A BIT Goes a Long Way: Bilateral Investment Treaties and Cross-border Mergers

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Abstract

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I.   Introduction

Cross-border acquisitions have been increasing in frequency and size over the past two decades. Erel et. al. (2012) show that cross-border acquisitions roughly doubled as a proportion of total merger volume between 1998 and 2007. While cross-border capital flows have increased significantly over time, Figure 1 shows that over 80% of capital is still allocated to developed countries. The dominance of developed countries as recipients of foreign capital is a puzzle. Lucas (1990) points out that in the neoclassical model of growth, in which countries have the same constant returns to scale production function, open world capital markets, and homogenous capital and labor, capital should flow from rich to poor countries because diminishing returns to capital implies that the marginal product of capital is significantly higher in developing countries. This puzzle, known as the Lucas Paradox, has generated a large body of research investigating why capital flows disproportionately to the industrialized countries. Understanding the factors that impede capital flows is important because foreign investment is an important source of economic growth and corporate governance development (Albuquerque et al. (2015)).

While there are several explanations for the Lucas Paradox, we focus on how institutional quality, particularly with respect to the protection and enforcement of property rights, affects the flow of capital from one country to another. While every country has imperfect institutions, institutions that protect property rights are less established in developing economies. Dixit (2011) argues that investing across borders adds an extra element of insecurity that is not present in domestic investments. There is a higher risk that contracts are broken or property rights violated when institutional quality is imperfect. Foreign investors face a higher risk of expropriation as host governments are more likely to violate contracts with foreigners with less fear of political consequences than if the investors were citizens. In addition, courts may be biased toward domestic

investors in the case of disputes (Bhattacharya et al. 2007) and the judicial system of the host

nation may be less developed. In the presence of such political risk and insecurity, foreign investors

are less likely to invest in the first place. If firms do invest abroad, they are likely to take

precautions to make the investment less tempting for expropriation by withholding technology

transfer, changing the form of the transaction to a joint venture rather than purchasing outright

(Williamson (1996), Opp (2012)) or demand high discounts in transaction prices.

In this paper, we examine whether Bilateral Investment Treaties (BITs) act as a substitute

for high enforcement of contracts and property rights and remove impediments to foreign

investment. BITs require countries to protect the property rights of foreign firms and allow

international bodies, such as the International Convention on the Settlement of Investment

Disputes (ICSID), a member of the World Bank, to arbitrate foreign investment disputes. We focus

on BITs for two important reasons. First, while BITs were designed to encourage capital flows to

the developed world[1], whether and how BITs affect cross-border flows of capital is an important

and unresolved issue (Dixit 2012). The countries signing treaties enter them voluntarily and the

enforcement of the arbitration decisions still lie with the domestic courts, questioning the strength

of enforcement of the treaties. In addition, countries can withdraw from the treaties and

membership in the ICSID[2], possibly undermining the effectiveness of BITs in countries with a

high degree of investment insecurity. Understanding whether BITs increase the flow of capital to

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[1]The report of the executive directors of the ICSID Convention emphasize that the primary goal is to promote foreign investment. Their report states: "...the Executive Directors are prompted by the desire to strengthen the partnership between countries in the cause of economic development. The creation of an institution designed to facilitate the settlement of disputes between States and foreign investors can be a major step toward promoting an atmosphere of mutual confidence and thus stimulating a larger flow of private international capital into those countries which wish to attract it." Report of the Executive Directors on the Convention on the Settlement of Investment Disputes between States and Nationals of Other States, March 18, 1965.
[2]Bolivia, Ecuador, and Venezuela have withdrawn from the ICSID convention and are no longer bound by bilateral investment treaties. Argentina has delayed recognizing ICSID decisions and has considered withdrawal from the arbitration body.

the developing world increases our understanding of the interaction between the protection of property rights and investment and provides insight and a partial solution to the Lucas Paradox. Given the importance of foreign capital to the developing world, an understanding of how BITs affect flows of capital provides guidance for countries considering investment treaties.

The second reason for focusing on BITs is that the way the treaties are signed and implemented provide a useful empirical framework for studying institutions and investment. Institutions change slowly over time and tend to improve as economies improve, thus creating difficulties in establishing the direction of causation as it is entirely plausible that other measures of institutional quality, such as government stability, improve as a result of better economic conditions. BITs represent a significant shock to institutional quality, providing large within-country variation in the protection and enforcement of investor property rights. While the timing of the treaty may be somewhat endogenous to economic conditions and capital flows, the bilateral nature of the treaties allow us to control for these other factors that make investment attractive in a particular country. For example, the United Kingdom signed a BIT with Nigeria in 1990 but the United States did not. We can compare changes in capital flows between the United Kingdom and Nigeria to flows from other countries that did not sign a treaty in the same year, thus controlling for the overall factors that may have increased the overall attractiveness of investments in Nigeria.

We focus on cross-border mergers and acquisitions as our measure of foreign capital flows rather than foreign direct investment (FDI). We do this because cross-border mergers provide us with more detailed information on specific foreign investments. In addition, FDI contains other transactions that do not reflect investment decisions directly, such as retained earnings and inter-company loans. Cross-border mergers allow us to examine decisions at the firm and industry level, while FDI is typically aggregated at the country level. A large amount of FDI is channeled through

offshore financial centers, making it difficult to precisely measure the directional flow of investment from one country to another. The FDI data is distinguished from more passive portfolio flows by an arbitrary ownership fraction of 10%, assuming that threshold reflects sufficient control rights to be classified as FDI. Finally, cross-border mergers reflect a significant foreign investment that is straightforward to compare across countries and does not suffer from differences in how FDI is measured across countries.

We find that BITs have a large, positive effect on cross-border mergers and acquisitions. Controlling for year and country-pair fixed effects and other determinants of cross-border M&A activity, we find that the probability of a cross-border merger more than doubles, increasing from 2.22% before the treaty to 5.21% after the treaty is signed. The number and volume of cross-border mergers increase significantly as well. We find that both the number of deals and the dollar volume of deals roughly doubles in the post-treaty period. The increases in the number and size of the cross-border mergers and acquisitions are consistent with BITs providing a safer investment climate by increasing the protection and enforcement of property rights through the ability to take disputes to an international arbitration body. Moreover, we find no pre-trends indicating any difference in the probability or volume of deals in the run-up prior to the signing of the BIT.

Note that due to the inclusion of year and country-pair fixed effects, the main effect can be interpreted as a *within* country-pair change *over time*. Specifically, any omitted variable that may explain our findings cannot simply be a country-specific or even a country-year specific factor, but rather must be a country-pair specific factor *and* be time-varying to coincide with the signing of the BIT. For example, changing economic conditions in Nigeria prior to the signing of their BIT with the UK in 1990 would not alone be able to explain the increase in acquisitions from the UK to Nigeria in 1991, since these same changing economic conditions would be present for a US

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company looking to acquire a Nigerian target in 1991, with the only difference that the US did not have a BIT with Nigeria in that year.

We also find that most of the increase in cross-border mergers following entry into a BIT is driven by capital flowing from developed economies to developing economies. The effect of the BIT signing on cross-border border deals is seven times greater for smaller countries compared to larger countries. The finding that BITs primarily facilitate flows from the developed to the developing world lends support to the view that part of the Lucas Paradox can be explained by the lack of strong protection and enforcement of property and contracts. For example, Reinhart and Rogoff (2004) argue that credit risk is one of the important drivers of the paucity of rich-poor capital flows. Our results also complement those of Papaioannou (2009) and others who find that higher institutional quality increases the flow of capital to countries where the marginal product of capital is high.

We also investigate the relationship between institutional quality and the effectiveness of BITs. If BITs substitute for domestic institutional quality, we expect the impact of BITs on cross-border mergers to be higher for countries with higher political risk. However, high levels of political risk and government instability also create a credibility problem for BITs as countries can choose to withdraw from their obligations to an international tribunal. Our evidence is consistent with the view that BITs substitute for domestic institutional quality, but only up to a certain point. The positive effect of BITs on mergers is stronger, on average, for countries with higher levels of political risk. However, when we sort countries in low, medium, and high political risk groups, we find no effect on countries with either high or low political risk. Most of our results appear to be driven from countries with median levels of political risk, consistent with popular views that BITs are ineffective for countries with very high risk and not necessary for countries with low political

risk[3].

