WORKING PAPER

THE VALUE OF INSTITUTIONS FOR FINANCIAL MARKETS:
Evidence from Emerging Markets

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The Value of Institutions For Financial Markets:
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Abstract

This paper investigates the value of political institutions for financial markets, using panel data from emerging market countries. We test the hypothesis that changes in political institutions, such as improvements in democratic rights and increased government accountability, have a direct effect on sovereign interest-rate spreads. We find that financial markets value institutions over and above the economic and fiscal outcomes these institutions shape. Democracy and accountability generally lower sovereign spreads, political risk tends to increase them, and financial markets view election years negatively.

I. INTRODUCTION

Well-functioning capital markets and the low interest rates that often accompany them are important for economic development and growth. High interest rates, for example, can deter governments from borrowing to finance investments on which to base future economic growth. High rates are often due to risk premiums that reflect the possibility that the government will default.

It seems likely that the risk of default is lower if a country has better political institutions. Although this hypothesis seems intuitive, no scholarly work documents or tests whether in fact institutions that improve electoral accountability and foster more democracy reduce the risk of default and therefore lower risk premiums. This paper tests whether changes in political institutions have a direct effect on financial markets, measured as a reduction in the risk premium.

Previous work estimates the effects of institutions on economic growth and documents that some institutions improve it. This work is based on the theoretical contributions of, for example, Shleifer and Vishny (1993), who argue that the structure of government institutions is important for economic development. Also Acemolu et al (2005) make a theoretical case that institutions provide an important role for economic development. They show evidence by pointing out that the development of democratic institutions in Great Britain in the 18th century played an important role in Great Britain's economic development. Institutions that have been found to slow economic growth include corruption and insecure property rights (e.g., Mauro, 1995; Keefer and Knack, 2003; Acemoglu, Johnson, and Robinson, 2005). Determinants of insecure property rights and high corruption include the timing of elections and the lack of checks and balances (Keefer 2004).

Besides growth as a measure of economic performance, some scholars explain performance in the financial sector as a consequence of the institutional setting. For example, financial sector employment and banking crises are related to the security of property rights, the rule of law, and checks and balances. North and Weingast (1989) provide a theoretical case and evidence that improved checks and balances, credible commitments, and better property rights in England during the seventeenth century led to the development of stable capital markets and reduced interest rates, which at that time was an important prerequisite for economic growth. Related work on financial markets includes Keefer (2001, 2002), who points to the critical role of checks and balances for suitable governmental decisions related to banking crises. Further, Keefer and Knack (2003) show that political institutions are important determinants of sovereign creditworthiness.

In this paper, we examine the effect of institutions, such as checks and balances, quality of governance, elections, and other democratic institutions, on sovereign interest-rate spreads. Better institutions can affect financial markets through at least two channels. One is that better institutions lead to better fiscal policy, which reduces default risk. The other is that they affect financial markets because better institutions promote trust, facilitate exchange, and thus facilitate economic growth. We look at the direct effect of political institutions on financial markets, controlling for fiscal policy.

We focus on explaining spreads from emerging market economies that have issued debt since the early 1990s. The spreads are a measure of the risk premium demanded by investors for holding these bonds. Differences between spreads have been explained in terms of country fundamentals, such as inflation, debt, and reserves (see for example Edwards, 1994; Cline and

Barnes, 1997; and Eichengreen and Mody, 2000). However, no scholarly work has examined how spreads respond to changes in political institutions and government accountability.

We find that financial markets value institutions beyond the economic and fiscal outcomes the institutions shape. Democracy and accountability lower sovereign spreads, and political risk increases them. Finally, financial markets demand higher spreads in election years.

In what follows, section II presents the analytical framework, section III discusses the empirical strategy, and section IV describes the data and presents the results. Section V highlights the main conclusions and their policy implications.

II. ANALYTICAL FRAMEWORK

A. The Empirical Model

The empirical model is derived from a model developed by Edwards (1984, 1986). Like him, we assume that a risk-neutral investor lends to a country that is a price-taker in the world capital market. The equilibrium condition for optimal allocation of the investor's portfolio can be expressed as

$$(1 + r^*) = pd \cdot \omega_0 + (1 - pd)(1 + r^L) \tag{1}$$

where r^* is the risk-free world interest rate; pd is the probability of default; ω_0 is the payment made by the borrower to the lender in the default state; and r^L is the lending rate.

