

# Policy Factors Influencing FDI Inflows to Developing Countries<sup>+</sup>

Hyun-Hoon Lee<sup>++</sup>  
Kangwon National University, Korea

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## Abstract

Many studies have found that foreign direct investment (FDI) can play a positive role in spurring economic growth and income of host countries. FDI can take the form of investment in new assets (greenfield investment) or acquisition of existing assets (mergers and acquisitions; M&A). Because of their distinctive characteristics, the two FDI modes may have different effects. This paper empirically evaluates how institutional and policy factors influence greenfield and M&A investment to developing countries. For this purpose, this paper utilizes bilateral greenfield and M&A investments for the period 2003-2014. We offer a number of new findings. Among the three sets of host country-specific factors, we find that the quality of local governance is the most important factor for both greenfield and M&A investments to developing countries, whereas FDI restrictive policies of developing countries are not significant factors in restricting FDI inflows to these countries. We also find that an improvement in host country's environment for doing business may have a positive effect on greenfield investment only when the host country's governance quality is very low. Among the pair-specific policy factors, regional trade agreements have a significantly positive impact on greenfield investment flows to developing countries, while bilateral investment treaties do not exert any positive effect either on greenfield investment or M&A investment.

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<sup>++</sup> Correspondence: Professor, Faculty of Economics and International Trade, Kangwon National University, Chuncheon, 200-701, South Korea. Phone: +82-33-250-6186; Fax: +82-33-256-4088; Email: hhlee@kangwon.ac.kr

## 1. Introduction

Many studies have found that foreign direct investment (FDI) can play a positive role in spurring economic growth and income of host countries. For example, Javorcik (2004), Cheung and Lin (2004), and Haskel et al. (2007) find positive spillover effects of FDI on innovation activity and productivity of domestic firms. Huttunen (2007) also find that foreign firms pay higher wages than domestic firms. Since FDI is expected to have positive welfare impacts on the host countries, investment policy measures in many countries have been geared towards investment liberalization, promotion and facilitation (UNCTAD, 2015).

FDI can take the form of investment in new assets (greenfield investment) or acquisition of existing assets (mergers and acquisitions; M&A). Because of their distinctive characteristics, the two FDI modes may have different welfare effects in host countries. Indeed, Wang and Wong (2009) find that greenfield FDI promotes economic growth while M&As promote growth only when the host country has an adequate level of human capital. Harms and Méon (2011) also find that while greenfield investment substantially enhances growth, M&As have no effect, at best. But Ashraf, et al. (2015) find that greenfield FDI has no statistically significant effect on total factor productivity (TFP), while M&As have a positive effect on TFP in in the sample of both developed and developing host countries of FDI.

The question is then to understand how different institutional and policy factors have differential effects on FDI so that policy makers can properly design a policy framework to attract FDI, particularly orienting MNEs to invest in the country in a certain way (Byun, et al, 2012). There have been many studies linking institutional/governance variables with “aggregate” FDI. For example, Schneider and Frey (1985) and Edwards (1992) claim that political instability deters FDI flows. Daude and Stein (2007) find that the unpredictability of laws, regulations and policies, excessive regulatory burden, government instability and lack of commitment are important institutional aspects that play a major role in deterring FDI.

Similarly, Busse and Hefeker (2007) find that government stability, internal and external conflicts, corruption, ethnic tension, law and order, democratic accountability, and quality of bureaucracy are important determinants of FDI inflows. Hayakawa et al (2013), using overall FDI inflows to 89 developing countries for the period 1985 -2007, find that internal conflict,

corruption, military involvement in politics, and bureaucratic quality are strongly associated with FDI inflows to developing countries.

However, most studies have focused on institutional/governance factors on FDI and only few studies have examined how different policies of host countries influence FDI inflows to these countries. For example, using the World Bank's Ease of Doing Business (EoDB) ranking, Jayasuriya (2011) shows that there is a positive relationship between EoDB ranking and FDI inflows, but when the sample is restricted to developing countries, the relationship becomes insignificant. In contrast, Corcoran and Gillanders (2015) show that the overall Doing Business is highly significant in attracting FDI.

EoDB is not a direct measure of a country's FDI policies as it measures a country's business regulatory environments that may influence both domestic investment and FDI inflows. Utilizing PricewaterhouseCoopers (PwC)'s country reports on FDI policies, Wei (2000) constructs two measures of government policies towards FDI in 49 countries: FDI restrictions index and FDI incentives index. Specifically, "FDI restrictions index" was created based on the presence of restrictions in four sub areas such as (1) controls on foreign exchange transactions, (2) exclusion of foreign firms from certain strategic sectors, (3) exclusion of foreign firms from other sectors, and (4) restrictions on the share of foreign ownership. Similarly, an "FDI incentives" index was created based on the presence or absence of FDI promoting policies in the following four areas: (1) special incentives for foreigners to invest in certain industries or certain geographic areas; (2) tax concessions specific to foreign firms; (3) cash grants, subsidized loans, reduced rent for land use, or other nontax concessions, when these are specific to foreign firms; and (4) special promotion for exports (including the existence of export processing zones, special economic zones, and the like). Wei (2000) shows empirically that FDI inflows are negatively related to FDI restrictions index and positively related to FDI incentives.

There are two points noteworthy. First, most studies on the effects of governance and policies on FDI focus on aggregate FDI despite the fact that its two entry modes may have different welfare effects in the host countries.<sup>1</sup> Second, most studies focus mostly on institutional

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<sup>1</sup> There are many studies that examine country-specific determinants of greenfield and

variables such as political stability and corruption and less on business environments or FDI policy variables of host countries which might have a more direct impact on FDI decisions of multinationals.

Against this background, this paper empirically evaluates how different institutional and policy factors influence FDI flows in the modes of greenfield vs. M&A to developing countries. In particular, this report assesses (1) host-country specific factors such as institutional/governance indicators, business environments, and FDI regulatory restrictions as well as (2) bilateral pair-specific factors such as regional trade agreements (RTA) and bilateral investment treaties (BIT).

For this purpose, this paper utilizes bilateral greenfield and M&A investments from 25 OECD countries to 96 developing countries and 46 high-income countries for the period 2003-2014 and applies Poisson Pseudo-Maximum Likelihood (PPML) estimation to the gravity model. We offer a number of new findings. Among the host country-specific factors, we find that the quality of local governance is the most important factor for both greenfield and M&A investments to developing countries, whereas FDI restrictive policies of developing countries are not significant factors in restricting FDI inflows to these countries. We also find that an improvement in host country's environment for doing business may have a positive effect on greenfield investment only when the host country's governance quality is very low. Among the pair-specific policy factors, regional trade agreements have a significantly positive impact on greenfield investment flows to developing countries, while bilateral investment treaties do not exert any positive effect either on greenfield investment or M&A investment.

The remainder of this paper is organized as follows. Section 2 describes the data on greenfield investment and M&A investments as well as the key institutional and policy variables to be used in the regression analysis. Section 3 explains the empirical framework and Section 4 reports and discusses the main results. Section 5 offers a summary and conclusion.

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M&A investments but few focus on policy factors. For example, see Neto et al (2010), Byun et al (2012) and Davies et al (2015). There are also few studies that focus on one particular mode of FDI. For example, using bilateral M&A data over 1990 to 2001, Gassebner and Méon (2010) present evidence that political risk decreases M&A inflows but they do not compare how M&A is different from Greenfield FDI.

## 2. Descriptive Statistics

### 2.1. Bilateral greenfield and M&A investments

We use data on bilateral greenfield and M&A investments. The former was acquired from fDi Intelligence (Financial Times Ltd.) and the latter from the Thomson-Reuters SDC Platinum Database. The counts and dollar values of greenfield and M&A investments are available from these two sources. However, in the case of M&A investment, the values of the transactions are often not reported for confidentiality reasons. A complete set of counts and dollar values is reported in the case of greenfield investment, but when the investing company does not release the dollar value, the data provider (fDi Intelligence) estimates the value by an algorithm.<sup>2</sup> Thus, the dollar values of greenfield investment may not be as accurate as its counts.

Therefore, we primarily use data on the counts of bilateral greenfield and M&A investments conducted by 25 OECD member countries and also use the dollar values of greenfield investment as a complement. These countries represent over 80 percent of global greenfield FDI and about 70 percent of global cross-border M&As. Figure 1 shows the trend of greenfield investment and M&A investments conducted by 25 OECD countries during the period 2003-2014. There have been fewer cases of cross-border M&A than greenfield investment during the entire period. It is also noted that both continued to increase until 2007 (M&A) and 2008 (greenfield) and then have remained roughly constant (greenfield) or gradually declined (M&A).

Their respective amount of greenfield investment and M&A investment during the period 2003-2014 is summarized in Table 1A and Table 1B, respectively. The 25 countries conducted 136,478 counts of greenfield investment projects and 78,092 counts of M&A deals during the period.<sup>3</sup> U.S., Germany, U.K., Japan, and France are the five major greenfield

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<sup>2</sup> The algorithm looks at projects in the same country/sector/activity with actual jobs and capex data and then removes the smallest 5% of projects and largest 5% of projects to create a dataset for estimates. If there are less than 5 projects in the dataset, then the algorithm takes the regional data. If there is still not 5 projects in the dataset, then the algorithm takes the global dataset (An internal description provided by fDi Intelligence).

<sup>3</sup> We also report the dollar values of M&A as a reference but do not focus much on these

investors accounting for 65% of the total count, while U.S., U.K, Canada, Germany, and France are major five acquirers accounting for 61% of all M&A deals. Note that in terms of dollar value they are also top five sources of both greenfield and M&A investments.

The 25 OECD countries made greenfield investments in 199 economies during the period 2003-2014, Table 2A lists the 25 major hosting economies of greenfield investment. They received 74.4% of total greenfield investments from the 25 OECD countries. China is the largest recipient of greenfield investment accounting for almost 10% of the total counts (or 12% of total dollar value). Among the developing countries, China, India, Russia, Brazil, Mexico, Romania, Thailand, and Vietnam are included in the list of top 25 recipients of greenfield investment.<sup>4</sup> These eight developing countries account for 27.5% of total counts (or 32.5% of total value) of greenfield investment during the period.

Table 2B lists the 25 major hosts of M&A investment which account for 78.2% of 79,422 deals made in 175 economies during the period 2003-2014. There are only five developing countries among the 25 major hosts of M&A investments: China, India, Brazil, Russia, and Mexico, which altogether account for only 11.8% of total counts (or 7.7% of total value). Thus, as compared to greenfield investment, cross-border M&A is less common in developing countries than in high-income countries.

In regression analysis we will examine the determinants of greenfield and M&A investments from 25 OECD countries to 96 developing countries and 46 high-income countries, respectively, for which the data for explanatory variables are available. Table 3A presents the top 25 country pairs for greenfield investment during 2003-2014. The U.S.-China pair is the country pair that shows the largest amount of greenfield investment flows (in terms of both count and value), followed by U.S.-U.K., U.S.-India, U.K.-U.S., and Japan-China pair, which are all large countries in terms of population and/or GDP. Thus, we can see that gravity works in bilateral greenfield investments. Table 3B presents the corresponding pairs for M&A investments. The top five country pairs are all high-income countries. In fact, in the case of M&A investment, there are only four country pairs which include developing countries as

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because they are not accurate because of missing observations.

<sup>4</sup> We use the country grouping classified by the World Bank.

host countries, whereas in greenfield investment, there are ten pairs which included developing countries as host countries. Thus, as compared to greenfield investment, cross-border M&A is less common between high-income and developing countries. This finding is consistent with Nocke and Yeaple (2008) who claim that most FDI takes the form of cross-border M&A when production-cost differences between home and host countries are small, while greenfield investment plays a more important role for FDI from high-cost to low-cost countries.

Appendix Table 1 lists all countries with their respective number of greenfield investment and M&A investment, respectively, during the entire period of 2003-2014.

## 2.2. Institutional and policy variables

In the regression analyses, we will use a number of different institutional and policy variables alternatively in the gravity equations for bilateral greenfield investment and M&A investment, respectively. Specifically, we will use one set of institutional variables and two sets of policy variables which are all host-country specific. In addition we will investigate the impact of pair-specific policy variables for RTA and BIT.

### World Bank's Worldwide Governance Indicators (WGI)

For assessment of host country's institutional quality on investment inflows, we will utilize World Bank's Worldwide Governance Indicators (WGI), which are annually available from 1996 for 215 countries and territories. WGIs are comprised of six indicators: (1) voice and accountability; (2) political stability and absence of violence/terrorism; (3) government effectiveness; (4) regulatory quality; (5) rule of law; and (6) control of corruption. See Appendix Table 3 for detailed explanations about WGIs. These aggregate indicators are constructed based on different data sources produced by a variety of different organizations. Each indicator ranges from -2.5 to 2.5, with higher score for higher quality of governance/institution.<sup>5</sup> For easier comparison with other policy measures, we transform the WGIs to range between 0 and 100, by adding 2.5 and then multiplying them by 20.

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<sup>5</sup> For the methodology of the WGI, the reader is referred to Kaufmann, et al (2011). See also Thomas (2009) for a critical review.

Some studies have utilized WGIs to investigate institutional determinants of FDI and found that a wide range of institutions including corruption do matter for inward FDI (among others, Globerman and Shapiro, 2004; Bénassy-Quéré, et al., 2007; Buchanan, et al, 2012). The six indicators are highly correlated with each other. Therefore, similarly to Globerman and Shapiro (2002; 2004), we create an aggregate measure as a simple average of the six indicators and use it as an overall governance infrastructure measure in the regression analysis. We will also include each of them alternatively in the regression so as to assess which component of governance infrastructure matters more in influencing FDI inflows. In order to mitigate potential endogeneity of WGIs, we will match the averages of FDI data for 2003-2005, 2006-2008, 2009-2012, and 2012-2014 with the WGI data for the beginning year of each sub-period (i.e. 2003, 2006, 2009 and 2012).

Appendix Table 1 lists all countries with their respective average value of WGIs during the years of 2003, 2006, 2009, and 2012. The average value of WGIs for all high-income countries was 70.2, while that for developing countries was 41.4. Thus, the governance quality of high-income countries is generally higher than that of developing countries.

Among the 96 developing countries, Chile ranked the first with a score of 73.2 and followed by Mauritius, Botswana, Lithuania, Lithuania, and Uruguay. Democratic Republic of Congo, Myanmar, Iraq, Sudan, and Chad ranked in the bottom with scores of 17.5 ~ 23.6. Among the high-income countries, Finland ranked the first with 88.0, followed by Denmark, Sweden, New Zealand, and Switzerland, while Equatorial Guinea, Saudi Arabia, Bahrain, Trinidad and Tobago, and Kuwait scored from 25.5 to 53.5, ranking at the bottom among the high-income countries (See Table 4).

#### World Bank's Ease of Doing Business (EoDB)

A country's business regulatory environment may influence not only domestic investment but also FDI it attracts. The World Bank's Ease of Doing Business (EoDB) reports have been ranking countries annually since 2003. The Doing Business 2016 reports include ten components: (1) starting a business; (2) dealing with construction permits; (3) getting electricity; (4) registering property; (5) getting credit; (6) protecting minority investors; (7) paying taxes; (8) trading across borders; (9) enforcing contracts; and (10) resolving



insolvency. See Appendix Table 4 for detailed explanations about EoDBs. Each indicator ranges from 0 to 100, with higher score representing better environment for doing business.<sup>6</sup>

Using the official rankings from 2006 to 2009, Jayasuriya (2011) shows a positive relationship between EoDB ranking and FDI inflows. However, when the sample is restricted to developing countries, the results suggest that an improved ranking has, on average, an insignificant influence on FDI inflows. Using the Doing Business rank for the period 2004-2009, Corcoran and Gillanders (2015) show that the overall Doing Business is highly significant in attracting FDI. They further show that the relationship is driven by the “ease of trading across borders” component and that the relationship is significant for middle income countries, but not for the World’s poorest region, Sub-Saharan Africa, or for the OECD countries.

