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Political risk spreads

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Abstract

We introduce a new, market-based and forward-looking measure of political risk derived from the yield spread between a country's US dollar debt and an equivalent US Treasury bond. We explain the variation in these sovereign spreads with four factors: global economic conditions, country-specific economic factors, liquidity of the country's bond, and political risk. We then extract the part of the sovereign spread that is due to political risk, making use of political risk ratings. In addition, we provide new evidence that these political risk ratings are predictive, on average, of future risk realizations using data on political risk claims as well as a novel textual-based database of risk realizations. Our political risk spread measure does not make the mistake of double counting systematic risk in the evaluation of international investments, as some conventional measures do. Furthermore, we show how to construct political risk spreads for countries that do not have sovereign bond data. Finally, we link our political risk spreads to foreign direct investment (FDI). We show that a 1% point reduction in the political risk spreads is associated with a 12% increase in net-inflows of FDI.

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INTRODUCTION

Political risk refers to the risk that a government action will negatively affect the cash flows of a company conducting an international investment. Political risk assessment is one of the most important challenges underlying foreign direct investment (FDI) decisions. Between 1980 and 2010, FDI flows increased by a factor of about 25 (see UNCTAD, 2010), making political risk assessment increasingly important.

Our paper addresses one of the most basic questions in international business: How do we account for political risk in FDI decisions? We introduce the new concept of a political risk spread (PRS). It uses political risk risk-rating data from the International Country Risk Guide (ICRG) and other economic variables to extract the political risk component from sovereign spreads. The sovereign spread, also referred to as a country (credit) spread, is the difference between the yield on a bond issued by a developing country in US dollars and a US Treasury bond of similar maturity. It depends, among other factors, on the probability of sovereign default and, conditional on default, the expected recovery value of a country's sovereign bond.

We propose political risk spreads as a novel measure of political risk that incorporates forward-looking market information. In contrast to available political risk ratings, which are mostly subjective

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assessments of experts, it is very easy to incorporate our political risk spreads in a quantitative valuation analysis, as they are in discount rate units. These spreads can be used as discount rate adjustments or transformed into an adjustment for expected cash flows. We illustrate how to use the political risk spreads in project evaluation and how to extract the probability of an adverse political event from them under certain assumptions. Given that there are a limited number of countries with sovereign spreads, we also show how to estimate political risk spreads for countries that do not issue US dollar denominated sovereign bonds.

Other attempts to use market data to infer political risk include Click (2005) who introduces a new political risk index that is built on the amount of unexplained country-level variation in actual realized returns on FDIs by US firms. His approach has some similarities to ours, as his analysis requires him to remove the influence of other risks, such as financial risks, on FDI returns just as we isolate political risk from the sovereign spread. The Click index provides a characterization of political risk that FDI in certain countries has been exposed to in the past. Our political risk spread measure, on the other hand, builds on forward-looking market data that can easily be updated on a daily basis.

Our method has a number of key requirements.

First, the variation in sovereign spreads must be linked to political risk ratings (events). Building on an extensive literature examining the determinants of sovereign spreads, we decompose their variation into four major factors: international economic and financial risk conditions, local macroeconomic conditions, bond market liquidity, and political risk. Our analysis shows that, on average, one third of the sovereign spread reflects political risk. Political risk is, however, the most important determinant of sovereign spreads.

Second, political risk ratings, and by implication our political risk spreads, should be predictive of risk realizations, and it is far from clear that they are. Our paper assesses the predictive ability of these ICRG ratings with two experiments.

In the first experiment, we revisit Howell and Chaddick's (1994) analysis of risk realizations from the insurance claims of the Overseas Private Investment Corporation (OPIC). While this early study used only 5 years of data, our research uses the complete history of claims from 1984 to present. We show that average ratings are deteriorating well before the risk event. This evidence is suggestive of a predictive relation.

Of course, insurance claims cover only a subset of risk realizations. Our second experiment covers all countries and is based on a textual search of various news sources. We create a dictionary of words that are associated with three different sources of foreign investment risk realizations: *Government Actions* (e.g., currency inconvertibility), *Company-Specific Risk* (such as damage to operations due to political unrest), and *Country-Specific Risks* (e.g., wars or other conflicts). We develop three risk realization indices for each country. We then show that the ICRG political risk ratings are predictive, on average, of risk realizations measured by our news-based measures.

The new evidence on political risk prediction validates the use of political risk spreads as a measure of political risk and in investment analysis. The economic implications are important.

First, it is common in the finance literature to use a country's sovereign spreads as a market-based, observable, and forward-looking assessment of a country's overall political risk (see Choi, Gulati, & Posner, 2011). Political risk is then incorporated into the valuation of an investment project by augmenting the project's discount rate reflecting systematic risk exposure with the country's sovereign spread (see, e.g., Damodaran, 1999; Mariscal & Lee, 1993). That is, the project's cash flows are forecasted in the absence of political risk events, which are then incorporated via an upward adjustment to the discount rate based on a country's sovereign spread. Given that sovereign spreads are impacted by many factors – not just political risk – this procedure is flawed. Using some recent data, we estimate that using the full sovereign spreads leads to discount rates being overstated by 2–5 percentage points, potentially leading to substantial misallocation of global investment.

Second, we study the link between our measure of political risk and FDI. There is an extensive literature documenting the mostly negative effects of political risk on FDI, which we survey in detail below. We show that a 1% point decrease in the political risk spreads is associated with a 0.34% increase in FDI scaled by GDP, which for a typical country leads to a 12% increase in net FDI inflows. Given the increased importance of FDI in recent years, our measure may thus be of interest to policymakers as well as business leaders. The cost of particular future policy actions that are known to increase political risk spreads can be directly quantified using our results.

While we rely on the widely available ICRG data, we show the robustness of our results to using the

Coplin–O'Leary (CO) risk ratings. These ratings are particularly interesting because they purport not to just measure political risk but to forecast it at particular horizons (18 months and 60 months).

Our new quantification of political risk provides one number per country, a useful benchmark for any international investor. Nevertheless, a substantive portion of the recent literature has focused on the ability of multinational corporations to manage political risk in a variety of ways and this ability may affect the entry decision in the first place (see, e.g., Henisz, 2003; Feinberg & Gupta, 2009). However, because the political risk index reflects 12 different subcomponents, it is possible to individualize the political risk adjustment by using various subcategories of political risk. We also assess the importance of these individual components of the overall political risk rating in predicting political risk news, and driving variation in sovereign spreads.

The paper is organized as follows. The next section provides a general discussion of political risk and its role in the theory of international investment. It then motivates and discusses the concept of the political risk spread. The following section validates the use of the ICRG political risk ratings as predictive measures of political risk realizations. The section after that surveys the data we use and summarizes the econometric regression results we need to derive the political risk spreads. The subsequent section then extracts political risk spreads for 32 developing countries over the 1994–2009 sample. This section also discusses how to infer probabilities of political risk events from political risk spreads and how to tailor them to firm specific circumstances. The penultimate section shows the relation between political risk spreads and FDI. Some concluding remarks are offered in the final section.

POLITICAL RISK SPREADS IN THE THEORY OF INVESTMENT

Political Risk and Investment

We define political risk for a given country as the risk that the country's government actions or imperfections of the country's executive, legislative, or judicial institutions adversely affect the value of an investment in that country. The most direct form of political risk involves government-initiated seizure of private assets or output, but it also extends to include creeping forms of expropriation such as unexpected taxes or royalties on profits (Knudsen, 1974; Minor, 1994). Furthermore, political risk includes the instability of relevant government policies (see, e.g., Brewer, 1983, 1993) as well as the strength of the legal system, especially with respect to the enforcement of property rights. Finally, we also consider internal and external conflicts, such as general strikes, terrorism, and (civil) war, part of political risk. Below, we try to differentiate between these various components of political risk.

The theory of investment is based on a Net Present Value (NPV) rule. An international investment project is approved when the discounted value of the forecasted cash flows exceeds its investment cost today. The forecasted cash flows over the life of the project are supposed to include allowances for economic uncertainties (e.g., the probability of a recession in the local economy) as well as political actions (e.g., the local government unexpectedly increasing taxes). The discount rate is supposed to reflect the "systematic" risk of the project; the part of the risk that is not diversifiable and linked to global factors (e.g., the sensitivity of the project to a worldwide recession).

While there is widespread agreement on both the use of the NPV rule and the calculation of the discount rate,[1] there is a wide divergence in the application of the theory to political risk. It is common to view political risk as a diversifiable risk so that the adjustment naturally occurs in the cash flows.[2] To make the methodology concrete, consider an all-equity project, with one expected cash flow next year. This cash flow is adjusted for the economic and financial risks that the project faces in the particular country – but not the political risk. The present value of the project is:

$$PV = \frac{CF(1-p)}{1+r}, \qquad (1)$$

where p is the probability of political risk event (assuming no recovery) and r is the discount rate, say from the Sharpe (1964) capital asset pricing model (CAPM). For simplicity, we assume the project or firm is all equity. If leverage is introduced, the discount rate is a weighted average of both equity and bond expected returns. This methodology can be easily generalized to multiple periods and can accommodate changes in the probability of a political risk event. However, as is well known, it is very difficult to quantify political risk (see Bremmer, 2005; Henisz & Zelner, 2010). Even though there are many political risk ratings services, it is not obvious how to translate a ratings score into an adjustment for the cash flows of the project.

It is possible to express the cash flow adjustment in terms of a discount rate adjustment, by dividing both the numerator and denominator in Eq. (1) by $(1-p)$:

$$PV = \frac{CF(1-p)}{1+r} = \frac{CF}{(1+r)/(1-p)}. \quad (2)$$

Notice, that the $(1-p)<1$ term is inflating the effective discount rate. Finally, it is straightforward to express the event probability in terms of the yield spread. Let

$$PRS = \frac{1}{1-p} - 1 \text{ or } p = \frac{PRS}{1+PRS}, \quad (3)$$

where PRS is what we call the political risk spread. For example, if the probability of the political event is 0.10, this implies the political risk spread is 11.1%. So adjusting either the numerator (cash flow, downward) or the denominator (discount rate, upward) leads to an identical PV:

$$PV = \frac{CF(1-p)}{1+r} = \frac{CF}{(1+r)(1+PRS)} \quad (4)$$

The equivalence between the use of political risk probabilities and political risk spreads augmenting the discount rate continues to hold in multi-period capital budgeting under certain assumptions.[3]

In reality, neither p nor PRS are observable. As a result, many businesses and organizations rely on a country's sovereign spreads as an estimate of the project's PRS. The sovereign spreads is then used to augment a project's discount rate.[4] However, we show that the sovereign spreads measures not just political risk, but financial and economic risk as well. Because the expected cash flows should already account for the financial and economic risks, using the full sovereign spreads as a country's PRS implies political risk event probabilities, p^*, that are too high ($p^*>p$) and present values that are too low ($PV^*<PV$). This double counting may lead to international underinvestment.

