show that FDI tends to rise in response to higher exchange rate volatility.[4] Similarly, Cushman (1988) also finds that annual FDI flows into the United States are positively correlated with increased exchange rate variability. Alternatively, Chakrabarti and Scholnick (2002) find a negative or insignificant relationship between volatility and annual FDI flows between the U.S. and OECD countries. In a similar way, Urata and Kawai (2000) find that exchange rate volatility deters small and medium Japanese firms from engaging in FDI.

The majority of the aforementioned studies measure exchange rate volatility as rolling standard deviation. In attempting to solve the puzzle of mixed empirical results, using data on FDI into the US, Pozo and Amuedo-Dorantes (2001) find that the relation is negative if exchange rate volatility is measured using a conditional variance approach, and nonsignificant if exchange rate volatility is measured simply using a moving standard deviation.

When it comes to developing economies, Benassy-Quere, Fontagne, and Lahreche-Revil (2001) show that FDI from developed to developing economies tends to decrease as exchange rate volatility rises and Ruiz and Pozo (2008) find a similar relationship for FDI from the US into Latin American countries. Lin, Chen, and Rau (2010) takes the analysis further by showing that the nature of the relationship between FDI and exchange rate volatility depends on the motive behind FDI. Using a sample of Taiwanese firms' FDI flows into China, they show that firms who engage in FDI as a substitute for exports will accelerate their FDI when faced with exchange rate volatility,

[3]These risks include both exchange rate volatility and risk of nonpayment

[4]For the same set of countries, Chowdhury and Wheeler (2008) also find a similar relationship.

while those firms seeking new markets for their products will delay their FDI.

In addition to contributing to this varied literature, whose differences arise due to variations in data sources, measurement and frequency, this paper also contributes by focusing both on the role of financial markets and on the relationship between volatility and FDI in emerging economies in particular.

In summary, this paper quantifies the importance of exchange rate volatility in attracting FDI to emerging economies over a long-run horizon (that is, using yearly data) while accounting for the fact that financial development in receiving economies can play a role in the firms' decision to increase investment in order to hedge against exchange rate volatility. To that end, this paper estimates determinants of foreign direct investment flows using control variables based on Albuquerque et al. (2005) and includes an interaction variable between real exchange rate volatility and financial development to show the extent to which financial development alleviates the impact of real exchange rate volatility on FDI. Results support the basic arguments above that firms require less FDI to hedge against exchange rate uncertainty when financial markets are deeper. That is, the results show that the effect of exchange rate volatility on FDI in economies with lower financial development tends to be positive and significant, but the effect is not significant for countries with higher financial development.

2. Other Related Literature

The literature has documented that the relationship between exchange rate levels and FDI depends on the tightness of credit constraints in an economy. In the presence of credit constraints resulting from imperfect information in global markets, depreciation in the destination country's exchange rates increases the relative wealth of foreign investors, loosening their credit constraints. Subsequently they are able to outbid domestic investors for assets and increase FDI flows (Froot and Stein 1991). Klein and Rosengren (1994) find support for this hypothesis in U.S. investment data.

On the other hand, Klein, Peek, and Rosengren (2002) show that FDI may not increase if the depreciation is accompanied by an increase in troubled banks in the foreign investor's country, as was the case with Japanese FDI outflows in the 1990s. Blonigen (1997) suggests that FDI flows into an economy can increase with exchange rate depreciation if domestic and foreign firms are bidding for firm-specific assets since these assets generate returns in currencies other than the one used to purchase them. Blonigen (1997) goes on to also show that this was the case for Japanese firms as they were more likely to acquire U.S. industries with firm-specific assets as the dollar depreciated. All this evidence suggests that the strength of financial development plays a role in the dynamics of capital flows.