Among the 10 components, the “registering property” component has been added since the 2005 Report whereas the components of “registering property”, “protecting minority investors”, “paying taxes”, “trading across borders”, and “dealing with construction permits” have been added since the 2006 Report. The “getting electricity” component has been added only since 2011 reports.

Therefore, in the regression analysis, we will drop the “getting electricity” component and use the nine indicators for 2006, 2009 and 2012, contained in 2007, 2010, and 2013 reports, respectively, and match them with the averages of FDI data for 2006-2008, 2009-2012, and 2012-2014.<sup>7</sup> Similarly to the case of WGIs, we will first use an overall measure of EoDB as an average of the nine indicators of EoDB and also each of the nine EoDB indicators as an explanatory variable, alternatively.

EoDB ranges between 1 and 100, with higher value for more favorable business environments. As seen in Appendix Table 1, with an average score of 71.9, ease of doing business indicator for high-income countries was much higher than that for overall

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<sup>6</sup> For the methodology of the EoDB, the reader is referred to <http://www.doingbusiness.org/methodology>

<sup>7</sup> The data for all sets of indicators in each year’s Doing Business Report are for the previous year. (i.e., the data in 2004 Report is for year 2003, and so forth.)

developing countries whose average score was 53.6. Among the 96 developing countries, Malaysia, Lithuania, Latvia, Georgia, and Mauritius ranked highest, ranging 73.8 ~ 70.8, comparable to those of Belgium, Switzerland, Israel, and Portugal. In contrast, Chad, Libya, Democratic Republic of Congo, Venezuela, and Guinea ranked at the bottom, with a range of 28.6 ~ 36.2. Among the high-income countries, Singapore, New Zealand, Hong Kong, U.S. and Ireland were the countries with the best environment for doing business, while Equatorial Guinea, Croatia, Brunei Darussalam, Trinidad and Tobago, and Greece were the countries with the worst environment for doing business (See Table 4).

### OECD's FDI Regulatory Restrictiveness Index (RRI)

OECD's FDI Regulatory Restrictiveness Index (RRI) is a more direct measure of restrictions on FDI in 58 countries, including all OECD and G20 countries. The FDI RRI gauges the restrictiveness of a country's FDI policies in four different dimensions: (1) foreign equity limitations; (2) screening or approval mechanisms; (3) restrictions on the employment of foreigners as key personnel; and (4) other restrictions (operational restrictions such as restrictions on branching and on capital repatriation or on land ownership).<sup>8</sup> Appendix Table 4 explains the details of RRI. The RRI also reports an overall measure for all types of restrictions. Each index ranges between 0 and 1, with higher value representing higher restriction for FDI. We transform the index by  $100 \times \text{RRI}$  so that transformed RRI ranges between 0 and 100, with higher value representing higher restriction for FDI.

The RRI, originally developed in 2003, is available for 1997, 2003, 2006, and 2010-2014. To my knowledge, there have been no empirical studies that utilize OECD's FDI RRI in assessing the impact of FDI policies on FDI inflows. Thus, this is the first paper that uses the RRI in assessing the effects of FDI policies on two different modes of FDI flows. In the regression analysis, we will use the RRI data for 2003, 2006, 2010 (for 2009), and 2012 and match them with the averages of FDI data for 2003-2005, 2006-2008, 2009-2012, and 2012-2014.

As seen in Appendix Table 1, with an average score of 8.5, RRI for 32 high-income countries

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<sup>8</sup> For the methodology of the RRI, the reader is referred to <http://www.oecd.org/investment/fdiindex.htm>

was smaller than that for 24 developing countries whose average score was 15.3. Among the 96 developing countries, only 24 countries were reported with RRI. China, India, Malaysia, Indonesia, and Jordan were the top five countries with the highest FDI regulatory restrictiveness, while Romania, Columbia, Lithuania, Latvia, and Cost Rica were countries with lowest regulatory restrictiveness for foreign investment. Among the 32 high-income countries for which RRI are reported, Saudi Arabia, New Zealand, Canada, Australia, and Italy were most restrictive countries with the highest FDI regulatory restrictiveness, while Luxembourg, Slovenia, Portugal, Czech Republic, and the Netherlands were least restrictive for foreign investment (See Table 4).

### Regional Trade Agreement (RTA)

There have been many theoretical and empirical studies that investigate the effects of RTAs on FDI. Most theoretical studies have shown that RTA increases investments not only from intra-block firms but also from outside firms (eg. Motta and Norman, 1996; Ekholm et al., 2007; and Ito, 2013).

Using U.S. data for the period 1985-1999, Chen (2009) finds that RTAs increase outside multinationals' incentive to invest in the participating countries, especially in those that are integrated with larger markets and have lower production costs. Similarly, Kreinin and Plummer (2008) find that RTAs have had a positive and significant effect on FDI in the cases of European Union (EU), North American Free Trade Agreement (NAFTA), Southern Common Market (MERCOSUR), and Association of Southeast Asian Nations (ASEAN). Using bilateral outward FDI stock from 20 OECD countries to 60 host countries for the period 1982-1999, Yeyati et al. (2003) find that only the countries in the RTA that offer a more attractive overall environment for FDI are likely to attract more FDI. Using bilateral flow data between 25 OECD and 45 high-income and 95 developing countries for the period 2003-2012, Chala and Lee (2015) find that common membership in RTAs promotes bilateral greenfield investment only in OECD-developing country pairs.

Some researchers investigate how RTA effects differ for different country groupings. Using bilateral outward FDI between 24 home and 28 host European countries, Baltagi et al. (2008) find that RTA for a given home country exerts positive effects on FDI in Eastern European host countries where vertical FDI prevails and negative effects on Western European host

countries where horizontal FDI prevails. Based on the knowledge-capital model, Jang (2011) finds that bilateral FTA decreases bilateral FDI in the OECD–OECD country pairs but increases bilateral outward FDI in the OECD–non-OECD country pairs where skill difference is large and vertical FDI prevails. Chala and Lee (2015) also find that RTAs may discourage greenfield investment between OECD and high-income countries, while they promote greenfield investment between OECD and developing countries.

While most studies ignore the actual content of RTAs, Berger et al. (2013) analyze the impact of modalities on FDI. Using bilateral FDI flows between 28 home and 83 host countries for the period 1978-2004, they find that RTAs increase FDI only if the RTAs offer liberal admission rules and that RTAs without strong investment provisions may even discourage FDI.

None of the above-mentioned studies examine how differently an RTA affects greenfield investment vs. M&A investment. In a theoretical analysis, Kim (2009) examines the impacts of RTA on the FDI entry mode of multinational firm focusing on greenfield investment vs. cross-border M&A. Based on an oligopoly market structure, he shows that formation of an FTA between home and host countries eliminates the tariff-jumping advantage of greenfield investment, thereby discouraging greenfield investment.

According to the date of entry into force, we compile an RTA dummy variable referring to the WTO's RTA database.<sup>9</sup> As with other variables, we will match the RTA dummies for 2003, 2006, 2009 and 2012 with the averages of FDI data for 2003-2005, 2006-2008, 2009-2012, and 2012-2014.

#### Bilateral Investment Treaty (BIT)

BIT is an international agreement establishing legally binding terms and conditions for FDI. Many BITs set forth actionable standards of conduct that applied to governments in their treatment of investors from other states, including: (1) fair and equitable treatment (most-favored-nation treatment); (2) protection from expropriation; and (3) free transfer of means

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<sup>9</sup> [https://www.wto.org/english/tratop\\_e/region\\_e/region\\_e.htm](https://www.wto.org/english/tratop_e/region_e/region_e.htm)

and full protection and security.<sup>10</sup>

Thus, BITs are expected to promote FDI inflows between signatories. In developing countries, in particular, BITs may compensate for less developed local institutions and can be expected to promote FDI inflows. Many studies, however, have produced ambiguous results on the effectiveness of BITs in promoting FDI inflows. For example, Busse, et al. (2010) find that BITs promote FDI flows to developing countries and may even substitute for weak domestic institutions but Tobin and Rose-Ackerman (2005) conclude that BITs do not encourage FDI except at low levels of political risk. In particular, Tobin and Rose-Ackerman reject the view that BITs are a substitute for a favorable local business environment, whereas Neumayer and Spess (2005) report some limited evidence to this effect

Overall, none of the previous studies has investigated how BITs influence greenfield investment and M&As differentially. Because there is no theoretical model that predicts differential effects of BITs on greenfield vs. M&A investments, we do not make any a priori hypothesis and take this as an empirical question.

Our bilateral investment treaty data are taken from the website of the United Nations Conference on Trade and Development (UNCTAD). Our BIT variable is a dummy variable taking the value of one for a ratified BIT between the source and the host country.<sup>11</sup> In order to mitigate potential reverse causality, we will match the BIT dummies for 2003, 2006, 2009 and 2012 with the averages of FDI data for 2003-2005, 2006-2008, 2009-2012, and 2012-2014.

### **3. Empirical Specification**

#### **3.1. The gravity model**

The main purpose of this paper is to assess how different kinds of institutional and policy

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<sup>10</sup> Legal Information Institute, Cornell University Law School ([https://www.law.cornell.edu/wex/bilateral\\_investment\\_treaty](https://www.law.cornell.edu/wex/bilateral_investment_treaty))

<sup>11</sup> BITs are not the same as some BITs impose more discipline on host countries. It is beyond the scope of the present paper to differentiate the BITs. The main focus here is to fully utilize the “structural” gravity model and assess how BITs may have a differential effect on greenfield investment vs. M&As.

factors affect the two different types of FDI inflows (greenfield vs. M&A) to developing countries. For this purpose, this paper constructs a bilateral panel data set of greenfield and M&A, respectively, from 25 OECD member countries to 96 developing countries (and 46 high-income countries for the sake of comparison) over the period of 2003 – 2014.<sup>12</sup> We then apply the gravity model to estimate the impact of policy factors on FDI flows.

The simple gravity equation pioneered by Tinbergen (1962) and Pöyhönen (1963) posits that the volume of trade between two countries is positively related to their masses (GDPs) and inversely related to the distance between them. The gravity equation has been the workhorse model for the empirical literature in international trade because it has very good fit to the data not only for trade in goods but also for various kinds of cross-border transactions such as services, capital, and labor.

As Baldwin (2006) noted, it possesses “more theoretical foundation than any other trade model”. Most notably, Anderson and van Wincoop (2003) generated general theoretical foundations for the gravity equation based on differentiated products and homothetic preferences. Based on different assumptions Eaton and Kortum (2002), Helpman et al. (2008), Melitz and Ottaviano (2008), and Chaney (2008, 2013) also proposed theoretical gravity models for trade in goods. Aviat and Coeurdacier (2005), Martin and Rey (2004, 2006) and Coeurdacier and Martin (2009) derived a gravity equation for trade in assets with financial transaction costs.

Some authors have also extended the gravity model to explain cross-border FDI flows. For example, by introducing a third country to the standard knowledge-capital model of MNEs with skilled and unskilled labor, Bergstrand and Egger (2007) suggest a theoretical rationale for estimating gravity equations for FDI flows and foreign affiliate sales. Head and Ries (2008) also develop a gravity model for cross-border M&A based on the idea of an international market for corporate control. From three different models of multinational firms, Kleinert and Toubal (2010) derive a gravity equation that can be applied to the analysis of sales of foreign affiliates of multinational firms.

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<sup>12</sup> See Appendix A1 for the list of countries.

Most theoretical formulations of the gravity equation specify  $Y_{ijt}$ , flows of transactions from origin  $i$  to destination  $j$ , as the product of country and bilateral-specific terms:

$$Y_{ijt} = \alpha_t \frac{M_{it} M_{jt}}{D_{ijt}} \quad (1)$$

$M_{it}$  and  $M_{jt}$  measure the attributes of origin  $i$  and destination  $j$  at a specific point in time  $t$  and  $\alpha_t$  is a common time-specific factor.  $D_{ijt}$  reflects transaction costs between  $i$  and  $j$  at time  $t$ . In our application,  $Y_{ijt}$  is bilateral FDI flows (greenfield or M&A) from origin  $i$  to destination  $j$  at time  $t$ . We will consider two different types of bilateral FDI flows: new greenfield FDI projects and new cross-border M&A deals.

In our application, we specify the host country-specific terms,  $M_{jt}$  as

$$M_{jt} = \eta \text{ POLICY}_{jt} + \gamma_1 \ln \text{ POP}_{jt} + \gamma_2 \ln \text{ PCGDP}_{jt} + \gamma_3 \ln \text{ POP}_{jt} + \gamma_4 \text{ GROWTH}_{jt} + \gamma_5 \text{ INFLATION}_{jt}$$

where  $\text{POP}_{jt}$  and  $\text{PCGDP}_{jt}$  are, respectively, the population and per capita GDP (PCGDP) of host countries and  $\text{GROWTH}_{jt}$  and  $\text{INFLATION}_{jt}$  are, respectively, GDP growth rate and inflation rate of host countries.<sup>13</sup>

It should be noted that institutional and policy variables are likely to be highly correlated with the level of economic development and hence without including a variable that captures the level of economic development, any positive relation with a policy variable and FDI flows may reflect a positive relation with the level of economic development and FDI flows. Therefore, noting that GDP is a product of GDP per capita and population, we include the logs of GDP per capita and population separately. Population, GDP per capita, GDP growth rate, and inflation rates approximated by consumer price index (CPI) are all drawn from the World Bank's World Development Indicators.

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<sup>13</sup> As will be discussed in the following, the home country-specific terms,  $M_{jt}$  will be absorbed by home-year fixed effects which account for multilateral resistance.

Higher GDP per capita and greater population represent the attractiveness of a host market in the case of market-seeking FDI. Therefore, in this case, these two variables are expected to have a positive association with FDI. However, when MNEs aim to exploit low wages in the host countries of their investment, the GDP per capita may have a negative association with FDI.

GDP growth rate and inflation rates are included in order to capture the short-term fluctuations of macroeconomic conditions of host countries. Globerman and Sapiro (2004) find that economic growth is an important determinant of aggregate FDI, but not of the cross-border M&A flows. Higher inflation rates may suggest greater macroeconomic instability of the host country and the currency value of the host country may become weaker against other currencies, resulting in a lower value of local firms in terms of foreign currencies. This may increase or decrease MNEs' incentives to invest in this country, depending on their motives (and modes) of FDI.

We also specify the bilateral term as

$$D_{ijt} = \beta_1 \ln RTA_{ijt} + \beta_2 \ln BIT_{ijt} + \theta PAIR_{ij} + u_{drt}$$

where  $RTA_{ijt}$  and  $BIT_{ijt}$  indicate whether both countries are members of a bilateral/regional trade agreement or a bilateral investment treaty, respectively, and  $PAIR_{ij}$  indicates bilateral fixed effects between countries  $i$  and  $j$ .

$PAIR$  includes log of geographic distance between source and host countries, a common language dummy and also a dummy for contiguity. Kogut and Singh (1988) argue that cultural factors have a more important influence on cross-border M&A than greenfield investment because unlike greenfield investment, cross-border M&A often requires the utilization of existing personnel, management and organizational culture.

### Three econometric issues

There are three main issues for a consistent estimation of the coefficients for the institutional and policy variables in the gravity framework. First, many pairs of countries do not exert FDI



flows and hence enter with zeros. Taking logs of the dependent variable would drop zero observation and result in biased estimates given that zero flows may indicate that fixed costs exceed expected variable profits (Razin et al., 2004; and Davis and Kristjánssdóttir, 2010). Based on the property that the expected value of the logarithm of a random variable is different from the logarithm of its expected value (i.e.,  $E[\ln(y)] \neq \ln E[y]$ ), Santos Silva and Tenreyro (2006) argue that estimating a log-linearized gravity equation by ordinary least squares (OLS) results in bias. They also argue that OLS would be inconsistent in the presence of heteroskedasticity, which is highly likely in practice.