Our proposed procedure avoids double counting by extracting PRS from the observed sovereign spreads. To do so, we assume that our investment project and the observed sovereign bond have the same maturity. Moreover, the political risk adjustment is assumed constant, and, more subtly, the time profile of cash flows in the bond and the equity project is assumed to be similar. If the cash flow pattern of the equity project is very uneven over time, and very different from the constant coupon implicit in bond pricing, it would certainly be better to infer p from the bond cash flows and apply it to the equity CFs, that is, adjust cash flows and not the discount rate. If p is not constant over time, its evolution over time (e.g., decay after a crisis) would have to be modeled and then the same framework can still be used to infer the current political risk probability.[3]

Extracting political risk from sovereign spreads

Let $SS_{i,t}$ be the sovereign yield spread observed at date t for country i. The spread generally reflects the market's assessment of a country's ability and willingness to repay its debt (relative to the United States). However, sovereign spreads are 'contaminated' by other information. Consider the following decomposition:

$$SS_{i,t} = c_0 + c_1' \text{Global}_t + c_2' \text{Local}_{i,t} + c_3 \text{Liq}_{i,t} + c_4 \text{PR}_{i,t} + \epsilon_{i,t}. \quad (5)$$

We use three categories of control variables, apart from political risk. Spreads could be impacted by either global information (Global) or local macroeconomic information (Local). This information should already be reflected in the forecasted cash flows. Spreads could also be affected by illiquidity (Liq) in the financial markets. This illiquidity essentially distorts the information in the spreads and should not be reflected in either the cash flows or the discount rate. Important for our analysis is the political risk variable (PR). The coefficients, c, represent the dependence of the sovereign spread on the respective factors. The goal of our empirical analysis is to extract $c_4 PR_{i,t}$ in a regression framework. To do this, we need to empirically specify variables for the right-hand side of Eq. (5) which will be expressed as deviations relative to the corresponding US value (of course, with the exception of the global information variables).

Our approach makes several assumptions. First, the political risk proxy must be forward looking and should reflect political risk in a narrow sense, as opposed to a broad country risk. We devote an entire section to discussing the measurement of political risk and validating the predictive power of our proxy for future risk realizations. Second, sovereign spreads must reflect political risk relevant for an MNC's investment decisions. The government's willingness to pay external debt is naturally correlated with its attitude toward MNCs. The ability of a government to service its external debts also depends on the government's ability to extract resources from its citizens, and this is likely correlated with typical measures of political stability. This is apparent from an early international business literature linking political risk variables to creditworthiness. For example, Citron and Nickelsburg (1987) find a statistically significant link between political instability, which they proxy by the number of changes of government over a 5-year period, and the default probability on external debt for a number of developing countries. Vaaler, Schrage, and Block (2005) show that spreads increase when the probability that a right-wing government is replaced by a left-wing government. As we discuss in more detail below, the link between sovereign spreads and political risk is also apparent from the empirical literature on the determinants of sovereign spreads.

Our approach faces several technical challenges that we discuss and resolve in the section "Data and sovereign spread model". One advantage of our approach is that as long as we have information on the factors used in the regression model (in particular, a political risk rating), we can use the model to compute political risk spreads even for countries that do not issue sovereign bonds. While applying the model to countries not issuing bonds skirts some selection issues, it at least provides a reasonable starting point to quantify political risk.

Our method is no panacea: political risk is multifaceted and it may be difficult to predict sudden changes in relatively stable regimes and both markets and ratings sometimes fail to predict calamitous events. For example, the Arab Spring seems to have come largely as a surprise. This need not undermine our proposed technique, as long as the world is largely probabilistic (such events were very small probability to begin with, and may have actually been anticipated by markets and analysts with the correct "small" probabilities). Our objective is to incorporate possible negative cash flow effects of foreign government actions into cross-border valuations. Our primary concern is thus the measurement of the probability and the magnitude of such negative effects. We also assume that a change in the uncertainty about government policy (holding the negative economic implications constant) does not have a first-order valuation effect.

We now asses the predictive content of political risk ratings for risk realizations directly.

MEASURING POLITICAL RISK

International Country Risk Guide

We must find a political risk proxy that is forward looking and reflects political risk in a narrow sense, as opposed to broad country risk that also embeds macroeconomic factors. For most of our analysis, we use the political risk rating from the ICRG which is designed to only reflect political risk as the ICRG has separate ratings on economic and financial risk. While the rating is largely subjective based on the insights of various analysts, the types of quantitative measures of political risk (government turnover, democracy, and left or right leaning governments) mentioned above will surely be correlated with various subcomponents of the ratings (see below). Moreover, if the ratings are not salient with respect to sovereign spreads and default, our empirical analysis will fail to find a significant link between the two.

The political risk rating should also correctly reflect the adverse effects of political risk on investment values across countries and time. While asset values are typically not observed, a recent article by Click and Weiner (2010) suggests that the ICRG rating has power to differentiate political risk effects. They investigate the effect of political risk, measured using the composite ICRG rating, on the value of petroleum reserves using actual transactions data over 6 years and a large set of countries. The fact that the location of the petroleum reserves is exogenous makes the analysis even more relevant. They find that the political risk discount on valuation is substantial and highly statistically significant.

We use the composite rating in our main empirical model, but also consider differentiating the effects of the 12 subcomponents of the ICRG political risk measure. These subcomponents are described in detail in Online Appendix A.[5] We organize the 12 political risk subcomponents into four categories following Bekaert, Harvey, and Lundblad (2005), who allocate them based on their content, but also on an analysis of how correlated different components are across countries and time. The first three subcomponents concern the *Quality of Institutions* in a country including, *Law and Order*, *Bureaucratic Quality*, and *Corruption*. The next group we label "Conflict" includes the four subcomponents that measure the presence or risk of political unrest: *Internal Conflicts*, *External Conflict* (which includes economic disputes, such as trade embargoes), *Religious Tensions*, and *Ethnic Tensions*. The next grouping, *Democratic Tendencies*, which measure the democratic proclivity of a country, includes two subcomponents: *Military in Politics* and *Democratic Accountability*. Our final grouping is called *Government Actions*. This category includes the subcomponent *Government Stability* and *Socioeconomic Conditions*, where the latter subcomponent attempts to measure the general public's satisfaction, or dissatisfaction, with the government's economic policies. This grouping also includes the potentially very relevant subcomponent, *Investment Profile*. This component covers the risk of expropriation or contract viability, taxation and repatriation; factors particularly relevant for an MNC. While the political risk indicator purports to measure political and not economic risk, it goes without saying that our political and economic risk indicators are correlated. High unemployment and poverty, for example, can contribute to internal conflicts.[6] The regression framework takes correlation into account by measuring partial correlations between the dependent variable and the independent variables.

We assess the robustness of our results using the CO risk ratings. These data have not been used on a widespread basis because there is no electronic database available. The CO ratings are 18-month and 60-month forecasts of risk in four different categories that likely affect direct investment: general turmoil, restrictions on transfers (e.g., exchange controls), direct investment risk (e.g., regulatory constraints), and export barriers (e.g., tariffs). We find that the CO and ICRG measures are highly correlated.

Do Risk Ratings Predict Political Risk Events?

For our political risk spreads to be effective, political risk ratings such as ICRG's should predict political risk events, but there is much doubt about their predictive power (see Cosset & Roy, 1991; Oetzel, Bettis, & Zenner, 2001). To evaluate the predictive power of the ICRG ratings, we consider two alternative measures of political risk realizations: political risk insurance claims and political risk news, scraped from Internet sources.

We begin by collecting political risk insurance claims from the OPIC, the US government's political risk insurance agency. These claims are filed as a result of realizations of political risk events for US firms. While these claims only cover a fraction of political risk events (e.g., many corporations do not even take out political risk insurance), the claims have the advantage of measuring not just the political risk event but also its actual dollar impact.

The OPIC claims from 1996 are available from the OPIC website. Claims before 1996 are found in the Kanto, Nolan and Sauvant (2011) volumes. Claims can be filed for events such as a loss of tangible property due to political violence, investment expropriation, and the inconvertibility of currency. For each claim, we read the decision letter and extract: the OPIC decision date, the claimant's notice date, the event date(s), the size of the award, the company's name and a brief description of the nature of the claim. We hand collected data from 1984 (the starting date of the ICRG data).[7] To our knowledge, Howell and Chaddick (1994) is the only extant published paper that examines the ability of various political risk indicators to predict real (OPIC) losses. It does so for the 1987–1992 period.[8]

From all claims including those that were denied, we select the first for each country of the 20 countries with OPIC claims and ICRG coverage. While some of the claims are small, some are large such as a US$217 million payout in 1999. Some countries with OPIC events are not included in the analysis because of lack of ICRG coverage. Our empirical analysis takes the form of an event study. Time zero is the event date of the political risk realization. For each country impacted by an event, we adjust its ICRG political risk measure by subtracting the average ICRG political risk for all emerging markets. We then average the adjusted ICRG political risk measure across all countries for each of the 48 months before the political risk event. Figure 1 shows the evolution of the average (as well as median) of the adjusted ICRG political risk measure leading up to the event. The graph shows that the ICRG ratings of emerging market countries with eventual risk realizations are substantially lower than average before the event (i.e., negative values on the vertical axis). Furthermore, the ICRG ratings (adjusted for average risk) are deteriorating before the political risk event is realized. In addition, the decrease in ratings is robust to the look-back period. While Figure 1 shows a four year period, the deterioration in rating also occurs for 1-, 2- and 3-year periods. This evidence suggests that the ratings contain predictive information regarding political risk realizations, even in this limited sample. Time trends through either the mean or medians have coefficients significantly below zero.

Figure 1 shows that the ratings have some predictive power *on average*. This is not to say that we can use the ratings for a specific country to precisely predict particular events in that country. This is analogous to bond rating services, such as Moody's and Standard and Poor's who rate thousands of bonds. Their ratings are valuable to investors not because they are particularly precise in predicting the default of a specific bond but rather because they correctly predict that a portfolio of junk bonds has a much higher chance of experiencing defaults in the future than a portfolio of highly rated bonds.

Next, we develop new measures of political risk realizations based on a historical search of news about political risk events. Our first task was to develop a dictionary of political risk terms

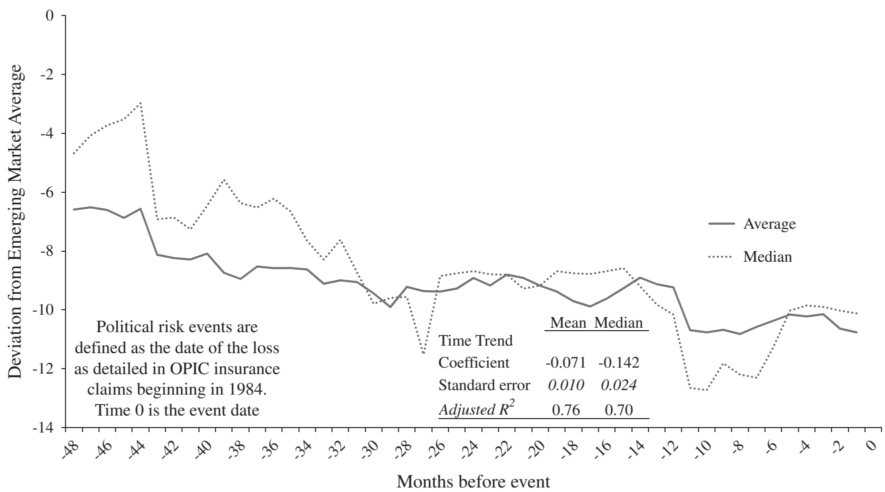

Figure 1 Mean-adjusted political risk ratings before political risk events as measured by insurance claims.

