

# Expanding Multinationals

## - Industry Relatedness and Conglomerate M&A \*

*Preliminary Version*

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### Abstract

This paper analyzes how multinational firms (MNEs) expand the spectrum of their activity via Mergers & Acquisitions (M&A). While international trade studies systematically focus on horizontal *versus* vertical motives for foreign direct investment (FDI), I document that over 46% of both domestic and cross-border M&A deals done worldwide by MNEs are conglomerate, *i.e.*, *neither* horizontal nor vertical. Literature to date fails to explain this puzzling stylized fact. What are conglomerate M&A and what are their drivers? Why do MNEs acquire firms in industries distinct from their own? The present study argues that conglomerate M&A may represent a tool for multinationals to acquire know-how and expand the spectrum of their activity towards industries closely related to their own ones. I rely on the product space literature and propose two novel measures of proximity between the product basket of the acquiring and the acquired units, Acquiror-Target Relatedness score (ATRs) and Target Density Index (TDI). These capture respectively how closely the activity of the acquiror and the target are related and to what extent target firm activity is tied to comparative advantage structure of the host country. The econometric results confirm the importance of the two factors as drivers of conglomerate M&A.

**Keywords:** Foreign direct investment, Mergers and acquisitions, Multinationals, Conglomerate

M&A JEL Classification: F21; F23

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# 1 Introduction

International trade literature systematically studies the motives for foreign direct investment (FDI) from a horizontal *versus* vertical perspective. Accordingly, multinational firms (MNEs) invest abroad either to benefit from lower production costs (vertical FDI) or to move closer to consumers (horizontal FDI). This paper documents however that nearly half of world mergers and acquisitions (M&A) done by MNEs does not belong to *either* of these categories and is classified instead as *conglomerate*. This surprising stylized fact suggests that MNEs acquire firms for reasons other than those traditionally considered. Trade literature to date does not provide explanation for this type of FDI. What are conglomerate M&A and what are their drivers? Why do MNEs acquire firms in industries different from their own? How do conglomerate deals differ from horizontal and vertical transactions? The present paper aims to answer to these questions.

The main claim of the study is that conglomerate M&A represent a tool for MNEs to expand their activity<sup>1</sup> towards industries that are *closely related* to their own basket of occupations. Relying on the product space literature (Hidalgo et al., 2007, Hausmann and Hidalgo, 2011), the paper proposes two measures that capture respectively (1) the distance between the activities of the acquiring and acquired firms and (2) how closely the target firm is related to the comparative advantage of the destination country. The results show that MNEs acquire firms active in industries that are not relatively far from their own occupations. Moreover, they target these firms that are *more closely tied* to the local comparative advantage structure. Conglomerate deals appear hence as a tool for MNEs to expand the spectrum of their activities and acquire know-how. As an illustration, take the example of a car manufacturer X located for instance in France. Reported evidence shows that in almost half of the cases, X neither acquires one of its suppliers, such as a tire manufacturer, nor one of its direct competitors, such as a German car producer. Instead, X acquire a firm operating in some other industry. I show however that these deals are not completely arbitrary: the car-maker X is much more likely to acquire a motorbike producer than, for instance, a cupcake factory. Moreover, the acquiror targets firms in these destinations that are *relatively better* in producing a given type of goods. French car manufacturer X is more likely to acquire a motorbike producer in Germany than in Burkina Faso.

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<sup>1</sup>I use the term "activity" rather than "product." Given that the paper analyzes data on both manufacturing and services, the term "activity" is more suitable.

This paper makes several contributions to the FDI studies. First, it documents a phenomenon underexplored in the literature,<sup>2</sup> namely, the high share of conglomerate deals in the overall M&A flows. Next, it delivers a detailed analysis of conglomerate flows comparing them with the horizontal and vertical ones. Further, at transaction level, it shows that firms' choices to do conglomerate M&A, although escaping the traditional FDI typology, exhibit important regularities. These regularities can be associated with expansion strategies of MNEs. Lastly, to my knowledge, this is the first paper to apply products space tools to study the composition of MNEs activities.

The high share of conglomerate deals in the total M&A activity rather than surprising seem however quite intuitive. Firms may find it more profitable to acquire a given activity instead of developing it internally. Via M&A, they may acquire patents and realize productivity gains by choosing more efficient firms (Guadalupe et al., 2012). They can also gain further exporter networks (Blonigen et al., 2012), as well as specific expertise and knowledge of the market (Nocke and Yeaple, 2007). At the same time, the proximity of activities between the two partners of the match should lower the integration cost with the acquired units and allow firm to realize economies of scope (Panzar and Willig, 1981).<sup>3</sup> MNEs add activities that are relatively similar to their own product basket as they can pool part of their costs, such as these related to networks of suppliers and retailers, marketing strategies or organizational model. These economies of scope are presumably larger, the more closely the two activities are related. This relates the paper also to the nascent literature on multi-product firms and to the concept of firm's core competency product (Eckel and Neary, 2010; Arkolakis and Muendler, 2010).

The study explores Zephyr dataset (Bureau van Dijk) containing M&A transactions for 180 countries for 2000-2011 at 6-digit NAICS 2007 level. Zephyr provides industry primary and secondary codes (up to 30 secondary codes) for acquiring and acquired firms. The analysis looks at both, domestic and cross-border M&A deals done by MNEs. I use industry vertical linkages from Atalay et al. (2014) and classify transactions as horizontal or vertical. Surprisingly, over 46% of all the deals have neither no horizontal nor vertical links upon analysis of all the combinations of acquiror and target industry codes. The first part of the paper provides an extensive descriptive analysis of conglomerate flows on bilateral and sectoral level comparing these with horizontal and

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<sup>2</sup>See next section for the description of the literature on conglomerate FDI.

<sup>3</sup>Along with the standard definition of economies of scope, proposed in the seminal paper by Panzar and Willig (1981), firm realizes economies of scope if join costs are *subadditive*,  $F(x_1) + F(x_2) > F(x_1 + x_2)$ .

vertical deals. From one hand side, conglomerate M&A, similarly to horizontal, occur relatively more within Northern economies. On the other, as vertical M&A, they involve relatively more often deals between firms operating simultaneously in manufacturing and services. Further, to the opposite with all the other types of M&A, conglomerate M&A are relatively less dominated by within-services deals. The results also go along with the Alfaro and Charlton (2009). Looking at pairs of primary codes of acquiring and acquired units, at 3-digit, most of conglomerate deals appear as horizontal.<sup>4</sup> while at 6-digit, both horizontal-like and vertical-like deals are strongly present. An econometric analysis at the bilateral level documents that conglomerate M&A are flowing between richer, geographically and culturally closer economies. They rely less on institutions and are less sensitive to corporate taxes and financial constraints on the destination market. The results exclude also the idea that conglomerate deals are driven by so-called fire-sale FDI.

Finally, at the transaction level I build two match-level determinants of M&A decision, *Acquiror-Target Relatedness score* (ATRs) and *Target Density Index* (TDi). ATRs takes into account the industry mix of both partners of the match and measures the overall relatedness of the activities between acquiror and target. It indicates whether MNEs target firms active in industries closely related to their own. Referring to the earlier example of the French car manufacturer X, ATRs investigates whether X will acquire more likely a motorbike producer than a cupcake factory. TDi on the other hand measures how closely the target firm's industry mix is related to the local comparative advantage structure. TDi indicates whether MNEs target firms in those country-industries which are relatively better in the production of a given product. Hence, TDi investigates whether our French car-maker X would acquire a motorbike producer in Germany as opposed to one in Burkina Faso. A series of probit and logit regressions on manufacturing data confirms the significance of both measures. MNEs doing conglomerate deals seem to choose firms that have activities relatively close to the acquiror occupation baskets and are more tied to local comparative advantage.

The rest of the paper is organized as follows, Section 2 describes related literature. Section 3 presents the data. Section 4 provides descriptive statistics analysis and investigates econometrically similarity and differences in determinants of M&A flows of different kinds at the bilateral level. Section 5 introduces ATRs and TDi measures and runs corresponding transaction level

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<sup>4</sup>This is consistent with earlier findings reported in the context of classical horizontal *versus* vertical approach.

analysis. Finally Section 6 concludes.

## 2 Related literature

This paper lies on the cross-section of literatures on FDI, conglomerates and multi-product firms studied in different subfields of international economics, business and finance. Further, the paper associates these studies with the network theory of product space. This section draws a brief review for each of corresponding streams of literature.

### *Motives for FDI - Horizontal, Vertical and beyond...*

Traditionally, international trade literature distinguishes two main motives for FDI, market access (horizontal FDI) or relocation of (parts of) production (vertical FDI). In case of the former, MNEs have incentives to engage into FDI in a presence of low economies of scale, important trade costs and when destination market is sufficiently large, along with proximity-concentration trade-off (Markusen, 1984). For the latter, MNEs engage into FDI to benefit from lower production cost (Helpman, 1984). The concept of conglomerate FDI on the other side is quasi-inexisting in international trade literature. Moreover, until recently Given that a large part of M&A takes place between developed countries, it was assumed that M&A flows are mainly horizontal. Alfaro and Charlton (2009) showed however that the share of vertical FDI is larger than previously thought even between Northern economies. They introduce term intra-industry vertical FDI to describe relation between a parent and subsidiary that share the same two-digit code but different three-digit codes. Recent literature exploring firm-level data sheds more light on the M&A decision at the level of the unit. Guadalupe et al. (2012) describes theoretically and show on M&A made in Spain that MNEs target more productive firms as such choices lead to higher post-merger returns from innovation. Blonigen et al. (2012) suggest acquiring networks of exporters as a motive for M&A using French inbound M&A data. MNEs target also more productive firms that experienced a negative productive shock in years prior to acquisition. The authors coin the term "cherries for sale" to describe this type of M&A and describe the reported findings theoretically. Head and Ries (2008) on the other hand model M&A as an outcome of the market for corporate control. In addition, a new evidence reports no shipments between vertically linked affiliates (Atalay et al.,

2014; Ramondo et al., 2013). To explain this surprising fact, Atalay et al. (2014) suggest transfers of intangible assets from headquarters towards the affiliates as an alternative motive for vertical FDI. These interesting findings let us conclude that motivation of MNEs to do M&A may be more complex than suggested by earlier literature.

