ISSN 2079-7141

UAEU College of Business and Economics

ACCREDITED AACSB INTERNATIONAL

UAEU-CBE-Working Paper Series

Title: **Beyond FDI: The Influence of Bilateral Investment Treaties on Debt**

Author(s): Wasseem Mina

Department: Economics and Finance

No. 2013-05

Series Founding and Acting Editor: Prof. Dr. Abdulnasser Hatemi-J

Beyond FDI:
The Influence of Bilateral Investment Treaties on Debt

Wasseem Mina[1]

Abstract:

This paper examines theoretically and empirically the role of political risk guarantees, which bilateral investment treaties serve, in debt accumulation in low and middle income countries. The paper empirically finds that signed bilateral investment treaties with OECD countries have a positive influence on total and guaranteed debt accumulation, under system GMM and OLS estimation methodologies. Results suggest that the role of bilateral investment treaties extends beyond attracting FDI to international lending.

Keywords: Debt; debt guarantees; political risk; default risk; bilateral investment treaties

JEL Classification: F34; G15; K33

[1] Department of Economics and Finance, College of Business and Economics, United Arab Emirates University, P.O. Box 15551, Al Ain, UAE. (email: wmina@uaeu.ac.ae), and Economic Research Forum. I would like thank Mohamed Belkhir, Regis Blazy, Amany Elanshasy, Hisham Fouad, Ozgur Kaya, Minas Khatchadourian, Osiris Parcero, Willem Selen, Raimundo Soto, and participants at the 2012 Middle Economic Association Meetings in Chicago, the Fourth annual Research Symposium of the Faculty of Business and Economics at the United Arab Emirates University, and the 2012 INFINITI Conference in International Finance in Dublin for useful comments and suggestions. I am also very grateful to Marie Cavanaugh of Standards and Poors for sharing sovereign credit ratings data. The usual disclaimer applies.

Beyond FDI:

The Influence of Bilateral Investment Treaties on Debt

1. Introduction

The recent global financial crisis, which started with the US subprime crisis in February 2007 and spread to many European countries - Iceland, Belgium, Latvia, Greece, Spain, Ireland, and Portugal, and Spain - over the past five years, has created a squeeze in the supply of capital in international financial markets in general and in capital flows to low and middle income countries in particular.[2] The squeeze in capital flows was more obvious in debt flows than in foreign direct investment flows. Debt flows to low and middle income countries were more than halved between 2007 and 2009, while FDI flows were much less volatile, as the financial crisis literature predicts (Agenor 2003; Fernandez-Arias and Hausmann 2001; Stiglitz 2000).[3,4]

The sustainability of large capital inflows to emerging markets is one of the major challenges that the global economy faces in the aftermath of the crisis, as Carmen Reinhart clearly pointed to in her keynote address "A Decade of Debt" to the 2012 INFINITI conference.[5] In fact this challenge is very relevant to the conference theme: "International Finance towards 2020: Will the next 10 years be different?"

In order to be able to sustain large capital inflows, in particular debt flows, to emerging markets, it is important to understand what mobilized debt flows over the past three decades, given two important observations. First, more than 80 percent and about 40 percent of low and middle income countries debt stocks, respectively, in 2005-2010 is guaranteed. Second, many low and middle income debtor countries have contracted bilateral investment treaties with other countries, including creditor or

[2] See the Council on Foreign Relations for a timeline of the global financial crisis (http://www.cfr.org/economics/timeline-global-economy-crisis/p18709).

[3] In low income countries debt flows declined from nearly $10 billion to about $4 billion and even recorded outflows of $3 billion in 2010. In middle income countries debt flows declined by three quarters from $536 billion in 2007 to $136 billion in 2009 before reversing the trend in 2010 and increasing to $440 billion. FDI flows to low income countries maintained the same level of $10-12 billion between 2007 and 2009 before increasing to about $15 billion in 2010. In middle income countries FDI flows increased from $453 billion in 2007 to $551 billion in 2008 before declining to about 70 percent of its level in 2009 before increasing afterwards.

[4] See also Chuhan et al (1996) and Sarno and Taylor (1999) as in Agenor (2003).

[5] She also highlighted inflationary pressures, overheating and bubble risks as challenges for emerging markets. Public and private debt overhang, deleveraging, lower growth and high unemployment are highlighted challenges for advanced economies.

creditors' governments, which guarantee against government expropriation of foreign investment including foreign debt.

The aims of bilateral investment treaties are threefold (Ginsburg 2005; Hallward-Driemeier 2003; Mina 2009; Neumayer and Spess 2005; UNCTAD 1998). First, it establishes clear, simple, and enforceable rules for foreign investment protection from expropriation by the two contracting countries. Foreign investment protection under many treaties comprises foreign direct investment, portfolio investment, and debt. Second, it identifies the circumstances under which expropriation takes place and the compensation standards. Third, it establishes investment dispute settlement mechanisms in presence of imperfect domestic property rights protection institutions. A bilateral investment treaty therefore guarantee the property rights of partner country investors, reduce host country political risks, and thereby increase foreign investor's confidence and promote capital flows.[6]

In conceptualizing and examining the determinants of debt flows, it is important therefore to consider the presence of "double guarantees": Payments to creditors of low and middle income countries are not only guaranteed by the borrowing or borrower's government – credit risk guarantee, but are *likely* guaranteed of political risk as well.[7] In presence of the double credit and political risk guarantees, two questions arise.[8] First, by serving as political risk guarantee, do bilateral investment treaties encourage debt flows to developing countries?[9] In other words, do creditors respond to political risk guarantees that bilateral investment treaties provide? Second, since creditors primarily care about credit risk, we would expect creditors of guaranteed debt to be less responsive to bilateral investment treaties than creditors of non-guaranteed debt. Accordingly, do bilateral investment treaties have more positive influence on non-guaranteed debt as opposed to guaranteed debt?

This research contributes to the literature on international capital flows and bilateral investment treaties in one main respect. The treatment of property rights

[6] Contracting bilateral investment treaties also reflects countries' intent to financially integrate into the global economy at the bilateral level. At the multilateral level, this intent is reflected in membership of the multilateral World Trade Organization (WTO).

[7] It might be the case that the debtor government has not contracted bilateral investment treaty with the creditor or creditors' government, but with other similar governments.

[8] The availability of sovereign credit ratings on very few low income countries hinders raising a third question: do bilateral investment treaties generate standardized perception of political risk guarantees among creditors, regardless of the income level of the contracting country? In other words, do bilateral investment treaties contracted by middle income countries have more positive influence than those by low income countries?

[9] Developing countries include both low and middle income countries.

protection in the institutions literature has been incomplete. Studies have tended to concentrate on domestic institutional functions and ignored government efforts to adopt international treaties, namely bilateral investment treaties, to improve property rights protection and provide political risk guarantees. The paper accounts for this gap, while examining the determinants of debt flows in low and middle income countries.

Second, the paper conceptualizes the impact of bilateral investment treaties on international lending building on the literature on government guarantees of banks. We conceptualize that bilateral investment treaties influence international lending through a) the impact on financial institutions in general and banks in particular, b) the design of treaties to primarily encourage FDI, c) promoting competition among countries to contract treaties, and d) financial contagion. This has not been done before to the best of our knowledge.

This paper is structured as follows. Section 2 provides a brief survey of three relevant strands in the literature - the determinants of capital flows, and the effect of guarantees on risk taking and crises, and the impact of bilateral investment treaties on FDI. It then conceptualizes the mechanisms through which bilateral investment treaties impact international lending. Section 3 posits an optimization-driven empirical model following Wei and Wu (2001). Section 4 proposes the estimation methodology in light of the empirical issues. Section 5 presents and discusses the empirical results. Section 6 concludes.