(reproduced as Online Appendix B). We form three broad risk categories each consisting of three subcategories. The first category is *Government Actions* which includes: balance of payments regulations that impact direct investments, governments changing the terms of a contract, and a government interfering with or seizing operations. The second category is *Company-Specific Risks* which includes: harm to foreign employees, damage to a company's operations, and corruption. The final category is *Country-Specific Risks* which includes: social unrest and conflict, conflict in the form of war, and insurgency. These different categories together provide a comprehensive set of political risk realizations that may adversely affect a foreign company's investment.

We conduct separate searches for each of the nine subcategories for the 43 countries for which we have sovereign spreads data. In particular, we search all English language news sources around the world covered by the Access World News database. We count all news items in a given year that contain the name of a given country as well as at least one of the search terms (per subcategory) listed in Online Appendix B.[9] We also count all news items that contain the name of the country. For each country, year, and subcategory, we then form a ratio of the number of news stories with the political risk event search terms over the number of news items referencing a given country. Finally, we add all ratios across the three subcategories for each country and year to obtain an aggregate measure of political risk realizations for each of the three categories. The advantage of the news-based method is that it covers a large number of countries and does not rely on subjective assessments.

Table 1 examines whether there is information in the ICRG ratings that predicts political risk news events. Our news event is defined as the ratio of political risk event news scaled by the total news for that country less the comparable US ratio in a particular year, which we regress on the ICRG rating 1 year prior. Specifically, the independent variable is the difference between the logarithm of the ICRG political risk (ln(ICRG PR)) indicator for the United States less the comparable value for a given country. The base regression uses OLS and adjusts standard errors for group-wise heteroskedasticity, seemingly unrelated regression (SUR) effects,[10] and a Newey and West (1987) correction with four lags. Because the political news ratios are autocorrelated, we also employ a two-step Cochrane–Orcutt estimator. The results show that for each category the ICRG rating significantly predicts the news event ratios, with the strongest results for the *Country-Specific Risks*, where the coefficient is more than four standard errors from zero. An increase in political risk from the 25th to the 75th percentile of the ICRG political risk rating is associated with about half of the difference between the 75th and the 25th percentile of the political risk news measure, suggesting that differences in ICRG political risk ratings represent meaningful differences in the probability of future political risk realizations. In Panel B, we show results for regressions with 3 years and 5 years ahead news ratios as the dependent variables. While the predictive power of the ratings understandably decreases with horizon, they continue to significantly predict political risk realizations.

The overall ICRG political risk index houses information on different aspects of political risk and some

Table 1 Do PR ratings predict news-based realizations of political risk events?

	Government Actions		Company-Specific Risks		Country-Specific Risks	
Panel A: 1-year forecasts of political risk events						
Ln(ICRG political risk)	2.760	1.027	10.063	3.301	46.211	20.966
	0.164	*0.329*	*0.670*	*1.097*	*2.491*	*4.169*
Adjusted R^2	0.21	0.01	0.30	0.02	0.34	0.05
Cochrane–Orcutt two-step procedure	No	Yes	No	Yes	No	Yes
	Government Actions		Company-Specific Risks		Country-Specific Risks	
	3 years	5 years	3 years	5 years	3 years	5 years
Panel B: Multi-year forecasts of political risk events						
Ln(ICRG political risk)	2.359	1.881	8.536	7.186	41.736	36.300
	0.191	*0.207*	*0.686*	*0.728*	*2.691*	*3.172*
Adjusted R^2	0.16	0.12	0.25	0.20	0.30	0.24

The sample includes the 43 countries for which we have sovereign spreads data. For an unbalanced panel of annual observations from 1987 to 2011, we regress three different realizations of news events, defined as the ratio of political risk event news scaled by the total news for that country less the comparable US ratio in a particular year, on a constant and the difference between the logarithm of the ICRG political risk indicator (ln(ICRG PR)) for the US less the comparable value for each country. For the left-hand side variables on political risk news, we form three broad risk categories each consisting of three subcategories. The first category is *Government Actions* which includes: balance of payments regulations that impact direct investments, governments changing the terms of a contract, and a government interfering with or seizing operations. The second category is *Company-Specific Risks* which includes: harm to foreign employees, damage to a company's operations, and corruption. The final category is *Country-Specific Risks* which includes: social unrest and conflict, conflict in the form of war, and insurgency. Panel A reports results when the left-hand side variable is measured over 1 year ahead, while Panel B reports results when left-hand side variable is measured over 3 or 5 years ahead. We report coefficient estimates from pooled OLS regressions; however, standard errors, reported in italics, account for group-wise heteroskedasticity, SUR effects, and a Newey–West correction with two lags. Because the political news ratios are autocorrelated, Panel A also employs a two-step Cochrane–Orcutt estimator.

components may be more predictive of future risk than others. However, when we consider a regression with the four subgroups of the composite ICRG rating discussed above, (i.e., Quality of Institutions, Conflict, Demographic Tendencies, and Government Actions) the adjusted R^2 goes down for all three risk realization groups. This suggests that the overall index is a good summary index of political risk. This conclusion is further confirmed by an analysis where we run 12 different regressions, each time using an index of 11 components and the excluded component separately. The adjusted R^2's do not change very much. The coefficient on the ICRG index remains very robust across specifications and is always highly statistically significant. We therefore focus our main analysis on the overall political risk index.

In summary, we find evidence that deterioration of ICRG political risk ratings has some predictive power for both political risk insurance claims as well as political risk events measured by news coverage. Given our empirical measure of political risk, we are now able to use a regression framework to extract the part of the sovereign spreads that is due to political risk.

DATA AND SOVEREIGN SPREAD MODEL

Sovereign Spreads

To measure sovereign spreads, we collect monthly bond yields (BYs) for 44 sovereign issuers from January 1994 to December 2009 from J.P. Morgan's Emerging Market Bond Indices (EMBI) (43 emerging market as well as the US sovereign yields). In particular, we employ their EMBI+ series, which cover relatively liquid US dollar denominated sovereign and quasi-sovereign bonds. If EMBI+ series are not available, we employ J.P. Morgan's EMBI series, which incorporate less liquid instruments. Further, we obtain "Stripped Spreads" (EMBI code: SSPRD) over Treasuries of similar maturity. These indices include both collateralized restructured (Brady) debt and conventional non-collateralized bonds. A bond's stripped spread is net of the value of any (Brady) guarantees. The indices incorporate emerging market issuers from Latin America, Eastern Europe, Asia, Africa, and the Middle East.

Online Appendix C presents some summary statistics on the sovereign spreads. We have at least 10 years of data for 20 countries and our total sample includes 43 countries. The mean spreads range from

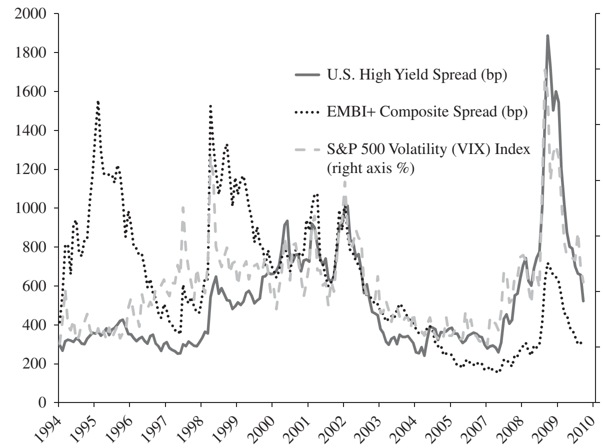

Figure 2 Sovereign spreads and measures of global risk.

as little as 108 basis points for China to as large as 1735 basis points for Argentina. In several cases, the average spreads substantially exceed the median spreads, suggesting the importance of several significant market crises that are present in our data. These periods pose a challenge for our empirical model.

The analysis of average spreads mask significant time-series variation in spreads, as suggested by the large standard deviations reported. Figure 2 shows the time-series for the so-called EMBI+ Emerging Market Composite index. Emerging market spreads mostly stay below 400 bps, but were very elevated during the crises periods in the late 1990s, early 2000s, and 2008–2009.

Figure 2 also includes the US high yield bond spread as well as the option-implied annual volatility on the S&P 500 (Volatility Index (VIX)).[11] Note that in the early part of the sample emerging markets bond spreads are higher than US corporate high yield spreads. In the post 2000 period, this reverses. Also, the graph reveals a significant correlation between US BYs and emerging market sovereign spreads. In the post 2000 period, the correlation is 0.57. This high correlation is evidence that the sovereign spreads contain more information than local political risk and this further motivates our decomposition in Eq. (5).

Our empirical analysis eliminates a small number of sovereign spreads observed during periods of default. It is generally known that sovereign spreads may behave quite differentially when a country has defaulted on its debt. In default, the market attempts to assess the recovery values of the existing bonds, rather than the future political risk situation. Moreover, when a bond goes into default, the market environment is typically plagued by heightened illiquidity, making it difficult to extract political risk information from the spreads. We therefore collect data on default from Fitch, Moody's, and Standard & Poor's. Default starts in the month in which at least one rating agency downgrades at least one sovereign bond of a country to "default" and lasts until the first non-default rating of a sovereign bond is issued. In total, we eliminate 280 of 2843 observations.

Control Variables

To explain the time-series and cross-sectional variation in sovereign spreads, we use three categories of control variables, in addition to a political risk factor discussed before. The variables are selected building on the growing empirical literature on the determinants of sovereign spreads. The early literature (see, e.g., Edwards, 1984) focused on local macroeconomic and fiscal conditions as determinants of sovereign risk spreads. However, a more recent literature looks at the global factors that determine sovereign spreads (see, e.g., Longstaff, Pan, Pedersen, & Singleton, 2011). Given this recent evidence, our first category comprises global factors that may influence emerging market bond prices. We collect the Barclays (formerly Lehman Brothers) US Corporate High Yield Spread over Treasuries to explore the extent to which developed market credit risk pricing impacts emerging market bonds.

Our second category of control variables represents various aspects of local risk conditions. We use the ICRG ratings to measure political risk as well as economic and financial risk. The economic risk indicator is designed to capture a country's current economic strengths and weaknesses. It combines information on five economic statistics: GDP levels, GDP growth, inflation, government budgets, and the current account – all measured relative to the US. The ICRG financial risk indicator is designed to assess a country's ability to finance its official, commercial, and trade debt obligations. It combines data from five statistics: foreign debt as a percentage of either GDP or exports, the current account as a percentage of exports, official reserves, and exchange rate stability. We combine both the economic and financial risk indicators into one composite "economic" rating.[12] The ratings are scaled between 0 and 100, with 100 representing the least risk. We transform the original ratings, taking logs of their inverse to have larger values represent more risk and to dampen the effect of outliers.

Our third category of control variables concerns (local) liquidity factors. Following the work of

Lesmond (2005), we construct a bond market illiquidity measure based on the incidence of observed zero daily bond returns. Illiquidity (Liq) is the equally weighted monthly average of zero daily returns across all sovereign bonds provided by Datastream. The Datastream data do not represent the exact same constituent set of bonds that enter into the EMBI indices, but the correlations between the average yield on these bonds and the EMBI+ yield are, on average, above 0.9, suggesting significant overlap. To smooth the effect of outliers, we use a 12-month moving average of the monthly illiquidity measure. As with the other control variables, we measure liquidity relative to the US Additional details on the sources and construction of all variables are provided in Online Appendix A.

