

## A Sovereign's Cost of Capital: Go Foreign or Stay Local

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### Abstract

A critical question faced by any sovereign seeking to raise funds in the bond market is whether to issue the debt under foreign or local parameters. This choice determines other key characteristics of any bond issue such as which banks, lawyers, and investors will be involved. Most important though, this decision involves a tradeoff between the sovereign retaining discretion in managing the issue and relinquishing control of the issue to third parties to prevent the sovereign from expropriating wealth from bondholders in the future. Based on a sample of 17,349 issuances by 117 sovereigns between 1990 and 2015, we investigate this question in the context of the initial pricing of government bonds. We examine the three key factors that bear on this decision; governing law, currency, and exchange listing. We find that highly-rated sovereigns, with strong domestic institutions that protect investors, almost always issue debt under domestic parameters. In contrast, low-rated sovereigns with weak domestic institutions tend to issue debt under foreign parameters. These findings suggest that low-quality sovereigns are forced to issue debt under foreign parameters to assure investors that the sovereign will not act opportunistically to expropriate their wealth once the debt is issued. Put differently, low-quality sovereigns that issue debt under domestic parameters face a higher cost of capital.

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## 1. Introduction

The threshold question faced by any sovereign seeking to raise funds in the bond market is whether to do the issuance under foreign or local parameters. This choice then determines a number of other key characteristics of any bond issue such as which banks, lawyers, and ultimately investors will likely be involved. Most important, the decision involves a tradeoff between the sovereign retaining control of the issue by relying on local parameters or relinquishing a certain degree of control by issuing under foreign parameters. Based on a sample of 117 sovereigns issuing 17,349 bonds between 1990 and 2015, we examine three contractual factors that are the key determinants of where a particular issuance falls on the local versus foreign continuum: governing law, currency and the exchange on which the issue is listed.

The empirical research on the impact of the choice between local and foreign parameterized bonds on a government's cost of capital is sparse. There are a handful of studies that have examined one or the other of the aforementioned parameters. However, the studies have generally been relatively narrow in scope (focusing, for example, on the Eurozone debt crisis of 2010-2013) and have not been focused on the question of the sovereign's cost of capital (focusing rather on price movements during periods of financial distress) (E.g., Choi & Gulati 2016; Chamon, Schumacher & Trebesh 2015; Clare & Schmidlin 2014). In this article, we attempt to take a broader view of the question –looking at the full set of salient local and foreign parameters in the typical bond and doing so over a quarter century of data for the entire global market.

Recent interest in the question of local versus foreign parameters has been largely inspired by the restructuring of the debt of Greece in 2012. In March of 2012, Greece conducted one of the most brutal sovereign debt restructurings ever, forcing the majority of its creditors to take Net Present Value (NPV) haircuts in the range of 60-75%. Greece was able to do this, without going into legal default, because it took advantage of the fact that over 90% of its outstanding bonds were governed by local Greek law. That fact allowed the Greek legislature to pass a law retroactively inserting certain provisions into those debt contracts that were governed by local law. Specifically, the provision (formally a “retrofit collective action clause”) enabled Greece to induce the holders of domestic bonds to exchange their holdings for a new issue that reduced the face value of the debt and extended its maturity relative to the terms in the original issue. Given the fact that the bonds were written under local law, the creditors were in a weak bargaining position. They did, however, make several demands regarding the terms of the new restructured bonds. Anticipating

that Greece would soon be in financial difficulties again, they demanded that the new bonds be governed by English law rather than local Greek law. At the time of the exchange Greece also had a small number of creditors who held bonds governed by a variety of foreign laws (English, Japanese and Swiss). The terms of these bonds could not, therefore, be altered by Greek legislative fiat. Greece tried to induce the holders of these bonds to voluntarily take the same haircut that it offered the holders of local law bonds. However, those bondholders who refused to participate in the exchange, so-called holdouts, were paid in full and on time. (For details see Zettelmeyer, Trebesh & Gulati 2013; Chamon, Trebesh & Schumacher 2014).<sup>1</sup>

Building on the facts of the Greek restructuring, a number of recent researchers have examined whether investors who held bonds governed by foreign law fared better than those who held bonds governed by domestic law as the crisis in the Euro area worsened during the 2010-2013 period. Consequently, these studies examine a small number of sovereigns nearing financial distress, over a relatively short period of time and denominated in a single currency (the euro) (Chamon, Trebesch & Schumacher 2015; Nordvig 2015; Clare & Schmidlin 2014). For example, Chamon et al. study 100 bonds of 8 sovereigns over the period 2007 to 2014; Clare and Schmidlin study a sample of 400 bonds from 2008 through 2012; and Nordvig examines 137 pairs of bonds issued by 7 sovereigns from 2009 to 2014. In contrast, our article examines the contract terms of over 17,000 issuances by 117 countries over the period 1990–2015.

Our contribution to the literature is threefold. First, we examine a much greater number of sovereigns and bonds than prior work. Second, we do so over a significantly larger and broader dataset than the prior work. Third, we focus on when-issued prices as opposed to prices in the secondary market. This is an important distinction since a sovereign's cost of capital is determined by the price when the bonds are issued. Subsequent prices in the secondary market are irrelevant to the sovereign's cost of capital.

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<sup>1</sup> Greece was neither the first sovereign to have taken advantage of its control over local law to significantly reduce its financial obligations, nor will it be the last. In 1998 Russia imposed large haircuts on domestic law bonds in order to avoid a full-scale default. Untouched were its bonds governed by foreign law (Duffie, Pedersen & Singleton 2003; Gelpern 2015). The same occurred with Jamaica in 2000 (Erce & Diaz-Cassou 2010). And during the Great Depression of the 1930s, the U.S. government used its control over the governing law to engineer a transfer of resources from creditors to debtors by legislatively abrogating the gold clauses in all domestic debt contracts (Kroszner 1998).

As illustrated by the Greek episode, having its debt governed by local law gives a sovereign debtor leeway in restructuring its debt in times of crisis. A similarly powerful weapon is having the debt denominated in local currency. As an historical matter, there are a number of instances in which governments in financial crisis exploited the fact that their debt was denominated in domestic currency and increased their money supply in order to inflate their way out of their debt obligations (Reinhart & Rogoff 2008; Reinhart & Rogoff 2011; Gelpern 2015).

Research on the question of whether a sovereign's choice to denominate its debt in local or foreign currency, however, has largely focused on the fact that until recently many emerging market issuers have not been able to borrow in anything but foreign currencies (Eichengreen & Hausmann 1999 & Eichengreen, Hausmann & Panizza 2005). There is some research indicating that yields on domestic currency bonds are higher than those denominated in foreign currencies, but this research has focused only on the subset of emerging market issuers (Gadanecz, Miyajima & Shu 2014). Further, the impact of local versus foreign governing laws and exchange listings are ignored in this literature on currency denomination.

Finally, a third contract term that gives a sovereign leeway in times of crisis is whether its bonds are listed on a local or foreign exchange. Stock exchanges are the primary regulators of the sovereign debt market and dictate the periodic disclosures that debtors have to make to investors. Leeway from the exchange in terms of what information the sovereign has to disclose and when it must be disclosed could help buy the sovereign valuable time during a crisis. As best we are aware, however, there is no research examining the pricing impact of foreign versus local listing in the sovereign debt markets. There is, however, a related literature in the corporate area suggesting that equity prices of foreign corporations rise when they list their stock in a jurisdiction with stronger disclosure and investor protection requirements such as the U.S. (Doidge, Karolyi & Stulz 2004). The rationale being that subjecting the firm to the listing and reporting requirements of the SEC and U.S. exchanges reduces the ability of management to expropriate wealth from its stockholders (Karolyi 2006, Witmer 2006).

At first blush, one might presume that creditors would always prefer that sovereigns denominate their bonds in foreign currencies, have them governed under foreign law and list them on a foreign exchange. After all, having the currency, exchange and governing law all being local gives the issuing sovereign a "home field" advantage in any disputes that might arise with its investors. This is particularly true if the sovereign experiences financial difficulties and threatens

to default on its debt obligation. Conversely, one would expect that sovereigns would prefer to retain control over the issue by having their debt denominated in local currency, listed on a local exchange and governed by local law.

