

Foreign Direct Investment and Private Sector External Financing: Do Credit Ratings Matter?

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Abstract

This study investigates the relationship between inward foreign direct investment (FDI) and private sector external financing over the last decade with regard to 61 developing countries, 30 of them enjoying “investment” ratings and the remainder having “non – investment” ratings. Our analysis employing fixed effect two stage least squares (FE-2SLS) technique with simultaneous-equation for panel data show that increasing private sector external financing negatively affects FDI between 1999 and 2010. Yet, private sector external financing is not directly affected by FDI. There is not a statistically significant relationship. Over the last decade, the private sector in developing countries has fulfilled its external financing demands without being greatly affected by any changes in FDI. These two findings verify the increasing credibility of developing countries, regardless of having non – investment credit rating.

Keywords: *Foreign direct investment, private sector external financing, fixed effect two stage least squares (FE-2SLS), credit rating.*

Introduction

FDI is one of the healthiest forms of capital inflow to developing countries. It positively affects the economic development of countries via the narrowing of the gap between saving and investment. The rationale

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behind the increased efforts of countries in attempting to attract higher levels of FDI stems from the belief that FDI exerts several positive effects on sustainable growth (Alfaro et al., 2004). Compared with short – term capital inflows (short – term credits, portfolio investments, etc.), FDI is much more stable and remains immune to cyclical changes in the economic environment (Hayakawa et al., 2011). While FDI contributes positively to growth, it also relieves the financing requirement considering the fact that saving and investment imbalance is severe in many developing countries. Yet, the need for foreign financing and the level of FDI may increase in size simultaneously. The reason for this may be as follows: i) FDI is not sufficient to accommodate the saving gap, and/or ii) external financing proceeds may be used for any purpose other than investment expenditures, e.g. financing budget deficit, reimbursement of foreign debt etc.

The private sector is known to play a pivotal role in the development endeavors of developing countries. Yet, the financing needs of the private sector in developing countries are so huge that they need to finance their needs from international capital markets, given that domestic markets in these countries are not so developed. Therefore, the interaction between FDI and private sector foreign debt provide a deep insight when examining the dynamics of private sector foreign financing in developing countries.

There is a common agreement in the existing literature that developing countries have started to attract capital in greater volumes since for many decades. The surge in capital inflows to developing countries was attributed initially to domestic developments, such as sound policies and stronger economic performance, implying both the profitability of such funds in the recipient country and the positive judgment of investors toward the developing world. Yet, capital inflows to developing countries have provided a mixed outlook since the last decade. On the one hand, ample global liquidity during the early years of the last decade has paved the way to rising equity investment in developing countries both in the form of portfolio investment or in FDI format. On the other hand, during the early years of global crisis, uncertainties surrounding the global economic outlook have dampened capital inflows to developing countries. During this period there also occurred a sharp contraction in FDI in the aftermath of the collapse of Lehman Brothers. Yet, the relative resilience of developing countries, even after the collapse of Lehman Brothers, has attracted international capital due to their high growth potential and rising credibility, which is reflected in their credit ratings.

This recent trend is unprecedented in a sense that many developing countries have shown great resilience to the financial crisis in contrast to many developed countries. It is highly likely that the FDI inflow to developing countries will catch up with pre-crisis levels. Recent studies that have investigated FDI in its various aspects did not focus on the recent transformation in the dynamics of FDI over the course of the last decade. There are a few but increasing number of studies that concentrate on institutional factors that influence the inflows of FDI. Lee and Rajan (2009) find that APEC member countries with lower country risk are likely to attract more FDI. In particular, they find the most important component of any country risk is the political risk. Ali et al. (2010) also find that institutions are a robust predictor of FDI and that property rights security is the most important aspect of institutions in determining FDI flows. Specifically, they find that institutions exert a significant impact on FDI. Therefore, while exploring the dynamics of FDI in developing countries, the sovereign credibility should also be taken into consideration. Hayakawa et al. (2011) investigate the effect of various components of political and financial risk on FDI. Allegedly, their study is the first to comprehensively investigate the various risk factors on FDI. Trying to look ahead, I investigate the relationship between FDI and private sector external financing by controlling for various risk factors with also taking into account the investment grade and non – investment grade classification of developing countries. In doing so, I study whether external financing may emanate signals that create sufficient positive/negative effects in the recipient economy so as to attract more FDI. My study handles the issue by segregating the countries into two categories: investment grade and non investment grade.

The remainder of this paper is designed as follows: Section 2 briefly discusses recent literature concerning FDI and external financing. Section 3 describes the data and methodology. Section 4 focuses on the findings of the empirical models. Section 5 concludes as usual.

Brief Literature

There are various strands of studies in literature that investigate FDI in developing countries. Broadly speaking, the literature related with our study investigates the determinants of FDI and external financing in developing countries. This study mainly relies on this literature which sheds light on country-specific factors affecting FDI and private sector foreign external financing.

To some extent the capital inflows to developing countries depict a contradictory vision. In his seminal work, Lucas (1990) argued that it was a puzzle that more capital does not flow from rich countries to poor countries, in spite of massive differences in physical rates of return in favor of capital poor countries. Lucas (1990) argued that the scarcity of capital flows to poor countries must be rooted in fundamental economic forces, such as externalities in human capital formation favoring further investment in already capital-rich countries. Reinhart et al. (2003) approach the issue from a different perspective. Reinhart et al. (2003) mainly argue that the capital flow to developing countries is mainly related with the track record of governments' debt payment. The *serial default* of developing countries is the common concern of international investors. Many developing countries that have been experiencing external debt problems have defaulted several times in their history.¹ Developing countries who have external debt problems typically show some other weaknesses as well, including high inflation, poor macroeconomic policies, the weak rule of law etc. Arguably, the history of repeated defaults and other economic weaknesses make developing countries less stable and more vulnerable to capital outflow.