2. Literature survey

2.1. Determinants of capital flows and role of institutions

The determinants of capital flows have been extensively examined in the capital flows literature. Some studies, such as Brana and Lahet (2010), Calvo et al (1996) and Fernandez-Arias (1996), have distinguished between the external/push factors and the domestic/pull factors. Calvo et al (1996) explain capital flows of the 1990s in terms domestic and external factors to the recipient economy. External factors to the recipient economy include declining world interest rates, which improve creditworthiness and reduce default risk in developing countries, global business cycle, integration of world capital markets and diversification of investments

internationally and contagion effects. Recipient economy domestic factors include sound domestic monetary and fiscal policies, and trade and capital market liberalization. Similar to Calvo et al (1996) Fernandez-Arias (1996) argued that the decline in world interest rates improved creditworthiness and reduced default risk in developing countries, and therefore perceived capital flows a result of the interaction between external push factors and domestic pull factors. Recently, Brana and Lahet (2010) expand the set of push factors in four Asian economies in 1990-2007 to include contagion variables - monsoonal effect, spillover effect and shift contagion - as defined by Masson (1999).

Recent studies, such as De Santis and Luhrmann (2009), Fratzscer (2012), Hooper and Kim (2007), and Papaioannou (2009), have focused on the role of institutions and political risk as domestic factors in attracting capital flows.[10] Fratzscher (2012) explores the drivers of global portfolio investment flows using high frequency mutual funds data for the period 2005-2010 differentiating between financial crises and the subsequent recovery, and between common global shocks and country-specific factors.[11] He finds that during crises there is a strong divergence in capital flows across countries with dynamics of capital flows primarily driven by safe-haven flows. He also finds that the effect of global shocks, in particular during the recovery period, was heterogeneous and depended on the recipient country's institutional quality, country risk, and the strength of macroeconomic fundamentals and policies. He contends that, "countries are far from innocent bystanders that are powerless in being exposed to volatile global markets, and that indeed they have tools to insulate to some extent their economies from adverse global shocks" (p 2).

Hooper and Kim (2007) examine the role of operating environment opacity in influencing FDI, portfolio investment, and international bank lending.[12] They argue that opacity in general discourages capital flows. However, with the profit opportunities it creates, opacity may increase capital flows. For example,

[10] Other studies, which examine the influence of property rights protection on foreign direct investment and portfolio investment, include Alfaro et al (2008), Asiedu (2006), Busse and Hefeker (2007), Daude and Fratzscher (2008), Daude and Stein (2007), Du et al (2008), Faria and Mauro (2009), Mishra and Daly (2007), Naude and Krugell (2007), and Wei (2000). Studies on international lending include Kraay and Nehru (2004), Lane (2004), Mina (2011), Mina (2006), and Mina and Martinez-Vazquez (2006). The empirical evidence of these studies suggests that better domestic institutional functions encourage capital inflows and tilt the capital structure of countries towards equity and away from debt.

[11] He focuses on common global liquidity, risk, and macroeconomic news shocks.

[12] They use Price Waterhouse Coopers' opacity index covering corruption, legal, economic, accounting/reporting, and regulation opacity as well as aggregate opacity.

multinational corporations (MNCs) may concentrate on FDI to exploit accounting and reporting opacity in order to maximize profit. Other forms of capital flows may respond differently to accounting opacity.

Interestingly they point out that opacity in corruption might increase FDI or international bank lending. Corruption opacity can increase MNCs likelihood of obtaining loans, which are government guaranteed, or favorable tax treatments, thus increasing FDI flows to the country. Corruption opacity might take the form of government guarantees of crony capitalists' international loans, increasing the likelihood of obtaining loans and thus international bank lending. In contrast, legal opacity reduces contract enforcement of property rights protection and thus capital flows in general.

In explaining the Lucas (1990) paradox on why capital flows from poor to rich countries, contrary to the neoclassical model prediction of capital flowing in the opposite direction, Papaioannou (2009) focuses on the role of institutions in explaining these flows and finds that weak institutions – weak property rights protection, inefficient legal system and high risk of investment expropriation – deter banking flows. Similarly, in examining the role of demographic structure in international portfolio flows, De Santis and Luhrmann (2009) find that lower quality institutions deter net portfolio inflows explaining the capital reallocation from developing to developed countries.

In summary this section identifies three messages. First, political risk matters for capital flows. Poor institutions and high risk of investment expropriation deter both bank loans and portfolio flows. Second, institutional quality, country risk, and the strength of macroeconomic fundamentals and policies matter for insulation and recovery from global shocks. Third, the literature has not considered government efforts to strengthen property rights protection and reduce political risk, through bilateral investment treaties, and their influence on international lending.

2.2. Effect of guarantees on risk taking and crises

This section weaves the literature on the effect of guarantees on financial institutions, in particular banks, risk taking behavior and on financial crises. In doing so, we aim to gain an insight into how bilateral investment treaties, through political risk guarantees, might affect financial institutions' international lending decisions.

Government guarantees affect bank risk taking behavior through two opposing channels (Gropp et al 2012). On the one hand guarantees reduce market discipline and creditors' incentives to monitor bank risk taking, and therefore generate more bank risk taking. On the other hand they increase banks' charter or franchise value.[13] A government guarantee increases the present value of future profits, resulting in higher opportunity cost of closing down. In order not to forego future profits, banks would reduce risk taking. Whether guarantees at the firm level result in more or less risk taking depends on the strength of each of these two opposing forces.

In the financial crises literature, government guarantees may prevent bank runs if credible (Diamond and Dybvig 1983; Laeven and Valencia 2008), or may be unsuccessful in enhancing or restoring public confidence (Honohan and Klingebiel 2003; Kane and Klingebiel 2004; Laeven and Valencia 2008). Laeven and Valencia (2008) find that banks' foreign liabilities are insensitive to blanket guarantee announcement. Foreign investors continue withdrawing resources even after a guarantee is in place since the cost of country exit decreases with asset availability to them under blanket guarantees.

Under fixed exchange rate regimes government guarantees to banks' foreign creditors can result in twin currency and banking crises through their impact on the composition of banks' assets and liabilities (Burnside et al 2004). Guarantees may encourage banks to adopt un-hedged currency risk and default on foreign debts and declare bankruptcy when devaluation is imminent. Guarantees may result in fiscal costs and future moral hazard problems, if governments are committed to honor these guarantees (Laeven and Valencia 2008). If governments are unwilling or unable to fund government guarantees costs through fiscal reforms, however, they may resort to seigniorage revenues. Government guarantees of banks' foreign liabilities may result paradoxically in banking crises (Demirgüç-Kunt and Detragiache 2002).[14]

[13] A charter value is the present value of bank's future profits, which the bank foregoes if it closes down (Guttentag and Herring 1983). It arises from market power, bank efficiency and reputation (Demsetz et al 1996).

[14] In preventing twin banking and currency crises, Burnside et al (2004) argue that the most obvious strategy is to commit to financing bank bailouts without resorting to seigniorage revenues. However, given the commitment difficulty, they suggest alternative strategies: a) to use foreign reserves to fend off speculative attacks; b) impose a Tobin tax on exchange rate transactions; c) strengthen prudential regulations and banks capital requirements; d) dollarize the economy; and e) obtain alternative party bailouts. Whether bilateral investment treaties, as a commitment mechanism against political risk which is associated with sovereign risk, reduce the likelihood of currency and banking crises is the subject of this research's future extension.

