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Extending Industry Specialization through Cross-Border Acquisitions

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ABSTRACT

We investigate the role of industry specialization in horizontal cross-border mergers and acquisitions. We find that acquirers from more specialized industries in a country are more likely to buy foreign targets in countries that are less specialized in these same industries. The role of industry specialization in foreign acquisitions is more prevalent when contracting inefficiencies and exporting costs limit arms' length relationships. The economic gains in cross-border deals are larger when specialized acquirers purchase assets in less specialized industries. These results are consistent with an internalization motive for foreign acquisitions, through which acquirers can apply localized intangibles on foreign assets.

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I Introduction

The last thirty years have witnessed a boom in cross-border mergers and acquisitions, with a large range of countries and industries participating in the globalization of corporate acquisitions.[1] A growing literature investigates the reasons why firms stretch their boundaries internationally, and the locations in which they acquire assets. In this paper, we argue and provide novel evidence that the volume, direction, and value creation of cross-border acquisitions are related to firms' willingness to deploy mobile intangible advantages on foreign assets.

Our analysis builds on the internalization theory of international expansion that predicts that firms can create value through foreign acquisitions by internalizing markets for some of their proprietary assets and expanding their use internationally within firm boundaries rather than at arm's length (e.g. Caves (1971) or Hymer (1976)). This mode of global expansion should prevail when firms benefit from specific advantages that can easily be transferred geographically, but that are difficult to exchange via market relationships in foreign countries. Hence, the types of assets that firms seek to deploy abroad via foreign acquisitions are likely to be specific intangible resources, which are both highly mobile and hard to trade at arm's length (e.g. Markusen (1995)). According to the internalization motive, firms acquire control of assets overseas to profitably expand the scale of mobile intangible advantages (e.g. knowhow or skills) on foreign targets' immobile capabilities (e.g. machines and equipment or distribution network).

We posit that firms' mobile intangible advantages contain an important localized industry component which is reflected in the specialization of their industry. Indeed, a large literature in economics shows that industry specialization reflects differences in the relative efficiency of economic activities across countries as originally laid out by Ricardo (1817) in his theory of comparative advantage. We postulate that these cross-country differences in the relative efficiency of industries arise primarily because of differences in the prevalence of industry-specific intangible assets as in Glaeser (2010)).[2] Intangibles such as

[1] For instance, according to a recent report by Baker & McKenzie, there were more than 11,000 cross-border acquisitions in 2014, valued at $1.3 trillion, surpassing every year on record, except 2007. In the recent period, cross-border deals represents around 40% of all acquisitions, and comprises the largest deals, such as the acquisition of Holcim by Lafarge in April for $39 billion.

[2] Ellison and Glaeser (1999) show that only 20% of industry agglomeration patterns can be ascribed

knowhow or management skills typically concentrate geographically, generating agglomeration economies through localized knowledge flows (e.g. Porter (1990) or Ellison and Glaeser (1999)). Examples of such industry clusters include watch-making in Switzerland, information technology in the United States ("Silicon Valley"), or machinery and chemical manufacturing in Germany. We argue that the presence of geographically concentrated intangibles gives firms located in specialized clusters access to unique industry-specific intangible advantages that can be deployed abroad via acquisitions.

Using specialization at the country-industry level to measure mobile intangible advantages, we find strong support for the internalization motive for cross-border acquisitions. We conduct our analysis on a large sample of 36,105 horizontal cross-border deals cumulatively valued in excess of $3.2 trillion involving private and public acquirers and targets from 46 countries and 85 industries over the period from 1990 through 2010. Across 175,950 industry-country pairs ($46 \times 45 \times 85$ combinations of countries and industries) we find that the intensity of acquisition flows between two countries (e.g., Switzerland and the US) in a given industry (e.g., watches) is positively related to differences in their specialization in that industry (e.g., specialization of the Swiss and American watch industry). Even after controlling for a host of country determinants of cross-border acquisitions (e.g. size, economic development, or institutional quality), firms in more specialized industries acquire control of assets in less specialized industries. The role of industry specialization is economically large. For the average industry, a one standard deviation increase in the difference in specialization between two countries is associated with an increase of 14.6% in the number of deals, and a 56.5% increase in aggregate transaction value.

The strong link between industry specialization and cross-border acquisitions is pervasive and highly robust. It persists after we control for various country-industry characteristics that are known to explain foreign acquisition activity and that could be related to differences in specialization, such as differences across countries in industries' size, valuation, access to capital, governance, product market competition, or global economic importance. In addition, we conduct extensive robustness tests to make sure our results hold under alternative specifications, including for instance different definitions of industries, or datasets to construct industry specifications. Also, our results are robust to

to natural cost advantages, leaving localized intra-industry spillovers a likely candidate for the remaining fraction.

several changes in specification and econometric choices. In particular, our findings are robust to the inclusion of industry-country-pairs fixed effects, which rules out explanations based on time-invariant differences between countries and industries.

We provide additional evidence supporting the importance of deploying mobile intangible advantages as a motive for foreign acquisitions. First, using various measurable proxies for intangible resources (e.g., patents, skilled labor, or management efficiency) we document that the intensity of cross-border deals is stronger when the acquiring industry benefits from more human and technology capital compared to the target industry. Second, we show that the association between industry specialization and the acquisition of foreign assets is stronger when alternative channels to exploit intangible advantages abroad are less attractive than stretching firms' boundaries overseas. In particular, we find that the role of industry specialization in cross-border acquisitions is stronger when the contracting environment of target countries is weak. Consistent with the internalization motive, firms increasingly expand the use of their intangible advantage abroad by acquiring control of foreign assets when contracting inefficiencies between private parties in foreign markets limit arm's length relationships. Similarly, the relation between industry specialization and cross-border acquisitions is stronger when exporting costs are high, i.e., when the cost of shipping products or services that directly embeds firms' specific advantages increases.

We also examine cross-border acquisitions at the deal level, focusing directly on differences of industry specialization between participating firms. Mirroring the aggregate results, we observe large differences in the degree of specialization between acquiring and target firms. Overall, more than 60% of all transactions involve acquirers that are more specialized than targets. Across all transactions, the difference in specialization is economically substantial as acquirers display levels of specialization that are roughly 25% larger than that of targets. This pattern is pervasive as it holds in every year of the sample, and is present across the vast majority of countries and industries. We also find in multivariate tests that country-industry specialization predicts firms' participation in cross-border transactions after controlling for firms' characteristics. Compared to a large set of possible transactions, actual observed transactions are more likely to occur between an acquirer and a target when the difference in their industry specialization is large.

In the final section, we show that the economic gains realized in cross-border transactions are positively related to firms' ability to deploy mobile intangible advantages abroad. We find that transactions' announcement returns and the premium that acquirers pay are related to differences in industry specialization. Both acquirers' and targets' abnormal returns are significantly larger when differences in industry specialization are large. A one standard deviation increase in the difference in industry specialization between acquirers and targets is associated with a 0.2% increase in acquirer returns, and with a 2% increase in target return. When we focus on the subset of deals with both acquirers and targets are publicly-traded, the link between specialization and combined returns is positive, but insignificant. We also find that acquirers pay a higher premium to take control of less specialized foreign targets. Finally, we find that acquirers' (one- and three-year) accounting performance post-acquisition is significantly higher when acquirers are from more specialized industries than targets.

Our evidence of an internalization motive for acquisitions adds to the growing literature examining the determinants of the volume and direction of cross-border acquisitions. Existing studies emphasize various other benefits motivating foreign acquisitions. For instance, cross-border transactions allow acquirers to improve targets' legal environment and investors' protection (e.g. Bris and Cabolis (2008), Rossi and Volpin (2004) or Chari, Ouimet, and Tesar (2010)), reach larger product markets (e.g. Yeaple (2003) or Giovanni (2005)), optimize tax rules (e.g. Huizinga and Voget (2009)), access favorable regulations (e.g. Karolyi and Taboada (2014) or Alimov (2015)), exploit differentials in currency and stock market valuation (e.g. Erel, Liao, and Weisbach (2012) or Aguiar and Gopinath (2005)) or privileged access to financing (e.g. Alquist, Mukherjee, and Tesar (2014)). Other studies indicate that the benefits of acquiring foreign assets are larger when transactions occur between firms that are culturally close (e.g. Ahern, Daminelli, and Fracassi (2015)), and when institutional investors are present (e.g. Ferreira, Massa, and Matos (2010)). Adding to these well-known determinants, our paper is the first to provide empirical evidence supporting an internalization motive for cross-border acquisitions.[3]

[3]There are two related papers that focus on exporting skill as a reason for cross-border mergers without focusing on the underlying reason for exporting. Brakman, Garretsen, and Marrewijk (2007) look at a sample of cross-border mergers between five OECD countries and document that acquirers are more likely to come from sectors that have a comparative advantage in exporting. Similarly, Feliciano and Lipsey (2010) document the acquisitions of U.S. firms tend to occur in industries in which the acquiring country has a comparative advantage at exporting.