Empirical Decomposition of Sovereign Spreads

We explore several different versions of the panel regression (6) to demonstrate the importance of the various factors discussed above (global, local macroeconomic, liquidity, and political risk). In our main regressions, we focus on an unbalanced baseline sample of 20 emerging market countries spanning January 1994 through December 2009 (however, we lose the first 11 observations of 1994 due to our 12-month moving average of several variables).[13] Panel A of Table 2 presents estimation results for several alternative regressions based on different choices for the global and local factors. All estimated coefficients are based on pooled OLS; however, the standard errors are adjusted for group-wise heteroskedasticity, SUR effects, and a Newey and West (1987) correction with four lags.

To begin, we demonstrate the importance of global factors in the determination of SSs, formalizing the relationship shown in Figure 2. We estimate a simplified regression, reported in Column (I) of Panel A of Table 2 including only the US high yield spread. While the variable is highly significant, the adjusted R^2 of this pooled regression is only 8.8%, suggesting much of the variation in sovereign spreads is left unexplained. The US high yield spread is colinear with a measure of stock market volatility, the VIX index (see Figure 2, the correlation in the post-2000 sample is 0.93), which, in isolation, also yields a highly significant coefficient (not reported).

In Column (II), we augment the explanatory variables with two characteristics of the sovereign bonds that constitute the EMBI indices. First, these bonds differ in terms of maturity, hence we include the average life of the bonds in each country index (as reported by J.P. Morgan) to control for potential maturity effects. Second, given the potential importance of liquidity premia, we also include the zero return Liq measure. As can be seen in Table 2, the US high yield spread remains highly significant. Further, we document a positive and highly significant effect for the log of the average life of the bond, suggesting that countries with longer lived bonds, on average, face an elevated sovereign spreads. The coefficient for bond market Liq is positive and highly significant, consistent with the notion that relatively illiquid bond markets face higher spreads. Taken together, the evidence suggests that bond-level factors also play an important role in the determination of sovereign spreads. Indeed, the adjusted R^2 of this regression is now 31.2%.

With both global- and bond-specific factors in place, Column (III) presents estimates adding country-level measures of economic and political risks obtained from ICRG. First, the adjusted R^2 increases substantially to 50.5%; local economic/financial and political risks are indeed important. The coefficients associated with both factors are highly significant suggesting that improved economic/financial and political environments are correlated with lower sovereign spreads. While the broad concept of "country risk" is related to both economic and political concerns, our regression results suggest that bond prices reflect economic and financial risks separately from political risk. The other factors retain the signs and significance levels as presented above, but the coefficient on bond illiquidity is cut in half.

Apart from the adjusted R^2 we also report weighted sums of absolute deviations between actual and predicted spreads. When equally weighted, the average error goes down from almost 315 basis points for the simple model with only global factors, to about 210 basis points for Model (III). When we use GDP weights, the errors are considerably lower, falling to 130 basis points for Model (III).[14]

Figure 2 shows that the spreads increase quite dramatically during crises. A number of these periods coincide with actual defaults and do not contaminate our regressions. However, several of these episodes do not coincide with default periods, and it is quite unlikely that our linear factor regression captures the behavior of spreads during such episodes. In crisis times, bond market volatility is likely to increase. Therefore we consider an additional measure that captures *realized* bond market volatility (see, e.g., Andersen, Bollerslev, Diebold, & Labys, 2003). For each market, we construct a monthly scaled measure of realized bond market volatility by cumulating daily squared EMBI bond index returns

Table 2 Explaining sovereign spreads

Panel A: ICRG political risk index	(I)	(II)	(III)	(IV)
Constant	236.43	−547.82	−653.72	−504.45
	26.79	*31.52*	*39.32*	*30.95*
Ln(Average life)		241.53	250.07	193.43
		11.82	*11.04*	*8.66*
US high yield spread	0.40	0.37	0.35	0.38
	0.05	*0.04*	*0.03*	*0.02*
Bond Liq		640.31	294.54	148.04
		30.76	*29.80*	*23.31*
Ln(ICRG Economic + Financial risk)			724.43	401.72
			61.37	*50.63*
Ln(ICRG Political Risk)			844.80	578.88
			62.29	*45.31*
Bond volatility				77.74
				4.89
Adjusted R^2	0.09	0.31	0.51	0.71
Equal weights ($\Sigma w_{j,t}\lvert SS_{j,t}$–Predicted $SS_{j,t}\rvert$)	313.93	252.34	211.58	134.09
GDP weights ($\Sigma w_{j,t}\lvert SS_{j,t}$–Predicted $SS_{j,t}\rvert$)	276.02	171.32	131.64	100.38

Panel B: Estimation with alternative political risk measures	(V)	(VI)	(VII)
Constant	−549.66	−535.91	−525.38
	39.09	*36.17*	*34.47*
Ln(Average life)	185.36	196.53	205.70
	10.13	*10.07*	*10.68*
US high yield spread	0.47	0.46	0.38
	0.03	*0.03*	*0.02*
Bond Liq	182.16	165.48	90.61
	29.03	*26.76*	*23.75*
Ln(Economic + Financial risk)	407.05	374.00	345.94
	53.92	*53.39*	*58.07*
Ln(CO Total Political Risk – 18-month forecast)	215.97		
	18.94		
Ln(CO Total Political Risk – 60-month forecast)		203.95	
		18.13	
Ln(ICRG Political Risk)			585.80
			48.88
Bond volatility	80.65	84.02	81.31
	5.25	*5.21*	*5.38*
Control variables	Yes	Yes	Yes
Adjusted R^2	0.71	0.71	0.71

The sample includes 20 emerging market countries. For an unbalanced panel of 2563 non-default observations from 1994 to 2009, we regress the monthly EMBI country spread (over US Treasuries) onto the following variables: (1) a constant, (2) the natural logarithm of average life of the bonds used in the index, (3) Barclays (formerly Lehman Brothers) US High Yield (non-investment grade) bond spread, (4) the proportion of zero daily bond returns for each country, (5) the difference between the logarithm of the summed ICRG economic and financial risk indicators for the US less the comparable value for each country, (6) the difference between the logarithm of the ICRG political risk indicator for the US less the comparable value for each country (in Panel A, I–IV)) or the difference between the logarithm of the CO political risk forecast, over either an 18- or 60-month horizon, for the US less the comparable value for each country (in Panel B, V–VI), and (7) the difference between the (maturity-adjusted) cumulated daily squared bond returns for the country and for US 10-year Treasuries. In Panel B, the two versions of the CO political risk forecasts are measured annually, so we also reproduce Column (IV) from Panel A, with the ICRG political risk variable also measured annually for comparison (VII). We report coefficient estimates from pooled OLS regressions; however, standard errors, reported in italics, account for group-wise heteroskedasticity, SUR effects, and a Newey–West correction with four lags. For each specification in Panel A, we provide averages, equal and GDP-weighted, of the differences between the observed and predicted spreads.

and dividing the sum by the average life of the bonds in each country index. We then take a 12-month moving average of the monthly bond volatility measures. An analogous US bond market volatility measure is subtracted. Bond volatility indeed increases during crises. The volatility measure has a 74% correlation with a simple crisis indicator defined to be one if the sovereign spread at time *t* is larger than 1000 basis points and zero otherwise.

Column (IV) of Panel A Table 2 presents estimates for a specification using the volatility measure as an additional independent variable. First, the adjusted R^2 of this specification increases significantly from what we observe in the other columns (to 71%), highlighting the importance of accounting for the crisis through the volatility term. Indeed, the volatility term itself is highly significant. The coefficients on the other explanatory variables generally decrease in absolute magnitude relative to specification (III), but remain qualitatively similar. Moreover, the pricing errors drop to 134 basis points equally weighted and 100 basis points GDP weighted. Given its good fit with the data, this model should be informative about the determinants of sovereign spreads.

Robustness of Results to Alternative Measures of Political Risk

As an alternative to the ICRG data, we examine the CO risk ratings. We hand collected these data and returned our electronic version to Political Risk Services for other researchers to use. The CO data cover both 18-month and 60-month risk forecasts and are, therefore, explicitly forward looking. Analysts initially establish the three most likely political regimes over the two horizons and assign probabilities to each regime. To do so, 17 risk factors are specified (12 for the 18-month horizon and 5 for the 60-month horizon); and are numerically scored on a scale of 0–3. CO then aggregates these scores into four categories: political turmoil, restrictions on cross-border transfers, investments, and exports. Online Appendix D lists the 17 factors and provides more details on the methodology. After summing the numerical scores, letter grades are assigned from A+ (least risky) to F (most risky). We then reconvert the letters back to a numerical score for our analysis ($A^+ = 1$, $A = 2$, …, $D- = 12$ and $F = 13$).

We also construct a CO Total political risk measure which is the sum of categories one through four. We have ratings for most of the countries in our analysis for both 18- and 60-month forecasts. While these data are monthly, we use only the December data. As in case of the ICRG ratings above, we transform the original ratings, by taking logs of their inverse and by subtracting the corresponding US value.

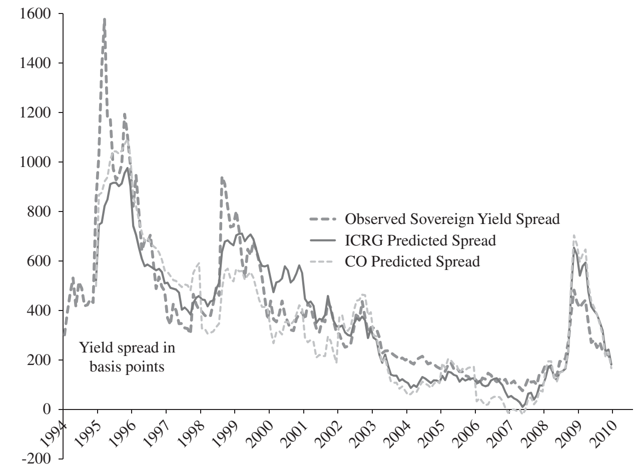

Figure 3 Observed and predicted sovereign spreads Mexico.

First, we compare the explanatory power of these new data with our baseline estimates using the ICRG political risk measure. The results are presented in Panel B of Table 2. We find that these new measures of country risk are highly correlated with the (untransformed) ICRG index (0.76 for the 18-month forecast and 0.74 for the 60-month forecast) and they also explain variation in sovereign spreads. In Column (VII), we repeat our Panel A regression using the identical sample as the first two columns of Panel B. There are three differences between Panel A and B. First, we are only using annual data in Panel B. Second, there is one less country (because the CO does not cover one of the ICRG countries). Third, the sample is slightly shorter. Yet, the results are virtually identical to those in Panel A.

Figure 3 presents the fitted values for Mexico and contrasts the fitted values from the ICRG and the CO measures.[15] The fitted values are quite similar suggesting that both ICRG and CO are useful determinants of sovereign spreads.

