

FOREIGN DIRECT INVESTMENT AND HOME-COUNTRY POLITICAL RISK

The Case of Brazil

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Abstract: This article looks into the factors that explain foreign direct investment (FDI) in Brazil by country of origin. We collected a sample of 180 countries with and without FDI in Brazil. We use multiple estimation techniques and controls to isolate the effect of country political risk on outward foreign direct investment and show that countries with lower levels of political risk undertake more FDI in Brazil, and that features of the policy environment of home countries drive the negative relationship between risk and FDI. Furthermore, we show that the aspect of the political and institutional environment that is most likely to drive this negative relation between risk and investment into Brazil is related to the effectiveness of national governments. Our findings broaden the understanding of the puzzling influence of political risk on FDI observed in previous studies, correct for sampling and selection biases, and have substantive implications for policy design to attract FDI.

One of the major concerns of policy makers around the world is how to attract foreign direct investment (FDI). This task is particularly complex for emerging markets that exhibit high levels of political risk. Organizations such as the UN Conference on Trade and Development (UNCTAD) or the World Bank, among many others, have developed a large set of policy recommendations and services aimed to help governments in this regard. Such recommendations are anchored in the burgeoning academic literature about the causes of FDI. The widely known internalization theory, developed by Buckley and Casson (1976), identified ownership and location advantages as the main reasons firms undertake FDI. Locational determinants, in particular, have received well-deserved emphasis in the literature (Dunning 1979, 1998). Among them, political and institutional features of host countries have played a central role, including factors at the domestic level (e.g., regime type, policy-making institutions, human rights records, political

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instability, fiscal regimes; see, e.g., Schneider and Frey 1985; Jun and Singh 1996; Henisz 2000; Jensen 2003; Li and Resnick 2003) and the international level (e.g., trade agreements, membership in international organizations; see Medvedev 2006; Kim 2007; Büthe and Millner 2008). The study of FDI in Latin America is no exception to this pattern: levels of revolutionary and protest activity, restrictions on human and social rights, levels of political competition and openness, and indicators of corruption and good governance have been shown at one time or another—despite lingering controversies—to be consequential (Tuman and Emmert 2004; Biglaiser and DeRouen 2006; Montero 2008).

One strand of this research on the political determinants of FDI has revolved around the notion of political risk, broadly understood as the probability that a sovereign state will be unwilling or unable to guarantee a favorable business and investment environment, either because of state-pursued policies (e.g., nationalization, blocking of fund remittance, other abrupt policy changes) or because of events outside its control (e.g., instability, social unrest, other aspects of the political and social environment) (for a seminal discussion of the concept, see Kobrin 1979). Empirical studies have long shown that levels of political risk in host countries affect FDI. Nigh (1986) and Nigh and Schollammer (1987) assessed the influence of political risk by emphasizing conflict and cooperation among recipients and investors, concluding that cooperation among nation-states stimulates FDI. Butler and Joaquin (1998) showed that multinationals require a higher rate of return to undertake FDI in politically risky countries. Bevan and Estrin (2004) and Janicki and Wunnava (2004) showed that country risk has a significant impact on foreign investment decisions, whereas Le and Zak (2006) showed that host-country political risk promotes capital flight. In the case of Latin American countries, various studies have tested and confirmed hypotheses on the negative impact of variables related to political risk (see, e.g., Tuman and Emmert 2004; Biglaiser and DeRouen 2006; for a debate on specific aspects of the political and institutional environment of host countries that affect investment in Latin America, see also Montero 2008, 2009; Tuman 2009).

A common feature of most research on political risk and FDI, however, is its focus on the host countries and why their risk levels may explain why some of them seem to be more attractive to investors than others. A rather different question concerns the attributes of countries of origin and how those attributes may explain investment flows into particular countries. Scholars focusing on Eastern Europe and Latin America, for example, have often remarked on how national differences among home countries may lead to different investment patterns (Hunya 2000; Tuman 2006, 2009; Montero 2009), but research on country-of-origin effects remains scarce (for a review of empirical studies, see Deichmann 2010). Even scarcer are those studies that explicitly address the question of political risk in home countries and why it may turn those countries' firms into more likely investors in a particular country. The literature has seldom examined that question, and the few existing studies that do address it have raised important theoretical and empirical puzzles.

First, the main theoretical argument that these few studies advance is that firms in countries with higher levels of political risk should have greater incentives to

invest abroad, to reduce uncertain returns that result from a hostile domestic environment. However, there are at least two reasons that argument may fail to find empirical support. First, as Thomas and Grosse (2001) note, that argument was originally developed and tested in studies of the United States as host country (Tallman 1988; Grosse and Trevino 1996), and it is less plausible in cases in which the host economies under study are themselves countries with higher levels of political risk than the United States. Second, as we discuss later here, there are reasons to believe that the relation between home-country political risk and FDI might be opposite to that which has been most frequently hypothesized, as a result of firms' greater access to capital and outward investment-friendly policies in lower-risk countries. It is not surprising that, given these arguments, several contradictory findings coexist in studies of host countries other than the United States. Thomas and Grosse (2001) found a positive effect of home-country risk in FDI into Mexico in one model specification, a result similar to that which Zhao (2003) obtained for China. Liu and colleagues (1997), however, failed to find empirical support for the same hypothesis in the Chinese case, whereas Deichmann (2010) found that, contrary to initial expectations, countries with lower (rather than higher) levels of corruption tend to invest more in the Czech Republic. Thus, although focusing on a single FDI destination allows for controlling host-country effects that might confound estimations of the effect of country-of-origin attributes, expanding our knowledge about the relationship between levels of political risk in the countries of origin and FDI in a wider variety of host countries seems necessary to continue evaluating the generalizability of existing arguments and findings.