It is straightforward to derive from equation (1) the equilibrium condition for the spread:

$$s = \frac{pd}{1 - pd}(1 + r^* - \omega_0) \tag{2}$$

where s is the spread over the risk-free world interest rate (r^*). As is standard practice, we specify a logistic form for the probability of default:

$$pd = \frac{\exp(\sum_{k=1}^{n} \beta_k Z_k)}{1 + \exp(\sum_{k=1}^{n} \beta_k Z_k)} \tag{3}$$

where Z_k are the determinants of the probability of default that are elaborated below, and β_k are the corresponding coefficients. By combining equations (2) and (3) and taking the natural logarithm, the resulting equation can be written as[1]

$$Log\ s = Log\,(1+r^*) + \sum_{k=1}^{n} \beta_k Z_k \tag{4}$$

Adding country and time dimensions and allowing for the time and fixed effects, the stochastic model to be estimated is given by

$$Log\ s_{it} = \alpha_i + \beta Z_{it} + \lambda_t + \eta_{it} \tag{5}$$

where s_{it} is the secondary market spread over the risk-free world interest rate in country i in year t; α_i is a country fixed effect; λ_t is the time fixed effect; and η_{it} is a Gaussian error term. In this framework r* is absorbed in the time fixed effect λ_t.

B. Testing the Impact of Institutions on Spreads

The basic formulation used to test the impact of political institutions on spreads is

$$Log\ s_{it} = \alpha_i + \delta Pol_{it} + \gamma_1 Rev_{it} + \gamma_2 Curex_{it} + \gamma_3 Ginv_{it} + \beta' Q_{it} + \lambda_t + \eta_{it} \tag{6}$$

For the choice of political institution variables we draw on the political economy literature, which relates political institutions to government size and policy credibility.[2] For political institutions (Pol_{it}), we include the political system (presidential versus parliamentary);

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[1] Without loss of generality, ω_0 is assumed to be zero.

[2] See, for example, Persson and Tabellini (1999 and 2000a).

political constraints (Henisz, 2000); the Freedom House indexes of political rights and civil liberties; the Kaufmann voice and accountability index; the democracy index (Polity) produced by the University of Maryland; the democratic accountability index of the *International Country Risk Guide* (ICRG); the ICRG political risk index; and whether there is an election in a particular year. Since many of these institutions are highly correlated, we will estimate separate regressions for each.

The estimates on the political variables and on all other variables in this fixed effects regression framework are identified by changes within a country over time. In our data set institutions vary sufficiently over time to achieve identification. Virtually all countries have changes in their ratings of institutions, including the political and economics rights, democratic accountability, political risks, and government constraints. If the assumption is fulfilled that the country unobservable or unmeasured variables do not lead to simultaneous changes in democratic institutions and changes in the interest rate then the estimated effect of institutions on financial markets is causal.

Besides including these institutions in the regression equations, we also explicitly control for current fiscal policy by including government revenues, current expenditures, and government investment. We do so because we want to examine whether institutions have an effect after controlling for government policies that are affected by these institutions. Specifically, we include the total revenue–to–GDP ratio (Rev_{it}); the current government spending–to–GDP ratio ($Curex_{it}$); and the public investment–to–GDP ratio ($Ginv_{it}$).

Total revenue–to–GDP is predicted to have a negative sign because, all else being equal, higher revenue improves the primary balance. The sign of the public investment–to–GDP ratio is ambiguous. On the one hand, its coefficient could be negative, because higher investment

improves growth prospects. On the other hand (see Edwards, 1986), higher investment ratios may increase default risk, so the sign could also be positive. Government current spending–to–GDP is expected to have a positive sign, because higher current spending adds to the deficit, often without improving growth prospects.

As for additional control variables, previous studies point to a large number of variables as possible determinants of sovereign risk. We aim for a parsimonious empirical model, capturing the key indicators of liquidity, solvency, and macroeconomic fundamentals.

Q_{it}, a vector of additional control variables, includes $debv_{it}$, which is the ratio of total debt outstanding to gross national income (GNI).[3] This measure is a key indicator of a country's long-run solvency. Higher debt–to–GNI increases the default probability, and hence the sovereign risk. This variable is predicted to be positively associated with the spread. Other control variables include the ratio of foreign exchange reserves to GDP, the inflation rate, the output gap, default history, and the regional spread index. Foreign exchange reserves-to-GDP is expected to reduce spreads, because it is a measure of a country's capacity to service external debt. The inflation rate is a key indicator of economic stability. Monetization of fiscal deficits can lead to high inflation, which reduces growth by raising the cost of acquiring capital. Moreover, a higher degree of political instability is associated with higher inflation (e.g., Aisen and Veiga, 2005). For these reasons, higher inflation will tend to increase sovereign risk. We include the output gap to control for the economic cycle, and monetary conditions because recent work has shown that the timing and type of fiscal adjustment also depend on the economic cycle (Mulas-Granados, 2003, and von Hagen and Strauch, 2001). We include a country's default history as one of the

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[3] We use gross national income rather than GDP because the former, which captures net factor income and current transfers, as a better measure of the ability of a country to pay is often considered a more appropriate measure of a country's solvency.