Importantly, our tests are specifically designed to control for the existing determinants in order to isolate the unique role of industry specialization in cross-border acquisitions.

Our results are also linked to previous work emphasizing the importance of intangible assets for firms' multinational expansion (see Caves (2007) for a comprehensive survey). Existing research indicates that multinationals primarily operate in R&D intensive industries (e.g. Harris and Ravenscraft (1991) or Yeaple (2003)) but does not examine the importance of cross-border acquisitions. Closer to our paper, Morck and Yeung (1992) reports that the stock market reaction to foreign acquisitions by US firms is larger for R&D intensive acquirers, and recent micro-evidence reveals that multinational companies transfer technology and management practices to their existing foreign affiliates (e.g. Branstetter, Fisman, and Foley (2006), Bloom, Sadun, and Reenen (2012), or Guadalupe, Kuzmina, and Thomas (2012)). We add to existing research that builds on the internalization theory by showing that firms' mobile intangible advantages are associated with industry specialization and explain the flow and direction of foreign acquisitions in a sample of transactions that include a large set industries, developed and emerging countries, and private and public firms. Thus, our analysis emphasizes the role of industry-specific intangibles that firm can access domestically, and extend abroad via acquisitions.

Our analysis is also part of a growing initiative among finance researchers to better understand the role of firms' intangible resources in general, and their links with acquisitions in particular. For instance, recent research emphasizes the importance of labor considerations (e.g., John, Knyazeva, and Knyazeva (2015) or Tate and Yang (2016)), innovative assets (e.g., Phillips and Zhdanov (2013) or Bena and Li (2014)), or organizational capital (e.g., Li, Qiu, and Shen (2016)) for acquisitions. We add to this line of research by showing that, in an international context, industry-specific intangible advantages arising from agglomeration economies that firms can deploy abroad plays a significant role in explaining cross-border acquisitions and their consequences.

Finally, our findings are consistent with the recent theoretical industrial organization models to study the motives for international acquisitions. Neary (2007) predicts that after market liberalization firms with a cost advantage will purchase assets in markets with a comparative cost disadvantage. Nocke and Yeaple (2007)) indicate that the most productive firms will expand abroad by acquiring foreign non-mobile capabilities. To the

extent that acquirers' cost advantages stem from localized industry specialization, our results provide strong empirical support for these predictions.

II Specialization and Cross-Border Acquisitions

Our conceptual framework combines the implications of the internalization theory of multinational expansion with the literature indicating that the geographical specialization of industries reflects the localized concentration of intangible assets (e.g., Glaeser (2010)). This section first presents the economics of internalization as a motive for foreign acquisitions, then develops the idea that intangible advantages contain an important localized component specific to each country-industry combinations. The importance of industry arises from industry agglomeration economies whereby firms in specific areas with high geographic concentration of firms in particular industries can develop and exploit intangible assets by drawing on specialized information in local labor and supplier markets.

A The Internalization Motive for Acquisitions

The internalization theory of multinational expansion predicts that firms acquire foreign assets in order to profitably deploy proprietary resources abroad (e.g., Caves (1971), Hymer (1976), and Dunning (1977)). As summarized by Markusen (1995), this prediction holds under three conditions. First, a firm must possess mobile specific advantages to which other firms do not have access, conferring the firm some market power or cost advantages that can be applied to foreign assets. Second, it must be profitable for the firm to produce abroad rather than directly export to foreign markets. Third, the firm must possess an internalization advantage that makes it more profitable to exploit mobile specific advantages within its own boundaries via control rather than at arm's length through market relationships. The type of specific advantages that induce taking control of foreign assets are thus likely to originate from intangible assets, such as knowhow, proprietary knowledge, management skills, trade secrets, patents, or reputation. Indeed, such knowledge-based assets can generally be easily transferred geographically, can be used in many locations at low cost as they benefit from large economies of scale (unlike physical capital), and are more difficult to exchange at arm's length.

To illustrate the internalization motive for foreign acquisitions, imagine an industry with two firms, one located in Switzerland and the other in the United States. The markets are completely segmented, such that both firms have production and sales in their own country. Each firm possess domestic immobile assets A_{ch} and A_{us} (e.g. a factory), and mobile intangible advantages γ_{ch} and γ_{us} (e.g., production knowhow) that cannot be exploited at arm's length (i.e., outside of firms' boundary). The value of a firm is simply determined by applying mobile advantage to the immobile assets it owns, γA (e.g., Garicano and Rossi-Hansberg (2006)). The internalization theory predicts that a cross-border acquisition occurs if at least one firm can increase its value by applying its mobile intangible advantage to the foreign immobile assets it purchases. This occurs if $\gamma_{ch}A_{us} > \gamma_{us}A_{us}$ (i.e., the Swiss knowhow improves the productivity of the American factory), or if $\gamma_{us}A_{ch} > \gamma_{ch}A_{ch}$ (i.e., the American knowhow improves the productivity of the Swiss factory). If both conditions prevail, the identity of the acquiring firm – the direction of cross-border acquisition – depends on whether γ_{ch} is larger or smaller than γ_{us}. The Swiss firm is the acquirer if $\gamma_{ch} > \gamma_{us}$, whereas the American firm is the acquirer if $\gamma_{us} > \gamma_{ch}$. When $\gamma_{ch} = \gamma_{us}$ no value is created by reallocating ownership of assets across borders and no acquisition occurs. The internalization theory thus predicts that cross-border acquisitions involve acquiring firms possessing mobile intangible advantages purchasing foreign target owning immobile assets (e.g., machines, equipment, or distribution network) on which they can profitably deploy their advantages.[4]

Using the above example, it is conceivable that the firm with the lowest mobile specific advantage finds it valuable to acquire the other firm to access its mobile specific advantage and apply it on its existing domestic assets, leading to a "reverse internalization" (e.g., Blonigen (1997)). This scenario would however require the acquirer to possess precise information about the target firm's mobile *proprietary* intangible advantages, and also the ability to easily repatriate such advantage on its domestic assets. The intangible nature of the mobile advantages underlying the internalization motive for acquisitions makes both conditions less likely in reality.[5] In practice, there is considerable uncertainty

[4]Note that while the internalization motive has been developed to understand firms' international expansion, internalization forces could also be at work domestically. Although our focus is to understand whether the internalization motive explains cross-border acquisitions, we report in the Internet Appendix a preliminary test suggesting that the internalization motive is also related to the intensity of cross-*state* acquisitions in the United States.

[5]While ultimately an empirical question, our empirical evidence is largely inconsistent with such a

about the correct value of firms' proprietary intangible resources (e.g., Cohen, Diether, and Malloy (2013)), and about the ability to retain the valuable intangibles (e.g., talents and knowhow) of acquired firms (e.g., Buono and Bowditch (1989) or Young, Tong, and Fleming (2015)).

B Industry Specialization Advantages

The intangible advantages that firms can deploy abroad are likely to contain a localized industry component that makes it easier to use and develop intangible assets. This component can arise from the ability to hire specialized employees or scientists and also to have specialized suppliers of goods and services that enable intangible assets to be produced. As first pointed out by Adam Smith and David Ricardo, specialization reveals specific skills: individuals and firms have incentives to specialize in the tasks that they do best. Similarly, countries possess comparative or absolute advantages in certain activities, and they specialize in these activities to capitalize on these local advantages (e.g. Costinot (2009) or Costinot and Donaldson (2012)). As a result, the observed specialization of countries into specific activities reflects differences in the relative efficiency of industries geographically. Examples of such specialized industry clusters include watch-making in Switzerland, information technology in the United States, or machinery and chemical manufacturing in Germany.

While the geographical specialization of industries could arise for reasons other than intangible advantages (e.g., access to unique natural resources or cheap labor), a voluminous literature in economic geography shows that the localized specialization of industries is strongly related to the geographic concentration of intangible resources (see Glaeser (2010) for a comprehensive survey of agglomeration economies). In particular, the literature indicates that only a small fraction of the geographic specialization of industries can be explained by observable sources of natural advantages (e.g., Ellison and Glaeser (1999)).[6] Furthermore, the accumulation of intangible assets tend to cluster in specific locations (e.g., Kerr (2010) or Ellison, Glaeser, and Kerr (2010)). Such concentration

reverse internalization.

[6]Note that there is no theoretical prediction of industry specialization based on resource advantage or immobile factor endowments leading to international expansion and cross-border acquisitions, in contrast to specialization driven by mobile intangibles.

generates agglomeration economies within industries as firms benefit from the presence of neighboring peers and specialized suppliers (e.g., Porter (1990)). In turn, localized agglomeration economies accelerate the development and diffusion of specific intangibles, which ultimately lead to productivity growth.