Second, extant studies of the effects of home-country political risk on FDI have, in most cases, resorted to summary measures of such risk, as evaluated by consultant firms and country experts and as made publicly available in specialized publications and reports. Such measures are extremely important when studying the impact of host countries' political risk on FDI, as they are among the most likely sources of consequential information for decision makers in firms. However, as Kobrin (1979) noted early on, such measures may conflate and confuse various noneconomic factors, from the mere likelihood of interference of governments with business transactions to large-scale factors of instability in the political environment, such as the likelihood of political conflict, upheaval, violence, and political regime change. In the existing literature on host-country determinants of FDI, considerable effort has been made to unpack political risk into its different components and to distinguish it from other political factors that may operate in directions opposite to those hypothesized concerning risk, with several studies on Latin America serving as prominent examples of that effort (Tuman and Emmert 2004; Biglaiser and DeRouen 2006; Montero 2008). The same effort, however, has not been made concerning political risk in home countries. In this article, after estimating the effects of home-country political risk as captured by a well-known summary measure, we try to unpack that notion and to differentiate it from other aspects of the political environment.

Third, existing studies of the consequences of home-country risk have mostly used panel designs and restricted countries of origin to Western nations or to the

larger set of countries that have actually invested in a particular host country. Admittedly, that approach has the advantage of capturing the dynamic aspects of investments. However, it also has a potentially crucial disadvantage: the use of data exclusively from countries that have invested in a host country under study creates a potential selection bias problem that may seriously affect estimates. We address this problem by using cross-sectional data from 180 countries, including those with positive FDI and those with no FDI in Brazil. However, the presence of countries with no FDI in Brazil renders the typical ordinary-least-squares (OLS) estimates inadequate. We thus use Tobit and Heckit (and the associated probit auxiliary regression) selection models to estimate parameters. Though not impossible, the estimation of these models with panel data is a quite daunting task, and the reliability of the estimates is questionable (see, e.g., Hu 2002; Nicoletti 2006).

In this article, we focus our analysis on the case of Brazil. As far as we know, this is a country that has never been approached from the perspective of a systematic test of country-of-origin determinants of FDI. However, like China or Mexico, Brazil clearly stands out in the spectrum of countries attracting large amounts of FDI in recent years, having consistently captured, since the mid-1990s, more than 10 percent of the world's FDI flow to emerging markets and becoming the recipient of about half of Latin America's FDI inflow (UNCTAD 2009b). Also, like China and Mexico (and the Czech Republic), Brazil is an emerging market with levels of risk that allow us to test the generalizability of findings originally obtained in the study of a low-risk country such as the United States.

Our findings show that countries with lower, rather than higher, levels of political risk tend to invest more in Brazil, and this takes place above and beyond other economic variables with which political risk is likely to be highly correlated, such as economic development. This finding is at odds not only with the results documented by Tallman (1988) and Grosse and Trevino (1996) regarding FDI into the United States but also with the results from Thomas and Grosse (2001) and Zhao (2003) for the emerging markets of Mexico and China. We thus show that these authors' results showing a positive effect of political risk on FDI cannot be generalized to other host countries when we use estimation techniques that are appropriate to deal with selection bias and the existence of home countries with no investment into host countries. Furthermore, we show that the aspect of the political and institutional environment that is most likely to drive this negative relation between risk and investment into Brazil is related to the effectiveness of national governments (e.g., quality of civil and public services, policy formulation, government commitment to good policies). In other words, our findings also contribute to understanding what has been a somewhat obscure relationship between FDI and aggregate measures of political risk, by collapsing dimensions that range from regime type and stability into quality of domestic policies.

FDI IN BRAZIL

Emerging markets that are more volatile than those in North America or Western Europe are attracting considerable FDI. Over the past twenty years, there has

been an almost tenfold increase in FDI in emerging markets. Brazil is a stellar performer among them. Foreign investment began to gain importance in Brazil in the late nineteenth century, especially through British investments in services such as railroad and maritime transportation. Later, the state took over the provision of many public services following unilateral government decisions or negotiation with foreign investors, and FDI regained prominence only after the Second World War, though without a marked bias from any particular country.

The crisis of the 1980s nearly wiped Brazil off the FDI map. On average, the annual net inflow of FDI to the country dropped from US\$2.3 billion between 1971 and 1981 to a mere \$357 million from 1982 to 1991. However, the 1990s, especially after the middle of the decade, marked Brazil's return as a relevant FDI destination among developing countries. Brazil received about \$2 billion a year in FDI between 1990 and 1995, which corresponded to 0.9 percent of the world's FDI flow and 2.7 percent of FDI flow to developing countries. The FDI destined for Brazil in 1996 was five times larger than the annual average for the first half of the decade. That inflow to Brazil continued to grow until 2000, when it totaled \$32.8 billion. Even though it subsequently fell, foreign investment in Brazil in 2001 (\$21 billion) already amounted to 3 percent of the world total and 11 percent of that received by developing countries, and it has since risen to a record \$45 billion in 2008. And although the recent global economic financial and economic crisis has led to a contraction of about 50 percent in global FDI flows in the first half of 2009, Brazil was one of the emerging markets where that drop was smallest, of only about 25 percent, compared to 49 percent globally and more than 30 percent on average in Latin America (see Kekic 2011).

