The border effect on mergers and acquisitions[*]

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Abstract

Using a firm-level dataset of more than 500,000 domestic and cross-border mergers and acquisitions (M&As) for 95 countries during the period 1995-2015, we measure the level and evolution of the border effect on M&As. We find that the number and value of M&As between same-country firms is five times larger than between firms of different countries. We show that the border effect on the number and value of M&As remained constant during the period. The border effect on M&As in the European Union is substantially lower than elsewhere. We find that the border effect is lower for large investors and firms operating in the primary industry and utilities.

1 Introduction

Foreign direct investment (FDI) is a pillar of globalization, which allows firms to provide goods and services abroad and to build international supply chains.[1] It is also key to transfer technology and knowledge across borders, fostering productivity and economic growth in host nations (Alfaro et al., 2004; Ashraf et al., 2016; Javorcik et al., 2018) and source nations (Branstetter, 2006; Bertrand and Capron, 2015; Cozza et al., 2015). Therefore, it is crucial to know the size and nature of any barriers that may impede cross-border FDI flows. Such an analysis is especially relevant, since statistics on FDI restrictions are scant and limited to a few countries during a relatively short period.[2]

This paper investigates mergers and acquisitions (M&As) which represented 45% of the global FDI in 2018.[3] We use firm-level data on 500,000 domestic and cross-border M&As in 95 countries during the period 1995-2015 to estimate how national borders reduce the flows of M&As. We find that the number and value of M&As between same-country firms are five times larger than between firms of different countries. We discover no change in the border effect neither for the number, nor for the value of M&As during the sample period. We show that the border effect is reduced by half if the acquirer firm is a large investor. The border effect is also lower in the primary industry and utilities than in services, construction, and manufacturing. Moreover, we estimate the border effect on M&As in the European Union 15 countries (EU15), a region that is highly integrated, both economically and monetarily. We find that the border effect in M&As in the EU15 is much lower than elsewhere, both for the number and value of M&As. We do not find either a reduction in the border effect during the period of analysis.

Our paper contributes to the literature on the border effect. In a seminal paper, McCallum (1995) found that in spite of trade liberalization and cultural similarities between the USA and Canada, trade among Canadian provinces was 22 times higher than between Canadian provinces and US states. Analogous to trade, inward FDI may confront larger barriers than domestic investment, such as (i) an obligation to share the subsidiary's ownership with a local partner; (ii) informal barriers, such as technological differences which limits multinational enterprise's (MNE) capacity to develop its economic activity in the host country; and (iii) collusion among domestic firms to deter the entrance of foreign competitors. In addition, driven by nationalistic sentiment, and/or the fear of losing control of key industries to foreign companies, governments may favor domestic

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[1]According to Cadestin et al. (2018), relying on the OECD's Activity of Multinational Enterprises (AMNE) and the Trade in Value Added (TiVA) databases, multinationals are responsible for 50% of global exports.

[2]For instance, OECD (2020) offers a FDI regulatory restrictiveness index for 69 countries for 1997, 2003, 2006; and the period 2010-2018.

[3]Calculated by the authors based on the available data on greenfield investment and M&As in UNCTAD (2019).

M&As and limit foreign ones (Serdar Dinc and Erel, 2013). MNEs investing abroad must deal with workers' resistance to change and fear of offshoring, as well as adapting to a new culture (Gomes et al., 2013; Seo and Hill, 2005). Similarly, outward FDI is limited in some countries in order to protect employment or to restrict capital going abroad. Barriers to inward and outward FDI can lead to unfinished M&A projects. For example, according to UNCTAD (2019), in 2018 approximately 153,000 million USD worth M&A operations, which represented approximately 16% of total cross-border M&As in that year, were blocked due to competition, national security, or other reasons.[4]

Mayer et al. (2010) analyzed the determinants of French MNE's investment during the period 1992-2002, and found that domestic investment was 2.6 times higher than foreign investment. Umber et al. (2014) analyzed the border effect on cross-border M&As among EU15 countries during the period 1991-2007 and found that, on average, the value of M&As within a specific EU country was six times larger than those across EU countries. They also revealed a reduction in the border effect, but only between 1991 and 1995. We contribute to this literature by using firm-level, instead of country-level, data. Our dataset enables us to control for heterogeneity across firms, which may lead to biased estimates (Helpman et al., 2008). Particularly, Mayer et al. (2010) presented evidence suggesting an inverse relationship between the border effect and a firm's productivity. Additionally, we analyze the border effect on M&As and its evolution not only for EU countries, but also globally. Furthermore, we analyze whether the border effect varies by firm's characteristics and industry.

The remainder of the paper is organized as follows. Section 2 introduces the regression equation used in the empirical analyses. Section 3 explains the database and presents summary statistics. Section 4 provides the regression results. Section 5 discusses some robustness analyses. Finally, Section 6 offers some concluding remarks.

2 Regression equation

We use a gravity equation to estimate the border effect on M&As. This equation has a sound theoretical basis derived from a model of M&As, where heterogeneous firms take control of the existing assets located in a foreign country (Head and Ries, 2008). We estimate the following equation:

$$MA_{fjt} = exp[\alpha Border_{ij} + \beta' X_{ij} + \mu' Z_{ijt} + \gamma_{ft} + \gamma_{jt}] + \epsilon_{fjt} \qquad (1)$$

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[4]UNCTAD (2019) only refers to those M&As whose value was higher than $50 million. The share over total cross-border M&As is calculated based on all M&As transactions recorded in the Eikon Thomson Reuters database.

where MA_{fjt} denotes the number of M&As that acquirer firm f (located in country i) performs in country j at year t. An analogous model is estimated for the value of M&As. $Border_{ij}$ is an indicator variable that turns 1 when i and j are the same country. X_{ij} is a matrix of time-invariant bilateral determinants of FDI, taken from the literature (e.g. di Giovanni, 2005; Head and Ries, 2008; Paniagua and Sapena, 2014; Umber et al., 2014; Garrett, 2016), including distance; having a common land border (contiguity); sharing language, legal system, and religion; and having a former colonial relationship. These variables capture the geographical and cultural distance between the origin country and the destination country. Z_{ijt} is a matrix of time-variant bilateral determinants of M&As: a preferential trade agreement, a bilateral investment treaty, and sharing a currency. We include the preferential trade agreement variable because some researchers suggest a negative relation between reduced trade barriers and FDI, whereas others suggest a positive relation (Head and Ries, 2004; Neary, 2009). Sharing a currency reduces the costs of foreign asset acquisition and profit repatriation. However, a lower exchange-rate risk also promotes trade, which could lower FDI (Garrett, 2016). Finally, bilateral investment treaties should foster M&As, since they lower the expropriation risk and may allow for international arbitration (Desbordes and Vicard, 2009; Colen et al., 2016).

Equation (1) also includes an acquirer firm×year fixed effect (γ_{ft}) and a destination country×year fixed effect (γ_{jt}). The former controls for all time-variant firm-level variables and, in particular, the relative capacity of a MNE to successfully acquire a target firm compared with other potential bidders. The latter controls for all time-variant destination-level variables, e.g. GDP, institutional quality, and market capitalization.[5] These fixed effects also absorb the multilateral resistances of the origin and destination countries, which control for the fact that bilateral barriers to M&As depend on how attractive the origin and destination country are relative to other countries (Anderson and van Wincoop, 2003; Head and Ries, 2008). ϵ_{fjt} is the disturbance term.

We define all indicator variables (language, contiguity, religion, legal system, shared colonial past, preferential trade agreement, investment treaty, and currency) to turn one when the origin and destination countries are the same. Hence, the exponent of α measures the number of M&As in the domestic country relative to that in a foreign country that is at the same distance as the domestic market, shares the same language, land border, legal system, religion, and currency, has a common colonial past, and with whom it has signed a preferential trade and investment agreements.