A voluminous literature studies macroeconomic determinants of FDI flows in both international economics, international business<sup>5</sup> and finance analyses factors affecting direction of FDI flows. This voluminous literature points the importance of, *inter alia*, financial development (*e.g.*, diGiovanni, 2005; Coeurdacier et al. 2009), governance and quality of institutions (*e.g.*, Rossi and Volpin, 2004; Hur et al., 2011; Hyun and Kim, 2007), tax rates (*e.g.*, Hebous et al., 2011), or distance and cultural proximity, DiGuardo et al., 2013; Azemar et al., 2012; Drogendijk and Slangen, 2006. Desbordes et al. (2015) provide a detailed review of literature on FDI determinants.<sup>6</sup> Concerning the relation between FDI flows and destination comparative advantage, Yeaple (2003) shows that M&A flows follow pattern consistent with comparative advantage on US data.<sup>7</sup> Desbordes et al. (2015) investigate the effect of RCA on both outflows and inflows of GF and M&A. While domestic RCA seem to enhance GF outflows in particular, FDI inflows of both types appear to be equally affected by RCA on the destination side.

Given the focus on the expanding character of MNEs, this study is also related to the literature on multi-product firms flourishing in international trade (*e.g.*, Bernard et al., 2007; Bernard et al., 2010 and 2011; Feenstra and Ma, 2007, Yeaple, 2013 or Nocke and Yeaple, 2013). These papers focus however mainly on the export decision of multiproduct firms simply assuming that firms produce many products or that their choices which products to produce depends on randomly-drawn product-specific productivities. The notable exceptions is Eckel and Neary (2010) and following them Arkolakis and Muendler (2010), where multiproduct firms have core competency products and have decreasing efficiency in subsequent products.

To my knowledge, the only trade paper that analyses conglomerate FDI flows is Herger and McCorriston (2014). Similarly, the authors report a high share of conglomerate deals in M&A flows.

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<sup>5</sup>In international business literature, see Shimizu et al. (2004) for a literature review on M&A, see Slangen and Hennart (2009) for a review on empirical studies on GF and M&A.

<sup>6</sup>See also Blonigen (2005).

<sup>7</sup>Yeaple (2003) shows that US outbound FDI in industries with high skilled-labor intensities favour skilled-labor abundant countries while the opposite holds true for industries with lower skilled-labor intensities.

Their study limits however to a bilateral comparison of conglomerate flows with the horizontal and vertical ones in a gravity setting and they do not explore transaction level dimension.

### *Conglomerate FDI*

While international trade studies put very little emphasis on conglomerate M&A, business and law literature analyzes the concept under various angles. Next to commonly evoked economies of scale and scope, these studies point diversification motive, enhancement of market power or multimarket contact (Scott, 1982).<sup>8</sup> The consequences of conglomerate M&A are also studied in portfolio theory. The portfolio effect of conglomerate M&A corresponds to the risk of anti-competitive outcomes. These may be generated either by increase of acquiror market power and the fact that the acquiror can gain control over complementary products. See OECD (2002) for an extensive analysis of literature on the portfolio effect of conglomerate M&A. In his seminal paper, Mueller (1969) looks at conglomerate mergers as non-value-creating transactions. The author suggests managers' personal interests as the main driver of this type of deals arguing that bigger post-merger firms are perceived as a sign of prestige and wealth. The effects of conglomerate acquisitions are also widely studied in both corporate and competition law in the context of anti-trust law and public policies. See Dean (1970) for a list of determinants of conglomerate deals.

In order to better understand current trends in M&A activity of MNEs, one should take a step back and look at the global patterns of M&A in a wider time framework. M&A flows are known to come in waves, each of them being dominated by one specific type of merger and remaining usually limited to few industries (Lipton, 2006).<sup>9</sup>

Finally, the sixth wave of mergers started in mid-2000's. Lipton (2006) cites as main factors globalization and "encouragement by the governments of some countries [...] to create strong

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<sup>8</sup>See Motis (2007) for a literature review on motives for M&A.

<sup>9</sup> Six waves of M&A can be distinguished. Lipton (2006) describe these from corporate law point of view as follows; (i) a horizontal wave by the end of the XIXth century, driven by monopolistic motives, aiming to increase acquirors' market share; (ii), a vertical wave in the 1920's, with high participation of manufactures acquiring value chains of production, with a notable example of Ford; (iii) a conglomerate one, in the 1960's, with diversification motive as the main driver; (iv) a wave of takeovers in the 1980s; (v) a wave of market expansion in the 1990s, with deals that were neither pure horizontal nor pure conglomerate, with a high concentration of deals in Financial Services, Telecommunication, Media and Technology industries. (vi) See Neary (2007) for the references in economic literature on the waves of M&A.

national and global champions" (p.7). According to this classification, the time coverage of the present study corresponds the wave of "global champions" consistent with activity of conglomerates and expanding character of M&A.

### *Product Space and Industry Expansion*

This study makes also reference to the network theory. The product space, proposed by seminar work by Hidalgo et al. (2007), presents the universe of products traded in the global economy as a network. This network is shaped by pair-wise proximity, or relatedness, between products. The proximity between pairs of products is calculated as co-exporting probability. The idea is that products exported jointly by an important number of countries should be related in terms of technology and knowledge requirements, infrastructure and institutional development. Hence, product proximity can be used as a predictor of country specialization patterns. To follow the example of Hidalgo et al. (2007):

"[...] "proximity", which formalizes the intuitive idea that the ability of a country to produce a product depends on its ability to produce other products. For example, a country with the ability to export apples will probably have most of the conditions suitable to export pears. They would certainly have soil, climate, packing technologies, and frigorific trucks. In addition, they would have skilled agronomists phytosanitary laws, and trade agreement that could be easily redeployed to the pear business."

*The Product Space Conditions the Development of Nation*  
Hidalgo, Klinger, Barabási and Hausmann, Science, vol. 317, p. 484, 27 July 2007

Hidalgo et al. (2007) use product space to analyze how countries move towards production of goods close to the ones that they already produce. By the same, the concept of product space finds its main application in development economics as a predictor of economic growth (e.g., Hidalgo et al., 2007; Kali et al., 2013) and export performance (e.g., Poncet and Starosta de Waldemar, 2013). In the present study, I apply the concept to study the product space of MNEs and see how this expand via M&A. To my knowledge, I am the first to apply these tools to a micro-level firm study.



### 3 Data

I use Zephyr dataset, provided by Bureau van Dijk, a very detailed transaction level data on M&A deals among over 180 countries over a recent period 2000-2011. Zephyr reports M&A deals above one million pounds. It provides data on domestic and international M&A deals. While the majority of international trade papers focuses only on cross-border M&A, I look at both, domestic and cross-border deals done by multinational firms. As multinationals are defined these firms that during have made at least one cross-border M&A during the sample period. Zephyr, next to primary industry codes provides also up to 30 secondary codes. Figure 1 presents distribution of number of codes for both acquiror and target. Zephyr provides also data on deal value. These are however missing for over a half of observations. Moreover the dataset required important cleaning and adjustment work in terms of country names, industries and deals coding. See Desbordes et al. (2015) for detailed description of the construction of the dataset.

I use vertical linkages from Atalay et al. (2014) in order to define which industries are vertically connected. The authors compute vertical links from 1992 Bureau of Economic Analysis Input-Output Tables, the 1992 Economic Census, the 1993 Commodity Flow Survey, the 1993 Annual Wholesale Trade Survey, and the 1993 Annual Retail Trade Survey.<sup>10</sup> Both measures proposed in the paper, ATRs and TDi, are based on product relatedness and density concepts (Hidalgo et al., 2007). These require measures of Revealed Comparative Advantage (RCA). RCA is measured as Balassa (1964) index computed from BACI (Gaulier and Zignago, 2010) dataset on trade flows in manufacturing. Unfortunately an analogous data for trade flows in services is not available at disaggregation level adequate for the analysis proposed below. As for the control variables used in the econometric approach, economic geography indicators come from CEPIL, GDP and GDP per capita come from Penn Tables. Data on corporate taxes are from KPMG, market capitalization from *fDi markets*, currency crisis from Reinhart. Lastly corporate governance and institutional development data were computed from QOG (Quality of Governance) dataset.

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<sup>10</sup>See Atalay et al. (2014) for details on the computation methodology.

## 4 Deals Classification and Descriptive Statistics

### 4.1 Classification of M&A

M&A transactions are classified into four mutually exclusive categories, *HV*, namely (1) *horizontal*, (2) *vertical*, (3) *mixed* and (4) *conglomerate*. To classify the deals, I use the information on primary and secondary industry codes of acquiring and acquired firms. Vertical links between industries are defined as in Atalay et al. (2014), based on IO tables. A given industry pair is linked vertically if at least 5% of sales of one industry are flowing to the other industry. Industry pairs are defined as horizontal simply if they share the same 6-digit NAICS codes (or equivalently 4-digit SIC code). Accordingly, (1) as *horizontal* M&A are categorized these deals that among all the possible combinations of acquiror and target industry codes have *at least* one horizontal link and *no* vertical links. Conversely, (2) *vertical* deals are these that have at least one industry pair being vertically linked and no horizontal pairs. (3) *Mixed* deals regroup the transactions where both horizontal and vertical links were found. Finally, (4) *conglomerate* category regroups deals for which no horizontal nor vertical links were found among all the possible combination of acquiror and target codes. The top part of Table 1 provides a formal definition of the four categories.