Brazil holds a portfolio of diversified interests in geographical terms, but there seems to be, at least since the mid-1990s, a marked concentration on Brazil by advanced industrial economies. According to 1995 data on FDI stock, the United States was Brazil's leading investor over the years, accounting for 28 percent of the total FDI stock, followed by Germany (10.8 percent), Japan (9.6 percent), and Switzerland (6.6 percent). At the time, the European Union as a whole was responsible for about one-third of total stock. In 2001, a mere eleven countries accounted for about 90 percent of foreign investment in Brazil: the United States continued to predominate with 25 percent, followed by Spain with 15 percent, France with 11 percent, Netherlands with 10 percent, Portugal with 9 percent, Germany with 6 percent, and Japan with 5 percent, whereas Canada, Italy, Luxembourg, and the United Kingdom each had a 2 percent share. That overall share for the major eleven countries has since dwindled, dropping to 75 percent in 2005, but it has remained mostly stable until today. Even a case like Mexico, which was the origin of 8 percent of all foreign investment in Brazil in 2005, has since dropped to lower shares, reaching no more than 0.5 percent in 2008 (Central Bank of Brazil n.d.). Thus, from a purely descriptive point of view, it seems clear that the lion's share of FDI inflows remains solidly the responsibility of firms from low-risk countries. However, determining whether home-country political risk indeed explains Brazilian FDI inflows requires a multivariate approach.

HYPOTHESES, DATA, AND METHOD

Political Risk and FDI

The main goal of this article is to assess the influence of home-country political risk on FDI. Both Tallman (1988) and Grosse and Trevino (1996) concluded that, *ceteris paribus*, investors from riskier countries are more likely to invest in the United States, a low-risk country. The rationale can be simply expressed: as Tallman (1988, 220) puts it, although "increased conflict at home results in a national environment that threatens private investment . . . , a cooperative home country political environment improves conditions for domestic investment and thus tends to reduce the incentives for overseas direct investment." However, Brazil has obviously different characteristics from those of the United States. Although there have been marked improvements in terms of stability of the political and macroeconomic environment in most Latin American countries, Brazil still ranked sixty-ninth in Euromoney's 2005 country risk index, below countries like Egypt and Kazakhstan, and twenty places below Mexico. By 2008, it had climbed to sixtieth place, whereas Mexico ranked at fifty-fourth and Chile fortieth. In any case, Brazil can hardly be considered a safe haven with respect to FDI.

This leads us to contradictory expectations about how home-country risk might affect FDI into Brazil. It is certainly conceivable that firms operating in countries with higher internal political instability have, *ceteris paribus*, higher incentives to internationalize, as they seek to escape domestic instability. However, it is also possible that this reasoning applies much less clearly to the case of higher-risk and developing host economies such as Mexico, China, or Brazil than it does to the case of the United States. First, as Thomas and Grosse (2001, 66) point out, in these cases, "political risk at home may not encourage firms to look at another risky country for FDI and local production." Thus, the hypothesized positive relationship between risk at home and FDI is disturbed by the possibility that returns to foreign investment are also endangered if potential host countries themselves exhibit, contrary to the United States, high levels of political instability. Second, calculations concerning risks when investing in developing economies are likely to be different from those involved in investing in richer and developed countries. For example, as Albuquerque (2003) notes, a potentially relevant aspect of investing in emerging markets (e.g., Mexico, China, Brazil) is that developing countries are likely to depend much more on the multinational companies themselves to obtain the human capital, technology, advertising and marketing resources, and other intangible assets required to maximize returns on investments. Therefore, because these assets are largely inalienable, they give firms in home countries a higher risk-sharing advantage than they would if investment took place in more developed countries.

Besides, there are reasons to believe that the relationship between risk and FDI may not only be disturbed when looking at host emerging markets but even reversed altogether. Low risk at home can be considered something that removes obstacles and creates incentives to foreign investment. Firms operating in high-risk countries are likely to have less capital to invest. At the most fundamental

level, country risk ratings indicate the likelihood that a country will default on debts, and thus firms in countries in which risk is perceived to be higher will face greater credit spreads (Eichengreen and Mody 2000) and greater difficulties in accessing world debt markets. In contrast, firms operating in lower-risk countries will have more access to those markets and to the risk capital they need to fund FDI. Furthermore, to the extent that political risk captures (the lack of) good governance and a stable market-friendly policy environment, firms in lower-risk countries may even enjoy greater political support for their business expansion overseas, in the form of reduced restrictions to the establishment of subsidiaries or even of explicit financial, diplomatic, and informational support. It is probably not by chance that, overall, despite the lingering discussion about the benefits of FDI to home economies, the prevailing view among developed nations has become that the benefits of outward investment tend to outweigh the costs, which results in government policies that are generally favorable to such outward investment (Kokko 2006).

Thus, on the basis of the existing literature, empirical findings (positive, negative, and no effects), and theoretical arguments, our expectations about the impact of home-country risk and FDI are contradictory, and it is unclear what we will find in terms of the relationship between the two variables:

H₁: The relation between home-country political risk and FDI is unclear.