Following Bergstrand et al. (2015), in order to estimate the *change* in the border

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[5]Notice that the acquirer firm×year fixed effect also controls for the source country's time-variant characteristics.

effect, we regress the following equation:

$$MA_{fjt} = exp[\alpha(Border_{ij} * D_t) + \beta^{'}(X_{ij} * D_t) + \mu^{'}Z_{ijt} + \gamma_{ft} + \gamma_{jt} + \gamma_{ij}] + \epsilon_{fjt} \qquad (2)$$

$Border_{ij}$ and the remainder time-invariant bilateral variables (X_{ij}: distance, contiguity, language, legal system, religion, and colony) are multiplied by a dummy variable D_t that turns one when the observation belongs to year t. Equation (2) also includes an origin country ×destination country fixed effect (γ_{ij}), which controls for all time-invariant factors that influence M&As between country i and j. Hence, α measures now the difference between the border effect in year t and the base year. Likewise, the coefficients included in $\beta^{'}$ measure the difference between the effect of each of the remainder time-invariant bilateral variables in year t and the base year. The inclusion of γ_{ij} in the regression equation also addresses the potential endogeneity between bilateral trade agreements, investment treaties, and sharing a currency with M&As (Baier and Bergstrand, 2009; de Sousa and Lochard, 2011; Bergstrand and Egger, 2013).

3   Data

Domestic and cross-border M&As are obtained from Eikon Thomson Reuters. Our database covers the period 1995-2015 and contains 402,205 domestic and 118,916 cross-border completed M&As by 249,541 firms located in 95 countries.[6] Following the OECD's (2008) definition of FDI, we only include transactions that represent at least 10% of the target firm ownership. Our sample covers 62% of the worldwide cross-border M&A transactions during the period of analysis.[7]

An attractive feature of this database is that it records M&As at the firm level, reducing the potential bias usually present in FDI statistics, e.g., using tax havens as transit countries. Indeed, transactions are recorded based on a firm's announcements and news, and register the real transaction between two firms and their location, and not that of MNEs special-purpose entities located in tax havens.[8] Furthermore, firm-level data allows us to control for heterogeneity across firms. On the negative side, missing data in transaction values are common: 60% of the sample. Missing values are expected in small and not publicly disclosed transactions. To overcome this limitation and to exploit our full sample, we assume that all M&As without a reported value were transactions of 1 million US dollars. This imputation is motivated by Thomson Reuters', which collects

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[6]The countries included in the sample are reported in Table A.1 in the Appendix. For the firm level analysis, we exclude any transaction for which the acquirer firm is unknown.

[7]To calculate this coverage, we use the figures reported in UNCTAD (2016) Annex Table 11.

[8]Nevertheless, our results are robust to removing from the sample all transactions where a tax haven was involved.

the value of M&As equal to or surpassing 1 million US dollars.[9]

Table 1 presents the top 10 domestic and cross-border investors in our database. The most active firms in M&As in the domestic market are from the USA, which operate in the financial, information and communications technologies, and health industries. EU firms dominate the cross-border M&As.[10] Figures 1 and 2 present the evolution of domestic and cross-border M&As' operations and values. Both present an upward trend, with each behaving slightly different. Relative to domestic M&As, the number of cross-border operations is more stable over time (Figure 1), and fluctuations seem to be more affected by the different M&As waves.[11] The existence of mega-deal M&As leads to greater fluctuations in the value than in the number of M&As (Figure 2).[12]

Figure 1: Number of domestic and cross-border M&A operations
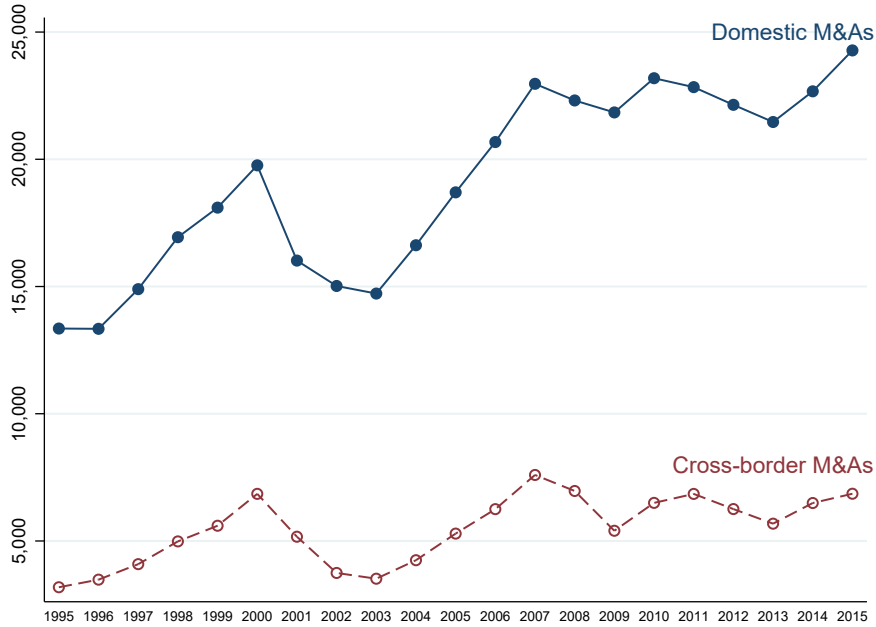
Note: The vertical axis shows the global number of domestic and cross-border M&As.

Most of the remaining independent, gravity-type, variables are obtained from the CEPII database (Head et al., 2010). The preferential trade agreements depth index is constructed using the World Bank dataset (Hofmann et al., 2019). Similar to Mulabdic et al. (2017), the trade agreement index is the number of legally enforceable provisions in-

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[9]As shown later, results are robust to removing the observations with imputed data.

[10]As highlighted by Coeurdacier et al. (2009) and Pham et al. (2019), the EU integration process can explain the leading role of EU countries in cross-border M&As.

[11]According to Park and Gould (2017) there are six M&A waves. Our data capture those between 1993 and 2000, and 2003-2008. The previous M&As waves occurred during the years 1885-1905; 1924-1928; 1961-1969, and 1981-1989.

[12]For example, the $110 billion merger between Anheuser-Busch InBev and SABMiller represented 37% of the total M&As into the UK in 2016. Carril-Caccia and Pavlova (2018) reported that 215 over 21,000 M&A projects explained 55% of the FDI value in 2016.

Table 1: Top 10 domestic and cross-border investors, 1995-2015
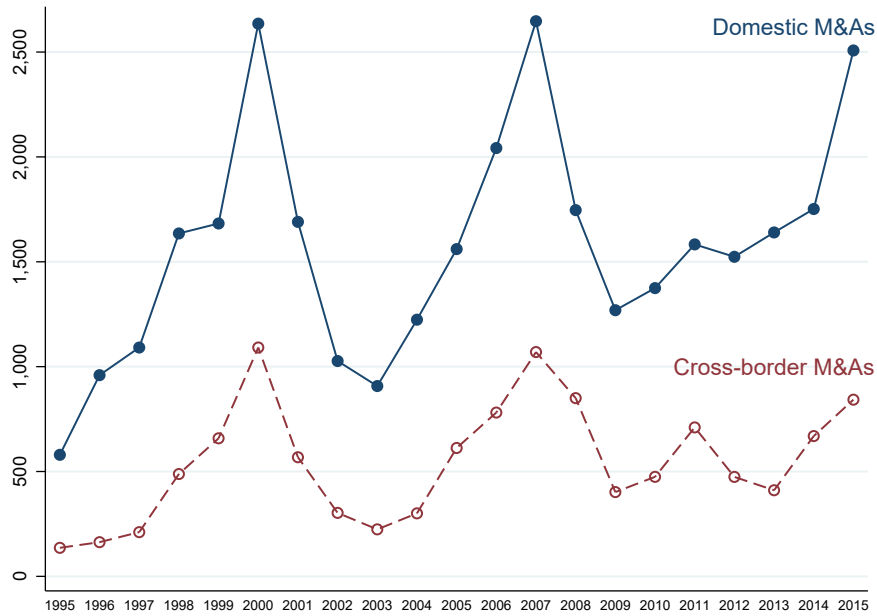
Panel A. Domestic M&As