Effects of Subcomponents

It is possible that different components of political risk ratings may be more or less important for sovereign spreads. The regression could identify how these different subcomponents are priced on average in sovereign spreads. When we put the four separate groups of the ICRG rating in the sovereign spreads regression (6), rather than one composite rating as in Table 2, we find that only the ICRG *Quality of Institutions* and *Government Actions* produce significant coefficients. In Panel A of Table 3, we first show

Table 3 Sovereign spreads and the subcomponents of political risk

Panel A: ICRG subcomponents

	(I)	(II)
Constant	–509.99	–568.53
	29.90	*31.55*
Ln (Average life)	157.93	179.47
	8.83	*9.45*
US high yield spread	0.38	0.36
	0.02	*0.02*
Bond illiquidity	146.18	144.76
	23.86	*22.60*
Ln (Economic+Financial risk)	473.12	471.96
	49.23	*47.13*
Ln (Quality of institutions)	310.66	
	23.54	
Ln (Corruption)		89.96
		12.78
Ln (Law and order)		59.60
		10.62
Ln (Bureaucratic quality)		188.58
		18.64
Ln (Government Actions)	125.48	
	31.82	
Ln (Investment Profile)		26.37
		17.67
Ln (Government Stability)		144.70
		17.21
Bond volatility	83.79	83.36
	4.95	*5.13*
Adjusted R^2	0.71	0.73

Panel B: CO subcomponents

	(III)	(IV)
Constant	–560.18	–554.72
	38.85	*35.66*
Ln (Average life)	192.35	201.97
	10.23	*10.25*
US high yield spread	0.44	0.43
	0.03	*0.03*
Bond illiquidity	205.73	173.27
	30.24	*27.5*
Ln(Economic+Financial risk)	485.26	473.89
	50.88	*53.40*
Ln(CO Direct investment risk – 18-month forecast)	140.67	
	11.80	
Ln(CO Turmoil risk – 18-month forecast)	37.81	
	11.59	
Ln(CO Export risk – 18-month forecast)	18.18	
	15.25	
Ln(CO Direct investment risk – 60-month forecast)		128.06
		20.52
Ln(CO Turmoil risk – 60-month forecast)		23.11
		10.96
Ln(CO Export risk – 60-month forecast)		46.29
		24.24
Bond volatility	81.90	83.37
	5.21	*5.30*
Control variables	Yes	Yes
Adjusted R^2	0.72	0.71

The sample includes 20 emerging market countries detailed in Table 3. For an unbalanced panel of 2563 non-default observations from 1994 to 2009, we regress the monthly EMBI country spread (over US Treasuries) onto the following variables: (1) a constant, (2) the natural logarithm of average life of the bonds used in the index, (3) Barclays (formerly Lehman Brothers) US high yield (non-investment grade) bond spread, (4) the proportion of zero daily bond returns for each country, (5) the difference between the logarithm of the summed ICRG economic and financial risk indicators for the US less the comparable value for each country, and (6) the difference between the (maturity-adjusted) cumulated daily squared bond returns for the country and for US 10-year Treasuries. For our PR measure, we consider several cases. In specification (I) in Panel A, we employ the difference (for the US less each country) between the logarithm of the ICRG "Quality of Institutions" and "Government Actions" measures. In specification (II) in Panel A, we do the same, but employ directly the five ICRG subcomponents that individually provide the highest explanatory R^2 (corruption, law and order, and bureaucratic quality, investment profile, and government stability). In Panel B, we employ two versions of the CO political risk forecasts subcomponents (direct investment risk, turmoil, and export restrictions). We take the difference between the logarithm of the CO political risk forecast subcomponents, over either an 18- (specification III) or 60-(specification (IV)) month horizon, for the US less the comparable value for each country. We report coefficient estimates from pooled OLS regressions; however, standard errors, reported in italics, account for group-wise heteroskedasticity, SUR effects, and a Newey–West correction with four lags.

regression results replacing the composite rating by these two subgroups. Both are highly significant, but the *Quality of Institutions* variable is twice as important as the *Government Actions* variable.

Next, we drill down into the subcomponents of the two groups, *Quality of Institutions* and *Government Actions*. In an initial exercise, we examine 12 regressions that include an individual subcomponent and an overall index that excludes the particular subcomponent. We find five subcomponents that have positive and significant coefficients. These subcomponents include all three members of the *Quality of Institutions* group and two of the three members of the *Government Actions* group (*socio-economic conditions* is excluded). The second part of Panel A of Table 3 reports the results using these five subcomponents. Despite having five different variables to measure political risk, the regression's adjusted R^2 is only 2% higher than the regression with the composite political risk rating provided in Table 2.

In Panel B of Table 3, we examine the role of the subcomponents of the CO measure. Using the same method as the previous panel, we focus on three of the four subcomponents: *Direct Investment Risk*, *Turmoil Risk* and *Export Risk*. All three of these subcomponents have significant coefficients for both the 18-month and 60-month forecast horizon measures. The fourth subcomponent, restrictions on transfers, did not have a significant effect on spreads and was excluded from the regression. However, the adjusted R^2 is only marginally higher (1%) for the 18-month forecast horizon measure than in the regression with the composite index in Table 2. We therefore compute our political risk adjustments using the regression framework with the overall indices.

POLITICAL RISK SPREADS

Extracting Political Risk Spreads

We use specification IV in Panel A of Table 2 to obtain a measure of the political risk spread. Differently from the political risk spread introduced above, the measure we obtain here is defined as an absolute political risk spread (APRS), as opposed to a multiplicative political risk spread. We explain the exact relationship between political risk spread and APRS below. A natural candidate for APRS is $\hat{c}_4 \mathrm{PR}_{i,t}$, the part of the sovereign spread accounted for by political risk. The panel regression model, however, generates errors for specific countries and/or time periods, overestimating actual spreads in some instances and underestimating them in other instances, which is unavoidable in such a parsimonious model. It is critical that the actual computation embeds information in the currently observed sovereign spread of a given country. To do so, we use a ratio approach. We compute the percentage of the predicted spread, $\widehat{\mathrm{SS}}_{i,t}$,accounted for by political risk and apply that ratio to the actual observed spread, $\mathrm{SS}_{i,t}$:

$$\mathrm{APRS}_{i,t} = \frac{\hat{c}_4 \mathrm{PR}_{i,t}}{\widehat{\mathrm{SS}}_{i,t}} \mathrm{SS}_{i,t}. \qquad (7)$$

This computation can fail in three instances. First, political risk in the country examined may be smaller than in the United States, making $\mathrm{PR}_{i,t}$ negative. In that case, we simply set the narrow political risk spreads equal to 0. This situation happens in about 1% of all cases. Second, the political risk variable may account for more than 100% of the spread, for example, in instances, where the macroeconomic outlook of a country is better than that of the United States. In that case, we set the ratio in Eq. (7) equal to 1.00. Third, the predicted spread may be negative, even when there is positive political risk in a country, because of negative contributions of the other independent variables. In that case, we use an average of the positive ratios over the last 12 months as the ratio. If there are no such positive ratios, we set the ratio to 1.0. For our sample of countries, the ratio is 0.12 at the 10th percentile of the overall distribution and 0.97 at the 90th percentile, while the median ratio is 0.32.

We have also computed an alternative estimate, accounting for the fact that political and other risks may be correlated; an increase in macroeconomic and/or liquidity risk may be partially induced by political risk events. To account for this correlation, in the alternative measure we regress each of the country-specific variables in Eq. (5) on the political risk measure and capture the residuals. This strips out variation in the local variables that is due to political risk in the country. We then re-run the sovereign spreads regression (6) with these orthogonalized variables and repeat the procedure above, thereby assigning common correlation to political risk. Details on this wider concept of political risk spreads can be obtained from the authors.

Political Risk Spreads in Practice

To highlight the practical application of our approach, Table 4 reports political risk spreads (APRS) for the 32 out of the 43 countries used in this

Table 4 Extracting political risk spreads: December 2009

Country	EMBI Spread	Ratio	$APRS_{i,t}$	Country	EMBI Spread	Ratio	$APRS_{i,t}$
Argentina	659.71	0.11	75.40	Lebanon	286.93	0.44	126.28
Brazil	188.53	0.27	50.43	Mexico	192.06	0.25	47.97
Bulgaria	178.54	0.36	64.20	Pakistan	687.74	0.23	156.12
Chile	95.37	0.40	38.49	Panama	166.38	0.20	32.83
China	64.16	0.52	33.61	Peru	164.53	0.42	68.93
Colombia	198.21	0.41	80.46	Philippines	205.57	0.36	73.69
Dominican Republic	405.34	0.19	76.65	Poland	124.23	0.08	9.98
Ecuador	769.49	0.20	155.19	Russia	203.37	0.28	57.16
Egypt	41.95	1.00	41.95	Serbia	333.40	0.22	74.66
El Salvador	326.07	0.25	80.75	South Africa	149.47	0.40	59.93
Gabon	389.68	0.23	90.37	Sri Lanka	382.17	0.15	59.05
Ghana	462.34	0.16	74.96	Turkey	196.50	0.32	63.64
Hungary	185.57	0.18	33.46	Ukraine	989.14	0.15	146.95
Indonesia	230.35	0.21	49.12	Uruguay	238.44	0.22	52.34
Iraq	446.78	0.38	171.32	Venezuela	1040.55	0.31	322.28
Jamaica	719.10	0.10	73.19	Vietnam	313.76	0.17	53.23

For the 32 of our 43 countries that have observed EMBI spreads (in basis points) in December of 2009, we report the EMBI spread, the ratio defined as $c_4 PR_{i,t}$/(Predicted $SS_{i,t}$) (exponentially smoothed over 12 months), and $APRS_{i,t}$. APRSs are computed by multiplying the ratios by the observed EMBI spread for each country. If the ratio is negative or greater than 1, we set it to 0 or 1, respectively.

study for which we have data in December 2009 (the end of our sample). In December 2009, the EMBI spreads vary from a low of 42 basis points for Egypt to 1041 basis points for Venezuela. The highest political risk spread we observe is for Venezuela at 322 basis points, followed by Iraq at 171 basis points. For the majority of the countries, political spreads are below 100 basis points. That the political risk spread is high relative to the full sovereign spread in countries such as Iraq and Venezuela seems eminently reasonable.

While Table 4 reports political risk spreads for December 2009, they can, of course, be calculated at any point. Online Appendix F, for example, shows the time series of the political risk spread for Mexico. The figure demonstrates that the political risk spread is typically smaller than the sovereign spreads, but follows a similar pattern through time.

Our methodology allows us to calculate political risk spreads for all countries covered by the ICRG, even if other important data items are absent (including, in particular, traded sovereign bonds or CDS contracts). When we do not have EMBI spreads, we cannot apply the ratio methodology directly. Moreover, for such countries, we also do not have observations on bond liquidity, maturity, volatility, and other key independent variables. In general, the political risk spread will be closely linked to the political risk rating, although the relationship may be non-linear, given that we use a ratio approach and may reach boundaries of zero or one. We therefore estimate quadratic cross-sectional regressions: $PRS_{i,t} = a + b\ PR_{i,t} + c\ PR^2_{i,t} + e_{it}$. Plugging in political risk ratings from countries without spreads but which do have a political risk rating then yields a predicted political spread (PRS) for these countries.