Of course investors will price these factors when considering buying a sovereign bond. Investors will price protect themselves and discount the price that they are willing to pay for a given issue by the expected ex post expropriation by the sovereign. Thus, in a sense, the sovereign pays ex ante for the expected expropriation that it might extract from bondholders after the debt is issued. Since sovereigns pay ex ante for any expected ex post expropriation, they have an incentive to minimize these costs. One way to reduce the apprehension that investors would have is to have a third-party control the execution of the terms of a loan agreement. And perhaps the best way for a sovereign to assure investors that the terms of the debt will be honored is for the sovereign to write the debt contract in terms of a foreign currency (eliminating the possibility of inflating its way out of a financial crisis), list on a foreign exchange (subjecting itself to disclosure, reporting and listing standards imposed by a party outside of its control), and have the contract governed by foreign law (precluding the sovereign from rewriting the law to alter the provisions of its outstanding debt).

In addition to the three parameters under study, sovereign bonds (particularly those governed by foreign laws) contain dozens of additional contract terms (For a description, see Choi, Gulati & Posner 2012). These are secondary factors in that they are less powerful than terms like governing law or currency in terms of giving a sovereign the ability to expropriate value from creditors (if denominated as local). Put differently, the secondary terms only come into play when the bond is governed by foreign parameters. A small body of scholarship has attempted to analyze the pricing impact of a handful of the key secondary contract terms (in particular the Collective Action Clause or CAC) (Eichengreen & Mody 2004; Gugiatti & Richards 2004; Bradley & Gulati 2014). However, for the reasons mentioned above, this scholarship has focused on analyzing only bonds issued under foreign parameters; the primary focus being emerging market bonds under English or New York law. Put differently, this scholarship on the pricing of CACs tells us little about the pricing impact of the choice to go foreign or stay local.

As a theoretical matter, although minimizing the risk of expropriation is probably of paramount concern for investors in choosing between foreign and local parameterized bonds, there are counteractive factors that they must consider when choosing the type of bond in which to

invest. If investors perceive that it is highly unlikely that the sovereign will default on its debt obligations, they may prefer that the sovereign retain control of the debt in order to give it the greatest latitude in dealing with financial difficulties should they arise. In the next section we discuss the tradeoff between discretion versus potential expropriation.

## **2. Discretion vs. Potential Expropriation**

Investors in sovereign debt always face some risk that the issuer will seek to extract value from them. After all, governments have enormous power both in terms of the ways in which they can extract value from investors (taxes, currency manipulation, threats of criminal sanctions) and in the difficulty that investors will typically have in seeking redress for government misbehavior (sovereign immunity rules, biases of local judges, reluctance of foreign governments to allow suits against other governments in their jurisdictions). Governments seeking to attract investors, therefore, face the problem of assuring investors that they will not utilize the power they have to extract value from those investors. Balancing the tradeoff between discretion (flexibility) and the potential for expropriation in writing sovereign debt contracts has long interested researchers (e.g., North and Weingast 1989; Stasavage 2002; Jensen 2008).

Our analysis draws informally on the literature on incomplete contracting (e.g., Tirole 1999). An important reason why contracts are often left incomplete is that certain contingencies are either not observable or not verifiable in court, making it difficult to contract directly on such contingencies (Hart 1995; Maskin 2001). Our interest is in one particular contingency: the prospect of a financial crisis that may lead to default. Sovereign defaults are extremely costly to all involved. Unemployment and inflation tend to rise, the ability to borrow and trade diminishes dramatically, and there tends to be general political instability (Borensztein & Panizza, 2008). Thus, both creditors and debtors at the near-default stage have an incentive to avoid default. The problem though is that important decisions need to be made quickly during times of crisis if default is to be avoided. And creditors of a sovereign, because they often tend to be dispersed and large in number, are hard to coordinate quickly. In addition to the obvious problems of coordinating a large and dispersed group of investors, additional problems arise when there is a limited pool of resources that has to be divided. Subsets of creditors may try to lobby to have their portions of the debt stock exempted on the grounds that they are somehow especially important and others may threaten to hold out. Ideally, then, the ex-ante incentives of the creditor group will be to delegate

decision making – including decision making regarding how much value, if any, to extract from creditors in a near-default scenario – to the debtor’s representative (the expert government officials). The risk though is that those government officials will abuse that discretion to extract value from creditors and transfer them to other constituencies (for example, domestic voters who might reward such behavior by retaining the government officials).

The implication of the above is that dispersed creditors have both an incentive to grant discretion to domestic officials (the expert decision makers best able to tackle a crisis situation) and an incentive to constrain those same officials (because the officials might be tempted to use any discretion that they have to transfer value from creditors to local taxpayers/voters). Within that framework, the question facing sovereigns is what combination of foreign and domestic parameters minimizes the sovereign’s cost of capital. The point can be made with a simple analogy. Consider an employee who is smart, knowledgeable and trustworthy. Granting such an employee discretion can be a value-enhancing proposition since she can use that discretion to make even better decisions than her superiors. However, if the employee is some combination of ignorance, inexperience and a proclivity for thievery, granting discretion can result in disaster – funds get stolen or wasted. In short, employers would like to grant discretion; but only under those conditions where they have reason to expect that that discretion will be made to work for their benefit. The analogy to be made regarding sovereign debt is that creditors will grant discretion (that is, lend under local parameters) when they can trust the governments to make good decisions. And they will constrain the issuer (by requiring foreign-based parameters), when the sovereign cannot be trusted.

The foregoing is consistent with the literature on “credible commitments,” which suggests that there are ways other than formal contracting based on third-party control for a sovereign to assure creditors that it will make the kinds of decisions that will ultimately benefit creditors. For example, the sovereign might over time build a strong enough reputation for honoring its obligations to debtholders such that the sovereign would not lightly risk losing the relatively low borrowing rates that a good reputation allows. Or the sovereign might invest in building strong domestic institutions such as an independent judiciary and an independent central bank that might constrain it from the temptation to expropriate wealth from private persons (North & Weingast

1989; Saiegh 2015).<sup>2</sup> In short, if the sovereign has enough internal controls to ensure that discretion over local parameters will be used wisely, then investors might not require a higher interest rate on bonds based on local parameters.<sup>3</sup> To reiterate the point made above, if the sovereign is trustworthy due to its internal controls, investors may affirmatively want to give the sovereign latitude or flexibility in resolving any problems that might arise regarding repayment of the debt. As long as there is a low probability that the sovereign will default, it benefits both issuing sovereigns and investors if the debt is written in local terms so that the issuer can exploit its expertise in dealing with local conditions. Allowing the sovereign to retain management of their bonds gives the sovereign the ability to respond to a financial crisis with speed — something that would be difficult to do if the sovereign had to negotiate permission from its dispersed bondholders every time it needed to make a key policy decision.<sup>4</sup> Finally, there are likely to be cost savings for both the issuer and investors from doing local issuances (no need for expensive foreign lawyers, bankers, auditors and so on).

Our results are consistent with the foregoing explanation. We find that it is primarily the high-quality sovereigns, as measured by S&P ratings and the World Bank's legal quality measures that issue bonds based on domestic parameters. Conversely, we find that low-quality sovereigns typically issue bonds based on foreign parameters. Apparently the market is reluctant to buy their bonds if they are governed by domestic parameters. In other words, low-quality sovereigns must relinquish control of their debt in order to entice investors to buy their debt. Finally, we find that bonds issued by lower-quality sovereigns that are written under local parameters suffer a significant discount (a lower issue price) as compared to bonds written under foreign parameters. In short high-quality sovereigns issue debt under domestic parameters because they can. They do not have to relinquish control of their debt to a third party in order to get the issue sold. In contrast

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<sup>2</sup> The foundational article in this area, North and Weingast (1989), argued that 17<sup>th</sup> century England was able to become a dominant world power because it built strong domestic institutions to constrain the monarch's tendencies to expropriate, that in turn significantly enhanced the sovereign's ability to borrow. The claim has been challenged by scholars who argue that strong domestic institutions are not as important to sovereign borrowing as North and Weingast claimed (Stasavage 2003; Mauro, Sussman & Yafeh 2006). Empirical testing, however, has proved difficult (Saiegh 2015).