Santos Silva and Tenreyro (2006) have suggested that a gravity equation be estimated in its multiplicative form:

$$Y_i = \exp(x_i\beta) + \varepsilon_i \quad (2)$$

where  $Y_i$  is a dependent variable with a non-negative value such that  $E[\varepsilon_i|x] = 0$ . This formulation can be estimated using the Poisson Pseudo-Maximum Likelihood (PPML) estimator. As PPML has received increasing recognition in estimating the gravity model, we will also utilize PPML in our study.<sup>14</sup>

Our second concern is that “structural” gravity models consistent with theory require that estimation of a gravity equation take into account not only bilateral distance and transaction costs but also “multilateral resistance” (Anderson and van Wincoop, 2003). This issue has been addressed in the empirical literature by including source-year and host-year fixed effects in the panel data estimations. However, including a full set of time varying source and host country fixed effects is not feasible for our purpose because with host-year fixed effects, host country-specific policy variables would not be measured. Therefore, we will only include source-year fixed effects for source countries’ outward multilateral resistance. Arguably, FDI decisions are made by multinationals of source countries and hence host countries’ inward multilateral resistance (i.e., host-year fixed effects) does not matter much.

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<sup>14</sup> For various discussions on PPML, see <http://privatewww.essex.ac.uk/~jmcss/LGW.html>.

Our third concern relates to the endogeneity of policy variables. That is, FDI inflows may cause the policy makers of host countries to make their FDI environment more favorable to foreign investment. We design three tactics to account for this concern. First, as an effort to reduce random volatility of FDI flows and to obtain fewer cases of zero values, we reduce the time dimension to four periods by taking the mean of the dependent variable for years 2003-2005, 2006-2008, 2009-2011, and 2012-2014. And then we match the dependent variable with the policy variables and other explanatory variables for the beginning year of each sub-period (i.e. 2003, 2006, 2009, and 2012), thus allowing for both contemporaneous and lagged effects (1-2 years) of policy factors on FDI inflows to accrue.

In order to account more rigorously for the endogeneity of policy variables, we will also include additional fixed effects. As discussed above, there are two different types of policy variables in our study: (1) time-varying host-specific; and (2) time-varying pair-specific. As for the estimation of time-varying host-specific policy variables, we will include host-country fixed effects so as to disentangle the effects of within-country variation of policy variables rather than the effects of between-country variation of policy variables. That is, we ask the question of how a one-unit increase in a policy variable of a host country will impact FDI flows to the country, rather than we ask the question of how a one-unit difference in a policy variable between host countries is associated with different amounts of FDI flows to different host countries.

As for the estimation of time-varying pair-specific policy variables (i.e., RTA and BIT dummy variables), we will include a full set of time varying source and host country fixed effects as well as bilateral pair fixed effects. This specification is consistent with Anderson and van Wincoop (2003)'s "structural" gravity models in that it incorporates a full set of multilateral resistance effects. This specification is also consistent with Baier and Bergstrand (2007) who estimate the gravity equation with time-varying multilateral terms as well as bilateral fixed effects to account for an endogeneity problem when they assess the effects of RTAs on bilateral trade.

## **4. Empirical Results**

### 4.1. Effects of governance on FDI

Table 5 reports the estimated results for overall World Governance Index as an average of six WGIs. Reported in columns (1)-(4) are the results when host countries are developing countries, while in columns (5)-(8) are the results for high-income countries. Within each group of countries, the first two columns report the results when the dependent variable is the number of greenfield projects and the following two columns report the results when the dependent variable is the number of cross-border M&A deals.

Column (1) is based on Specification 1 which controls for source country-period fixed effects as well as period fixed effects. That is, specification 1 does not control for host country fixed effects and thus yields between-country estimates. Our focus variable, overall WGI, has a positive and highly significant coefficient. Specifically, if a host country's overall WGI is 1 point higher than that for another country, holding all other variables the same, the number of greenfield investment in this country is on average 4.9% ( $= 100 * (\text{EXP}(0.048) - 1)$ ) greater than another country.<sup>15</sup> Therefore, if the Philippines' overall governance were not the level of 40.6 but were the level of Malaysia (56.8), greenfield inflows to the Philippines would have been 1,752 counts, 79% ( $= 16.2 * 100 * (\text{EXP}(0.048) - 1)$ ) greater than the current level of 979 counts during the whole period of 2003-2014 (see Appendix Table 1)

We also include an RTA dummy and a BIT dummy as bilateral policy variables, but do not put much emphasis on the estimated results because they are not obtained after fully accounting for bilateral fixed effects as well as source- and host-country-period fixed effects. A full structural gravity model will be estimated subsequently for these two bilateral policy variables.

Among the control variables, population and GDP per capita of host countries enter with highly significant positive coefficients, suggesting that countries with a large market size and high income receive more greenfield investments.<sup>16</sup> Growth rate also enters with a statistically significant coefficient, suggesting that countries with a greater market potential

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<sup>15</sup> Even if the dependent variable is not in logarithm, the estimated coefficients obtained by the PPML still can be interpreted as percentage changes of the dependent variable.

<sup>16</sup> Note that time-varying variables of source countries are displaced because Spec 1 includes time-period fixed effects of source countries.

also receives more greenfield investments. On the other hand, countries with high inflation rates receive a smaller amount of greenfield investments. As expected, bilateral distance and common language also yield negative and positive coefficient, respectively. Only the contiguity variable does not appear to matter in greenfield investment.

Column (3) reports the corresponding results obtained by Spec 1 when the dependent variable is the number of cross-border M&A deals. Interestingly, the size of estimated coefficient for overall WGI in the equation for cross-border M&A is similar to that for greenfield investment. The coefficients for population and GDP per capita in the M&A equation are also similar in size to those in the greenfield equation. However, growth rate of host countries is now negative, even though it is not statistically significant and also inflation rate of host countries is no longer significant either.

Reported in columns (5) and (8) are the corresponding results for the group of high-income countries. Overall WGI is still positive and significant, but its size is smaller in the equation for greenfield investment but is slightly larger for M&A. All control variables appear qualitatively similar for both groups of countries.

Columns (2), (4), (6), and (8) report the results obtained by Spec 2, which includes host-country fixed effects in addition to source country-period fixed effects and period fixed effects. Thus, with Spec 2, we are examining within-country variation in FDI flows. When the dependent variable is the number of greenfield investment flows to developing countries (Column 2), overall WGI's coefficient obtained in Spec 2 is almost identical to the one obtained in Spec 1. Thus, we have evidence that as a country's overall governance improves over time, greenfield investment to the country increases. The RTA dummy now has a statistically significant positive coefficient, while the BIT dummy has a statistically negative coefficient, but as noted above, we will assess the effects of RTA and BIT more rigorously later with a specification that includes bilateral fixed effects as well as source- and host-country-period fixed effects. Among the control variables, host country's population and growth rate as well as geographic distance and language commonality continue to influence greenfield investment flows as in Spec 1. Only GDP per capita of host country now enters with a negative coefficient.

When the dependent variable is the number of M&A deals (Column 4), we also find that overall WGI has a significantly positive coefficient even though its size is now about one half of what it was with Spec 1. Among the control variables, inflation rate now has a significant negative coefficient. This finding may reflect the fact that high inflation rates manifested in a weaker currency lowers the cost of acquisition in terms of foreign currency, thus yielding support to the fire-sale argument advocated by Krugman (2000).

Interestingly, when the host countries are high income countries (Columns 6 and 8), overall WGI is no longer significant in both equations for greenfield and M&A investments. Thus, governance quality of host countries matters more when host countries are developing countries than high-income countries. Overall, the control variables remain similar in terms of their sign and significance. Only the exception is GDP per capita. Interestingly, with Spec 2, GDP per capita enters with a significant negative sign in the equation for greenfield investment flows to both developing countries and high-income countries. This may suggest that the main motive of greenfield investment is rather efficiency seeking FDI. That is, as GDP per capita and hence wage rate increases, production cost increases and hence efficiency seeking greenfield investment may decrease. But M&A enters with a statistically significant positive coefficient when the dependent variable is M&A in developing countries, suggesting that the main motive of M&As is rather market-seeking.

As explained in the previous section, WGI has six components. We replaced the overall WGI with each of the six WGIs and re-ran the eight regressions, yielding 48 estimated coefficients for the six WGIs. Table 6 reports the results. For the sake of comparison, Column (1) of the table also reports the estimated coefficients for the overall WGI, which are identical to the results reported in Table 5. When the host countries are developing countries and the dependent variable is greenfield investment, all of the six WGIs are significantly positive in both specifications except for “voice and accountability”, which is not significant when estimated with Spec 2. In terms of size of the coefficients, “regulatory quality”, “rule of law”, “government effectiveness” of host developing countries appear to be particularly important for MNEs’ decision on greenfield investment. “Control of corruption” and “political stability” are also significant institutional factors affecting greenfield investment to developing countries.

As for M&A, all six WGIs are significantly positive when Spec 1 is applied (i.e. between-country variations), and four of the six WGIs (“voice and accountability”, “political stability”, “rule of law”, and control of corruption”) remain significant even when Spec 2 is applied (i.e. within-country variations). Another point to note is that in terms of size of the estimate coefficients with Spec 2, all but “voice and accountability” is larger and more significant for greenfield investment than for M&A investment. Thus, greenfield investment is generally more responsive to the WGIs.

When the host countries are high-income countries, the results with Spec 1 are similar to those for developing countries. With Spec 2, however, we do not observe strong positive coefficients for most WGIs in the equations for both greenfield and M&A investments. This may suggest that WGIs are already very high for most high-income countries and changes in WGIs are not large enough to have a significant impact on foreign investments during the period of our study. Indeed, except for few oil-exporting Middle East countries such as Bahrain, Equatorial Guinea, Kuwait, Oman, Saudi Arabia, Trinidad & Tobago, and UAE, WGIs for most high-income countries are already very high and did not show large changes during the period of our study.

Even though our primary focus is to compare greenfield investment and M&A investments in terms of their number of projects, we also report in Appendix Table 6 the results when the dependent variable is the value of greenfield investment. For the sake of comparison, we also present the results when the dependent variable is the number of greenfield investment. Overall our findings for greenfield investment remain qualitatively very similar even when the dependent variable is the value of greenfield investment. “Voice and accountability”, which was not significant with the number of greenfield investment in Spec 2 for the group of developing host countries, is now positive and statistically significant with the value of greenfield investment. Also for the group of high-income host countries, “corruption control, which was negative and significant with the number in Spec 2, is no longer statistically significant with the value as the dependent variable.

#### 4.2. Effects of business environments on FDI

We now turn to the effects of host country’s business environments on FDI inflows. Table 7

reports the estimated results when the average value of the World Bank's Ease of Doing Business (EoDB) is added to the equation reported in Table 5. Looking on Column (1) estimated by Spec 1 for the number of greenfield projects in developing countries, we observe that the overall EoDB carries a positive coefficient, significant at the five percent level. The overall WGI also carries a highly significant positive coefficient.<sup>17</sup>

Specifically, if the Philippines' overall EoDB were not the level of 50.5 but were close to the level of Malaysia (73.8), greenfield inflows to the Philippines would have been 1,303 counts, 33% ( $= 23.3 \cdot 100 \cdot (\text{EXP}(0.014) - 1)$ ) larger than the current level of 979 counts during the whole period of 2003-2014 (see Appendix Table 1). Also, if the Philippines' overall governance were not the level of 40.6 but were close to the level of Malaysia (56.8), greenfield inflows to the Philippines would have been 1,576 counts, 61% ( $= 16.2 \cdot 100 \cdot (\text{EXP}(0.037) - 1)$ ) larger than the current level of 979 counts during the whole period of 2003-2014 (see Appendix Table 1). Therefore, if the overall governance and doing business environment levels of the Philippines were the same as those of Malaysia, the number of greenfield investment to the Philippines would have been almost doubled to become 1,899 (i.e., 94% larger than the current level of 979 counts). However, host country's EoDB is not statistically significant when the dependent variable is the number of M&A deals in developing countries (Column 3). Looking on Columns (5) and (7) for high-income host countries, estimated with Specification 1 controlling for source country-period fixed effects as well as period fixed effects, we observe that overall EoDB of host country is positively associated with both types of FDI inflows.

We now turn to Columns (2), (4), (6), and (8), estimated with Specification 2, which includes host-country fixed effects in addition to source country-period fixed effects and period fixed effects. Thus, we examine within-country variation in the effects of EoDB and WGI on FDI flows. Somewhat surprisingly, overall EoDB enters with negative coefficients and highly significant in most equations, whereas overall WGI continues to carry highly significant positive coefficient in all equations.

Table 8 reports the results when we replace the overall EoDB with each of the nine EoDBs.

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<sup>17</sup> All other variables remain similar so we focus only on EoDB and WGI variables.

Again, we first focus on the results estimated by Spec 1. Among developing host countries, greenfield investment is positively associated with the host country's "registering property", "getting credit", and "enforcing contracts", while M&A investment is positively associated with "getting credit" and "protecting minority investors". "Getting credit" also enters with positive and significant coefficients for both FDI modes in the group of high-income countries. Thus, for multinationals making decisions as to where and how much to invest in what modes, ease of "getting credit" in host countries seems the most important factor among the nine business environment indices.

In the following, we investigate why most EoDB indices enter with negative coefficients when Spec 2 is applied, irrespective of the entry modes and income groups. Particularly, we investigate if this finding is related with the interplay between doing business environments and governance quality of host countries. For this purpose, we add an interaction term of the overall WGI with each of EoDBs in all equations presented in Table 8. The results for the group of developing countries are summarized in Table 9. Focusing first on the case of greenfield investment in Column (1), estimated with Spec 1, we find that the direct effect of overall EoDB is positive and significant. Surprisingly, however, the coefficient of the interaction term (EoDB\*WGI\_ave) is significant with a negative sign. Thus, the marginal effect of overall EoDB on greenfield investment ( $= 0.090 - 0.002*WGI\_ave$ ) becomes smaller as overall WGI becomes greater. For example, at 34.7 of WGI\_ave (bottom quartile), the marginal effect of EoDB is 0.40 and statistically significant, while at 47.4 of WGI\_ave (top quartile), the marginal effect of EoDB is -0.0048 and statistically insignificant. This suggests that for the country with high WGI, EoDB does not have a discernable association with greenfield investment. For the country with very low WGI, however, EoDB has a statistically significant positive association with greenfield investment. Thus, a favorable local business environment may substitute for poor local governance in encouraging greenfield investment to the developing countries characterized with very poor local governance. .

This finding is illustrated in Figure 2, which plots overall EoDB against the logarithm of the predicted value of the number of greenfield investment. Figure 2A plots the fitted values when  $WGI\_ave < 34.7$  (bottom quartile), while Figure 2B plots the fitted values when  $WGI\_ave > 34.7$ . The predicted value of the number of greenfield investment is increasing in



the value of EoDB\_ave for countries characterized by a very low quality of governance. In contrast, for countries with a high quality of governance, EoDB does not appear to have such a positive association with greenfield investment. Hence, the between-country relationship of overall EoDB with greenfield investment is positive and such a positive relationship is particularly strong in countries where their governance quality is low. For greenfield investment a similar finding is also obtained when EoDB is represented by “registering property”, “paying taxes”, and “enforcing contracts”. For cross-border M&A, we also find a similar finding when EoDB is represented by “starting business”, “registering property”, “getting credit”, “paying taxes”, and “enforcing contracts”.

Turning to greenfield investment’s within-country variations estimated by Spec 2, we find a similar finding for “dealing with business construction”, “paying taxes”, and “enforcing contracts”. For, M&A investment, we also find a similar finding when EoDB is represented by “getting credit”. Overall, the effects of EoDBs on the number of greenfield and M&A investments are positive only in countries where their governance quality is very low.

In Appendix Table 7, we also present the results when the dependent variable is the value of greenfield investment. Overall, for the group of developing host countries, none of the EoDB indices is positively associated with the value of greenfield investment irrespective of the specifications applied. For the group of developed host countries, the results are roughly similar for both the number and value of greenfield investment.

#### 4.3. Effects of FDI regulation

As explained in the previous section, we utilize OECD’s FDI Regulatory Restrictiveness Index (RRI), which is a measure of restrictions on FDI in 58 countries. Among the 58 countries, 24 developing countries and 32 high-income countries are included for regression analysis. Our RRI index ranges between 0 and 100 with higher value representing higher restriction for FDI. Thus, we expect a negative sign for RRI.