In Table 5, we report December 2009 APRS for all countries covered by the ICRG for which sovereign spreads data are not available. We incorporate information from observed sovereign spreads, using data from Table 3 as indicated above using a linear-quadratic cross-sectional regression of political risk spreads onto $PR_{i,2009}$ and its square. The adjusted $R^2$of this regression exceeds 0.60. For all other countries for which the political risk rating is available, we employ the regressions' fitted values to determine what the political risk spreads would be given each country's $PR_{i,2009}$. The results in Table 5 suggest that our approach can be meaningfully extended to a large set of countries for which sovereign spread data are not available. The spreads range from 24.1 basis points for Taiwan and Namibia to 511.1 basis points for Somalia. When we average the spreads across regions, we find them to be 46.2 for Eastern Europe, 63.7 for the Middle East (which includes a number of oil-rich countries), 88.0 for Latin America, 85.2 for Asia, and 129.4 for African countries. These numbers seem plausible and transform political risk ratings into meaningful economic units.

Table 5 Extracted political risk spreads: December 2009

Country	$APRS_{i,t}$	Country	$APRS_{i,t}$	Country	$APRS_{i,t}$
Albania	58.3	Guinea-Bissau	108.7	Nicaragua	80.8
Algeria	85.5	Guyana	92.8	Niger	129.8
Angola	95.3	Haiti	205.2	Nigeria	182.3
Armenia	83.1	Honduras	95.3	Oman	37.2
Azerbaijan	68.0	India	74.2	Papua New Guinea	92.8
Bahamas	13.4	Iran	123.5	Paraguay	111.5
Bahrain	43.1	Israel	72.1	Qatar	40.1
Bangladesh	117.4	Jordan	49.6	Romania	49.6
Belarus	74.2	Kazakhstan	43.1	Saudi Arabia	51.2
Bolivia	87.8	Kenya	120.4	Senegal	114.4
Botswana	31.6	Korea, DPR	165.7	Sierra Leone	85.5
Brunei	16.4	Korea	25.3	Slovak Republic	29.0
Burkina Faso	90.3	Kuwait	41.6	Slovenia	25.3
Cameroon	72.1	Latvia	51.2	Somalia	511.1
Congo, Democratic Republic	114.4	Liberia	103.2	Sudan	230.8
Congo, Republic	230.8	Libya	60.2	Suriname	76.4
Costa Rica	41.6	Lithuania	37.2	Syria	103.2
Cote d'Ivoire	210.1	Madagascar	103.2	Taiwan	24.1
Croatia	40.1	Malawi	97.9	Tanzania	74.2
Cuba	105.9	Malaysia	40.1	Thailand	105.9
Cyprus	18.5	Mali	95.3	Togo	129.8
Czech Republic	27.8	Moldova	103.2	Trinidad and Tobago	43.1
Estonia	40.1	Mongolia	53.0	Tunisia	43.1
Ethiopia	154.2	Morocco	51.2	Uganda	123.5
Gambia	68.0	Mozambique	47.9	Yemen	108.7
Guatemala	90.3	Myanmar	178.0	Zambia	76.4
Guinea	210.1	Namibia	24.1	Zimbabwe	215.1

In Table 5, we report predicted December 2009 PRSs (APRS, in basis points) for all countries covered by the ICRG for which SS data are not available. Using data from Table 3, we separately fit a linear-quadratic regression through the PRSs onto $PR_{i,2009}$ and its square. Then, for all other countries for which the political risk rating is available, we employ the fitted coefficients to determine what the PRSs would be given each country's $PR_{i,2009}$.

Measuring Political Event Risk

As the section "Political risk spreads in the theory of investment" indicated, the political risk spread is directly related to the probability of a risk event, if we assume that there is a constant probability of a risk event with 100% expropriation. However, the political risk spread we derived in the sections "Extracting Political Risk Spreads" and "Political Risk Spreads in Practice" is an absolute spread, whereas we need a multiplicative spread for the computation we described in the section "Political risk spreads in the theory of investment." That is, we want to split up the actual BY as:

$$(1+\mathrm{BY}) = \left(1+\mathrm{BY}^{*}\right)(1+\mathrm{PRS}),$$

where BY is the full bond yield and BY* the bond yield purged of the political risk. In our computations so far, we computed an absolute political risk spread, APRS, such that:

$$\mathrm{BY} = \mathrm{BY}^{*} + \mathrm{APRS}$$

Hence,

$$\mathrm{PRS} = \mathrm{APRS}/\left(1+\mathrm{BY}^{*}\right)$$

Note that BY* includes the US Treasury yield and compensation for risks other than political risk.

Table 6 presents the computation of political risk event probabilities for a subsample of 15 countries. Let's illustrate the computation using Indonesia as an example. Assuming the US Treasury yield is 5.12% (512 basis points), the average 10-year yield over our sample period, the total BY in Indonesia was 742.35 basis points. The APRS was 49.12 basis points, implying a multiplicative spread (PRS) of

$$0.004912/(1+0.074235-0.004912) = 45.94\,\text{basis points}.$$

This yields a political risk probability of 0.46% using Eq. (3). If we had used the full sovereign spreads, the political risk event probability would have been 2.14%. The table also computes the cumulative probability of a political risk event over

Table 6 Applying political risk spreads: political risk probabilities and discount rate adjustments: December 2009

Country	EMBI Spread (SS)(%)	PRS(%)	PRS		PR probability (p)		Cumulative probability (at maturity)		Adjusted discount rate (base = 10%)	
			SS(%)	APRS(%)	SS(%)	APRS(%)	SS(%)	APRS(%)	SS(%)	APRS(%)
Argentina	6.60	0.75	6.28	0.68	5.91	0.67	45.59	6.55	16.90	10.75
Brazil	1.89	0.50	1.79	0.47	1.76	0.47	16.29	4.61	11.97	10.52
China	0.64	0.34	0.61	0.32	0.61	0.32	5.90	3.13	10.67	10.35
Colombia	1.98	0.80	1.89	0.76	1.85	0.75	17.04	7.26	12.07	10.83
Dominican Republic	4.05	0.77	3.86	0.71	3.71	0.70	31.50	6.80	14.24	10.78
Ecuador	7.69	1.55	7.32	1.39	6.82	1.38	50.66	12.94	18.05	11.53
Gabon	3.90	0.90	3.71	0.84	3.57	0.83	30.51	7.99	14.08	10.92
Hungary	1.86	0.33	1.77	0.31	1.73	0.31	16.05	3.08	11.94	10.35
Indonesia	2.30	0.49	2.19	0.46	2.14	0.46	19.49	4.48	12.41	10.51
Mexico	1.92	0.48	1.83	0.45	1.79	0.45	16.56	4.39	12.01	10.50
Pakistan	6.88	1.56	6.54	1.41	6.14	1.39	46.94	13.10	17.20	11.56
Russia	2.03	0.57	1.93	0.54	1.90	0.53	17.44	5.21	12.13	10.59
Turkey	1.97	0.64	1.87	0.60	1.84	0.59	16.91	5.79	12.06	10.66
Venezuela	10.41	3.22	9.90	2.87	9.01	2.79	61.09	24.64	20.89	13.16
Vietnam	3.14	0.53	2.98	0.49	2.90	0.49	25.48	4.81	13.28	10.54

For a sample of 15 countries that have observed EMBI spreads in December of 2009, we report the EMBI spread, the ratios $c_4 PR_{i,t}$/(Predicted $SS_{i,t}$) (exponentially smoothed over 12 months), and the absolute political risk spreads ($APRS_{i,t}$) (in percentages). Absolute spreads are computed by multiplying the ratio $c_4 PR_{i,t}$/(Predicted $SS_{i,t}$) with the observed EMBI spread for each country. If the ratio is negative or greater than 1, we set it to 0 or 1, respectively. APRS = BY−BY*, where BY is the full bond yield and BY* the bond yield purged of political risk. The multiplicative PRS measure is APRS/(1+BY*). We provide calculations for implied political risk probabilities (p), multiplicative political risk spreads (PRS) as well as adjusted discount rates implied by using either the sovereign spreads (SS) or the APRS, as adjustment factors. For each case, we find the implied political risk probability (p) assuming a 10-year maturity and a 5.12% yield on the 10-year US Treasury bond. Cumulative probabilities measure the probability that a political risk event will take place over the full 10-year investment horizon based on p. Finally, we also use the multiplicative political risk spreads to adjust a hypothetical discount rate of 10% to account for political risk.

a 10-year horizon.[16] For Indonesia, the political risk spread (SS) computation yields a cumulative risk probability of 4.48%, but using the full sovereign spreads the probability would be 19.49%, almost five times higher.

Under the same assumptions (constant probability of a risk event, zero recovery value), it is straightforward to compute a discount rate that properly accounts for political risk and also assess how much adding the sovereign spread overadjusts for political risk. The last column(s) of Table 6 report the absolute difference between the political risk-adjusted cost of capital using the full sovereign spreads and our proposed numbers. For these computations, we simply assumed a "normal" discount rate, meaning one that only accounts for systematic risk, of 10%. So, the discount rate proposed is simply 1.10(1+PRS). For Indonesia, using the political risk spread results in a discount rate of 10.51% but using the full sovereign spread leads to a discount rate of 12.47%, almost 2% higher. The results are even more striking for some other countries, such as Venezuela and Argentina. On average, for December 2009, using the full sovereign spread overestimates the cost of capital by 3.1 percentage points relative to using the political risk spread.

Individualizing Political Event Risk

So far we have assumed that sovereign bonds correctly identify political risk relevant for the MNC considering an investment project in the country. This need not be the case, as a MNC may mitigate and manage political risk through a variety of actions. The international business literature has focused much attention on political strategies, including lobbying and investing in goodwill and connections with the political elite (see Henisz, 2003 and Henisz & Zelner, 2010 for more details). The MNC may also look for local partners and limit research and development in countries with poor intellectual property protection (Bremmer, 2005). According to Feinberg and Gupta (2009) operational integration (e.g., intra-firm trade) may mitigate political risk. Anshuman, Martin and Titman (2011) discuss various contract structures that may mitigate political risk, such as agreeing to transfer the investment to the host government at a later point under a "build-own-operate-transfer" agreement.

Clearly, the ability to manage and mitigate these risks is specific to the particular company involved. However, a quantification of "average" political risk for a particular country should remain a useful starting point for any investment analysis. Moreover, a company could "customize" ICRG's political risk rating of a country, using its 12 components. It may be that because of its connections, it feels that certain risk factors do not apply to them, for example, they may be less susceptible to corruption. They could zero out that subcomponent by putting its value equal to the value prevalent in the United States and redo the calculation in Eq. (7) for this adjusted political risk value.