control variables and hypothesize that it has a positive coefficient because defaults increase risk. Another control variable is a regional spread index that controls for contagion effects; the regions are Africa, Asia, Europe, and Latin America.[4]

III. EMPIRICAL STRATEGY FOR FISCAL POLICY VARIABLES

Although we are concerned with estimating the effect of institutions on spreads, to determine whether institutions have an independent effect on the fiscal policy they influence, we want unbiased estimates on the fiscal policy variables. Our fiscal variables—government revenues, spending, and investment—are likely to be correlated with the disturbance term. There are three potential sources of endogeneity in the fiscal variables that may bias estimates: interest payments, automatic stabilizers, and the timing of discretionary fiscal consolidations. To address these issues we construct a measure of discretionary changes in the fiscal variables. It is important to use discretionary fiscal policy variables to neutralize the effect of automatic stabilizers that may bias the evidence in favor of current-spending-based adjustment. Moreover, the use of discretionary fiscal variables is motivated by the evidence that the economic cycle does matter for the timing and type of fiscal adjustments (Mulas-Granados, 2003, and von Hagen and Strauch, 2001).

To derive the discretionary fiscal policy variables, we estimate the following equation

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[4] The regional spread (excluding a country) is calculated as the weighted average of all other countries in the same region for the same year. The weight used was total EMBI market value (MV). E.g., the regional spread (RS)

excluding country i in year t: $RS_{it} = \dfrac{\sum_{j}(S_{jt} * MV_{jt})}{\sum_{j} MV_{jt}}$, where j represents all other countries in the same

geographic region as country i and j$\neq i$.

$$F_{it} = a_i + \psi \cdot \text{outgap}_{it} + \text{inf}_{it} + (\text{inf}_{it})^2 + \xi_{it} \tag{7}$$

where F_{it} is the fiscal variable (either government revenues, current spending, or investment,

each relative to GNI), and outgap_{it} is a measure of the output gap, defined as the difference

between real GDP and its country-specific Hodrick-Prescott trend, as a percentage of trend GDP.

The variable inf_{it} indicates the inflation rate. In deriving discretionary fiscal policy, Fatás and

Mihov (2003) suggest including the inflation rate to ensure that the results are not driven by

high-inflation episodes. We also add the square of the inflation rate to account for a possible

nonlinear relation between inflation and the fiscal variables. We estimate equation (7) by

instrumental variables, using lagged output gap, lagged inflation, and lagged inflation squared as

instruments. The residuals $\hat{\xi}_{it}$ are interpreted as the discretionary fiscal variables.[5]

As Alesina and others (2002) argue, cyclically adjusted fiscal variables may not fully

eliminate endogeneity, given the possibility of a discretionary fiscal response to the business

cycle. Accordingly, we address any remaining endogeneity by using as instruments for

discretionary fiscal variables the following variables: a dummy for the political system

(presidential versus parliamentary); a dummy for the electoral system (proportional versus

majoritarian); an electoral indicator; a right-wing government indicator; the indicator of political

constraints constructed by Henisz (2000); the dependency ratio; the urbanization rate; the log of

real GDP per capita; and openness (measured by total trade as a percent of GDP).[6]

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[5] A similar method was used by Fatás and Mihov (2003); Blanchard and Perotti (2002); Alesina et al. (2002); and Akitoby and Stratmann (2008).

[6] Use of the political institutional variables is motivated by the political economy frameworks of Alesina and Wacziarg (1998) and Persson and Tabellini (2000a). See also Fatás and Mihov (2001, 2003).

In the second stage, we estimate the original specifications (equation 6), using country and year fixed effects (FE), with the three fiscal variables replaced by their corresponding fitted values from the first stage regression.

IV. DATA DESCRIPTION AND RESULTS

A. Data Description

The data set for the dependent variable is the stripped spread obtained from the Emerging Markets Bond Index Global (EMBI Global). We restricted our data to the emerging countries covered by the EMBI Global because there is no comparable spread index available for other countries, that is, a spread index that uses the same financial instruments as the EMBI Global. The EMBI Global, which is widely used, tracks total returns for traded external debt instruments issued in emerging markets by sovereign and quasi-sovereign entities. These instruments include US dollar-denominated Brady bonds, loans, and Eurobonds. Bonds included in the index must have a face value of over US$500 million, a maturity of more than 2½ years, and verifiable daily prices and cash flows. The EMBI Global, which currently covers 32 countries, is a market-capitalization-weighted index, with a country's spread computed as the weighted average of the spreads of the bonds included.[7] The bond spread is measured against a comparable U.S. government bond. Like other financial data, the EMBI index exhibits high volatility and heteroscedasticity. While these problems are less severe in the annual data than in the daily ones, we do correct for heteroscedasticity in computing the covariance matrix of the estimated coefficients.

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[7] An alternative data source for spreads is the EMBI+ index, which covers 19 countries. We chose the EMBI Global because it covers more countries and has more observations than the EMBI+.