3. Data

The data set used spans the period 1978-2009 for 39 emerging economies as classified by the IMF.[5] Data on FDI inflows was collected from International Financial Statistics (IFS). Data on effective

[5]The countries are: Algeria, Argentina, Bolivia, Brazil, Bulgaria, Chile, China, Colombia, Costa Rica, Croatia, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Hong Kong, Hungary, India, Indonesia, Jordan, Korea, Malaysia, Mexico, Morocco, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Romania, Russian Federation, Singapore, Slovak Republic, South Africa, Syrian Arab Republic, Thailand, Tunisia, Turkey, Ukraine, Uruguay,

real exchange rates was collected from the IFS and Bank for International Settlements. Exchange rate volatility is proxied by the conditional (time-varying) variance of a first order ARCH model of the logged value real effective exchange rates. The moving standard error of an estimated first-order AR process of the logged real effective exchange rate over a five-year period was also tested, but only the ARCH(1) results are reported here because the alternative estimates yielded similar results.

Financial development is measured as the ratio of domestic credit claims on the private sector to GDP, and was extracted from the IFS. This variable captures the financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable that establish a claim for repayment. Following Albuquerque et al. (2005), the rest of the control variables that explain FDI flows are divided into global factors and local factors. The local factors are GDP per capita growth rate, trade openness[6] and government consumption, all obtained from the World Bank's World Development Indicators database. Additionally, to proxy for real shocks, the volatility of terms of trade is included and was extracted from the IFS. The two final variables included are the ratio of total secondary enrollment to population as reported by Barro and Lee (2010) and institutional quality measures which rate the existence of political rights and civil liberties as reported by the Freedom House Civil Liberties index.[7]

The global factors describe the typical array of asset returns available to investors and include the U.S. average interest rate, proxied by the 3-month T-Bill rate, and the slope of the U.S. yield curve which is calculated as the difference between the 10-year U.S. bond rate and the 3 month U.S. T-Bill rate, and which is used as a proxy for global inflation risk and premium on long-term assets. Also included is a measure of stock market returns, proxied by the S&P Global Equity Index. To capture global default risk, U.S. credit spread between Moodys AAA and Moodys BBB rated bonds is added. Additionally, world growth is included as a measure of global productivity and is proxied by the weighted average of the GDP growth rates of each country. The data on global factors was extracted from the St. Louis Fed.

Due to the length of the time series, a unit root test is conducted for each variable. For global factors, the augmented Dickey-Fuller test is conducted with a trend included. Both the U.S. interest rate variable and the U.S. credit spread were found to have a unit root. For the rest of the global factors, the null hypothesis of a unit root was rejected at the 10% significance level. As for the local factors, the Levin, Lin, and James Chu (2002) test was conducted with a trend included for terms of trade volatility, FDI flows, Civil Liberties Index, GDP growth, GDP volatility, ER growth and ER volatility. The aforementioned test assumes that all panels share the same autoregressive structure.[8] For the rest of the local factors whose panel observations was unbalanced, a Fisher-type panel unit-root test with a trend was used. The test, which combines the p-values from several unit root tests, was developed by Maddala and Wu (1999). The results show that the local variables are stationary at the 5% significance level. The variables with unit roots were differenced, and

Venezuela, Vietnam.

[6]Measured as the residuals from regressing the ratio of imports and exports to GDP on the log of population, with area dummies for landlocked countries and oil producers.

[7]Political rights include the effectiveness of the electoral process, political pluralism and participation, and functioning of government, while civil liberties include freedom of expression and belief, associational and organizational rights, rule of law, and personal autonomy and individual rights (Freedom House 2013).

[8]The number of lags included in each test was chosen to minimize the AIC criterion subject to a maximum lag of 4.

the differenced values were verified to be stationary and therefore appropriate to use in regression analysis.

4. Regression and Results

4.1 Estimation

The model is estimated as a dynamic panel using the system GMM estimator developed by Blundell and Bond (1998), building on the work of Arellano and Bond (1991) and Arellano and Bover (1995). This type of estimator is typically used in lagged dependent variable models in order to take into account the endogeneity of regressors.