We then turn to investigate the valuation implications of BITs on cross-border mergers and whether the introduction of a BIT changes the valuation of deals and also how the gains from the merger are shared between the acquirer and the target. We find at the announcement of the merger, the combined cumulative abnormal return (CAR) around the announcement date increases from 11.35% before the BIT to 26.23% after the treaty. There are various reasons for why the CAR could increase post-BIT. The announcement returns incorporate not only expected synergies from the deal but also the probability that the deal is completed. The higher return suggests that more value is created post-BIT due to higher expected synergies from the new deal and/or that mergers are more likely to be completed once announced with increased protection of investor rights. We also examine how the gains from the merger are split between acquirer and target. We find that target announcement returns increase from 22.9% to 48.8%, suggesting that the value created due to the reduction in investment risk after the BIT is also shared with the target firm.

Our paper contributes to three important literatures. First, the evidence on the effectiveness on BITs on capital flows has been mixed. Tobin and Rose-Ackerman (2005) find that the relationship between BITs and foreign direct investment is very weak and that they only increase flows to countries with stable business environments. Neumayer and Spess (2005) find some evidence that the number of treaties is positively correlated with FDI flows to a country. Our results find very strong evidence that BITs significantly increase cross-border mergers. In contrast to the FDI results of Tobin and Rose-Ackerman (2005), we also find that the effect is driven mostly by

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[3]See "Come and Get Me", The Economist, February 18, 2012: "Multinationals had written off Ecuador, Bolivia and Venezuela long before they left ICSID. Even without arbitration, they will stay in Australia, which has reliable local courts and rich natural resources. Brazil has become a top investment destination without ratifying a single investment treaty. But medium-sized countries with middling political risk–such as Argentina–benefit most from arbitration."

flows to countries with medium levels of institutional quality and risk, suggesting that BITs act as a substitute for institutional quality for a large group of countries but not those with very high levels of political risk. We also contribute to the literature on institutional quality and capital flows in general, such as Portes et al. (2001), Portes and Rey (2005), Buch (2003), Gelos and Wei (2005) and others who find a significant correlation between different types of domestic institutional quality, such as political risk, corruption, and functioning of the bureaucracy and various measures of capital flows. We find that a substitute for domestic institutional quality, the bilateral investment treaty, has a large effect on cross-border mergers and acquisitions.

Finally, we also contribute to the literature on mergers and acquisitions in general. While a majority of the studies in this literature involve public U.S. acquirers and targets, recent work has paid more attention to the determinants of cross-border acquisitions, which involve mainly private targets. These studies highlight the importance of geographic proximity, cultural similarity, and the strength of institutions and accounting disclosures in facilitating cross-border acquisitions (Ahern, Daminelli, and Fracassi (2012), Erel, Liao, and Weisbach (2012), Rossi and Volpin (2004)). The richness of our data and the bilateral nature of the treaties allow us to go beyond pair-specific factors like geographic and cultural distance and country-specific factors like institutional quality.

II.   Data

The paper relies on a variety of data sources. We obtain M&A data from SDC's World Merger and Acquisitions database. We obtain merger data for all countries available in the database from the years 1980 to 2012. Since the last BIT in our sample was signed in 2009, we end our sample in 2012 to provide enough annual observations both pre- and post- signing. We

obtain daily aggregate market return data for each country from Datastream, country GDP and trade data from the Penn World tables, and country political risk scores from the International Country Risk Guide (ICRG).

To identify treaties between countries we rely on two sources: the World Treaty Index and the Multilateral Treaty Calendar. The World Treaty Index website contains data from 1945-1999. We only included economic treaties, which in the world treaty index observations from the World Treaty Index under Economics (Topic 3), defined as, "Matters that are primarily economic in the sense of traditional international trade and payments, but for aid-supported transactions."[4] The Economics treaties include the following categories: Claims, Debts, Assets; Raw Materials Trade; Customs Duties; Economic Cooperation; Industry; Investment Guarantee; Most Favored Nation Status; Patents and Copyrights; Payments an Currency; Products and Equipment; Taxation; Technical Cooperation; Tourism; General Trade; and Trade and Payment.

The Multilateral Treaty Calendar data comes from a physical book of the same name. It contains treaty data until 1995. Using the index, we collect each treaty under the "Trade and Commerce" heading after 1950. We compile the signed and force date, treaty name and countries involved in the treaty.

As an illustration of the agreements we focus on the U.S. In the U.S. the Office of the United States Trade Representative, a branch of the executive office of the president, is responsible for the BITs. The aims of the BITs are "to protect private investment, to develop market-oriented policies in partner countries, and to promote U.S. exports." [5]

More specifically they are:[6]

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[4] See the Treaty Topic Thesauraus at www.worldtreatyindex.com.
[5] Quoted from https://ustr.gov/trade-agreements/bilateral-investment-treaties
[6] Quoted from https://ustr.gov/trade-agreements/bilateral-investment-treaties

a) to protect investment abroad in countries where investor rights are not already protected through existing agreements (such as modern treaties of friendship, commerce, and navigation, or free trade agreements);

b) to encourage the adoption of market-oriented domestic policies that treat private investment in an open, transparent, and non-discriminatory way; and

c) to support the development of international law standards consistent with these objectives.

The objectives of the BITs are multi-fold. First, the use of BIT is to protect investors' investments. Investors from a country with a BIT agreement should be treated the same as an investor from the host country or any other third country. Second, the BIT agreement provides protection against expropriation of investments. If expropriation does take place, agreements are in place to ensure adequate and prompt compensations are made. Third, a BIT agreement typically allows for investors to transfer investable funds in and out of a country at the going market rate without delay or restriction. Fourth, BIT agreements can limit tit-for-tat type agreements, restricting demands for reciprocal exports, additional investments, or other local economic targets.

Fifth, BIT agreements tend to allow for the management team of the investor's choosing, without regard to local residency or nationality. Finally, if an investment dispute arises, BIT agreements generally call for the dispute to be adjudicated in an international arbitration, not in the domestic country's court system.

Importantly, BITs typically apply to new and existing investments in the respective countries. For instance, in the U.S-Ecuador BIT the text reads, "From the date of its entry into force, the Treaty applies to existing and future investments." In the model text, existing investment is covered under the definition of a "covered investment": an investment in its territory of an

investor of the other Party in existence as of the date of entry into force of this Treaty or established, acquired, or expanded thereafter.[7]

III. Results

A. *BITs and Merger Activity – Univariate Results and Summary Statistics*

Before discussing the multi-variate model results, we first analyze the average univariate effect of signing and entry into a bilateral investment treaty (BIT) on merger activity. The unit of observation is acquiring country *i*, target country *j*, and year *t*. Note that for a country to be included in our sample, at least one firm from that country must have been either an acquirer or a target of a cross-border acquisition in at least one year in our sample. We take all pairs of countries that meet this criteria and allow for separate observations for the country as an acquirer and as a target. That is, (United States acquirer, Argentina target, 1996) and (Argentina acquirer, United States target, 1996), are considered separate observations in order to allow for different country-level characteristics for the acquirer and target.

Figure 2 displays the average probability of a deal, average log number of deals, and the average log deal values between two given countries by event time (years) surrounding the year of signing of a BIT. All three variables are relatively flat during years *t-1* and *t-2* prior to the signing and jump dramatically during years *t+1* and *t+2* after signing. The average probability of a cross-border acquisition is about 2.5% in the two years prior to the signing of the BIT and almost doubles to 4.5% two years after the signing year. We observe similar magnitude increases for both the number and dollar value of deals after the signing year.

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[7] The U.S. and many countries base their BITs off a model text. A recent version of the model text is here: https://ustr.gov/sites/default/files/BIT%20text%20for%20ACIEP%20Meeting.pdf

In unreported results, we analyze the same variables by event time (years) around the actual entry year into the BIT. We observe similar increases in magnitude for all three variables after the entry year. However, we find a pre-trend increase in these variables in the years prior to entry as well. This is perhaps not surprising since the bulk of the efficiency gains and drop in uncertainty probably comes at the time of signing, especially given that virtually all BITs that are signed are eventually ratified and entered. In the analysis that follows, we thus focus exclusively on the signing year as the year when we would expect a change in cross-border acquisitions and not on the entry year.

As Figure 2 suggests, cross-border merger activity jumps in a two-year window around the signing of a BIT. To assess whether this holds for the entire sample, we conduct univariate t-tests for the difference in the mean probability and volume of merger deals before and after the signing of a BIT. Note that the unit of observation is still an acquiring country i, target country j, and year t combination.