The data sources of our right-hand-side economic variables are from the World Bank's

World Development Indicators and the IMF's World Economic Outlook database and

International Financial Statistics. The variable measuring whether a country is in default is

based on the classification by Manasse and Roubini (2005, page 9, table 1) and Gelos, Sahay,

and Sandleris (2004, page 36, table A7). The indicator variable is set to 1 if in a specific year the

country is classified by either paper to be in default. The political and institutional variables are

taken from Persson and Tabellini (2001); the ICRG; and the World Bank's Database of Political

Institutions (DPI).

Descriptive statistics can be found in table 1. A list of the countries included in our

regression analysis in given in appendix table A1. The reason the frequency of countries differs

is that some were not included in all years in the EMBI Global.

B. Results

The model is estimated using ordinary least square (OLS) and fixed-effects estimation,

with robust standard errors. Table 2 reports OLS regression results that do not include fiscal

policy variables and country fixed effects but do include year indicators. The point estimates on

these indicators are not reported. Table 3 adds country fixed effects to the specifications in table

2. In both tables, all the traditional control variables have the expected effect on spreads and are

statistically significant. Moreover, the magnitude of the estimates is roughly consistent with

findings in the literature (see, for example, Edwards, 1986, and Min, 1998).

The results in table 3, column 1, imply that a 1 percentage point increase in debt–to–GNI

leads to about a 1 percent increase in spreads, which implies that countries with higher debt are

penalized in international markets. Similarly, the coefficient of the liquidity indicator (total

foreign exchange reserves as a percent of GDP) is also significant at the 1 percent level, with the expected negative sign. Like Edwards (1986), we find that financial markets are sensitive to changes in reserves, evidence that liquidity concerns are important in the international investor's decision. A 1 percentage point increase in reserves–to–GDP causes the spreads to fall by about 4.5 percent. The magnitudes of the estimated coefficients on the debt and reserves indicate that each percentage increase in reserves is four times as effective in reducing spreads as each percentage reduction in debt.

With regard to other economic fundamentals, the effect of higher inflation on spreads is statistically significant and positive, as expected, while higher output causes spreads to fall (Table 3). The default history variable is also statistically significant, with the predicted positive sign. Tables 2 and 3 give similar estimates for these variables; the only notable difference is the estimate for the output gap, which has a negative sign in both tables but is statistically significant only in table 2, where we control for country fixed effects. The negative sign indicates that spreads are lower when countries are in boom periods and higher when they are in recessions.

Political institutions matter for financial markets. The findings are robust to a wide range of indicators of institutional quality. First, democracy, regardless of how it is measured—the Kaufmann voice and accountability index, the Freedom House index of political rights, the Polity index, or the ICRG democratic accountability index—lowers spreads. The point estimates are statistically significant and all have the expected negative sign, indicating that more democracy is associated with lower spreads. Although the Freedom House index for political rights has a positive sign, it too shows that more democracy leads to lower spreads, because higher values in Freedom House indexes imply less democracy.[8]

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[8] Higher values for Freedom House indices means less freedom. Their ratings for the civil liberty and political rights measures ranges from 1 to 7, with 7 representing the least political rights and civil liberties.

More civil liberties also lower spreads, because civil liberties foster democracy. These results forcefully suggest that financial markets are giving a premium to democratic regimes. Put differently, the markets tend to penalize nondemocratic regimes by charging them relatively higher interest rates. Since financial markets affect economic development through better resource allocation and risk diversification, our findings seem to suggest that democracy also matters for growth. Since we find that more government accountability, as measured by the ICGR index and the Kaufman index, lowers spreads, our results lend support to Keefer and Knack's (2003) findings that checks and balances increase creditworthiness.

The negative and statistically significant sign on the ICRG political risk variable shows that lower political risk reduces spreads, which confirms the widely held view that financial markets dislike political risk. We also find some evidence that sovereign borrowing costs tend to be higher in election than in off-election years. This corroborates Block and Vaaler's (2004) finding that rating agencies and bondholders view elections negatively, presumably because elections are associated with uncertainty about the future.

Table 3 adds country fixed effects to the specifications in table 2. This does not alter our previous conclusions. Further, the point estimates are roughly similar in the country fixed-effects specification to the results reported in table 2.

The effects of democratic institutions are substantial (table 3). For example, a one standard deviation in the ICRG democratic accountability index decreases spreads by about 25 percent. Similarly democracy, as captured by more civil liberties and political rights, lowers spreads. A one point reduction in political rights, as measured by the Freedom House index on a one to six scale, reduces spreads by 8.5 percent, and the same reduction in civil rights reduces spreads by 19 percent.