The bottom part of the Table 1 presents the distribution of the results for the overall sample of M&A deals done by MNEs as well as for the cross-border and the domestic subsamples. Conglomerate M&A appear by far as the largest category, representing 46.7% of all deals. The second biggest category corresponds to horizontal deals, with 27.5%, followed by mixed and vertical deals with, respectively, 13.6% and 12.4%. See also Herger and McCorriston (2014) for a similar classification.<sup>11</sup> The rows below reports the results looking at domestic and cross-border deals separately. The proportions of the four *HV* types for domestic and cross-border deals remain surprisingly similar. Conglomerate deals do not seem to be a phenomenon specific to neither, domestic nor cross-border deals.

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<sup>11</sup>Herger and McCorriston (2014) find comparable results using vertical linkages from Acemoglu et al. (2009). They report also the results for different thresholds of vertical relatedness. They look however only at the first 6 industry codes. Given that the codes are not ordered hierarchically, taking into account only the first six codes may give misleading results. In addition, they do not take into account domestic deals.

<b>Horizontal</b>	$\mid \exists i, j \mid indu_i^o = indu_j^d \quad \wedge \quad V_{i,j} \neq 1 \quad \forall i, j$
<b>Vertical</b>	$\mid indu_i^o \neq indu_j^d \quad \forall i, j \quad \wedge \quad \exists i, j \mid V_{i,j} = 1$
<b>Mix</b>	$\mid \exists i, j \mid indu_i^o = indu_j^d \quad \wedge \quad \exists i, j \mid V_{i,j} = 1$
<b>Conglomerate</b>	$\mid indu_i^o \neq indu_j^d \quad \forall i, j \quad \wedge \quad V_{i,j} \neq 1 \quad \forall i, j$

where  $j, j$  - SIC industry codes (primary and secondary).  
 $o$  - country of origin,  $d$  - destination country.  
 $V_{i,j}$  - vertical relatedness dummy.  $V_{i,j} = 1 \Leftrightarrow V_{i,j} > \bar{V}_{i,j}$

	Horizontal	Vertical	Mixed	Conglomerate
<b># deals</b>	30,325	13,786	15,014	<b>51,781</b>
<b>Percentage</b>	27.5%	12.4%	13.6%	<b>46.7%</b>
<i>Cross-Border</i>				
<b># deals</b>	19,616	8,332	9,552	<b>31,764</b>
<b>Percentage</b>	28.3%	12.0%	13.8%	<b>45.9%</b>
<i>Domestic</i>				
<b># deals</b>	10,709	5,454	5,462	<b>20,017</b>
<b>Percentage</b>	25.7%	13.1%	13.1%	<b>48.0%</b>

Table 1: Classification of M&A deals

**Stylized Fact 1.** *Over 46% of M&A deals are found to be conglomerate, i.e., neither horizontal nor vertical. Similar proportions are found when considering cross-border and domestic deals separately.*

## 4.2 Descriptive Statistics - Looking for Regularities

Given the novelty of documented above finding, a descriptive analysis of conglomerate flows and their comparison with horizontal and vertical deals appears as an exercise worth documenting. One could expect that conglomerate M&A may be dominated by flows in a particular direction (such as  $N - N$  or  $N - S$ ) or that they can have different broad sector composition (i.e., to be dominated by either services or manufacturing deals). This subsection provides a corresponding descriptive study.

### 4.2.1 North *versus* South

First, M&A flows are classified into four "regional" categories  $N - S$ , depending whether home and host economies are among developed or developing countries, with North-North, North-South, South-North, South-South flows ( $NN$ ,  $NS$ ,  $SN$  and  $SS$  respectively).<sup>12</sup>

Figure 2 shows how M&A flows are distributed within and between  $N - S$  categories. The top panel (figures *a* and *b*) presents the distribution of  $HV$  deals for each of  $N - S$  directions. The bottom panel (figures *c* and *d*) conversely draws the directional  $N - S$  composition for each  $HV$  category. In line with the well established evidence, M&A are dominated by deals between Northern economies (*a*). Surprisingly, the distribution of the M&A flows of different  $HV$  types is very stable across all four  $N - S$  categories (*b*). The share of conglomerate M&A varies only very little across different  $N - S$  directions, from 44 to 47%, and thus it does not appear to be specific to a one particular direction. Horizontal M&A represent the second largest category. They appear to be slightly less important for  $SS$  flows. Looking the distribution of  $HV$  categories broken by  $N - S$  in the bottom specification ((*c*) and (*d*)), the differences in within- $HV$  shares (*d*) are relatively more pronounced than the differences within- $N - S$  ones (*b*). Distribution of conglomerate flows among regional  $N - S$  categories appears as more similar to the distribution of horizontal flows. Both horizontal and conglomerate M&A are relatively more dominated by  $NN$  flows and have relatively less  $SS$  flows.

**Stylized Fact 2.** *The shares of HV types are distributed in a similar way **within** each of  $N - S$  regional categories. The distribution of conglomerate flows **across**  $N - S$  categories has features similar to the distribution of horizontal flows, with both categories dominated by North-North flows.*

### 4.2.2 Manufacturing *versus* Services

One could also expect that the distribution between different types of M&A may depend on whether firms participating in a deal are operating in manufacturing or services sector. Accordingly, M&A flows are classified into four sectoral categories, deals between firms operating (*i*) only in manufacturing, *pure manuf*, (*ii*) only in services, *pure serv*, (*iii*) cross-sectoral deals, where one of the match partners is a pure manufacturer while the other operates only in services, *pure*

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<sup>12</sup> The classification into Northern and Southern economies rely on the standard IMF North-South categorization.

*manuf-serv*, (iv) the last category, *other*, with deals where acquiror and/or target firms are active in both broad sectors, manufacturing and services. Analogously to Figure 2, Figure 3 presents the distribution of M&A flows according to the two dimensions, *HV* and broad sectors categories. It can be immediately noticed that M&A flows in general are dominated by deals between firms doing services uniquely (i).<sup>13</sup> Interestingly, for within-services category, conglomerate deals are relatively less present, as compared to the three remaining sectoral categories. They account only for 37% for *pure serv*, opposite to p.ex., *pure manuf – serv* category where conglomerate flows represent 63%.<sup>14</sup> Looking at the bottom panel of the figure, sectoral distribution within each of *HV* categories is relatively less uniform than in the previous specifications. Conglomerate M&A do not seem to be dominated by any of cross-sectoral categories. Conversely, they are more heterogeneous in terms of sectoral composition than the three other *HV* categories. In this specification, conglomerate M&A appear also as more similar to vertical deals in terms of cross-sectoral composition.

**Stylized Fact 3.** *While deals in services dominate overall M&A flows, their presence is less pronounced in conglomerate flows.*

Notice that, if to sum up the two services-manufacturing categories, i.e., *pure manuf – serv* and *other*, this combined category would represent over 40% for vertical deals, so it would be of a size comparable to within-services category. A similar score would be found for conglomerate deals. Hence within vertical and conglomerate M&A, over 40% of deals occurs across broad sectoral categories.

### 4.2.3 Sectoral classification

Table 3 lists top ten the most frequent industry pairs among conglomerate deals. The ranking relies on industry primary codes and sums deals at two aggregation levels, 3- and 6-digit NAICS, top and bottom part of the table respectively. The top of the 3-digit rank is dominated by deals in IT services and manufacturing. At this aggregation level, most of the top industry pairs is

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<sup>13</sup>See Desbordes et al. 2015 for a detailed descriptive statistics sectoral level analysis of M&A.

<sup>14</sup>The fact that conglomerate deals are particularly important for *pure manuf – serv* category may also come from the construction of vertical linkages used for *HV* categorization. These were constructed using IO tables and may miss some of the links between manufacturing and services. At the same time one has to remember that *puremanuf – serv* category represent only a small fraction of overall M&A flows and relates only to around 7300 deals.

classified as horizontal. This finding goes in line with Alfaro and Charlton’s (2009) vertical intra-industry trade.<sup>15</sup> The ranking at 6-digit level shows on the other hand that both *horizontal-like* (e.g., rank 1 and 4) and *vertical-like* (e.g., rank 3, 6 or 7) types of pairs are present.

**Stylized Fact 4.** *At 3-digit NAICS level, conglomerate deals are predominantly horizontal. At a higher, 6-digit disaggregation level however, both **horizontal-like** and **vertical-like** types of deals are strongly present.*

Lastly, Figure 4 maps M&A deals of four *HV* categories as hollows on separate acquiror-target SIC codes graphs. Hollow size reflects number of deals for a given acquiror-target industry pair weighted by frequency of deals relative to the overall number of M&A. Table 2 in Annex provides a list of two digit SIC codes.<sup>16</sup>

Panels (a) through (d) map respectively horizontal, vertical, mix and conglomerate deals. The horizontal axis corresponds to acquiror primary codes while the vertical one to target codes. One could fear that that the high rate of conglomerate deals found in the data (*Stylized Fact 1*) may be driven by our too restrictive categorization, namely by the *too high* disaggregation level. In our specification, as horizontal are defined only these deals that share all the 6-digits for at least one pair among all the combinations of target and acquiror industry codes. It could be therefore the case, that an important part of deals classified here as conglomerate are actually *horizontal-like*, with industries sharing the same 5- but not 6-digits. Such finding would be in line with these reported in Table 3.