From this perspective, the key explanation to the puzzle of Lucas (1990) of why so little capital flows to developing countries is that they do not repay their debts (Reinhart et al., 2003). In a similar vein, the empirical study of Alfaro et al. (2008) shows that during the period 1970 – 2000 low institutional quality constitutes the leading explanation for Lucas' (1990) puzzle. Their findings suggest that policies aimed at strengthening institutional capacity should be at the top of the priority list of policymakers seeking to increase capital inflows to developing countries. Their results indicate that FDI might be a channel through which institutions affect long-run development. The quality of institutions as an important determinant of FDI activity, particularly for less-developed countries is well defined by Bloningen (2005). In the same vein, Busse and Hefeker (2007) study the effect of political risk and quality of institutions on FDI. They both argue that poor legal protection of assets increases the chance of expropriation of a firm's assets and makes investment less likely. Doing business in a low-quality country becomes more costly and thereby reduces attractiveness for FDI inflow.

Against this backdrop, Alfaro et al. (2004) examine the various links between FDI, financial markets and growth. They argue that FDI constitutes a large portion of total capital flows in developing countries. This fact, they contend, is attributable to synchronous policy shift toward attracting more foreign capital. Arguably, this policy shift has enhanced the country specific factors to attract FDI (Taylor and Sarno, 1997).

In the past decade, the main factor encouraging capital flows to developing countries was continued low interest rates in the developed world. For instance, expansionary monetary policy in the United States has continued over the last decade. Lower interest rates in developed countries attracted investors to the high returns offered by developing countries in Asia and Latin America. Given the high gross external debt burden of many of these countries, low interest rates also turned out to improve their credit-worthiness and to reduce their default risk.

A low-interest rate environment, however, has not been the sole factor in increasing FDI to developing countries. A low-interest environment together with many reforms that improve business environment and domestic developments, such as sound policies and stronger economic performance, have spurred long – term investments, such as FDI, in developing countries. Interestingly, Wilson et al. (2010) find that private-sector capital flows, including FDI, have not been ‘return chasing’. This argument may be supported with an explanation of the very argument of this study, that recent FDI seeks a well-balanced risk and return. Good economic performance, high institutional capacity, low political risk etc. are the merits investors also deeply look for.²

Data and Methodology

Data

This study investigates the relationship between FDI and private sector external financing, utilizing the panel data technique during 1999-2010. It attempts to find out whether the credit rating classification of countries has an effect on FDI as well. Models also control for the variables that are deemed to be influential on FDI, i.e. private sector debt stock, growth rate, openness, general public budget balance and official foreign currency reserves.³ Since we deem the previous years’ realizations as influential determinants on both FDI and private sector external financing, we included them into our analysis.⁴ Therefore, one-year lags of control variables are included in these model specifications. The countries in our sample are quite heterogeneous in terms of the size of their economies. Therefore, all variables excluding lagged growth rates were normalized by the GDP of the belonging country. The variables that we control for in the models mainly proxy the countries’ ability to repay of its foreign liabilities (ability to repay). These variables give an indication of the long – term credit outlook of a country. Unlike short-term investors, FDI investors are more sensitive to the long-term vision of a country.

As the amount of external debt increases relative to the borrowing country's GDP, the countries' ability to repay will decline and local economies will be much more prone to deterioration. Therefore, firms will find the countries with higher external debt less attractive to invest in. Countries' ability to repay will further deteriorate if they suffer severe budget deficits. This will exacerbate external financing conditions and will pose higher risk to their operations. Openness shows the volume of foreign trade activities. Integration of a country with the world economy through trade and investment is an important channel for the transfer of technology, skills, and management, as well as a powerful force for greater competition in local markets. As openness increases, the countries in question will be in turn more likely to repay their external debts. In the same vein, the countries that have higher official reserves carry less risk, since official reserves will function as a financial buffer. The countries that have higher growth capacity will attract FDI, since profit potential is higher in those countries. The annual percentage change in nominal GDP is generally a significant variable, since a decline in nominal GDP that results from the combination of weak or negative growth and falling prices, may represent a signal of extreme distress. In such circumstances, consumers and businesses may postpone purchases, expecting goods to be cheaper in the future, and the real burden of household and corporate debt will increase. This, in turn, can exert stress on the financial system and accentuate a deflationary spiral.

The variables that affect the ability to repay of the countries are not limited to those ones that we have a level of control over. There are many other factors that have an impact on countries' ability to repay, e.g. inflation, political risk, current account balance, exchange rate etc. Yet, we control for credit rating (investment – grade versus non-investment grade) to capture the effect of missed variables to some extent.

Credit ratings are expected to predict countries' ability to repay. In our analysis, we have categorized countries into two categories: investment grade and non – investment grade countries. Although this discrimination is quite broad, it provides quite useful insight as to whether sovereign credibility is an issue for FDI inflows or not.⁵

Both the country ratings and the whole data used in the analysis are obtained from Moody's. According to Moody's rating classification, there are twenty possible credit ratings for a country: Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1, Baa2, Baa3, Ba1, Ba2, Ba3, B1, B2, B3, Caa1, Caa2, Caa3, and Ca; Aaa being the highest rank that a country can get and Ca, the lowest. A rating between Aaa and Baa3 signals a good investment environment for a country whereas any rating between Ba1 and Ca is speculative.