Table 10 reports the estimated results. Overall WGI continues to enter with positive and significant coefficients in all equations when Spec 1 is applied. We also find that the estimated coefficients for overall RRI are positive and significant for both greenfield and

M&A investments when host countries are developing countries. This finding does not change when Spec 2 is applied. In contrast, when host countries are high-income countries, overall RRI enters with negative and significant coefficients for greenfield investment, irrespective of the specifications. Thus, FDI restrictive policies do not appear to discourage either mode of FDI inflows to developing countries, while they discourage greenfield investment to high-income countries. The results for developing countries obtained with Spec 1 are not surprising given that the top five developing countries with the highest RRI were China, India, Malaysia, Indonesia, and Jordan. Except for Jordan, they were among the major hosts of greenfield and M&A investments. In contrast, the five countries with the lowest RRI were Romania, Colombia, Lithuania, Latvia, and Costa Rica, which are only meager hosts of greenfield and M&A investments.<sup>18</sup> The results for developing countries obtained with Spec 2 are not quite surprising either. When we examine the average of three-year change in RRI, Turkey, Malaysia, Russia, China, and India are top five countries which show the biggest decrease in RRI (i.e. greatest reduction in FDI restrictiveness). Among them, Turkey, Russia, and India did not experience a fast growth in inflows of greenfield investment, while China and Malaysia did. As for M&A investments, China and India were the countries which experienced the biggest decrease in the number of M&A deals.

Table 11 summarizes the results when the overall RRI is replaced with each of the four sub-indices of RRI. With Spec 1, we find that for the group of developing host countries, greenfield investment is negatively associated with the restrictions regarding “key foreign personnel”, while it is positively associated with three sub-indices of RRI. With Spec 2, we also find that greenfield investment to developing countries is negatively associated with “key foreign personnel” and “other restrictions”. M&A investment in developing countries is also negatively associated with “key foreign personnel”. Thus, we find somewhat consistent evidence that among the four different kinds FDI restrictive policies, restrictions on “key foreign personnel” such as directors and managers have the most significant negative effects on greenfield and M&A investments in developing countries.

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<sup>18</sup> We re-ran the regression, dropping the major hosts of FDI with high RRI such as China, India, Malaysia, and Indonesia but found similar results. One may also suspect that the countries with higher RRI are abundant with natural resources and this may bias the result. Therefore, we re-ran the regression with an additional explanatory variable of “total natural resources rents (as percentage of GDP)” taken from the World Bank’s World Development Indicators, but we found similar results.

For the group of high-income countries, however, greenfield investment is negatively associated with all of the four sub-indices of RRI. M&A investment in high-income countries also appears to be negatively associated with “equity restriction” of host countries.

As in the case of EoDB, we also investigate if FDI restrictive policies have any interaction with governance of host countries in influencing FDI inflows. Specifically, we add an interaction of overall WGI with each of RRI in all equations presented in Table 11. The results for the group of developing countries are summarized in Table 12. Focusing first on the case of greenfield investment in Column (1), estimated with Spec 1, we find that the direct effect of RRI is significantly negative only when it is represented by “equity restriction”. The marginal effect of “equity restriction” on greenfield investment ( $= -0.064 + 0.002 * WGI\_ave$ ) becomes smaller in absolute terms as overall WGI becomes larger. Thus, “equity restriction” has a discernable negative association with greenfield investment only for the country with low WGI. In contrast, “other restrictions” has a significant positive coefficient while its interaction term with overall WGI has a negative coefficient. Furthermore, with Spec 2, the results become the opposite qualitatively: the direct effect of most sub-indices of RRI is positive, while the interaction effect of RRI with governance is negative.

We also find somewhat mixed results for cross-border M&A. In Appendix Table 8, we also present the results when the dependent variable is the value of greenfield investment. Unlike the case of the number of greenfield investment, we do not observe any negative coefficients for any sub-indicators of RRI for both developing and high-income country groups. Therefore, we conclude that FDI restrictive policies of developing countries are not significant factors in restricting FDI inflows to these countries.

#### 4.4. Effects of RTAs and BITs on FDI

For the estimation of RTA and BIT dummy variables, we include a full set of time varying home and host country fixed effects as well as bilateral pair fixed effects, following Baier and Bergstrand (2007) who estimate the gravity equation with time-varying multilateral terms as well as bilateral fixed effects to account for an endogeneity problem when they assess the

effects of RTAs on bilateral trade. This specification is consistent with Anderson and van Wincoop (2003)'s "structural" gravity models.

Table 13 summarizes the results. When the estimates are made for the groups of developing countries and high-income countries separately, none of RTA or BIT carries a statistically significant coefficient in either equation for the number of greenfield investment or M&A investment. When the estimates are made for the whole group including both developing and high-income countries, RTA has a positive and significant coefficient in the equation for the number of greenfield investments. Precisely, when any two countries' RTA becomes effective, the number of greenfield investment between the country pair will increase by 11.5% in three years ( $= 100 * (\text{EXP}(0.109) - 1)$ ). When the dependent variable is the number of M&A deals, we also find a marginally significant positive coefficient for RTA. In contrast, BIT does not enter with any statistically significant coefficient in either equation for greenfield investment or M&A investment.

In order to assess if the RTA effect is different for developing countries, we re-ran the regressions with the interaction terms of RTA and BIT with the dummies for developing host countries and high-income host countries, respectively. As shown in Column (4), RTA seems to increase greenfield investment only when the counterparts are developing host countries. This result is consistent with Chala and Lee (2015) and Lee and Ries (2016). For M&A investment, we do not find such differential effects.

Some studies have found that RTAs and BITs are only effective in certain conditions, as discussed in Section 2. Therefore, we added the interaction terms of these with overall WGI.<sup>19</sup>The marginal coefficient of RTA on greenfield investment ( $= 0.422 - 0.006 * \text{WGI\_ave}$ ). Thus, RTA effects appear larger in the countries where their governance level is rather low. Lastly, we add one-period-lags of RTA and BIT to further mitigate a possible endogeneity of these variables. As seen in Column (6), RTA still carries a positive coefficient and significant at the 10 percent level.

As a robustness check, we also present the results when the dependent variable is the value of

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<sup>19</sup> Note that the inclusion of host-period fixed effects precludes the estimation of overall WGI.

greenfield investment. Interestingly, RTA has a significantly positive impact on the value of greenfield investment flows even when the estimates are made separately for the group of developing countries, while it does seem to have only a very marginal positive impact for the group of high-income countries. When we add one-period-lags of RTA and BIT, we find that the size of the estimated coefficient for contemporaneous RTA becomes slightly smaller but remain significant at the 1 percent level. Moreover, lagged RTA has a positive effect on greenfield investment with a magnitude a lot larger than that for the contemporaneous RTA variable. Thus, effect of RTA on greenfield FDI becomes larger if the lagged effect of RTA is taken into account. In contrast, we do not find any statistically significant effect of BIT on greenfield investment in any specifications.

## **5. Summary and Concluding Remarks**

Many studies have found that foreign direct investment (FDI) can play a positive role in spurring economic growth and income of host countries. Given that FDI can take the form of greenfield investment or mergers and acquisitions (M&A), this paper empirically evaluates how institutional and policy factors of host countries influence greenfield and M&A investments to developing countries. For this purpose, this paper utilizes bilateral greenfield and M&A investments from 25 OECD countries to 96 developing countries and 46 high-income countries for the period 2003-2014 and applies Poisson Pseudo-Maximum Likelihood (PPML) estimation to the gravity model.

For the identification of “within-country variation” effects of host country-specific institutional and policy factors, we account for host-country fixed effects and source country period-fixed effects as well as period fixed effects. For the identification of bilateral pair-specific policy factors, we account for host-country period-fixed effects and source country period-fixed effects as well as bilateral fixed effects.

Among the three sets of host country-specific governance/policy factors, we find that the quality of local governance is the most important factor for both greenfield and M&A investments to developing countries, whereas FDI restrictive policies of developing countries are not significant factors in restricting FDI inflows to these countries. Specifically, governance quality of host countries has a significant effect on both greenfield and M&A

investment flows to both developing and high-income countries. The effect of governance quality of host countries on both modes is greater in developing host countries than in high-income host countries. When host countries are developing countries, the effect of governance quality is greater for greenfield investment than M&A investment. Thus, countries wishing to attract a greater amount of foreign investments should improve the quality of local governance.

Among various governance factors, “regulatory quality”, “rule of law”, “government effectiveness”, “control of corruption”, and “political stability” of host developing countries appear to be particularly important for MNEs’ decision on greenfield investment to developing countries. “Voice and accountability”, “political stability”, “rule of law”, and control of corruption” are also important governance factors for M&A investment in developing countries.

We also find that an improvement in host country’s environment for doing business may have a positive effect on greenfield investment only when the host country’s governance quality is very low. Among the various factors of local business environments, dealing with business construction”, “paying taxes”, and “enforcing contracts” may have a positive effect on greenfield investments only when the host country’s governance quality is very low. For M&A investment, this relation is evident with ease of “getting credit”.

Among the pair-specific policy factors, regional trade agreements have a significantly positive impact on greenfield investment flows to developing countries, while bilateral investment treaties do not exert any positive effect either on greenfield investment or M&A investment.

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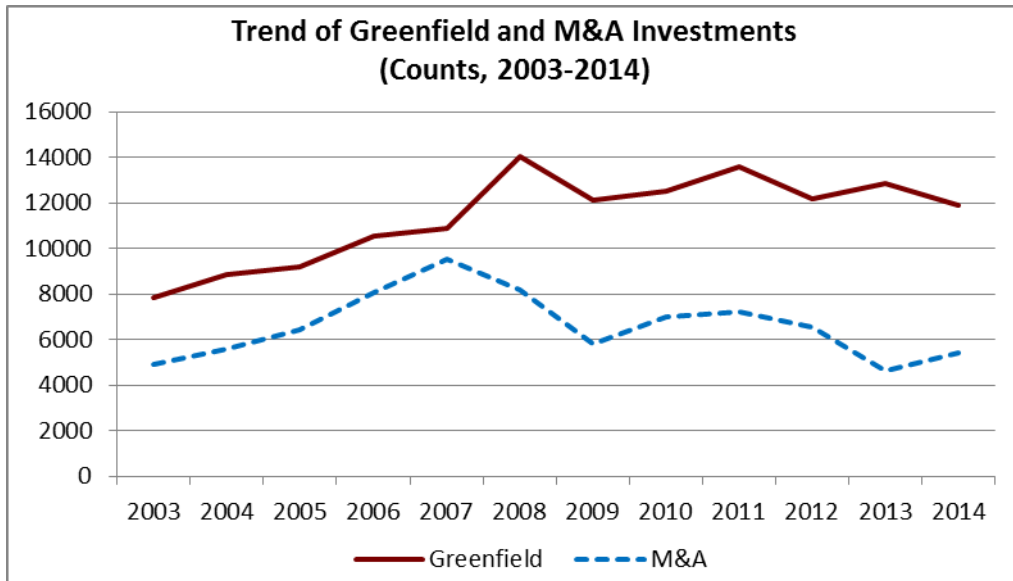
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**Figure 1: Trend of Greenfield and M&A Investments (Counts, 2003-2014)**

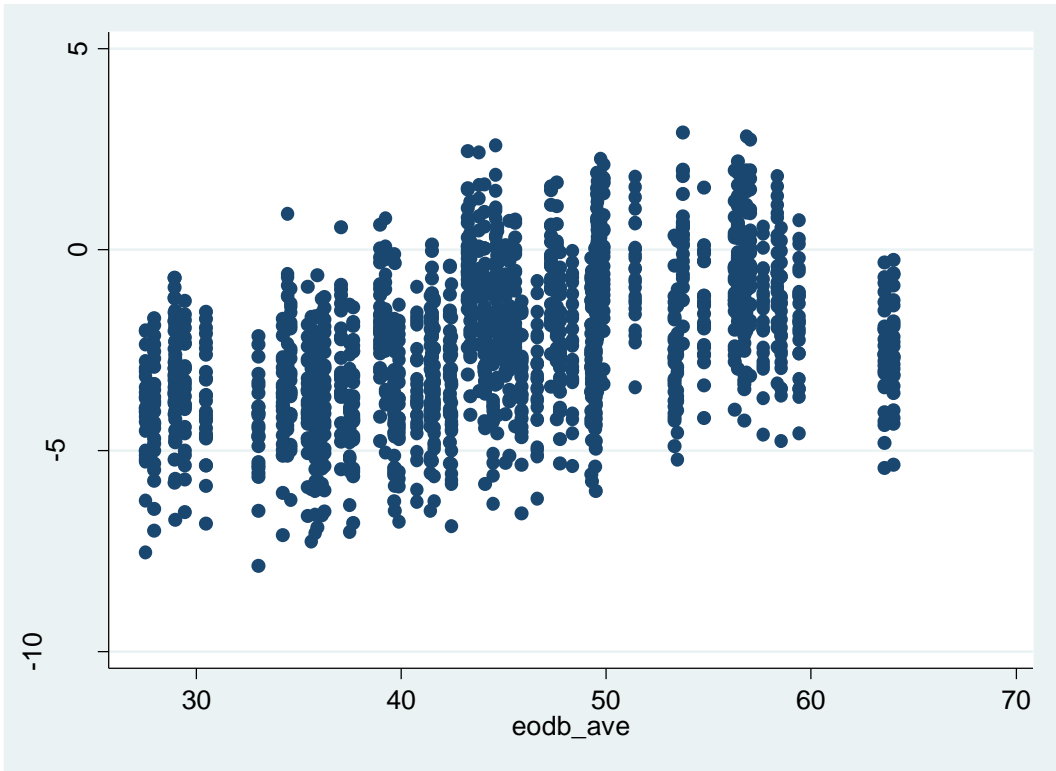


Source: Authors' calculation using data from fDi Intelligence (Financial Times Ltd.) for greenfield investment and from the Thomson-Reuters SDC Platinum Database for M&A investment.