2.3. Impact of bilateral investment treaties on international lending – conceptualization of mechanisms

Bilateral investment treaties serve as guarantees against political risk and thereby encourage foreign investment. Bilateral investment treaties, as mentioned in the introduction, a) establish clear enforceable rules for the reciprocation of foreign investment protection between the two signatory countries from the risk of investment expropriation, b) identify the circumstances under which investment expropriation can take place and the associated compensation standards, and c) establish investment dispute settlement mechanisms, which facilitate foreign investment in the presence of imperfect domestic property rights protection institutions (Ginsburg 2005; Hallward-Driemeier 2003; Neumayer and Spess 2005; UNCTAD 1998). Studies, such as Egger and Pfaffermayr (2004), Neumayer and Spess (2005), and Tobin and Rose-Ackerman (2006), found a significant positive impact of bilateral investment treaties on FDI.[15]

The overall perception of bilateral investment treaties serving as a guarantee against political risk and encouraging FDI may be applied, albeit carefully, to international lending. On the one hand, government guarantees of domestic banks reduce market discipline and creditors' incentives to monitor bank risk taking, and therefore generate more bank risk taking. On the other hand, by increasing the charter value of banks, government guarantees increase the opportunity cost of closing down, and thus reduce risk taking. The net effect on risk taking depends on the strength of each of these two opposing forces.

The first mechanism through which bilateral investment treaties may affect international lending is through their impact on financial institutions in general and banks in particular. By reducing political risk, bilateral investment treaties may encourage foreign creditors to extend more lending to the contracting country's borrowers or borrowing government. Bilateral investment treaties may reduce monitoring of the contracting country government as well as its borrowers, and generate moral hazard. In this case bilateral investment treaties may encourage international lending and lengthen its maturity. On the other hand, by raising creditors' charter value and opportunity cost, bilateral investment treaties may discourage creditors from lending.

[15] The influence of bilateral investment treaties on FDI has also been examined in Desbordes and Vicard (2009), Egger and Merlo (2007), Hallward and Driemeier (2003), Kerner (2009), Mina (2009, 2012), and UNCTAD (1998).

The second mechanism lies in the institutional or legal design of treaties. Being primarily designed to protect and encourage FDI, bilateral investment treaties may tilt the composition of capital flows in favor of equity as opposed to debt. This in turn may reduce the likelihood of banking crisis – a macroeconomic risk, which may encourage future international lending.

Competition among countries to sign bilateral investment treaties to attract international lending may reduce the level and/or share that a country can attract - a third mechanism.[16] Recognizing the benefits of bilateral investment treaties, countries may compete against each other to sign treaties with other higher income countries to be able to attract higher level and/or share of world capital flows. In other words, the competition to sign bilateral investment treaties and reduce political risk manifests itself in an increasing competition for international lending. The proliferation of bilateral investment treaties may theoretically result in the opposite outcome, if the determinants of international lending are the same across signatory countries. Therefore the competition among countries to sign bilateral investment treaties can paradoxically reduce some countries' shares and levels of international lending.

The fourth mechanism through which bilateral investment treaties may affect international lending is financial contagion. Bilateral investment treaties may generate financial contagion among creditors - the other side of the market - in the event of crisis along the lines of Van Rijckeghem and Weder (2001). For example, a group of middle income countries may sign treaties with an OECD country and compete for bank loans. If one of these countries experiences a crisis, the bank may reduce its exposure to other middle income countries, possibly triggering a reduction in other banks' lending – a financial contagion. Therefore, bilateral investment treaties may dampen foreign investors' opinions about risk and thus generate contagion.

In summary, we conceptualize that bilateral investment treaties influence international lending through their impact on financial institutions in general and banks in particular, their design that primarily encourages FDI, the resulting competition among countries to contract treaties, and financial contagion. We leave the empirical examination of each of these mechanisms or channels for future research.

[16] We assume all factors are held constant.

3. Empirical model and data

Empirical model specification builds on Wei and Wu (2001), who examine the effect of corruption on FDI. Their empirical model is motivated by a simple optimization problem solved by a multinational firm. Similarly, we can conceptualize a foreign creditor (bank) optimization problem in which it selects the level of loans it extends to borrowing countries, $j=1,\ldots,N$, that maximizes its profit π. The optimization problem can be expressed as:

$$\pi = \sum_{j=1}^{N} \left[(1 - g_j + p_j - d_j) f(L_j) - iL_j \right]$$

where π is foreign creditor's profit, g_j is the rate of government expropriation of foreign investment, p_j is the rate of political risk guarantee on a dollar of lending, d_j is the rate of default on loans, L_j is the stock of loans the foreign creditor extends to the borrowing or borrower's country, and i is the creditor's cost of loanable funds.[17]

The optimal stock of loans a foreign creditor extends to a country j thus depends on the borrowing country's rate of government expropriation of foreign investment, the rate of political risk guarantee a country provides through the bilateral investment treaty it contracts, the rate of loan default, and the cost of loanable funds to the foreign creditor or deposit interest rate.

$$L = L\left[g_j, p_j, d_j, i_j\right]$$

where $\frac{\partial L}{\partial g} < 0$, $\frac{\partial L}{\partial d} < 0$, $\frac{\partial L}{\partial i} < 0$, and $\frac{\partial L}{\partial p} > 0$.

The empirical model expresses, *in principle*, the stock of foreign loans (L) as:

$$ln(L_{i,t}) = \beta_0 + \beta_1 ln(L_{i,t-1}) + \beta_2 G_{i,t} + \beta_3 P_{i,t} + \beta_4 D_{i,t} + \beta_5 I_{i,t} + \beta_6 M_{i,t} + \varepsilon_{i,t} \qquad (1)$$

where L, G, P, D, and I are as defined above but in capital letters, and $M_{i,t}$ is the cost of exclusion from international capital markets, and ε an error term.[18,19] The subscripts i and t are country and time indicators.

[17] $g, p,$ and d relate to the borrowing or borrower's government.

[18] Eaton and Gersovitz (1981) estimates the level of international debt using the cost of debt default, the level of income, the growth rate of income, population size, and the real level of public debt. Cost of debt default arise from embargoes on future lending and is measured by exports variability and the ratio of imports to GNP. The level of income and income growth rate are measured by GNP and GNP growth rate, respectively.

L is the stock of external debt owed to nonresidents, which comprises public and publicly guaranteed (PPG) and private non-guaranteed (PNG), the use of IMF credit, and short-term debt. Both PPG and PNG are long-term in nature. PPG comprises the external obligations of public sector, or private sector whose debt is guaranteed for repayment by a public entity.[20] PNG comprises the external obligations of private debtors, which are not guaranteed for repayment by a public entity. Short-term debt comprises all debt of original maturity of one year or less and interest in arrears on long-term debt.[21] *L* is measured in current billions of U.S. dollars. More details on PPG and PNG debt are provided in the following section.

The rate of government expropriation of foreign investment, *G*, is proxied by ICRG's investment profile component of the political risk index. Investment profile refers to the risk of investment expropriation, profits repatriation, and payment delays.[22] The rate of political risk guarantee *P* is proxied by the total number of bilateral investment treaties signed with OECD countries. The rate of default on loans, *D*, is measured by Standard and Poors' foreign currency sovereign credit rating.[23] Foreign currency, as opposed to local currency, is selected based on Kim and Wu (2008), who find that foreign currency long-term ratings stimulate *all* types of capital flows the most, while local currency long-term ratings discourage them. Cost of loanable funds, *I*, is measured by the 12-month Euro dollar LIBOR. The cost of exclusion from international capital markets, *M*, is proxied by the percentage of imports of goods and service to GDP.