<sup>3</sup> On the point that greater credibility in terms of monetary and fiscal policy can lead to increased ability to issue local currency sovereign bonds, see Jeanne (2003); Claessens, Klingebiel & Schmukler (2007).

<sup>4</sup> This is sometimes referred to as the balance between flexibility and commitment (Eichengreen & Mody 2004; Mody 2004). Lenders, Eichengreen and Mody explain, affirmatively want to give rich (and credible) countries flexibility, but want to constrain the weak (and less credible) countries.



low-quality firms issue debt based on foreign parameters presumably because they cannot issue bonds based on domestic parameters because of investors' fear of expropriation.

The remainder of this paper is organized as follows. In the next Section we describe our data sources and provide an overview of our sample. Section 4 reports the results of our analysis for the full sample of bonds, examining the impact of the decision to use foreign versus local parameters on spreads while controlling for factors such as the economic strength of the issuer and the quality of its institutions. Section 5 narrows the analysis to the subset of issuances where we have the same issuer issuing pairs of bonds under local and foreign parameters at roughly the same time and with roughly the same maturities. Section 6 concludes.

### **3. Data Description**

We draw our data from three sources: Thomson One Banker, Perfect Information, and DCM Analytics. These are the three major sources of data on sovereign bond contracts. From these sources, we extracted all of the bonds from the post-World War II period. The data from these sources are almost all from the period after 1985. For the prior issuances, we collected data on the bonds available from the archives housed at the Library of Congress, Guildhall, and the Harvard Business School Library. For each of the bonds, we coded our key contract variables (Law, Listing and Currency).

Our data sources are all private vendors who sell data access to investors. This produces a bias in that investors tend to be more interested in contract information from weaker sovereigns; where the contract terms might actually be relevant. Indeed, the strongest sovereign issuers – the traditional AAA issuers such as U.S., Japan, Germany, the Netherlands, and France – typically do not provide prospectuses or offering circulars with anywhere near the amount of detail that their weaker brethren produce.

Figure 1 shows the general evolution of the sovereign bond market in the post-World War II period. The data show that the market was essentially nonexistent in the first four decades after the war.<sup>5</sup> The number of issues increased substantially around 1990, as the Latin American debt crisis came to a close. Figure 1 reports the data by the foreign versus local dichotomy. The data show the number of observations in which all three of the parameters are local or foreign or some combination thereof. In the initial years, the preponderance of issuances were written under

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<sup>5</sup> For greater detail on this evolution, *see* Flandreau et al. 2011.

foreign parameters. As the market matured and grew in size, the fraction of bonds written under all local parameters grew.<sup>6</sup>

**Figure 1. Sovereign Issuances, 1958 – 2015, Total Sample**

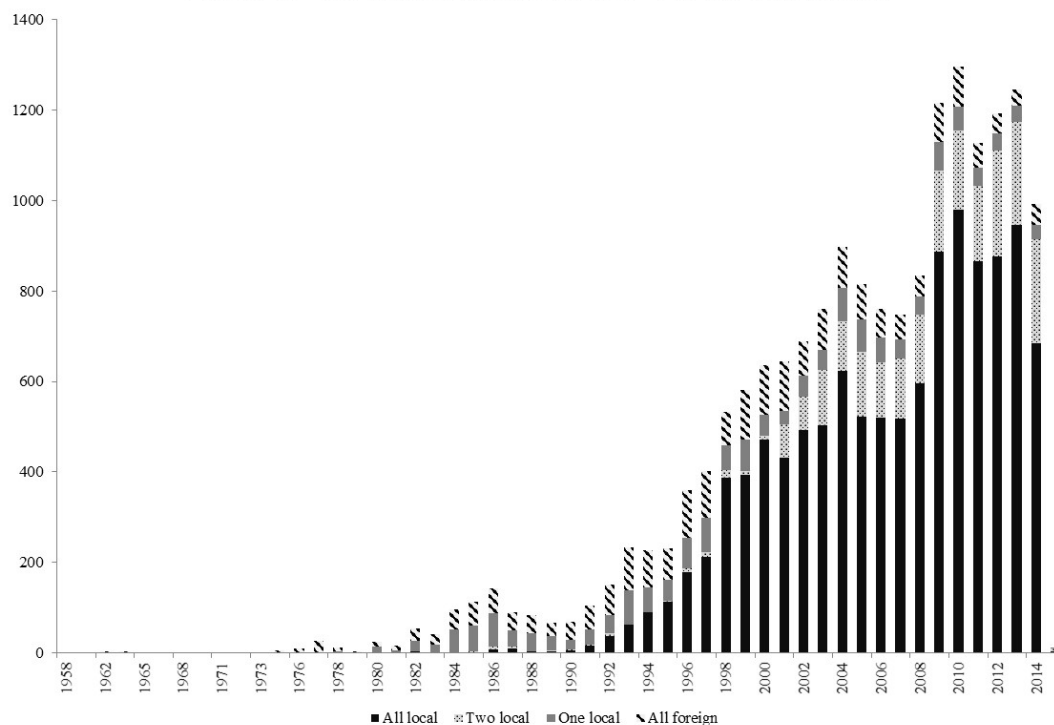


Table 1 reports the sovereign issuers in our dataset for the period 1945 to 2015. Column 3 reports the total number of bonds issued by the sovereigns listed in column 2. Column 4 reports the number of bonds issued under all foreign parameters and column 5 the number of bonds written under all local parameters. The percentages are reported in columns 6 and 7, respectively.

The data in column 8 were constructed as follows. We first converted the S&P rating for each bond in our sample into a numerical value. The value ranges from 1 to 18, corresponding to the 18 categories used by S&P to rank sovereign debt. Thus, a value of 18 corresponds to a rating of AAA and a value of 1 corresponds to a rating of C. We then calculate the mean value of all of the bonds issued by each sovereign. This is the number reported in column 8. The data in column 9 reverses the procedure and converts the numerical mean into a mean rating for each sovereign.

<sup>6</sup> We postulate that this growth is attributed to the growth in financial institutions and regulatory bodies instituted by small countries over this time period.

As indicated in the totals row of Table 1, our sample consists of 117 sovereigns that issued 17,349 bonds, of which 2,293 (13.2%) contain only foreign parameters and 9,423 (54.3%) contain only local parameters. The data are sorted by sovereigns in ascending order of the percentage of bonds that contain all foreign parameters. Note that 17 of the sovereigns in the sample issued no bonds with all foreign parameters. The countries in this group, such as the U.S., Luxembourg and Singapore are at the wealthy end of the global spectrum. At the other extreme, 46 (39%) of the sovereigns issued 100% of their debt under foreign parameters. Not surprisingly, this group is comprised of mostly smaller and poorer countries.

Our subsequent analysis is based on when-issued (primary) data rather than secondary market prices that many of the papers examining the impact of contractual features on pricing have examined (e.g., Chamon, Schumacher & Trebesch 2015; Clare & Schmidlin 2014). We recognize that in a host of applications, secondary market data have advantages over primary market data. If markets are efficient, the prices of actively traded securities provide an unbiased estimate of a security's intrinsic value. But the sovereign debt market is relatively illiquid; these bonds trade relatively infrequently in the secondary market. Reflecting this illiquidity, most researchers are forced to use the bid-ask spread instead of traded prices, even though traded prices are likely to be stale and nonsynchronous. Thus, the question is whether the bid-ask prices in the secondary market are better indicators of the price of foreign versus local parameters than the when-issued rate. More directly, which is a better measure of a sovereign's cost of capital: the when-issued rate (established through negotiations with informed agents) or the average of the bid and ask rates in the aftermarket? We argue that the when-issued rate is the appropriate measure of a sovereign's cost of capital.

The bid price reflects the highest price that a trader in the market would be willing to sell the security in question and the ask price is the lowest price that a trader would be willing to buy the security, and in most instances they are not the same trader. Therefore, the bid-ask rates may reflect the opinion of only one or two traders – indeed, the most optimistic and the most pessimistic dealers in the market. Moreover, the bid-ask rates are for a pre-specified amount of a security that could be purchased at the ask price or sold at the bid price. In contrast, the when-issued rate reflects the price at which the entire issue is sold to the public. Indeed, it is plausible that the due diligence of informed buyers (institutions) at the time of issuance reflects the most informed opinion as to the value of the parameters contained in the security being sold.