Figure 4 shows however clearly that this is not the case and that conglomerate deals occur across all types of industries in panel (d). If conglomerate deals would occur mostly across neighbouring industries, the distribution of deals would be concentrated around the diagonal line on the graph *d*. Moreover, the presence of horizontal and vertical lines is particularly noticeable. On the acquiror side, these are Agricultural Services (07), Holding and Other Investment Offices (67), business services (72) and Engineering and Management Services (87) that draw strong horizontal lines. Firms operating in these industries appear therefore as particularly active conglomerate

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<sup>15</sup>See Section 2 for more details on vertical intra-industry trade.

<sup>16</sup> The two-digit SIC broad sector categories are the following: Agriculture, forestry, fishing (01-09); Mining (10-14); Construction (15-17); Manufacturing (20-39); Transportation pub. utilities (40-49); Wholesale trade (50-51); Retail trade (52-59); Finance, insurance, real estate (60-67); Services (70-89); Public administration (91-97);

acquirors. On the target side, except for Agriculture, a similar set of industries can be listed with and additional presence of Legal Services (82). In addition, an important activity can be also noticed for a large part of manufacturing sectors (32 – 39) and Retail Trade (52 – 59). All in all, the graph shows that in a conglomerate world, firms from particular industries tend to buy firms from all the other industries (vertical lines), while at the same time firms in particular industries tend to be bought by firms from all the industries (horizontal lines). Reader must however remember that these graphs are plotted based exclusively on primary codes. Drawing a general conclusion on industry patterns of conglomerate deals based on a two-dimension graph may be misleading. The multidimensional character of the data yields a necessity of a corresponding multidimensional analysis. Section 5 provides such an analysis.

### 4.3 Bilateral Level Estimation - Conglomerate vs. Non-Conglomerate M&A

Before turning to the transaction level analysis, I compare conglomerate M&A flows with the non-conglomerate ones at bilateral level, using a simple gravity-like estimation common to FDI studies.<sup>17</sup> The approach follows Desbordes et al. (2015). The regression includes the habitual set of macroeconomic and gravity controls. These are included on their own for the overall sample of M&A and interacted with a conglomerate dummy. Such an approach allows comparing directly the coefficients of conglomerate flows with other types of M&A. The estimation includes both means and deviation from the mean of control variables. This way both cross-section and time-series estimates (i.e., between and within estimates) can be obtained simultaneously.<sup>18</sup> These correspond to short- and long-run effects. The following exponential conditionally correlated random effects model is estimated:<sup>19</sup>

$$\begin{aligned} M\&A_{godt} &= \alpha_{odg} \exp(x\beta + \tilde{x}\eta) \epsilon_{godt} \\ \alpha_{god} &= \exp(\delta_1 cM\&A + \bar{x}\gamma + z\theta + \tilde{\tilde{x}}\phi + \tilde{\tilde{z}}\psi + \delta_{odg}) \end{aligned} \quad (1)$$

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<sup>17</sup>See the literature review for description.

<sup>18</sup>Note that approximately similar results could be obtained by running regressions on averages and on changes, with fixed effects.

<sup>19</sup>See Desbordes et al. (2015) for a detailed description of the approach.

with  $M\&A_{odt}$ , the count of deals between origin country  $o$  and destination country  $d$  at time  $t$  and  $g = \{ncM\&A, cM\&A\}$  where  $cM\&A$  corresponds for conglomerate deals while  $ncM\&A$  for the remaining non-conglomerate ones.  $cM\&A$  is a dummy taking the value of one if the deal is conglomerate,  $\mathbf{x}$  is a vector of time-varying factors, while  $\bar{\mathbf{x}}$  the time-average of these factors,  $\mathbf{z}$  is a vector of time-invariant explanatory variables, symbol  $\sim$  indicates that variables have been interacted with the  $cM\&A$  dummy,  $exp(\delta_{odg})$  is a random effect, and  $\epsilon_{odst}$  is a multiplicative error term. Given the count data nature of the dependent variable, a negative binomial model is adopted. Year dummies are included. Standard errors are clustered at the country-pair level. The regression includes four types of controls, (a) macroeconomic, (b) economic geography, (c) institutional, technological and corporate development and (d) financial and crisis variables. Group (a) controls for market size  $GDP_k$  (long-run effects of GDP, average), economic growth (short-run effects of GDP, deviation from the mean)  $Growth_k$  and country wealth, measured as average GDP per capita,  $GDPcap_k$ <sup>20</sup> with  $k = o, d$ . (b) Economic geography indicators include bilateral distance, shared border, common official language and past colonial tights, respectively *Distance*, *Border*, *Language* and *Colony*. Notice that all of them are time-invariant. Panel (c) controls for quality of institutions,  $Inst_k$ , technological development,  $Tech_k$ , corporate governance  $Corp.Gov_k$  and destination corporate tax rates,  $Crop.Taxes_d$ . Finally in (d) credit constraint,  $Cred_k$  and short and long run effects,  $SR - C.Crisis_k$  and  $LR - C.Crisis_k$  of currency crisis are added.

Table 4 presents results of the estimation. Each of the regression blocks has two columns. The first column reports the results for the sub-sample of all deals that are not conglomerate. The second column reports the results of the interaction term of conglomerate dummy.  $\bullet$ ,  $\bullet\bullet$  and  $\bullet\bullet\bullet$  analogously to  $***$ ,  $**$  and  $*$  correspond to significance levels and denote whether coefficients of interaction with conglomerate dummy are significantly different from coefficients for non-conglomerate M&A. Block (1) includes controls *a*, to *c*. Block (2) additionally controls for the effects of financial crisis, *d*. Overall, the results show that while some factors affect similarly the flows of two types, some other factors appear to have different effect. In particular, the effect of factors such as market size, growth or corporate governance is similar across the flows of two types. Some differences however emerge. Conglomerate flows originate from and go to relatively wealthier economies, so to the economies with presumably larger asset markets. They are more

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<sup>20</sup>Analogous regression was run with GDP per worker measure instead of GDP per capita. The results remain comparable.



sensitive to geographic factors such as distance and border. They also seem to be more affected by cultural proximity, measured by common official language. MNEs doing conglomerate deals seem therefore to target destinations that are geographically and culturally closer. One may argue that conglomerate acquisitions can involve more *risk*, as compared with horizontal and vertical ones, given that firms acquire assets not directly related to their own activity. MNEs may therefore prefer to target firms in destination that are closer and where communication barriers are lower (common language). This could potentially facilitate control of the acquired units. At the same time, dummy for past colonial ties is not significantly different for conglomerate flows. Further, home technological development is slightly more important for conglomerate flows. This could correspond to the idea that MNEs from technologically more advanced countries could potentially transfer their (presumably superior) technology to the acquired units. Such an interpretation is also in line with Atalay et al. (2014).<sup>21</sup> Further, high rates of corporate tax do not appear to deter conglomerate M&A. Hence, MNEs' decision to make a conglomerate deal does not seem to be driven by cost saving (vertical) motives. Institutional development and access to credit do not seem to have a particular effect on conglomerate flows.

Lastly, one may suspect that the high share of conglomerate M&A in total M&A deals may reflect the opportunistic behaviour of financial conglomerates, so-called *fire-sale FDI* (Krugman, 2000), rather than expansion of MNEs towards new industries. MNEs may target firms affected by external shocks such as a crisis.<sup>22</sup> In order to verify whether conglomerate deals in the data do not correspond to pure capital market interactions, block (2) additionally controls for currency crisis. The results for overall sample of M&A are in line with fire-sale motive for FDI. On a short run currency crisis in destination country attracts M&A, but its effect on a long run is negative. These results however are not significantly higher for conglomerate deals. Hence, conglomerate M&A are not a pure speculative phenomenon.<sup>24</sup>

Summing up, the econometric macro-approach shows that conglomerate M&A are flowing

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<sup>21</sup>The authors provide evidence consistent with transfers of intangible assets from MNEs to newly acquired (vertically linked) units as described in Section 2.

<sup>22</sup>In line with that, Baker et al. (2009) document that MNEs engaging into FDI take advantage of cross-border arbitrage on capital markets.<sup>23</sup> Desbordes et al. (2015) confirm the importance of fire-sale FDI motive for M&A, as opposite to greenfield FDI.

<sup>24</sup>These results are also in line with the evidence reported by Alquist et al. (2013). The authors show that acquisitions made during the crisis are not driven by foreign financial firms but rather by MNEs targeting firms in the same *broad* industry.

between richer, geographically and culturally closer economies. They rely less on institutions and are less sensitive to constraints on destination financial markets. All the remaining included controls do not appear to have a significantly different effect on the M&A flows of the two types.

## 5 Expanding Activity? - ARTs and TDi measures

The results of descriptive statistics and econometric analysis at bilateral level reported above do not bring very conclusive results as for distinctive character of conglomerate flows with respect to other types of M&A. Conglomerate FDI are flowing within and across both Northern and Southern economies (Figure 3). They occur equally frequently within as across borders (Table 1). They are not specific to manufacturing nor to services (Figure 4). At 3-digit NAICS level they are classified mostly as horizontal, while at 6-digit level some of them appear also as vertical-like (Table 2). All in all, the picture of conglomerate M&A drawn from the results on aggregate flows does not appear very sharp. I turn here to an analysis of match-level determinants of M&A which combines characteristics of both partners of transaction. The approach takes into account proximity linkages among all the possible combinations of acquiror and target industry codes within a M&A deal. It also integrates characteristics proper to country-industry pairs. As mentioned above, the study proposes two measures that could influence M&A decision, Acquiror-Target Relatedness score (ARTs) and Target Density Index (TDi) respectively. ARTs captures whether MNEs acquire firms active in industries relatively more closely related to their own basket of occupations. TDi on the other hand measures whether targeted firms operate in industries more tied to the comparative advantage structure of target country.