---

[19] Initially we considered a vector of explanatory variables, which includes the degrees of economic and financial development, as measured by real GDP per capita and private sector credit relative to GDP, in this vector. However, these two variables are captured in sovereign credit rating, and together with investment profile and FDI flows explain about 36 percent of the variation in the rating.

[20] The public sector includes the general government, monetary authorities, and public corporations. A public corporation, financial or nonfinancial, is subject to control by government units, where control over a corporation is defined as the ability to determine general corporate policy by choosing appropriate directors, if necessary. Control can be established through government ownership of more than half of the voting shares or more than half of the shareholder voting power (including through ownership of a second public corporation that in turn has a majority of the voting shares), or through special legislation, decree, or regulation that empowers the government to determine corporate policy or to appoint directors. The publicly guaranteed private sector external debt component of PPG is defined as the external debt liabilities of the private sector, the servicing of which is contractually guaranteed by a public entity resident in the same economy as the debtor. Private sector external debt, which is not contractually guaranteed by the public sector is classified as PNG. Chapter 5 of International Monetary Fund (2003) provides a detailed definition of the public sector.

[21] Short-term debt comprises money market instruments, loans, currency and deposits, trade credits, and other debt liabilities mainly arrears.

[22] The risk of investment expropriation, *G*, will be dropped from the empirical model, as explained below.

[23] A description of S&P sovereign credit rating system is provided in Appendix A.

We should note that S&P's sovereign credit rating is based on five scores: political, economic, external, fiscal, and monetary. The political score measures institutional effectiveness and political risks, which intuitively include the risk of investment expropriation, *G*. Empirically, as mentioned in the footnote above, investment profile, together with real GDP per capita, private sector credit relative to GDP, and FDI flows, explain nearly 40 percent of the variation in the sovereign credit rating. Thus we decide to drop *G* from equation 1.

Data on debt stocks are obtained from the World Bank' World Development Indicators (WDI). Data on bilateral investment treaties signed with OECD countries are calculated based on UNCTAD data. Data on sovereign credit ratings are obtained from Standard & Poors' (S&P) sovereign foreign currency credit ratings. S&P's credit ratings are transformed into numerical scores, as explained in Appendix A. Cost of loanable funds is measured using the 12-month LIBOR on Euro dollars, which is obtained from the Wall Street Journal website.[24] Data on the percentage of imports of goods and services to GDP are obtained from WDI.

Series differ in their sample periods and countries. At the time of writing this paper, data on debt stocks, and the percentage of imports of goods and services to GDP are available until 2010, bilateral investment treaties until June 2012, and sovereign risk ratings until 2012. Data on the 12-month Euro dollars LIBOR are available since (September) 1989. However, S&P sovereign credit rating data vary widely across countries. In addition, S&P ratings are available for 58 countries, of which 53 are middle income countries. Periods which ratings cover vary by country restricting the number of observations to about 700 and creating an unbalanced panel. The list of sample countries for which sovereign credit ratings are available is provided in table A2 of Appendix A.

4. Empirical issues and estimation methodology

4.1 Empirical issues

There are two major empirical issues that we take into account. First, due to the stock nature of the dependent variable, non-stationarity is a likely empirical issue. We conducted an Augmented Dickey-Fuller test for the total debt stock and its PPG and PNG components. The unit root null hypothesis was rejected at the 1 percent

[24] Available at http://www.wsjprimerate.us/libor/libor_rates_history.htm#liborpreviousmonth. Data are also available at http://www.fedprimerate.com/libor/libor_rates_history.htm.

level, whether an intercept, or an intercept with a trend are included in the regression. The null hypothesis was also rejected for the total debt stock and PPG in per capita terms. For PNG per capita, we failed to reject the unit root null at the 10 percent significance level; when the variable was first differenced, the null was rejected.

Unit root tests were also undertaken for the explanatory variables. For all but imports of goods and services relative to GDP, the unit root null hypothesis was rejected indicating stationarity. The unit root null hypothesis was rejected when the variable was first differenced.

Second, simultaneity is a potential issue. Thus Granger causality tests have been conducted. Test results for two lag lengths are reported in table 1 below, with arrows specifying direction of causality. Results also show for four lag length that total debt stock, PPG, and PPG per capita Granger cause total signed treaties with OECD countries. To address non-stationarity and endogeneity arising from simultaneity, we adopt a system GMM approach as explained in the following section.

TABLE 1
Granger Causality Test Results

(1) Total Debt	(2) PPG	(3) PNG	(4) Total Debt	(5) PPG	(6) PNG	(7) Explanatory Variables
			Per capita			
	→	←	←	←	←	Total number of signed bilateral investment treaties with OECD
←	↔	←	←	←	←	Sovereign Credit Rating
→	←	↔	→	←	↔	12-month Eurodollar LIBOR
	←		←	→	←	Percentage of imports of goods and services to GDP

Notes: Table shows the dependent variable(s) on the first 6 column(s), and the explanatory variables on the last (right hand side) column. A right arrow (→) indicates flow of Granger causality from dependent variable. A left arrow (←) indicates flow of Granger causality from explanatory variable. A right-left arrow (↔) indicates bidirectional flow of Granger causality. Statistically significant results at only 1% and 5% levels are reported. Variables are not log transformed.

4.2 Estimation methodology

To address endogeneity, we adopt a dynamic panel GMM approach in estimating the empirical model along the line of Arellano and Bond (1991).[25] To explain the GMM estimator, consider the following empirical model:

$$y_{i,t} = \alpha y_{i,t-1} + \beta' X_{i,t} + \mu_i + v_{i,t} \qquad i = 1, \ldots, N \qquad t = 1, \ldots, T \qquad (2)$$

where $y_{i,t}$ is the dependent variable and $X_{i,t}$ is the vector of explanatory variables, and the subscripts i and t denote country and time periods. The error term comprises unobservable country effect, μ_i, in addition to a disturbance term $v_{i,t}$. The lagged dependent variable is correlated with the country effect μ_i and thus the error term $\mu_i + v_{i,t}$ To eliminate the unobservable country effect, the GMM estimator takes the first difference:

$$\Delta y_{i,t} = \alpha \Delta y_{i,t-1} + \beta' \Delta X_{i,t} + \Delta v_{i,t} \qquad (3)$$

Although unobservable country effect is eliminated with differencing, there can still be an endogneity bias arising from the correlation between the lagged difference of the dependent variable and the error term. In this case instrumental variables are used. The *difference* GMM estimator uses the lagged levels of the explanatory variables as instruments on the conditions that the error term of the differenced equation is not serially correlated and that the lagged levels of the explanatory variables are weakly exogenous. The moment conditions therefore are written as:

$$E[y_{i,t-s}(v_{i,t} - v_{i,t-1})] = 0 \qquad \text{for } s \geq 2 \text{ ; } t = 3, \ldots, T \qquad (4)$$

$$E[X_{i,t-s}(v_{i,t} - v_{i,t-1})] = 0 \qquad \text{for } s \geq 2 \text{ ; } t = 3, \ldots, T \qquad (5)$$

When the dependent variable is highly persistent over time, the *difference* GMM suffers weak instrument problem and its asymptotic properties may be affected. In this case Arellano and Bover (1995) and Blundell and Bond (1998) the *difference* GMM estimator is augmented with estimation of the levels equation (equation 2) to produce *system* GMM estimator. For this equation, lagged differences of explanatory variables are used as instruments, assuming the absence of serial correlation in the

[25] For recent applications of GMM estimators see for example Che et al (2012), Sen et al (2007), and Rioja and Valev (2004).

error term, and between these instruments and the error term. The moment conditions are thus written as:

$$E[\Delta y_{i,t-s}(\mu_i + v_{i,t})] = 0 \qquad \text{for } s=1 \qquad (6)$$

$$E[\Delta X_{i,t-s}(\mu_i + v_{i,t})] = 0 \qquad \text{for } s=1 \qquad (7)$$

To ensure that the moment conditions (4-7) are satisfied, we test the lack of second-order serial correlation and use the Hansen/Sargan tests of over-identifying restrictions to test for instrument validity.