The presence of localized knowledge assets give firms a unique local industry advantage that distant rivals cannot match, in addition to their own proprietary advantage. Benefits from agglomeration economies can take the form of information flows, faster adoption of new technologies, increased access to skilled people and specialized knowledge, or a strong reputation for quality products and services. Geographical proximity enable neighboring firms to capitalize on localized industry-specific intangibles in their development and growth, as if they had greater scale (e.g. Ellison and Glaeser (1997) or Porter (1998)). We argue that firms located in specialized industrial clusters can extend the benefits of localized intangible advantages abroad through foreign acquisitions. For instance, a firm located in Silicon Valley has access to a large local pool of talent, ideas, or knowhow that can be extended to foreign assets. On this ground, we rely on the geographical specialization of industries to measure mobile intangible advantages that firms enjoy locally and that they can deploy on the foreign assets they acquire.

The use of industry specialization to study cross-border acquisitions is also justified in light of recent theory that relies on formal industrial organization models to study cross-border acquisitions (e.g. Neary (2007) and Nocke and Yeaple (2007)). For instance, according to Neary (2007), after market liberalization that allows for foreign expansion through acquisitions, firms with a cost advantage – specialized firms – will purchase assets in markets with a comparative cost disadvantage.[7]

C Testable Hypotheses

Combining the predictions of the internalization theory with industry specialization measured at the country-industry level to capture firms' mobile intangible advantages (γ_{ch}

[7]In a Cournot-Nash model, a cross-border horizontal acquisition typically eliminates a competitor and thus produces a bigger advantage for the remaining competitors than for the acquirer itself. Yet, Neary (2007) shows that if the cost differential is sufficient, the acquirer will still find the acquisition valuable if it can lower the production cost of the target. In other words, the value of acquiring foreign assets originates in the ability of the acquirer to apply its existing domestic costs to operate the acquired assets.

and γ_{us}), we formulate our main hypothesis:

Hypothesis 1 (main hypothesis) *The flow of cross-border acquisitions from an acquirer to a target country in a given industry increases with the difference in specialization between the acquirer and target country in that industry, all else equal.*

The internalization theory offers several ancillary predictions. In particular, Markusen (1995) highlights that the need for firms to acquire formal control of foreign assets to exploit mobile intangible advantages abroad is more prevalent when alternative modes of global expansions are more costly. One possible alternative is for firms to exploit mobile intangible advantages abroad at arm's length through foreign contractual relationships (e.g., a licensing agreement) instead of by expanding their boundaries through control. Yet, a large theoretical literature emphasizes that intangible assets are difficult to exchange at arm's length in situations in which the protection of property rights is limited and contracts between private parties are difficult to enforce. In these situations, acquiring control enables a firm (i.e., the buyer) to internalize the potential loss of intangibles that would take place from a contract (e.g. Klein, Crawford, and Alchian (1978), Williamson (1979) or Grossman and Hart (1986)). On this ground, we expect acquiring control of foreign assets to deploy intangible advantages (i.e., the internalization motive) to be more attractive than alternatives when target counties feature weak contractual environments. In these cases, the link between differences in industry specialization and the flow of cross-border acquisitions should be be stronger. This constitutes our second hypothesis:

Hypothesis 2 *The positive association between cross-border acquisitions and differences in industry specialization between an acquirer and target country is stronger when the target country's contractual environment is weak.*

Another alternative to acquiring control of foreign assets to reach foreign markets is to exploit intangible advantages to produce at home and export products or services to foreign markets. Exporting is however a costly activity due to tariff, quotas, and transportation costs. Relying on the literature on tariff jumping arguing that firms expand abroad to avoid the costs associated with exports (e.g. Krugman, Obstfeld, and Melitz (2011)), we conjecture that the internalization motive of acquiring control of foreign assets to deploy mobile intangible advantage is heightened when exporting costs are large (e.g.

Nocke and Yeaple (2007)). We thus expect the relation between differences in industry specialization and the flow of cross-border acquisitions to be stronger when exporting is more costly. This insight generates our third hypothesis:

Hypothesis 3 *The positive association between cross-border acquisitions and differences in industry specialization between an acquirer and target country is stronger when trade costs are large.*

Finally, our last hypothesis concentrates around the value created by cross-border acquisitions. Acquisitions occur when the value of controlling foreign assets exceeds the costs of taking formal control of these assets. The internalization motive implies that the value associated with foreign control increases with the ability of an acquirer to deploy its mobile intangible advantages on the acquired foreign assets. Following the literature on acquisitions (e.g., Betton, Eckbo, and Thornburn (2008)), we measure the value associated with taking control of foreign asset using the stock market reaction (for acquirers and targets) to deal announcements and the premia paid by acquirers for taking control of the foreign assets. On this ground, we postulate that at the deal-level:

Hypothesis 4 *The stock market reactions and control premia in cross-border acquisitions increase with differences in industry specialization between the acquirer and target firms.*

III Measuring Industry Specialization

A Definition and Measurement

To measure the degree of specialization of each country in specific industries (country-industry observations), we borrow the concept of "revealed comparative advantage" that is extensively used in the literature on international trade. As explained in Krugman, Obstfeld, and Melitz (2011) a country is considered to have an advantage in a given industry when the importance of that industry's exports relative to the rest of the world's exports in that industry is large. Following the theoretical considerations discussed in Section II, countries tend to be specialized in industries in which they have specific local advantages, and specialization further enhances such advantage through economies of scale and agglomeration effects. Thus we measure industry specialization in terms of the

economic importance of industries, and not exports.

Following the original formulation by Balassa (1965), we define $w_{i,c,t}$ as the share of industry i's production (or employment) in country c's total production (or employment) in year t. Similarly, we define $\overline{w_{i,t}}$ as the average share of industry i's production worldwide, computed as $\frac{1}{N_c}\sum_c w_{c,i,t}$, where N_c is the number of countries in our sample. We then define industry specialization, SP, as follows:

$$SP_{c,i,t} = \frac{w_{c,i,t}}{\overline{w_{i,t}}} \tag{1}$$

At time t, country c is defined as being "specialized" in industry i if the share of i's production ($w_{c,i}$) in country c's total production is larger than the average share of i's production worldwide ($\overline{w_{i,t}}$). Hence, a country is relatively specialized in industries for which $SP_{c,i,t}$ is higher than one, i.e., when production in these industries is more than expected on the basis of the average importance worldwide. As a result, a higher value of $SP_{c,i,t}$ indicates a higher degree of specialization in industry i.

To fix ideas, consider that the watch industry represents 0.8% of the total Swiss output in a given year (i.e., $w_{ch,watch,t} = 0.008$), while in the rest of the world, the watch industry only accounts for only 0.02% of countries total output on average in that year (i.e., $\overline{w_{watch,t}} = 0.0002$). Our definition implies that (as shown empirically below) that Switzerland is highly specialized in manufacturing watches and clocks (i.e., $SP_{ch,watch,t} = \frac{0.08}{0.002} = 40$). This is because the output share of the watch industry (in the total Swiss output) is much larger in Switzerland than in any other country. In our analysis we remain agnostic about the exact origin of specialization. To wit, we abstract from the reasons why Switzerland is highly specialized in manufacturing watches, but use this empirical fact as evidence that watch producers located in Switzerland benefit from a clear localized advantage in producing watches compared to the rest of the world.[8]

We use disaggregated firm-level data for publicly listed companies from Worldscope to measure specialization for each country-industry-year observation ($SP_{c,i,t}$). We focus on the period 1990 to 2010. We consider two variables to capture industries' importance: sales and employment. We define industries based on three-digit International Standard

[8]See Costinot (2009) for more about the origin of specific advantage and specialization. We discuss the potential endogeneity of our measure of specialization in Section IV.E.

Industrial Classification of All Economic Activities (ISIC Rev. 3) used by the United Nations Statistics Division.[9] We thus classify each firm in Worldscope into a three-digit ISIC code using the primary SIC codes provided by Worldscope and the correspondence between ISIC and SIC described in Appendix 2. We further exclude natural resources industries.[10]

The starting sample comprises 1,067,534 observations on 50,886 distinct firms, corresponding to 46 countries, 89 industries, and 21 years. Ideally, we would like to compute $SP_{c,i,t}$ for every country-industry-year observation, that is 85,974 observations (46×89×21). However, Worldscope does not contain sales or employment data for each possible country-industry-year observation.[11] Thus, we impose a minimum of three countries with non-missing industry-year observations on sales or employment (across 46 countries) to remain in the sample, and exclude all industry-year observations that do not meet this requirement. This steps eliminates 5,520 industry-year observations with missing sales, and 5,796 observations with missing employment, corresponding to four industries. For the remaining observations, we assume that a missing country-industry-year observation reflects the absence of economic activities in these industries, and set $w_{c,i,t}$ to zero.[12] Out of 85,974 possible observations, we have 80,454 (non-missing) measures of specialization based on sales ($SP(sales)$) and 80,178 based on employment ($SP(emp)$) spanning 85 distinct industries.

[Insert Table 1 Here]

Table 1 presents descriptive statistics on the measures of industry specialization across countries. Panel A reveals that, by construction, the average level of specialization worldwide is equal to unity. Notably, the within-country distribution of specialization is highly skewed. The large skewness indicates that many industries are present in each country in

[9] https://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=2

[10] We exclude natural resources industries because the geographical specialization in natural resources industries are likely due to direct access to natural resources (e.g., natural gas in Russia, Oil in Venezuela, or Copper in South Africa), and not because agglomeration externalities stemming from intangible resources (our focus). Moreover, anecdotal evidence suggest that acquisitions in natural resource industries occur primarily because firms want to obtain access to natural resources. We show in the Internet Appendix that we obtain similar results is we include these industries in the analysis.