Table 1 illustrates the whole country set by rating. There is a set balance across countries in terms of investment grade and non – investment grade separation. In our whole country sample, 30 of them constitute investment-grade countries with the remainder being non – investment grade countries. In our analysis we have utilized investment and non – investment grade separation. Allegedly, this definition serves indirectly as a signal as to whether “to invest” or “not to invest” for FDI investors too. OECD (2007) asserts that higher credit ratings signal greater stability and investor confidence to stimulate FDI.

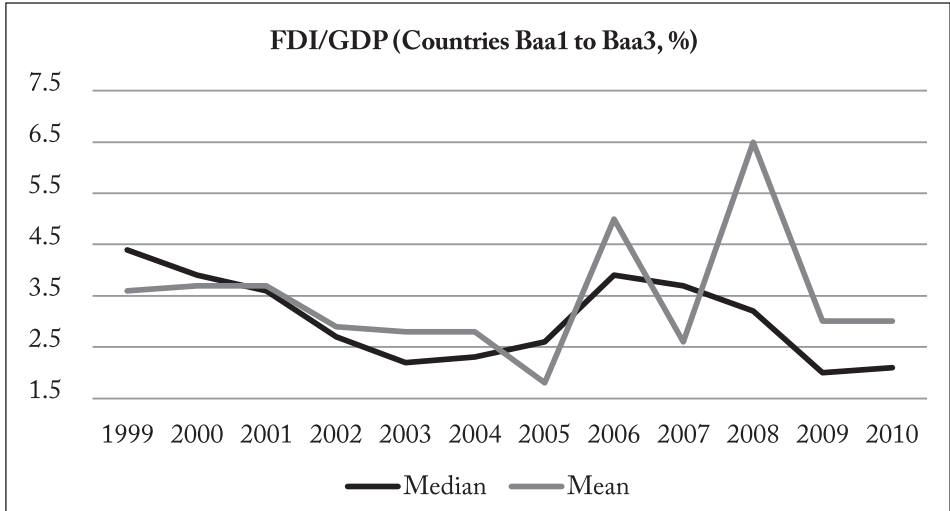
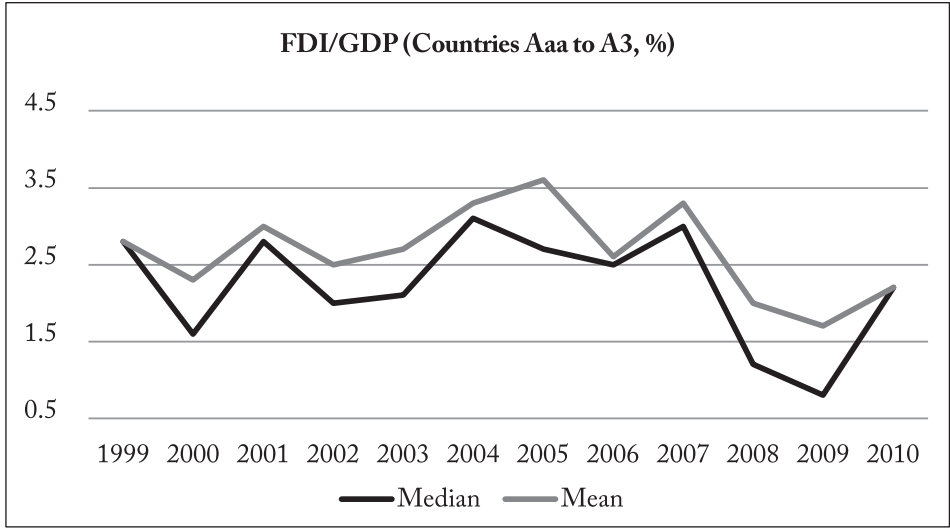
Table 1. Countries by Rating