Firm and nationality	Activity	Number	Value
Arthur J Gallagher & Co. (United States)	Insurance brokerage and risk management services	304	591
Brown & Brown Inc. (United States)	Insurance and reinsurance products and services	178	870
Cisco Systems Inc. (United States)	Technology conglomerate	164	55296
The Riverside Co. (United States)	Private equity firm	162	230
International Business Machines Corp. (United States)	Information Computer technology company	135	23318
Google Inc. (United States)	Internet-related products and services	130	23654
Airgas Inc. (United States)	Supplier of industrial, medical, and specialty gases	122	1537
Microsoft Corp. (United States)	Information Computer technology company	111	113000
Oracle Corp. (United States)	Information Computer technology company	104	51119
IPC The Hospitalist Co., Inc. (United States)	Health services	93	93

Panel B. Cross-border M&As

Firm and nationality	Activity	Number	Value
Publicis Groupe SA (France)	Advertising and public relations	127	11960
ISS A/S (Denmark)	Service provider	110	845
3i Group PLC (United Kingdom)	Private equity and venture capital	106	3824
Bunzl PLC (United Kingdom)	International distribution and services	105	727
CRH PLC (Ireland)	Manufacture and distribution of building materials	103	14819
Saint-Gobain SA (France)	Manufacture and distribution of building materials	102	15997
SGS SA (Switzerland)	Inspection, verification, testing, and certification services	99	435
Siemens AG (Germany)	Manufacture conglomerate	88	25867
Mitsui & Co., Ltd. (Japan)	Trading company	79	7424
Deutsche Bank AG (Germany)	Banking	78	24177

Note: The value is in million US$.

Figure 2: Value of domestic and cross-border M&A operations

cluded in the trade agreement signed between a pair of countries divided by the maximum number of provisions that a preferential trade agreement can have. The bilateral investment treaty dummy is constructed using the information available in the UNCTAD's Investment Agreements Navigator. Table A.2, in the Appendix, presents descriptive statistics of the variables.

4 Regression results

4.1 The border effect on global M&As

This section presents the estimations of the border effect on M&As for our entire sample. Merging with or acquiring another firm is infrequent; therefore, our sample has many zeros. To keep the zero values in the sample and to address OLS estimates' heteroskedasticity bias, we estimate Equations (1) and (2) using a Poisson pseudo-maximum likelihood estimator (Santos-Silva and Tenreyro, 2010).[13] We cluster standard errors at the country of origin×country of destination level.

Table 2 presents the estimates for the border effect during the period 1995-2015. In columns (1) to (3), we estimate the border effect on the number of M&As and in

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[13] We filled the zero M&A operations in the dataset using Stata's _fillin command. We estimate the model with Stata's ppmlhdfe command (Correia et al., 2019).

columns (4) to (6), the value of M&As. To enable comparison with previous border effect estimations, in column (1), we estimate the border effect after collapsing the sample at the origin country-destination country-year level. The border coefficient is positive and statistically significant. A country performs almost six times [exp(1.744)] more M&A deals within its borders than with other countries. Note that this high figure already controls for differences in geographical and cultural barriers and other trade, investment, and currency-related barriers.

Table 2: The border effect on M&As

	Number			Value		
	(1)	(2)	(3)	(4)	(5)	(6)
Border	1.744^a	1.846^a	1.676^a	1.697^a	1.967^a	1.683^a
	(0.157)	(0.204)	(0.206)	(0.243)	(0.302)	(0.302)
Distance (log)	-0.515^a	-0.388^a	-0.381^a	-0.519^a	-0.485^a	-0.474^a
	(0.045)	(0.047)	(0.047)	(0.057)	(0.066)	(0.065)
Contiguity	0.193^c	0.286^b	0.277^b	-0.151	-0.169	-0.153
	(0.112)	(0.129)	(0.129)	(0.170)	(0.188)	(0.185)
Language	0.847^a	0.744^a	0.741^a	0.612^a	0.569^a	0.572^a
	(0.087)	(0.110)	(0.111)	(0.117)	(0.139)	(0.141)
Legal system	0.174^b	0.205^c	0.200^c	0.045	0.001	-0.010
	(0.076)	(0.105)	(0.105)	(0.100)	(0.124)	(0.123)
Religion	0.515^a	0.600^a	0.604^a	0.456^b	0.517^c	0.650^b
	(0.146)	(0.209)	(0.211)	(0.229)	(0.285)	(0.288)
Colony	0.541^a	0.577^a	0.605^a	0.747^a	0.680^a	0.676^a
	(0.123)	(0.128)	(0.129)	(0.143)	(0.163)	(0.163)
Trade agreement	0.514^a	0.626^a	0.693^a	0.631^b	0.603^b	0.667^b
	(0.157)	(0.184)	(0.185)	(0.271)	(0.292)	(0.293)
Investment treaty	-0.577^a	-0.689^a	-0.664^a	-0.618^a	-0.765^a	-0.736^a
	(0.064)	(0.093)	(0.093)	(0.092)	(0.134)	(0.133)
Currency	-0.119	-0.170	-0.158	-0.185	-0.231	-0.302
	(0.091)	(0.111)	(0.112)	(0.174)	(0.194)	(0.195)
Observations	72172	17490	9278703	72172	17490	9278703
Sample	Country all	Country 30	Firm	Country all	Country 30	Firm

Note: The dependent variable is the number of M&As in columns (1) to (3), and the value of M&As in columns (4) to (6). All regressions include destination×year fixed effects. In columns (1), (2), (4) and (5) the regression also includes origin country×year fixed effects, and in columns (3) and (6) acquirer firm×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

In column (3), we estimate the border effect using the firm-level database. Due to limits in computational capacity, we restrict the number of M&A origins and destinations to the top 30, which represents 93% of the total M&As during the period 1995-2015.[14] Notwithstanding this restriction, the estimation still uses more than 9 million observations. To compare the firm-level estimates with the country-level estimates, in column (2), we re-estimate Equation (1) using the top 30 country sample. The coefficients are qualitatively and quantitatively similar to those reported in column (1), with the exception of distance, whose (absolute) point value decreases, and contiguity, whose point value increases.

The border coefficient estimated with firm-level data (column (3)) remains positive and statistically significant. The point value is lower than reported in column (2), although the difference between coefficients is within a one standard error margin. According to the border coefficient reported in column (3), the number of M&As a firm performs within its country is 5.3 times larger than that in other countries. The coefficients of the remaining covariates are similar to those reported in column (2).

Columns (4) to (6) present the estimations for the value of M&As as the dependent variable. The border coefficient in column (4) is similar to that reported in column (1). According to the former, the value of M&As within a country's borders is 5.5 times larger than that outside its borders (exp. 1.697). Column (5) shows the results when the sample of countries is restricted to the top 30 destinations. Coefficients are quantitatively similar to those reported in column (4). Finally, column (6) estimates the border effect with the firm-level sample. The border coefficient is positive and statistically significant and has a point value close to the estimate for the number of M&As (column (3)). According to the coefficient reported in column (6), the value of M&As for a firm in its home nation is 5.4 times larger than that in foreign nations. The remaining coefficients are similar to those reported in column (5).

Border coefficients estimated with firm-level data are lower than those estimates with country-level data. These results point out that not controlling for acquirer-firm characteristics may bias the border coefficients upwards. Although the differences between point estimates are not very large (Column (3) vs. Column (2) and Column (6) vs. Column (5) in Table 2), they become sizable when we exponentiate them to compute the border effect.