The results are reported in Table 1. The average probability of a cross-border merger in a given year between two given countries is 2.1% prior to the signing of a BIT. This increases to 6.6% for all years after the signing of the BIT, and this 4.5 percentage point difference is statistically significant beyond the 1% level. We observe similar magnitude increases in the log-number and log-dollar volume of deals after the signing of a BIT as well.

Table 1 also reports summary statistics for all variables in our sample. Approximately 8.6% of country pair-years in our sample are after the signature year of a BIT. We find no univariate differences before and after the signing of a BIT for the ratio of acquiring country to target country GDP, difference in trade as a percent of GDP, and difference in credit market development. However, we do find univariate increases in the other differences between acquirer and target

countries, like their market capitalization, number of public firms, and corruption. Note, however, that these univariate differences do not control for macro time trends or country-level differences which we will subsequently control for in our multi-variate regressions.

B. BITs and Merger Activity – Univariate Results and Summary Statistics

The univariate analysis is consistent with BITs improving the probability and amount of merger deal activity between two countries. We observe no pre-trend in cross-border acquisitions prior to the signing year and observe a dramatic jump immediately afterwards. We now turn to the multi-variate analysis in order to account for time trends, country characteristics, and other omitted variables.

Table 2 reports results from linear probability models where the dependent variable is an indicator equal to 1 if a firm in country i acquires a firm in country j in year t, and 0 otherwise. We first regress the dependent variable on an indicator equal to 1 for all years after the signing of the BIT between country i and country j, and 0 in all years prior to signing and for country pairs that have not signed a BIT. We do not include any other controls or fixed effect in this first specification (reported in column 1) in order to establish a baseline marginal effect that we can compare to our full specification. The probability of an acquisition between two given countries increases by 4.5 percentage points after the signing of a BIT (column 1) and is significant at the 1% level. After the addition of year and country-pair fixed effects (columns 2 and 3), the marginal effect is 3.3 percentage points. Given that the unconditional probability of a cross-border acquisition between two given countries is 2.5%, this is a quite large economic effect.

The first three models do not include any control variables other than fixed effects for year and country pairs. In the last model, in column 4, we include the control variables that vary at the

country-pair/year level such as GDP per capita, openness to trade, credit market development, corruption, rule of law, etc. For these variables, we calculate the difference in the variable between the acquirer and target country, and include the difference as the independent variable in the regression. In addition, we include two independent variables that only vary at the target country/year level: a binary variable that captures whether or not the target country has enacted takeover reform, and a binary variable that captures whether or not the target country has enacted anti-trust reform. More details for the construction and definition of each variable can be found in the Data Appendix.

After the addition of the control variables, the magnitude is roughly the same as the specification in column 3 which did not have any control variables other than the fixed effects: the probability of a cross-border merger is 3 percentage points higher in the years after signing a BIT than before. In particular, after controlling for all fixed effects and independent variables, the predicted probability of a cross-border merger between two given countries increases from 2.22% to 5.21% after the signing of a BIT.

It is also important to note the fact that the R-squared between is virtually unchanged between column 3 (no controls) and column 4 (with controls). This provides some confidence that the addition of any relevant omitted controls to the specification should not significantly alter the statistical or economic significance of the effect of BITs on cross-border merger probability.

In all the models, the marginal effect is positive and statistically significant at the 1% level. Moreover, a 3.0 percentage point increase after the signing of the BIT is an economically large effect, given that the unconditional probability of an acquisition between two countries is 2.5%. Note that the inclusion of country-pair fixed effects isolates the effect of any time-invariant factors between two countries, like geographical distance and cultural similarities that have been shown

in prior studies to influence cross-border acquisitions (Ahern, Daminelli, and Fracassi (2012) and

Erel, Liao, and Weisbach (2012)).[8]

We find similar positive effects of BITs on the number of deals (Table 3) and dollar volume

of deals (Table 4). In the full specification with all independent variables and year and country-

pair fixed effects, the signing of a BIT between two given countries is associated with an almost

two-fold increase in the log-number of deals from 0.025 to 0.046 per year and in the log-dollar

volume of deals from 0.1 to 0.21 per year. These represent fairly large economic effects, given that

the unconditional log-number of deals and log-dollar volume of deals between two given countries

is 0.027 and 0.111, respectively.

As noted earlier, the inclusion of country-pair and year fixed effects absorb any time-trend

effects in aggregate merger activity and any time-invariant country-pair factors like language,

culture, legal origins, and distance between two countries. However, the included fixed effects do

not rule out endogeneity regarding the *timing* of the signing of BITs between two given countries.

For example, if two given countries decide to sign a BIT in years that happen to coincide with

increases in investment activity, the effect of BITs would not be causal and our document results

would be spurious.

We attempt to address this issue in two ways. First, we employ a placebo test where the

BIT signature year between country *i* and country *j* is randomly chosen (with replacement) based

on the observed sample distribution of BIT signature years. We re-run our tests from column 4 in

Tables 2-4, record the coefficient and *p*-value on "Post-Sign", and repeat 500 times. The summary

statistics from the 500 simulations are reported in Table 5. If there is any systematic bias in the

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[8] As shown in Guiso, Sapienza, and Zingales (2006), cultural differences are highly persistent over several generations. Given that our sample is over a roughly 30 year period, the country-pair fixed effect should effectively absorb any cultural differences between two countries.

timing of the actual BIT signature years, then we would expect the randomly chosen BIT signature years to be statistically significant at the 5% level at much higher rates than 5%. However, we find in Table 5, that the coefficient on the randomly selected BIT signature year is virtually zero and statistically significant at the 5% level in approximately 5% of the simulations. This is what one would expect if there is no information content in the randomly assigned BIT signature years.

In addition, to capture any pre-trends, we repeat our baseline tests in Tables 2-4 but include indicators for each year relative to the signing year instead of the "Post-Sign" dummy. If the timing of the signing of the BIT is endogenous to other macro-factors between the two given countries, we would expect to see the pre-signing year indicators to be significant, indicating that the parallel trends assumption is violated. However, as reported in Table 6, there is virtually no difference in merger activity between two given countries in the five years *prior* to the signing of the BIT. It is only *after* the BIT signing year when we see an increase in the probability, number, and dollar volume of cross-border deals between the two given countries.

Given these findings, in order for the given results to be spurious one would have to argue that the signing of the BIT is endogenous to other omitted factors that are specific only to the two given countries (because of the country pair fixed effects) *and* are correlated precisely only in the year of BIT signing and not prior to the signing. While we cannot rule out this possibility, this would seem to be a highly improbably explanation for the totality of our results.

C. *BITs and Distribution of Merger Gains*

Our prior results indicate that signing a BIT increases the cross-border merger activity between the two given countries, both in number and dollar amounts. A natural question to ask then is, who gains from these cross-border deals? Is it the case that the target firms are taken

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advantage of by the usually larger and sometimes more sophisticated acquirers? Or do both parties gain from the increase in cross-border deal flow? These questions speak to the welfare effects of mergers and acquisition, which is a quite thorny empirical endeavor due to difficulty in measuring merger synergies and interpreting market reactions (Bhagat, Dong, Hirshleifer, and Noah (2005); Devos, Kadapakkam, and Krishnamurthy (2008); Bayazitova, Kahl, and Valkanov (2012)). We acknowledge these empirical challenges, and thus simply attempt to shed light on this issue by analyzing the announcement abnormal returns for each party. While announcement returns do not fully equate to merger gains, they are nevertheless indicative of the general sentiment surrounding the deal for each party.

For each cross-border deal, we calculate the cumulative abnormal announcement return (CAR) over trading days [-1,+1] for the acquirer, target, and value-weighted combined entity. We calculate abnormal returns by subtracting the firm's return from the market index of its respective country. Table 7 reports the result of an OLS regression where the dependent variable is the announcement CAR and the main independent variable is a "Post-Sign" indicator equal to 1 if the acquirer and target countries have signed a BIT prior to the announcement date and 0 otherwise. We include controls for deal size, relative size between the acquirer and target, deal method of payment (cash vs. stock), and other deal characteristics known to be correlated with announcement returns (Betton, Eckbo, and Thoburn (2008)). We also include fixed effects for the announcement year and each country pair, and cluster standard errors at the country-pair level.

The results indicate that deals announced after the signing of the BIT on average have higher announcement CARs for both the acquirer *and* the target firm. The announcement CAR is approximately 3.4 percentage points higher for the acquirer and 18.7 percentage points higher for the target if the deal is announced in the years after the signing of a BIT between the two given

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countries. Not surprisingly then, the value-weighted combined CAR is also higher, by 10.87 percentage points, for deals announced after the BIT signing year.