We analyze the impact of home-country political risk on FDI with two main data sources. The dependent variable, FDI in Brazil by country of origin in US dollars, is made available by the Central Bank of Brazil (Banco Central do Brasil) and is measured, for 2005, for 180 countries in the world. For political risk, we use the Euromoney country risk index, also for 2005 (for a study of Euromoney country risk ratings and another rating [Institutional Investor] used in the literature on home-country risk [Liu et al. 1997], see Cosset and Roy 1991). The main advantage of this index is that it is available for all the countries in our data set. The index is a sum of several specific risks (e.g., political risk, economic performance, credit ratings—with pairwise correlations greater than 0.90). Using more than one would introduce obvious multicollinearity problems. We thus focus on the specific political risk index. The index's value ranges from 0 to 25, and it is built in such a way that higher values correspond to lower country risk levels. Although we tried other measures of risk in the model, the most statistically significant one was political risk (even more than economic performance risk). Other than that, the results were very similar.

Other Hypotheses and Variables

The remaining variables—all measured for 2005 for the 180 countries under examination (see the appendix for a list of countries)—employed in the model are controls. First, the larger the economic size of a country, the larger the number and the size of domestic firms that can invest abroad (Markusen 1995). Naturally, under this basic and broadly supported market-size hypothesis, we expect the relation between the size of the domestic market and FDI into Brazil to be positive.

We include two variables that serve as proxies for the economic size of a country: gross domestic product (GDP) and total accumulated direct investment abroad (DIA). Gross domestic product is a good measure of the domestic economic dimension of the home country, and with DIA, we expect to measure the international presence of each country. We used the UNCTAD database to collect data on GDP and DIA.

H₂: The relation between economic output of the domestic country and FDI into Brazil is positive.

It also seems reasonable to assume that FDI would be greater for wealthier economies. Economically developed countries with wealthier domestic markets are able to generate more capital for risky investments, are endowed with greater resources and capacities, and thus are more apt to internationalize. We therefore expect the wealth of the domestic market to affect the amount of manufacturing investment abroad (Vernon 1966), a finding confirmed by Tallman's (1988) study of FDI inflows in the United States—albeit Grosse and Trevino (1996) found no effects of GDP per capita. Per capita GDP is used as a proxy for the wealth of a country.¹ We use the UNCTAD database as our source.

H₃: The relation between domestic wealth and FDI in Brazil is positive.

Firms that invest in foreign markets are said to be at a disadvantage vis-à-vis local firms as a result of scarcer knowledge of the local business conditions (Grinblatt and Keloharju 2001). Cultural proximity reduces the disadvantage of foreign firms operating abroad, in other words, and diminishes the cost of adapting to the local business conditions. Thus, countries with greater cultural proximity to Brazil should be more likely to invest there. Unfortunately, indices of cultural proximity that have been used in other studies (Kogut and Singh 1988) are not available for more than seventy countries. For this reason, we constructed cultural distance proxies through dummies for language. The native language in Brazil is Portuguese. We divided the languages between Portuguese, Spanish, English, and others, because the first two are very similar and English is the most spoken second language, and we conceived of Portuguese and Spanish as capturing greater cultural proximity with Brazil.² We collected information for these variables from the 2006 CIA *World Factbook*.

H₄: The relation between cultural proximity and FDI in Brazil is positive.

The geographical distance between the home country and Brazil can also influence the decision to invest, as a result of the lower cost of monitoring foreign affiliates and establishing operations in nearby countries. To measure the distance between Brazil and another country, we consider the distance in kilometers

1. We also considered the Human Development Index (HDI), which is a broader measure of the development of a country, but the results are very similar and, therefore, not reported here for the sake of brevity.

2. We also constructed proxy variables based on religion. As Brazil is largely Catholic, we divided religion into three groups: Catholic, other Christians, and other religions. However, these variables proved statistically insignificant in all estimations; therefore, we excluded them from analysis.

between countries' capitals. We used software developed by Byers (2003) to estimate those distances.

H₅: The relation between geographical distance and FDI in Brazil is negative.

International trade and foreign investment are often viewed as complementary (Balassa 1985). Following the results of previous studies, we expect higher exports to Brazil to be linked to higher levels of FDI. To measure bilateral trade, we add the value of exports and imports of each country with Brazil. Data are available at the Ministry for Development, Industry, and International Trade of Brazil (Ministério do Desenvolvimento, Indústria e Comércio Exterior).

H₆: The relation between bilateral trade (home country and Brazil) and FDI in Brazil is positive.

Research Methodology

We estimate a model that is a function of the stated variables:

$$FDI = F \left(\begin{array}{l} \text{Political Risk}(\pm), \text{GDP}(+), \text{DIA}(+), \text{GDPpc}(+), \text{Portuguese}(+), \\ \text{Spanish}(+), \text{English}(+), \text{Capital distance}(-), \text{Bilateral Trade}(-) \end{array} \right)$$

About one hundred countries included in our data set have not invested in Brazil. Thus, in our analysis, we include potential foreign investors in Brazil, instead of only countries with positive investments. Tallman (1988), Grosse and Trevino (1996), Liu and colleagues (1997), Thomas and Grosse (2001), and Zhao (2003) have used in their data sets only countries that have invested in the host country under study. Therefore, it is possible that sample selection bias affected their results. However, the inclusion of countries with no FDI renders the typical OLS estimates inadequate. If we eliminate the countries with zero investment in Brazil, the OLS estimates will be inconsistent (see, e.g., Greene 2008). We therefore need a different estimation strategy.