### 5.1 Product Space: Industry Relatedness and Density

The two indexes of interest are built on product relatedness and product density measures from Hidalgo et al. (2007). The methodology follows closely the one of the authors'. Both of the measures build on revealed comparative advantage (RCA) defined as Balassa index. RCA is computed from world trade flows data in manufacturing (BACI, Gaulier and Zignago, 2010).

Industry relatedness corresponds to co-exporting probabilities between pairs of industries:

$$\phi_{ij} = \min[P(i|j), P(j|i)]$$

where  $P(i|j)$  is a conditional probability that a country that has a comparative advantage in exporting products in industry  $j$  has also comparative advantage in exporting products in industry  $i$ .  $P(j|i)$  gives an analogous probability for  $i$  with respect to  $j$ . The industry relatedness,  $\phi_{ij}$  represents the minimum of the two. Hence,  $\phi_{ij}$  is an outcome-based indicator of how closely given two industries are related to each other. It reflects the idea that if countries export goods from both industries with comparative advantage, these industries may presumably share similar requirements in terms factors of production, technology, know-how, infrastructure, institutions and such.

Density of industry  $i$  in country  $d$  on the other hand is calculated as an average bilateral relatedness of  $i$  with all the other industries in which  $d$  exports with comparative advantage. Thus, density captures how closely a given industry is related to the local productive structure. It is considered as a proxy of industry (product) spillovers in terms of knowledge, economies on scope and scale, that are due to the consistent specialization. Formally, industry density is computed as:

$$\Theta_i^d = \frac{\sum_{j \in RCA^d=1, j \neq i} \phi_{ij}}{\sum_{j \neq i} \phi_{ij}}$$

where the numerator sums all the relatedness scores of industry  $i$  with each of industries  $j$  in which the host country  $d$  exports with comparative advantage. The denominator sums relatedness scores of  $i$  with all the industries that exist in the world product space. Hence, industry  $i$  density in a host country  $d$  corresponds simply to an average of industry  $i$  bilateral relatedness with the other industries that country  $d$  exports with comparative advantage.

## 5.2 Acquiror-Target Relatedness score and Target Density index

Industry relatedness and density are next used to construct two measures related to the quality of match between M&A partners (ATRs) and the position of occupational mix of the target with respect to destination country specialization (TDi). ATRs relies on industry proximity in-

formation. It takes into account relatedness scores among all the possible combination of acquiror and target industry codes and calculates their average:

$$ATRs^{ac,tg} = \sum_i^m \sum_j^n \frac{\phi_{i,j}^n}{m} \quad (2)$$

with  $ATRs^{ac,tg}$ , the acquiror-target relatedness score between acquiror  $ac$  and target  $tg$ ;  $i$  and  $j$  acquiror and target industries and  $m$  and  $n$  counts of respective  $ac$  and  $tg$  industry codes. Finally,  $\phi_{i,j}$  is industry relatedness between  $i$  and  $j$ .

TDi is calculated in a straightforward way, as an average of density scores across all the industries in which given target firm operates:

$$TDi_d^{tg} = \sum_j^n \Theta_{j,d}^{tg} / n \quad (3)$$

TDi is target-destination specific and it captures whether MNEs acquire firms that have activity relatively more closely related to the comparative structure of the destination country. This corresponds to the idea, that expanding activity MNEs would prefer to target firms that are potentially better in the occupations towards which acquiror wishes to expand its activity to. By doing such an acquisition the firm could acquire non-transferable assets (Nocke and Yeaple, 2007).

### 5.3 Estimation

Next ATRs and TDi are incorporated into a probit estimation, with the positive outcome corresponding to a realized M&A deal.<sup>25</sup> The following equation is estimated:

$$Prob(M\&A_{ac,tg,t} | \cdot) = F(\beta_1 ATRs_{ac,tg,t-1} + \beta_2 TDI_{tg,t-1} + \beta_3 Z_{o,d} + \mu_t + \nu_o + \iota_d)$$

with

$$M\&A_{ac,tg,t}^* = \beta_1 ATRs_{ac,tg,t-1} + \beta_2 TDI_{tg,t-1} + \beta_3 Z_{o,d} + \mu_t + \nu_o + \iota_d + \epsilon_{ac,tg,t}$$

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<sup>25</sup>Zephyr dataset reports only deals that took place. Non-M&A observations are generated then directly from the sample by matching randomly acquiror and target firms from the original sample.

and

$$M\&A_{ac,tg,t} = \begin{cases} 1 & \text{if } M\&A_{ac,tg,t}^* > 0 \\ 0 & \text{otherwise} \end{cases} \quad (4)$$

where  $Prob(M\&A_{ac,tg,t}|\cdot)$  corresponds to probability that in a given year  $t$ , a firm  $ac$  acquires a firm  $tg$ . This probability depends on how closely the industry mixes of the two firms are related, as measured by ATRs, and to what extent target firm activity is tied to comparative advantage structure of destination country, as measured by TDi. Next to ATRs and TDi, the estimation includes country level controls used in the previous series of regressions. Both, country and year, fixed effects are also included. Standard errors are clustered at bilateral country level. ATRs and TDi are used with one year lag in order to eliminate possible reversed causality.<sup>26</sup> I run the estimation on four subsamples, conglomerate, horizontal, vertical and all the non-conglomerate deals. The respective results are reported in columns 1-4 of Table 5. The coefficient  $\beta_1$  is expected to have a positive sign for horizontal and vertical deals for the straightforward reasons. If the hypothesis on the "expanding character" of conglomerate M&A done by MNEs is validated, the coefficient should have a positive sign also for the conglomerate deals. On the other hand, a positive coefficient  $\beta_2$  would suggest that MNEs target firms in these countries-industries that are relatively better in producing a given type of products. The results in the column (1) are in line with this intuition. Coefficients for both, ATRs and TDi, are positive and significant for the sample of conglomerate deals. Along with the reported evidence, the French car producer from our example would acquire a motorbike manufacturer rather than a cupcake factory (positive sign for ATRs) and it would do this in German rather than in Burkina Faso (positive sign for TDi). In addition and as expected, the coefficient for ATRs is positive and significant also across all the other specifications. Unsurprisingly, it has a higher coefficient for horizontal deals.<sup>27</sup> More interestingly, the coefficient of TDi is not significant and has a negative sign for horizontal deals, column (2). This result can correspond to horizontal takeovers done by stronger foreign competitors in the destinations where the industries of a given type are not strongly developed.

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<sup>26</sup>See Poncet and Starosta de Waldemar (2013) for the discussion on endogeneity issues in the context of product space.

<sup>27</sup>Relatedness score for a horizontal pair of industries equals one. Reader has to note however, that deals classified as horizontal may contain also non-horizontal industry pairs, as defined in Table 1. Therefore the total coefficient for horizontal match can be lower than unity.

Hence, these M&A would correspond to lemon grabbing on the Akerlovian market<sup>28</sup> rather than to cherry picking. Turning to the macroeconomic indicators, home wealth has a positive effect on conglomerate outflows, along with the finding reported at the bilateral flows. For the inflows on the other hand, the coefficient is negative and significant. Interestingly the coefficient of destination wealth is negative and very significant for vertical M&A, in line with factor price differential motive. Vertical deals seem also not to be deterred by low quality of institutions in the destination country. As at bilateral level (Table 4), the coefficient for common language is also very positive and significant for conglomerate deals.

An analogous series of regressions is run using also GDP per worker instead of GDP per capita, Table 6. The results are qualitatively similar. In addition, the coefficients for common language appear significant for horizontal and vertical deals. Lastly, a similar regression is estimated into logit approach in Table 7. Here as well, the coefficients for ATRs and TDi remain similar.

## 6 Conclusions

The present paper delivers a series of novel facts related to M&A choices done by multinational firms. The study reports that a high share of M&A done worldwide is conglomerate and as such is made for the reasons different from the ones commonly studied in the FDI literature. MNEs do M&A not only as a substitute of exports, to gain access to foreign markets or to extend vertical integration along the production chain. I argue here that conglomerate M&A represent a tool for MNEs to expand the spectrum of their activities and acquire specific assets. Further, relying on the network theory, I provide the evidence consistent with this hypothesis. MNEs acquire firms operating in the industries closely related to their own spectrum of occupations. In addition, they target firms in these destinations that are more tied to the local comparative advantage structure. In addition, the results are in line with recently developing literature on multiproduct firms. MNEs willing to start a new activity may prefer to acquire already existing units rather than to develop the activity internally. Such an acquisition may generate synergies and reduce sunk cost of the investment, as firms can potentially acquire specific know-how. The effect is magnified by the fact that target's product basket is tied more closely to the comparative advantage structure of

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<sup>28</sup>See Akerlov (1970).

the destination country. The literature on multi-product firms focuses on *exports* basket choices of MNEs, implicitly assuming that firms produce various products. No paper, to my knowledge, looks at how (and towards which direction) multinationals expand their activity. This paper should be perceived as an opening study to analyse expansion patterns of multinationals.

Understanding what are conglomerate M&A and what are their drivers appear as an exercise of particular interest at many levels. Approximately one third of total trade flows are intra-firm (OECD, 2011), while 37 among world 100 largest economies were corporations in 2012. A clear limit of the paper is that it takes into account only the M&A activity of the firms. By the same it draws only a very partial picture of firms expansion. Looking simultaneously at M&A decisions and these of greenfield investment as well as inner R&D investment would provide a more complete picture. Strategies of multinationals are extremely complex and seem to vary significantly from one conglomerate to another, making analysis of these very challenging.