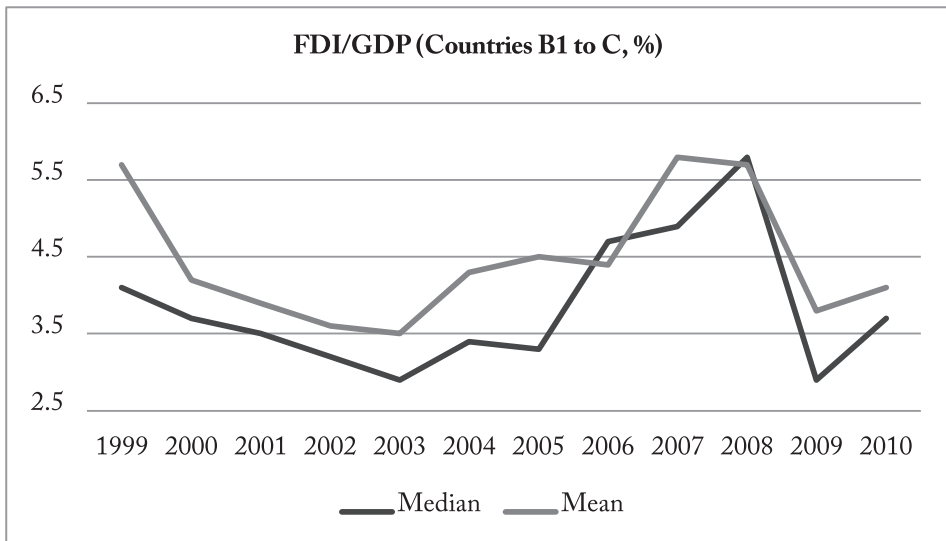
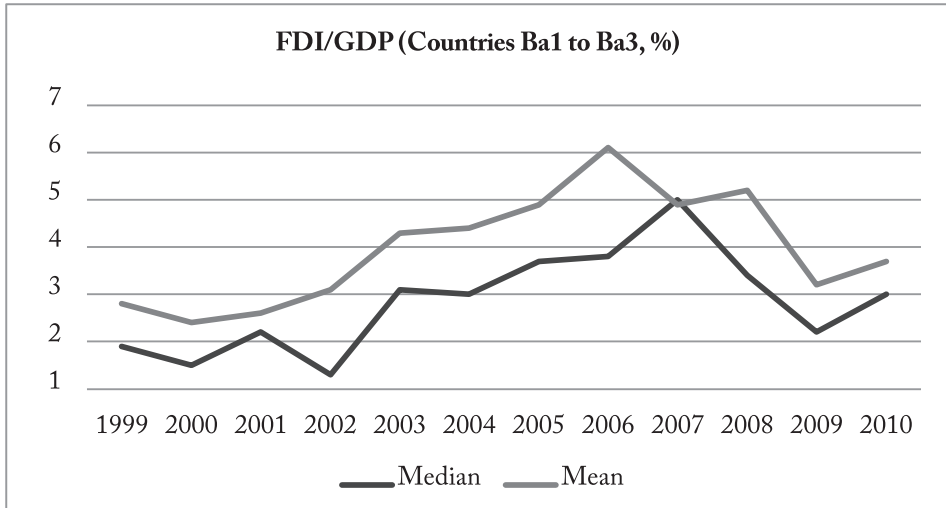
(Aaa to A3)	(Baa1 to Baa3)	(Ba1 to Ba3)	(B1 to C)
Bahamas	Barbados	Armenia	Albania
Bahrain	Brazil	Azerbaijan	Argentina
Bermuda	Bulgaria	Colombia	Belarus
Botswana	Croatia	Costa Rica	Belize
Chile	Hungary	El Salvador	Bolivia
Czech Republic	Iceland	Guatemala	Cambodia
Estonia	India	Indonesia	Dominican Republic
Israel	Kazakhstan	Morocco	Ecuador
Kuwait	Latvia	Panama	Fiji Islands
Malaysia	Lithuania	Peru	Honduras
Oman	Mauritius	Turkey	Jamaica
Poland	Mexico	Uruguay	Pakistan
United Arab Emirates	Romania	Vietnam	Papua New Guinea
	Russia		Paraguay
	Thailand		St. Vincent and the Grenadines
	Trinidad & Tobago		Suriname
	Tunisia		Ukraine
			Venezuela

Figure 1 presents the FDI/GDP by rating classification during 1999-2010. A common generalization on charts is that just before the collapse of Lehman Brothers there has been an increasing trend in both country groups. The increasing trend is more visible in non – investment grade countries (the last two charts). For instance in the Ba1 to Ba3 country group, on average terms, the FDI/GDP has risen from the level of 3% to 6%. This is also valid for B1 to C country group. Yet, FDI/GDP has stayed almost stable even before the collapse of Lehman Brothers in the investment- grade country group.

Another thing that is worth underlining is that in every country group FDI/GDP have slumped. This is visible both in non – investment grade and investment-grade countries. Therefore investment-grade countries were not immune to the destructive effects of the collapse of Lehman Brothers as the general economic outlook has deteriorated across the globe.

Figure 1. FDI/GDP by Rating



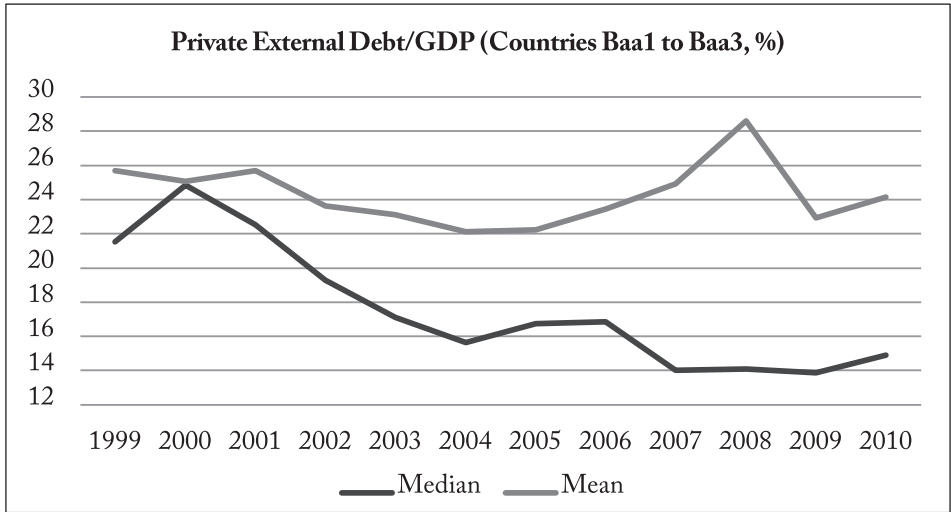
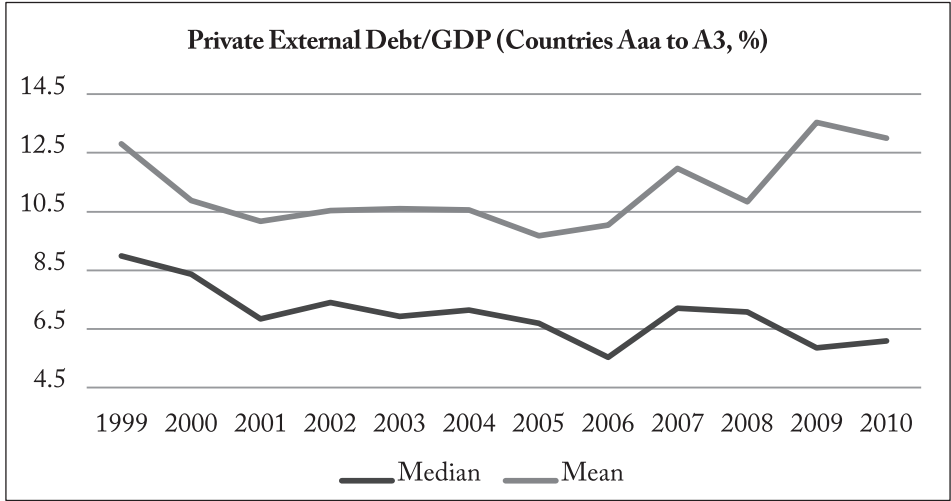