We can think of FDI as a two-step decision. First, firms decide whether or not to invest in Brazil. Then, if they decide to invest, they decide on the amount of FDI. We model this decision with Heckman's (1979) selection model, which can be summarized as follows, where z_i^* is the latent dependent variable:

$$\left\{ \begin{array}{ll} z_i = 1 & \text{if } z_i^* > 0 \\ z_i = 0 & \text{if } z_i^* \leq 0, \\ z_i^* = w_i \gamma + e_i \\ y_i = x_i \beta + u_i, \text{ observed only if } z_i^* > 0 \end{array} \right. \quad (1)$$

If the latent dependent variable z_i^* is positive, there is investment ($z = 1$); if negative, there is no investment ($z = 0$). Also, w_i is the vector of the independent variables that influence the decision of whether to invest in Brazil, γ is the vector of coefficients, and the e_i 's are assumed to be independently normally distributed. If $z = 1$, then the last equation, $y_i = x_i \beta + u_i$ determines how much is invested.

Table 1 Descriptive Statistics of the Main Variables in the Data Set

	Mean	Median	Maximum	Minimum	Std. Dev.	Obs.	Unit	Source
FDI	109	0.0	4,644	0	480.4	184	10 ⁶ US dollars	Central Bank of Brazil
Political risk	12.1	10.9	25	0	6.5	184	Index	Euromoney
Per capita GDP	9,646	2,795	80,062	101.4	15,060	184	10 ³ US dollars	UNCTAD
Portuguese	0.032	0	1	0	0.18	184	Binary	CIA, <i>The World Factbook</i>
Spanish	0.114	0	1	0	0.32	184	Binary	CIA, <i>The World Factbook</i>
English	0.273	0	1	0	0.45	184	Binary	CIA, <i>The World Factbook</i>
Distance	9,505	9,401	18,803	1,461	4,178	183	Kilometers	Byers (2003)
Trade	4.78E+08	1.53E+07	1.605E+10	0	1.55E+09	184	US dollars	Government of Brazil
GDP	240,956	15,089	12,484,364	70.98	1,046,568	183	10 ⁶ US dollars	UNCTAD
DIA	4,528	7.45	142,925	-33.171	17,816	181	10 ⁶ US dollars	UNCTAD

The idea behind equation 1 is that firms first decide whether they will invest in Brazil ($z = 1$) or ($z = 0$). We use a probit model to estimate this step. Then, only if they decide to invest, they decide on the amount of FDI (y).

We also consider an alternative approach: the Tobit model (Tobin 1958). The Tobit model is described as follows, where y_i^* is the latent dependent variable, y_i is the observed dependent variable, x_i is the vector of the independent variables, β is the vector of coefficients, and the u_i 's are assumed to be independently normally distributed:

$$\begin{cases} y_i^* = x_i\beta + u_i \\ y_i = y_i^* & \text{if } y_i^* > 0, \\ y_i = 0 & \text{if } y_i^* \leq 0 \end{cases} \quad (2)$$

Where the Tobit was designed to deal with estimation bias associated with censoring, the Heckit is a response to sample selection bias. The two models have different motivations. The rationale behind equation 2 is that firms choose how much to invest in Brazil (y^*), but choices less than zero are censored, because it is not possible to invest less than nothing. Therefore, we do not observe $y < 0$.

Overall, we estimate three different models: a probit model; a Heckit model, which uses the probit results to deal with sample selection bias; and the Tobit model.

FINDINGS

We report the Tobit, Heckit and the probit auxiliary selection model in table 2. The estimations are remarkably similar, which gives us additional confidence in the results. Our market-size variables—GDP and DIA—have, as expected, positive and significant effects. Per capita GDP is not statistically significant, which contradicts Tallman (1988) but replicates Grosse and Trevino's (1996) negative finding. Contrary to expectations, the estimated coefficient of bilateral trade is positive but not statistically significant. Variables measuring distance have the expected signs: Portuguese- and Spanish-speaking countries have a greater propensity to invest in Brazil; and geographic distance appears with the expected sign, although the estimated coefficient is statistically significant at the 10 percent level, only if we consider a one-tailed test. This may be because Brazil's neighboring countries speak Spanish, and the Spanish-language dummy may therefore capture part of that effect. In general, the results of previous studies (Grosse and Trevino 1996; Thomas and Grosse 2001; for cultural distance, see Liu et al. 1997) are confirmed in this respect: the cultural and geographic proximity of the countries increases propensity to invest abroad.

Noting that our control variables behave generally as expected, we can focus on our core finding: the estimated coefficient of political risk is positive and statistically significant. Recall that, in the Euromoney political risk index, higher values correspond to lower levels of political risk. This means that, substantively, our basic finding is that countries with lower risk levels tend to invest more in Brazil.

Table 2 Regression Results on FDI in Brazil

	Tobit	Heckit	Probit selection
Country political risk	32.3 (3.17)***	31.8 (3.14)***	0.084 (3.08)***
GDP	2.9e-04 (4.86)***	0.0003 (4.82)***	7.69e-07 (4.28)***
DIA	0.0085 (4.69)***	0.0085 (4.63)***	2e-05 (4.02)***
GDP per capita	0.0003 (0.08)	0.0004 (0.12)	1.14e-06 (0.12)
Portuguese	382.6 (2.06)**	379.9 (2.04)**	1.01 (2.04)**
Spanish	406.4 (3.21)***	393.1 (3.12)***	1.04 (3.02)
English	125.3 (1.42)	115.6 (1.29)	0.31 (1.29)
Distance	-0.017 (-1.50)	-0.017 (-1.48)	-4e-05 (-1.48)
Exports to and from Brazil	3.8e-08 (0.95)	3.93e-08 (0.97)	1.04e-10 (0.96)
Constant	-679.4	-673.9	-1.78

Note: If we had used Huber-White standard errors to account for the possibility of heteroskedasticity, the results would have been very similar. The only relevant differences would be for Portuguese, which would become even more significant for DIA and distance, both of which would become marginally significant at 10 percent. The same is true for table 3.