Even if researchers were able to observe actual traded prices in the secondary market, these rates would not be measures of a sovereign's cost of capital. A sovereign's cost of capital is given by the rate negotiated at the time of issuance. Only then can we observe the ex-ante pricing of the parameters contained in a particular issue. Once an issue is "sold to the public," prices in the secondary market are irrelevant to the sovereign's cost of capital, unless of course it expects to issue additional debt in the near future. To see this more clearly, consider the moral hazard problem associated with sovereign debt. At the time of issuance, market participants would evaluate the extent of the moral hazard problem given the security's parameters. Now, assume that after the security has been issued, the sovereign begins to act opportunistically. When market participants become aware of the sovereign's malfeasance, the price of the security will fall (rates will rise); but this fall in price has no effect on the sovereign's cost of capital, which was established at the time the security was issued in the primary market. Put differently, the pricing of sovereign debt in the secondary market reflects the ex post behavior of the sovereign, which again, has no effect on the sovereign's cost of capital. Finally, the vast majority of sovereign debt (for tax reasons) is sold at par, which means that the coupon is probably a good estimate of a sovereign's cost of capital.

#### **4. Analysis – Total Sample**

The data in Table 1 have been divided into three groups, indicated by the double underlines. The first group – observations 1-29 – contains those sovereigns that issued 5% or less foreign-parameter bonds. The second group – observations 30-69 – issued more than 5% but less than 95% foreign-based bonds. And the third group – observations 70–117 – issued more than 95% of their bonds under foreign parameters. Table 2 presents a summary of these data.

The top half of Table 2 has been divided into 3 groups, representing the three groups defined above. The statistics indicate that S&P ratings are negatively related to the percentage of bonds issued under foreign parameters. The mean rating for the first group (less than 5% foreign bonds) is significantly higher than the mean rating for the second group (more than 5% and less than 95% foreign bonds). The first group has a mean rating of A+; the second group has a mean rating of BBB+; and the third group has a mean rating of BB. Based on the numeric scores, the difference between the first and second groups yields a t-statistic of 3.53. The difference between the second group and the third is 3.13 with a t-statistic of 3.77.

Table 3 presents the results of a regression analysis of the total sample on our relevant independent variables: ratings, maturity and the choice of local versus foreign parameters. The dependent variable is the difference between the when-issued rate and the rate on a U.S. Treasury bond with the same maturity. We assume that S&P bond ratings reflect the creditworthiness of an issuing sovereign. Thus we would expect a negative relation between bond ratings and spreads. Moreover, since high-quality sovereigns generally issue local parameter bonds, we would expect a negative relation between the foreign-parameter bonds and spreads, due to the fact that low-quality sovereigns, for the most part, can only issue debt if they surrender control of the issue to investors.

The results reported in Table 3 show that the coefficients on the ratings variables are monotonic and all but one are statistically significant: bonds written by highly-rated sovereigns have relatively lower spreads, whereas bonds issued by low-rated sovereigns have relatively high spreads. Also, the results indicate a negative and statistically significant relation between spreads and maturity. Note that the relation is between maturity and spreads. Thus, while the relation between maturity and rates should be positive for a given issuer, there is no reason to expect a positive relation between maturity and spreads. Finally, consistent with the arguments above, the coefficients on all four foreign parameters are negative and all but the coefficient on Listing are statistically significant when measured independently. Thus, holding quality and maturity constant, there is a negative relation between foreign parameter bonds and spreads. We interpret these relations as evidence that low-quality sovereigns realize a reduction in the required rate of return on their debt if they relinquish their control over the three issuing parameters. Put differently, investors require a higher rate (lower price) for bonds issued by low-quality sovereigns and written under local parameters. Note that when all three parameters are included in the regression model, only the coefficient on Foreign Law is statistically significant. We attribute the lack of significance of the remaining two parameters to the multicollinearity among our three key independent variables.

In Table 4 we expand the regression model reported in Table 3 by entertaining the six independent variables that the World Bank uses to assess the governance quality of the issuing sovereigns. These World Bank measures are among the most widely used measures of legal quality and, moreover, are regularly reported by the weaker sovereign issuers in their prospectuses and offering circulars. Commentators have pointed out some serious measurement problems with

these and other commonly used measures of governance or legal quality (e.g., Davis 2014; Kurtz & Schrank 2009). However, most relevant for our purposes is the fact that these are among the two most commonly reported measures by sovereign borrowers in their prospectuses, suggesting that investors care about them. The World Bank states that:

*The six indicators all together are a measure of the quality of the governance in each country. The indicators are based on 31 underlying data sources reporting the perceptions of governance of a large number of survey respondents and expert assessments worldwide.*<sup>7</sup>

The World Bank describes each of these indicators as:

- (i) **Voice and accountability** captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media;
- (ii) **Political Stability and Absence of Violence/Terrorism** measures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism;
- (iii) **Government effectiveness** captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies;
- (iv) **Regulatory quality** captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development;
- (v) **Rule of law** captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence;
- (vi) **Control of Corruption** captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption.

The first thing to note in Table 4 is that adding these governance variables reduces the significance of a number of the ratings coefficients. This suggests that the World Bank variables contain information that is also reflected in the S&P ratings.<sup>8</sup> Note however the coefficients are

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<sup>7</sup> Details on the underlying data sources, the aggregation method, and the interpretation of the indicators, can be found in the WGI methodology paper, Kaufmann, Kraay & Mastruzzi (2010).

<sup>8</sup> This is perhaps not surprising, since at least some of the rating agencies have suggested that they incorporate information on a sovereign's governance quality into their ratings. For example, Moody's upgrade of Georgia's rating

almost all monotonic. The holdout rating is BBB, and the coefficients on all higher rated bonds are all positive and all those on all lower rated bonds are negative. The data show that Government Effectiveness is the only one of the six World Bank variables discussed earlier that is statistically significant. This result suggests that a high perception of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, decreases the interest rate that sovereigns have to pay on the debt it issues. Note also that all of the coefficients on foreign parameters are negative and all but foreign Listing are statistically different from zero. Note too that none of the foreign parameters are statistically significant when all three are included in the model (column 5).

Finally, in Table 5 we rerun our regressions substituting real interest rate spreads for the dependent variable, where real interest rates are defined as:

$$\text{Real Rate} = (1 + \text{Nominal Rate}) / (1 + \text{Rate of Inflation}) - 1$$

and Real Spreads are calculated as the difference between the Real Rate of the issuing currency minus the Real Rate on U.S. Treasury bonds with the same maturity. Our intent is to determine to what extent our results are being driven by expected inflation. To illustrate our concerns, consider the following example:

Assume two countries with identical institutions, ratings, etc., but one has slightly higher rate of inflation than the other (think of the U.S. and Switzerland). Also assume that the 10-year interest rate in the U.S. is 5% and that inflation in the U.S. is always 2% and in CHF always 1%. Further assume that everybody knows this (so CHF appreciates by 1% per year vis-à-vis USD) and that things never change. Then, the Swiss government can either issue in CHF at 4% or USD at 5%. Here, it looks as if borrowing in CHF is cheaper (in nominal terms), but the cost is really the same in real terms.<sup>9</sup>

We use the average annual realized inflation rate over the 5-years before issuance to proxy for the expected rate of inflation. Although the other independent variables change in sign and significance, three of our primary variables (Law, Listing and Currency) remain negative and significant when estimated separately.

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in 2014 was reportedly based on Georgia's improved position on various rule of law measures. *See* Moody's (2014). But, as best we have been able to discern, none of the ratings agencies report how precisely they incorporate governance measures into their ratings.

<sup>9</sup> Our thanks to Ugo Panizza for this example.

As shown in Table 1, the total sample includes sovereigns that either issue all local parameter bonds or all foreign parameter bonds exclusively. Since these sovereigns have significantly different financial, governance and regulatory conditions, they may well contaminate the data. Put differently, there may be too many differences in these bonds to draw sharp conclusions. Consequently, we focus on those sovereigns in our sample that issue both local and foreign parameter-based bonds.