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## Annex

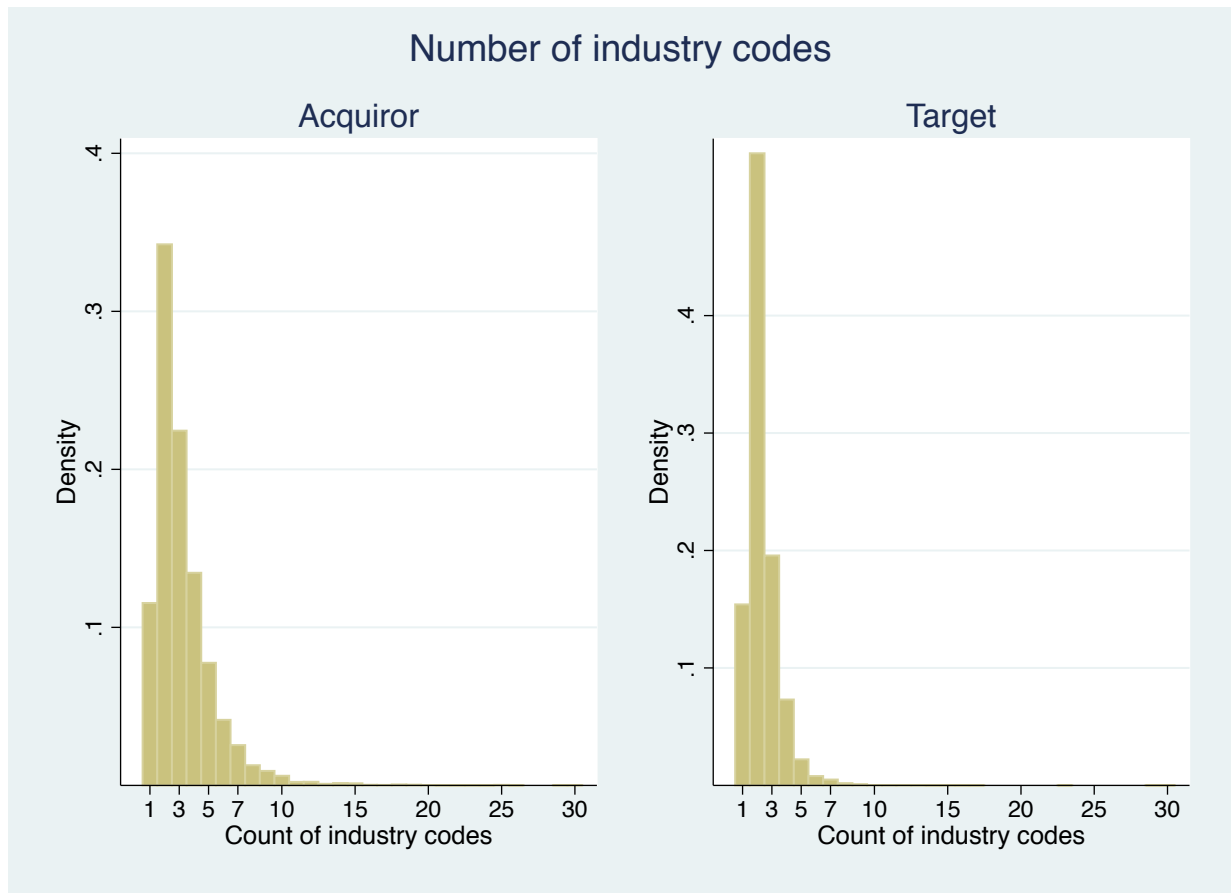


Figure 1: Number of industry codes for acquiror and target firms

2-digit SIC codes classification	
Division A.	Agriculture, forestry, & fishing (01-09)
Division B.	Mining (10-14)
Division C.	Construction (15-17)
Division D.	Manufacturing (20-39)
Division E.	Transportation & pub. utilities (40-49)
Division F.	Wholesale trade (50-51)
Division G.	Retail trade (52-59)
Division H.	Finance, insurance, & real estate (60-67)
Division I.	Services (70-89)
Division J.	Public administration (91-97)