* $p < .10$; ** $p < .05$; *** $p < .01$.

The magnitude of the effect is large and important: a one-standard-deviation positive change in the political risk index—equivalent, for example, with 2005 data to the difference between a country like Bulgaria and a country like South Korea—is associated with a US\$210 million increase in foreign investment. This finding contrasts with most of the existing literature on the effects of home-country political risk in FDI flows, and it lends credibility to the notion that the relationship between the two variables is different when we move from low-risk, developed host countries to high-risk host emerging markets. Firms in high-risk countries may look at lower-risk countries as safer havens, but it is in lower-risk countries that we find firms more willing and able to invest in emerging higher-risk markets.

Is Multicollinearity a Problem?

As we discussed earlier, it is not entirely clear what a summary index such as country political risk may really capture. A question is whether the effects of risk can be distinguished from the effects of being an advanced industrial economy, where political risk tends to be lower. In other words, it is possible that there is a multicollinearity problem between political risk and per capita GDP.

Table 3 displays the correlation matrix for the independent variables. The

Table 3 Tobit Regression Results with Several Measures of Political Risk

	Democracy (corr. = 0.4)	Voice and accountability (corr = 0.77)	Political stability (corr = 0.71)	Regulatory quality (corr = 0.92)	Rule of law (corr. = 0.91)	Control of corruption (corr = 0.90)	Polity (corr. = 0.44)	Government effectiveness (corr = 0.94)
Country political risk	31.5***	23.0**	379***	31.9*	26.1*	26.9*	35.0***	13.0
GDP	3E-04***	3E-04***	3E-04***	3E-04***	3E-04***	3E-04***	3E-04***	3E-04***
DIA	0.009***	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***
Political risk indicator	52.6	82.3	-48.2	7.36	48.6	41.0	8.3	133.95
Portuguese	386.7**	356.4*	410.0**	382.0**	382.0**	381.2**	408.9*	385.5**
Spanish	400.9***	400.7***	406.8***	405.3***	417.2***	411.7***	378.3**	417.9***
English	126.3	94.5	147.5	123.4	113.0	114.3	72.3	99.3
Distance	-0.014	-0.013	-0.017*	-0.017*	-0.016	-0.016	-0.020	-0.014
Exports to and from Brazil	3.83E-08	3.79E-08	3.74E-08	3.78E-08	3.74E-08	3.75E-08	4.10E-08	3.23E-08
Constant	-725***	-587***	-752***	-672***	-602***	-618***	-728***	-456**

Note: Corr. = correlation between each variable and political risk.

* $p < .10$; ** $p < .05$; *** $p < .01$

correlations suggest the possibility of linear dependence between some variables. For example, political risk is highly correlated (.79) with per capita GDP. This is particularly relevant because we want to assess the explanatory power of the political risk and be sure that effects of other variables do not contaminate the estimated coefficients. To be sure, linear dependence between the independent variables leads to an increase in the standard errors, which can lead to incorrect nonrejections of the null hypothesis. In other words, the statistical relevance of political risk is not in question. However, it remains worthwhile to examine whether there is linear dependence between the variables and the extent to which it might affect the results.

If the independent variables are linearly dependent, at least one of the eigenvalues of the matrix $X^T X$ will be 0. If it is not perfect, small eigenvalues indicate strong linear dependence. To assess the severity of this problem, we used the condition index test (Belsley 1991), which involves the standardization of the explanatory variables to unit variance and the computation of the eigenvalues of the standardized $X^T X$. The condition index is given by $\sqrt{\lambda_{\max} / \lambda_{\min}}$, where λ_{\max} (λ_{\min}) is the highest (lowest) eigenvalue. As a rule of thumb, Kennedy (2008) considers that there is evidence in favor of linear dependence between the variables if the index is greater than 30. Greene (2008) suggests that values greater than 20 may indicate such dependence. However, computation of the condition index of our model reveals a value of 9.16. These values are far less than the suggested lower boundaries; this indicates that linear dependence is not a serious problem.

An alternative approach is to regress each independent variable against all the others and use the R^2 of this auxiliary regression to compute the variance inflation factor (VIF). As a rule, Kennedy (2008) argues that there is evidence that linear dependence is a problem if $VIF > 10$. When we computed the VIF for each independent variable, the highest value we observed was 4.76. Again, the evidence suggests that linear dependence is not affecting the results.

Finally, the main consequence of linear dependence is the high sensibility of the estimators to small changes in the sample size, or the chosen variables. However, in a previous version of this article, we had only 113 countries (70 countries fewer), and our data referred to the year 2001. The results were the same: political risk was statistically significant, and the estimated coefficients for per capita GDP were not statistically significant.

Unpacking Political Risk

Another interesting question concerns which of the possible noneconomic components of home-country political risk is most relevant for FDI. As we saw early on, summary measures of political risk conceivably conflate different aspects of the institutional, political, and policy environment in a particular country. One of these pertains to the level of stability in the institutional environment—that is, the absence of threats to regime and governmental stability that might seriously destabilize firm operations, the aspect that tended to be emphasized in the seminal studies focusing on home-country political risk (Tallman 1988; Grosse and Trevino 1996). Other potentially relevant aspects concern governance, especially

as it may help in creating a policy environment favorable to business and investment. This may include, for example, dimensions such as corruption (Deichmann 2010), the enforcement of contracts and property rights, and the quality of policy formulation and implementation. Finally, regime type (i.e., democracy) may also be related to political risk. Which of these dimensions is most consequential for the empirical relationship we have observed in table 2?