Two specifications are considered. The first specification is one where all local variables are treated as strictly exogenous, with the exception of the lagged dependent variable. The second is one where local variables including exchange rate variables are weakly exogenous and instrumented for using their lagged values.[9] Weak exogeneity implies that although these variables are uncorrelated with future realizations of the error term, they can be affected by current and past realizations of FDI flows. Note that although the endogeneity of the exchange rate variables is a concern, Froot (1990) shows that changes in U.S. capital flows resulting from the 1980s changes to the tax code has little impact on exchange rates and Combes, Kinda, and Plane (2012) show that FDI (compared to other capital flows) has a particularly small impact on exchange rates for developing economies. Therefore, the analysis in this work is less susceptible to an endogeneity problem.

4.2 Results

It's worth noting that including the lagged term of FDI and the interaction terms changes the results from those reported in (Albuquerque et al. 2005). In fact, leaving out the the lagged dependent variables switches the signs of the coefficient on the volatility of exchange rates, the interaction term and the coefficient on the world growth variable. Additionally, the inclusion of dummy variables for years of financial crises reduces the significance of global variables' importance for FDI flow, which may imply that global factors are more important during crisis times (as one would expect).

The results for the two specifications are reported in Table (1). Also reported are the results of the Sargan test of overidentification, whose p-value indicates that the validity of the instruments cannot be rejected in the regressions. Little change is observed when treating local variables as endogenous in the full sample of countries.

Generally, the coefficient associated with real exchange rate volatility is significant for the entire sample of emerging economies and for Latin emerging economies, but not important for Asian emerging economies. Additionally, the coefficient on exchange rate volatility is positive, implying

[9]For each estimation strategy, the restrictions imposed on the number of lags of the explanatory variables in the instrument matrix are listed. This is necessary given that the long time span of the data would generate a large number of instruments if left unrestricted, and this would result in over fitting of the model and a weak Sargan test. However, the results are not sensitive to using closer or higher lags. Additionally, the qualitative results can be replicated using a fixed effects estimation.

that firms increase their FDI in response to exchange rate volatility. On the other hand, higher levels of financial development in the receiving country tend to alleviate this effect of exchange rate uncertainty on FDI. This can be seen in the negative sign on the interaction between financial development and exchange rate volatility. The fact that the coefficient of exchange rate volatility is positive while that on the interaction term is negative implies that it is possible that the total effect of exchange rate volatility on FDI may be zero, positive or negative, depending on the level of financial development as can be seen by the following equation:

$$\frac{\partial FDI_{it}}{\partial \textit{Exchange Rate Volatility}_{it}} = \beta_1 + \beta_2 \textit{Financial Development}_{it}.$$

Where i indexes countries, t is a time index and β_1 and β_2 are the coefficient for exchange rate volatility and the interaction term. Using a simple Wald test, the *total* effect of real of exchange rate volatility on FDI for the entire sample and for Latin countries is verified as positive and significant for both estimation strategies.

The regional differences in the impact of exchange rate volatility may be attributed to differences in financial development. The average private credit to GDP in Latin American countries in the sample (33.64%) is below the average for the pool of countries (44.84%) while Asian countries in the sample have a higher average private credit ratio (67.39%) compared to both the Latin countries and the rest of the sample. Therefore, The level of financial development in an emerging economy plays an important role in determining the impact of exchange rate volatility on FDI.

4.3 Alternative Variables

The hypothesis supported by the empirical work in the previous section asserts that financial development reduces the need of multinationals to hedge against exchange rate volatility. One reason for this is that higher financial development may allow subsidiaries access to a wider range of instruments, loans and insurance contracts in the host economy, making it easier for firms to deal with uncertainty and alleviating the need to engage in FDI itself as a form of risk hedging. Another reason could be that countries with higher financial development tend to have a larger tradable sector that a multinational can interact with, mitigating the need to engage in FDI.

The measure typically used to proxy for financial development in the literature (and this paper) is domestic credit claims on the private sector relative to GDP. However, this measure only captures the credit depth of financial institutions, which in turn describes the size of financial intermediation. Therefore, the next step is to explore other aspects of the financial system that aid multinationals in hedging exchange rate risk such as the efficiency of financial institutions and markets. The efficiency of a financial institution reflects the cost of intermediating credit, and when efficiency is high in financial systems they are more likely to deliver better information about investment opportunities, and therefore play a better role in providing mechanisms for managing risk (Cihak et al. 2012).