It is also of interest whether institutions affect spreads even when controlling for fiscal variables that themselves are influenced by democratic institutions. Table 4 reports specifications corresponding to table 2 with fiscal variables added. Table 5 corresponds to table 3 with fiscal variables added. Before discussing the effects of institutions on spreads as documented in these tables, let us first look at the results on the fiscal variables.

The fiscal variables have the anticipated effect on spreads. Both government revenue and current expenditure always enter with the expected sign and are statistically significant. Revenue increases or current spending cuts reduce spreads. The coefficient of government investment is often not statistically significant. The size of public investment may not matter to investors as much as its quality. But overall, these findings support the hypothesis that revenues and current spending decisions affect financial markets.

The results also allow us to examine whether financial markets distinguish between expenditures financed by debt or out of revenues. If a country finances current spending by raising revenue, the increase in revenue would reduce the spread, thereby offsetting the impact on spreads of increasing current spending; on the other hand, if current spending is debt-financed, the increase in the country's indebtedness will heighten the risk. Put differently, tax-financed current spending and debt-financed current spending have different impact on spreads. For example (see table 5, column 1), a 1 percentage point increase in current spending financed by debt raises spreads by about 11 percent[9]l; financed by taxes it reduces spreads by about 10 percent.

As for whether political institutions affect financial markets, in table 4 almost all of our previous results on political institutions reemerge and are therefore robust to the inclusion of

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[9] This number is obtained by adding the values of the coefficients estimates of debt to GNI and current expenditure to GDP.

fiscal variables, suggesting that institutions have independent influence on spreads over and above the fiscal outcomes they shape. Democracy—as measured by Kaufmann's voice and accountability index, the Freedom House index for political rights, and the ICRG democratic accountability index—continues to reduce spreads in a statistically significant way. The point estimate on the Polity variable is not statistically significant, although it has the same sign as previously. Investors continue to view political risk negatively. The indicator variable for the election year is statistically significant in the fixed effect specification, suggesting that financial markets penalize sovereign borrowers in an election year. The results reported in table 5 show that the findings in table 4 are robust to the inclusion of country fixed effects.

C. Sensitivity and Robustness[10]

Our findings are robust to a variety of different specifications. First, we estimated the model with alternative measures of solvency and liquidity, and the results obtained were very similar to those reported. Second, we also tested whether currency crises help explain changes in spreads, but our measures of currency crisis variables were not statistically significant. Third, given the role of regional contagion in the pricing of sovereign risk, we also consider a regional spread index to measure contagion. The reason we use a regional index is that many authors have suggested that contagion is more a regional than a global phenomenon (see, for example, Kaminsky and Reinhart, 2000). We group the sample countries into four regions: Europe, Latin America, Africa, and Asia. We expect the contagion variable to have a positive coefficient. This estimate on the contagion variable was not statistically significant, but the results on political institutional variables hold.

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[10] Not all sensitivity results are reported, but they can be obtained upon request.

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We also tried two nonlinear specifications. First, a number of studies suggest that a debt ratio of 40 or 50 percent of GDP could increase debt intolerance and spreads.[11] We therefore estimated a threshold model for the 40 percent and 50 percent cut-off and found that in both the interaction variable is not statistically significant. Second, we tested whether political variables may interact with the debt variable to affect spreads. We found that the evidence does not support this hypothesis.

IV. CONCLUSIONS

This paper investigates whether political institutions matter for financial markets. Using panel data from emerging market countries, we find that financial markets care about changes in political institutions. Institutions appear to have some independent influence on spreads beyond the fiscal and economic outcomes they shape. In particular, financial markets reward democracy and electoral accountability by charging lower interest rates spreads, thereby contributing to economic growth. Also, governments borrowing costs are likely to be higher in election than in off-election years.

This study has a number of policy implications for countries seeking to lower the cost of borrowing on international capital markets. First, a country would be better off if it strengthened check and balances and democratic accountability. Second, the country should simultaneously ensure that macroeconomic and structural policies are appropriate to ensure a lower debt-to-GDP ratio and comfortable reserves. Third, when fiscal adjustment is needed to reassure financial markets, the country would be better off pursuing revenue-driven fiscal adjustments and cutting

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[11] See for example, Reinhart, Rogoff, and Savastano (2003) and Bayoumi, Goldstein, and Woglom (1995).

current spending instead of public investment, because financial markets do pay attention to the composition of fiscal consolidation.

For future research, it would be useful to deepen the empirical analysis by investigating the role of particular types of institutions—e.g., central bank independence, public expenditure management, bankruptcy law, and labor market institutions. Data that have a larger number of countries with a longer time series than those used in this paper would make these inquiries more promising.