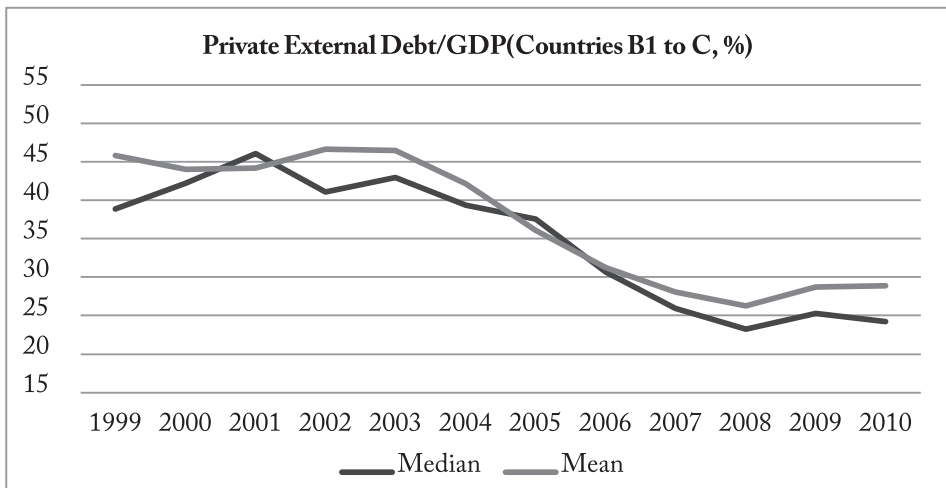
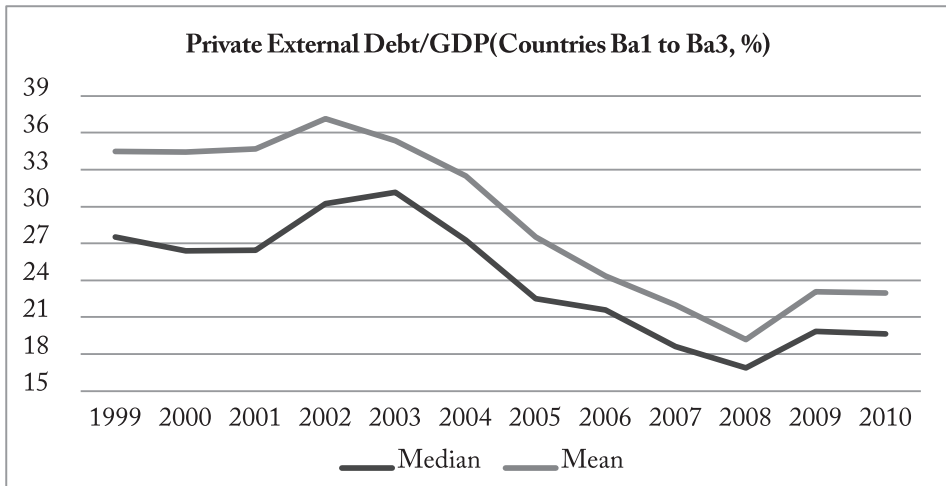
Source: Moody's and author's calculations

Figure 2 presents the private sector external debt stock/GDP by rating classification during 1999-2010. Private sector external debt stock/GDP shows an interesting case. As can be followed from Figure 2, the ratio for investment grade countries (in first two charts), in average terms, remained almost stable, even displaying an increasing trend in Aaa to A3 country group. The reverse outlook is valid for the non – investment grade country group. There has been a tremendous slump in private sector external debt/GDP in non – investment grade countries starting from 2002 through to

2008 The ratio starts to increase from 2008. The private sector external debt stock/GDP has decreased from the level of 36% to a level of 21% in the Ba1 to Ba3 country group during 2002 – 2008. By the same token, the levels come down from levels of 45% levels to 30% during the same period. This may be induced from both FDI/GDP increase in that period and may prove to be deleveraging. As mentioned above, there was an upward trend in non – investment grade countries in terms of FDI/GDP up until 2008 which may well have contributed to private sector external financing.

Figure 2. Private External Debt/GDP by Rating





Source: Moody's and authors' calculations

Method

Equation (1) and equation (2) are the equations we estimate to assess the impact of private sector external financing on FDI. We adopt a system equation approach. That is to say, both equations are estimated simultaneously.

$$FDI_{it} = \alpha + \beta EXT_FIN_{it} + \sum_{n=1}^5 \delta_n CONTROL_{nit-1} + \phi RATING_{it} + u_i + u_t + \varepsilon_{it} \quad (1)$$

$$EXT_FIN_{it} = \alpha + \beta FDI_{it} + \sum_{n=1}^5 \delta_n CONTROL_{nit-1} + \phi RATING_{it} + u_i + u_t + \varepsilon_{it} \quad (2)$$

where $i = \{1, \dots, 61\}$ are the whole countries and $t = \{1999, \dots, 2010\}$ represents the time dimension of yearly data. EXT_FIN denotes private sector external financing and CONTROL denotes private sector external debt stock, growth rate, openness, general government budget balance, official foreign reserves. RATING is a dummy variable for the country rating. It takes 1 if the country has an investment grade and 0 if the country has a non-investment grade.