Cihak et al. (2012) suggest several measures that can be used to measure the degree of efficiency in both financial markets in general and financial institutions in particular. Following their suggestion, to measure the impact of financial market efficiency on FDI levels the domestic credit to GDP ratio is replaced with the ratio of liquid liabilities to GDP.[10] Markets high in liquidity can

[10]Liquid liabilities are currency and deposits in the central bank, plus transferable deposits and electronic currency,

allocate resources to where they are best used more easily, reflect a better flow of information, and therefore can be considered more efficient. To proxy for the efficiency of financial institutions, commercial banks' return on equity[11] is used instead of private credit to GDP. The assumption here is that more profitable institutions are also more efficient (Cihak et al. 2012). These proxies are not perfect measures of efficiency of financial systems, however, the data for these variables is available for emerging economies and they are frequently employed by the literature to reflect efficiency.

The estimation strategy using the aforementioned alternative variables is similar to the first strategy introduced in section 4.1. Examining the results reported in Table (2), there is evidence that the financial market efficiency of the host economy reduces FDI levels dedicated to overcoming exchange rate volatility. The results for the sub-sample of Latin countries mirrors those found in the full sample. The results for the sub-sample of Asian economies again shows no role for financial efficiency in reducing the level of FDI dedicated to overcoming exchange rate volatility. That being said, the Asian sample results prove to be sensitive to the number of lags used as instruments, and therefore these results should not be over-stressed.

Examining the results for the role of financial institutions' efficiency on FDI presented in Table (3), one can find evidence that it has a role in reducing the level of FDI dedicated to overcome exchange rate volatility. There is also evidence that financial institution efficiency plays a direct role in determining the level of FDI. Since the number of observations in this particular estimation are relatively small in number, sub-sample regressions are not presented.

5. Conclusion

When a multinational makes a decision to engage in FDI (as a substitute for trade) to alleviate the costs of exchange rate volatility, its decision should depend on the level of financial development in the receiving country. The basic intuition is that if exchange rate volatility does in fact act as a trade barrier which promotes FDI, financial development in the receiving economy should alleviate some of that barrier by helping multinationals hedge against volatility, and also by allowing for more tradable firms to enter the market and interact with multinationals. Financial development should therefore remove the motive to use FDI as a substitute for trade. To test that basic theory, this paper quantifies the role of financial development in dampening the impact of real exchange rate volatility on FDI.

Using a panel of emerging economies, the effect of real exchange volatility on FDI was estimated to be positive while the effect of the interaction between financial development and real exchange rate volatility is negative. Both of the effects are statistically significant for the pool of emerging economies, particularly Latin economies, though the effect is not significant for Asian economies in the sample. The regional differences in the impact of exchange rate volatility may be attributed to differences in financial development; exchange rate volatility is not a significant determinant of FDI for Asian economies whose financial development is above the sample average while it is significant for Latin economies whose financial development is below sample average.

plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements, plus travelers checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents.

[11] Measured as net income to yearly averaged equity.

Given that the impact of credit constraints on the relationship between FDI and real exchange rate volatility has been demonstrated empirically and quantified by this work, a necessary next step is to theoretically flush out the link more precisely.