**Figure 2: Predicted number of greenfield investment due to overall EoDB: Developing**

**countries**

A: Bottom quartile (overall WGI < 34.70834)



B: Others (overall WGI > 34.70834)

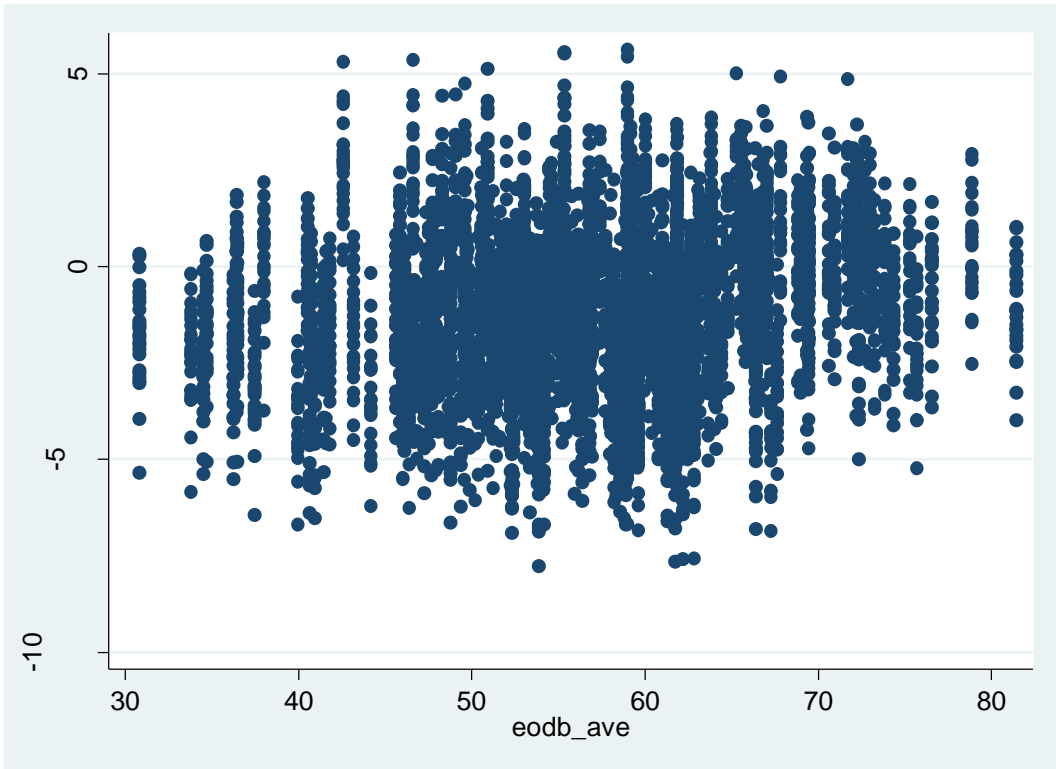


Table 1A: Total Greenfield Investment, during 2003-2014					
Ranking	Home	Counts	Share (%)	Value (Million US\$)	Share (%)
1	United States	37,358	27.4	1,791,824	24.8
2	Germany	15,567	11.4	728,435	10.1
3	United Kingdom	14,840	10.9	677,578	9.4
4	Japan	11,590	8.5	744,845	10.3
5	France	9,875	7.2	546,680	7.6
6	Spain	5,762	4.2	315,551	4.4
7	Switzerland	5,124	3.8	222,909	3.1
8	Italy	4,708	3.4	244,975	3.4
9	Netherlands	4,489	3.3	298,444	4.1
10	Canada	4,299	3.1	341,305	4.7
11	Sweden	3,762	2.8	147,347	2.0
12	South Korea	2,735	2.0	286,262	4.0
13	Austria	2,574	1.9	115,022	1.6
14	Australia	2,160	1.6	177,940	2.5
15	Denmark	1,945	1.4	86,419	1.2
16	Finland	1,851	1.4	82,303	1.1
17	Belgium	1,711	1.3	67,705	0.9
18	Ireland	1,614	1.2	71,962	1.0
19	Norway	1,217	0.9	81,253	1.1
20	Luxembourg	1,039	0.8	64,549	0.9
21	Portugal	707	0.5	48,902	0.7
22	Greece	531	0.4	27,569	0.4
23	New Zealand	451	0.3	13,410	0.2
24	Czech Republic	413	0.3	20,756	0.3
25	Iceland	156	0.1	12,467	0.2
	Total	136,478	100.0	7,216,412	100.0

Table 1B: Total M&A Investment, during 2003-2014					
Ranking	Home	Counts	Share (%)	Value (Million US\$)	Share (%)
1	United States	20,139	25.8	1,597,167	23.9
2	United Kingdom	9,928	12.7	890,978	13.3
3	Canada	7,881	10.1	456,839	6.8
4	Germany	4,955	6.3	478,720	7.2
5	France	4,708	6.0	538,001	8.0
6	Netherlands	3,572	4.6	421,782	6.3
7	Australia	3,535	4.5	228,173	3.4
8	Japan	3,417	4.4	335,765	5.0
9	Sweden	2,938	3.8	139,474	2.1
10	Switzerland	2,808	3.6	349,689	5.2
11	Spain	1,749	2.2	313,970	4.7
12	Italy	1,496	1.9	197,129	2.9
13	Austria	1,341	1.7	57,491	0.9
14	Norway	1,329	1.7	77,233	1.2
15	Belgium	1,216	1.6	167,679	2.5
16	Denmark	1,215	1.6	56,673	0.8
17	Finland	1,166	1.5	46,679	0.7
18	Luxembourg	1,117	1.4	96,620	1.4
19	Ireland	1,058	1.4	77,706	1.2
20	South Korea	998	1.3	71,673	1.1
21	New Zealand	421	0.5	24,654	0.4
22	Iceland	309	0.4	18,466	0.3
23	Portugal	299	0.4	18,288	0.3
24	Greece	262	0.3	15,710	0.2
25	Czech Republic	235	0.3	11,543	0.2
	Total	78,092	100.0	6,688,104	100.0

Source: Authors' calculation using data from fDi Intelligence (Financial Times Ltd.) for greenfield investment and from the Thomson-Reuters SDC Platinum Database for M&A investment.

Table 2A: Top 25 Hosts of Greenfield Investment, during 2003-2014					
Ranking	Host	Counts	Share (%)	Value (Million US\$)	Share (%)
1	China	13,319	9.8	882,577	12.2
2	United States	12,355	9.1	531,049	7.4
3	United Kingdom	9,057	6.6	334,993	4.6
4	India	7,730	5.7	360,376	5.0
5	Germany	6,062	4.4	148,692	2.1
6	France	4,976	3.6	134,847	1.9
7	Spain	4,062	3.0	153,544	2.1
8	Russia	3,984	2.9	245,417	3.4
9	Brazil	3,279	2.4	293,823	4.1
10	Poland	3,240	2.4	149,216	2.1
11	Singapore	3,100	2.3	118,602	1.6
12	Mexico	3,075	2.3	215,841	3.0
13	Canada	3,036	2.2	208,853	2.9
14	UAE	2,852	2.1	77,429	1.1
15	Australia	2,740	2.0	212,741	2.9
16	Romania	2,605	1.9	124,848	1.7
17	Hong Kong	1,969	1.4	51,133	0.7
18	Ireland	1,953	1.4	67,912	0.9
19	Japan	1,827	1.3	61,981	0.9
20	Hungary	1,805	1.3	62,553	0.9
21	Thailand	1,789	1.3	73,828	1.0
22	Vietnam	1,760	1.3	149,040	2.1
23	Italy	1,752	1.3	85,513	1.2
24	Netherlands	1,652	1.2	67,532	0.9
25	Czech Republic	1,619	1.2	49,606	0.7
	Total (25 hosts)	101,598	74.4	4,861,947	67.4
	Total (199 hosts)	136,478	100.0	7,216,412	100.0

Table 2B: Top 25 Hosts of M&A Investment, during 2003-2014					
Ranking	Host	Counts	Share (%)	Value (Million US\$)	Share (%)
1	United States	9,520	12.0	1,250,069	18.5
2	United Kingdom	6,805	8.6	878,100	13.0
3	Germany	5,628	7.1	420,250	6.2
4	Canada	4,391	5.5	315,777	4.7
5	France	3,437	4.3	296,343	4.4
6	Australia	2,891	3.6	197,961	2.9
7	China	2,877	3.6	99,294	1.5
8	Spain	2,228	2.8	223,712	3.3
9	India	2,149	2.7	109,440	1.6
10	Netherlands	2,115	2.7	290,915	4.3
11	Sweden	2,082	2.6	135,978	2.0
12	Italy	2,067	2.6	208,358	3.1
13	Brazil	1,697	2.1	143,912	2.1
14	Switzerland	1,504	1.9	180,944	2.7
15	Russia	1,445	1.8	87,219	1.3
16	United States	1,398	1.8	264,491	3.9
17	Norway	1,384	1.7	83,160	1.2
18	Belgium	1,317	1.7	135,498	2.0
19	Denmark	1,287	1.6	55,713	0.8
20	Mexico	1,232	1.6	84,252	1.2
21	Poland	1,000	1.3	52,144	0.8
22	Finland	980	1.2	45,440	0.7
23	Hong Kong	922	1.2	48,496	0.7
24	New Zealand	866	1.1	24,182	0.4
25	Japan	865	1.1	72,826	1.1
	Total (25 hosts)	62,087	78.2	5,704,475	84.2
	Total (175 hosts)	79,422	100.0	6,771,536	100.0

Source: Authors' calculation using data from fDi Intelligence (Financial Times Ltd.) for greenfield investment and from the Thomson-Reuters SDC Platinum Database for M&A investment.

Table 3A: Top 25 Bilateral Greenfield Investment, during 2003-2014				
Ranking	Home	Host	Counts	Value (Million US\$)
1	United States	China	4,247	257,032
2	United States	United Kingdom	4,051	120,847
3	United States	India	3,096	109,971
4	United Kingdom	United States	2,341	71,759
5	Japan	China	2,312	142,244
6	United States	Germany	1,778	43,232
7	United States	Canada	1,765	110,455
8	Germany	United States	1,761	70,473
9	Japan	United States	1,506	78,366
10	United States	France	1,411	32,569
11	Germany	China	1,359	123,266
12	Canada	United States	1,309	51,902
13	United States	Mexico	1,281	85,487
14	United States	Singapore	1,096	40,530
15	United States	Australia	1,038	52,729
16	United States	Brazil	1,034	78,365
17	France	United States	1,021	43,985
18	United Kingdom	China	995	56,020
19	United Kingdom	India	924	53,396
20	United States	Ireland	880	36,174
21	United States	Japan	873	32,621
22	United States	UAE	858	20,871
23	Germany	United Kingdom	848	38,233
24	France	China	832	52,866
25	Japan	Thailand	824	30,127
Total			39,440	1,833,519

Table 3B: Top 25 Bilateral M&A Investment, during 2003-2014				
Ranking	Home	Host	Counts	Value (Million US\$)
1	Canada	United States	3,469	227,840
2	United States	Canada	3,163	196,798
3	United States	United Kingdom	3,127	285,213
4	United Kingdom	United States	1,738	203,847
5	United States	Germany	1,459	151,899
6	United States	China	1,123	44,464
7	United States	Australia	1,023	68,741
8	United States	India	923	30,665
9	United States	France	878	83,292
10	United Kingdom	Germany	840	67,349
11	Australia	United States	655	74,658
12	United States	Brazil	619	27,242
13	Switzerland	Germany	591	15,494
14	United Kingdom	Australia	575	29,805
15	United Kingdom	France	574	50,299
16	United States	Netherlands	552	120,826
17	Canada	Mexico	534	3,309
18	Japan	United States	529	106,224
19	Australia	New Zealand	511	16,841
20	Germany	United States	493	88,481
21	France	United States	485	94,797
22	Canada	United States	478	47,024
23	United States	Spain	476	35,294
24	Sweden	Norway	457	16,570
25	Japan	China	429	6,003
Total			25,701	2,092,976

Source: Authors' calculation using data from fDi Intelligence (Financial Times Ltd.) for greenfield investment and from the Thomson-Reuters SDC Platinum Database for M&A investment.



<b>Table 4. Highest- and Lowest-ranking countries for Governance and FDI-related policies</b>				
		Worldwide Governance Indicators	Ease of Doing Business	Regulatory Restrictiveness Index
Developing countries	Highest	Chile (73.2)	Malaysia (73.8)	China (46.2)
		Mauritius (65.5)	Lithuania (73.8)	India (32.6)
		Botswana (64.5)	Latvia (73.1)	Malaysia (32.4)
		Lithuania (64.4)	Georgia (72.2)	Indonesia (32.1)
		Uruguay (63.3)	Mauritius (70.8)	Jordan (29.9)
	Lowest	Chad (23.6)	Guinea (36.2)	Costa Rica (4.9)
		Sudan (19.4)	Venezuela, RB (35.7)	Latvia (4.0)
		Iraq (18.8)	Congo, Dem. Rep. (31.0)	Lithuania (3.6)
		Myanmar (17.8)	Libya (28.9)	Colombia (2.6)
		Congo, Dem. Rep. (17.5)	Chad (28.6)	Romania (0.8)
High-income countries	Highest	Finland (88.0)	Singapore (91.9)	Saudi Arabia (34.9)
		Denmark (86.7)	New Zealand (89.8)	New Zealand (24.0)
		Sweden (85.3)	Hong Kong (87.6)	Canada (21.9)
		New Zealand (85.2)	United States (84.9)	Australia (18.5)
		Switzerland (84.4)	Ireland (84.6)	Italy (16.7)
	Lowest	Kuwait (53.5)	Greece (59.7)	Netherlands (1.8)
		Trinidad and Tobago (53.1)	Trinidad and Tobago (59.3)	Czech Republic (1.7)
		Bahrain (52.4)	Brunei Darussalam (58.9)	Portugal (1.6)
		Saudi Arabia (43.0)	Croatia (57.0)	Slovenia (1.3)
		Equatorial Guinea (25.5)	Equatorial Guinea (43.1)	Luxembourg (0.4)
Note: Numbers in parentheses refer to the scores.				

**Table 5: Effects of World Banks' World Governance Index on FDI**

	Developing countries				High-income countries			
	Number of greenfield projects		Number of M&A deals		Number of greenfield projects		Number of M&A deals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Spec1	Spec2	Spec 1	Spec2	Spec 1	Spec 2	Spec 1	Spec 2
<i>Overall World Governance Index - host (expected sign = plus)</i>	0.048*** (0.004)	0.049*** (0.007)	0.045*** (0.006)	0.024*** (0.008)	0.031*** (0.005)	0.005 (0.008)	0.050*** (0.006)	-0.001 (0.007)
<i>RTA between source and host (= 1 if yes)</i>	0.028 (0.114)	0.307*** (0.104)	-0.061 (0.159)	0.300** (0.139)	-0.019 (0.143)	-0.100 (0.069)	0.184* (0.111)	-0.289*** (0.085)
<i>BIT between source and host (= 1 if yes)</i>	-0.052 (0.085)	-0.159** (0.063)	-0.195** (0.099)	-0.126 (0.119)	0.374*** (0.141)	0.218*** (0.080)	0.059 (0.126)	0.052 (0.113)
<i>lnPopulation- host</i>	0.872*** (0.023)	3.468*** (0.369)	0.793*** (0.042)	3.043*** (0.593)	0.800*** (0.029)	1.187*** (0.246)	0.798*** (0.027)	2.160*** (0.349)
<i>lnPCGDP - host</i>	0.506*** (0.055)	-0.246** (0.101)	0.519*** (0.067)	0.287** (0.136)	0.133 (0.115)	-0.229* (0.139)	0.349** (0.140)	-0.096 (0.118)
<i>Growth Rate - host</i>	0.033*** (0.009)	0.013*** (0.005)	-0.012 (0.015)	-0.009 (0.009)	0.083*** (0.014)	0.047*** (0.008)	0.016 (0.013)	0.000 (0.009)
<i>Inflation Rate - host</i>	-0.019** (0.009)	-0.011 (0.010)	-0.007 (0.009)	-0.014** (0.007)	0.137*** (0.020)	0.053*** (0.009)	0.132*** (0.023)	0.003 (0.013)
<i>lnDistance between source and host</i>	-0.763*** (0.072)	-0.608*** (0.066)	-0.868*** (0.083)	-1.164*** (0.099)	-0.313*** (0.075)	-0.380*** (0.051)	-0.480*** (0.070)	-0.819*** (0.068)
<i>Common language (=1 if yes)</i>	0.623*** (0.124)	0.916*** (0.092)	0.496*** (0.176)	0.788*** (0.182)	0.733*** (0.122)	0.490*** (0.074)	0.888*** (0.112)	0.676*** (0.090)
<i>Contiguity (=1 if yes)</i>	-0.212 (0.253)	0.044 (0.183)	-0.440 (0.314)	-0.795** (0.380)	0.061 (0.178)	0.335*** (0.089)	0.187 (0.161)	0.316*** (0.113)
<i>Constant</i>	-0.230 (0.633)	-0.691 (1.449)	0.050 (0.891)	0.038 (2.241)	0.105 (1.237)	4.908** (2.065)	-2.686* (1.442)	2.068 (2.443)
<i>Fixed Effects</i>								
Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Source country-Period (it)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Host country (j)		Yes		Yes		Yes		Yes
Observation	5229	5129	3458	3458	3704	3704	3319	3319
R-squared	0.802	0.894	0.704	0.765	0.818	0.932	0.896	0.944

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator. 2. Standard errors are in parenthesis are based on clustering by country-pair. 3. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Table 6: Effects of "Sub-indicators of Governance" on FDI**