## 5. Dual Issuers

We identify those instances in our sample in which a sovereign issued bonds under both foreign and local parameters with roughly comparable maturities. The advantage of focusing on sovereigns that issue bonds under both foreign and local parameters (dual issuers) is that it avoids the problem that plagues all cross-sectional analyses – the implicit assumption that “all else is equal.” But all else is never equal. It is up to the researcher to identify and control for the innumerable differences that exist between observations. By focusing on each sovereign separately, we are holding almost everything else equal,<sup>10</sup> because the pair of bonds was issued by the same sovereign.

We report the results for all situations in which the sovereign issued a bond with all local parameters and a bond issued by that same country that has at least one of the three key parameters – Law, Listing and Currency – as foreign. We also require that either the maturities of the two bonds be within a one-year period or the maturity on the bond with the higher yield being lower than that of the bond with the lower yield (so that, under the assumption of an upward sloping yield curve, the initial direction of the yield comparison would hold even if the maturity of the first bond were increased).

Overall, the majority of the bonds in the subsample (more than 75%) have maturities of five years or more. Recall that sovereigns that issue exclusively either local or only foreign-parameter bonds are not in this sample.

In Tables 6 and 7 we separate our dual issuers subsample into investment and non-investment grade sovereigns and compare the yields on these two subsets. To illustrate, the first entry in Table 6 is for Argentina. The data show that over our sample period, there were three

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<sup>10</sup> The size of the offerings are typically not the same. Universally the local issues are significantly larger in size than foreign issues. See Table 6 subsequently.



instances in which Argentina issued both foreign and local bonds within our timing convention. The data show that in one of these instances, the yield on the local bond is greater than the yield on the foreign bond; and in the other two, the yields on the two bonds are the same.

Table 6 reports our results for non-investment grade sovereigns. The total number of dual issuances is 165 (132+23+10) and in 132 of these instances (80%), the yield on the foreign bond is less than the yield on the local bond. Apparently relinquishing control of their debt to foreign investors and institutions results in a lower cost of capital for the issuing sovereign.<sup>11</sup> We find an almost opposite result in the subsample of investment grade sovereigns reported in Table 7.

We identify 102 instances of dual issuances by investment grade sovereigns. The data show that in only 49% of the instances was the foreign yield lower than the yield on the local bond. In other words, the market does not appear to reward high-quality sovereigns for issuing foreign bonds. Presumably these sovereigns are sufficiently trustworthy that relinquishing control to foreign investors has little effect on the yield at issuance.

In order to quantify the above results we calculate the mean spreads for the local and foreign bonds for the non-investment grade and investment grade bonds. The results are reported in Table 9. The data show that for the below-investment grade bonds, the mean spread is significantly lower for foreign bonds relative to domestic bonds. This suggests that the market rewards low-quality sovereigns for issuing foreign parameter bonds. In other words, if low-quality sovereigns are willing to relinquish control of their debt to investors, they enjoy a lower cost of capital: 4.64% for local issues but only 2.58% for foreign issues. The t-Statistic for the difference is 6.44. This raises the question as to why low-quality sovereigns ever issue local debt. There are a couple of possible answers here. First, it is established wisdom in the development sphere that it is important for emerging market sovereigns to develop local bond markets so as to protect themselves in times of crisis (the “original sin” problem) (Eichengreen & Hausman 1999; Inter-American Development Bank 2006). Relatedly, it also may be that countries that build strong domestic institutions have to go through some period of time where investors are skeptical about the institutions (and charge higher rates), before investors believe that these institutions really will protect against the risk of expropriation. Therefore, sovereigns may be willing to forgo a lower

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<sup>11</sup> As an aside, it is worth noting that the issuers closest to the margin (strong sovereigns like Poland and Mexico that are close to moving up to investment grade) are the ones who have the most ambiguous data.

rate, ex ante, in the interest of obtaining benefits in the future. Second, weaker sovereigns may not always be able to tap the foreign markets, whereas domestic institutions may be more amenable to suasion by the sovereign.

The difference in the spreads for local and foreign bonds is significantly smaller for the high-quality sovereigns (0.61% versus 2.07%), although the difference is statistically significant (t-Statistic is 2.95). This result implies that even the high-quality sovereigns face a lower rate if they issue foreign bonds. However, as the data in Table 4-B show, they issue foreign debt less than 50% of the time. One explanation for this result is that high-quality sovereigns only issue foreign bonds when they can do so at an attractive rate, perhaps because of the specific parameters demanded by investors. Another possibility is that the high-quality sovereigns are sometimes induced (required) to issue local-parameter debt by local regulators. It may be the case, for example, that local financial institutions can only fulfill domestic capital requirements if they hold a certain amount of local-parameter government bonds. Finally, we note that the spread difference in the non-investment sample is greater than difference in the investment grade sample (1.46% with a t-Statistic of 3.83).

In order to examine further the different effects of local versus foreign parameters, we perform our regression model on this subset of the data. Table 10 reports the results of this analysis. Unlike the results based on the entire sample, ratings are only significant in models (3) through (5). In these three models, all of the ratings coefficients are significant and almost monotonic. More important, the coefficients on all of the foreign parameters are negative and highly significant. Moreover, two of the three foreign parameters (Law and Currency) are statistically significant when included in the regression model – see Column (5). The one foreign parameter that is not significant is the one that one would expect to be the least important of the three – Listing. As discussed earlier, Listing is the parameter that gives the sovereign the least amount of leeway in terms of being able to expropriate value from the creditors.

In Table 11 we expand the regression model reported in Table 10 by entertaining the six independent variables used by the World Bank to assess the governance quality of sovereigns. The first thing to note in Table 11 is that adding these governance variables reduces the significance of a number of the ratings coefficients. This implies that the World Bank variables contain information that is also reflected in the S&P ratings. Note however the coefficients are almost all monotonic. The holdout rating is BBB, and the coefficients on all higher rated bonds are all

positive and all those on all lower rated bonds are negative. The data show that Government Effectiveness reduces the interest rates sovereigns have to pay to issue their debt. Curiously, the Rule of Law is positively related to yield spreads. We are at a loss to explain this result.

The coefficients on all the foreign issue parameters (Law, Listing and Currency) are negative and significant. In addition, two of the three are statistically significant when they are all included in the same regression – see column 5.

As before we rerun our regression models with real spreads as the dependent variable. The results are reported in Table 12. The data show that the coefficients on our variables of interest (Law, Listing, and Currency) are all negative and significant when estimated separately and governing law is significant and negative when all three are entered into the model. Moreover, the results suggest that our results (conclusions) are not driven by differential expected rates of inflation.

The results reported above suggest that for low-quality sovereigns, borrowing locally is consistently more expensive. However, we conjecture that low-quality sovereigns can only realize lower interest rates if they relinquish control of their issues and, in most instances, they are willing to incur the higher rate because the costs of relinquishing control are even higher. For the high-quality sovereigns, however, it is not so clear. Indeed, there it is often the case that borrowing foreign is just as expensive, or more expensive, than borrowing locally. And, if so, the question is why these countries ever issue foreign parameter bonds. One possible answer is provided by a recent study that reports on interviews with government debt managers (Gelpern & Gulati 2016). The debt managers in the study answer a question roughly similar to the one posed above by explaining that all but the highest quality countries (like the US and Germany) are concerned about the possibility of bad times and their internal debt markets drying up (as they did, for example, in 2008 in wake of the Lehman crisis). They, therefore, continue to issue at least small amounts of debt under foreign parameters so that those investors who demand those parameters for their bonds (inevitably foreign investors) continue to provide capital and, in particular, can be tapped during a crisis.