The border effect on the value of M&As is much lower than the border effect on trade, as estimated by de Sousa et al. (2012). They found that a country traded 131 times more within its border than with other countries. The lower border effect in M&As than in

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[14]In order of importance these countries are the United States, the United Kingdom, Japan, Canada, Germany, France, China, Italy, Australia, Netherlands, Brazil, Spain, Switzerland, Russia, Hong-Kong, Sweden, Korea, Belgium, Luxembourg, Norway, Mexico, Singapore, India, Malaysia, South Africa, Ireland, Denmark, Finland, Turkey, and Taiwan.

trade indicates that the cost-ratio between foreign and domestic operations is smaller in M&As than in trade. The costs involved in a M&A deal between two domestic firms are much larger than those involved in a trade operation. Hence, it is likely that the foreign costs/domestic cost ratio in M&As is lower than in trade.

As expected, distance negatively affects the number and value of M&As, whereas sharing language, religion, and having a common colonial past facilitates the number and value of M&As. Sharing legal system and land border have a positive and significant effect on the number of M&As only. Having a preferential trade agreement is positively correlated with the number and value of M&As. Bilateral investment treaties have a negative and statistically significant effect on the number and value of M&As, and sharing a currency has an insignificant effect on both margins.

It is important to highlight that we should cautiously interpret the three latter coefficients (preferential trade agreement, bilateral investment treaty, and sharing a currency), since they may be endogenous to M&As. To address this limitation, following Baier and Bergstrand (2009), Bergstrand and Egger (2013), and de Sousa and Lochard (2011), we estimate a specification that includes trade agreement, investment treaty, currency, and an origin country×destination country fixed effect as independent variables. Results are reported in Table A.3 in the Appendix. They show that trade agreement has an insignificant effect on the number and value of M&As; bilateral investment treaties have a negative significant effect on the value of M&As, while insignificant on the number; and, sharing a currency has a significant negative effect on the number of M&As and no effect on value. Although these results might seem puzzling, previous literature showed that the link between FDI and the analyzed variables is dependent on countries' level of development and institutional quality, and sector of investment (e.g. Bhagwat et al., 2020; Blonigen and Piger, 2014; Colen et al., 2016; Coeurdacier et al., 2009; Garrett, 2016; Jang, 2011).

Next, we analyze whether the border effect is different depending on investor's size.[15] We interact a large investor dummy variable with the border variable and add it to Equation (1) to analyze whether the border effect is different for large investors. Table 3 shows that the border effect on the number and value of M&As is significantly lower for large investors than the rest of acquirer firms. The number and value of domestic M&As performed by non-large investors are nearly seven and ten times greater, respectively than the cross-border ones. These ratios decrease approximately to three and five for large investors. Our results are aligned with the previous literature that suggested that

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[15]Our dataset does not provide information on the usual proxies for firm size, such as number of employees or revenue. Therefore, we proxy the size of an acquirer firm with the value of the M&A investment. We sort all M&A operations according to value and create a dummy variable that turns one if the acquirer firm has performed any of the operations located in the top tenth percentile. To compare the value of transactions over time, we transform current values into constant values using the US GDP deflator.

larger and more productive firms are more likely to engage in FDI (Helpman et al., 2004; Mayer et al., 2010).

Table 3: The border effect on M&As by investor's size

	(1) Number	(2) Value
Border	1.917^a	2.315^a
	(0.207)	(0.327)
x Large investor	-0.900^a	-0.648^a
	(0.066)	(0.102)
Distance (log)	-0.366^a	-0.471^a
	(0.047)	(0.065)
Contiguity	0.281^b	-0.150
	(0.129)	(0.185)
Language	0.748^a	0.573^a
	(0.111)	(0.141)
Legal system	0.196^c	-0.005
	(0.104)	(0.123)
Religion	0.620^a	0.640^b
	(0.211)	(0.286)
Colony	0.592^a	0.669^a
	(0.125)	(0.163)
Trade agreement	0.730^a	0.663^b
	(0.186)	(0.293)
Investment treaty	-0.628^a	-0.727^a
	(0.093)	(0.133)
Currency	-0.140	-0.306
	(0.114)	(0.194)
Observations	9278703	9278703
Sample	Firm	Firm

Note: The dependent variable is the number of M&As in column (1) and the value of M&As in column (2). All regressions include acquirer firm×year fixed effects and destination×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

We also analyze whether the border effect varies across industries. We classify acquirer and acquired firms into one of the following five industries: primary, manufacturing, services, construction, and utilities. To ensure a meaningful comparison of the border effect across industries, we select transactions where the acquirer and acquired firms

Table 4: The border effect on the number of M&As across industries. Firm-level sample

	(1) Primary	(2) Manufacture	(3) Service	(4) Construction	(5) Utilities
Border	0.705^b	1.447^a	1.826^a	1.804^a	1.060^a
	(0.329)	(0.212)	(0.209)	(0.268)	(0.262)
Distance (log)	-0.519^a	-0.433^a	-0.340^a	-0.506^a	-0.317^a
	(0.098)	(0.048)	(0.053)	(0.070)	(0.075)
Contiguity	-0.041	0.231^b	0.197	0.284^c	0.517^a
	(0.227)	(0.106)	(0.156)	(0.171)	(0.137)
Language	0.867^a	0.676^a	0.807^a	0.583^a	0.792^a
	(0.132)	(0.111)	(0.116)	(0.133)	(0.129)
Legal system	0.147	0.150	0.291^a	0.396^a	0.170
	(0.124)	(0.095)	(0.112)	(0.117)	(0.108)
Religion	0.346	0.954^a	0.477^b	0.390^c	0.587^a
	(0.237)	(0.224)	(0.227)	(0.233)	(0.199)
Colony	0.580^a	0.473^a	0.712^a	0.580^a	0.624^a
	(0.136)	(0.140)	(0.121)	(0.137)	(0.138)
Trade agreement	1.230^a	0.196	0.901^a	1.067^a	1.258^a
	(0.189)	(0.202)	(0.194)	(0.218)	(0.184)
Investment treaty	-0.145	-0.643^a	-0.623^a	-0.671^a	-0.300^b
	(0.154)	(0.095)	(0.098)	(0.134)	(0.132)
Currency	0.091	-0.216^b	-0.141	-0.037	-0.061
	(0.155)	(0.105)	(0.128)	(0.132)	(0.133)
Observations	527872	2089696	2879347	603338	336750

Note: The dependent variable is the number of M&As. All regressions include acquirer firm×year fixed effects and destination×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

belong to the same industry.[16] We run separate regressions for each of the five industries. Tables 4 and 5 report the results for the number and value of M&As, respectively. The border coefficient on the number of M&As is positive and statistically significant in the five industries. The border effect is larger for services, construction, and manufacturing than for the primary industry and utilities. The border effect on the value of M&As is positive and significant for services, construction, and manufacturing. However, it is statistically insignificant for utilities and the primary industry.

The differences in the border effect across industries can be explained by several rea-

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[16]Intra-industry operations account for 68% and 73% of the total number and value of M&As, respectively.