Table 2: List of two-digit SIC codes

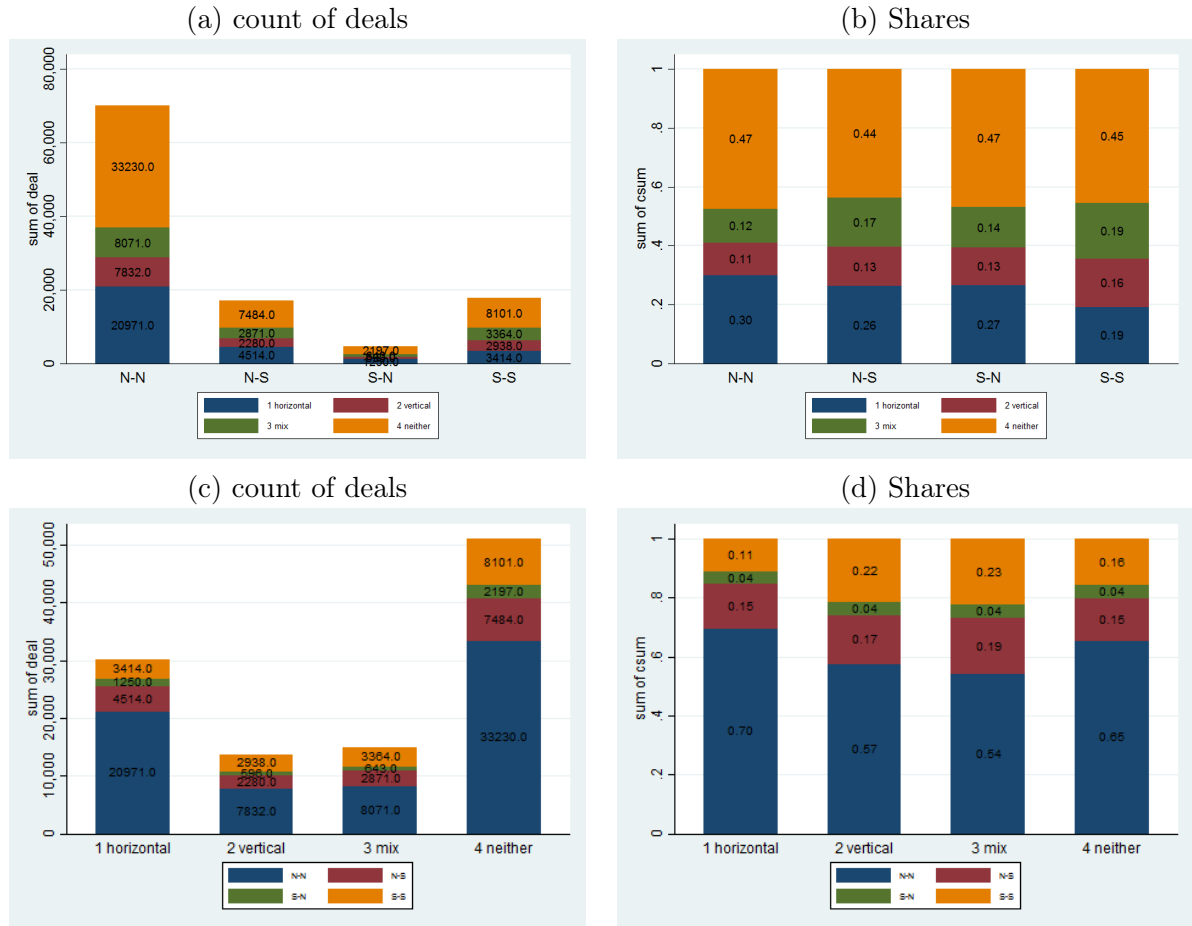


Figure 2: Repartition of M&A flows broken by  $N - S$  categories

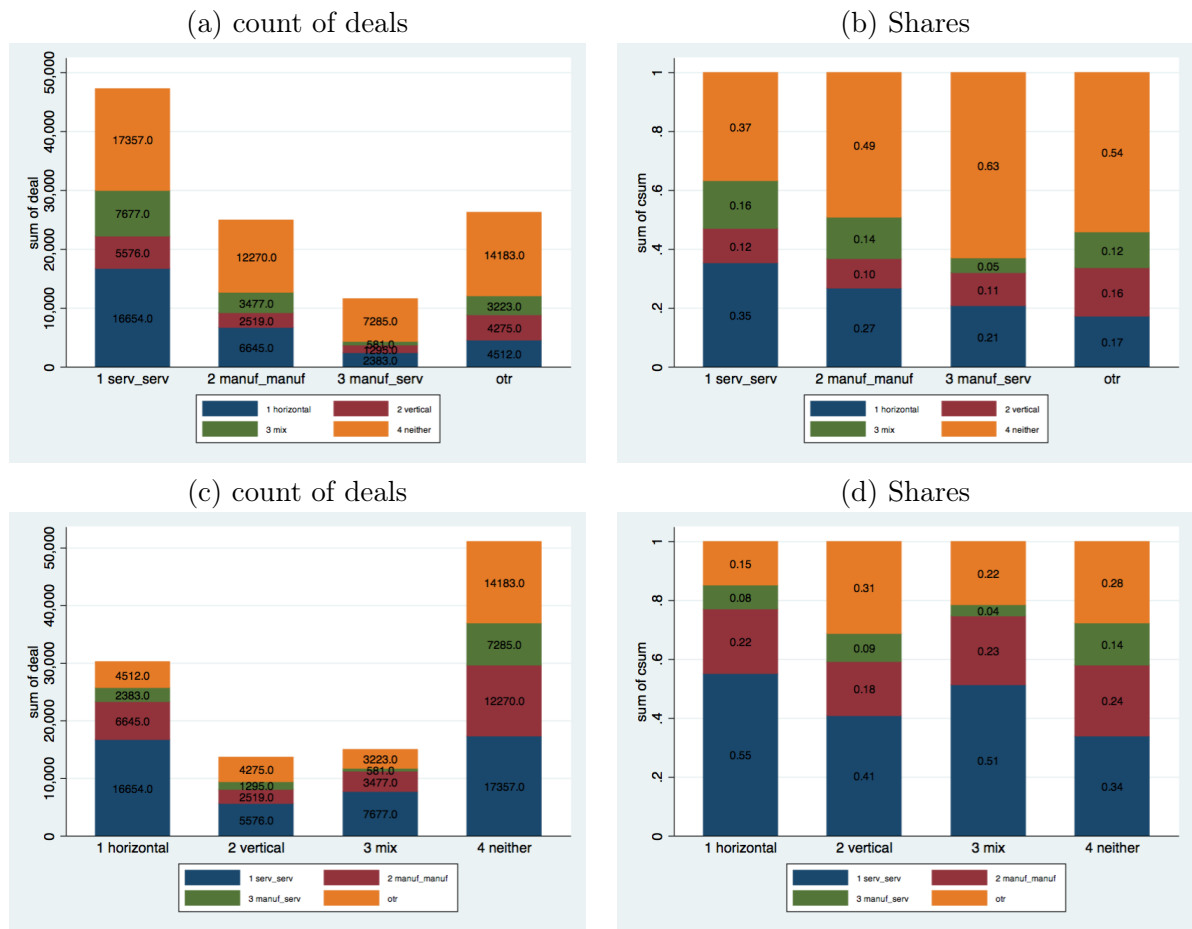


Figure 3: Repartition of M&A flows broken by broad sectors categories

Acquiror		3-digit		Target	deals
3-digit					
1	541	Prof., Scient., and Tech. Serv	541	Prof., Scient., and Tech. Serv	2896
2	334	Computer and Electronic Prod. Manuf.	334	Computer and Electronic Prod. Manuf.	959
3	334	Computer and Electronic Prod. Manuf.	541	Prof., Scient., and Tech. Serv.	944
4	325	Chemical Manufacturing	325	Chemical Manufacturing	728
5	311	Food Manufacturing	311	Food Manufacturing	617
6	221	Utilities	221	Utilities	485
7	523	Securities, Commodity Contracts, and Other Finc. Invest. and Related Activ.	541	Prof., Scient., and Tech. Serv	447
8	333	Machinery Manufacturing	333	Machinery Manufacturing	436
9	334	Computer and Electronic Prod. Manuf.	33	Manufacturing	420
10	517	Telecommunications	541	Prof., Scient., and Tech. Serv.	384
6-digit					
1	541512	Computer Systems Design Services	541511	Custom Comp. Progr. Serv.	166
2	523910	Miscellaneous Intermediation	541511	Custom Comp. Progr. Serv.	161
3	325412	Pharmaceutical Preparation Manuf.	541712	R&D in the Phys., Engin., and Life Scienc. (except Biotech.)	154
4	541511	Custom Comp. Progr. Serv.	541519	Other Computer Related Services	142
5	523910	Miscellaneous Intermediation	721110	Hotels (excp. Casino Hotels) and Motels	127
6	541511	Custom Comp. Progr. Serv.	423430	Comp. and Comp. Peripheral Equip and Software Merchant Wholesalers	119
7	519130	Internet Publish. and Broadcast . and Web Search Portals	541511	Custom Comp. Progr. Serv.	118
8	541511	Custom Comp. Progr. Serv.	517919	All Other Telecommunications	114
9	541511	Custom Comp. Progr. Serv.	511210	Software Publishers	112
10	334210	Telephone Apparatus Manuf.	541511	Custom Comp. Progr. Serv.	112

Table 3: Top 10 3- and 6-digit industry pairs for conglomerate MAA (count of deals)

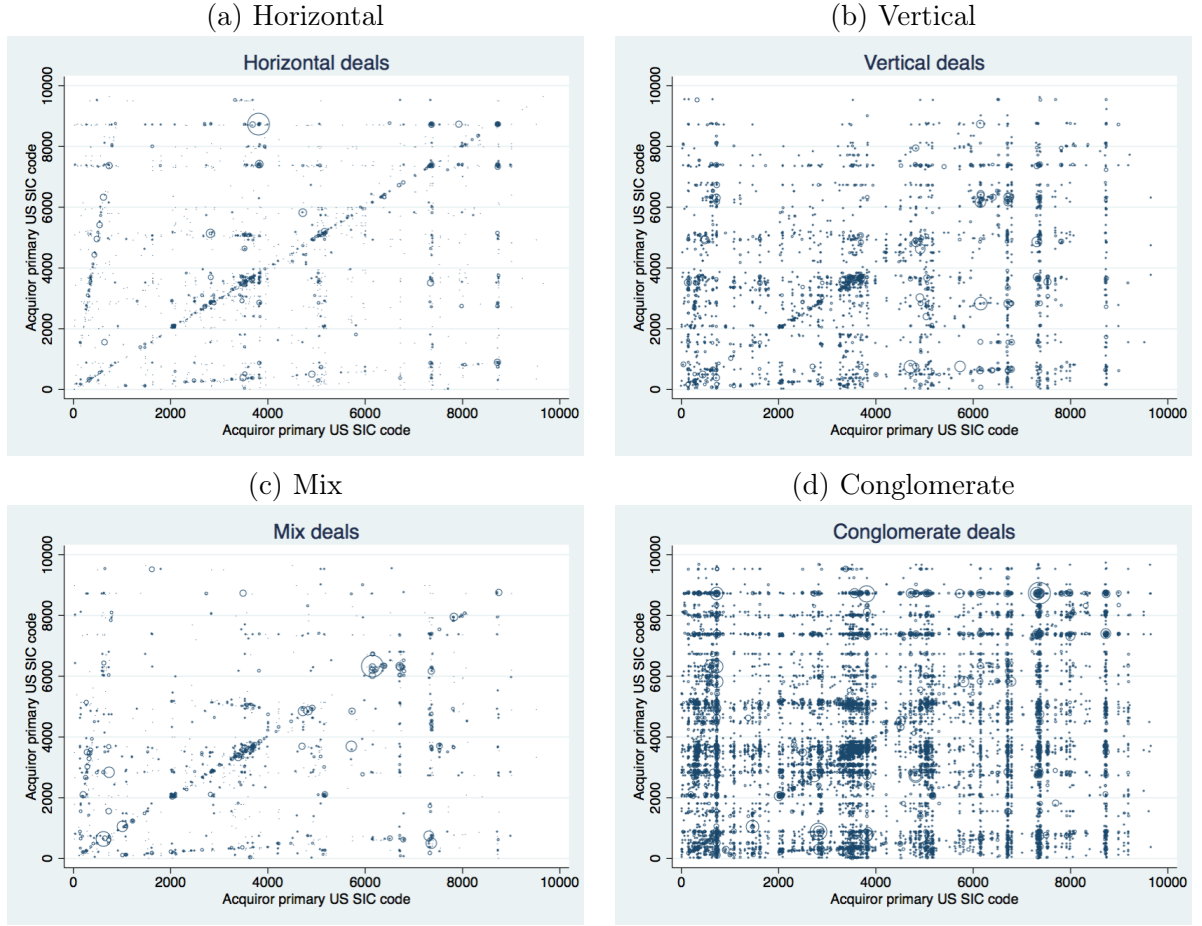


Figure 4: Distribution of M&A flows broken by  $N - S$  categories

Type of M&A	(1)		(2)	
	Non-Congl.	Congl.	Non-Congl.	Congl.
(a)				
<i>GDP<sub>o</sub></i>	0.690*** (0.0369)	-0.0271 (0.0193)	0.644*** (0.0365)	-0.0283 (0.0197)
<i>GDP<sub>d</sub></i>	0.798*** (0.0348)	-0.0310*** (0.0146)	0.828*** (0.0355)	-0.0123 (0.0155)
<i>Growth<sub>o</sub></i>	1.885*** (0.396)	0.157 (0.316)	1.908*** (0.380)	0.136 (0.302)
<i>Growth<sub>d</sub></i>	-0.299 (0.325)	-0.0309 (0.208)	-0.362 (0.323)	-0.0968 (0.200)
<i>GDPcap<sub>o</sub></i>	0.446*** (0.105)	0.112** (0.0504)	0.430*** (0.112)	0.0977* (0.0545)
<i>GDPcap<sub>d</sub></i>	-0.0661 (0.0984)	0.108** (0.0438)	-0.0231 (0.103)	0.0923** (0.0462)
(b)				
<i>Distance</i>	-0.768*** (0.0346)	-0.0528*** (0.0151)	-0.781*** (0.0352)	-0.0544*** (0.0153)
<i>Border</i>	0.351** (0.124)	0.168** (0.109)	(0.169) (0.109)	(0.0746) (0.0923)
<i>Language</i>	0.957*** (0.110)	0.153*** (0.0409)	0.944*** (0.111)	0.168*** (0.0400)
<i>Colony</i>	0.497*** (0.134)	0.0462 (0.0625)	0.471*** (0.129)	0.0165 (0.0562)
(c)				
<i>Instit<sub>o</sub></i>	0.0376 (0.0879)	-0.140*** (0.0414)	-0.0833 (0.0855)	-0.138*** (0.0423)
<i>Instit<sub>d</sub></i>	0.134* (0.0769)	-0.0746** (0.0323)	0.135* (0.0787)	-0.0450 (0.0351)
<i>Corp.Gov<sub>o</sub></i>	0.255*** (0.0487)	0.0244 (0.0252)	0.276*** (0.0497)	0.00991 (0.0250)
<i>Corp.Gov<sub>d</sub></i>	0.313*** (0.0516)	-0.0240 (0.0218)	0.357*** (0.0534)	-0.0255 (0.0222)
<i>Tech<sub>o</sub></i>	0.350*** (0.110)	0.0909 (0.0559)	0.318*** (0.105)	0.0939* (0.0531)
<i>Tech<sub>d</sub></i>	-0.496*** (0.106)	0.0216 (0.0424)	-0.554*** (0.109)	0.0307 (0.0422)
<i>Corp taxes<sub>d</sub></i>	-0.00430 (0.00655)	0.00634*** (0.00252)	-0.00412 (0.00638)	0.00577** (0.00250)
(d)				
<i>Cred<sub>o</sub></i>			0.398*** (0.0749)	0.0222 (0.0448)
<i>Cred<sub>d</sub></i>			-0.0642 (0.0618)	-0.0716** (0.0312)
<i>LR Curr.Crisis<sub>o</sub></i>			-0.249 (0.396)	0.477** (0.212)
<i>LR C.Crisis<sub>d</sub></i>			-1.106** (0.437)	-0.155 (0.164)
<i>SR C.Crisis<sub>o</sub></i>			0.00323 (0.0623)	-0.0155 (0.0423)
<i>SR C.Crisis<sub>d</sub></i>			0.166*** (0.0618)	0.00772 (0.0402)
Year FE	yes			
Observations	38,066		38,066	