			(1)	(2)	(3)	(4)	(5)	(6)	(7)
			WGI_ave	Voice and Accountability	Political stability	Government effectiveness	Regulatory quality	Rule of law	Control corruption
Developing countries	greenfield	Spec 1	0.048*** (0.004)	0.017*** (0.003)	0.027*** (0.004)	0.037*** (0.004)	0.049*** (0.004)	0.030*** (0.003)	0.026*** (0.004)
		Spec 2	0.049*** (0.007)	-0.002 (0.004)	0.012*** (0.002)	0.032*** (0.005)	0.036*** (0.005)	0.043*** (0.007)	0.024*** (0.005)
	M&A	Spec 1	0.045*** (0.006)	0.027*** (0.003)	0.018*** (0.004)	0.025*** (0.006)	0.041*** (0.005)	0.023*** (0.006)	0.027*** (0.005)
		Spec 2	0.024*** (0.008)	0.012** (0.005)	0.008** (0.003)	-0.002 (0.008)	0.000 (0.006)	0.036*** (0.009)	0.014** (0.006)
High-income countries	greenfield	Spec 1	0.031*** (0.005)	0.002 (0.005)	0.010** (0.004)	0.032*** (0.004)	0.044*** (0.006)	0.031*** (0.006)	0.025*** (0.003)
		Spec 2	0.005 (0.008)	0.018*** (0.006)	0.016*** (0.004)	-0.005 (0.004)	-0.020*** (0.006)	-0.002 (0.007)	-0.011*** (0.004)
	M&A	Spec 1	0.050*** (0.006)	0.030*** (0.005)	0.006 (0.004)	0.034*** (0.004)	0.054*** (0.006)	0.045*** (0.006)	0.031*** (0.004)
		Spec 2	-0.001 (0.007)	-0.014*** (0.005)	0.005* (0.003)	-0.000 (0.003)	-0.004 (0.005)	-0.005 (0.007)	0.001 (0.004)

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator from the specifications of Table 5, replacing overall World Governance Index (WGI) with each of the components of WGI. 2. Spec 1 includes source country-period fixed effects and period fixed effects, whereas Spec 2 includes source country-period fixed effects as well as host country fixed effects and period fixed effects. 3. Both Spec 1 and Spec 2 also include host country-specific control variables as well as pair-specific control variables as in Table 5. 4. Standard errors are in parenthesis are based on clustering by country-pair. 5. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Table 7: Effects of World Bank's Ease of Doing Business Index on FDI**

	Developing countries				High-income countries			
	Number of greenfield projects		Number of M&A deals		Number of greenfield projects		Number of M&A deals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Spec1	Spec2	Spec 1	Spec2	Spec 1	Spec 2	Spec 1	Spec 2
<i>Overall Ease of Doing Business Index - host (expected sign = plus)</i>	0.014** (0.006)	-0.026*** (0.007)	0.003 (0.007)	-0.008 (0.012)	0.019*** (0.007)	-0.057*** (0.008)	0.023*** (0.007)	-0.011* (0.006)
<i>Overall World Governance Index - host (expected sign = plus)</i>	0.037*** (0.004)	0.080*** (0.010)	0.045*** (0.007)	0.034*** (0.013)	0.015** (0.008)	0.031*** (0.010)	0.030*** (0.008)	0.030*** (0.008)
<i>RTA between source and host (= 1 if yes)</i>	-0.078 (0.095)	0.345*** (0.107)	-0.045 (0.158)	0.346** (0.145)	-0.028 (0.129)	-0.112 (0.073)	0.141 (0.104)	-0.348*** (0.095)
<i>BIT between source and host (= 1 if yes)</i>	-0.166** (0.081)	-0.161** (0.069)	-0.240** (0.108)	-0.126 (0.128)	0.367** (0.149)	0.217*** (0.084)	0.022 (0.119)	0.026 (0.117)
<i>InPopulation- host</i>	0.786*** (0.022)	5.427*** (0.602)	0.798*** (0.045)	4.215*** (0.828)	0.788*** (0.031)	0.700*** (0.270)	0.755*** (0.030)	1.227*** (0.321)
<i>InPCGDP - host</i>	0.366*** (0.050)	-0.120 (0.140)	0.529*** (0.071)	0.064 (0.178)	0.316** (0.130)	-0.192 (0.156)	0.419*** (0.141)	-0.499*** (0.116)
<i>Growth Rate - host</i>	0.035*** (0.011)	-0.003 (0.008)	-0.016 (0.018)	-0.025** (0.013)	0.092*** (0.016)	0.021** (0.010)	0.000 (0.016)	0.004 (0.010)
<i>Inflation Rate - host</i>	-0.022*** (0.008)	-0.013* (0.007)	-0.000 (0.011)	0.006 (0.011)	0.161*** (0.021)	0.020 (0.013)	0.127*** (0.023)	-0.000 (0.013)
<i>InDistance between source and host</i>	-0.607*** (0.062)	-0.572*** (0.069)	-0.862*** (0.086)	-1.157*** (0.103)	-0.346*** (0.071)	-0.373*** (0.051)	-0.510*** (0.068)	-0.832*** (0.068)
<i>Common language (=1 if yes)</i>	0.537*** (0.122)	0.852*** (0.090)	0.476*** (0.181)	0.789*** (0.186)	0.612*** (0.117)	0.481*** (0.074)	0.802*** (0.109)	0.691*** (0.088)
<i>Contiguity (=1 if yes)</i>	0.121 (0.197)	0.061 (0.165)	-0.521 (0.324)	-0.926** (0.397)	0.133 (0.182)	0.351*** (0.090)	0.239 (0.149)	0.298*** (0.109)
<i>Constant</i>	-0.341 (0.561)	-9.480*** (1.926)	-0.299 (0.939)	-1.484 (2.479)	-1.796 (1.344)	10.415*** (2.206)	-3.300** (1.431)	10.604*** (2.139)
<i>Fixed Effects</i>								
Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Source country-Period (it)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Host country (j)		Yes		Yes		Yes		Yes
Observation	3893	3893	2626	2622	2704	2704	2448	2448
R-squared	0.836	0.911	0.710	0.773	0.824	0.941	0.908	0.950

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator. 2. Standard errors are in parenthesis are based on clustering by country-pair. 3. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Table 8. Effects of “Sub-indicators of EoDB” on FDI**

			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			EoDB_ave	Starting business	Dealing with business construction	Registering property	Getting credit	Protecting minority investors	Paying taxes	Trading across borders	Enforcing contracts	Resolving insolvency
Developing countries	greenfield	Spec 1	0.014** (0.006)	0.001 (0.003)	-0.003 (0.003)	0.014*** (0.003)	0.007*** (0.002)	-0.001 (0.004)	-0.001 (0.002)	0.003 (0.003)	0.008** (0.003)	0.003 (0.002)
		Spec 2	-0.026*** (0.007)	-0.003 (0.003)	-0.007** (0.003)	-0.004 (0.003)	-0.006*** (0.002)	-0.007** (0.003)	-0.003 (0.002)	-0.008** (0.003)	-0.023** (0.011)	0.005 (0.004)
	M&A	Spec 1	0.003 (0.007)	-0.004 (0.004)	-0.003 (0.004)	0.005 (0.004)	0.006** (0.003)	0.012*** (0.004)	0.002 (0.003)	-0.007** (0.003)	-0.001 (0.004)	-0.004 (0.004)
		Spec 2	-0.008 (0.012)	0.000 (0.005)	-0.012** (0.005)	-0.003 (0.004)	-0.001 (0.003)	0.010* (0.006)	-0.003 (0.004)	0.002 (0.006)	-0.001 (0.017)	0.000 (0.008)
High-income countries	greenfield	Spec 1	0.019*** (0.007)	0.003 (0.004)	0.006 (0.004)	0.001 (0.003)	0.011*** (0.003)	0.003 (0.003)	0.015*** (0.004)	0.026*** (0.009)	0.009* (0.005)	-0.004* (0.002)
		Spec 2	-0.057*** (0.008)	-0.013*** (0.004)	-0.002 (0.002)	-0.022*** (0.002)	-0.011** (0.005)	0.009 (0.009)	-0.006 (0.004)	-0.042*** (0.010)	-0.058*** (0.007)	-0.006*** (0.002)
	M&A	Spec 1	0.023*** (0.007)	0.012** (0.005)	0.004 (0.004)	0.010*** (0.003)	0.011*** (0.002)	0.004* (0.003)	0.005 (0.003)	0.006 (0.009)	-0.004 (0.004)	-0.001 (0.002)
		Spec 2	-0.011* (0.006)	0.001 (0.003)	-0.005** (0.003)	-0.002 (0.002)	-0.001 (0.004)	-0.006 (0.008)	0.003 (0.003)	0.006 (0.005)	-0.003 (0.006)	-0.005** (0.002)

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator from the specifications of Table 7, replacing Overall Ease of Doing Business Index (EoDB) with each of the components of EoDB. 2. Spec 1 includes source country-period fixed effects and period fixed effects, whereas Spec 2 includes source country-period fixed effects as well as host country fixed effects and period fixed effects. 3. Both Spec 1 and Spec 2 also include host country-specific control variables as well as pair-specific control variables as in Table 5. 4. Standard errors in parenthesis are based on clustering by country-pair. 5. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Table 9: Interaction effects of EoDB and WGI on FDI flows to developing countries**

			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			EoDB_ave	Starting business	Dealing with business construction	Registering property	Getting credit	Protecting minority investors	Paying taxes	Trading across borders	Enforcing contracts	Resolving insolvency
greenfield	Spec 1	EoDB	0.090*** (0.022)	0.005 (0.017)	0.015 (0.012)	0.078*** (0.012)	0.009 (0.008)	0.004 (0.015)	0.049*** (0.009)	0.009 (0.009)	0.081*** (0.016)	0.005 (0.010)
		EoDB*WGI_ave	-0.002*** (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.001*** (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.001*** (0.000)	-0.000 (0.000)	-0.002*** (0.000)	-0.000 (0.000)
		WGI_ave	0.135*** (0.025)	0.047* (0.027)	0.069*** (0.017)	0.147*** (0.017)	0.031*** (0.010)	0.047*** (0.015)	0.122*** (0.013)	0.047*** (0.013)	0.149*** (0.021)	0.050*** (0.008)
	Spec 2	EoDB	0.002 (0.018)	0.013 (0.011)	0.025** (0.012)	0.005 (0.015)	-0.000 (0.007)	0.013 (0.024)	0.030*** (0.011)	-0.018 (0.014)	0.118*** (0.029)	0.007 (0.019)
		EoDB*WGI_ave	-0.001* (0.000)	-0.000* (0.000)	-0.001** (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.001)	-0.001*** (0.000)	0.000 (0.000)	-0.003*** (0.000)	-0.000 (0.000)
		WGI_ave	0.131*** (0.026)	0.119*** (0.019)	0.132*** (0.020)	0.106*** (0.025)	0.107*** (0.015)	0.121*** (0.033)	0.132*** (0.019)	0.074*** (0.022)	0.236*** (0.025)	0.097*** (0.018)
M&A	Spec 1	EoDB	0.067*** (0.022)	0.035** (0.014)	-0.005 (0.013)	0.066*** (0.013)	0.032*** (0.011)	0.011 (0.014)	0.032*** (0.011)	0.008 (0.010)	0.069*** (0.017)	0.011 (0.014)
		EoDB*WGI_ave	-0.001*** (0.000)	-0.001*** (0.000)	0.000 (0.000)	-0.001*** (0.000)	-0.001** (0.000)	0.000 (0.000)	-0.001*** (0.000)	-0.000 (0.000)	-0.002*** (0.000)	-0.000 (0.000)
		WGI_ave	0.126*** (0.027)	0.109*** (0.024)	0.043** (0.021)	0.141*** (0.019)	0.069*** (0.014)	0.038** (0.017)	0.089*** (0.017)	0.073*** (0.015)	0.142*** (0.023)	0.054*** (0.012)
	Spec 2	EoDB	0.028 (0.032)	0.022 (0.015)	-0.016 (0.017)	-0.003 (0.022)	0.024** (0.011)	0.026 (0.032)	0.020 (0.020)	0.020 (0.021)	-0.019 (0.040)	-0.001 (0.029)
		EoDB*WGI_ave	-0.001 (0.001)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.001** (0.000)	-0.000 (0.001)	-0.001 (0.000)	-0.000 (0.000)	0.000 (0.001)	0.000 (0.001)
		WGI_ave	0.078** (0.039)	0.066*** (0.024)	0.032 (0.023)	0.035 (0.030)	0.069*** (0.019)	0.057 (0.042)	0.060** (0.026)	0.063** (0.030)	0.020 (0.037)	0.035 (0.022)

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator from the specifications of Table 7, replacing Overall Ease of Doing Business Index (EoDB) with each of the components of EoDB. 2. Spec 1 includes source country-period fixed effects and period fixed effects, whereas Spec 2 includes source country-period fixed effects as well as host country fixed effects and period fixed effects. 3. Both Spec 1 and Spec 2 also include host country-specific control variables as well as pair-specific control variables as in Table 5. 4. Standard errors in parenthesis are based on clustering by country-pair. 5. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Table 10: Effects of OECD's FDI Regulatory Restrictiveness Index on FDI**

	Developing countries				High-income countries			
	Number of greenfield projects		Number of M&A deals		Number of greenfield projects		Number of M&A deals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Spec1	Spec2	Spec 1	Spec2	Spec 1	Spec 2	Spec 1	Spec 2
<i>Overall FDI Regulatory Restrictiveness Index - host (expected sign = minus)</i>	0.022*** (0.003)	0.018*** (0.005)	0.002 (0.007)	0.013* (0.007)	-0.029*** (0.005)	-0.016** (0.008)	0.003 (0.007)	0.005 (0.005)
<i>Overall World Governance Index - host (expected sign = plus)</i>	0.031*** (0.005)	0.077*** (0.010)	0.030*** (0.009)	0.020* (0.010)	0.030*** (0.005)	0.006 (0.008)	0.045*** (0.007)	0.004 (0.006)
<i>RTA between source and host (= 1 if yes)</i>	-0.179* (0.099)	0.190* (0.113)	-0.035 (0.187)	0.361* (0.193)	-0.071 (0.097)	-0.176** (0.087)	0.142 (0.106)	-0.298*** (0.092)
<i>BIT between source and host (= 1 if yes)</i>	-0.307*** (0.075)	-0.206*** (0.079)	-0.300** (0.142)	-0.057 (0.159)	0.003 (0.115)	0.110 (0.118)	-0.048 (0.149)	-0.083 (0.140)
<i>lnPopulation- host</i>	0.688*** (0.033)	4.018*** (0.679)	0.800*** (0.051)	5.032*** (1.165)	0.878*** (0.032)	3.506*** (1.025)	0.801*** (0.029)	3.382*** (0.532)
<i>lnPCGDP - host</i>	0.504*** (0.058)	-0.398*** (0.120)	0.574*** (0.088)	0.438*** (0.151)	-0.079 (0.099)	-0.401*** (0.117)	0.442*** (0.167)	-0.135 (0.103)
<i>Growth Rate - host</i>	-0.006 (0.012)	-0.012 (0.011)	-0.046* (0.026)	-0.031* (0.017)	0.083*** (0.016)	0.083*** (0.009)	0.017 (0.016)	-0.005 (0.009)
<i>Inflation Rate - host</i>	0.007 (0.011)	-0.022* (0.013)	-0.001 (0.016)	-0.032*** (0.009)	0.218*** (0.030)	0.024 (0.016)	0.199*** (0.029)	0.010 (0.014)
<i>lnDistance between source and host</i>	-0.626*** (0.065)	-0.587*** (0.071)	-0.937*** (0.101)	-1.235*** (0.123)	-0.381*** (0.060)	-0.436*** (0.058)	-0.511*** (0.073)	-0.824*** (0.075)
<i>Common language (=1 if yes)</i>	0.856*** (0.132)	0.867*** (0.102)	0.739*** (0.213)	0.806*** (0.216)	0.829*** (0.103)	0.531*** (0.077)	0.841*** (0.119)	0.697*** (0.091)
<i>Contiguity (=1 if yes)</i>	-0.057 (0.183)	-0.152 (0.208)	-0.823** (0.362)	-1.123*** (0.430)	0.078 (0.128)	0.279*** (0.092)	0.198 (0.160)	0.307*** (0.118)
<i>Constant</i>	-0.059 (0.704)	-7.454** (3.210)	1.053 (1.251)	-11.214** (5.184)	2.758*** (0.945)	-5.907 (6.083)	-3.121* (1.732)	-4.868 (3.539)
<i>Fixed Effects</i>								
Period(t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Source country-Period (it)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Host country (j)		Yes		Yes		Yes		Yes
Observation	1438	1438	1246	1246	2775	2775	2702	2702
R-squared	0.912	0.942	0.782	0.800	0.890	0.938	0.897	0.945