[11] This happens because of incomplete coverage or because of the absence of publicly traded companies in every industry and every country.

[12] All our results continue to hold if we only consider non-missing observations to compute $w_{i,c,t}$. The resulting sample is however much smaller.

similar proportion (i.e. non-specialized industries), but only a few industries account for a disproportionately large fraction of each country's activities. We also note an important heterogeneity in the *average* degree of specialization across countries. For instance, the United States, Japan, Australia, or Switzerland display a large average degree of specialization (all well above unity – indicating more diversity in highly specialized industries) compared to countries like Venezuela, Hungary, or Czech Republic. The large variation in the average degree of specialization across countries suggests that some countries are inactive in certain industries and thus display no output or employment in these industries (i.e., $w_{c,i,t} = 0$).[13]

Panel B of Table 1 presents the two most specialized industries in each country, where specialization is based on sales and averaged over the period 1990-2010. We note, for instance and as indicated above, that the most specialized industry in Switzerland is the "Manufacture of watches and clocks". Germany is specialized in "Retail trade", the UK in "Legal, accounting, and auditing activities", Russia in "Transport via pipeline", and the US in "Renting of transport equipment" and "Education". We also observe a large heterogeneity of specialized industries across countries, including both tradable and non-tradable industries.[14]

B Does Specialization Capture Mobile Intangible Advantages?

To assess the validity of using industry specialization as a broad proxy for mobile intangible advantage, we check whether our measures of industry specialization ($SP(sales)$ and $SP(emp)$) are positively related to market power or cost advantages, and, importantly, measurable dimensions of intangible resources. Reassuringly we find strong support for this claim.[15] To examine the relation between industry specialization and mobile intangi-

[13]We notice that developed countries exhibit higher average degrees of industry specialization, reflecting a more diverse industrial base. This is not an issue for our analysis because our tests focus on differences between country-pairs and we directly control for such factors. Moreover, we show in the Internet Appendix that our results hold when we focus on distinct country-pairs where differences in development and specialization are small, and when we only consider country-industry observations that have non-zero output or employment.

[14]Note that the internalization motive is also relevant for non-tradable industries (e.g. services). Indeed, firms in non-tradeable industries possessing valuable intangibles should have high incentives to acquire foreign assets to expand the scale of their intangible advantage.

[15]While industry specialization is also very likely partially determined by resource and factor endowment differences, the component of industry specialization driven by immobile resource and factor

ble advantages, we use firm-level data from Worldscope to compute the average price-cost margin and the ratio of cost of goods sold to sales for each country-industry-year. Due to data limitations, we can measure margins and costs for only half our sample. To preserve space, we present details about the construction of all variables used in the analysis in Appendix 1. The first two rows of Table 2 reveal that specialization is positively linked to margins and negatively linked to costs, after controlling for country, industry, and year fixed effects.[16]

[Insert Table 2 Here]

The rest of Table 2 relies on various sources (with unequal coverage) to construct proxies for intangible resources. Overall, we find strong support that industry specialization is indeed related to mobile intangibles. Rows (3) and (4) show that specialization is positively related to the fraction of skilled workers in each country-industry-year. Similarly, rows (5) and (6) display a positive link between specialization and the stock of software capital, as well as the stock of information and communication technology capital (ICT). Data for these tests are obtained from the EU KLEMS Growth and Productivity Accounts database (KLEMS). Rows (7) and (8) highlight that more specialized industries exhibit a larger stock of R&D capital, as well a higher R&D intensity, measured by aggregating firm-level data from Worldscope across countries, industries, and year. In row (9), we consider the ratio of patent to assets using the NBER patent database and focus on US industries only. More specialized industries in the US display a higher patenting intensity. Finally, in row (10) we collect data on management quality from the World Management Survey (WMS) described in Bloom, Genakos, Sadun, and Reenen (2016). We aggregate the survey-based data on management practice across countries and industries. Although not statistically significant, we estimate a positive relation between the specialization of a country in a given industry and the average level of management quality of firms operating in this industry that are headquartered in this country.

endowments would not predict international expansion via mergers and acquisitions. Thus, the immobile component would weaken our results and work against our hypotheses that mergers and acquisitions are related to mobile intangible resources.

[16]These estimates are conservative given the variation absorbed by the various fixed effects. Results from pooled regressions deliver similar results but with stronger statistical significance.

IV Determinants of Acquisition Flows

A Mergers and Acquisitions Data

To examine the interplay between differences in specialization and acquisition flows across countries and industries, we consider public, private and subsidiary acquirers and targets. Using the degree of specialization of industries to measure mobile intangible advantages provides a practical benefit to study cross-border acquisitions because specialization can be measured for a large set of countries and industries. This practical feature enables us to test the implications of the internalization motive for virtually *all* cross-border transactions. In particular, we can include in our analysis acquisitions involving private firms (as acquirers or targets), as well as firms from emerging markets.

We obtain a sample of transactions from the Security Data Corporation's (SDC) Mergers and Corporate Transaction database that includes all deals (domestic and cross-border, public and private) announced between 1990 and 2010 that are completed by the end of 2012. We restrict our attention to deals where the acquirer takes formal control of the target, that is, deals in which the acquirer owns more than 50% of the target's shares after the transaction.[17] Similar to Erel, Liao, and Weisbach (2012) we exclude LBOs, spinoffs, recapitalizations, self-tender offers, exchange offers, repurchases, partial equity stakes, acquisitions of remaining interest, privatizations, as well as deals in which the target or the acquirer is a government agency.

We limit our attention to the 46 largest countries (see Table 1). This subset represents 93% of all SDC transactions and 96% of the world equity market capitalization (in 2010).[18] We only retain transactions where both the acquirer and target have non-missing measures of specialization (this eliminates 1,048 transactions). Our sample includes 365,496 transactions with a total value of $21 trillion. We use the primary Standard Industrial Classification (SIC) provided by SDC to assign each acquirer and target to one of 85 distinct ISIC industries.

[Insert Table 3 Here]

[17] Note that we are unable to measure the actual voting rights of acquirers, nor the potential existing stakes of acquirers' parent companies if acquirers are subsidiaries. We show in the Internet Appendix, however, that our main results are unaffected if we restrict to acquisitions in which the acquirer buys 100% of the target's shares in the transactions, or if we only consider acquisitions of non-subsidiaries.

[18] This figure is based on data from the Worldbank in 2010.

Table 3 displays the characteristics of the sample of global mergers and acquisitions. Panel A indicates that during the sample period 22.2% of all transactions (81,139) involve firms from different countries. Cross-border deals have a total value of $5.9 trillion, or 27.4% of all deal value.[19] Among the possible 2,116 country pairs (46×46), 1,571 (70.8%) feature at least one transaction. On average, firms in a given country are involved in deals in 34 different countries. Notably, 73% of all cross-border transactions (and 83% of total deal value) occur between firms from developed countries, where development levels are taken from the Standard and Poor's Emerging Market Database.

Relevant for our investigation, acquisitions comprise a strong horizontal component. Across all deals (domestic and cross-border) 44% occur between firms operating in the same industries (i.e., when the primary 3-digit ISIC code of the acquirer is the same as that of the target). This fraction is roughly similar between domestic deals and cross-border deals. There is a total of 36,105 cross-border horizontal transactions, representing a total value of $3.2 trillion or 54% of all cross-border transactions. These transactions are the main focus of our analysis. Notably cross-border horizontal deals span a non-negligible part of the potential global network in each industry. Across the 175,950 possible horizontal cross-border pairs (46 × 45 × 85), 11,433 (or 6.5%) feature at least one transaction. The average industry has horizontal deals involving 125 country-pairs.

B Empirical Specification

To estimate the relationship between differences in industry specialization and the flow and direction of horizontal cross-border acquisitions, we follow Ahern, Daminelli, and Fracassi (2015) and Karolyi and Taboada (2014) and use a specification that resembles gravity models used to study trade flows (e.g. Anderson and van Wincoop (2004) or Anderson (2011)). Our baseline specification is as follows:

$$log(1 + V_{c,c',i}) = \alpha + \beta \Delta SP_{c,c',i} + \gamma X_c + \delta X_{c'} + \eta X_{c,c'} + \upsilon_i + \varepsilon_{c,c',i}, \tag{2}$$

where $V_{c,c',i}$ is the aggregate volume of horizontal acquisitions in industry i between acquirer country c and target country c'. We use two measures for V: the total number of

[19] UNCTAD (2013) reports a cumulative cross-border M&A volume of $7.18 trillion worldwide for the 1990-2010 period. Including natural resources, our sample contains cross-border deals with a combined value of $6.5 trillion, and thus appears to cover 90% of the global volume based on values.

acquisitions (#Acq.) and the total dollar value of acquisitions ($Acq.). The variable of interest, $\Delta SP_{c,c',i}$ measures the difference in specialization between countries c and c' in industry i. The vectors X_c, $X_{c'}$, and $X_{c,c'}$ include several acquirer and target country-level characteristics, as well as country-pair characteristics (e.g. common border or language). The vector υ_i includes industry fixed effects.