5. Empirical results

Table 2 provides mean debt stock for the sample countries. Among the middle income countries, Russia has the highest level of total debt, whether PPG or PNG. Its total debt amount for about $205 billion, of which $112 billion or 55 percent is PPG. On the other extreme, Botswana has the lowest level of debt stock of $0.54 billion, of which $0.51 billion or 94 percent in PPG. The highest percentage of PNG debt is in Kazakhstan with 82 percent. In per capita terms, Latvia has the highest total and PNG debt at about $5,700 and $2,700, respectively, while Panama has the highest PPG debt at about $1,900. In contrast, India and China have the lowest total and PPG debt at nearly $100 and $50, respectively. Among the low income countries, Bangladesh has the highest average of nearly $14 billion, of which nearly $13 billion or 93 percent is PPG. The highest share of PNG debt is in Mozambique, which stands at 12 percent.

Table 3, 4, and 5 present the estimation results using OLS, fixed effects, and the two-step system GMM estimation respectively. All estimates show high persistence in debt. OLS estimates show positive and statistically significant coefficient of political risk guarantee and default risk. For example in column 1 an increase in the number of treaties by 1 increases debt accumulation by US$ 0.4 billion, and an improvement in sovereign credit rating score by 1 increases it by US$1.4 billion. An increase in the cost of loanable funds reduces total and PPG debt stock and in per capita terms as well.

Compared to OLS estimates, the fixed effects coefficients of political risk guarantees are statistically significant only in total and per capita PNG debt. An improvement in default risk increases total and PNG debt accumulation only. The

negative and statistically significant effect of costs of loanable funds is experienced also for total and PNG debt only.

The system GMM estimation methodology is valid as suggested by the results of the Arellano-Bond test of autocorrelation, the Hansen *J* statistic, and the difference Hansen *J* statistic. The Arellano-Bond test of autocorrelation (AR2) suggests that there is no autocorrelation of order 2 in the error term. Testing for over-identifying restrictions, the Hansen *J* statistic suggests that the instruments, as a group, are uncorrelated with the error term, and thus appear exogenous, and the difference Hansen *J* statistic suggests that there is no correlation between the lagged differences of the explanatory variables and the error terms. We should note that due to the proliferation of instruments, we are reporting system GMM estimates, which are based on collapsing instruments, similar to Che et al (2012) who follow Roodman (2009).

GMM estimates of the lagged dependent variable are closer to the OLS than to the fixed effects estimates for total and PPG debt (and in per capita terms). The coefficients of PNG debt and PNG debt per capita are very different, however. For the former, it exceeds 1 and for the latter it is close to zero and statistically insignificant. The coefficients of political risk guarantee are much higher than the OLS and fixed effects coefficients. For example, an increase in the total number of bilateral investment treaties increases total and PPG debt by US$3.4 billion and US$ 2.3 billion, respectively, compared to OLS of US$ 0.4 billion and US$ 0.3 billion.

For default risk coefficients, GMM estimates stand in striking difference from the OLS and fixed effects estimates. All of them are negative and most of them are statistically insignificant.

TABLE 2
Debt in Low and Middle Income Countries

				Per Capita		
	Total Debt	PPG	PNG	Total Debt	PPG	PNG
	Low income					
Bangladesh	13.89	12.87	0.00	113.75	105.28	0.00
Burkina Faso	1.15	1.04	0.00	98.66	89.11	0.00
Kenya	6.10	4.76	0.34	223.91	170.74	15.16
Mozambique	4.87	3.75	0.60	292.74	228.64	34.61
Uganda	2.64	2.27	0.00	121.47	102.64	0.00
	Middle income					
Albania	1.63	1.06	0.21	516.59	337.09	65.43
Angola	10.80	9.07	0.00	772.79	650.97	0.00
Argentina	94.22	55.70	16.42	2635.36	1564.22	452.31
Azerbaijan	1.93	1.23	0.22	221.31	141.55	24.85
Belarus	5.73	1.67	0.55	587.00	170.69	56.96
Bolivia	4.94	3.59	0.83	662.71	492.90	96.90
Botswana	0.54	0.51	0.00	341.15	324.18	0.00
Brazil	173.11	84.67	58.83	1040.38	525.44	336.60
Bulgaria	14.54	6.54	4.06	1829.87	788.19	533.73
Cameroon	6.49	5.32	0.39	462.89	377.26	28.58
Chile	32.49	8.65	17.18	2177.46	619.40	1118.62
China	152.14	64.32	25.37	121.05	52.45	19.71
Colombia	26.95	17.11	6.04	698.76	446.82	150.28
Costa Rica	4.92	3.19	0.60	1396.66	939.63	156.78
Dominican Republic	5.37	4.03	0.20	652.63	491.56	23.67
Ecuador	13.05	9.40	1.78	1139.74	828.02	140.22
Egypt	32.42	28.14	0.47	533.96	459.26	8.28
El Salvador	4.38	2.86	0.78	750.34	494.67	128.75
Ghana	4.62	3.50	0.07	258.60	194.42	4.21
Guatemala	5.22	2.65	1.68	457.39	248.42	128.84
Honduras	3.92	3.12	0.33	696.96	559.61	53.90
India	101.58	63.29	25.58	98.68	64.05	22.31
Indonesia	98.72	54.99	25.70	473.81	267.16	119.97
Jamaica	5.41	4.04	0.49	2140.31	1606.29	181.43
Jordan	6.61	5.64	0.00	1593.85	1351.34	0.00
Kazakhstan	35.63	2.57	29.15	2292.37	167.36	1872.67
Latvia	13.13	1.43	6.13	5732.99	622.80	2686.77
Lebanon	8.88	6.70	0.34	2265.50	1684.36	87.08
Lithuania	10.57	3.00	4.64	3117.31	881.36	1373.73
Malaysia	35.39	16.78	10.19	1582.03	788.24	436.80
Mexico	134.36	83.92	25.36	1438.92	906.58	260.82
Mongolia	1.12	0.98	0.02	440.78	386.05	6.63

				Per Capita		
	Total Debt	PPG	PNG	Total Debt	PPG	PNG
Morocco	19.62	17.03	1.12	741.29	645.55	38.30
Nigeria	23.90	19.74	0.44	221.94	182.69	4.96
Pakistan	27.56	22.56	1.18	205.48	167.77	8.14
Panama	6.75	5.15	0.52	2480.92	1859.68	169.30
Papua New Guinea	2.27	1.27	0.82	482.14	270.32	174.17
Paraguay	2.57	1.74	0.33	520.39	361.85	62.07
Peru	23.81	16.21	2.90	978.23	668.61	109.80
Philippines	43.89	26.68	9.84	607.59	368.25	125.90
Russia	204.48	112.37	61.85	1409.86	771.13	430.43
Senegal	3.30	2.76	0.07	398.01	330.60	7.44
Serbia	17.89	8.60	6.30	3239.96	903.90	1871.75
South Africa	30.35	12.14	7.03	656.04	262.60	150.11
Sri Lanka	8.15	6.83	0.25	433.53	363.25	12.70
Thailand	49.52	14.84	17.70	805.14	245.29	284.87
Tunisia	11.22	8.71	0.73	1222.61	959.59	76.56
Turkey	101.58	47.33	29.26	1582.27	767.89	428.74
Ukraine	34.31	8.95	14.22	734.75	187.63	308.45
Uruguay	6.55	4.82	0.19	2016.71	1483.80	58.14
Venezuela	38.73	24.93	4.67	1782.98	1127.87	226.15
Vietnam	16.09	13.94	0.00	208.51	181.19	0.00
Zambia	5.41	3.74	0.22	625.58	431.03	19.44

Notes: Debt, PPG and PNG are measured in current US$ billion, while the per capita measures are in current US$.