POLITICAL RISK SPREADS AND FDI

There is a voluminous literature examining the effect of political risk on FDI. While there is a perception that political risk negatively affects FDI, the results in the literature are not always easy to interpret and somewhat mixed. Early work, such as Kobrin (1979), actually found mixed results, but used only cross-sectional data. Similarly, Loree and Guisinger (1995) and Sethi, Guisinger, Phelan and Berg (2003) find only weak effects of political–economic stability measures on FDI. However, these articles use measures of both political and economic/financial risk, perhaps weakening the power of their tests to detect a significant effect. Henisz and Delios (2001) document that institutional hazards reduce the likelihood that Japanese multinationals enter foreign countries through equity investments, whereas Demirbag, Glaister, and Tatoglu (2007), focusing on entry in Turkey, document that political risk is an important determinant of the equity ownership of foreign affiliates. Actions by developing countries, such as the adoption of bilateral investment treaties, suggest that political actors in developing countries are aware of the negative effects of political risk on FDI and are willing to accept restrictions on their sovereignty to mitigate them (see Neumayer & Spess, 2005). Various studies also separate political stability (e.g., caused by ethnic unrest or war) from actual government policies that may attract FDI, which represent two different dimensions of political risk. Whereas Nigh (1985) finds a negative effect of political stability on FDI, more recent studies like Li and Resnick (2003) and Globerman and Shapiro (2003) find insignificant effects. However, both of these studies also examine the effect of government policies on FDI, referred to as, respectively, "property rights" in Li and Resnick and "government infrastructure" in Globerman and Shapiro. Examining the construction of these variables, it is clear that these variables are highly correlated with some of the subcomponents in the ICRG political risk rating, and they do show a statistically significant relation with FDI flows. In fact, the Li and Resnick paper uses subcomponents of the ICRG political risk ratings to measure "property rights." Finally, the literature that has focused more specifically on corruption as a deterrent of FDI has mostly found significant negative effects (see Habib & Zurawicki, 2002; Uhlenbruck, Rodriguez, Doh, & Eden, 2006; Wei, 2000). We should note that in addition, a number of the panel regression studies investigate FDI flows in absolute terms, which may lead to econometric problems because flows are non-stationary over time.

Because FDI is so important to economic growth (see, e.g., Borensztein, De Gregorio & Lee, 1998), policymakers may want to quantify the effect of political risk on FDI. However, the results from extant studies are somewhat difficult to interpret and compare across studies. Previous studies have used a variety of political risk ratings with different units, and with most ratings entirely based on subjective assessments of political risk experts. Moreover, the empirical results so far are rather diverse, as discussed above. Our political risk spreads instead is directly related to an interest rate spread. For a policymaker, it is not difficult to assess the impact of certain political decisions on market yields, as high frequency data can be used to examine how sovereign spreads react to political decisions. The units of our political risk spreads are also easy to interpret.

We therefore re-examine the relationship between FDI and political risk using our political risk spread as the measure of political risk and contrast its effect on FDI with the effect of the total sovereign spread. Table 7 presents the results. We limit our sample to the 30+ countries for which we have EMBI data. The sample is from 1994 to 2009 using annual observations. The dependent variable is net FDI inflows scaled by GDP and the data are from UNCTAD. The regression is contemporaneous so that the timing of the spreads is matched to the timing of the net FDI inflows. We use similar control variables to those used in Alfaro, Kalemli-Ozcan, and Volosovych (2008). These include: the log of GDP per capita, the distance from the United States, the secondary school ratio (total enrollment divided by total age group population), a measure of capital account openness from Quinn and Toyoda (2008) and the country's (EMBI) sovereign spread. The panel is not balanced.

Table 7 Political risk spreads and FDI

Panel A: Estimation with the ICRG index				Panel B: Estimation with alternative political risk measures				
	(I)	(II)	(III)		(IV)	(V)	(VI)	(VII)
Constant	1398.72	1544.40	1448.00	Constant	1457.77	1534.47	1396.88	1463.04
	283.01	*287.15*	*298.32*		*290.54*	*289.58*	*297.12*	*297.40*
Ln (GDP per capita)	–101.22	–106.84	–92.62	Ln (GDP per capita)	–99.93	–102.19	–89.18	–90.38
	23.17	*23.55*	*24.77*		*23.63*	*23.45*	*24.41*	*24.50*
Ln (Distance from United States)	–76.07	–82.64	–81.84	Ln (Distance from United States)	–82.09	–88.07	–81.39	–86.80
	21.66	*21.22*	*22.87*		*22.21*	*22.22*	*23.44*	*23.40*
Secondary school enrollment	3.14	2.98	2.72	Secondary school enrollment	3.20	3.17	2.87	2.84
	0.96	*0.95*	*0.99*		*0.97*	*0.97*	*1.02*	*1.01*
Capital account openness	280.24	265.31	253.18	Capital account openness	270.20	272.41	258.13	257.54
	67.56	*71.18*	*69.98*		*70.66*	*71.07*	*69.31*	*70.36*
EMBI spread	–0.03			Political risk spread (CO Total political risk – 18-month forecast)	–0.28		–0.15	
	0.01				*0.12*		*0.13*	
Absolute political risk spread		–0.34	–0.23	Residual (CO Total political risk – 18-month forecast)	0.01		0.02	
		0.14	*0.14*		*0.02*		*0.02*	
Residual political risk spread		0.03	0.00	PRS (CO Total political risk – 60-month forecast)		–0.45		–0.34
		0.03	*0.03*			*0.15*		*0.17*
				Residual (CO Total political risk – 60-month forecast)		0.00		0.01
						0.02		*0.02*
Adjusted R^2	0.11	0.12	0.12	Adjusted R^2	0.12	0.10	0.11	0.12
Year FE	No	No	Yes	Year FE	No	No	Yes	Yes
	EMBI +Spread	Absolute political risk spread	Absolute political risk spread		Absolute political risk spread	Absolute political risk spread	Absolute political risk spread	Absolute political risk spread
25% Spread Percentile (in basis points)	178.40	71.47	71.47	25% Spread percentile (in bp)	24.00	7.07	24.00	7.07
75% Spread Percentile (in basis points)	654.50	178.65	178.65	75% Spread percentile (in bp)	149.18	112.35	149.18	112.35
25–75% Economic effect (in basis points)	–14.85	–36.86	–24.39	25–75% Economic Effect (in bp)	–35.07	–47.27	–19.32	–35.39

For an unbalanced panel of 34 emerging market countries from 1994 to 2009, we regress annual (FDI inflow)/GDP ratios onto the following variables: (1) a constant, (2) the natural logarithm of GDP per capita in US dollar, (3) the log distance (in kilometers) between the country's capital from New York City, (4) secondary school enrollment, (5) an updated version of Quinn and Toyoda's (2008) capital account openness measure, (6) and the EMBI SS. In Panel A, we consider alternative specifications where we replace the SS with the APRS extracted using the methodology outlined in the section "Extracting *PRSs*" and the residual spread which measures the difference between the SS and the APRS. Specification III includes year fixed effects. In Panel B, PRSs are based off of the spread regressions provided in Table 2B where we employ the total PR forecasts from CO for the 18-month horizon (specification V) or the 60-month horizon (VI). Specifications III, VI and VII include year fixed effects (EF). We report coefficient estimates from pooled OLS regressions; however, standard errors, reported in italics, account for group-wise heteroskedasticity, SUR effects, and a Newey–West correction with 2 lags. To evaluate the economic significance of PR for FDI inflows, we show the change in FDI implied by a shift in either the SS (specification (I)) or the PRS (specifications (II)–(V)) from the 25th to the 75th percentile of their overall distributions.

In the first specification, the overall EMBI spread is significant and negative (a higher spread means lower direct investment). In specification (II), we replace the overall spread with our political risk spread (APRS) and the residual spread, that is, the overall spread minus the political risk spread. Interestingly, the residual variable is not significant, but the political risk spread has a significantly negative coefficient. Hence, the variation in FDI appears to be driven by the part of the spread that is due to political risk. The regression coefficient has a straightforward economic interpretation. It tells us that a 1 percentage point increase in the political risk spreads leads to a 34 basis points drop in the ratio of FDI to GDP.[17] The median ratio of FDI to GDP is 2.95%. Hence, the 1 percentage point rise in the spread leads to decrease in FDI of 11.5%. Specification (III) adds year fixed effects. Consistent with the estimate that does not include these effects, the political risk spread is still significant, but more marginally so. The residual spread is not. Hence, FDI is much more sensitive to political risks, than to the economic outlook and other risks which are also embedded in the sovereign spreads, and this result is robust to whether we measure the political risk spread in a narrow or wide sense.

The last part of the table measures the economic effect in a different fashion. We shift the political risk spread from the 25th to 75th percentile of its overall distribution. We also conduct this exercise for the overall sovereign spread. For the overall sovereign spread, this shift generates a change of –0.15% for the FDI/GDP ratio. However, for the political risk spread, the change is –0.37%. Thus a 25–75% shift in the political risk spread decreases FDI by 12.5%. The results in the other specifications are just slightly weaker.

Panel B repeats this analysis using the alternative CO ratings. The results are consistent with the results in Panel A, with PRSs exerting a significant effect on FDI, but residual spreads having no significant impact. Only the spread in the fixed effects regression is not statistically significant. Except for that case, the economic effects are stronger or of the same order of magnitude than in Panel A.

CONCLUSION

Our paper introduces a new measure of political risk which we call the political risk spread. We base our measure on market-based, forward-looking information from sovereign spreads. However, the sovereign spreads reflect much more than political risk. These spreads are contaminated with information about the health of the global economy, local macroeconomic conditions, the liquidity of the individual bonds, and the maturity structure of the bonds. Our innovation is to propose a method to extract the part of the sovereign spreads that is due to political risk.

We show that it is a mistake to use overall sovereign spreads to adjust discount rates for political risk in international investment. Indeed, the traditional way of using sovereign spreads is likely to lead to foreign direct under investment.

We offer two additional insights. First, we show how to use our calculated political risk spreads to derive a probability of an adverse political event in a particular country. Second, we show how a business can tailor its particular exposure to different types of political risk in calculating the appropriate discount rate for international valuation.

Finally, our new measure of political risk is useful both for businesses and policymakers. Governments are often considering policies that might heighten political risk. The political risk spread is both economically and statistically significant in explaining patterns of FDI across countries and through time. Hence, using our measure, it is possible to obtain an *ex ante* estimate of the cost of heightened political risk in terms of lost future FDI.

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NOTES

[1]Graham and Harvey (2001) show that for a large sample of US firms the overwhelming majority use a net present value rule for evaluating investment and about 75% use the CAPM as an input for the discount rate. However, Holmen and Pramborg (2009), surveying the capital budgeting techniques for FDI among Swedish

firms, show that firms are less likely to use theoretically correct NPV approaches for investments in host countries with elevated political risk.

[2]Lessard (1996) and Bekaert and Hodrick (2011, Chapter 14) argue that in theory political risk should be incorporated into cash flows. Butler and Joaquin (1998) also discuss the choice of incorporating political risk into project cash flows or the discount rate.

[3]Let CF_t be the expected cash flows at time t and R_t the Recovery value of the MNC's project in the face of a political risk event at time t. Then the present value of the project is

$$\sum_{t=1}^{T} \frac{CF_t(1-p)^t + R_t p(1-p)^{t-1}}{(1+r)^t} = \sum_{t=1}^{T} \frac{CF_t}{(1+r)^t(1+PRS)^t} \quad (6)$$

That is, we assume political risk probabilities and discount rates to be constant over time (as in our simple example). As long as R_t is 0, the relationship in Equation (4) between political risk spreads and p continues to hold. If R_t is non-zero, Eq. (6) can be used to infer the correct political risk probability.

[4]The use of sovereign spreads is widespread among consultants, for an overview, see Harvey (2001). Morningstar, a leading vendor of cost of capital estimates in the United States, provides two estimates involving sovereign spreads. Finally, the major international financial management textbooks such as Shapiro (2009) and Bekaert and Hodrick (2011) also mention the practice.

[5]See http://faculty.fuqua.duke.edu/~charvey/PRS/ for the Internet Appendices.