The coefficient of interest in equation (2) β measures whether, for a given industry i, the intensity of cross-border acquisitions between (acquirer) country A and (target) country B is related to differences in their specialization in industry i, after controlling for a host of country and industry characteristics. Our main hypothesis predicts a positive β coefficient, indicating that for a given industry i acquisitions flow from countries that are more specialized in i (e.g. watch-making in Switzerland) to countries that are less specialized in i (e.g. watch-making in the United States).

Note that when the expected acquisition benefits are negative we should observe no transaction. As a result the dependent variable $V_{c,c',i}$ is naturally truncated at zero. In our context, this happens frequently as industry-country pairs featuring at least one transaction over the 1990-2010 period represents only 6.5% of the sample. We account for this truncation by estimating equation (2) using a Tobit model. We further account for the possible within-country correlation by clustering standard errors at the acquirer and target country level. In our baseline tests, we focus primarily on cross-sectional variation and ignore the time-series dimension (that we consider in Section IV.E). Thus in our cross-sectional tests, we take the average values of all variables over the sample period. We collapse all 21 years into a single cross-sectional regression with 175,950 industry-country pairs ($46 \times 45 \times 85$ combinations of acquirer country, target country, and industry).[20] As a result of this aggregation, X_c and $X_{c'}$ capture country-level effects. Any effect that occurs because the acquirer country is larger or more developed than a target country is absorbed by the country variables. Similarly, any effect that occurs because of a particular industry characteristic is absorbed by υ_i.

Following previous research, we control for a host of country factors in our tests (X_c, $X_{c'}$, and $X_{c,c'}$). We use data from the Worldbank on annual GDP and GDP per capita to

[20]Note that by using industry specialization to capture firms' mobile intangible advantages our analysis is not constrained to focus on a small number of transactions for which we can disparately measure some forms of intangibles for acquirers and targets.

capture a country's size and level of development, and data from the World Integration Trade Solution (WITS) to compute bilateral trade flows (imports and exports) between any two countries. We obtain data on the average corporate tax rate for each country from the Economic Freedom Index. We also identify if two countries have double-taxation and bilateral investment treaty agreements for each year in our sample from the United Nations Conference on Trade and Development (UNCTAD) database. We obtain national exchange rates from Datastream, and define the nominal exchange rate returns (between each pair of countries) as the average annual difference in the logarithm of the monthly exchange rate. We obtain real exchange rate returns by using each country's consumer price index and convert all nominal returns to the 2000 price level for Europe. We use data from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) to capture different legal origins. We also consider language and religion as cultural factors related to cross-border acquisitions and gather data on the primary language spoken in each country (English, Spanish, or Others) from CIA World Factbook 2008. We also consider the dominant religion in each country (Catholic, Protestant, Muslim, Buddhist or Others). We further obtain the geographical distance between each country's largest city (in terms of population) or its capital from the Centre d'Etude Prospective et d'Information Internationale (CEPII), as well as a dummy variable that is equal to one if two countries share a common border. Summary statistics for all variables used in the baseline regression are presented in the Appendix.

C Baseline Results

Table 4 present the main results. Notably, the estimated coefficients on ΔSP are positive across all specifications, irrespective of whether we measure specialization based on sales ($\Delta SP(sales)$) or employment ($\Delta SP(emp)$), and whether we focus on the number or value of cross-border acquisitions. All estimates are highly significant with t-statistics ranging between 7.9 and 11.9. Consistent with our hypothesis that foreign acquisitions reflect firms' willingness to deploy mobile specific advantages abroad, the flow of cross-border acquisitions in a given industry within a pair of countries increases with the difference in their specialization of this industry. The economic magnitude of the effect of specialization differences on the intensity of cross-border acquisitions is substantial. A one-standard

deviation increase in $\Delta SP(sales)$ is associated with a 14.6% increase in the number of deals (#Acq.), and a 56.5% increase in the aggregate value of deals ($Acq.). Similarly, a one-standard deviation change in $\Delta SP(emp)$ is associated with 13.3% more deals, and an aggregate value of deals that is larger by 49.6%.[21]

[Insert Table 4 Here]

The baseline specifications contain a large number of control variables, capturing effects that are known to correlate with cross-border acquisition activity. The estimates reported in Table 4 are in line with previous research. For instance, larger economies (measured by log GDP) participate more in cross-border acquisitions. More developed countries, as measured by their GDP per capita, also feature more cross-border horizontal transactions. We also see more cross-border deals when country-pairs display more bilateral trade and are geographically closer. Consistent with the idea that a currency appreciation makes foreign assets look cheaper in nominal terms, we find a positive link between currency return (i.e., an appreciation of the acquirer currency relative to the target currency) and cross-border deal flows. Moreover, bilateral transaction intensity increases when countries share the same language or the same legal origin, but not when they have the same religion.

Our results remain virtually similar if we replace the countries' control variables with country-pair fixed effects. We present the results in Panel A of Table 5. The stability of the estimates confirms that the link between differences in industry specialization and cross-border acquisition flows is not capturing time-invariant differences across country-pairs. Indeed, the inclusion of country-pair fixed effects absorbs any fixed difference between two countries (e.g. differences in legal origins or constant institutional settings), and thus isolates the intensity and direction of bilateral acquisition flows across industries within country-pairs.

[Insert Table 5 Here]

In the rest of Table 5, we assess whether our results are robust to alternative measurements of specialization. Our baseline measure of industry specialization is arguably imperfect because Worldscope only includes data for public firms. This could render

[21] The variables ΔSP are normalized to a unit variance so the coefficients reported in Table 4 and following tables can be interpreted directly.

our measures potentially biased towards activities that feature more public equity capital. We alternatively measure industry specialization based on three different datasets containing aggregated industry-level data on output and employment for all firms (both private and publicly traded) for subsets of countries, industries, and years: the United Nations Industrial Development Organization (UNIDO) Indstat4 database, the Bureau Van Dijk Amadeus database, and the KLEMS database. UNIDO covers 47 manufacturing industries and 43 countries for the period 1990-2006, Amadeus covers all industries for 14 European countries over the 1997-2006 period. KLEMS covers all industries (with a coarser definition) for 25 European countries as well the US, Japan, Korea, and Australia for the 1990-2006 period. While the size of the samples is considerably reduced in these estimations, the estimated coefficients for ΔSP remain positive and significant in all specifications. These results, together with a host of alternative tests presented in the Internet Appendix, indicates that our findings are highly robust.[22]

D Country-Industry Characteristics

By design, the inclusion of acquirer and target country characteristics (or country-pair fixed effects) in the baseline specification (2) guarantees that the coefficient on ΔSP is not reflecting the role of country characteristics documented by existing research, such as different quality of institutions, governance, openness, or economic development. Yet, ΔSP could still be correlated with peculiar industry characteristics that are known to influence cross-border acquisitions, and that are not included in our baseline specification. If this is the case, our inference and interpretation could be incorrect.[23] We consider

[22]In the Internet Appendix, we estimate the baseline equation using OLS, a count model and the Poisson Pseudo-Maximum-Likelihood (PPML) method developed by Silva and Tenreyro (2006) to capture the count nature of the dependent variables (in the presence of many zeros). We include acquirer and target country fixed effects instead of country level control variables. We add differences between acquirer and target country variables instead of levels. We scale the flow (both in number and value) of cross-border horizontal acquisitions in a given industry between two countries by the intensity of domestic horizontal acquisition in the target industry. We consider different definitions of industries. We exclude observations from the U.S. and the U.K. and estimate the baseline models across all country-pairs separately. We replace our measure of specialization with one that excludes sales realized abroad. We consider separately tradable and non-tradable sectors and consider separately mergers and acquisition of assets, as well as distinct types of cross-border deals based on the public status of the acquiring and target firms.

[23]Note that we include acquirer and target country-industry fixed effects because our measure of bilateral specialization is symmetric, in the sense that for a given industry i, the difference in specialization between the acquiring country c and the target country c', labeled as $\Delta SP_{c,c',i}$ is equal to $-1 \times \Delta SP_{c',c,i}$. This implies that acquirer and target country-industry fixed effects ($\alpha_{c,i}$ and $\alpha_{c',i}$) are collinear with

several possibly relevant variables measured at the *country-industry* level to dispel this concern.