Table 5: The border effect on the value of M&As across industries. Firm-level sample

	(1) Primary	(2) Manufacture	(3) Service	(4) Construction	(5) Utilities
Border	-0.799	1.071^b	2.052^a	1.816^a	-0.156
	(0.801)	(0.516)	(0.332)	(0.671)	(0.719)
Distance (log)	-0.525^a	-0.423^a	-0.622^a	-0.443^b	-1.054^a
	(0.146)	(0.103)	(0.102)	(0.176)	(0.167)
Contiguity	-0.117	-0.451^c	0.033	0.204	-0.102
	(0.351)	(0.252)	(0.234)	(0.394)	(0.335)
Language	1.064^a	0.258	0.579^a	0.725^b	0.536^c
	(0.270)	(0.211)	(0.179)	(0.336)	(0.289)
Legal system	-0.005	-0.014	0.321^b	-0.207	0.196
	(0.236)	(0.152)	(0.143)	(0.326)	(0.220)
Religion	0.084	2.059^a	0.716^b	0.488	-0.014
	(0.481)	(0.427)	(0.328)	(0.584)	(0.620)
Colony	0.967^a	0.431^b	0.622^a	0.609^c	1.639^a
	(0.209)	(0.195)	(0.167)	(0.364)	(0.275)
Trade agreement	1.538^a	0.673^c	-0.123	1.527^a	0.954^b
	(0.422)	(0.400)	(0.333)	(0.547)	(0.461)
Investment treaty	0.273	-1.015^a	-0.784^a	-1.144^a	-0.537^b
	(0.227)	(0.178)	(0.162)	(0.278)	(0.233)
Currency	0.861^c	-0.633^b	-0.245	0.171	0.193
	(0.497)	(0.286)	(0.222)	(0.472)	(0.299)
Observations	527872	2089696	2879347	603338	336750

Note: The dependent variable is the value of M&As. All regressions include acquirer firm×year fixed effects and destination×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

sons. First, services, construction, and manufacturing are more labor intensive than the primary industry and utilities. Therefore, foreign acquirers are more likely to find higher cultural barriers and, thus, a larger border effect, in the former group of industries than in the latter. Second, services, construction, and manufactures demand more adaptation to local consumer characteristics than primary products and utilities. This raises the costs of integrating the operations of the acquirer and acquired firms, which translates into a higher border effect. Third, the low border effect coefficient for the primary industry could be explained by the limited geographic availability of natural resources in general and non-renewable or point-source natural resources in particular (Walsh and Jiangyan, 2010). That is, firms are "forced" to acquire or merge with foreign firms to access natural

resources, even if barriers to M&As are large. Fourth, the size of firms operating in the utilities industry is large, and as shown in Table 3, a large size reduces the impact of the border effect. Furthermore, there is a large presence of state-owned firms in this industry (Christiansen, 2011). Some M&As performed by these firms may be motivated by political reasons and, hence, less sensitive to economic barriers.[17]

We also find that the border effect is lower for manufacturing than services. This finding is analogous to the one previously reported by the trade literature (Anderson et al., 2014). This is expected since, on average, FDI is more liberalized in manufacturing than services (Golub, 2009; Merz et al., 2017). Moreover, trade liberalization has fostered cross-border M&As in manufacturing while not in services (Coeurdacier et al., 2009; Kolstad and Villanger, 2008).

Next, Panel A of Figure 3 shows the evolution of the border effect on the number of M&As during the period 1995-2015. When border coefficients are estimated with country-level data (top 30 investors and investees), we observe a reduction of the border effect, relative to the border effect in 1995, from 1996 to 2002. However, afterwards, all border coefficients, except for 2015, become statistically not different from the border effect in 1995. Similarly, we observe no clear trend for the border coefficients estimated with firm-level data.[18] We do not observe any trend in the evolution of the border effect on the value of M&As either (Panel B of Figure 3). Thus, our results suggest that there was no decline in the border effect during our period of analysis. This implies that the preference of a firm to merge with another firm of the same nationality over merging with a firm of a different nationality has not changed.

4.2 The border effect on M&As in the European Union

In previous analyses, we estimated the global level and evolution of the border effect on M&As. In this subsection, we estimate the border effect on a region that has achieved a high economic-integration level: the European Union.

We estimate Equations (1) and (2) for the EU15.[19] Table 6 presents the results. Columns (1) to (4) present the average border effect for the period 1995-2015. The number of M&As within an EU15 country is three times larger than that with other EU15 countries (column (2) - exp(1.170)). This border effect is much lower than the

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[17]For an overview of the literature, see Patala et al. (2021).

[18]We use Equation (2) to estimate the border coefficients based on country-level data. Due to limitations in computing capacity, we cannot estimate all the coefficients included in this specification when using firm-level data. To overcome this limitation, we estimate a separate regression for each year (20 regressions in total). Every regression is estimated pooling data from the analyzed year and the base year (1995).

[19]The EU15 is: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

Figure 3: Evolution of the border effect, 1995-2015. Change in the border effect relative to the border effect in 1995.

Panel A. Number of M&A operations

Panel B. Value of M&A operations
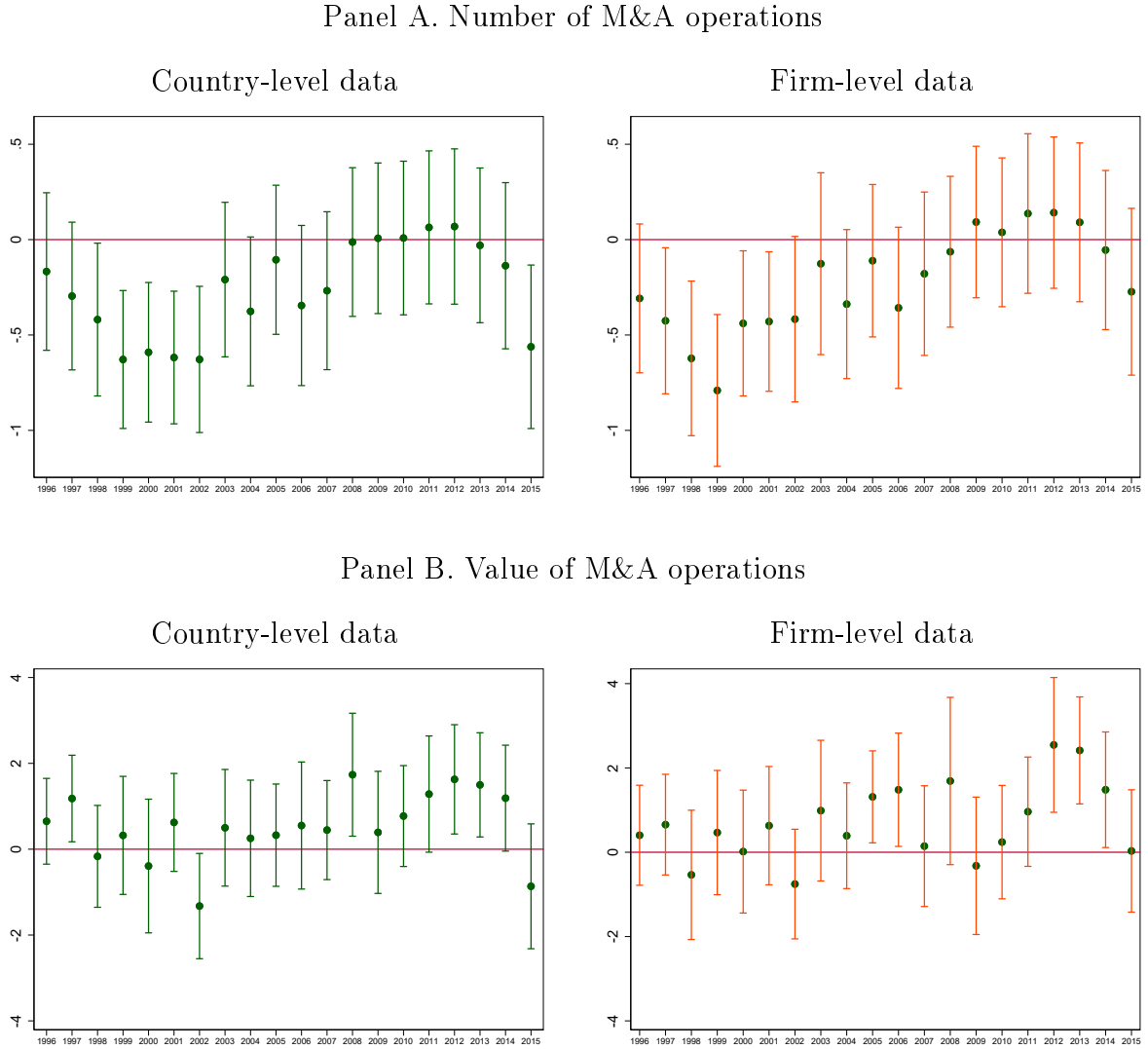
Note: Border coefficients based on country-level data were estimated with Equation (2). Border coefficients based on firm-level data were also estimated with the same specification, but in separate regression for each year (20 regressions). Each separate regression is estimated pooling data from the analyzed year and the base year (1995).

global one. The border effect for the number of M&As estimated with the country-level bilateral data (column (1)) is larger than that estimated with firm-level data (column (2)), but the difference is within a one standard error margin. Sharing the euro has no effect on the number of M&As. Distance has a negative effect and sharing a language, legal system, and colonial past has a positive effect on M&As. Interestingly, religious affinity turns negative and significant in column (2).