TABLE 3
Debt Stocks, Political Risk Guarantees and Default Risk: OLS
Dependent variable: log (Debt in US$ billion)

VARIABLES	(1) Debt	(2) PPG	(3) PNG	(4) Debt/Capita	(5) PPG/Capita	(6) PNG/Capita
Lagged dependent	**0.986a**	**0.978a**	**0.889a**	**0.991a**	**0.992a**	**0.933a**
	(0.006)	(0.007)	(0.039)	(0.007)	(0.008)	(0.027)
P	**0.004a**	**0.003b**	**0.011c**	**0.004a**	**0.003b**	**0.015b**
	(0.001)	(0.001)	(0.006)	(0.001)	(0.001)	(0.007)
D	**0.014a**	**0.008c**	**0.058a**	**0.013a**	0.006	**0.041c**
	(0.005)	(0.005)	(0.022)	(0.005)	(0.005)	(0.023)
I	-0.003	**-0.011a**	**0.040b**	-0.004	**-0.012a**	**0.048b**
	(0.004)	(0.003)	(0.020)	(0.004)	(0.003)	(0.020)
M	0.000	-0.000	**-0.003c**	**0.001a**	**0.001b**	0.000
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)
Constant	-0.024	0.059c	-0.246	-0.034	0.023	-0.173
	(0.038)	(0.035)	(0.210)	(0.058)	(0.056)	(0.256)
Obs.	701	701	701	696	696	696
F statistic	7437	7562	203	4708	4388	313
R-squared	0.988	0.984	0.854	0.976	0.966	0.894

Notes: P is the rate of political risk guarantee, proxied by the total number of bilateral investment treaties signed with OECD countries. D is the rate of default on loans measured by S&P sovereign credit rating. I is the cost of loanable funds measured by 12-month Euro dollar LIBOR. M is the cost of exclusion from international capital markets proxied by percentage of imports of goods and services to GDPG. Robust standard errors are in parentheses. a, b, c denote significance at 1%, 5%, 10% level, respectively.

TABLE 4
Debt Stocks Political Risk Guarantees and Default Risk: Fixed Effects
Dependent variable: log (Debt in US$ billion)

VARIABLES	(1) Debt	(2) PPG	(3) PNG	(4) Debt/Capita	(5) PPG/Capita	(6) PNG/Capita
Lagged dependent	**0.881a**	**0.794a**	**0.692a**	**0.881a**	**0.800a**	**0.676a**
	(0.021)	(0.041)	(0.081)	(0.022)	(0.041)	(0.084)
P	0.001	0.001	**0.029c**	-0.000	-0.001	**0.035c**
	(0.002)	(0.002)	(0.016)	(0.002)	(0.002)	(0.018)
D	**0.020a**	0.001	**0.107a**	**0.019a**	0.002	**0.118a**
	(0.006)	(0.005)	(0.037)	(0.006)	(0.005)	(0.034)
I	**-0.013a**	**-0.022a**	0.021	**-0.013a**	**-0.020a**	0.022
	(0.004)	(0.004)	(0.023)	(0.004)	(0.004)	(0.019)
M	**0.002b**	-0.001	0.006	**0.002c**	-0.001	-0.001
	(0.001)	(0.001)	(0.007)	(0.001)	(0.001)	(0.005)
Constant	0.262a	0.655a	-0.810a	0.714a	1.398a	0.379
	(0.084)	(0.106)	(0.288)	(0.159)	(0.253)	(0.304)
Obs.	701	701	701	696	696	696
R-squared (within)	0.890	0.746	0.608	0.878	0.725	0.619
F test	873	210	129	625	128	119
Number of countries	57	57	57	57	57	57

Notes: P is the rate of political risk guarantee, proxied by the total number of bilateral investment treaties signed with OECD countries. D is the rate of default on loans measured by S&P sovereign credit rating. I is the cost of loanable funds measured by 12-month Euro dollar LIBOR. M is the cost of exclusion from international capital markets proxied by percentage of imports of goods and services to GDPG. Robust standard errors are in parentheses. a, b, c denote significance at 1%, 5%, 10% level, respectively.

TABLE 5
Debt Stocks, Political Risk Guarantees and Default Risk:
Two-Step System GMM
Dependent variable: log (Debt in US$ billion)

VARIABLES	(1) Debt	(2) PPG	(3) PNG	(4) Debt/Capita	(5) PPG/Capita	(6) PNG/Capita
Lagged dependent	**0.964a**	**0.939a**	**1.027a**	**0.962a**	**0.946a**	0.013
	(0.026)	(0.026)	(0.057)	(0.112)	(0.110)	(0.394)
P	**0.034a**	**0.023b**	0.003	**0.059a**	**0.060a**	**0.523b**
	(0.008)	(0.009)	(0.025)	(0.018)	(0.020)	(0.265)
D	-0.015	0.009	-0.020	**-0.052b**	**-0.073c**	0.305
	(0.040)	(0.031)	(0.069)	(0.021)	(0.039)	(0.294)
I	0.010	-0.010	0.070	0.008	-0.009	0.104
	(0.007)	(0.008)	(0.058)	(0.008)	(0.009)	(0.096)
M	0.002	-0.000	0.008	0.010b	0.009	-0.003
	(0.003)	(0.002)	(0.010)	(0.005)	(0.006)	(0.029)
Constant	-0.277b	-0.084	-0.393	-0.515	-0.264	-3.842
	(0.135)	(0.141)	(0.752)	(0.713)	(0.782)	(2.779)
Obs.	401	401	401	399	399	399
Instruments	65	65	65	66	66	66
Wald test (*p* value)	0.000	0.000	0.000	0.000	0.000	0.002
AR(2)	0.902	0.245	0.302	0.643	0.122	0.369
Hansen *J* test	0.915	0.909	0.851	0.924	0.880	0.956
GMM Instruments						
Hansen *J* test	0.882	0.823	0.850	0.937	0.921	0.960
Difference Hansen *J* test	0.966	1.000	0.406	0.280	0.141	0.371
IV						
Hansen *J* test	0.904	0.910	0.875	0.913	0.868	0.975
Difference Hansen *J* test	0.568	0.438	0.296	0.580	0.541	0.201
Number of countries	52	52	52	52	52	52

Notes: P is the rate of political risk guarantee, proxied by the total number of bilateral investment treaties signed with OECD countries. D is the rate of default on loans measured by S&P sovereign credit rating. I is the cost of loanable funds measured by 12-month Euro dollar LIBOR. M is the cost of exclusion from international capital markets proxied by percentage of imports of goods and services to GDPG. GMM instruments are the lagged dependent variable and the total number of bilateral investment treaties signed with OECD countries. IV instruments are the percent of public spending on education to GDP, total health expenditures to GDP, and (log) FDI stock. Robust standard errors are in parentheses. a, b, c denote significance at 1%, 5%, 10% level, respectively.