While announcement returns do not always translate to merger synergies, these results at the minimum indicate that both acquirer and target shareholders view cross-border mergers more favorably if the two involved countries have signed a BIT. This is notable in that some practitioners and politicians lobby against BITs, arguing that firms in the target countries, which are typically smaller, will be taken advantage of by global markets and larger. The analysis here indicates that the shareholders of the target are in fact better off, at least at the announcement date, due to the BIT being in place.

D. Mechanism

While our prior results demonstrate that the signing of a BIT is associated with higher cross-border deal flow between the given countries, they do not speak to the underlying mechanisms that yield this increase in deal flow. One stated benefit of BITs is the reduction in risk faced by the acquirer due to guarantees from the political establishment of legal protections for contracts and guarantees against government expropriation, to name a couple examples. However, these guarantees may not be so credible for countries with very weak legal and political institutions or a prior history of government expropriation. On the other hand, the BIT may be redundant for countries with already robust legal and political institutions. If the increase in deal flow due to BITs is attributable to a reduction in risk, then we expect the effect to be largest for the countries with middling legal and political institutions, that are neither so robust to be completely credible, nor so weak to be completely unreliable.

We classify countries as "Low", "Medium", or "High" risk using the Political Risk index from the International Country Risk Guide (ICRG). The ICRG assigns 166 countries on an annual

basis, a Political Risk score from 0 to 100 based on 12 factors: government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucracy quality. Using their methodology and index, we classify countries with a Political Risk score between 0 and 60 as "High Risk" countries (labeled as "High Risk" and "Very High Risk" by ICRG), countries with a score between 60 and 80 as "Medium Risk" (labeled as "Moderate Risk" and "Low Risk" by ICRG), and countries with a score above 80 as "Low Risk" (labeled as "Very Low Risk" by ICRG).

Table 8 reports the results of an OLS regression where the unit of observation is a (country i, country j, year t) unique combination. The dependent variable in column 1 is an indicator equal to 1 if there was a cross-border merger between the two given countries in a given year, and 0 otherwise. The dependent variable in columns 2 and 3 is the log number and log dollar volume of deal flow between the two given countries in a given year, respectively. The key independent variables are a "Post-Sign" indicator equal to 1 if the two given countries have signed a BIT, indicators for "Medium Risk" country and "High Risk" country as defined earlier, and interactions between the risk indicators and "Post-Sign".

The results indicate that the signing of the BIT results in the biggest increase in deal probability and volume for "Medium Risk" countries. The marginal effect of signing of a BIT on the probability of a cross-border deal is 81% larger if the target nation is of "Medium" political risk as opposed to "Low" political risk (3.8 percentage point increase as opposed to a 2.1 percentage point increase). We find similar magnitude increases in the marginal effect on deal quantity and dollar volume as well.

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Furthermore, we find the opposite effect for target nations that are of "High" political risk. The coefficient on the interaction between "High Risk" and "Post-Sign" is negative and statistically significant in all three specifications and the magnitude is roughly equal to the positive coefficients on "Post-Sign". This indicates that the signing of a BIT has virtually zero effect on deal probability and volume when the target country has a very high political risk, consistent with the idea that the promises made under the BIT may not be credible if the country's political and legal institutions are extremely weak.

We now turn to whether the signing of BITs addresses the Lucas Paradox. That is, does the improvement in property rights through external enforcement increase flows of capital from developed to developing countries. If sovereign risk was an important friction holding capital back from relatively high return investments in the developing world, then we expect that there will be an important directional component to changes in mergers around BIT signings.

Using Dixit's (2012) terminology, we refer to countries as being "northern" or "southern" depending on their degree of development. Dixit (2012) refers to developed, industrialized countries as "northern" and developing countries as "southern". Dixit labels directional flows as "north-north" (developed to developed), "north-south" (developed to developing), and so forth. We use the World Bank Income Classification, based on gross national income per capita, to classify countries according to their level of development each year. We then create dummy variables for each country pair according to the direction of the merger. Merger flows are classified as either "north-north", "north-south", "south-north", and "south-south", depending on the direction of the merger. For example, if a firm in a developed country acquires a target firm in a developing country, the deal is defined as being in the "north-south" direction. We then interact

the Post-Sign indicator variable with the directional flow indicator to test whether there are differential effects of BITs on the directional flow of mergers.

Table 9 reports the directional flow results. We see that almost the entire increase in merger activity around the signing of BITs is concentrated the "north-south" direction. The probability of an acquirer in a developed country merging with a firm in a developing country increases significantly. The probability of observing a "north-south" merger is 6.2% after the signing of the treaty, compared to the unconditional probability of 2.5%. Similar results hold when we measure merger activity by the number of deals or the dollar volume of deals. Both the number and dollar volume of cross border mergers from developed to developing countries almost doubles after the signing of a BIT. It is interesting to note that the "north-south" direction is the only directional flow that is affected by bilateral investment treaties. The results are consistent with the view that the increased protection of foreign investor property rights through the external enforcement provided by BITs is effective in increasing foreign investment in developing countries. Our results provide evidence that, in line with the stated goals of the ICSID Convention to promote foreign investment and stimulate the flow of private international capital. The results also suggest that sovereign risk and the lack of property rights protection for foreign investors is an important reason why capital tends to stay in developed countries.

For robustness and as an alternative to using the World Bank classifications of countries, we also examine directional flows of mergers based on the relative size of countries. We define a "Large Acq. Small" indicator that is equal to 1 if the acquiring firm country's GDP per capita is larger than that of the target firm's country, and equal to 0 if the acquiring firm's country GDP per capita is smaller than that of the target firm's country. Note that due to the bilateral nature of our data and the definition of "large" as relative to the target country, it is not possible for an

acquisition to be labeled as "Large Acq. Large". Thus, the only two possibilities are "large acquirers small" or "small acquires large". We repeat our baseline analysis and interact the "Post-Sign" indicator with "Large Acq. Small" to test if the BIT has a differential impact on the direction of the cross-border merger deal flow between the two given countries. The results are reported in Table 10.

The signing of a BIT is associated with a statistically significant 0.5 percentage point increase in the probability of a cross-border merger if the acquiring firm's country has a smaller GDP per capita than the target firm's country. However, the marginal effect is nine times larger for deals where the acquiring firm's country GDP per capita is larger than that of the target country. Moreover, we find that BITs have a statistically insignificant effect on the quantity and dollar volume of deals where acquiring firm's country is smaller (in GDP per capita terms) than the target country. In contrast, the signing of the BIT is associated with a large positive and statistically significant effect on quantity and dollar volume of deals where the acquiring firm's country is larger than the target country. Thus, it BITs have an asymmetric impact on the two involved countries. The signing of the BIT has very small or almost zero effect on deal probability and volume for mergers that involve a firm in the smaller country acquiring a firm in the larger country. The positive effect of a BIT on deal probability and volume is almost entirely concentrated in those deals that involve a firm in the larger country acquiring a firm in the smaller country. This result is intuitive if one considers that diminishing returns to capital would imply that the marginal product of capital is significantly higher in countries with a lower GDP per capita. BITs may thus provide a mechanism through which capital flow in a less restricted manner and towards countries with relatively high marginal productivity of capital.

IV. Conclusion

While cross-border mergers and acquisitions have been growing rapidly over time, the vast majority of deals involve firms from developed countries. This directional flow of capital from developed countries to other developed countries is a puzzle from an economic perspective since, as Lucas (1990) highlights, capital should flow where the marginal productivity of capital is higher – towards developing countries. In this paper, we study one of the important impediments do capital flows across border. Specifically, we examine how sudden changes in the political risk environment through bilateral investment treaties affect cross-border mergers. Our results are consistent with the view that managers are very hesitant to invest when political risk is high but do invest abroad if their property rights are protected.

Recent survey evidence by Giambona, Graham and Harvey (2016) indicate that managers view political risk as being more important that commodity risk. Indeed, approximately half of all firms surveyed report that they avoid investing in countries with high political risk altogether. Our results show that when two countries agree that property disputes will be adjudicated through an international tribunal, such as the International Centre for the Settlement of Investment Disputes, the volume of mergers and acquisitions increases significantly between the two countries, controlling for other determinants of M&A activity. Thus, the lack of strong property rights in emerging markets is one important reason why capital flows tend to gravitate toward other developing countries.