The border effect coefficient for the value of M&As estimated with country-level data is much lower for the EU15 countries than for all countries: 0.864 vs. 1.697. Moreover,

Table 6: The border effect on M&As in the EU15

	Number		Value	
	(1)	(2)	(3)	(4)
Border	1.290^a	1.170^a	0.864^b	0.595
	(0.140)	(0.137)	(0.367)	(0.374)
Distance (log)	-1.211^a	-1.227^a	-1.586^a	-1.559^a
	(0.088)	(0.087)	(0.178)	(0.177)
Contiguity	-0.200	-0.210	-0.611^a	-0.616^a
	(0.139)	(0.137)	(0.195)	(0.192)
Language	0.831^a	0.835^a	0.652^b	0.657^b
	(0.137)	(0.138)	(0.296)	(0.289)
Legal system	0.248^b	0.256^b	0.033	0.029
	(0.100)	(0.100)	(0.183)	(0.181)
Religion	-0.206	-0.232^c	-0.192	-0.150
	(0.139)	(0.140)	(0.336)	(0.336)
Colony	0.167^c	0.166^c	0.434	0.495
	(0.101)	(0.100)	(0.398)	(0.396)
Euro	0.099	0.098	-0.672^c	-0.598
	(0.141)	(0.142)	(0.380)	(0.372)
Observations	4662	1405815	4662	1405815
Sample	Country	Firm	Country	Firm

Note: The dependent variable is the number of M&As in columns (1) and (2), and the value of M&As in columns (3) and (4). All regressions include destination×year fixed effects. In columns (1) and (3) the regression also includes origin country×year fixed effects; in columns (2) and (4) acquirer firm×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

the border effect estimated with firm-level data (column (4)) is statistically insignificant, although for a small margin.[20] Sharing the euro has a negative effect on the value of bilateral M&As, but it is statistically insignificant in the firm-level sample. The remaining independent variables have the expected sign and value, except the contiguity variable, with a negative sign, suggesting that MNEs may choose trade over M&As to serve neighboring countries. Furthermore, in line with the previous results reported in Table 3, Table A.4 in the Appendix shows that the border effect on the number and value of M&As is also significantly lower for large investors in the EU15.

Tables A.5 and A.6 in the Appendix show the across-industries differences in the

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[20]These estimates are smaller than reported by Umber et al. (2014) using EU regional data for the period 1991-2007.

border effect on the number and value of M&As, respectively for the EU15. We observe small differences in the border effect on the number of M&As across industries. The border effect on the value of M&As is positive and significant for construction, services, and manufacturing, and statistically insignificant for utilities and the primary industry. The smaller differences in the border effect on the number of M&As across industries could be explained by the higher cultural similarity and economic integration in the EU15, which reduce the costs due to cultural distance, adaption of products and services, and different regulations.

Panels A and B of Figure 4 show the evolution of the border effect on the number and value of M&As in the EU15, respectively. Similar to the baseline analysis, we do not find statistically significant changes in the border coefficient for the period 1995-2015, neither for the number nor the value of M&As in the EU15. This latter result is similar to Umber et al. (2014).

5   Testing for robustness

This section reports the results of additional analyses testing the robustness of our results. First, we drop all M&A deals with no transaction value from the sample. Keep in mind that this removes the low-value investment operations. The border effect coefficient for the number of M&As estimated with firm level data (column (2) of Table 7) is lower than the baseline estimation (column (3) of Table 2). For the value of M&As, the border coefficient is slightly larger than the baseline estimation. Thus, assuming that unreported values of M&As are equal to 1 million US dollars does not significantly affect our results for M&A values and excluding transactions which were not publicly disclosed slightly affects the results for the number of M&As.

Table 8 presents the results for the EU15 countries. They are qualitatively similar to those reported in Table 6, except the border effect for the value of M&As, which becomes statistically significant using the firm-level dataset (column (4)). All in all, in line with the baseline analysis, the border effect for the EU15 is lower than that obtained globally.

In addition, even though measuring M&As at the firm level reduces the presence of FDI being channeled through tax haven subsidiaries, we repeat our baseline analysis (Table 2), excluding the tax havens from our sample. We define tax havens as all countries included either in the black or gray lists defined by the Spanish Ministry of Finance (Gestha, 2017).[21] Those lists are defined according to the capacity of territories to favor tax evasion or avoidance. The black and gray lists include 130 offshore territories, of which 30 are in the former and 100 in the latter. As Table 9 presents, estimates are similar to

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[21] According to the GESTHA, their lists are more complete than those elaborated by the OECD or the European Union, which are criticized for omitting some countries from the list due to political reasons.

Figure 4: EU15. Evolution of the border effect, 1995-2015. Change in the border effect relative to the border effect in 1995.

Panel A. Number of M&A operations

Panel B. Value of M&A operations
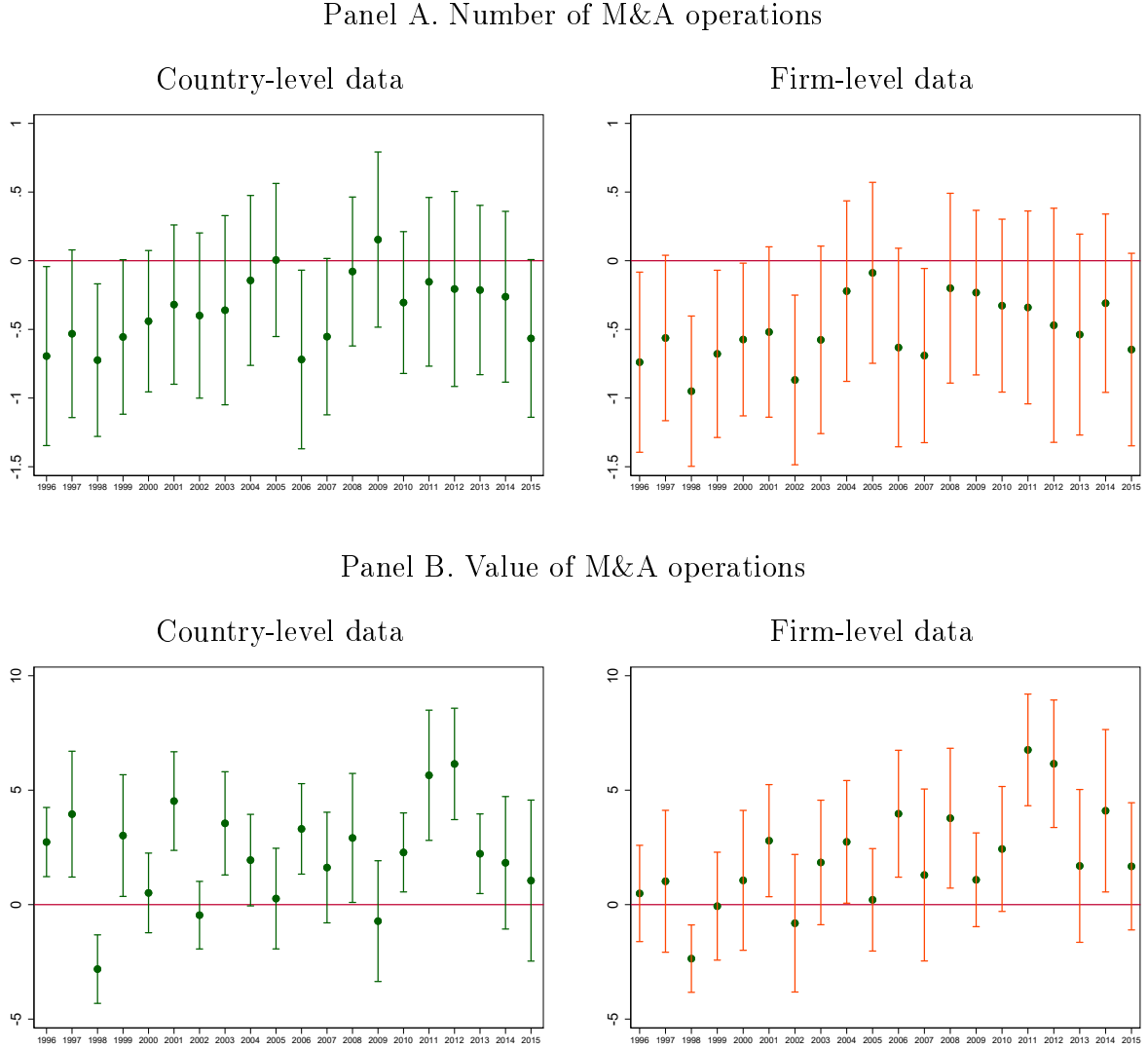
Note: Border coefficients based on country-level data were estimated with Equation (2). Border coefficients based on firm-level data were also estimated with the same specification, but in separate regression for each year (20 regressions). Each separate regression is estimated pooling data from the analyzed year and the base year (1995).