Table 1: Estimation Results for System GMM

	Exog. Local Variables			Endog. Local Variables		
FDI/GDP	All	Latin	Asian	All	Latin	Asian
Lagged FDI	0.81870 **	0.87650 **	0.75123 **	0.80348 **	0.73070 **	0.65570 **
	0.05310	0.10831	0.10210	0.08432	0.04394	0.04718
U.S. Interest Rate	0.04985 *	0.00393	0.06106	0.02580	-0.02341	0.04147
	0.02669	0.02757	0.04256	0.03424	0.02968	0.06243
Stock Market Index	0.53700 **	0.65475 **	0.44564 **	0.45931 **	0.52420 **	0.29626
	0.18550	0.21455	0.21941	0.20591	0.19212	0.24624
US yield curve slope	0.03635	0.04870 *	0.03540	0.00478	-0.01504	-0.02346
	0.02468	0.02574	0.05897	0.03329	0.03439	0.07065
US Inflation Rate	0.00339	0.01960	-0.03083	-0.01556	-0.00694	-0.08965
	0.02551	0.03419	0.05151	0.04220	0.03436	0.06420
World growth	0.00986 *	0.00168	-0.00436	0.02728	0.01083	-0.00277
	0.00983	0.01248	0.01956	0.02684	0.01453	0.02079
US credit spread	-0.14467	-0.22074 *	-0.10766	-0.22106	-0.29750 *	-0.22112
	0.14825	0.13552	0.32916	0.18585	0.17002	0.32169
Trade Openness	0.21279 **	0.12289	0.59818 **	-0.52468	-0.14618	0.83209 **
	0.08993	0.08251	0.28156	0.41656	0.23479	0.38317
GDP Growth	0.01843 **	0.01513	0.03159 *	0.11431 **	0.09619 **	0.05777
	0.00903	0.01154	0.01796	0.04723	0.03426	0.04606
GDP Growth Vol.	-0.00867	-0.03100 *	0.04220	0.04643	-0.02876	-0.07988
	0.01991	0.01686	0.02726	0.07172	0.06145	0.09627
Terms of Trade Vol.	0.37834 **	0.31233	-0.23384	0.31856	0.35503	0.34177
	0.17695	0.20742	0.49057	0.44957	0.38940	1.02299
Gov. Cons./GDP	0.10021	0.02592	0.19129	0.28554	0.31612 **	0.66516
	0.07240	0.09974	0.17310	0.21553	0.15034	0.55965
Institutional quality	-0.04658 **	-0.00872	0.02361	-0.08485	-0.03537	0.04396
	0.01714	0.03576	0.05259	0.08937	0.06790	0.07872
REER Growth	0.04955	0.04751	-0.08924	0.80023 **	0.55986 *	0.52265
	0.09579	0.11385	0.29555	0.40599	0.30111	0.53279
Fin. Development	-0.07973 **	-0.02148	-0.30263 **	-0.20009	-0.27573 **	-0.71698 **
	0.03774	0.03699	0.13142	0.16902	0.12345	0.34606
Exchange Rate Vol.	0.42202 **	0.45080 **	-0.68863	0.44251 **	0.18528 **	-1.75389
	0.11414	0.13176	0.88882	0.22529	0.07744	1.35062
Fin. D. *REER Vol.	-0.14753 **	-0.15547 **	0.18284	-0.15534 **	-0.06962 **	0.47182
	0.04004	0.04347	0.21551	0.07576	0.02746	0.31639
Primary Edu.	-0.00141	-0.00813	0.05999	-0.13372	0.00239	0.24507
	0.02936	0.05202	0.05082	0.17107	0.13588	0.15740
Obs./Countries	755/39	322/14	178/9	755/39	322/14	178/9
# of Instruments	23	23	23	43	43	43
Sargan Test P-value	0.571	0.671	0.596	0.931	0.527	0.644
Test for 2nd Serial Corr. P-Value	0.101	0.731	0.568	0.11	0.783	0.681

Notes: Standard errors are robust and are reported below the coefficients.
* and ** indicate a statistical significance at 5% and 10% level.
To preserve sample size, unobserved individual effects are removed by orthogonal deviation.
To avoid instrument proliferations given the time span of the data, lag depth is limited to the third lag through the fifth lag for endogenous variables and limited to the second lag for predetermined variables. Also, the GMM instrument matrix is collapsed as described in Roodman (2009).
Dummies for financial crises years are included. Inflation rate is included so that the asset returns are real.
Volatility of logged real exchange rates are measured as the conditional variance of an ARCH(1) model.