In both equations, one-year lagged values of control variables are taken into account. We think that it is the most appropriate way to check for the mentioned variables as FDI investors consider the realizations of the previous year before reaching a decision on investment. We have also normalized all variables, other than growth rate, with the GDP figures of the country in question. Thus, all variables should be interpreted as *per \$ GDP*.

In our estimations, we have utilized standard fixed effects (FE) with country and time fixed effects. u_i and u_t represent the country and time dummies respectively and e_{it} represents the error term. As suggested by Baltagi (1981) we have utilized the simultaneous equation solution due to the reciprocity of the causal relationship between external financing and FDI. Otherwise, a standard FE estimation with ordinary least squares (OLS) would be biased and inconsistent. Aysan et al. (2007) have also investigated a similar problem with the same approach. To incorporate the two-way causality, Aysan et al. (2007) created a system of equations to estimate the share of private investment in GDP and the quality of governance institutions simultaneously.

Due to the reciprocity of the mentioned causal relationship, we have structured our study over two model specifications. The first specification takes FDI as the dependent variable and foreign external financing as the explanatory variable. The second model takes external financing as the dependent variable and FDI as the explanatory variable. All control variables are the same in both models. In all models, parameters are estimated through the fixed effect two staged least squares (FE-2SLS).⁷

Table 2. Unit Root Tests

LLC		IMPS	ADF	PP
FDI	-7,26***	-3,85***	194,16***	308,08***
Private Sector External Debt Stock	2,29***	8,03	63,64	54,06
Private Sector External Financing	-16,13***	-9,24***	324,53***	310,22***
Growth	-13,20***	-8,40***	298,53***	297,43***
Openness	-6,78***	-2,37***	166,49***	172,39***
General government budget balance	-7,40***	-4,28***	199,58***	176,36***
Official foreign reserves	3,51	9,61	60,15	79,14
Note: “***” denote 1% level of significance.				

To be able to assess the differences in the rating structures of countries with different development levels, the data are divided into two sub-samples of investment grade and non – investment grade developing countries. Therefore, in addition to estimating the models on a pooled sample of all developing countries, separate models for investment grade and non – investment grade developing countries are also estimated. To abstain from multi-collinearity, both equation (1) and (2) are also estimated without including the private sector external debt stock variable.

The Results

Simultaneous panel data models are estimated for the whole sample as well as separately for the investment grade and non – investment grade developing countries. Disaggregating the data by use of the credit rating differentiation will allow us to observe the differing effects of the explanatory variables as well as to assess the relative effect of the credit ratings on FDI.

In the first model specification, the signs of estimated coefficients for the explanatory variable and control variables are generally as expected and, in most cases, values are statistically significant. Estimation results, except for the first model in the pooled estimation, suggest that, holding everything else constant, there is a negative relation between FDI and private sector external financing/GDP. The parameter estimates for control variables are also in line with our expectation. For instance, the parameter estimate for lagged private sector debt stock is negative, showing that

higher debt stock is perceived to be a risk factor among investors. However, this is valid only for the investment grade country group. In the non – investment and pooled country group, the parameter estimate is negative and statistically significant. This indicates that even when private sector debt stock for the non – investment grade country group increases, these countries are eligible to attract FDI. The parameter estimate for the growth variable is statistically significant only in investment grade countries and has a positive value, implying rising growth rates do have a positive effect on FDI in the investment grade country group. In the pooled estimation group and non – investment grade group, the sign of parameter estimates are negative, though they are statistically insignificant. Openness has a positive effect on FDI inflows. The parameter estimate is significant. The increasing capacity of foreign trade attracts FDI. General public budget balance, however, has a negative effect on the FDI, as expected. Budget deficit, being a problem for many developing countries, has a negative effect on FDI. This relation is found in the pooled estimate group and investment grade group. Yet, in the non – investment country group, a positive sign is found with a 5% statistical significance. The official foreign currency reserves function as insurance for foreign liabilities, *i.e.* a higher volume of foreign reserves attracts foreign investors. Therefore the parameter estimate for official foreign currency reserves is expected to have a positive effect. The parameter estimate is found to be positive with a 1% significance. Interestingly, our findings suggest that higher credit ratings of countries have a negative effect on FDI. There may be two explanations for this inverse relationship. First, FDI/GDP is lower in the investment grade group than in the non – investment grade group. Second, credit ratings may not be an influential factor among investors in determining the level of the FDI of a country. And for the last ten years, the FDI/GDP is found to be negatively affiliated with increasing credit rating. Some developing countries that have a positive growth capacity, sound business environment etc. may have lower/non – investment credit rating. Gultekin-Karakas et al. (2011) argue that credit ratings may not be a so fair representation of sovereign credit risk and may even be biased toward developed countries.