The effect of investment treaties is not uniform across all countries. We find that bilateral investment treaties have large effects in countries with medium levels of political risk, but not in countries with very low political risk or in countries with high political risk. These findings are

consistent with the view that low risk countries have no need for substitutions for the protection of property rights for foreign investors. They also reflect the fact that investors worry that high risk countries lack credibility when signing bilateral investment treaties as membership in the treaties is voluntary and subject to withdrawal.

Another important takeaway from our paper is that we provide strong evidence that the bilateral investment treaties are effective in attracting foreign capital to the developing world. Prior studies have found weak or mixed results regarding the effectiveness of investment treaties in attracting foreign direct investment. The evidence presented in this paper suggests that, at least for mergers and acquisitions, the treaties have been effective.

In addition, we find that investors for both targets and acquirers benefit from bilateral investment treaties. The cumulative abnormal returns around the announcement of cross-border mergers increase from 11.35% before a BIT is in place to 26.23% after the treaty is signed. The share of returns to the target company increases significantly as well, suggesting that the discount acquirers place on targets in risky countries is reduced by the investment treaty.

While our results do not completely resolve the Lucas paradox, the proportion of cross-border deals flowing from the developed to the developing world has increased significantly as more and more countries sign bilateral investment treaties. The proportion of "North to South" mergers and acquisitions has grown from less than 1% in the early 1980s to almost 20% of all deals by the end of our sample period. Understanding other factors that lead to directional changes in the flow of capital around the world remains an important topic for future research.

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Data Appendix

Variable Name	Definition	Source
I(Cross-Border Merger$_{ijt}$)	Indicator equal to 1 if a firm in acquirer country i announces an acquisition of a firm in target country j in year t, and equal to 0 otherwise.	SDC
Ln(1 + Number of Deals$_{ijt}$)	Natural log of one plus the number of announced acquisitions by any firm in acquirer country i of any firm in target country j in year t.	SDC
Ln(1 + \$Amount of Deals$_{ijt}$)	Natural log of one plus the dollar value of all announced acquisitions by any firm in acquirer country i of any firm in target country j in year t.	SDC
Post-Sign	Indicator equal to 1 if acquirer country i and target country j have signed a bilateral investment treaty *prior* to year t, and equal to 0 otherwise.	World Treaty Index and the Multilateral Treaty Calendar
Ln(1+(GDP/Capita)$_{acq/tgt}$)	Natural log of one plus the ratio of GDP per capita of the acquirer country to the target country.	Penn World Table
ΔOpenness$_{acq-tgt}$	Acquirer country openness minus target country openness. Country openness is defined as the sum of imports and exports divided by GDP.	Penn World Table
Δ(Credit Mkt. Dev.)$_{acq-tgt}$	Acquirer country credit market development minus target country credit market development. Credit market development is defined as total amount of private loans divided by GDP in year t.	World Bank World Development Indicators
Δ(Public Firms)$_{acq-tgt}$	Total number of domestically incorporated companies listed on the acquirer country's stock exchange minus the same for the target country's stock exchange.	World Bank World Development Indicators
Δ(Market Cap.)$_{acq-tgt}$	Total stock market capitalization divided by GDP in year t for the acquirer country minus the same for the target country.	World Bank World Development Indicators
Δ(Corruption)$_{acq-tgt}$	Acquirer country corruption index minus target country corruption index. The corruption index is defined as a country governance indicator capturing perceptions of the extent to which public power is exercised for private gain	Kaufmann, Kraay, and Mastruzzi (2009) & World Bank Governance Database
Δ(Rule of Law)$_{acq-tgt}$	Acquirer country rule of law index minus the same for the target country. Rule of law index captures perceptions of the extent to which agents have confidence in, and abide by, the rules of society. In particular, the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	Kaufmann, Kraay, and Mastruzzi (2009) & World Bank Governance Database

(Takeover Reform)$_{tgt}$	Indicator variable equal to 1 if the target country has passed a takeover law between 1991 and 2009, and 0 otherwise.	Lel and Miller, 2014
(Anti-trust Reform)$_{tgt}$	Indicator variable equal to 1 if the target country has passed an anti-trust law between 1991 and 2009, and 0 otherwise.	Bris, et al., 2010
Δ(Exchange Rate)$_{acq-tgt}$	Difference in exchange rates relative to the US Dollar between acquirer country and target country.	Penn World Table
Medium/High Risk Country	The International Country Risk Guide's (ICRG) Political Risk Rating includes 12 weighted variables (government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucracy quality) and is based on 100 points. Higher scores are given to *less* risky countries. "Medium Risk Country" is an indicator equal to 1 if the *target* country political risk score is between 60 and 80 (classified as "Moderate Risk" and "Low Risk" by ICRG), and equal to 0 otherwise. "High Risk Country" is an indicator equal to 1 if the *target* country risk score is below 60 (classified as "High Risk" and "Very High Risk" by ICRG), and equal to 0 otherwise.	ICRG
Large Acq. Small	Indicator equal to 1 if the acquirer firm country's GDP per capita is larger than the target firm country's GDP/capita, and equal to 0 otherwise.	Penn World Table

Figure 1 – Developed and Developing Country Flows of Cross-border Mergers, 1980-2012

This figure displays the proportion of all cross-border merger flows where the acquirer country is classified as developed and the target country is classified as developing, and vice versa. Classifications come from the World Bank.
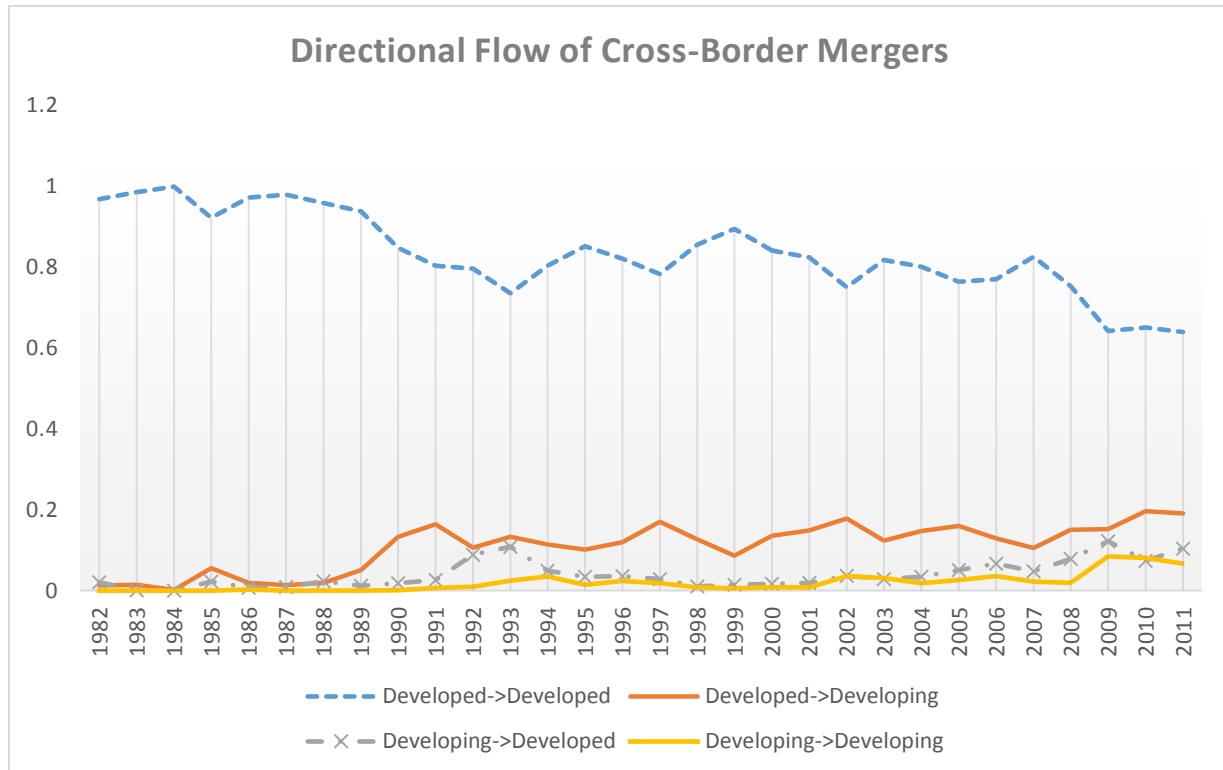
Figure 2 – Deal Characteristics Around Signing Year