those in Table 2. The main differences are the following: (i) the border effect coefficient for the number of M&As increases; (ii) the contiguity coefficient becomes negative and significant when analyzing the value of M&As; and (iii) the distance coefficient increases.

6 Conclusion

In this paper, we estimated the border effect on M&A flows. We used a firm-level dataset of more than 500,000 domestic and cross-border M&As performed by around 250,000 firms

Table 7: Robustness. The border effect on M&As, with the null-value operations removed

	Number		Value	
	(1)	(2)	(3)	(4)
Border	1.747^a	1.323^a	1.500^a	1.797^a
	(0.167)	(0.215)	(0.235)	(0.305)
Distance (log)	-0.557^a	-0.326^a	-0.487^a	-0.463^a
	(0.050)	(0.050)	(0.054)	(0.065)
Contiguity	0.121	0.261^c	-0.208	-0.142
	(0.118)	(0.158)	(0.163)	(0.186)
Language	0.887^a	0.835^a	0.631^a	0.580^a
	(0.093)	(0.126)	(0.112)	(0.142)
Legal system	0.148^c	0.007	0.015	-0.003
	(0.085)	(0.127)	(0.097)	(0.124)
Religion	0.527^a	0.783^a	0.582^a	0.622^b
	(0.164)	(0.227)	(0.219)	(0.290)
Colony	0.569^a	0.703^a	0.706^a	0.668^a
	(0.122)	(0.134)	(0.140)	(0.163)
Trade agreement	0.485^a	1.025^a	0.724^a	0.695^b
	(0.170)	(0.191)	(0.256)	(0.288)
Investment treaty	-0.684^a	-0.550^a	-0.540^a	-0.709^a
	(0.070)	(0.101)	(0.089)	(0.133)
Currency	-0.088	-0.172	-0.169	-0.337^c
	(0.097)	(0.129)	(0.161)	(0.194)
Observations	60242	4060536	60242	4060536
Sample	Country all	Firm	Country all	Firm

Note: The dependent variable is the number of M&As in columns (1) and (2), and the value of M&As in columns (3) and (4). All regressions include destination×year fixed effects. In columns (1) and (3) the regression also includes origin country×year fixed effects; in columns (2) and (4) acquirer firm×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

located in 95 countries during the period 1995-2015. Using a gravity model, we found that domestic firms have a strong preference to merge with and acquire other domestic firms. In particular, the number and value of intra-national M&As are five times larger than those of international M&As. The border effect drops to 3 for EU15 countries. This later estimate highlights that there are still many barriers to cross-border M&As among countries that have, ostensibly, achieved a high level of economic and monetary integration. Our results revealed no decline in the border effect. We find that the border

Table 8: Robustness. The border effect on EU15's M&As, with the null-value operations removed

	Number		Value	
	(1)	(2)	(3)	(4)
Border	1.211^a	1.104^a	0.920^b	0.707^c
	(0.151)	(0.154)	(0.367)	(0.374)
Distance (log)	-1.279^a	-1.304^a	-1.369^a	-1.563^a
	(0.099)	(0.101)	(0.174)	(0.173)
Contiguity	-0.230	-0.309^b	-0.602^a	-0.635^a
	(0.143)	(0.133)	(0.200)	(0.189)
Language	0.840^a	0.729^a	0.707^a	0.670^b
	(0.137)	(0.144)	(0.266)	(0.290)
Legal system	0.205^b	0.192^c	-0.004	0.052
	(0.104)	(0.115)	(0.178)	(0.178)
Religion	-0.190	-0.159	0.023	-0.192
	(0.145)	(0.164)	(0.331)	(0.350)
Colony	0.170^c	0.240^c	0.379	0.527
	(0.098)	(0.130)	(0.368)	(0.393)
Euro	0.116	-0.005	-0.666^c	-0.683^c
	(0.143)	(0.153)	(0.368)	(0.396)
Observations	3762	457557	3762	457557
Sample	Country	Firm	Country	Firm

Note: The dependent variable is the number of M&As in columns (1) and (2), and the value of M&As in columns (3) and (4). All regressions include destination×year fixed effects. In columns (1) and (3) the regression also includes origin country×year fixed effects; in columns (2) and (4) acquirer firm×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

effect for large investors is around half than that for non-large investors. Finally, we show that the border effect is lower for M&A transactions in the primary industry and utilities than in services, construction, and manufacturing.

Table 9: Robustness. The border effect on M&As, with all tax havens removed from the sample

	Number		Value	
	(1)	(2)	(3)	(4)
Border	1.900^a	2.029^a	1.800^a	1.665^a
	(0.188)	(0.261)	(0.323)	(0.391)
Distance (log)	-0.751^a	-0.627^a	-0.779^a	-0.718^a
	(0.050)	(0.058)	(0.084)	(0.095)
Contiguity	-0.209^c	-0.140	-0.485^b	-0.477^b
	(0.113)	(0.133)	(0.202)	(0.222)
Language	0.718^a	0.555^a	0.652^a	0.630^a
	(0.115)	(0.161)	(0.162)	(0.198)
Legal system	0.257^b	0.330^b	0.048	0.013
	(0.116)	(0.165)	(0.158)	(0.194)
Religion	0.556^a	0.633^b	0.469	0.680^c
	(0.193)	(0.292)	(0.301)	(0.386)
Colony	0.786^a	0.776^a	0.941^a	0.842^a
	(0.134)	(0.153)	(0.195)	(0.213)
Trade agreement	0.347^a	0.374^a	0.405^b	0.390^c
	(0.104)	(0.127)	(0.178)	(0.205)
Investment treaty	-0.757^a	-0.834^a	-0.720^a	-0.746^a
	(0.075)	(0.124)	(0.124)	(0.176)
Currency	-0.192^c	-0.251^c	-0.261	-0.288
	(0.114)	(0.130)	(0.230)	(0.249)
Observations	29423	5987058	29423	5987058
Sample	Country all	Firm	Country all	Firm

Note: The dependent variable is the number of M&As in columns (1) and (2), and the value of M&As in columns (3) and (4). All regressions include destination×year fixed effects. In columns (1) and (3) the regression also includes origin country×year fixed effects; in columns (2) and (4) acquirer firm×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