To answer that question, we gathered several variables that capture different potential dimensions of political risk. Among our major concerns, of course, was obtaining measures of the aforementioned concepts for the largest possible number of cases, including countries with positive and zero levels of FDI into Brazil, to avoid the selection bias problems common in the extant literature. Thus, the first two variables measure regime type. We use data from Cheibub, Gandhi, and Vreeland (2010) to measure democracy (coded for 2005), distinguishing countries in which the executive and the legislature are chosen directly by popular election (or at least indirectly in the case of the executive), more than one party competes in the election, and alternation in power has taken place (1) from all remaining cases (0). For the same generic purpose, we also used the variable polity from the Polity IV 1800–2009 data set (Marshall and Jaggers 2009), which ranges from –10 (autocratic) to 10 (democratic), thus capturing the constraints faced by the executive, the degree of competition and openness in executive recruitment, and political competition in a regime. We also use country polity measures for 2005.

To capture aspects related to political stability and quality of governance, we turn to the World Bank Worldwide Governance Indicators (Kaufmann, Kraay, and Mastruzzi 2009). Six different variables are available for a large number of countries, all of them standardized to range from –2.5 to 2.5. Voice and accountability captures a concept with similarities to that of regime type (i.e., the extent to which citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Political stability captures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means. Government effectiveness is a measure of the quality of public services, the quality of civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Regulatory quality is related to the ability of the government to formulate and implement sound policies and regulations that permit and promote private-sector development. Rule of law relates to the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Finally, control of corruption captures perceptions of the extent to which public power is exercised for private gain. All these measures were obtained for 2005. For almost all variables described here, we have at least 180 country observations. The exception is polity, for which we have measures for 155 countries.

Table 3 shows the correlations between these variables and political risk and reestimations of the model presented in table 2, with two differences. First, we

dropped per capita GDP, which we have already shown to be unrelated to FDI. Second, we added each of the variables described here and observed what that inclusion did to the coefficient and statistical significance attached to the variable political risk.³

Note, first, that there are four variables that are strongly correlated with political risk. They are not those related either to regime type or to political stability, but rather those most related to regime performance and governance: control of corruption, rule of law, regulatory quality, and government effectiveness.

When each of the eight variables is added to the model, we find that the results are quite robust to the introduction of the new variables. None of them is statistically significant in any model, and in all cases except one, political risk remains significant (at least at the 10 percent level).

The one exception is, however, informative. When including a measure for government effectiveness, both that variable and political risk become individually statistically nonsignificant while jointly highly significant: this means that the aspect of political risk that is probably most relevant to explaining FDI in Brazil is strongly correlated to government effectiveness, that is, a firm's policy environment in terms of the quality of the state apparatus and policy formulation and implementation.

CONCLUSIONS

Existing studies on the influence of political risk on FDI have focused on both low-risk developed nations (United States) and higher-risk developing countries (e.g., China, Mexico, Czech Republic). In most cases, however, samples have been limited to countries with positive investment flows into the countries under analysis. In this article, we assess the influence of home-country political risk on FDI into a high-risk country such as Brazil, but unlike previous studies, we use data on a large set of 180 countries, including 100 noninvestors, and multiple estimation techniques, such as the probit, Tobit, and Heckit models, which are appropriate to isolate the influence of home-country political risk both on the decision to invest and on the amount of FDI flow into Brazil.

Our findings, controlling for domestic output, market size, language, geographic distance, and bilateral trade, reveal that higher levels of home-country political risk are conducive to lower levels of FDI into Brazil. These findings are at odds with most studies that focused on the effect of home-country risk on foreign investment. We also found that the main component of political risk that seems to be driving the negative relationship between risk and FDI into Brazil is related neither to regime type nor to political stability, but to the quality of policy formulation and implementation.

Why do the results differ from most previous studies? On the one hand, there are potential methodological reasons for our findings. By considering a wider

3. We report only the results for the Tobit estimation, because the Heckit delivers similar results. Reporting the latter would not add relevant information.

sample of potential investors, including noninvestors, we addressed potential selection bias problems in previous studies. Our results are highly significant, and the Tobit and Heckit (and associated selection probit) estimations delivered, essentially, the same results, which increases our confidence in the findings. On the other hand, it is certainly reasonable that this result may be explained by the different risk profiles and other factors that may differentiate cases such as the United States from host countries that are higher-risk emerging markets. Even for firms in high-risk countries, investing in high-risk emerging markets is not necessarily an optimal strategy, whereas firms in developed nations might be interested in exploring the risk-sharing advantage that derives from the lack of intangible assets in emerging markets. Furthermore, we argued, firms in lower-risk countries should be more able to access capital markets and to enjoy the benefits of a policy environment that is more favorable to foreign investment. The results seem to support our speculations.