This figure displays the average probability of a deal, average log of the number of deals, and the average log deal values by event time (years) surrounding the year of signing of the BIT. Deal values (dash green line) uses the secondary axis on the right while the others use the primary axis on the left.
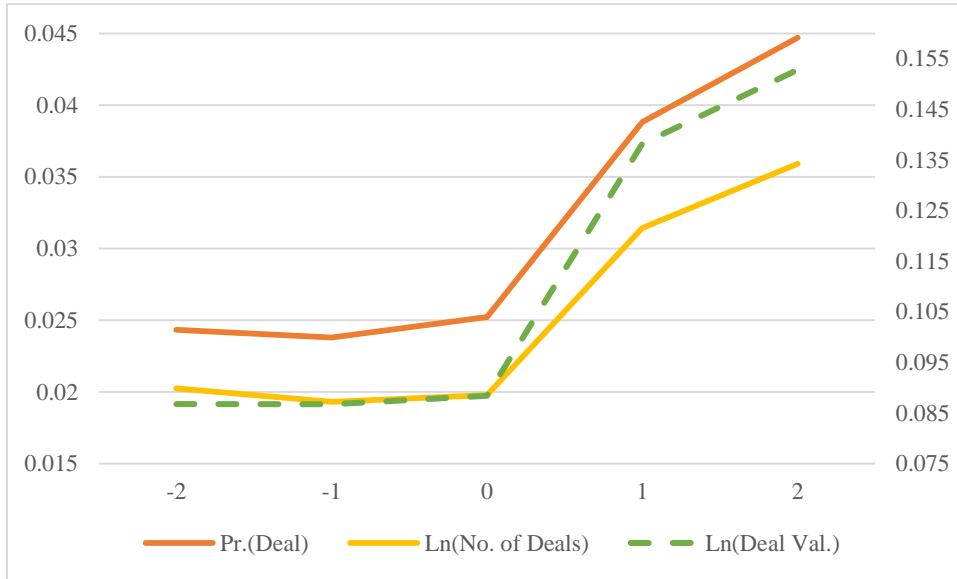
Table 1 – Summary Statistics

This table reports summary statistics for the observations indicated in the first row. Each observation is an acquirer country i, target country j, and year t combination. All country pairs are included in the sample regardless of whether or not there is a cross-border merger between the two countries in that year. The last column displays the difference in the means for each variable between the subsample of observations post-BIT signing year and pre-BIT signing year. The asterisks indicate the results of a two-sided t-test of the difference in means (*** p<0.01, ** p<0.05, * p<0.1). Please see the Data Appendix for definitions of all variables.

	All Observations (N=420,646)		Pre-BIT Signing Year (N=384,294)		Post-BIT Signing Year (N=36,352)		Difference (Post – Pre)
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	
I(Cross-Border Merger$_{ijt}$)	0.025	0.156	0.021	0.143	0.066	0.248	0.045***
Ln(1 + Number of Deals$_{ijt}$)	0.027	0.199	0.024	0.196	0.058	0.232	0.033***
Ln(1 + $Amount of Deals$_{ijt}$)	0.111	0.77	0.097	0.734	0.257	1.071	0.160***
Post-Sign	0.086	0.281	0	0	1	0	--
Ln(1+(GDP/Capita)$_{acq/tgt}$)	1.577	1.676	1.577	1.67	1.58	1.731	0.003
ΔOpenness$_{acq-tgt}$	0.009	0.585	0.009	0.598	0.006	0.424	-0.002
Δ(Credit Mkt. Dev.)$_{acq-tgt}$	12.048	219.718	12.166	225.94	10.796	137.707	-1.370
Δ(Public Firms)$_{acq-tgt}$	71.866	1147.131	70.02	1098.286	91.382	1573.219	21.361***
Δ(Market Cap.)$_{acq-tgt}$	5.511	92.846	5.423	90.886	6.446	111.47	1.023**
Δ(Corruption)$_{acq-tgt}$	0.134	1.149	0.13	1.088	0.171	1.664	0.041***
Δ(Rule of Law)$_{acq-tgt}$	0.146	1.095	0.144	1.05	0.167	1.484	0.022***
(Takeover Reform)$_{tgt}$	0.102	0.303	0.092	0.29	0.207	0.405	0.114***
(Anti-trust Reform)$_{tgt}$	0.199	0.399	0.178	0.382	0.423	0.494	0.245***
Δ(Exchange Rate)$_{acq-tgt}$	-132.734	2080.993	-134.889	2055.233	-109.959	2335.914	24.929**

Table 2 – Which Country Pairs Sign a BIT?

This table reports results from a Cox proportional hazards model that models the time (years) for two given countries to sign a BIT. Each observation is a unique country pair. The coefficients display the hazard probability of signing a BIT between two given countries. The Data Appendix provides definitions for all control variables.

	(1)	(2)	(3)
	Dependent Variable: Hazard Probability of Signing a BIT		
Ln(Total Trade Between Two Countries)	0.054***	0.027***	0.025***
	(0.005)	(0.005)	(0.006)
Sq. Distance (GDP/Capita)		0.088***	0.088***
		(0.011)	(0.011)
Sq. Distance (Openness)		-0.214	-0.203
		(1.339)	(1.338)
Sq. Distance (Credit Market Dev.)		-0.002	-0.002
		(0.002)	(0.002)
Sq. Distance (# of Public Firms)		0.001	0.001
		(0.002)	(0.001)
Sq. Distance (Market Cap.)		0.002**	0.002**
		(0.001)	(0.001)
Sq. Distance (Corruption)		26.387	21.253
		(32.291)	(32.421)
Sq. Distance (Rule of Law)		-30.308	-22.833
		(36.464)	(36.602)
Sq. Distance (Exchange Rate)		-0.001	-0.001
		(0.001)	(0.001)
At Least One Party Enacted Takeover Reform			0.191
			(0.263)
At Least One Party Enacted Antitrust Reform			0.253*
			(0.143)
Observations	297,912	297,912	297,912

Table 2 – Effect of BITs on the probability of a cross-border merger

This table reports results from linear probability models where the unit of observation is an acquirer country i, target country j, and year t combination. The dependent variable is an indicator equal to 1 if a firm in country i acquires a firm in country j in year t, and 0 otherwise. Post-Entry is an indicator equal to 1 for all years after entry into a BIT by countries i and j. The Data Appendix provides definitions for all control variables. All models cluster standard errors at the country pair level, reported in parentheses. Models 2-4 include year fixed effects, while models 3-4 additionally include fixed effects for each country pair.

	(1)	(2)	(3)	(4)
	Dependent Variable: I(Cross-Border Merger$_{ijt}$)			
Post-Sign	0.045***	0.041***	0.033***	0.030***
	(0.003)	(0.003)	(0.003)	(0.003)
Ln(1+(GDP/Capita)$_{acq/tgt}$)				-3.157***
				(0.866)
ΔOpenness$_{acq\text{-}tgt}$				0.769**
				(0.313)
Δ(Credit Mkt. Dev.)$_{acq\text{-}tgt}$				-0.000
				(0.000)
Δ(Public Firms)$_{acq\text{-}tgt}$				0.003*
				(0.002)
Δ(Market Cap.)$_{acq\text{-}tgt}$				0.019**
				(0.008)
Δ(Corruption)$_{acq\text{-}tgt}$				5.606***
				(0.956)
Δ(Rule of Law)$_{acq\text{-}tgt}$				-1.922**
				(0.890)
(Takeover Reform)$_{tgt}$				0.020***
				(0.003)
(Anti-trust Reform)$_{tgt}$				0.031***
				(0.003)
Δ(Exchange Rate)$_{acq\text{-}tgt}$				0.000
				(0.000)
Year Fixed Effects	No	Yes	Yes	Yes
Country Pair Fixed Effects	No	No	Yes	Yes
Observations	420,646	420,646	420,646	420,646
R-squared	0.007	0.010	0.434	0.436

Robust standard errors clustered at the country pair level in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3 – Effect of BITs on the quantity of cross-border mergers

This table reports results from OLS regressions where the unit of observation is an acquirer country i, target country j, and year t combination. The dependent variable is the natural log of one plus the number of deals where a firm in country i acquires a firm in country j in year t. Post-Entry is an indicator equal to 1 for all years after entry into a BIT by countries i and j. Acq. and Tgt. Country Openness is the sum of imports and exports divided by GDP for each respective country. All models cluster standard errors at the country pair level, reported in parentheses. Models 2-4 include year fixed effects, while models 3-4 additionally include fixed effects for each country pair.