Before concluding, we address some possible concerns regarding our results. First, if past realized inflation is significantly different from expected inflation then our results would be suspect. Second, there could be a correlation between the decision to borrow in local currency and the decision to govern the bond under local or foreign law that could be contaminating the results

of the legal regime variable. For instance, conditional on issuing in Euros, a sovereign would more than likely adopt a foreign governing law than if it issued debt in USD. However, we find that the correlation between foreign law and foreign currency in our sample is sufficiently low (0.51); thus, the decision to borrow in local currency and the decision to govern the bond under local or foreign law are not strongly related; in other words, there is little evidence of multicollinearity between these two variables that could be contaminating our results. Third, there is the possibility that the yields (particularly local yields) for some countries are unduly low because of financial repression. That is, the government both forcing its local financial institutions to buy its bonds and mandating particular (low) yields, as opposed to allowing market forces to set them. There are a couple of responses to this concern. First, the data we use for our dual issuance analysis is almost all from a period of time where repression was relatively minimal. Specifically, Reinhart & Sbrancia (2015) identify the period of most intense financial repression as being prior to 1980. Roughly 95% of the bonds in the dual issuance subsample were issued after January 1, 1990 (and the remainder are from the period between 1980 and 1990). Second, given the direction in which repression typically works (local yields are pushed down artificially to subsidize government borrowing) our results would likely be even stronger if the true local rates were utilized.

## **5. Conclusion**

The Greek sovereign debt restructuring of 2012 illustrates how investors who hold bonds governed by foreign parameters are better protected from expropriation during times of crisis than investors who hold bonds under local parameters. And this should be the case for both rich western industrialized nations as well as poorer eastern developing nations. Comparing across countries then, we should see that bonds under local parameters carry higher spreads than those under foreign parameters.

The data tell us, however, that there is a dichotomy in the market. The richest sovereign issuers issue debt almost exclusively under local parameters and the weakest sovereigns issue debt primarily under foreign parameters. Controlling for the financial strength of the issuers, we find that foreign parameters correlate with lower spreads. That then begs the question of why the rich issuers are not issuing under foreign parameters; after all, the foreign parameter bonds should still carry less risk than the local ones. One answer comes from the literatures on credible commitments

pioneered by North and Weingast (1989) and on the separation of ownership and control pioneered by Jensen and Meckling (1976) and Fama and Jensen (1983).

The story is that bond investors, under conditions where the sovereign issuer can credibly commit not to expropriate value from them, may prefer to lend to a country that issues exclusively (or nearly so) under local parameters. The reason is that investors, assuming they can constrain expropriation and can be assured that the government officials at hand tend to make high quality decisions, may prefer to leave discretion in the hands of government officials (that is, issuing bonds under local parameters). In particular, knowledgeable government officials with the discretion afforded to them by a debt stock largely governed by local parameters, are going to be in a better position to tackle financial crises than inexperienced and dispersed bondholders.<sup>12</sup>

We are optimistic that the foregoing analysis has added to the existing literature on the choice of whether to stay local or go foreign in the issuance of sovereign bonds. Future research might benefit from parsing the local versus foreign parameter distinction more finely, particularly if the laws vary considerably. All local laws, after all, are not the same. German local law, for example, might be far less likely to allow government expropriation of value from bondholders than, for example, Greek local law (Carletti et al., 2016). The same argument can be made for foreign laws. New York law and English law, the two most popular foreign laws, are different in some key respects in terms of how they instruct judges to interpret contracts (e.g., Burn 2014). We take some steps in this direction by utilizing the World Bank's measures of rule of law quality. But, as scholars have observed, the current measures are at best rough estimates and more could be done (e.g., Ginsburg 2011).

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<sup>12</sup> Gelpert and Gulati (2016) interviewed government debt managers around the globe about a similar question. The managers in the richer countries explained their local v. foreign debt issuance patterns in terms of signaling. In particular, managers want investors to perceive that there is no risk of restructuring. That, to them, translates into taking the position that there is no benefit to issuing bonds that have greater protections in the event of a restructuring. Therefore, they don't issue these bonds unless there is some specific reason to do so, in the form of either an idiosyncratic need on the part of some long-term investor or to maintain a small presence on an outside market or if they perceive there to be a temporary yield mismatch that they can take advantage of. Indeed, Gelpert and Gulati report that debt managers from rich nations regularly (and sometimes aggressively) state that they often—particularly in the case of demand-driven issuances—suffer a yield penalty for issuing debt under foreign parameters.

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**Table 1**  
**Total Sample**

<b>OBS</b>	<b>Country</b>	<b>Total</b>	<b>All Foreign</b>	<b>All Local</b>	<b>% All Foreign</b>	<b>% All Local</b>	<b>Average Ratings</b>	
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>	<b>(9)</b>
1	Botswana	6	0	5	0.0%	83.3%	13.71	A+
2	Chuvash	6	0	0	0.0%	0.0%	15.00	AA-
3	Dubai	4	0	0	0.0%	0.0%	12.00	A-
4	Kabardino-Balkaria	1	0	0	0.0%	0.0%	.	.
5	Kalmykia	1	0	0	0.0%	0.0%	.	.
6	Karelia	14	0	0	0.0%	0.0%	.	.
7	Khakassia	8	0	0	0.0%	0.0%	.	.
8	Komi	6	0	0	0.0%	0.0%	.	.
9	Luxembourg	2	0	2	0.0%	100.0%	10.00	BBB
10	Malta	7	0	7	0.0%	100.0%	15.00	AA-
11	Mordovia	1	0	0	0.0%	0.0%	.	.
12	Netherlands	256	0	254	0.0%	99.2%	17.94	AAA
13	Sakha (Yakutia)	14	0	0	0.0%	0.0%	.	.
14	Singapore	70	0	70	0.0%	100.0%	18.00	AAA
15	Udmurtia	6	0	0	0.0%	0.0%	.	.
16	United Kingdom	711	0	694	0.0%	97.6%	17.89	AAA
17	United States of America	807	0	807	0.0%	100.0%	18.00	AAA
18	France	1179	1	1175	0.1%	99.7%	18.00	AAA
19	Germany	434	1	430	0.2%	99.1%	18.00	AAA
20	Spain	832	14	592	1.7%	71.2%	15.90	AA
21	Czech Republic	360	10	326	2.8%	90.6%	14.52	AA-
22	Australia	640	20	588	3.1%	91.9%	18.00	AAA
23	Japan	930	31	0	3.3%	0.0%	15.33	AA-
24	Nigeria	90	3	86	3.3%	95.6%	5.92	BB-
25	Bulgaria	308	11	265	3.6%	86.0%	9.01	BBB-
26	Austria	525	20	255	3.8%	48.6%	17.91	AAA
27	Hungary	960	44	905	4.6%	94.3%	8.25	BB+
28	Panama	42	2	0	4.8%	0.0%	7.53	BB+
29	Belgium	638	32	505	5.0%	79.2%	16.84	AA+
30	Slovenia	129	7	85	5.4%	65.9%	14.94	AA-
31	Poland	511	28	421	5.5%	82.4%	12.54	A
32	Sweden	908	52	577	5.7%	63.5%	17.79	AAA
33	Russia	633	37	0	5.8%	0.0%	9.52	BBB
34	Italy	1174	71	183	6.0%	15.6%	14.33	A+
35	Romania	279	18	0	6.5%	0.0%	7.90	BB+
36	Latvia	116	8	0	6.9%	0.0%	9.68	BBB