Table 2: Estimation Results - Role of Financial Markets Efficiency

FDI/GDP	All	Latin	Asian
Lagged FDI	0.80014 **	0.90276 **	0.74965 **
	0.06492	0.14653	0.11668
US Interest Rate	0.06047 **	0.03318	0.07869 *
	0.02768	0.03086	0.04399
Stock Market Index	0.50764 **	0.42000 **	0.50436 **
	0.17524	0.19980	0.22465
US yield curve slope	0.04360	0.07493 **	0.04057
	0.02805	0.03691	0.05345
US Inflation Rate	-0.00768	0.00228	-0.03242
	0.02704	0.03896	0.05596
World growth	0.01243	0.00275	-0.00779
	0.01034	0.01401	0.02125
US credit spread	-0.12664	-0.13070	-0.16809
	0.16464	0.15175	0.36743
Trade Openness	0.17032 *	0.01800	0.53444 **
	0.10565	0.08554	0.26221
GDP Growth	0.01587	0.01110	0.01977
	0.01010	0.01691	0.01973
GDP Growth Volatility	-0.01824	-0.04222 *	0.03309
	0.01494	0.02270	0.02607
Terms of Trade Volatility	0.33007 *	0.26279	-0.46977
	0.18971	0.21740	0.74438
Government Consumption/GDP	0.06771	-0.02225	-0.01879
	0.06771	0.06596	0.23451
Institutional quality	-0.04849 **	-0.01565	0.01272
	0.01836	0.03513	0.06437
Exchange Rate Growth	0.09767	0.08946	-0.11892
	0.11305	0.15031	0.31889
Fin. Market Efficiency	-0.00043	0.00077	-0.00186
	0.00092	0.00306	0.00261
Exchange Rate Volatility	0.12651 **	0.19650 **	0.21580
	0.06050	0.07315	0.34808
Fin. Market Efficiency *REER Vol.	-0.00692 *	-0.01041 **	-0.01061
	0.00364	0.00444	0.01225
Primary Education	-0.03212	0.01492	-0.02869
	0.03346	0.05403	0.05728
Obs./Countries	681/36	273/12	254/37
# of Instruments	23	23	23
Sargan Test P-value	0.709	0.418	0.446
Test for 2nd Serial Corr. P-Value	0.167	0.671	0.537

Notes: Standard errors are robust and are reported below the coefficients.
* and ** indicate a statistical significance at 5% and 10% level.
To preserve sample size, unobserved individual effects are removed by orthogonal deviation.
To avoid instrument proliferations given the time span of the data, lag depth is limited to the second lag for predetermined variables. Also, the GMM instrument matrix is collapsed as described in Roodman (2009).
Dummies for financial crises years are included. Inflation rate is included so that the asset returns are real.
Volatility of logged real exchange rates are measured as the conditional variance of an ARCH(1) model.

Table 3: Estimation Results - Role of Financial Institutions' Efficiency

FDI/GDP	All
Lagged FDI	0.13113
	0.10884
US Interest Rate	-0.06561
	0.06415
Stock Market Index	0.32182
	0.35647
US yield curve slope	-0.17247 **
	0.06565
US Inflation Rate	0.02325
	0.10113
World growth	0.05433
	0.07371
US credit spread	0.07435
	0.47068
Trade Openness	0.52279 **
	0.19667
GDP Growth	0.02881
	0.02480
GDP Growth Volatility	0.00594
	0.05212
Terms of Trade Volatility	1.36415
	1.01656
Government Consumption/GDP	0.03980
	0.28858
Institutional quality	-0.17933 **
	0.05719
Exchange Rate Growth	0.46296
	0.35154
Fin. Institution Efficiency	0.17531 **
	0.06333
Exchange Rate Volatility	5.77334 **
	2.72331
Fin. Institution Efficiency *REER Vol.	-2.19192 **
	0.95118
Primary Education	-0.06191
	0.09838
Obs./Countries	254/37
# of Instruments	21
Sargan Test P-value	0.804
Test for 2nd Serial Corr. P-Value	0.215

Notes: Standard errors are robust and are reported below the coefficients.
* and ** indicate a statistical significance at 5% and 10% level.
To preserve sample size, unobserved individual effects are removed by orthogonal deviation.
To avoid instrument proliferations given the time span of the data, lag depth is limited to the second lag for predetermined variables. Also, the GMM instrument matrix is collapsed as described in Roodman (2009).
Dummies for financial crises years are included. Inflation rate is included so that the asset returns are real.
Volatility of logged real exchange rates are measured as the conditional variance of an ARCH(1) model.

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