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Table 1
Means and Standard Deviations

Variable	Obs	Mean	Std. Dev.	Min	Max
Log annual mean spread	169	6.272	0.815	4.050	8.664
Total Debt to GNI	169	0.569	0.254	0.163	1.57
Reserves to GNI	169	0.127	0.076	0.008	0.375
Log inflation	169	2.356	1.174	2.38E-08	7.991
Output gap	169	-0.283	2.667	-11.674	6.356
Country has defaulted in past	169	0.243	0.43	0	1
Total government revenues	169	0.270	0.079	0.149	0.511
Government investment	169	0.046	0.03	0.007	0.149
Current government expenditures	169	0.259	0.095	0.077	0.491
Kaufman voice index – higher values imply more accountability	75	0.010	0.546	-1.31	1.12
Political constraints—Henisz—higher values imply more constraints	169	0.582	0.215	0	0.858
ICRG political risk index—higher values imply less risk	167	65.77	7.784	45.833	79.42
ICRG democratic accountability index—higher values imply more acct.	167	3.952	1.102	1	6
Elections are held for legislative and executive branch = 1					
0 in no election years	169	0.260	0.440	0	1
Presidential system, 1 of Pres. System, 0 otherwise	169	0.852	0.356	0	1
Polity index—higher values imply more democracy	150	15.54	4.549	3	20
Freedom House Political Rights—higher values imply fewer rights	159	3.006	1.503	1	6
Freedom House Civil Rights—higher values imply fewer rights	159	3.434	1.134	1	6

Table 2. Effects of Institutions on Spreads—OLS Estimates (Baseline)
(Dependent Variable: Annual Mean Spread)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Debt to GNI	1.409***	1.209***	1.628***	1.525***	1.139***	1.359***	1.412***	1.441***	1.431***	1.373***
	(0.175)	(0.237)	(0.177)	(0.183)	(0.182)	(0.171)	(0.173)	(0.158)	(0.171)	(0.172)
Reserves to GDP	-4.892***	-5.475***	-5.56***	-5.303***	-5.605***	-3.517***	-4.826***	-4.234***	-5.098***	-4.756***
	(0.586)	(0.829)	(0.577)	(0.578)	(0.596)	(0.736)	(0.579)	(0.533)	(0.586)	(0.584)
Log inflation	0.141***	0.089	0.071**	0.096***	0.17***	0.166***	0.142***	0.057***	0.134***	0.141***
	(0.035)	(0.062)	(0.033)	(0.032)	(0.038)	(0.036)	(0.035)	(0.037)	(0.036)	(0.035)
Output gap	-0.02	-0.017	-0.019	-0.015	-0.03	-0.017	-0.02	-0.019	-0.024	-0.021
	(0.019)	(0.028)	(0.019)	(0.019)	(0.018)*	(0.018)	(0.019)	(0.017)	(0.019)	(0.019)
Indefault	0.427***	0.508***	0.408***	0.432***	0.407***	0.459***	0.423***	0.373***	0.406***	0.437***
	(0.092)	(0.131)	(0.092)	(0.091)	(0.084)	(0.082)	(0.090)	(0.095)	(0.093)	(0.092)
Constant	5.542***	5.512***	5.124***	5.302***	6.105***	4.921***	5.474***	7.816***	5.941***	5.666***
	(0.317)	(0.288)	(0.312)	(0.297)	(0.264)	(0.362)	(0.332)	(0.542)	(0.351)	(0.335)
Kaufmann voice & accountability index		-0.284***								
		(0.089)								
Freedom house index, civil liberty			0.149***							
			(0.036)							
Freedom house index, political rights				0.088***						
				(0.029)						
Polity index					-0.016*					
					(0.009)					
Dummy for presidential system						0.434***				
						(0.118)				
Dummy for election year							0.119*			
							(0.073)			
ICRG political risk index								-0.029***		
								(0.006)		
ICRG democratic accountability index									-0.083***	
									(0.030)	
Political constraint index										-0.181
										(0.198)
Observations	169	75	159	159	150	169	169	167	167	169
R-squared	0.69	0.72	0.75	0.74	0.74	0.71	0.69	0.74	0.7	0.69

Robust standard errors in parentheses. * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. All specifications have year indicators.