First, the specialization of industries in a given country might be related to the absolute weight of these industries in this country rather than their weights relative to the world averages. Thus, differences in industries' size could be related to differences in specialization patterns and also transaction intensity (e.g. Brainard (1997)). We measure industry size using the (log of the) sum of firms' assets as well the number of firms in each country-industry. Second, specialization could be linked to the market valuation of industries, which is related to international acquisitions (e.g. Erel, Liao, and Weisbach (2012) or Aguiar and Gopinath (2005)). We compute the average market-to-book ratio across all firms in each country-industry to measure industry valuation. Third, specialization could be facilitated by easier access to financing in some industries, which could also drive cross-border acquisitions (e.g. Alquist, Mukherjee, and Tesar (2014)). We average cash-to-asset and debt-to-asset ratio across all firms in each country-industry as proxies for access to finance. Fourth, firms in specialized industries might exhibit stronger governance, and this could explain their foreign acquisition activities (e.g. Rossi and Volpin (2004)). We rely on the fraction of shares held by insiders to capture one dimension of governance that is measurable for a large sample of firms, and take its average across each country-industry as proxy for governance. Finally, we consider competition, as imperfect competition could motivate international acquisitions by shielding acquirers from competitive pressure in foreign markets (e.g. Caves (1971) or Neary (2007)). We measure the intensity of competition in each country-industry using the Lerner Index following Nickell (1996) and the Hirschman-Herfindahl index.

[Insert Table 6 Here]

To assess whether our results are threatened by these alternative explanations, we include the differences in each of the above characteristics between the acquirer and target industries in the baseline specification (2). Because some country-industry observations do not feature any publicly listed company in Worldscope, adding these country-industry variables reduces the sample size by about half. We report these results in Table 6. The first four columns of Table 6 reveal that the coefficients on ΔSP remain strongly positive

$\Delta SP_{c,c',i}$. Yet, the inclusion of country-industry-pair fixed effects in the panel specification partially addresses this concern.

in these alternative specifications. While differences in some industry characteristics are significantly related to acquisitions (e.g. industry size or competition), the effect of specialization continues to be strong. Reflecting the fact that industry characteristics capture some relevant variation in the data, the economic significance of ΔSP decreases by about 40% but remains substantial and highly significant. In the last four columns of Table 6 we further control for differences in country-industry "global market shares" to alternatively capture industries' global economic importance. We define the market share of a given country-industry-year as the ratio of its sales (or employment) to worldwide sales (employment) in that industry. As with the specialization measures, we assign a value of zero to country-industries with no publicly listed firms, and aggregate this measure over the whole sample period. We observe more transactions between two countries in a given industry when the acquirer industry has larger market shares than the target industry. Yet, the coefficients on ΔSP continue to be large and significant.

In all, the results in Table 6 largely dispel concerns that differences in industry specialization pick up the influence of industries' size, economic importance, valuation, access to finance, governance and competition on cross-border acquisitions highlighted by existing research. To the extent that the additional control variables capture some intangible dimensions that firms could deploy abroad, the estimated coefficients on ΔSP in Table 6 represent a lower bound on the effect of mobile industry-specific intangibles on cross-border acquisitions.

[Insert Table 7 Here]

To provide further evidence that differences in mobile intangible assets between country-industries are related to acquisition flows, Table 7 presents estimates of our baseline specification (2) where we replace differences in specialization (ΔSP) with differences in proxies for human and technology capital in a given industry between country pairs (that we used in Table 2). We observe positive coefficients for differences in the fraction of skilled employees and management quality (not significant), indicating that there are more horizontal transactions between two countries in a given industry when the acquiring industry has a larger stock of human capital than the target industry. We also observe positive coefficients for three out of four measures of technological capital. Consistent with the internalization motive, the intensity of cross-border deals is stronger when the

acquiring industry benefits from human and technology capital compared to the target industry.

E Omitted Variables

While our results are consistent with our main hypothesis, our interpretation could be biased by possible omitted variables. Indeed, both differences in industry specialization and the intensity of cross-border acquisitions could be correlated with factors not included in our estimations. To investigate the potential effect of omitted variables, we take advantage of the panel structure of the sample. Introducing the time dimension in the baseline equation (2) allows us to include industry-country-pair fixed effects, and hence absorb any fixed difference across industry-country-pairs. The panel sample then expands to more than 3.6 million observations ($46 \times 45 \times 85 \times 21$).[24] By doing so, the coefficient of interest (β) in equation (2) measures how the volume of acquisitions in a given industry-country-pair changes when the difference in specialization ($\Delta SP_{c,c',i,t}$) changes.

Panel A of Table 8 indicates that our conclusions continue to hold when we control for unobserved differences between industry-country pairs (together with country-level controls). The estimated coefficients on ΔSP are all positive and significant. Albeit smaller, the economic magnitude of the specialization effect remains substantial. When the difference in specialization in a given country-industry-pair increases by one standard deviation, we observe an increase of about 1% (0.8% and 1.1%) in the number of deals in this pair and a 8% (6.8% and 10.5%) increase in acquisition value. Panel B reveals similar findings when we estimate the baseline equation (2) using the Fama and MacBeth (1973) methodology.[25]

The results in Table 8 mitigate concerns about omitted variables that are fixed across

[24] With only 36,105 horizontal acquisitions during the sample period, the number of zeros in the dependent variable inflate to more than 99% of the sample, pushing the unconditional deal incidence in a given year-industry-country pair close to zero.

[25] The smaller economic magnitude is somewhat expected as the source of variation in these panel specifications is within industry-country pairs as opposed to between industry-country pairs in our baseline (cross-sectional) estimation. The significance of ΔSP is further remarkable as industry specialization is highly persistent across countries and industries. The autocorrelation estimates are 0.92 for $SP(sales)$ and 0.87 for $SP(emp)$. In the Internet Appendix, we report results using OLS as (non-linear) Tobit estimations with a large number of fixed effects could be inefficient and biased, as well as dynamic models with a lagged dependent variable. The results are qualitatively similar.

country-pairs and industries. Yet, we cannot completely rule out the possibility that differences in industry specialization and cross-border acquisitions are jointly driven by a time-varying unobserved variable. To truly invalidate our interpretation, however, such an omitted variable should (1) vary over time within country-pair-industry, and (2) be unrelated to the country-pair-industry characteristics included in Table 6.

F Contracting and Exporting Costs

To provide further support for the internalization motive, we now turn to the theory's ancillary predictions. Our second and third hypotheses predict that the link between industry specialization and foreign acquisitions should be stronger when (1) target countries' contractual framework is weak, and (2) when exporting costs are high. We test these predictions using various proxies for contracting and exporting costs. First, we focus on the strength with which countries enforce private contracts to measure the quality of target countries' contractual framework. Following Acemoglu, Johnson, and Mitton (2009), we use data on the time (in days) and the number of procedures required to enforce a contract from the Worldbank's Doing Business project. Alternatively, we use the overall index of formality of legal procedures developed by Djankov, Porta, de Silanes, and Shleifer (2003). For each variable, a higher value reflects greater costs and complexity of enforcing contracts between private parties. Second, following the convention in the trade literature (e.g. Anderson and van Wincoop (2004) or Anderson (2011)) we measure exporting costs between any two countries using the geographic distance that separate their capital cities and whether they share a common border. We also directly rely on bilateral trade flows as a *de facto* measure of exporting costs, with larger flows indicating lower costs.

To test whether the link between differences in industry specialization and foreign acquisitions strengthens with contracting and exporting costs, we modify our baseline specification (2) as follows:

$$log(1 + V_{c,c',i}) = \alpha + \beta_0 \Delta SP_{c,c',i} + \beta_1 \Psi_{c,c'} + \beta_2 (\Delta SP_{c,c',i} \times \Psi_{c,c'}) + ... + \varepsilon_{c,c',i}, \quad (3)$$

where every baseline explanatory variable ($\Delta SP_{c,c',i}$, X_c, $X_{c'}$, $X_{c,c'}$, and υ_i) is interacted with a measure of contracting or exporting costs ($\Psi_{c,c'}$). Our hypotheses predict that

$\beta_2 > 0$: firms rely more on foreign control to deploy specific mobile advantages abroad when arm's length contracting between private parties provide weaker legal protection of the intangible advantages of acquirers in target countries, and when the costs of exporting goods that embeds firms' intangible advantages are large.

[Insert Table 9 Here]

Table 9 presents the results of these ancillary tests. To preserve space, we only report the estimated coefficients on the interaction term of interest $\Delta SP_{c,c',i} \times \Psi_{c,c'}$. Panel A indicates that the relation between differences in industry specialization and cross-border acquisitions is stronger when target countries costs of enforcing contracts are high. The estimated coefficients β_2 are positive and significant for every measure of contracting costs, specialization, and acquisition flows. In line with the internalization motive, the results indicate that firms increasingly expand the use of their intangible advantage abroad by acquiring control of foreign assets when contracting inefficiencies between private parties in foreign markets limit arm's length relationships.[26]

Panel B also reveals that the role of industry specialization in cross-border acquisitions is stronger when exporting costs are substantial. The estimated coefficients β_2 are positive when we measure exporting costs using geographical distance, indicating that the role of industry specialization is more prevalent in cross-border acquisitions when it is more costly to ship products abroad. Similarly, we estimate that the role of specialization is weaker (i.e., coefficients β_2 are negative) when countries share a common border and when bilateral trade is more intense, i.e., when exporting costs are lower. Overall, results in Table 9 are consistent with the idea that acquiring formal control of foreign assets is more important when alternative ways to exploit specific advantages abroad are relatively more costly.