The substantive implications of these findings are potentially quite relevant. First, they provide new insight into the factors that drive investment into Brazil, which has been a major magnet of foreign investment in the world's emerging markets in recent years. They do so by contributing to the still-scarce literature on country-of-origin factors of FDI, precisely in the Latin American context, where there have been frequent calls for attention to the systematic study of these factors (Tuman 2006, 2009; Montero 2009). Finally, our findings have important implications for policy makers. Certainly, from the point of view of policy makers in potential host countries, political risk in home countries is even less amenable to change by political fiat than risk in their own contexts. However, studies and recommendations in the area of investment facilitation strategies (UNCTAD 2009a; Ortega and Griffin 2009) have tended to neglect the issue of targeting, or selecting which potential home countries have the kind of structural features that turn their firms into larger investors. Investment facilitation strategies in Brazil have also suffered from a lack of a strategy designating target countries in which efforts in promotion and facilitation were more likely to succeed (Sakurai 2004), but there are recent signs of improvement, such as the creation of APEX-Brasil, a governmental agency in charge of attracting international investment. In 2009, APEX worked with a budget of more than US\$260 million and devoted close to US\$30 million to missions and workshops taking place in thirteen "priority" markets.⁴ Thus, in the global competition for foreign investment, governments devote considerable financial and political resources to the tools of economic diplomacy and to the establishment of investment and trade promotion agencies and their overseas offices. Knowing which countries are more likely to invest in a particular country can be of critical importance for governments engaged in a proactive and targeting stance with respect to investment promotion and facilitation.

4. "Apex-Brasil Increases Resources Provided to Investment and Exports Promotion in 2009," December 18, 2008 (accessed at http://www.apexbrasil.com.br/porta1_apex/publicacao/engine.wsp?tmp.area=149&tmp.texto=4965).

APPENDIX

Country	FDI 2005	Country	FDI 2005	Country	FDI 2005
United States	4,644.16	Norway	43.16	Antigua and Barbuda	0.45
Netherlands	3,207.92	Singapore	42.3	Russia	0.43
Mexico	1,661.18	Bermuda	38.92	Angola	0.43
France	1,458.41	Sweden	32.91	Liberia	0.41
Canada	1,435.32	Hong Kong	17.45	Czech Republic	0.32
Germany	1,269.32	India	7.91	Jordan	0.29
Spain	1,220.43	China	7.56	Belize	0.24
Australia	926.04	Barbados	6.85	Cape Verde	0.15
Japan	779.08	Finland	6.56	Turkey	0.15
Belgium	685.58	Austria	6.07	Cuba	0.14
Italy	345.68	Venezuela	5.56	Cyprus	0.11
Switzerland	341.54	Taiwan	3.69	United Arab Emirates	0.11
Portugal	334.62	South Africa	3.69	Egypt	0.11
Denmark	239.88	Israel	3.24	Seychelles	0.1
Uruguay	169.21	Bolivia	2.09	Malta	0.08
Korea South	168.01	Ecuador	1.82	Poland	0.06
Panama	165.56	Greece	1.64	Kuwait	0.06
United Kingdom	153.26	Colombia	1.58	Guatemala	0.06
Luxembourg	139.1	Mauritius	1.57	Bulgaria	0.05
Ireland	125.11	Paraguay	1.4	Nigeria	0.05
Argentina	112.23	Marshall Islands	1.39	Dominican Republic	0.05
Chile	102.68	Peru	1.04	Romania	0.05
Bahamas	87.83	Lebanon	0.98	Mozambique	0.05
New Zealand	48.13	Costa Rica	0.82	Slovenia	0.04
Libya	0.03	Dem Rep of the Congo (Zaire)	0	Kazakhstan	0
Thailand	0.02	Djibouti	0	Kenya	0
Trinidad & Tobago	0	Dominica	0	Korea North	0
Afghanistan	0	El Salvador	0	Kyrgyz Republic	0
Albania	0	Equatorial Guinea	0	Laos	0
Algeria	0	Eritrea	0	Latvia	0
Armenia	0	Estonia	0	Lesotho	0
Azerbaijan	0	Ethiopia	0	Lithuania	0
Bahrain	0	Fiji	0	Macau	0
Bangladesh	0	Gabon	0	Macedonia (FYR)	0
Belarus	0	Gambia	0	Madagascar	0
Benin	0	Georgia	0	Malawi	0
Bhutan	0	Ghana	0	Malaysia	0
Bosnia & Herzegovina	0	Grenada	0	Maldives	0
Botswana	0	Guinea	0	Mali	0
Brunei	0	Guinea-Bissau	0	Mauritania	0
Burkina Faso	0	Guyana	0	Micronesia (Fed. States)	0
Burundi	0	Haiti	0	Moldova	0
Cambodia	0	Honduras	0	Mongolia	0
Cameroon	0	Hungary	0	Morocco	0

(continued)

Country	FDI 2005	Country	FDI 2005	Country	FDI 2005
Central African Republic	0	Iceland	0	Myanmar	0
Chad	0	Indonesia	0	Namibia	0
Congo	0	Iran	0	Nepal	0
Côte d'Ivoire	0	Iraq	0	New Caledonia	0
Croatia	0	Jamaica	0	Nicaragua	0
Niger	0	Slovak Republic	0	Tonga	0
Oman	0	Solomon Islands	0	Tunisia	0
Pakistan	0	Somalia	0	Turkmenistan	0
Papua New Guinea	0	Sri Lanka	0	Uganda	0
Philippines	0	St Lucia	0	Ukraine	0
Qatar	0	St Vincent & the Grenadines	0	Uzbekistan	0
Rwanda	0	Sudan	0	Vanuatu	0
Samoa	0	Suriname	0	Vietnam	0
Sao Tome & Principe	0	Swaziland	0	Yemen	0
Saudi Arabia	0	Syria	0	Zambia	0
Senegal	0	Tajikistan	0	Zimbabwe	0
Serbia and Montenegro	0	Tanzania	0		
Sierra Leone	0	Togo	0		

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