Table 3. Effects of Institutions on Spreads—Fixed Effects Estimates (Baseline)
(Dependent Variable: Annual Mean Spread)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Debt to GNI	0.987***	0.402	1.039***	0.873**	1.094***	0.945***	0.989***	1.059***	1.064***	0.974***
	(0.331)	(0.491)	(0.327)	(0.355)	(0.330)	(0.340)	(0.328)	(0.269)	(0.295)	(0.316)
Reserves to GDP	-4.462***	-3.793**	-5.075***	-4.482***	-3.937***	-4.193***	-4.435***	-4.074***	-4.291***	-4.584***
	(1.114)	(1.586)	(1.134)	(1.146)	(1.077)	(1.145)	(1.110)	(1.002)	(1.100)	(1.086)
Log inflation	0.095**	0.147	0.086*	0.106**	0.077*	0.085*	0.095**	0.055	0.088**	0.082*
	(0.045)	(0.123)	(0.047)	(0.049)	(0.043)	(0.044)	(0.046)	(0.036)	(0.040)	(0.042)
Output gap	-0.049***	-0.081***	-0.05***	-0.056***	-0.052***	-0.049***	-0.049***	-0.035***	-0.048***	-0.051***
	(0.015)	(0.025)	(0.019)	(0.019)	(0.016)	(0.015)	(0.015)	(0.013)	(0.014)	(0.015)
Indefault	0.235***	0.204	0.232***	0.221**	0.229**	0.254***	0.237***	0.191**	0.208***	0.243***
	(0.077)	-0.136	(0.087)	(0.087)	(0.093)	(0.078)	(0.079)	(0.074)	(0.075)	(0.079)
Constant	5.892***	6.154***	5.13***	5.55***	6.541***	5.546***	5.859***	8.118***	6.318***	6.198***
	(0.262)	(0.297)	(0.346)	(0.296)	(0.352)	(0.307)	(0.267)	(0.609)	(0.280)	(0.330)
Kaufmann voice & accountability index		-0.514**								
		(0.225)								
Freedom house index, civil liberty			0.194***							
			(0.059)							
Freedom house index, political rights				0.085*						
				(0.046)						
Polity index					-0.037*					
					(0.020)					
Dummy for presidential system						0.413***				
						(0.143)				
Dummy for election year							0.061			
							(0.046)			
ICRG political risk index								-0.032***		
								(0.008)		
ICRG democratic accountability index									-0.123***	
									(0.040)	
Political constraint index										-0.395
										(0.287)
Observations	169	75	159	159	150	169	169	167	167	169
R-squared	0.7	0.78	0.73	0.71	0.72	0.71	0.71	0.76	0.74	0.71

Robust standard errors in parentheses. * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. All specifications have year and country indicators.

Table 4. Effects of Institutions on Spreads in the presence of fiscal variables—OLS Estimates
(Dependent variable: Annual Mean Spread)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Debt to GNI	1.025***	0.992***	1.298***	1.143***	1.024***	1.025***	1.019***	1.26***	1.12***	1.026***
	(0.193)	(0.239)	(0.208)	(0.216)	(0.210)	(0.193)	(0.188)	(0.182)	(0.195)	(0.193)
Total reserve in percent of GDP	-5.278***	-5.968***	-5.634***	-5.391***	-5.42***	-5.307***	-5.212***	-4.866***	-5.39***	-5.301***
	(0.436)	(0.704)	(0.498)	(0.488)	(0.481)	(0.602)	(0.432)	(0.406)	(0.459)	(0.431)
Log inflation	0.053**	0.002	0.027	0.049**	0.065**	0.052**	0.055**	-0.023	0.05**	0.054**
	(0.024)	(0.048)	(-0.026)	(0.024)	(0.029)	(0.026)	(0.024)	(-0.028)	(0.023)	(0.024)
Output gap	-0.026**	-0.039**	-0.027*	-0.024	-0.03**	-0.027**	-0.027**	-0.022**	-0.028**	-0.026**
	(0.012)	(0.019)	(0.015)	(0.015)	(0.013)	(0.012)	(0.012)	(0.011)	(0.012)	(0.012)
Indefault	0.438***	0.388***	0.389***	0.437***	0.468***	0.437***	0.437***	0.344***	0.406***	0.437***
	(0.068)	(0.097)	(0.072)	(0.071)	(0.074)	(0.067)	(0.068)	(0.067)	(0.071)	(0.069)
Government revenue to GDP	-5.903***	-5.594***	-4.743***	-5.141***	-5.322***	-5.922***	-5.866***	-5.663***	-5.552***	-5.813***
	(0.819)	(1.101)	(0.828)	(0.858)	(0.876)	(0.871)	(0.817)	(0.776)	(0.815)	(0.859)
Public investment to GDP	0.847	-2.49	-0.306	0.068	0.472	0.848	1.001	-2.59*	0.436	1.454
	(1.634)	(2.281)	(1.7)	(1.748)	(1.759)	(1.641)	(1.634)	(1.540)	(1.597)	(2.027)
Current expenditure to GDP	2.96***	3.618***	2.868***	2.815***	2.758***	2.972***	2.894***	3.636***	3.048***	2.821***
	(0.463)	(0.698)	(0.474)	(0.474)	(0.457)	(0.470)	(0.473)	(0.449)	(0.460)	(0.541)
Constant	6.124***	5.95***	5.611***	5.862***	6.409***	6.138***	6.068***	8.075***	6.359***	6.056***
	(0.231)	(0.233)	(0.261)	(0.248)	(0.230)	(0.300)	(0.247)	(0.430)	(0.240)	(0.261)
Kaufmann voice & accountability index		-0.280**								
		(0.107)								
Freedom house index, civil liberty			0.123***							
			(0.036)							
Freedom house index, political rights				0.047*						
				(0.027)						
Polity index					-0.012					
					(0.008)					
Dummy for presidential system						-0.009				
						(0.108)				
Dummy for election year							0.101			
							(0.061)			
ICRG political risk index								-0.026***		

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
								(0.005)		
ICRG democratic accountability index									-0.063**	
									(0.027)	
Political constraint index										0.103
										(0.181)
Observations	169	75	159	159	150	169	169	167	167	169
R-squared	0.82	0.84	.83	0.82	0.82	0.82	0.82	0.85	0.82	0.82

Robust standard errors in parentheses. * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. All specifications have year indicators.