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Analogously \*, \*\* and \*\*\* denote whether coefficients of interaction with conglomerate dummy are significantly different from coefficients for non-conglomerate M&A. Negative binomial regression, random effects, country-pair clusters, year dummies. Regression on a stacked data for conglomerate and non-conglomerate M&A. In each of the two samples, the left hand side corresponds to the net effect while the right hand side to the interaction effect of the conglomerate deals dummy. Hence, RHS results show whether the coefficient for conglomerate deals is significantly different from the coefficient for non-conglomerate deals.

Table 4: Conglomerate vs. non-Conglomerate M&A



Probability of Acquisition				
	(1) <i>Congl</i>	(2) <i>Horiz.</i>	(3) <i>Vertical</i>	(4) <i>NonCongl.</i>
<i>ATRs</i>	4.273*** (0.167)	5.441*** (0.236)	3.555*** (0.262)	4.624*** (0.183)
<i>TDi</i>	2.241*** (0.814)	-0.128 (3.396)	6.216** (2.600)	4.897** (2.001)
<i>GDP<sub>o</sub></i>	-0.820 (0.841)	-1.273 (1.775)	0.983 (1.392)	-0.256 (1.181)
<i>GDP<sub>d</sub></i>	0.620 (0.800)	1.712 (1.061)	2.201* (1.250)	3.447*** (0.897)
<i>GDP<sub>c<sub>o</sub></sub></i>	1.617* (0.937)	2.229 (1.883)	-1.533 (1.501)	0.726 (1.291)
<i>GDP<sub>c<sub>d</sub></sub></i>	-1.638* (0.885)	-2.413** (1.172)	-3.542*** (1.292)	-4.718*** (0.945)
<i>Distance</i>	-0.564*** (0.0262)	-0.488*** (0.0364)	-0.559*** (0.0368)	-0.569*** (0.0314)
<i>Colony</i>	0.393*** (0.0970)	0.378*** (0.101)	0.506*** (0.117)	0.530*** (0.0877)
<i>Border</i>	-0.436*** (0.0914)	-0.00497 (0.117)	-0.259** (0.113)	-0.213** (0.0988)
<i>Language</i>	0.392*** (0.0885)	0.0704 (0.101)	0.175 (0.122)	0.202** (0.0966)
<i>Inst<sub>o</sub></i>	0.164 (0.118)	0.0160 (0.205)	0.284 (0.213)	0.146 (0.155)
<i>Inst<sub>d</sub></i>	-0.0763 (0.115)	-0.305 (0.190)	-0.449** (0.201)	-0.292* (0.154)
<i>CorpGov<sub>o</sub></i>	0.121 (0.0809)	-0.162 (0.104)	-0.481*** (0.114)	-0.205** (0.0912)
<i>CorpGov<sub>d</sub></i>	-0.979 (0.625)	-0.109 (0.0972)	0.0175 (0.136)	-0.288 (0.722)
Country FE	Yes			
Year FE	Yes			
Pseudo-R2	0.174	0.230	0.215	0.223
Observations	34,357	21,642	22,157	25,957

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Probabilistic regression, where acquisition is a positive outcome. The non-M&A deals were generated by randomly matching firms from the original sample. Regression includes country and year fixed effects. Robust standard errors are clustered at country pair level.

Table 5: Probit regression for M&A

VARIABLES	Probability of Acquisition			
	<i>Congl</i> (1)	<i>Horiz.</i> (2)	<i>Vertical</i> (3)	<i>NonCongl.</i> (4)
<i>ATRs</i>	4.279*** (0.166)	5.512*** (0.243)	3.509*** (0.263)	4.592*** (0.184)
<i>TDi</i>	2.224*** (0.803)	-0.0988 (3.606)	6.158** (2.592)	4.905** (1.994)
<i>GDPc<sub>o</sub></i>	-0.980 (0.723)	-0.315 (1.859)	0.226 (1.353)	0.498 (1.157)
<i>GDPc<sub>d</sub></i>	0.235 (0.638)	-0.387 (0.844)	1.123 (1.234)	1.511* (0.808)
<i>GDPworker<sub>o</sub></i>	1.790** (0.838)	1.127 (2.011)	-0.416 (1.521)	-0.162 (1.284)
<i>GDPworker<sub>d</sub></i>	-1.321* (0.728)	0.228 (0.950)	-2.484** (1.232)	-2.457*** (0.875)
<i>Distance</i>	-0.563*** (0.0262)	-0.484*** (0.0370)	-0.561*** (0.0370)	-0.567*** (0.0315)
<i>Colony</i>	-0.433*** (0.0913)	-0.00195 (0.122)	-0.261** (0.114)	-0.211** (0.0997)
<i>Border</i>	0.393*** (0.0887)	0.0696 (0.103)	0.179 (0.123)	0.197** (0.0972)
<i>Language</i>	0.391*** (0.0971)	0.360*** (0.102)	0.511*** (0.117)	0.527*** (0.0877)
<i>Inst<sub>o</sub></i>	0.158 (0.117)	-0.0384 (0.201)	0.298 (0.215)	0.144 (0.156)
<i>Inst<sub>d</sub></i>	-0.0698 (0.116)	-0.303 (0.189)	-0.414** (0.199)	-0.299* (0.153)
<i>CorpGov<sub>o</sub></i>	0.0734 (0.0698)	-0.209** (0.0891)	-0.441*** (0.104)	-0.222*** (0.0816)
<i>CorpGov<sub>d</sub></i>	-1.398** (0.591)	-0.00217 (0.0831)	0.128 (0.120)	-0.977 (0.695)
Country FE			Yes	
Year FE			Yes	
Observations	34,353	21,631	22,187	25,952
Pseudo R2	0.218	0.275	0.273	0.273

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Probabilistic regression, where acquisition is a positive outcome. The non-M&A deals were generated by randomly matching firms from the original sample. Regression includes country and year fixed effects. Robust standard errors are clustered at country pair level.

Table 6: Probit regression for M&A, GDP per worker

Probability of Acquisition (Logit)			
VARIABLES	<i>Congl</i> (1)	<i>Horiz.</i> (2)	<i>NonCongl.</i> (3)
<i>ATRs</i>	7.184*** (0.297)	10.33*** (0.588)	8.138*** (0.355)
<i>TDi</i>	3.919** (1.830)	-0.340 (8.341)	15.61* (9.003)
<i>GDP<sub>c<sub>o</sub></sub></i>	3.081** (1.555)	2.984 (3.867)	0.629 (2.285)
<i>GDP<sub>c<sub>d</sub></sub></i>	-3.279** (1.514)	-3.861* (2.317)	-8.291*** (1.683)
<i>GDP<sub>o</sub></i>	-1.851 (1.376)	-1.533 (3.701)	0.157 (2.164)
<i>GDP<sub>d</sub></i>	1.376 (1.380)	3.194 (2.129)	6.187*** (1.613)
<i>Distance</i>	-0.949*** (0.0476)	-0.934*** (0.0808)	-1.023*** (0.0593)
<i>Colony</i>	-0.741*** (0.156)	-0.000370 (0.232)	-0.414** (0.170)
<i>Border</i>	0.669*** (0.150)	0.167 (0.205)	0.399** (0.173)
<i>Language</i>	0.676*** (0.163)	0.646*** (0.217)	0.943*** (0.159)
<i>Inst<sub>o</sub></i>	0.272 (0.201)	-0.150 (0.403)	0.244 (0.288)
<i>Inst<sub>d</sub></i>	-0.102 (0.197)	-0.533 (0.364)	-0.496* (0.273)
<i>CorpGov<sub>o</sub></i>	0.232* (0.134)	-0.296 (0.201)	-0.414*** (0.157)
<i>CorpGov<sub>d</sub></i>	-1.860* (1.087)	-0.179 (0.186)	-0.234 (1.280)
Country FE	Yes		
Year FE	Yes		
Observations	34,353	21,631	25,952
Pseudo R2	0.218	0.275	0.278

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Probabilistic regression, where acquisition is a positive outcome. The non-M&A deals were generated by randomly matching firms from the original sample. Regression includes country and year fixed effects. Robust standard errors are clustered at country pair level.

Table 7: Probit regression for M&A (Logit)