Table 3. Estimation Results for FDI

	Pooled Estimation (61 Countries)		Investment Grade Countries (30 Countries)		Non – Investment Grade Countries	
Private Sector External Financing	0,05017	-0,15570***	-0,21074***	-0,25611***	-0,00349	-0,08189
Private Sector External Debt Stock	0,02502***		-0,02304**		0,03176***	
Growth	-0,00036	-0,00098***	0,00104***	0,00078***	-0,00037	-0,00063
Openness	0,00026***	0,00019***	0,00010***	0,00032***	0,00025***	0,00010**
General government budget balance	-0,00051***	-0,00131***	-0,00148***	-0,00111***	0,00138**	0,00164**
Official foreign reserves	0,03251***	0,02353***	0,01774**	0,04905***	0,05805**	0,02076
Rating	-0,00802***	-0,00808***				

Note: “***” and “**” denote 1% and 5% level of significance. For the sake of space, detailed results for country and time effects are not presented here but are available upon request. All control variables, other than growth rate, are normalized with the GDP figures of the country in question. Thus, all control variables, other than growth rate, should be interpreted as per \$ GDP. Additionally, control variables (private sector external debt stock, growth rate, openness, general government budget balance, official foreign reserves) are one year lags. The second column in each estimation group, i.e. pooled estimation, investment grade countries and non-investment grade countries, are the estimations without private sector external debt stock. Rating dummy takes 1 if the country have investment grade, 0 if the country have non – investment grade.

In the second model specification, the signs of estimated coefficients for the explanatory variable and control variables are not statistically significant, as expected. These findings reveal that external financing does not directly influence FDI in our country sample. Although country credibility and FDI inflows pose a downward trend, this may not affect the motivation of private sector external financing. This is plausible in the sense that, while many developing countries have succeeded in finding financing abroad even during bad times as in the last decade, the cost of funding has proved costly.

Table 4. Estimation Results for Private Sector External Financing

	Pooled Estimation (61 Countries)		Investment Grade Countries (30 Countries)		Non – Investment Grade Countries	
FDI	0,00757	0,00062	-0,00607	-0,00669	0,00239	0,00134
Private Sector External Debt Stock	-0,06508		-0,09323		-0,34062	
Growth	-0,00356	-0,00213	-0,00193	-0,00158	-0,00311	-0,00217
Openness	-0,00002	0,00003	0,00014	0,00013	-0,00044	-0,00054
General government budget balance	0,00054	-0,00027	-0,00148	-0,00114	-0,00663	-0,00788
Official foreign reserves	-0,03397	-0,03611	-0,00896	-0,00717	-0,31112	-0,10143
Rating	0,00323	0,01173				

Note: All the estimated coefficients are statistically insignificant. For the sake of the space detailed results for country and time effects are not presented here but are available upon request. All control variables, other than growth rate, are normalized with the GDP figures of the country in question. Thus, all control variables, other than growth rate, should be interpreted as per \$ GDP. Additionally, control variables (private sector external debt stock, growth rate, openness, general government budget balance, official foreign reserves) are one year lags. The second column in each estimation groups, i.e. pooled estimation, investment grade countries and non-investment grade countries, are the estimations without private sector external debt stock. Rating dummy takes 1 if the country have investment grade, 0 if the country have non – investment grade.

Concluding Remarks

In this study, we tried to shed light on the financing behavior of the private sector in developing countries. The basic finding of the paper is that increasing external financing in developing countries distracts FDI inflow. It is expected that investment-grade countries would be the most advantageous group of developing countries in terms of attracting FDI. Yet, our analysis suggests that being an investment -grade country actually reduces the amount of FDI. This is plausible in the sense that FDI per GDP is lower in investment grade groups than in non – investment grade groups. Second, credit rating may not be an influential factor in determining the FDI motivation. This is due to the fact that some developing countries that have good growth capacity, sound business environment etc. may have lower/non – investment credit rating. Last but not least, private sector external financing is not influenced by the variation in FDI, maybe due to the ability of developing countries to reach external funding sources even during financial crisis in spite of high costs.

ENDNOTES

- 1 Reinhart et al. (2003) presents a brief record of developing countries' default history.
- 2 Sovereign credit ratings that are widely perceived as an overall risk measurement for countries monitor all these factors influencing the debt-payment capacity of a country. Therefore, sovereign credit ratings are incorporated into our analysis in the next section
- 3 The existing literature pays particular attention to the determinants of FDI and shows that government size, political stability, and openness play an important role (Edwards 1991, Wei and Wu 2002). In terms of the determinants of bilateral equity flows and external debt some studies find support for theories emphasizing imperfections in international credit markets (Lane 2004, Portes and Rey 2005). Our models in the next section, particularly investigating FDI and external financing, control for similar variables in the mentioned literature.
- 4 Investors monitor the recipient country with their previous year's realizations. So the lag values are influential in their decision – making process.
- 5 In a similar fashion Reinhart et al. 2003, use the Institutional Investor (IIR) ratings, which are compiled twice a year, as a determinant of debt intolerance. The ratings grade each country on a scale going from zero to 100, with a rating of 100 given to countries which are perceived as having the lowest chance of defaulting on its government debt obligations. Hence, one may construct the variable 100 minus IIR as a proxy for default risk.
- 6 See Guillen 2010, for the similar data used in their analysis investigating the determinants of successful re-access of developing countries to international capital markets.
- 7 We have estimated the system by using FE-3SLS. We have also tested random effects both for two stage and three stage estimations. We have obtained roughly the same results and we report only the FE-2SLS results. The other results are available upon request.