6. Conclusion

This paper has started off with the challenge of sustainable large capital inflows that emerging markets face in the aftermath of the global financial crisis starting 2007. To sustain debt flows, it is important to understand its debt determinants taking into account the importance of guaranteed debt in debt composition and the proliferation of bilateral investment treaties as a means to guarantee political risk and promote financial integration. The paper conceptualizes a number of mechanisms through which bilateral investment treaties can influence

international lending. The paper empirically finds that signed bilateral investment treaties with OECD countries have a positive influence on total and guaranteed debt accumulation, under system GMM and OLS estimation methodologies.

The results of the paper show creditors extending guaranteed loans positively respond to political risk guarantees of bilateral investment treaties, suggesting complementarity of guarantees against default and political risk for low and middle income countries. The evidence for non-guaranteed loans calls for further investigations, however. Finally the results suggest that the role of bilateral investment treaties extends beyond attracting FDI to international lending.

References

Alfaro, L., Kalemli-Ozcan, S., Volosovych V., 2008. Why doesn't capital flow from rich to poor countries? An empirical investigation. Review of Economics and Statistics 90, 347-368.

Agenor, R.-P., 2003. Benefits and costs of international financial integration: Theory and facts. World Economy 26, 1089-1118.

Asiedu, E., 2006. Foreign direct investment in Africa: The role of natural resources, market size, government policy, institutions and political instability. World Economy 29, 63-77.

Arellano, M., Bond, S., 1991. Some tests of specification for panel data: Monte Carlo evidence with an application for employment equations. Review of Economic Studies 58, 277-297.

Arellano, M., Bover, O., 1995. Another look at the instrumental variable estimation of error-components models. Journal of Econometrics 68, 29-51.

Blundell, R., Bond, S., 1998. Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics 87, 115-143.

Brana, S., Lahet, D., 2010. Determinants of capital inflows into Asia: The relevance of contagion effects as push factors. Emerging Markets Review 11, 273-284.

Burnside, C., Eichenbaum, M., Rebelo, S., 2004. Government guarantees and self-fulfilling speculative attacks. Journal of Economic Theory 119, 31–63.

Busse, M., Hefeker, C., 2007. Political risk, institutions and foreign direct investment. European Journal of Political Economy 23, 397-415.

Calvo, G. A., Leiderman, L., Reinhart, C. M., 1996. Inflows of capital to developing countries in the 1990s. Journal of Economic Perspectives 10, 123-139.

Che, Y., Lu, Y., Tao, Z., Wang, P., 2012. The impact of income on democracy revisited. Journal of Comparative Economics (forthcoming), http://dx.doi.org/10.1016/j.jce.2012.05.006.

Chuhan, P., Perez-Quiros, G., Popper, H., 1996. International capital flows: Do short-term investment and direct investment differ? PRE Working Paper No. 16669. World Bank.

Daude, C., Fratzscher, M., 2008. The pecking order of cross-border investment. Journal of International Economics 74, 94-119.

Daude, C., Stein, E., 2007. The quality of institutions and foreign direct investment. Economics and Politics 19, 317-344.

De Santis, R. A., Lührmann, M., 2009. On the determinants of net international portfolio flows: A global perspective. Journal of International Money and Finance 28, 880-901.

Demirgüç-Kunt, A., Detragiache, E., 2002. Does deposit insurance increase banking system stability? An empirical investigation. Journal of Monetary Economics 49, 1373-1406.

Demsetz, R.S., Saidenberg, M. R., Strahan, P. E., 1996. Banks with something to lose: The disciplinary role of franchise value. Federal Reserve Bank of New York Economic Policy Review October, 1-14.

Desbordes, R., Vicard, V., 2009. Foreign direct investment and bilateral investment treaties: An international political perspective. Journal of Comparative Economics 37, 372-386.

Diamond, D. W., Dybvig, P. H., 1983. Bank runs, deposit insurance, and liquidity. Journal of Political Economy 91, 401-19.

Du, J., Lu, Y., Tao, Z., 2008. Economic institutions and FDI location choice: Evidence from US multinationals in China. Journal of Comparative Economics 36, 412-429.

Eaton, J., Gersovitz, M., 1981. Debt with potential repudiation: Theoretical and empirical analysis. Review of Economic Studies 48, 289-309.

Egger, P., Pfaffermayr, M., 2004. The impact of bilateral investment treaties on foreign direct investment. Journal of Comparative Economics 32, 788-804.

Egger, P., Merlo, V., 2007. The impact of bilateral investment treaties on FDI dynamics. World Economy 30, 1536-1549.

Faria, A., Mauro, P., 2009. Institutions and the external capital structure of countries. Journal of International Money and Finance 28, 367-391.

Fernandez-Arias, E., 1996. The new wave of private capital inflows: Push or pull? Journal of Development Economics 48, 389-418.

Fernandez-Arias, E., Hausmann, R., 2001. Is foreign direct investment a safer form of financing? Emerging Markets Review 2, 34-49.

Fratzscher, M., 2012. Capital flows, push versus pull factors and the global financial crisis, Journal of International Economics (forthcoming).

Ginsburg, T., 2005. International substitutes for domestic institutions: Bilateral investment treaties and governance. International Review of Law and Economics 25, 107-203.

Gropp, R., Gruendl, C., Guettler, A., 2012. The impact of public guarantees on bank risk taking: evidence from a natural experiment. http://ssrn.com/abstract=1536032.

Guttentag, J., Herring, R., 1983. The Lender-of-Last-Resort Function in an International Context. Essays in International Finance No. 151. Princeton: International Finance Section, Department of Economics, Princeton University.

Hallward-Driemeier, M., 2003. Do bilateral investment treaties attract FDI? Only a bit…and they could bite. World Bank Policy Research Working Paper 3121.

Honohan, P., Klingebiel, D., 2003. The fiscal cost implications of an accommodating approach to banking crises. Journal of Banking and Finance 21, 1539-1560.

Hooper, V., Kim, S.-J., 2007. The determinants of capital inflows: Does opacity of recipient country explain the flows? Economic Systems 31, 35-48.

International Monetary Fund, 2003. External debt statistics: Guide for compilers and users. Washington DC: International Monetary Fund.