	(1)	(2)	(3)	(4)
	Dependent Variable: Ln(1 + Number of Deals$_{ijt}$)			
Post-Sign	0.033***	0.028***	0.024***	0.020***
	(0.004)	(0.004)	(0.003)	(0.003)
Ln(1+(GDP/Capita)$_{acq/tgt}$)				-4.451***
				(1.039)
ΔOpenness$_{acq-tgt}$				0.745**
				(0.316)
Δ(Credit Mkt. Dev.)$_{acq-tgt}$				-0.000
				(0.000)
Δ(Public Firms)$_{acq-tgt}$				0.003
				(0.003)
Δ(Market Cap.)$_{acq-tgt}$				0.022*
				(0.012)
Δ(Corruption)$_{acq-tgt}$				6.259***
				(1.140)
Δ(Rule of Law)$_{acq-tgt}$				-2.727**
				(1.124)
(Takeover Reform)$_{tgt}$				0.022***
				(0.004)
(Anti-trust Reform)$_{tgt}$				0.035***
				(0.004)
Δ(Exchange Rate)$_{acq-tgt}$				0.000*
				(0.000)
Year Fixed Effects	No	Yes	Yes	Yes
Country Pair Fixed Effects	No	No	Yes	Yes
Observations	420,646	420,646	420,646	420,646
R-squared	0.002	0.005	0.642	0.643

Robust standard errors clustered at the country pair level in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4 – Effect of BITs on the dollar volume of cross-border mergers

This table reports results from OLS regressions where the unit of observation is an acquirer country i, target country j, and year t combination. The dependent variable is the natural log of one plus the dollar volume of deals where a firm in country i acquires a firm in country j in year t. Post-Entry is an indicator equal to 1 for all years after entry into a BIT by countries i and j. Acq. and Tgt. Country Openness is the sum of imports and exports divided by GDP for each respective country. All models cluster standard errors at the country pair level, reported in parentheses. Models 2-4 include year fixed effects, while models 3-4 additionally include fixed effects for each country pair.

	(1)	(2)	(3)	(4)
	Dependent Variable: Ln(1 + \$Amount of Deals$_{ijt}$)			
Post-Sign	0.160***	0.139***	0.114***	0.097***
	(0.014)	(0.014)	(0.013)	(0.014)
Ln(1+(GDP/Capita)$_{acq/tgt}$)				-16.317***
				(4.186)
ΔOpenness$_{acq-tgt}$				2.292
				(1.619)
Δ(Credit Mkt. Dev.)$_{acq-tgt}$				0.000
				(0.002)
Δ(Public Firms)$_{acq-tgt}$				0.008
				(0.010)
Δ(Market Cap.)$_{acq-tgt}$				0.098**
				(0.043)
Δ(Corruption)$_{acq-tgt}$				23.278***
				(4.505)
Δ(Rule of Law)$_{acq-tgt}$				-9.067**
				(4.526)
(Takeover Reform)$_{tgt}$				0.088***
				(0.015)
(Anti-trust Reform)$_{tgt}$				0.164***
				(0.017)
Δ(Exchange Rate)$_{acq-tgt}$				0.002*
				(0.001)
Year Fixed Effects	No	Yes	Yes	Yes
Country Pair Fixed Effects	No	No	Yes	Yes
Observations	420,646	420,646	420,646	420,646
R-squared	0.003	0.008	0.504	0.505

Robust standard errors clustered at the country pair level in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5 – Placebo test of the effect of BITs on cross-border mergers

The BIT signature year between country *i* and country *j* is randomly chosen based on the observed sample distribution of BIT signature years (with replacement). The coefficient on "Post-Sign" from Model 4 in Tables 2-4 using the randomly assigned signature year is recorded and the process is repeated 500 times. The summary statistics from the 500 simulations are reported below.

Dependent Variable:	I(Cross-Border Merger$_{ijt}$)	Ln(1 + Number of Deals$_{ijt}$)	Ln(1 + $ Amount of Deals$_{ijt}$)
Average Coefficient:	0.00025	0.00035	0.00132
% Coefficients Significant at 5% level:	5.60%	5.80%	6.00%
% Coefficients Positive:	53.00%	51.20%	51.20%

Table 6 – Time Dynamics of the Effect of BITs on Merger Activity

This table reports results from OLS regressions where the unit of observation is an acquirer country i, target country j, and year t combination. The dependent variable is indicated in the column title. "5+ Years Prior to Sign is an indicator equal to 1 for all years greater than equal to 5 years before the signature year into a BIT. Other time variables related to signature year are analogously defined. The year of signature into a BIT is the omitted category. Acq. and Tgt. Country Openness is the sum of imports and exports divided by GDP for each respective country. All models cluster standard errors at the country pair level, reported in parentheses, and include year and country pair fixed effects.

	(1) I(Cross-Border Merger$_{ijt}$)	(2) Ln(1 + Number of Deals$_{ijt}$)	(3) Ln(1 + $ Amount Deals$_{ijt}$)
5+ Years Prior to Sign	0.001	0.007*	0.014
	(0.004)	(0.004)	(0.017)
4 Years Prior to Sign	-0.003	0.001	-0.003
	(0.004)	(0.004)	(0.017)
3 Years Prior to Sign	-0.004	0.001	-0.012
	(0.004)	(0.004)	(0.017)
2 Years Prior to Sign	0.006	0.007*	0.025
	(0.005)	(0.004)	(0.018)
1 Year Prior to Sign	0.003	0.003	0.012
	(0.005)	(0.004)	(0.017)
1 Year After Sign	0.012**	0.010**	0.038*
	(0.005)	(0.004)	(0.021)
2 Years After Sign	0.018***	0.014***	0.056***
	(0.005)	(0.004)	(0.021)
3 Years After Sign	0.023***	0.016***	0.082***
	(0.006)	(0.005)	(0.023)
4 Years After Sign	0.020***	0.016***	0.061***
	(0.006)	(0.005)	(0.023)
5+ Years After Sign	0.040***	0.033***	0.148***
	(0.004)	(0.004)	(0.019)
All Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Country Pair Fixed Effects	Yes	Yes	Yes
Observations	420,646	420,646	420,646
R-squared	0.434	0.642	0.504

Table 7 – Effect of BITs on the announcement returns of cross-border mergers

This table reports results from OLS regressions where the unit of observation is a cross-border merger. The dependent variable is the cumulative abnormal announcement return (CAR) over trading days [-1,+1] around the announcement date for the party indicated in the column title. Post-Sign is an indicator equal to 1 for all years after signature into a BIT by countries i and j. Other control variable definitions are provided in the Data Appendix. All models include a fixed effect for each country pair and year, and all models cluster standard errors at the country pair level, reported in parentheses.

	(1) Acquirer CAR	(2) Target CAR	(3) Combined CAR
Post-Sign	3.397*	18.632**	10.874**
	(2.001)	(8.777)	(4.458)
Deal Size	-0.365**	-2.350***	-1.358***
	(0.154)	(0.886)	(0.449)
Relative Size	-0.009***	-0.013***	-0.011***
	(0.001)	(0.004)	(0.002)
Mostly Cash Deal	1.955*	0.854	1.404
	(1.107)	(4.281)	(1.932)
Same Industry	0.389	2.412	1.400
	(0.662)	(2.562)	(1.301)
Target is Public	-2.507	2.102	-0.203
	(1.952)	(7.492)	(4.051)
Defensive Tactics Employed	0.979**	-1.951	-0.486
	(0.467)	(2.672)	(1.399)
Friendly Merger	0.641	-5.494	-2.426
	(0.687)	(3.455)	(1.700)
Tender Offer	0.024	6.612***	3.318**
	(0.691)	(2.489)	(1.280)
Year Fixed Effects	Yes	Yes	Yes
Country Pair Fixed Effects	Yes	Yes	Yes
Observations	1,180	1,180	1,180
R-squared	0.352	0.533	0.527

Table 8 – Cross Border Mergers and Country Risk

This table reports results from OLS regressions where the unit of observation is an acquirer country i, target country j, and year t combination. The dependent variable is indicated in the column title. Medium Risk Country is an indicator equal to 1 if the *target* country risk score is between 60 and 80 (classified as "Moderate Risk" and "Low Risk" by ICRG), and equal to 0 otherwise. High Risk Country is an indicator equal to 1 if the *target* country risk score is below 60 (classified as "High Risk" and "Very High Risk" by ICRG), and equal to 0 otherwise. All models include a fixed effect for each country pair and year, and all models cluster standard errors at the country pair level, reported in parentheses.