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APPENDIX

Moody's Data - Sources and Rationale

Growth (% change in nominal GDP, local currency)

Source: IFS, Moody's, Eurostat

Rationale: The annual percent change in nominal GDP (in local currency) is not in itself generally a significant variable, since analysts are more often interested in its two components: the change in real GDP (Table 6) and the change in the broadest index of price movements, the GDP deflator (not shown in this Handbook). However, a decline in nominal GDP that

results from the combination of weak or negative growth and falling prices, as in Argentina and Japan at various times in the past decade, can be a signal of extreme distress. In such circumstances, consumers and businesses may postpone purchases, expecting goods to be cheaper in the future, and the real burden of household and corporate debt will increase. This, in turn, can stress the financial system and accentuate a deflationary spiral.

Openness (Sum of Exports and Imports of Goods and Services/GDP) (%)

Source: IFS, Moody's, Eurostat

Rationale: Integration of a country with the world economy through trade and investment is an important channel for the transfer of technology, skills, and management, as well as a powerful force for greater competition in local markets. Many studies have shown a significant correlation between openness and above-average rates of economic growth. This indicator is one of the most widely used measures of openness, focusing on the trade channel. However, two important distortions qualify its use. First, the goods and services encompassed in the numerator (foreign trade) are valued at international dollar prices, while the denominator (GDP) includes the large non-tradable goods sector and domestic services. The latter may be significantly undervalued in the national accounts (as shown in the sometimes very large differences between GDP per capita on a current- exchange-rate basis and the same aggregate on a purchasing-power-parity basis). In addition, a country that has a large export sector mainly dependent on imports of materials, semi-finished products, and capital goods, will measure high on this indicator, but the value added in foreign trade may be quite small. For these reasons, the high openness shown in China (74%), Mexico (61%), Bulgaria (145%), Thailand (158%), and others, may be exaggerating the situation. Large continental-scale economies, such as the United States, Brazil, and India, would be expected to have a lower degree of openness, while distance from major markets and the resulting transport cost barriers could also reduce trade below what other factors might imply. Even with all of these caveats, however, the trend of rising openness seen in so many countries over the past decade is a good indicator of the strength of globalization.

General Government Budget Balance (%)

Source: Moody's, OECD, Eurostat, IMF, Official National Source

Rationale: The fiscal balances and debt stocks of the various levels of

government are among the most important indicators examined by sovereign risk analysts. The ability of government to extract revenues from the population of taxpayers and users of services, the elasticity of revenue with respect to the growth or decline of national income, and the rigidity of the composition of government expenditures are key factors that determine whether central and local governments will be able to make full and timely payments of interest and principal on outstanding debt.

Official Foreign Exchange Reserves

Source: IFS, Moody's

Rationale: Foreign exchange reserves held by a country's central bank are the first line of defense against withdrawal of foreign credit. These are measured at the end of year in US dollars at current exchange rates. (Again, it should be kept in mind that annual fluctuations in reserves are very much affected by choice of monetary standard. But with most countries still holding the bulk of their reserves in dollars and much of international trade carried out in dollars, it is appropriate to measure in this way. If the euro should grow over time to play a more important role in trade and in reserve holdings, some composite or basket method of common measurement might become necessary.) Central bank reserves are only one component of international liquidity. It is important also to take into account the liquid high-credit-quality foreign-currency assets of the commercial banks as well as the foreign currency assets of the corporate sector. Countries with freely floating exchange rates and stable financial systems may need lower reserves than those actively managing their exchange rates or facing the risk of a banking crisis. The currency crises of 1997-1999 have led many experts to suggest that developing countries need to hold higher levels of reserves to protect themselves against volatility in perceptions of currency and default risk on the part of lenders and depositors. In addition, apparent reserve levels can be misleading if the central bank has sold foreign exchange forward or has placed reserves in the foreign branches of the country's own banks. More accurate and more frequent reserve disclosure is one of the main goals of the IMF's efforts to improve data dissemination.

External Debt/GDP (%)

Source: Moody's

Rationale: Because countries of different sizes would naturally be expected to have debt of different size, division by GDP allows for normal international

comparisons. The ratio of external debt to GDP is one contributing factor to the future flow of interest payments that the residents of the country will have to pay overtime to nonresidents, relative to the capacity of the country to generate income. (The other is the average interest rate paid on the debt). As with the ratio of the current-account balance to GDP, the ratio of external debt/GDP can be somewhat misleading for large, relatively closed, economies, like India and Brazil. The low ratio of exports to GDP means that these countries can have high debt service requirements, while debt/GDP doesn't clearly signal the debt problem. On the positive side, however, such countries have a high potential for switching productive resources from the nontradeables to the tradeables sector, thereby increasing the rate of growth of external receipts. Such a trend to greater openness depends on structural reforms of the trade regime and improvements in the flexibility of labor and product markets.

Note: We have produced private sector external debt stock/GDP statistics by subtracting public sector external debt from total external debt stock.

Net Foreign Direct Investment/GDP (%)

Source: IFS, Moody's, Eurostat

Rationale: This indicator measures the difference in the annual inflows and outflows of FDI in relation to GDP. Since inflows are recorded as positive and outflows as negative, the typical developing country shows up here as having a positive net FDI while most advanced industrial countries, except for the US and resource-rich countries like Canada and Australia, have a negative net flow. FDI, defined as equity inflows involving control over productive assets, is generally viewed from two different perspectives. On the one hand, it is a major instrument for technology and skills transfer and for introducing greater competition into domestic markets. It also helps build up an export base by tying a country more closely into global production chains. On the other hand, FDI is important, along with more fragmented equity inflows that don't bring control, as a financing item in the balance-of-payments, allowing a country's investment to exceed its domestic saving without a dangerous buildup of external debt. FDI, however, is not an unalloyed positive. The dividends, royalties, and service fees generated by the foreign capital put in place can themselves be a major item in the current account. In addition, FDI is often accompanied by intercompany loans that add to external debt.