Table 1 Continued

<b>OBS</b>	<b>Country</b>	<b>Total</b>	<b>All Foreign</b>	<b>All Local</b>	<b>% All Foreign</b>	<b>% All Local</b>	<b>Average Ratings</b>	
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>	<b>(9)</b>
37	Denmark	396	28	153	7.1%	38.6%	17.36	AA+
38	China	378	29	348	7.7%	92.1%	13.61	A+
39	Canada	57	6	6	10.5%	10.5%	17.58	AAA
40	Lithuania	353	38	0	10.8%	0.0%	10.32	BBB
41	Ukraine	280	34	7	12.1%	2.5%	4.06	B
42	Kazakhstan	81	10	0	12.3%	0.0%	9.26	BBB-
43	Norway	194	27	147	13.9%	75.8%	18.00	AAA
44	Vietnam	10	2	7	20.0%	70.0%	7.25	BB
45	Iceland	253	58	0	22.9%	0.0%	11.59	A-
46	Belarus	26	6	19	23.1%	73.1%	5.13	B+
47	Turkey	282	75	113	26.6%	40.1%	7.28	BB
48	Indonesia	83	23	60	27.7%	72.3%	7.75	BB+
49	Cyprus	12	4	0	33.3%	0.0%	11.00	BBB+
50	El Salvador	12	4	0	33.3%	0.0%	7.76	BB+
51	Thailand	92	33	0	35.9%	0.0%	10.09	BBB
52	Philippines	91	37	7	40.7%	7.7%	8.01	BB+
53	Malaysia	103	42	7	40.8%	6.8%	11.68	A-
54	Slovakia	11	5	1	45.5%	9.1%	12.15	A-
55	Ireland	236	113	101	47.9%	42.8%	15.29	AA-
56	Greece	68	33	9	48.5%	13.2%	11.29	BBB+
57	Seychelles	6	3	0	50.0%	0.0%	4.00	B
58	Mexico	167	87	5	52.1%	3.0%	8.49	BB+
59	Croatia	76	40	16	52.6%	21.1%	9.05	BBB-
60	Finland	398	213	173	53.5%	43.5%	16.87	AA+
61	Lebanon	94	60	0	63.8%	0.0%	3.97	B
62	Portugal	63	42	9	66.7%	14.3%	13.85	A+
63	Argentina	178	123	3	69.1%	1.7%	6.14	BB-
64	Colombia	67	59	0	88.1%	0.0%	7.98	BB+
65	Brazil	121	112	0	92.6%	0.0%	6.73	BB
66	Chile	15	14	0	93.3%	0.0%	12.81	A
67	Uruguay	63	59	0	93.7%	0.0%	6.65	BB
68	Venezuela	77	73	0	94.8%	0.0%	6.01	BB-
69	New Zealand	97	92	0	94.8%	0.0%	16.80	AA+
70	Jamaica	33	32	0	97.0%	0.0%	4.00	B
71	Israel	35	34	0	97.1%	0.0%	12.31	A-
72	Abu Dhabi	2	2	0	100.0%	0.0%	16.00	AA
73	Albania	2	2	0	100.0%	0.0%	5.00	B+

Table 1 Continued

OBS	Country	Total	All Foreign	All Local	% All Foreign	% All Local	Average Ratings	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
74	Aruba	2	2	0	100.0%	0.0%	10.00	BBB
75	Bahamas	2	2	0	100.0%	0.0%	11.50	A-
76	Bahrain	9	9	0	100.0%	0.0%	11.25	BBB+
77	Barbados	7	7	0	100.0%	0.0%	11.40	BBB+
78	Belgian Congo	1	1	0	100.0%	0.0%	.	.
79	Belize	5	5	0	100.0%	0.0%	4.67	B+
80	Bosnia and Herzegovina	2	2	0	100.0%	0.0%	.	.
81	Buryatia	1	1	0	100.0%	0.0%	.	.
82	Congo, Dem. Rep.	2	2	0	100.0%	0.0%	.	.
83	Costa Rica	12	12	0	100.0%	0.0%	7.00	BB
84	Cuba	3	3	0	100.0%	0.0%	.	.
85	Dominican Republic	5	5	0	100.0%	0.0%	5.29	B+
86	Ecuador	4	4	0	100.0%	0.0%	3.50	B
87	Egypt	5	5	0	100.0%	0.0%	5.50	BB-
88	Estonia	1	1	0	100.0%	0.0%	12.00	A-
89	Fiji	1	1	0	100.0%	0.0%	4.50	B+
90	Gabon	1	1	0	100.0%	0.0%	6.00	BB-
91	Georgia	2	2	0	100.0%	0.0%	5.00	B+
92	Ghana	1	1	0	100.0%	0.0%	4.50	B+
93	Grenada	2	2	0	100.0%	0.0%	4.50	B+
94	Guatemala	4	4	0	100.0%	0.0%	6.60	BB
95	Honduras	1	1	0	100.0%	0.0%	4.00	B
96	Iran	2	2	0	100.0%	0.0%	5.00	B+
97	Ivory Coast	2	2	0	100.0%	0.0%	.	.
98	Jordan	1	1	0	100.0%	0.0%	7.00	BB
99	Korea	11	11	0	100.0%	0.0%	12.00	A-
100	Macedonia, FYR	2	2	0	100.0%	0.0%	7.50	BB+
101	Mariy El	2	2	0	100.0%	0.0%	.	.
102	Mauritius	1	1	0	100.0%	0.0%	.	.
103	Moldova	2	2	0	100.0%	0.0%	3.50	B
104	Mongolia	1	1	0	100.0%	0.0%	5.50	BB-
105	Montenegro	3	3	0	100.0%	0.0%	6.33	BB-
106	Morocco	5	5	0	100.0%	0.0%	8.44	BB+
107	Oman	1	1	0	100.0%	0.0%	9.00	BBB-
108	Pakistan	7	7	0	100.0%	0.0%	4.44	B
109	Paraguay	2	2	0	100.0%	0.0%	7.00	BB
110	Peru	27	27	0	100.0%	0.0%	8.06	BB+
111	Qatar	7	7	0	100.0%	0.0%	14.14	A+

**Table 1 Continued**

<b>OBS</b>	<b>Country</b>	<b>Total</b>	<b>All Foreign</b>	<b>All Local</b>	<b>% All Foreign</b>	<b>% All Local</b>	<b>Average Ratings</b>	
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>	<b>(9)</b>
112	Senegal	4	4	0	100.0%	0.0%	5.00	B+
113	Serbia	2	2	0	100.0%	0.0%	5.83	BB-
114	South Africa	49	49	0	100.0%	0.0%	9.12	BBB-
115	Sri Lanka	2	2	0	100.0%	0.0%	4.83	B+
116	Trinidad and Tobago	8	8	0	100.0%	0.0%	10.29	BBB
117	Tunisia	9	9	0	100.0%	0.0%	9.80	BBB
<b>Total</b>		<b>17,349</b>	<b>2,293</b>	<b>9,423</b>	<b>13.2%</b>	<b>54.3%</b>		

**Table 2**

**Relation between Ratings and % of All Foreign Bonds**

<b>Group</b>	<b>% All Foreign</b>	<b>N</b>	<b>Mean Rating</b>	<b>Score</b>	<b>Std</b>
1	5% or Less	21	A+	14.42	4.02
2	More than 5% and less than 95%	40	BBB+	10.56	4.14
3	95% or less	40	BB	7.43	3.22

<b>Comparison</b>	<b>Difference</b>	<b>t- Statistic</b>
Group 1 - Group 2	3.86	3.53
Group 2 - Group 3	3.13	3.77

**Table 3**

OLS results. Dependent variable is the Spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the sovereign level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-1.397***	-1.804***	-1.518***	-1.499***	-1.730***
AA	-1.237***	-1.322***	-1.122***	-1.216***	-1.320***
A	-0.740**	-0.812***	-0.699**	-0.759**	-0.809**
BB	1.152*	1.159*	1.462**	1.463**	1.430**
B	0.403	0.710	0.758	0.633	0.685
Maturity	-0.053***	-0.053***	0.054***	0.055***	-0.055***
Foreign Law	-0.732**				-0.588*
Foreign Currency		-0.963**			-0.543
Foreign Listing			-0.344		0.174
All Foreign				0.779**	
Constant	2.333***	2.787***	5.509***	5.042	5.288
Observations	15,583	16,162	15,154	14,632	14,632
R <sup>2</sup>	0.655	0.649	0.657	0.670	0.670

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

**Table 4**

OLS results. Dependent variable is the spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the country level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-1.175**	-1.600***	-1.273***	-1.267***	-1.541***
AA	-1.297***	-1.392***	-1.146***	-1.246***	-1.373***
A	-0.669*	-0.744**	-0.594*	-0.669*	-0.739**
BB	0.948	0.970	1.150*	1.159*	1.116
B	0.277	0.568	0.441	0.377	0.436
Maturity	-0.054***	-0.054***	-0.053***	-0.054***	-0.055***
Voice and accountability	0.285	-0.003	-0.117	0.04	-0.003
Political stability	-0.416	-0.34	-0.508	-0.492	-0.487
Government Effectiveness	-1.071**	-1.147**	-0.826*	-0.953**	-0.961**
Regulatory quality	-0.763	-0.638	-0.477	-0.49	-0.453
Rule of Law	0.969	0.889	0.518	0.678	0.686
Corruption	0.642	0.671	0.698	0.832	0.853
Foreign Law	-0.760**				-0.485
Foreign Currency		-1.028**			-0.636
Foreign Listing			-0.383		0.148
All Foreign				-0.771**	
Constant	7.841***	3.052***	2.364***	2.967***	3.234***
Observations	14,266	14,704	13,859	13,470	13,470
R <sup>2</sup>	0.685	0.68	0.687	0.697	0.698