V Deal-level Evidence

Our results so far provide strong evidence that the bulk of aggregate cross-border acquisitions flows from more specialized to less specialized industries. In this section, we exploit

[26]Further consistent with the importance of acquiring control, we show in the Internet Appendix that there is no significant association between difference in industry specialization and the intensity of cross-border alliances and joint ventures.

the fine granularity of our sample of acquisitions to provide additional evidence at the individual deal-level to further support our main hypothesis.

A Profile of Acquirers and Target

Table 10 presents descriptive comparisons of the degree of industry specialization across acquirers and targets in our sample of 36,105 cross-border horizontal transactions. Several notable results emerge. First, the average values of SP for both acquirers and targets are larger than one. This suggests that, perhaps unsurprisingly, takeover transactions mostly involve firms operating in industries exhibiting significant degrees of specialization.

[Insert Table 10 and Figures A, B, C, and D Here]

Consistent with the internalization motive, acquirers in our sample display degrees of specialization that are markedly larger than targets. Across all deals, the average value of $SP(sales)$ is 1.981 for acquirers and 1.458 for targets. Similarly, the median value of $SP(sales)$ is 1.235 for acquirers, but amount to 0.886 for targets.[27] Overall, acquirers' specialization is roughly 25% larger than targets, and the differences are statistically significant. Consistent with the aggregate evidence, this clear pattern indicates that for cross-border transactions involving firms from the same industry, more specialized acquirers buy less specialized target. Remarkably, the difference of specialization is economically sizeable as we observe that more than 63% of all horizontal cross-border transactions involves acquirers that operate in more specialized industries than targets. Together these transactions amount to $2.3 trillion, or 67% of the total value of cross-border horizontal transactions over our sample period.

Figures A, B, C and D highlight that the observed difference in specialization between acquirers and targets at the deal-level is present across countries, time, and industries. Figures A and B display the average difference in specialization (ΔSP) by acquirer and target countries (sorted in ascending order). For acquirer countries, ΔSP is positive in 35 countries out of 46 countries. For target countries, ΔSP is positive in 40 countries, based on sales (similar for employment).[28] Figure C further confirms the finding that acquirers

[27]The fact that targets display average specialization above unity may appear surprising. We show in the Internet Appendix that this is explained by (1) a mechanical selection effect whereby there is no target in industries displaying zero output, and (2) by an unequal repartition of targets across countries.

[28]The corresponding figures for employment are contained in the Internet Appendix. Taiwan is an

are more specialized than targets holds for every single year in our sample. Finally, Figure D displays ΔSP by industry. Here again, ΔSP is positive in 72 distinct industries, and negative in only 13 industries for sales (69 vs. 16 for employment). In all, a substantial fraction of asset ownership reallocations across borders occurs between more specialized acquirers and less specialized target firms.

B Selection Models

We further exploit the deal-level data to estimate whether differences in industry specialization predicts firms' participation in cross-border horizontal transactions after controlling for observable firm-level factors (as well as country and industry factors). To control for firm-level factors, we restrict our attention to the subsample of deals for which we have data on both acquirers and targets. Of the 36,105 cross-border horizontal transactions in our sample, only 680 feature both public acquirers and targets with data available in Worldscope.[29]

To estimate whether differences in specialization affect the likelihood that a cross-border transaction occurs between two firms in the same industry, we create an artificial sample that comprises possible and actual transactions constructed from all firms participating in cross-border horizontal transactions. Specifically, for each industry-year featuring at least one transaction, we create all possible transactions by pairing each acquirer to each target within that industry-year.[30] The logic is that, conditional on participating in a cross-border transaction, an acquirer (target) could have found it more valuable to acquire (be acquired by) other targets (acquirers). This procedure results in 14,610 distinct acquirer-target pairs, 680 of which are actual transactions. Using this sample, we estimate probit models to measure the probability of observing an actual transaction as a function of the difference in specialization between the acquirer and the target (ΔSP) as well as differences in their specific characteristics. We consider acquirers' and targets' size, market-to-book ratio, sales growth, cash-to-asset and debt-to-asset ratios, the fraction of foreign sales, as well as domestic and global market shares.

outlier with very few deals.

[29]This ratio is similar to that of other related papers (e.g. (e.g. Erel, Liao, and Weisbach (2012) or Ferreira, Massa, and Matos (2010)).

[30]Imagine that in a given industry-year, A acquires B and C acquires D. Possible pairs include (A,B), (A,D), (C,B), and (C,D).

[Insert Table 11 Here]

Table 11 displays the results of various selection models. For brevity, we only report the estimated coefficient on ΔSP. The first column reports a baseline estimation that only includes $\Delta SP(sales)$, industry, and year fixed effects. Mirroring our aggregate results, the estimates indicate that, compared to possible transactions, actual transactions are more likely to occur when the difference in industry specialization between the acquirer and the target is large. We observe similar results in the second column when we include the acquirer and target country controls used in the gravity specification (2). More importantly, the third column indicates that difference in industry specialization between acquiring and target firms predicts deal occurrence when we control for acquirers' and targets' individual characteristics. We obtain similar results when we focus on specialization measured using employment in columns (4) to (6).

C Market Reaction and Acquisition Premium

As discussed in Section II, the internalization theory implies that cross-border acquisitions should occur when the net expected value of controlling existing foreign assets and using mobile intangible advantages is positive. On this ground, our fourth hypothesis predicts that the overall expected change in value triggered by acquiring control of foreign assets to increases with the difference in industry specialization between the acquirer and the target. Following a long tradition in the literature on acquisitions, we rely on cumulative abnormal stock returns (CAR) for acquirers and targets around deals' announcements and the premium paid by acquirers as proxies for the expected change in value generated by the reallocation of control (e.g. Betton, Eckbo, and Thornburn (2008)).

We compute acquirer and target CARs over the three-day event window (-1,+1) around the deal announcement (e.g. Bris and Cabolis (2008) or Ferreira, Massa, and Matos (2010)). We estimate abnormal stock returns using as a benchmark model a two-factor international market model, with local market return and the world-market return (both from Datastream) as factors. We estimate the model using daily dollar-denominated returns from the 250 days that precede deal announcements. We also compute value-weighted combined acquirer-target CARs where the weights are defined based on the relative market capitalization of both firms 10 days prior to deal announcement. To make

sure that the CARs isolate information related to horizontal cross-border acquisitions, we focus on deals where acquirers or targets are not involved in other types of deals during the quarter that precedes deal announcement. We measure the premium paid by acquirers to take control over targets' assets using the price they offer relative to targets' stock prices 30 days prior to deal announcements, as reported by SDC. Panel A of Table 12 reveals that the average three-day CARs for acquirers and targets are 1% and 9.9% in our sample of horizontal cross-border transactions. The average combined three-day CARs is 8.2%, and the average acquisition premium is 35%.

[Insert Table 11 Here]

To test whether difference in industry specialization between the acquirer and the target in a given transaction is related to market reactions, or acquisition premia, we regress CARs (or acquisition premia) on the difference of specialization between the acquirer and target industries (ΔSP) as well as deal, firm, and country characteristics and further include industry and year fixed effects. The firm (acquirer or target) and country characteristics are similar to those used in previous tests. Deal characteristics include (the log of) deal value, dummy variables for whether the acquirer (or target) is private and whether the transaction is a merger, the number of bidders, the fraction of ownership held by the acquirer prior to (i.e. toehold) and after deal completion, and whether the acquisition is paid with stocks. We also control for firms' and industry stock returns computed using 250 trading days prior to the transaction.

Panel B of Table 12 presents the results. Consistent with our fourth hypothesis, differences in industry specialization between acquirers and targets are associated with significantly higher abnormal returns for both acquirers and targets. Across all available deals, a one-standard deviation increase in ΔSP is associated with a 0.2 percentage point larger acquirer return, and 2.1 percentage point larger target return. Although positive, the coefficients on ΔSP are not statistically significant in the combined CARs regressions, which are estimated on the subset of deals involving public acquirers and targets. Consistent with this latter result, we estimate a positive link between differences in specialization and the premium acquirers pay to take control of foreign targets. Our estimates confirm that the expected change in value associated cross-border acquisitions increases with differences in industry specialization, and that acquirers have to pay for

accessing these gains.[31]

D Ex Post Performance

As an alternative way to measure the expected change in value generated by cross-border acquisitions we look at ex post transaction performance. An important obstacle to measuring ex post acquisition performance is that two separate firms exist before the transaction, and one or two firms might exist after the transaction, depending on the transaction type. As in Hoberg and Phillips (2012) we avoid this issue by considering only the ex post change in performance of acquirers, measured relative to the first set of numbers available after the transaction effective date. We thus implicitly assume that performance accrues over time as it takes time for specialized acquirers to deploy their intangible assets on newly purchased foreign assets.[32]

We examine changes in return on assets from year $t+1$ to year $t+2$, or $t+4$ (one- and three-years horizons). As information on performance is available only for public companies, we focus on public firms acquiring public or private targets in horizontal cross-border transactions. To isolate the role of specialization differences on post-acquisition performance, we restrict our attention to firms that only acquire assets in cross-border horizontal transactions over the horizons we consider. Moreover, because changes in performance can reflect underlying industry trends, we benchmark acquirers' performance by contrasting it to that of matched industry peers. For each acquirer, we select the closest peer (by size) that (1) operates in the same country and industry, and (2) that is not involved in any acquisition during a six-year window surrounding the transaction.[33]

[Insert Table 13 Here]

Table 12 reports the results of OLS regressions where the ex post changes in performance (at different horizons) are the dependent variables. The sample includes 4,997

[31] Additional tests reported in the Internet Appendix indicate that our result are robust to using a Heckman specification that attempts to account for the influence of self-selection.