[6]Yet Tomz and Wright (2007), using data for the period 1820–2004, find only weak correlation between economic output in the borrowing country and sovereign defaults. Nevertheless, in the Online Appendix A, we report the pooled correlation of the political risk rating and its subcomponents with our economic rating. The correlations are as low as 0.162 for *Religious Tension*s and as high as 0.752 for *Investment Profile*. As the overall political rating is almost 70% correlated with economic risk, it may not be surprising that authors such as Perotti and van Oijen (2001) and Click and Weiner (2010) use the Institutional Investor country risk ratings as a proxy for political risk.

[7]OPIC data exist from 1970 and represent nearly 300 claims. There is some earlier data from 1966 when political risk insurance was administered by the Agency for International Development (USAID). Claims data are available from 1996 at http://www.opic.gov/what-we-offer/political-risk-insurance/claims-determinations.

[8]Nel's (2007) dissertation follows a similar method to Howell and Chaddick (1994) and reports correlations between 14 countries' losses and various ratings (14 observations).

[9]For a similar approach see Baker, Bloom, and Davis (2013), as well as Brogaard and Detzel (2012).

[10]Group-wise heteroskedasticity means that each diagonal element of the variance–covariance matrix is unique – each country error has its own variance level. SUR accommodates contemporaneously correlated errors across countries.

[11]The Chicago Board Options Exchange VIX measures the implied volatility of S&P 500 index options. This index is often viewed as an indicator of global risk aversion, but also reflects US stock market volatility.

[12]In our empirical work, we found that using the two ratings separately did not improve the empirical fit, and that both ratings received statistically similar coefficients.

[13]For a subset of countries, we also collect data on 5-year sovereign debt CDS contracts from Markit and run a similar panel model. The results are qualitatively analogous to the results for our main model.

[14]We also estimated a version of Table 3 using the logarithm of the sovereign spread as the dependent variable. The results are similar and are available on request.

[15]Online Appendix E presents the same analysis for South Africa.

[16]This probability is $1-(1-p)^{10}$.

[17]The Table 7 regressions have a generated regressor when we use the political risk spread. To address this potential problem, we conducted the following simulation experiment. We draw 1000 alternative first stage parameters from their asymptotic normal distribution (i.e., using the existing point estimates as the mean and the estimated variance–covariance matrix as the variance). We then use these to create annual PRS data for all the countries we use in the second stage. Finally, we rerun our FDI regressions in Table 7 1000 times and store the coefficient values and t-statistics on the extracted PRS and the residual. These estimates, under the alternative, taking our set-up as a starting point, should be centered around our existing point estimates of the coefficients and t-statistics and they are. For example, the t-statistics on the political risk spread is −2.46 in Table 7. The 10th and 90th percentiles of the distribution are −2.52 and −2.27. Hence, we conclude that the generated regressor problem is not interfering with our inference.

REFERENCES

Alfaro, L., Kalemli-Ozcan, S., & Volosovych, V. 2008. Why doesn't capital flow from rich to poor countries? An empirical investigation. *Review of Economics and Statistics*, 90(2): 347–368.

Andersen, T. G., Bollerslev, T., Diebold, F. X., & Labys, P. 2003. Modeling and forecasting realized volatility. *Econometrica*, 71(2): 579–625.

Anshuman, V. R., Martin, J. D., & Titman, S. 2011. Sovereign risk and investing in emerging markets. *Journal of Applied Corporate Finance*, 23(2): 41–49.

Baker, S., Bloom, N., & Davis, S. 2013. Measuring economic policy uncertainty, Working Paper, Stanford University, Stanford, CA.

Bekaert, G., Harvey, C. R., & Lundblad, C. 2005. Does financial liberalization spur growth? *Journal of Financial Economics*, 77(1): 3–55.

Bekaert, G., & Hodrick, R. J. 2011. *International financial management*, 2nd edn. Upper Saddle River, NJ: Prentice Hall.

Borensztein, E., De Gregorio, J., & Lee, J.-W. 1998. How does foreign direct investment affect growth? *Journal of International Economics*, 45(1): 115–135.

Bremmer, I. 2005. Managing risk in an unstable world. *Harvard Business Review*, 83(6): 51–58.

Brewer, T. L. 1983. The instability of governments and the instability of controls on funds transfers by multinational enterprises: Implications for political risk analysis. *Journal of International Business Studies*, 14(3): 147–157.

Brewer, T. L. 1993. Government policies, market imperfections, and foreign direct investment. *Journal Journal of International Business Studies*, 24(1): 101–120.

Brogaard, J., & Detzel, A. 2012. The asset pricing implications of government economic policy uncertainty, Working Paper, University of Washington, Seattle.

Butler, K. C., & Joaquin, D. C. 1998. A note on political risk and the required return on foreign direct investment. *Journal of International Business Studies*, 29(3): 599–607.

Choi, S. J., Gulati, G. M., & Posner, E. A. 2011. Political risk and sovereign debt contracts, Working Paper no. 370, University of Chicago Public Law, Chicago, IL.

Citron, J.-T., & Nickelsburg, G. 1987. Country risk and political instability. *Journal of Development Economics*, 25(2): 385–392.

Click, R. W. 2005. Financial and political risks in US direct foreign investment. *Journal of International Business Studies*, 36(5): 559–575.

Click, R. W., & Weiner, R. J. 2010. Resource nationalism meets the market: Political risk and the value of petroleum reserves. *Journal of International Business Studies*, 41(5): 783–803.

Cosset, J.-C., & Roy, J. 1991. The determinants of country risk. *Journal of International Business Studies*, 22(1): 135–142.

Damodaran, A. 1999. Estimating Equity Risk Premiums, Working Paper FIN-99-021, New York University, New York.

Demirbag, M., Glaister, K. W., & Tatoglu, E. 2007. Institutional and transaction cost influences on MNEs' ownership strategies of their affiliates: Evidence from an emerging market. *Journal of World Business*, 42(4): 418–434.

Edwards, S. 1984. LDC foreign borrowing and default risk: An empirical investigation, 1976–1980. *American Economic Review*, 74(4): 726–734.

Feinberg, S. E., & Gupta, A. K. 2009. MNC subsidiaries and country risk: Internalization as a safeguard against weak external institutions. *Academy of Management Journal*, 52(2): 381–399.

Globerman, S., & Shapiro, D. 2003. Governance infrastructure and US foreign direct investment. *Journal of International Business Studies*, 34(1): 19–39.

Graham, J. R., & Harvey, C. R. 2001. The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, 60(2–3): 187–243.

Habib, M., & Zurawicki, L. 2002. Corruption and foreign direct investment. *Journal of International Business Studies*, 33(2): 291–307.

Harvey, C. R. 2001. The International Cost of Capital and Risk Calculator (ICCRC), Working Paper, Duke University, Durham.

Henisz, W. J. 2003. The power of the Buckley and Casson thesis: The ability to manage institutional idiosyncrasies. *Journal of International Business Studies*, 34(2): 173–184.

Henisz, W. J., & Delios, A. 2001. Uncertainty, imitation, and plant location: Japanese multinational corporations, 1990–1996. *Administrative Science Quarterly*, 46(3): 443–475.

Henisz, W. J., & Zelner, B. A. 2010. The hidden risks in emerging markets. *Harvard Business Review*, 88(4): 88–95.

Holmen, M., & Pramborg, B. 2009. Capital budgeting and political risk: Empirical evidence. *Journal of International Financial Management and Accounting*, 20(2): 105–134.

Howell, L. D., & Chaddick, B. 1994. Models of political risk for foreign investment and trade: An assessment of three approaches. *Columbia Journal of World Business*, 29(3): 70–91.

Kanto, M., Nolan, M. D., & Sauvant, K. P. 2011. *Reports of Overseas Private Investment Corporation Determinations*. Vol. 1–2 New York: Oxford University Press.

Knudsen, H. 1974. Explaining the national propensity to expropriate: An ecological approach. *Journal of International Business Studies*, 5(1): 51–71 86–89.

Kobrin, S. J. 1979. Political risks: A review and reconsideration. *Journal of International Business Studies*, 10(1): 67–80.

Lesmond, D. 2005. Liquidity of emerging markets. *Journal of Financial Economics*, 77(2): 411–452.

Lessard, D.R. 1996. Incorporating country risk in the valuation of offshore projects. *Journal of Applied Corporate Finance*, 9(3): 52–63.

Li, Q., & Resnick, A. 2003. Reversal of fortunes: Democratic institutions and foreign direct investment inflows to developing countries. *International Organization*, 57(1): 175–211.

Longstaff, F., Pan, J., Pedersen, L., & Singleton, K. J. 2011. How sovereign is sovereign credit risk? *American Economic Journal-Macroeconomics*, 3(2): 75–103.

Loree, D. W., & Guisinger, S. E. 1995. Policy and non-policy determinants of US equity foreign direct investment. *Journal of International Business Studies*, 26(2): 281–299.

Mariscal, J. O., & Lee, R. M. 1993. *The valuation of mexican stocks: An extension of the capital asset pricing model to emerging markets*. New York: Goldman Sachs.

Minor, M. S. 1994. The demise of expropriation as an instrument of LDC policy, 1980–1992. *Journal of International Business Studies*, 25(1): 177–188.

Nel, D. 2007. *Revisiting three political risk forecast models: An empirical test*. PhD thesis, University of Johannesburg.

Neumayer, E., & Spess, L. 2005. Do bilateral investment treaties increase foreign direct investment to developing countries? *World Development*, 33(10): 1567–1585.

Newey, W. K., & West, K. D. 1987. A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, 55(3): 703–708.

Nigh, D. 1985. The effect of political events on United States direct foreign investment: A pooled time-series cross-sectional analysis. *Journal of International Business Studies*, 16(1): 1–17.

Oetzel, J. M., Bettis, R. A., & Zenner, M. 2001. Country risk measures: How risky are they? *Journal of World Business*, 36(2): 128–145.

Perotti, E. C., & van Oijen, P. H. 2001. Privatization, political risk and stock market development in emerging economies. *Journal of International Money and Finance*, 20(1): 43–69.

Quinn, D. P., & Toyoda, A. M. 2008. Does capital account liberalization lead to economic growth*? Review of Financial Studies*, 21(3): 1403–1449.

Sethi, D., Guisinger, S. E., Phelan, S. E., & Berg, D. M. 2003. Trends in foreign direct investment flows: A theoretical and empirical analysis. *Journal of International Business Studies*, 34(4): 315–326.

Shapiro, A. C. 2009. *Multinational financial management*, 9th edn. Hoboken, NJ: John Wiley & Sons.

Sharpe, W. F. 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance*, 19(3): 425–442.
Tomz, M., & Wright, M. L. J. 2007. Do countries default in "bad times"? *Journal of the European Economic Association*, 5(2/3): 352–360.
Uhlenbruck, K., Rodriguez, P., Doh, J., & Eden, L. 2006. The impact of corruption on entry strategy: Evidence from telecommunication projects in emerging economies. *Organization Science*, 17(3): 402–414.
UNCTAD. 2010. World Investment Report 2010. Investing in a low-carbon economy, New York and Geneva.
Vaaler, P. M., Schrage, B. N., & Block, S. A. 2005. Counting the investor vote: Political business cycle effects on sovereign bond spreads in developing countries. *Journal of International Business Studies*, 36(1): 62–88.
Wei, S.-J. 2000. How taxing is corruption on international investors? *Review of Economics and Statistics*, 82(1): 1–11.

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