Dependent Variable:	(1) I(Cross-Border Merger$_{ijt}$)	(2) Ln(1 + Number of Deals$_{ijt}$)	(3) Ln(1 + $Amount of Deals$_{ijt}$)
Post-Sign	0.021***	0.006	0.046**
	(0.004)	(0.005)	(0.019)
Post-Sign X Medium Risk Country	0.017***	0.023***	0.088***
	(0.005)	(0.005)	(0.021)
Post-Sign X High Risk Country	-0.019***	-0.013**	-0.070**
	(0.007)	(0.006)	(0.028)
Medium Risk Country	-0.011***	-0.019***	-0.067***
	(0.002)	(0.002)	(0.010)
High Risk Country	-0.007***	-0.011***	-0.036***
	(0.002)	(0.002)	(0.010)
Ln(1+(GDP/Capita)$_{acq/tgt}$)	-7.118***	-9.481***	-35.206***
	(1.545)	(1.883)	(7.541)
ΔOpenness$_{acq-tgt}$	0.638	0.435	1.527
	(0.446)	(0.442)	(2.384)
Δ(Credit Mkt. Dev.)$_{acq-tgt}$	-0.001**	-0.001**	-0.005*
	(0.001)	(0.001)	(0.003)
Δ(Public Firms)$_{acq-tgt}$	0.004**	0.005	0.012
	(0.002)	(0.003)	(0.011)
Δ(Market Cap.)$_{acq-tgt}$	0.027***	0.032**	0.140***
	(0.008)	(0.013)	(0.047)
Δ(Corruption)$_{acq-tgt}$	5.578***	7.133***	25.243***
	(1.204)	(1.466)	(5.743)
Δ(Rule of Law)$_{acq-tgt}$	-0.499	-1.793	-3.897
	(1.156)	(1.485)	(5.942)
(Takeover Reform)$_{tgt}$	0.016***	0.018***	0.069***
	(0.003)	(0.004)	(0.015)
(Anti-trust Reform)$_{tgt}$	0.028***	0.031***	0.150***
	(0.003)	(0.004)	(0.017)
Δ(Exchange Rate)$_{acq-tgt}$	0.001	0.001	0.002*
	(0.001)	(0.001)	(0.001)

Year Fixed Effects	Yes	Yes	Yes
Country Pair Fixed Effects	Yes	Yes	Yes
Observations	329,958	329,958	329,958
R-squared	0.444	0.648	0.512

Table 9 – Differential Effect of BITs on "North-South" Flows

This table reports results from OLS regressions where the unit of observation is an acquirer country *i*, target country *j*, and year *t* combination. The dependent variable is indicated in the column title. We follow the methodology of Dixit (2012) in classifying each country in each year as either "North" or "South" based on the World Bank Income Classifications. A country is designated as "North" if it is classified by the World Bank as a high income country according to gross national income per capita and designated as "South" otherwise. "North→South" is an indicator equal to 1 if the acquirer nation is classified as "North" and target nation is classified as "South" in year *t*. "South→North" and "South→South" are similarly defined. All models include a fixed effect for each country pair and year, and all models cluster standard errors at the country pair level, reported in parentheses.

Dependent Variable:	(1) I(Cross-Border Merger$_{ijt}$)	(2) Ln(1 + Number of Deals$_{ijt}$)	(3) Ln(1 + $Amount of Deals$_{ijt}$)
Post-Sign	0.024***	-0.001	0.048
	(0.008)	(0.008)	(0.039)
Post-Sign X (North→South)	0.038***	0.049***	0.173***
	(0.009)	(0.009)	(0.042)
Post-Sign X (South→North)	-0.016*	0.002	-0.028
	(0.008)	(0.008)	(0.037)
Post-Sign X (South→South)	-0.013	0.006	-0.023
	(0.009)	(0.009)	(0.039)
North→South	-0.036***	-0.048***	-0.183***
	(0.003)	(0.004)	(0.015)
South→North	-0.036***	-0.048***	-0.183***
	(0.003)	(0.004)	(0.015)
South→South	-0.036***	-0.049***	-0.178***
	(0.003)	(0.004)	(0.015)
Ln(1+(GDP/Capita)$_{acq/tgt}$)	-1.786**	-2.917***	-10.178**
	(0.859)	(1.031)	(4.151)
ΔOpenness$_{acq-tgt}$	0.626**	0.616**	1.734
	(0.310)	(0.312)	(1.604)
Δ(Credit Mkt. Dev.)$_{acq-tgt}$	0.000	0.000	0.002
	(0.000)	(0.000)	(0.002)
Δ(Public Firms)$_{acq-tgt}$	0.003*	0.003	0.008
	(0.002)	(0.003)	(0.010)
Δ(Market Cap.)$_{acq-tgt}$	0.020**	0.022*	0.099**
	(0.008)	(0.012)	(0.043)
Δ(Corruption)$_{acq-tgt}$	4.867***	5.561***	20.274***
	(0.942)	(1.134)	(4.470)
Δ(Rule of Law)$_{acq-tgt}$	-2.362***	-3.058***	-10.395**
	(0.880)	(1.117)	(4.495)
(Takeover Reform)$_{tgt}$	0.019***	0.022***	0.086***

	(0.003)	(0.004)	(0.015)
(Anti-trust Reform)$_{tgt}$	0.029***	0.032***	0.155***
	(0.003)	(0.004)	(0.016)
Δ(Exchange Rate)$_{acq\text{-}tgt}$	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)
Year Fixed Effects	Yes	Yes	Yes
Country Pair Fixed Effects	Yes	Yes	Yes
Observations	420,646	420,646	420,646
R-squared	0.437	0.644	0.507

Table 10 – Cross Border Mergers and the Relative Size of Acquirer and Target Nations
This table reports results from OLS regressions where the unit of observation is an acquirer country i, target country j, and year t combination. The dependent variable is indicated in the column title. Large Acq. Small is an indicator equal to 1 if the acquirer firm country's GDP per capita is larger than the target firm country's GDP/capita, and equal to 0 otherwise. All models include a fixed effect for each country pair and year, and all models cluster standard errors at the country pair level, reported in parentheses.

Dependent Variable:	(1) I(Cross-Border Merger$_{ijt}$)	(2) Ln(1 + Number of Deals$_{ijt}$)	(3) Ln(1 + $Amount of Deals$_{ijt}$)
Post-Sign	0.005*	-0.001	0.006
	(0.003)	(0.003)	(0.015)
Post-Sign X (Large Acq. Small)	0.045***	0.038***	0.168***
	(0.006)	(0.006)	(0.025)
(Large Acq. Small)	0.002	0.003	0.009
	(0.002)	(0.002)	(0.010)
Ln(1+(GDP/Capita)$_{acq/tgt}$)	-3.403***	-4.908***	-17.184***
	(0.892)	(1.058)	(4.291)
ΔOpenness$_{acq\text{-}tgt}$	0.649**	0.643**	1.841
	(0.313)	(0.315)	(1.616)
Δ(Credit Mkt. Dev.)$_{acq\text{-}tgt}$	-0.000	-0.000	0.001
	(0.000)	(0.000)	(0.002)
Δ(Public Firms)$_{acq\text{-}tgt}$	0.003*	0.003	0.008
	(0.002)	(0.003)	(0.010)
Δ(Market Cap.)$_{acq\text{-}tgt}$	0.018**	0.021*	0.093**
	(0.008)	(0.012)	(0.043)
Δ(Corruption)$_{acq\text{-}tgt}$	5.037***	5.795***	21.133***
	(0.951)	(1.142)	(4.513)
Δ(Rule of Law)$_{acq\text{-}tgt}$	-2.356***	-3.121***	-10.696**
	(0.892)	(1.125)	(4.548)
(Takeover Reform)$_{tgt}$	0.019***	0.022***	0.087***
	(0.003)	(0.004)	(0.015)
(Anti-trust Reform)$_{tgt}$	0.031***	0.035***	0.166***
	(0.003)	(0.004)	(0.017)
Δ(Exchange Rate)$_{acq\text{-}tgt}$	0.001	0.002*	0.002*
	(0.001)	(0.001)	(0.001)
Year Fixed Effects	Yes	Yes	Yes
Country Pair Fixed Effects	Yes	Yes	Yes
Observations	420,646	420,646	420,646
R-squared	0.436	0.643	0.506