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Appendix

Table A.1: Country sample

Argentina	Ecuador	Lithuania	Saudi Arabia
Australia	Egypt	**Luxembourg**	**Singapore**
Austria	Estonia	**Malaysia**	Slovakia
Bahamas	**Finland**	Mauritius	Slovenia
Bahrain	**France**	**Mexico**	**South Africa**
Belarus	Georgia	Morocco	**Spain**
Belgium	**Germany**	Namibia	Sri Lanka
Bermuda	Ghana	**Netherlands**	**Sweden**
Bolivia	Greece	New Zealand	**Switzerland**
Bosnia and Herzegovina	Guatemala	Nigeria	Macedonia
Brazil	Hungary	**Norway**	**Taiwan**
Bulgaria	Iceland	Oman	Thailand
Canada	**India**	Pakistan	Tunisia
Cayman Islands	Indonesia	Panama	**Turkey**
Chile	**Ireland**	Papua New Guinea	Ukraine
China	Israel	Peru	United Arab Emirates
Hong Kong	**Italy**	Philippines	**United Kingdom**
Colombia	**Japan**	Poland	**United States of America**
Costa Rica	Jordan	Portugal	Uruguay
Croatia	Kazakhstan	Puerto Rico	Venezuela
Cyprus	Kenya	Qatar	Viet Nam
Czechia	Kuwait	**Republic of Korea**	Zambia
Denmark	Latvia	Romania	Zimbabwe
Dominican Republic	Lebanon	**Russia**	

Note: Countries in bold are the top 30 destination countries used for the firm level M&As analysis.

Table A.2: Descriptive statistics

Country-level descriptive statistics					
Variable	Obs	Mean	Std. Dev.	Min	Max
Number of M&As	72,172	7.13	131.38	0	9,331
Value of M&As	72,172	614.00	15,800.00	0	1,450,000
Border	72,172	0.02	0.15	0	1
Distance (log)	72,172	8.29	1.11	2.26	10
Contiguity	72,172	0.08	0.27	0	1
Language	72,172	0.19	0.39	0	1
Legal	72,172	0.36	0.48	0	1
Common Currency	72,172	0.07	0.25	0	1
Colony	72,172	0.07	0.25	0	1
Religion	72,172	0.22	0.30	0	1
Trade agreement	72,172	0.30	0.46	0	1
Investment treaty	72,172	0.16	0.28	0	1
Firm-level descriptive statistics					
Number of M&As	9,278,703	0.05	0.30	0	68
Value of M&As	9,278,703	4.02	243.00	0	203,000
Border	9,278,703	0.03	0.18	0	1
Distance (log)	9,278,703	8.56	1.02	2.26	9.81
Contiguity	9,278,703	0.10	0.30	0	1
Language	9,278,703	0.23	0.42	0	1
Legal	9,278,703	0.30	0.46	0	1
Common Currency	9,278,703	0.08	0.27	0	1
Colony	9,278,703	0.12	0.33	0	1
Religion	9,278,703	0.19	0.24	0	1
Trade Agreement	9,278,703	0.18	0.30	0	1
Investment treaty	9,278,703	0.23	0.42	0	1

Note: Distance is in logarithms. The value of M&As is in millions of US dollars.

Table A.3: Estimates with firm-level sample and origin country×destination country fixed effects

	(1)	(2)
	Number	Value
Trade agreement	0.248	-0.262
	(0.204)	(0.569)
Investment treaty	0.044	-0.527^c
	(0.077)	(0.319)
Currency	-0.160^a	-0.036
	(0.061)	(0.170)
Observations	9271489	9271489
Sample	Firm	Firm

Note: In columns (1) and (2) the dependent variable is the number and value of M&As, respectively. All regressions include acquirer firm×year, destination×year, and origin country×destination country fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.   28

Table A.4: The border effect on M&As in the EU15 by investor's size

	(1) Number	(2) Value
Border	1.508^a	1.418^a
	(0.138)	(0.375)
x Large investor	-1.000^a	-0.865^a
	(0.043)	(0.107)
Distance (log)	-1.213^a	-1.550^a
	(0.086)	(0.176)
Contiguity	-0.195	-0.619^a
	(0.136)	(0.191)
Language	0.837^a	0.659^b
	(0.139)	(0.287)
Legal system	0.275^a	0.029
	(0.099)	(0.180)
Religion	-0.222	-0.147
	(0.139)	(0.335)
Colony	0.127	0.517
	(0.101)	(0.390)
Euro	0.070	-0.600
	(0.140)	(0.372)
Observations	1405815	1405815
Sample	Firm	Firm

Note: The dependent variable is the number of M&As in column (1), and the value of M&As in column (2). All regressions include acquirer firm×year fixed effects and destination×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

Table A.5: The border effect on the number of M&As across industries in the EU15. Firm-level sample

	(1) Primary	(2) Manufacture	(3) Service	(4) Construction	(5) Utilities
Border	1.221^a	0.943^a	1.413^a	0.924^a	1.157^a
	(0.277)	(0.132)	(0.191)	(0.242)	(0.173)
Distance (log)	-1.233^a	-1.105^a	-1.289^a	-1.405^a	-1.316^a
	(0.152)	(0.076)	(0.114)	(0.151)	(0.123)
Contiguity	-0.039	-0.116	-0.365^b	-0.209	-0.163
	(0.188)	(0.106)	(0.172)	(0.175)	(0.167)
Language	0.299^c	0.775^a	0.993^a	0.742^a	0.894^a
	(0.169)	(0.119)	(0.169)	(0.179)	(0.209)
Legal system	0.324^b	0.157^c	0.419^a	0.312^b	0.180
	(0.155)	(0.094)	(0.120)	(0.151)	(0.129)
Religion	-0.219	0.000	-0.248	-0.279	-0.085
	(0.247)	(0.141)	(0.175)	(0.257)	(0.200)
Colony	0.337	0.164	0.024	0.439^b	0.034
	(0.220)	(0.104)	(0.142)	(0.218)	(0.188)
Euro	0.145	0.039	0.012	0.496^b	0.101
	(0.255)	(0.136)	(0.196)	(0.234)	(0.197)
Observations	33444	313298	457695	115787	64740
Sample	Firm	Firm	Firm	Firm	Firm

Note: The dependent variable is the number of M&As. All regressions include acquirer firm×year fixed effects and destination×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.

Table A.6: The border effect on the value of M&As across industries in the EU15. Firm-level sample

	(1) Primary	(2) Manufacture	(3) Service	(4) Construction	(5) Utilities
Border	-1.437	0.957^c	1.675^a	1.739^b	-0.480
	(1.015)	(0.508)	(0.517)	(0.842)	(1.018)
Distance (log)	-2.319^a	-1.072^a	-1.819^a	-3.089^a	-2.448^a
	(0.558)	(0.350)	(0.222)	(0.373)	(0.389)
Contiguity	-0.695	-0.175	-0.515^c	-1.356^a	-0.348
	(0.604)	(0.321)	(0.289)	(0.335)	(0.459)
Language	0.032	0.252	1.039^a	0.237	0.581
	(0.525)	(0.449)	(0.293)	(0.369)	(0.573)
Legal system	-1.001^c	0.361	0.564^a	0.839^a	-0.166
	(0.579)	(0.253)	(0.200)	(0.247)	(0.433)
Religion	1.830^b	-0.106	-0.610	-2.123^a	1.792^b
	(0.913)	(0.513)	(0.423)	(0.621)	(0.830)
Colony	3.381^a	-0.376	-0.660^c	-0.743	-0.394
	(0.842)	(0.598)	(0.401)	(0.600)	(1.024)
Euro	-0.654	-0.773	-0.519	2.032^a	-1.250^c
	(0.682)	(0.665)	(0.508)	(0.500)	(0.742)
Observations	33444	313298	457695	115787	64740
Sample	Firm	Firm	Firm	Firm	Firm

Note: The dependent variable is the value of M&As. All regressions include acquirer firm×year fixed effects and destination×year fixed effects. Standard errors clustered at origin×destination level are in parentheses. a, b, c: statistically significant at 1%, 5%, and 10%, respectively.