Notes: 1. Estimates are obtained with Poisson Psuedo-Maximum Likelihood (PPML) estimator. 2. Standard errors are in parenthesis are based on clustering by country-pair. 3. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Table 11: Effects of "Sub-indicators of FDI RRI" on FDI**

			(1)	(2)	(3)	(4)	(5)	
			All types of restrictions	Equity restriction	Screening & approval	Key foreign personnel	Other restrictions	
Developing countries	greenfield	Spec 1	0.022*** (0.003)	0.023*** (0.006)	0.028*** (0.006)	-0.066** (0.028)	0.064*** (0.017)	
		Spec 2	0.018*** (0.005)	0.047*** (0.011)	0.026*** (0.007)	-0.435** (0.176)	-0.055*** (0.017)	
	M&A	Spec 1	0.002 (0.007)	-0.001 (0.010)	-0.016 (0.012)	-0.002 (0.049)	0.124*** (0.017)	
		Spec 2	0.013* (0.007)	0.020 (0.013)	0.015* (0.008)	-0.404** (0.161)	0.013 (0.019)	
	High-income countries	greenfield	Spec 1	-0.029*** (0.005)	-0.048*** (0.008)	-0.032** (0.013)	-0.056* (0.033)	-0.036* (0.018)
			Spec 2	-0.016** (0.008)	0.012 (0.013)	-0.072*** (0.010)	0.002 (0.013)	-0.104** (0.042)
M&A		Spec 1	0.003 (0.007)	-0.014* (0.008)	0.032* (0.017)	-0.030 (0.020)	0.013 (0.017)	
		Spec 2	0.005 (0.005)	0.008 (0.009)	0.000 (0.015)	0.001 (0.006)	0.026 (0.024)	

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator from the specifications of Table 10, replacing Overall FDI Regulatory Restrictiveness Index (RRI) with each of the components of RRI. Spec 1 includes source country-period fixed effects and period fixed effects, whereas Spec 2 includes source country-period fixed effects as well as host country fixed effects and period fixed effects. 3. Both Spec 1 and Spec 2 also include host country-specific control variables as well as pair-specific control variables as in Table 5. 4. Standard errors in parenthesis are based on clustering by country-pair. 5. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.



**Table 12: Interaction effects of RRI and WGI on FDI flows to developing countries**

			(1)	(2)	(3)	(4)	(5)
			Overall RRI: All types of restrictions	Equity restriction	Screening & approval	Key foreign personnel	Other restrictions
greenfield	Spec 1	RRI	-0.015 (0.016)	-0.064** (0.028)	-0.044 (0.041)	0.200 (0.261)	0.379*** (0.088)
		RRI*WGI_ave	0.001** (0.000)	0.002*** (0.001)	0.002* (0.001)	-0.007 (0.007)	-0.008*** (0.002)
		WGI_ave	0.025*** (0.007)	0.015** (0.006)	0.031*** (0.005)	0.026*** (0.007)	0.046*** (0.008)
	Spec 2	RRI	0.072*** (0.021)	0.196*** (0.058)	0.106*** (0.037)	3.409*** (0.816)	-0.897*** (0.260)
		RRI*WGI_ave	-0.001*** (0.000)	-0.003*** (0.001)	-0.002** (0.001)	-0.015* (0.008)	0.013*** (0.005)
		WGI_ave	0.145*** (0.016)	0.150*** (0.019)	0.129*** (0.014)	0.142*** (0.017)	0.085*** (0.019)
M&A	Spec 1	RRI	-0.038 (0.024)	-0.094** (0.045)	-0.063 (0.073)	-1.620*** (0.445)	0.388*** (0.120)
		RRI*WGI_ave	0.001* (0.000)	0.002** (0.001)	0.001 (0.002)	0.040*** (0.011)	-0.005** (0.003)
		WGI_ave	0.022* (0.012)	0.019* (0.011)	0.028*** (0.010)	0.007 (0.012)	0.053*** (0.011)
	Spec 2	RRI	-0.037 (0.032)	-0.265*** (0.082)	-0.011 (0.052)	0.379 (1.037)	-1.016** (0.433)
		RRI*WGI_ave	0.001 (0.001)	0.004*** (0.001)	0.001 (0.001)	0.012 (0.011)	0.018** (0.007)
		WGI_ave	0.030 (0.022)	-0.000 (0.025)	0.045*** (0.017)	0.034 (0.021)	-0.009 (0.029)

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator from the specifications of Table 10, replacing overall FDI Regulatory Restrictiveness Index (RRI) with each of the components of RRI. 2. Spec 1 includes source country-period fixed effects and period fixed effects, whereas Spec 2 includes source country-period fixed effects as well as host country fixed effects and period fixed effects. 3. Both Spec 1 and Spec 2 also include host country-specific control variables as well as pair-specific control variables as in Table 5. 4. Standard errors are in parenthesis are based on clustering by country-pair. 5. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Table 13: Effects of RTA and BIT on FDI**

	Number of Greenfield Investments						Number of M&A projects					
	Developing	High-income	All	All	All	All	Developing	High-income	All	All	All	All
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>RTA (= 1 if yes)</i>	0.095 (0.093)	-0.050 (0.065)	0.109*** (0.041)		0.422*** (0.136)	0.020 (0.047)	0.062 (0.080)	0.082 (0.065)	0.098* (0.051)		-0.173 (0.192)	0.146** (0.072)
<i>BIT (= 1 if yes)</i>	0.041 (0.069)	0.092 (0.091)	0.054 (0.056)		0.055 (0.209)	-0.029 (0.053)	-0.064 (0.098)	0.239 (0.203)	-0.055 (0.094)		-0.553 (0.375)	0.005 (0.110)
<i>RTA * developing host</i>				0.166*** (0.052)						0.128 (0.080)		
<i>RTA * high-income host</i>				0.009 (0.067)						0.265 (0.220)		
<i>BIT * developing host</i>				0.045 (0.061)						-0.102 (0.103)		
<i>BIT * high-income host</i>				0.116 (0.090)						0.265 (0.220)		
<i>RTA * WGI_ave of host</i>					-0.006** (0.002)						0.004 (0.003)	
<i>BIT * WGI_ave of host</i>					-0.000 (0.004)						0.011 (0.008)	
<i>RTA, t-1 (= 1 if yes)</i>						0.101* (0.056)						0.036 (0.086)
<i>BIT, t-1 (= 1 if yes)</i>						0.008 (0.052)						0.083 (0.103)
N	5899	3748	9647	9647	9647	7041	3723	3350	7086	7086	7086	5121
R-sq	0.982	0.994	0.988	0.988	0.988	0.994	0.994	0.995	0.994	0.994	0.994	0.994

Notes: 1. Estimates are obtained with Poisson Psuedo-Maximum Likelihood (PPML) estimator. Spec 2 includes source country-period fixed effects and host country-period fixed effects as well as period fixed effects. 3. Standard errors are in parenthesis are based on clustering by country-pair. 4. a, b, and c indicate the significance levels of 1, 5, and 10 percent, respectively. 4. The non-Aid dummies (NAD) are included but not reported for the sake of brevity.

**Appendix Table 1: List of Developing countries**

Name	ISO	greenfield number	greenfield value	M&A number	WGI	EoDB	RRI
Number of countries		96	96	96	96	96	24
Albania	ALB	76	9,421	39	43.3	57.1	
Algeria	DZA	240	23,090	33	33.3	48.5	
Armenia	ARM	97	2,960	21	45.2	62.6	
Bangladesh	BGD	121	6,050	30	31.4	49.4	
Belize	BLZ	10	190	0	49.7	58.9	
Bolivia	BOL	47	9,713	48	38.8	47.9	
Bosnia-Herzegovina	BIH	175	6,749	3	42.9	51.8	
Botswana	BWA	60	4,394	24	64.5	63.4	
Brazil	BRA	3,279	293,823	1,697	50.5	49.0	10.0
Bulgaria	BGR	1,187	47,327	336	54.0	67.0	
Burkina Faso	BFA	15	2,076	32	43.3	39.2	
Cambodia	KHM	122	6,591	2	33.5	47.6	
Cameroon	CMR	32	12,554	20	32.4	41.2	
Cape Verde	CPV	9	537	0	58.9	53.6	
Chad	ERI	6	283	0	23.6	28.6	
Chile	CHL	699	102,378	550	73.2	68.3	6.0
China	CHN	13,319	882,577	2,877	39.1	54.4	46.2
Colombia	COL	803	51,973	399	40.5	63.4	2.6
Congo (DRC)	COD	46	10,290	0	17.5	31.0	
Costa Rica	CRI	309	10,211	45	61.6	54.0	4.9
Dominican Republic	DOM	146	18,390	56	42.8	59.2	
Ecuador	ECU	86	4,973	87	34.3	56.1	
Egypt	EGY	405	44,697	121	38.2	49.3	8.0
El Salvador	SLV	85	4,406	23	46.8	58.1	
Ethiopia	ETH	44	5,985	12	30.8	45.0	
Fiji	FJI	17	1,118	1	41.9	67.1	
Gabon	GAB	23	7,071	13	39.7	47.9	
Georgia	GEO	138	5,687	0	44.8	72.2	
Ghana	GHA	168	12,309	70	50.7	60.7	
Guatemala	GTM	110	6,619	49	37.7	56.2	
Guinea	GIN	17	2,761	18	25.8	36.2	
Guyana	GUY	7	698	56	42.3	57.9	
Haiti	HTI	14	442	7	25.5	38.4	
Honduras	HND	66	4,739	15	37.9	56.6	
India	IND	7,730	360,376	2,149	44.3	46.7	32.6
Indonesia	IDN	1,014	120,912	528	37.9	54.0	32.1
Iran	IRN	60	10,782	5	29.5	54.8	
Iraq	IRQ	146	31,138	21	18.8	44.8	
Jamaica	JAM	41	2,003	23	49.2	60.8	
Jordan	JOR	142	7,388	27	49.5	52.3	29.9
Kazakhstan	KAZ	268	24,073	131	38.3	56.0	14.9
Kenya	KEN	227	6,662	51	35.9	55.7	
Kyrgyzstan	KGZ	21	4,019	2	32.3	57.8	7.9
Laos	LAO	31	1,683	1	28.7	45.9	
Latvia	LVA	287	9,879	156	63.3	73.1	4.0
Lebanon	LBN	122	2,832	11	37.6	58.0	
Lesotho	LSO	7	511	2	46.7	49.6	
Liberia	TCD	6	1,213	0	29.0	42.9	

Name	ISO	greenfield number	greenfield value	M&A number	WGI	EoDB	RRI
Libya	LBY	72	7,746	8	28.9	28.9	
Lithuania	LTU	404	14,971	225	64.4	73.8	3.6
Madagascar	MDG	32	6,538	23	41.8	46.2	
Malawi	LCA	9	1,298	1	42.9	49.8	
Malaysia	MYS	1,573	86,195	411	56.8	73.8	32.4
Mali	MLI	18	2,370	25	41.8	41.6	
Mauritania	MRT	19	4,794	0	37.9	40.9	
Mauritius	MUS	37	2,258	4	65.5	70.8	
Mexico	MEX	3,075	215,841	1,232	48.1	68.3	22.0
Moldova	MDA	65	1,618	22	41.1	59.0	
Mongolia	MNG	55	4,758	80	47.7	59.4	15.1
Morocco	MAR	616	33,635	88	43.5	58.6	6.7
Mozambique	MOZ	136	21,353	55	43.7	50.3	
Myanmar (Burma)	MMR	178	18,119	6	17.8	41.5	
Namibia	NAM	51	6,125	51	56.2	61.6	
Nepal	NPL	16	719	0	32.5	58.5	
Nicaragua	NIC	57	4,199	39	39.2	53.2	
Niger	NER	4	1,511	4	37.5	37.2	
Nigeria	NGA	278	75,024	72	26.9	43.9	
Pakistan	PAK	193	23,706	55	29.5	55.9	
Panama	PAN	222	18,844	99	51.4	62.9	
Papua New Guinea	PNG	35	10,167	102	35.7	53.7	
Paraguay	PRY	33	1,266	29	34.7	57.2	
Peru	PER	407	50,964	456	43.4	67.0	7.7
Philippines	PHL	979	52,341	284	40.6	50.5	
Romania	ROU	2,605	124,848	510	51.3	64.9	0.8
Russia	RUS	3,984	245,417	1,583	35.6	58.0	24.8
Rwanda	RWA	24	1,015	3	39.3	51.4	
Senegal	SEN	49	3,623	6	45.1	41.8	
Seychelles	SUR	4	267	9	52.6	62.1	
Sierra Leone	SLE	17	2,551	18	33.5	44.0	
Solomon Islands	TCA	2	256	0	37.1	56.0	
South Africa	ZAF	1,039	53,783	744	56.2	69.5	7.9
Sri Lanka	LKA	168	5,281	30	43.4	56.1	
Sudan	STP	5	1,724	0	19.4	47.4	
Suriname	SYC	4	428	1	48.4	40.5	
Swaziland	SWZ	7	324	1	37.7	55.8	
Tanzania	TZA	94	10,214	72	41.9	52.7	
Thailand	THA	1,789	73,828	342	46.4	70.2	
Togo	TGO	7	951	6	30.9	37.8	
Tunisia	TUN	330	17,960	49	48.1	63.5	20.6
Turkey	TUR	1,271	93,017	750	48.4	63.1	13.2
Uganda	UGA	56	9,546	20	38.0	49.6	
Ukraine	UKR	758	34,695	471	39.0	43.1	14.4
Uruguay	URY	121	11,895	62	64.3	57.0	
Venezuela	VEN	145	23,914	54	27.1	35.7	
Vietnam	VNM	1,760	149,040	318	39.3	57.2	
Zambia	ZMB	66	9,453	43	42.7	57.0	
Average		572	38,822	190	41.4	53.6	15.3

Note: Numbers below each variable refer to the number of countries available for the variable.