Table 5. Effects of Institutions on Spreads in the presence of fiscal variables—Fixed Effects Estimates
(Dependent variable: Annual Mean spread)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Debt to GNI	0.993***	0.421	0.982***	0.883***	1.019***	0.985***	1.002***	1.001***	0.999***	0.97***
	(0.275)	-0.409	(0.283)	(0.298)	(0.287)	(0.280)	(0.265)	(0.260)	(0.271)	(0.274)
Total reserve in percent of GDP	-4.422***	-3.486**	-4.98***	-4.661***	-4.666***	-4.371***	-4.259***	-4.282***	-4.51***	-4.498***
	(0.864)	(1.324)	(0.892)	(0.900)	(0.874)	(0.890)	(0.847)	(0.857)	(0.867)	(0.861)
Log inflation	0.032	0.123	0.034	0.034	0.004	0.031	0.042	0.024	0.033	0.03
	(-0.04)	(-0.103)	(0.046)	(0.046)	(0.042)	(0.040)	(0.041)	(0.037)	(0.036)	(0.040)
Output gap	-0.002	-0.04	-0.011	-0.01	0	-0.033	0	-0.002	-0.005	-0.006
	(-0.013)	(-0.025)	(0.016)	(0.016)	(0.015)	(0.014)	(0.013)	(0.013)	(0.014)	(0.014)
In default	0.136*	0.136	0.117	0.121	0.15	0.14*	0.121	0.124*	0.131*	0.141*
	(0.076)	-0.134	(0.087)	(0.088)	(0.091)	(0.076)	(0.08)	(0.074)	(0.075)	(0.075)
Government revenue to GDP	-20.205***	-17.861***	-18.908***	-20.636***	-21.152***	-19.906***	-19.004***	-16.588***	-18.931***	-20.107***
	(3.335)	(4.929)	(3.704)	(3.596)	(3.747)	(3.606)	(3.147)	(3.257)	(3.545)	(3.327)
Public investment to GDP	8.717	-0.534	10.028***	7.903	8.725	9.133	22.371**	6.983	6.926***	6.586
	(6.573)	(10.003)	(3.705)	(6.665)	(7.754)	(6.963)	(8.576)	(6.416)	(1.918)	(6.477)
Current expenditure to GDP	9.908***	8.653***	10.196***	9.703***	8.761***	9.926***	12.842***	9.111***	9.296***	10.635***
	(1.919)	(3.165)	(2.025)	(1.917)	(2.189)	(1.941)	(2.065)	(1.873)	(1.917)	(1.986)
Constant	6.229***	6.245***	5.88***	6.265***	6.182***	6.161***	6.056***	7.656***	6.527***	6.462***
	(0.255)	(0.355)	(0.315)	(0.283)	(0.395)	(0.318)	(0.271)	(0.573)	(0.299)	(0.307)
Kaufmann voice & accountability index		-0.316								
		(0.208)								
Freedom house index, civil liberty			0.12**							
			(0.048)							
Freedom house index, political rights			0.028							
			(0.034)							
Polity index					0.007					
					(0.02)					
Dummy for presidential system						0.072				
						(0.157)				
Dummy for election year							0.167***			
							(0.049)			
ICRG political risk index								-0.021***		
								(0.007)		
ICRG democratic accountability index									-0.084**	
									(0.035)	
Political constraint index										-0.342

									(0.217)
Observations	169	75	159	159	150	169	169	167	167	169
R-squared	0.79	0.84	0.8	0.8	0.81	0.79	0.81	0.81	0.8	0.8

Robust standard errors in parentheses. * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. All specifications have year and country indicators.

Appendix

Table A1: List of Countries Included

Country	Number of observations
Argentina	10
Brazil	10
Bulgaria	10
Chile	5
Colombia	7
Côte d'Ivoire	6
Croatia	8
Ecuador	9
Egypt	3
El Salvador	2
Malaysia	8
Mexico	10
Morocco	7
Pakistan	1
Panama	8
Peru	7
Philippines	7
Russia	7
South Africa	10
Thailand	7
Tunisia	2
Turkey	8
Ukraine	4
Uruguay	3
Venezuela	10