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10



**Table 5**

OLS results. Dependent variable is the real spread between the real interest rate of the bond and the real rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the country level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-4.662**	-5.828***	-5.047**	-4.697**	-5.237**
AA	-1.826**	-2.148**	-1.982**	-2.056**	-2.293**
A	-1.523*	-1.828**	-1.811*	-1.785*	-1.890*
BB	-6.712**	-6.036*	-6.596	-7.468*	-7.549*
B	-13.98**	-13.34**	-15.20**	-15.55**	-15.43**
Maturity	-0.030**	-0.030**	-0.031**	-0.032**	-0.033**
Voice and accountability	3.696	3.402	2.783	3.327	3.316
Political stability	1.874	2.071	1.719	1.689	1.703
Government effective	5.975**	6.100**	5.972**	5.667*	5.737*
Regulatory quality	-4.097	-3.709	-3.947	-4.028	-3.973
Rule of Law	-3.357	-3.496	-3.329	-3.298	-3.401
Corruption	3.874**	4.496**	4.446**	4.052**	4.038**
Foreign Law	-1.799**				-1.455
Foreign Currency		-1.887*			-1.402
Foreign Listing			-0.814		0.499
All Foreign				-2.158**	
Constant	-9.001	-7.810	-9.930	19.56**	19.61**
Observations	14,252	14,688	13,843	13,456	13,456
R <sup>2</sup>	0.467	0.479	0.471	0.462	0.463

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

**Table 6**  
**Non-Investment Grade Bonds**

<b>Sovereign</b>	<b>Foreign &lt; Local</b>	<b>Foreign &gt; Local</b>	<b>Foreign = Local</b>	<b>Rating</b>	<b>%Foreign &lt; Local</b>
Argentina	1	0	2	BB-	33.33%
Brazil	0	0	2	BB	0.00%
Bulgaria	1	0	1	BBB	50.00%
Colombia	1	0	1	BB	50.00%
Croatia	12	2	0	BBB	85.71%
Greece	0	3	0	BBB-	0.00%
Hungary	26	0	0	BB+	100.00%
Iceland	6	0	0	BBB-	100.00%
Indonesia	2	0	1	BB-	66.67%
Latvia	5	1	0	BB+	83.33%
Lithuania	8	0	1	BBB	88.89%
Mexico	13	8	1	BBB	59.09%
Nigeria	3	0	0	BB-	100.00%
Peru	1	0	0	BB+	100.00%
Philippines	15	0	0	BB	100.00%
Poland	13	6	0	BBB+	68.42%
Romania	15	0	0	BB+	100.00%
Russia	3	0	0	BBB	100.00%
Seychelles	2	0	0	B	100.00%
Turkey	1	3	1	BB+	20.00%
Ukraine	14	0	0	B+	100.00%
Vietnam	1	0	0	BB	100.00%
<b>TOTAL</b>	<b>132</b>	<b>23</b>	<b>10</b>		<b>80.00%</b>

**Table 7**  
**Investment Grade Bonds**

<b>Sovereign</b>	<b>Foreign &lt; Local</b>	<b>Foreign &gt; Local</b>	<b>Foreign = Local</b>	<b>Rating</b>	<b>%Foreign &lt; Local</b>
Czech Republic	4	1	0	AA	80.00%
Australia	0	1	0	AAA	0.00%
Austria	2	6	0	AAA	25.00%
Belgium	17	4	1	AA+	77.27%
Denmark	1	5	3	AAA	11.11%
Finland	6	5	2	AAA	46.15%
Germany	0	1	0	AAA	0.00%
Ireland	1	0	0	A	100.00%
Italy	3	9	1	AA	23.08%
Japan	0	2	0	AAA	0.00%
Norway	4	1	0	AAA	80.00%
Slovakia	0	1	0	A	0.00%
Slovenia	2	1	0	AA	66.67%
Spain	3	4	1	AA	37.50%
Sweden	8	2	1	AAA	72.73%
UK	0	0	1	AAA	0.00%
<b>TOTAL</b>	<b>50</b>	<b>42</b>	<b>10</b>		<b>49.02%</b>

**Table 8**  
**Mean Spreads**  
**Non-Investment Grade Bonds**

Local Bonds	Foreign Bonds	Difference	t-Statistic
4.64%	2.58%	2.07%	6.44

**Investment Grade Bonds**

Local Bonds	Foreign Bonds	Difference	t-Statistic
1.02%	0.41%	0.61%	2.95

**Table 9**

OLS results. Dependent variable is the Spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the sovereign level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-0.248	-1.408	-1.303**	-1.003*	-1.297**
AA	-0.696	-1.035	-1.036*	-1.045*	-1.063**
A	-0.727	-1.182*	-0.857***	-0.789**	-1.996***
BB	-0.246	0.297	1.464***	1.390***	1.430***
B	0.765	2.258	3.469***	2.7590**	3.361***
Maturity	-0.060***	-0.061**	0.087**	-0.078**	-0.074**
Foreign Law	-1.190***				-0.520*
Foreign Currency		-1.807***			-1.484**
Foreign Listing			-0.867***		0.482
All Foreign				-1.158***	
Constant	0.405	1.696	0.406	7.149***	7.244***
Observations	448	469	431	414	414
R <sup>2</sup>	0.67	0.712	0.712	0.73	0.758

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

**Table 10**

OLS results. Dependent variable is the Spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the country level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-0.591	-1.639*	-0.905	-0.958	-1.117*
AA	-1.193	-1.704*	-1.102	-1.099*	-1.125*
A	-0.233	-0.853	-0.318	-0.250	-0.541
BB	-0.245	0.311	1.582***	1.529***	1.513***
B	-0.595	1.206	2.669***	1.979	2.596**
Maturity	-0.050*	-0.053**	0.075**	-0.065**	-0.063**
Voice and accountability	-2.390	-1.816	0.195	-0.009	-0.390
Political stability	-0.354	0.293	0.037	-0.313	-0.11
Government effect	-3.371**	-3.167**	-1.127	-1.267	-1.061
Regulatory quality	-1.657	-1.800	-2.191*	-1.621	-1.697
Rule of Law	5.656**	5.370**	2.719*	2.495	2.552
Corruption	-0.246	-0.030	-1.265	-1.606	-1.125
Foreign Law	-1.131***				-0.525*
Foreign Currency		-1.807***			-1.434**
Foreign Listing			-0.674**		0.605
All Foreign				-1.112***	
Constant	-0.428	1.805	2.297	1.342	1.026
Observations	409	427	389	375	375
R <sup>2</sup>	0.681	0.124	0.718	0.737	0.762

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

**Table 11**

OLS results. Dependent variable is the spread between the real interest rate of the bond and the real rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the country level. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-3.656	-4.356	-4.452	-3.050	-4.303
AA	-0.813	-0.997	-0.883	0.034	-0.797
A	-2.374	-2.658	-0.318	-1.965	-2.405
BB	-0.889	0.491	0.491	0.764	0.633
B	0.372	1.220	2.826	3.542	3.468
Maturity	-0.0723	-0.0372	0.008	-0.051	-0.050
Voice and accountability	35.28**	35.01**	37.70**	39.17**	38.07**
Political stability	-0.060	-0.099	0.073	-0.053	0.386
Gov effectiveness	10.32	11.58	13.20*	12.60	12.22
Regulatory quality	-3.831	-3.817	-3.817	-3.536	-3.179
Rule of Law	-14.79	-15.24	-18.49	-18.28*	-18.35*
Corruption	12.78	12.78	12.78	11.55	12.03
Foreign Law	-2.054***				-1.567**
Foreign Currency		-1.848***			-2.60
Foreign Listing			-1.937**		-1.027
All Foreign				-1.339**	
Constant	-65.19*	-65.92*	52.39*	-52.61	-50.63
Observations	407	425	389	373	373
R <sup>2</sup>	0.660	0.687	0.718	0.659	0.667

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10