**Appendix Table 2: List of High-income countries**

Name	ISO	greenfield number	greenfield value	M&A number	WGI	EoDB	RRI
		46	46	46	46	46	32
Australia	AUS	2,740	212,741	2,891	81.8	80.9	18.5
Austria	AUT	978	26,940	810	81.6	75.9	12.8
Bahrain	BHR	289	13,305	15	52.4	66.0	
Belgium	BEL	1,528	52,639	1,317	76.5	73.4	4.2
Brunei	BRN	22	3,044	4	61.1	58.9	
Canada	CAN	3,036	208,853	4,391	82.5	82.7	21.9
Croatia	HRV	386	13,198	193	57.2	57.0	
Cyprus	CYP	77	2,175	175	70.8	68.8	
Czech Republic	CZE	1,619	49,606	755	67.5	62.8	1.7
Denmark	DNK	752	14,158	1,287	86.7	83.4	3.6
Equatorial Guinea	GNQ	12	5,074	0	25.5	43.1	
Estonia	EST	355	9,344	183	70.2	75.0	3.1
Finland	FIN	621	16,616	980	88.0	80.8	6.8
France	FRA	4,976	134,847	3,437	74.0	68.0	4.8
Germany	DEU	6,062	148,692	5,628	79.0	77.9	2.7
Greece	GRC	377	21,845	212	60.7	59.7	4.7
Hong Kong	HKG	1,969	51,133	922	78.4	87.6	
Hungary	HUN	1,805	62,553	445	66.3	65.3	4.5
Iceland	ISL	24	2,363	41	82.8	80.2	11.8
Ireland	IRL	1,953	67,912	872	79.6	84.6	4.7
Israel	ISR	308	17,296	486	61.2	71.5	5.4
Italy	ITA	1,752	85,513	2,067	61.8	65.1	16.7
Japan	JPN	1,827	61,981	865	74.0	77.5	5.6
Kuwait	KWT	141	6,892	9	53.5	60.1	
Luxembourg	LUX	186	4,402	340	83.7	64.9	0.4
Malta	MLT	104	2,422	44	74.1	61.2	
Netherlands	NLD	1,652	67,532	2,115	83.4	75.7	1.8
New Zealand	NZL	359	12,744	866	85.2	89.8	24.0
Norway	NOR	340	17,020	1,384	83.8	82.5	9.0
Oman	OMN	151	14,974	18	55.0	64.8	
Poland	POL	3,240	149,216	1,000	63.2	65.0	7.6
Portugal	PRT	617	42,254	439	71.0	71.3	1.6
Qatar	QAT	412	64,805	17	62.0	68.2	
Saudi Arabia	SAU	682	101,393	76	43.0	63.8	34.9
Singapore	SGP	3,100	118,602	728	79.4	91.9	
Slovakia	SVK	942	46,801	209	64.6	68.9	5.1
Slovenia	SVN	204	6,065	99	69.3	62.1	1.3
South Korea	KOR	1,243	93,900	675	63.9	78.8	14.4
Spain	ESP	4,062	153,544	2,228	68.6	70.0	2.9
Sweden	SWE	980	28,883	2,082	85.3	80.1	6.9
Switzerland	CHE	1,282	28,256	1,504	84.4	73.2	11.9
Trinidad & Tobago	TTO	37	6,512	30	53.1	59.3	
UAE	ARE	2,852	77,429	209	59.8	67.9	
UK	GBR	9,057	334,993	6,805	78.3	84.1	7.0
United States	USA	12,355	531,049	10,918	75.3	84.9	8.9
Average		1,721	70,923	1,328	70.2	71.9	8.5

Note: Numbers below each variable refer to the number of countries available for the variable.

### **Appendix Table 3: World Bank’s Worldwide Governance Indicators (WGI)**

#### **Voice and Accountability**

Capturing perceptions of the extent to which a country’s citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

#### **Political Stability and Absence of Violence/Terrorism**

Capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.

#### **Government Effectiveness**

Capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies.

#### **Regulatory Quality**

Capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

#### **Rule of Law**

Capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

#### **Control of Corruption**

Capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests.

Source: Kaufmann, D., A. Kraay, and M. Mastruzzi (2010), “The Worldwide Governance Indicators: Methodology and Analytical Issues”, Brookings Institution.

## **Appendix Table 4: World Bank's Ease of Doing Business Indicators (EoDB)**

### **Starting a Business**

Procedures to legally start and operate a company (number), time required to complete each procedure (calendar days), cost required to complete each procedure (% of income per capita), and paid-in minimum capita (% of income per capita).

### **Dealing with Construction Permits**

Procedures to legally build a warehouse (number), time required to complete each procedure (calendar days), and cost required to complete each procedure (% of warehouse value).

### **Registering Property**

Procedures to legally transfer title on immovable property (number), time required to complete each procedure (calendar days), and cost required to complete each procedure (% of property value).

### **Getting Credit**

Strength of legal rights index (0-12), depth of credit information index (0-8), credit bureau coverage (% of adults), and credit registry coverage (% of adults).

### **Protecting Minority Investors**

Extent of disclosure index (0-10), extent of directory liability index (0-10), ease of shareholder suits index (0-10), extent of conflict of interest regulation index (0-10), extent of shareholder rights index (0-10), extent of ownership and control index (0-10), extent of corporate transparency index (0-10), and extent of shareholder governance index (0-10).

### **Paying Taxes**

Tax payments for a manufacturing company in a year (number per year adjusted for electronic and joint filing and payment), time required to comply with three major taxes (hours per year), and total tax rate (% of profit before all taxes).

### **Trading Across Borders**

Documentary compliance, border compliance, and domestic transport

### **Enforcing Contracts**

Time required to enforce a contract through the courts (calendar days), cost required to enforce a contract through the courts (% of claim), court structure and proceedings index (0-5), case management index (0-6), court automation index (0-4), alternative dispute resolution index (0-3), and quality of judicial processes index (0-18).

### **Resolving Insolvency**

Time required to recover debt (years), cost required to recover debt (% of debtor's estate), outcome, and recovery rate for secured creditors (cents on the dollar).

Source: <http://www.doingbusiness.org/methodology>

## **Appendix Table 5: OECD's FDI Regulatory Restrictiveness Index (RRI)**

### **Foreign Equity Restrictions**

The scoring makes a difference between a full exclusion of foreign participation, restrictions on majority holdings and limits on full foreign ownership. If no foreign equity is permitted the score is 1 (the sector is closed); if majority foreign control is not allowed the score is 0.5 and if there is a requirement of a domestic minority holding the score is 0.25.

### **Screening and Approval Requirements**

Procedures to legally build a warehouse (number), time required to complete each procedure (calendar days), and cost required to complete each procedure (% of warehouse value).

### **Restrictions on Foreign Key Personnel**

Measures regarding key personnel (directors, managers and other key personnel) are systematically recorded under the transparency list of the NTI. Such measures include economic needs tests for the employment of foreign managers, time bound limits on the employment of foreign managers as well as nationality requirements for members of the board of directors. The scoring rules for these measures have been streamlined. In particular, the requirement that there be some legal representative that resides in the country is quite common and not necessarily as restrictive as rules excluding foreigners from the management/direction of the local enterprise

### **Other Restrictions on the Operation of Foreign Enterprises**

These measures include: (i) Restrictions on the establishment of branches; (ii) The acquisition of land for business purposes, including cases where foreigners may not own property but may sign leases; (iii) Reciprocity clauses in particular sectors; and (iv) Restrictions on profit or capital repatriation.

Source: Kalinova, B. A. Palerm, and S. Thomsen (2010), "OECD's FDI Restrictiveness Index, 2010 Update", OECD Working Papers on International Investment No.2010/03, OECD Publishing.



**Appendix Table 6: Effects of "Sub-indicators of Governance" on greenfield investment (number vs. value)**

			(1)	(2)	(3)	(4)	(5)	(6)	(7)	
			WGI_ave	Voice and Accountability	Political stability	Government effectiveness	Regulatory quality	Rule of law	Control corruption	
Developing countries	greenfield (number)	Spec 1	0.048*** (0.004)	0.017*** (0.003)	0.027*** (0.004)	0.037*** (0.004)	0.049*** (0.004)	0.030*** (0.003)	0.026*** (0.004)	
		Spec 2	0.049*** (0.007)	-0.002 (0.004)	0.012*** (0.002)	0.032*** (0.005)	0.036*** (0.005)	0.043*** (0.007)	0.024*** (0.005)	
	greenfield (value)	Spec 1	0.028*** (0.005)	0.008** (0.004)	0.022*** (0.005)	0.016*** (0.005)	0.027*** (0.005)	0.012*** (0.004)	0.017*** (0.005)	
		Spec 2	0.044*** (0.015)	0.023** (0.009)	0.005 (0.006)	0.032*** (0.012)	0.031*** (0.008)	0.029** (0.013)	0.018* (0.010)	
	High-income countries	greenfield (number)	Spec 1	0.031*** (0.005)	0.002 (0.005)	0.010** (0.004)	0.032*** (0.004)	0.044*** (0.006)	0.031*** (0.006)	0.025*** (0.003)
			Spec 2	0.005 (0.008)	0.018*** (0.006)	0.016*** (0.004)	-0.005 (0.004)	-0.020*** (0.006)	-0.002 (0.007)	-0.011*** (0.004)
greenfield (value)		Spec 1	0.019*** (0.007)	-0.002 (0.004)	0.010*** (0.004)	0.017*** (0.006)	0.028*** (0.007)	0.024*** (0.007)	0.017*** (0.005)	
		Spec 2	0.002 (0.014)	0.020* (0.011)	0.016** (0.007)	-0.005 (0.007)	-0.027** (0.013)	-0.013 (0.014)	-0.011 (0.007)	

Notes: 1. Estimates are obtained with Poisson Psuedo-Maximum Likelihood (PPML) estimator from the specifications of Table 5, replacing overall World Governance Index (WGI) with each of the components of WGI. 2. Spec 1 includes source country-period fixed effects and period fixed effects, whereas Spec 2 includes source country-period fixed effects as well as host country fixed effects and period fixed effects. 3. Both Spec 1 and Spec 2 also include host country-specific control variables as well as pair-specific control variables as in Table 5. 4. Standard errors in parenthesis are based on clustering by country-pair. 5. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Appendix A 6: Effects of "Sub-indicators of Governance" on the value of greenfield investment**

**Appendix Table 7: Effects of "Sub-indicators of EoDB" on greenfield investment (number vs. value)**

			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
			EoDB_ave	Starting business	Dealing with business construction	Registering property	Getting credit	Protecting minority investors	Paying taxes	Trading across borders	Enforcing contracts	Resolving insolvency	
Developing countries	greenfield (number)	Spec 1	0.014** (0.006)	0.001 (0.003)	-0.003 (0.003)	0.014*** (0.003)	0.007*** (0.002)	-0.001 (0.004)	-0.001 (0.002)	0.003 (0.003)	0.008** (0.003)	0.003 (0.002)	
		Spec 2	-0.026*** (0.007)	-0.003 (0.003)	-0.007** (0.003)	-0.004 (0.003)	-0.006*** (0.002)	-0.007** (0.003)	-0.003 (0.002)	-0.008** (0.003)	-0.023** (0.011)	0.005 (0.004)	
	greenfield (value)	Spec 1	-0.001 (0.006)	-0.002 (0.004)	0.005 (0.004)	0.005 (0.004)	0.001 (0.002)	-0.005 (0.005)	-0.005* (0.003)	0.002 (0.004)	0.006 (0.005)	-0.006** (0.003)	
		Spec 2	-0.015 (0.015)	-0.000 (0.006)	0.005 (0.007)	0.001 (0.007)	-0.009** (0.003)	-0.019** (0.008)	0.003 (0.005)	-0.007 (0.007)	0.019 (0.030)	0.006 (0.011)	
	High-income countries	greenfield (number)	Spec 1	0.019*** (0.007)	0.003 (0.004)	0.006 (0.004)	0.001 (0.003)	0.011*** (0.003)	0.003 (0.003)	0.015*** (0.004)	0.026*** (0.009)	0.009* (0.005)	-0.004* (0.002)
			Spec 2	-0.057*** (0.008)	-0.013*** (0.004)	-0.002 (0.002)	-0.022*** (0.002)	-0.011** (0.005)	0.009 (0.009)	-0.006 (0.004)	-0.042*** (0.010)	-0.058*** (0.007)	-0.006*** (0.002)
greenfield (value)		Spec 1	0.025*** (0.006)	0.006 (0.007)	-0.001 (0.004)	0.006*** (0.002)	0.011*** (0.003)	0.008*** (0.003)	0.018*** (0.003)	-0.016 (0.012)	0.002 (0.004)	0.001 (0.002)	
		Spec 2	-0.066*** (0.016)	-0.017*** (0.006)	-0.005 (0.005)	-0.021*** (0.004)	-0.033*** (0.009)	-0.011 (0.027)	0.007 (0.006)	-0.057*** (0.013)	-0.065*** (0.013)	0.005 (0.004)	

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator from the specifications of Table 7, replacing Overall Ease of Doing Business Index (EoDB) with each of the components of EoDB. 2. Spec 1 includes source country-period fixed effects and period fixed effects, whereas Spec 2 includes source country-period fixed effects as well as host country fixed effects and period fixed effects. 3. Both Spec 1 and Spec 2 also include host country-specific control variables as well as pair-specific control variables as in Table 5. 4. Standard errors in parenthesis are based on clustering by country-pair. 5. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Appendix Table 8: Effects of "Sub-indicators of FDI RRI" on greenfield investment (number vs. value)**

			(1)	(2)	(3)	(4)	(5)	
			All types of restrictions	Equity restriction	Screening & approval	Key foreign personnel	Other restrictions	
Developing countries	greenfield (number)	Spec 1	0.022*** (0.003)	0.023*** (0.006)	0.028*** (0.006)	-0.066** (0.028)	0.064*** (0.017)	
		Spec 2	0.018*** (0.005)	0.047*** (0.011)	0.026*** (0.007)	-0.435** (0.176)	-0.055*** (0.017)	
	greenfield (value)	Spec 1	0.014*** (0.005)	0.014* (0.008)	0.004 (0.009)	0.064* (0.035)	0.063*** (0.020)	
		Spec 2	0.015** (0.008)	0.031* (0.017)	0.017* (0.010)	0.171 (0.177)	-0.006 (0.029)	
	High-income countries	greenfield (number)	Spec 1	-0.029*** (0.005)	-0.048*** (0.008)	-0.032** (0.013)	-0.056* (0.033)	-0.036* (0.018)
			Spec 2	-0.016** (0.008)	0.012 (0.013)	-0.072*** (0.010)	0.002 (0.013)	-0.104** (0.042)
greenfield (value)		Spec 1	0.013 (0.010)	-0.001 (0.009)	0.050** (0.024)	-0.013 (0.024)	-0.005 (0.022)	
		Spec 2	0.009 (0.021)	0.009 (0.023)	0.018 (0.049)	-0.020 (0.015)	0.028 (0.093)	

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator from the specifications of Table 10, replacing Overall FDI Regulatory Restrictiveness Index (RRI) with each of the components of RRI. Spec 1 includes source country-period fixed effects and period fixed effects, whereas Spec 2 includes source country-period fixed effects as well as host country fixed effects and period fixed effects. 3. Both Spec 1 and Spec 2 also include host country-specific control variables as well as pair-specific control variables as in Table 5. 4. Standard errors are in parenthesis are based on clustering by country-pair. 5. \*\*\*, \*\*, and \* indicate the significance levels of 1, 5, and 10 percent, respectively.

**Appendix Table 9: Effects of RTA and BIT on greenfield investment (number vs. value)**

	Number of Greenfield Investments						Value of Greenfield Investments					
	Developing	High-income	All	All	All	All	Developing	High-income	All	All	All	All
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
<i>RTA (= 1 if yes)</i>	0.095 (0.093)	-0.050 (0.065)	0.109*** (0.041)		0.422*** (0.136)	0.020 (0.047)	0.294** (0.138)	0.011 (0.145)	0.343*** (0.099)		0.753** (0.307)	0.286** (0.126)
<i>BIT (= 1 if yes)</i>	0.041 (0.069)	0.092 (0.091)	0.054 (0.056)		0.055 (0.209)	-0.029 (0.053)	-0.145 (0.113)	-0.373 (0.540)	-0.174 (0.107)		0.852 (0.584)	-0.188 (0.129)
<i>RTA * developing host</i>				0.166*** (0.052)						0.430*** (0.130)		
<i>RTA * high-income host</i>				0.009 (0.067)						0.178* (0.102)		
<i>BIT * developing host</i>				0.045 (0.061)						-0.150 (0.096)		
<i>BIT * high-income host</i>				0.116 (0.090)						-0.395 (0.533)		
<i>RTA * WGI_ave of host</i>					-0.006** (0.002)						-0.007 (0.005)	
<i>BIT * WGI_ave of host</i>					-0.000 (0.004)						-0.024* (0.014)	
<i>RTA, t-1 (= 1 if yes)</i>						0.101* (0.056)						0.501*** (0.146)
<i>BIT, t-1 (= 1 if yes)</i>						0.008 (0.052)						0.065 (0.097)
N	5899	3748	9647	9647	9647	7041	5899	3748	9647	9647	9647	7041
R-sq	0.982	0.994	0.988	0.988	0.988	0.994	0.957	0.937	0.946	0.947	0.947	0.959

Notes: 1. Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator. Spec 2 includes source country-period fixed effects and host country-period fixed effects as well as period fixed effects. 3. Standard errors are in parenthesis are based on clustering by country-pair. 4. a, b, and c indicate the significance levels of 1, 5, and 10 percent, respectively. 4. The non-Aid dummies (NAD) are included but not reported for the sake of brevity.