Kane, E., Klingebiel, D., 2004. Alternatives to blanket guarantees for containing a systemic crisis. Journal of Financial Stability 1, 31-63.
Kerner, A., 2009. Why should i believe you? The costs and consequences of bilateral investment treaties. International Studies Quarterly 53, 73-102.
Kim, S.-J., Wu, E., 2008.Sovereign credit ratings, capital flows and financial sector development in emerging markets. Emerging Markets Review 9, 17–39.
Kraay, A., Nehru, V., 2004. When is external debt sustainable? World Bank Policy Research Working Paper 3200.
Laeven, L., Valencia, F., 2008. The use of blanket guarantees in banking crises. IMF Working Paper 08/250.
Lane, P. R., 2004. Empirical perspectives on long-term external debt. Topics in Macroeconomics 4, 1-21. Available at http://www.bepress.com/bejm/topics/vol4/iss1/art1.
Lucas, R. E., 1990. Why doesn't capital flow from rich to poor countries?, American Economic Review (Papers and Proceedings) 80, 92–96.
Masson, P., 1999. Contagion: Macroeconomic models with multiple equilibria. Journal of International Money and Finance 18, 587–602.
Mina, W., 2006. Does contract enforcement matter for international lending? Applied Economics Letters 13, 359-364.
Mina, W., Martinez-Vazquez, J., 2006. Contract enforcement, institutional stability and the level and maturity of international lending. International Studies Program Working Paper 06-17, Andrew Young School of Policy Studies, Georgia State University.
Mina, W., 2009. External commitment mechanisms, institutions, and FDI in GCC counries. Journal of International Financial Markets, Institutions & Money 19, 371-386 .
Mina, W. M., 2011. Institutional reforms debate and FDI flows to MENA region: Does one “best” fit all? UNU-WIDER Working Paper No. 2011/50.
Mina, W. M., 2012. The institutional reforms debate and FDI flows to the MENA region: The “best” ensemble”. World Development 40, 1798-1809.
Mishra, A., Daly, K., 2007. Effect of quality of institutions on outward foreign direct investment. Journal of International Trade and Economic Development 16, 231-44.
Naude, W. A., Krugell, W. F., 2007. Investigating geography and institutions as determinants of foreign direct investment in Africa using panel data. Applied Economics 39, 1223-33.
Neumayer, E., Spess, L., 2005. Do bilateral investment treaties increase foreign direct investment to developing countries? World Development 33, 1567-1585.
Papaioannou, E., 2009. What drives international financial flows? Politics, institutions and other determinants. Journal of Development Economics 88, 269-281.
Rioja, F., Valev, N., 2004. Finance and the sources of growth at various stages of economic development. Economic Inquiry 42, 127-140.
Roodman, D., 2009. How to do Xtabond2: an introduction to difference and system GMM in Stata. Stata Journal 9, 86–136
Sarno, L., Taylor, M. P., 1999. Hot money, accounting labels and the performance of capital flows to developing countries: An empirical investigation. Journal of Development Economics 59, 337-364.
Sen, S., Kasibhatla, K. M., Stewart, D. B., 2007. Debt overhang and economic growth–the Asian and the Latin American experiences. Economic Systems 31, 3-11.

Stiglitz, J. E., 2000. Capital market liberalization, economic growth, and instability. World Development 28, 1075-1086.
Tobin, J., Rose-Ackerman, S., 2006. When BITs have similar bite: The political economic environment for bilateral investment treaties. Yale Law School, November.
Van Rijckeghem, C., Weder, B., 2001. Sources of contagion: is it finance or trade? Journal of International Economics 54, 293-308.
Wei, S.-J., 2000. How taxing is corruption on international investors? Review of Economics and Statistics 82, 1-11.
Wei, S.-J., Wu, Y., 2001. Negative alchemy? Corruption, composition of capital flows, and currency crises. NBER Working Paper 8187. Cambridge, MA.
UNCTAD, 1998. Bilateral Investment Treaties in the Mid-1990s. United Nations: Geneva.

Appendix A

S&P Letter Credit Rating Transformation Methodology

Transforming S&P's foreign currency, long-term debt credit rating into numerical scores follows the scoring system provided in the table below. Foreign currency, as opposed to local currency, rating is selected based on the assumption that low and middle income countries' investment and trade finance needs are mostly in foreign currency. Long, as opposed to short, term rating is selected due to the long-term nature of PPG and PNG debt, as discussed in section 4. S&P ratings are obtained from S&P's "Sovereign Rating And Country T&C Assessment Histories" issued on September 10, 2012, which covers historical ratings as of August 31, 2012.[26]

The score that a country gets in a given year is the average of assigned ratings throughout the year weighted by the number of months for which the rating(s) held. For example, if a country was assigned "AAA" rating for any six months during the year, and "AA" for the remaining six months, the numerical score is 9.5, which is calculated as [10*(6/12)]+[9*(6/12)].

We should note that counting the number of months to which a rating is assigned is inclusive of that month. For example, if an "A" rating is assigned in March and lasts until December of the same year, then the rating applies to 10 months. Also, if for any given month two different scores is assigned, the score that lasts for more number of days applies to that month.

[26] I am very grateful to Marie Cavanaugh of Standard & Poors for sharing with me such data.

Unlike Kim and Wu (2008) and Gande and Parsley (2005), we do not account for outlook in rating transformation. This is for two reasons. First, if the outlook is realized and therefore reflected in the next rating, the weighted average scoring methodology will account for the *realized* outlook. Second, the majority of low income countries and nearly half of middle income countries foreign debt is PPG, the response of which to sovereign rating is statistically insignificant.

TABLE A1

S&P Credit Ratings and Scores

S&P Credit Rating	Numerical Score
AAA	10
AA	9
A	8
BBB	7
BB	6
B	5
CCC	4
CC	3
C	2
D	1
SD	0

Notes: "+/-" raises/reduces the score by 0.33. For example, an "A-" is 7.67, while a "BBB+" is 7.33.

Table A2: Sample countries with Average S&P Scores

Country	Period	Average S&P Score	Country	Period	Average S&P Score
Middle Income					
Albania	2010-2012	5.3	Mexico	1992-2012	6.6
Angola	2010-2012	5.6	Mongolia	1999-2012	4.9
Argentina	1993-2012	4.6	Morocco	1998-2012	6.2
Azerbaijan	2008-2012	6.5	Nigeria	2006-2012	5.4
Belarus	2007-2012	5.2	Pakistan	1994-2012	4.5
Bolivia	1998-2012	5.0	Panama	1997-2012	6.3
Botswana	2001-2012	**7.9**	Papua New Guinea	1999-2012	5.2
Brazil	1994-2012	5.8	Paraguay	1995-2012	4.6
Bulgaria	1998-2012	6.4	Peru	1997-2012	5.8
Cameroon	2003-2012	4.4	Philippines	1993-2012	6.0
Chile	1993-2012	7.6	Russia	1996-2012	5.4
China	1992-2012	7.5	Senegal	2000-2012	5.3
Colombia	1993-2012	6.2	Serbia	2004-2012	5.2
Costa Rica	1997-2012	5.8	South Africa	1994-2012	6.6
Dominican Republic	1997-2012	4.9	Sri Lanka	2005-2012	4.6
Ecuador	2000-2012	**4.1**	Thailand	1989-2012	7.2
Egypt	1997-2012	6.3	Tunisia	1997-2012	6.7
El Salvador	1996-2012	6.0	Turkey	1992-2012	5.4
Ghana	2003-2012	4.9	Ukraine	2001-2012	4.9
Guatemala	2001-2012	5.6	Uruguay	1994-2012	5.7
Honduras	2008-2012	4.3	Venezuela	1980-2012	5.9
India	1990-2012	6.2	Vietnam	2002-2012	5.6
Indonesia	1992-2012	5.3	Zambia	2011-2012	4.9
Jamaica	1999-2012	4.9			
Jordan	1995-2012	5.6	**Low Income**		
Kazakhstan	1996-2012	6.0	Bangladesh	2010-2012	**5.7**
Latvia	1997-2012	7.0	Burkina Faso	2004-2012	5.0
Lebanon	1997-2012	5.0	Kenya	2006-2012	4.7
Lithuania	1997-2012	7.0	Mozambique	2004-2012	5.2
Malaysia	1989-2012	7.7	Uganda	2008-2012	**4.4**

Notes: Although credit ratings data end in 2012, sample period ends in 2010 with the end of WDI online data.