[32] Note that by examining post-changes only we bias our analysis towards not finding results due to a reduction in power, but we avoid complications of measuring performance in year $t-1$.

[33] To mitigate the effect of outliers, we winsorize the performance measures at the 1% level. Moreover, to reduce survivorship issues, we assign any missing values for a given horizon the value of the last known horizon (as in Hoberg and Phillips (2012)). We exclude firm-year observations with negative reported assets, but keep firm-year observations with negative earnings. Removing them does not change the results, as shown in the Internet Appendix.

acquisitions made by 3,636 distinct firms from 46 countries and 84 industries. All specifications include control variables as well as country-pairs, industry, and year fixed effects. We observe that the estimated coefficients for ΔSP are positive across all performance horizons and with both measures of specialization. They are significant in all four specifications. Thus transactions in which acquirers are more specialized than targets appear to be associated with increased ex post performance. The results are economically substantial. For instance, a one standard deviation increase in $\Delta SP(sales)$ is associated with an increase in profitability of 0.60% over one year, and the same level of 0.60% is maintained over three years.

We recognize that looking at acquirers' ex post outcomes does not necessarily identify the (causal) effects of cross-border transactions on performance. Our analysis indicates, however, that differences in industry specialization between acquirers and targets are associated with better performance. Consistent with our main hypothesis, this finding suggests that the benefits of deploying intangible advantage abroad arise because of the enhanced ability of specialized buyers to operate the acquired assets more efficiently.

VI Conclusions

The paper shows that differences in industry specialization are important in explaining the flow, direction, and value creation of horizontal cross-border acquisitions. Our central hypothesis is that industry specialization reflects the localized concentration of intangible resources that firms can deploy and internalize abroad within their own boundaries through foreign acquisitions. Consistent with this internalization motive, we find large differences in the degree of industry specialization between acquirers and targets in cross-border transactions. Moreover, we find that the intensity of acquisitions between two countries in a given industry is positively related to differences in their industry specialization.

Across a host of tests, we uncover that firms in more specialized industries acquire control of assets in less specialized industries. The intensity of cross-border deals is stronger when the acquiring industry benefits from human and technology capital compared to the target industry. Also, the role of industry specialization in cross-border acquisitions

is stronger when alternative channels to exploit intangible advantages abroad are less attractive than acquisitions. The relation between differences in industry specialization and the intensity of cross-border acquisitions is stronger when contracting and exporting costs limit arms' length relationships and exporting. Furthermore, transactions' announcement returns and the premium that acquirers pay are related to differences in industry specialization. Both acquirers' and targets' abnormal returns are significantly larger when differences in industry specialization are large. We also find that acquirers pay a higher premium to take control of less specialized foreign targets and estimate that acquirers' (one- and three-year) accounting performance post-acquisition is significantly higher when acquirers are from more specialized country-industries than targets.

Our results suggest that firms' willingness to deploy mobile intangible advantages abroad is well captured by industry specialization and is important in explaining the geography of global acquisitions. Moreover the economic gains triggered by the international reallocation of control are linked to the ability of specialized buyers to exploit their mobile intangible advantages and operate the purchased assets more efficiently. Our findings support the proposition that the existence and prevalence of localized specialized intangible resources at the country-industry level are important factors in understanding the flows, direction, and valuation effects of cross-border acquisitions.

Appendix 1: Definition of the Variables

#Acq.: Number of cross-border horizontal acquisitions between two countries in a given industry (Source: SDC)

$Acq.: Dollar value of cross-border horizontal acquisitions between two countries in a given industry (Source: SDC)

SP(sales): Degree of specialization of an industry in a given country, computed as the share of the industry's sales in its country total sales, divided by the average share of sales in the industry across all countries, aggregated across public firms in each country-industry (Source: Worldscope and own calculations).

SP(emp): Degree of specialization of an industry in a given country, computed as the share of the industry's employment in its country total employment, divided by the average share of employment in the industry across all countries, aggregated across public firms in each country-industry (Source: Worldscope and own calculations).

GDP: Gross domestic product (Source: Worldbank)

GDP/capita: Gross domestic product per capita (Source: Worldbank)

Trade: Bilateral imports and exports (Source: World Integration Trade Solution (WITS))

Exchange rate return: Difference in the logarithm of the monthly real exchange rate (Source: Datastream)

Distance: Geographic distance between capitals, calculated using the great circle formula and latitudes and longitudes of the capital or most populous city (Source: CEPII).

Common Border: Dummy that equals one if two countries share a common border (Source: CEPII).

Same Religion: Dummy that equals one if two countries share the same religion, defined as the dominant religion of a country (Source: CIA World Factbook 2008).

Same Language: Dummy that equals one if two countries share the same language, defined as the primary spoken language of a country (Source: CIA World Factbook 2008).

Same Legal System: Dummy that equals one if two countries share the same legal system (Common, Civil, German, or Scandinavian) (Source: Djankov et al. 2006).

Corporate Tax Rate: Country corporate tax rate (Source: Economic Freedom Index).

Double-Tax Treaty: Dummy that equals one if two countries have signed a double-taxation treaty (Source: UNCTAD).

Bilateral Investment Treaty: Dummy that equals one if two countries have signed bilateral investment treaty (Source: UNCTAD).

Contracting Costs (procedures): Time in days required to enforce a contract (Source: Worldbank).

Contracting Costs (duration): Number of procedures required to enforce a contract (Source: Worldbank).

Contracting Costs (enforcement): (one divided by) the overall index of formality of legal procedures (Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003)).

Margin: Price-cost margin ratio computed as operating profits before depreciation and amortization over sales (Source: Worldscope)

COGS/Sales: Costs computed as cost of good sold over sales (Source: Worldscope)

High Skill (%comp): (country-industry) ratio of high-skilled labor compensation to total compensation (Source: EU KLEMS variable *LABHS*)

High Skill (%hours): (country-industry) ratio of hours worked by high-skilled persons engaged to total hours worked (Source: EU KLEMS variable *H-HS*)

Software (%capital): (country-industry) stock of software capital over total capital, in 1995 prices (Source: EU KLEMS variable *K-Soft*)

ICT Stock (%capital): (country-industry) stock of computing and communication equipment of total capital, in 1995 prices (Source: EU KLEMS variable *K-ICT*)

R&D Stock: Stock of R&D capital computed using the perpetual inventory method $G_{i,t} = (1-\delta)G_{i,t-1} + R\&D_{i,t}$, where $G_{i,t}$ is the end-of-period stock of R&D capital for firm i and δ is the depreciation rate of R&D capital set to 15% as in Falato, Kadyrzhanova, and Sim (2014) (Source: Worldscope)

R&D/Assets: Ratio of R&D expenditures to total assets (Source: Worldscope)

Patents/Assets: The number of patent divided by total assets, for US firms only (Source: NBER patent Database and Compustat)

Management: Index of management quality (Source: World Management Survey)

Total Assets: Total Assets (Source: Worldscope)

Market-to-book: Book value of assets minus book value of equity plus market value of equity, divided by the book value of assets (Source: Worldscope)

Debt/Assets: Total debt divided by total assets (Source: Worldscope)

Cash/Assets: Cash holdings divided by assets (Source: Worldscope)

1-Lerner: Measure of market power computed as one minus the average price-cost margin ratio in an industry, where the price-cost margin is computed as operating profits before depreciation and amortization over sales (Source: Worldscope)

HHI: Hirschman-Herfindahl index, defined as the sum of the squared market shares in the industry (Source: Worldscope)

CHS: Closely-help shares, defined as the fraction of shares held by insiders, trusts, corporations, pension funds, and individuals who hold 5% or more of shares outstanding (Source: Worldscope)

GMS(sales): Global market shares of an industry in a given country, computed as the share of the country-industry's sales in the global industry's sales, aggregated across public firms in each country-industry (Source: Worldscope and own calculations)

GMS(emp): Global market shares of an industry in a given country, computed as the share of the country-industry's employment in the global industry's sales, aggregated across public firms in each country-industry (Source: Worldscope and own calculations)

Acquirer CAR: Three-day cumulative abnormal return for acquirers around the deal an-

nouncement date, obtained using a two-factor international market model with the local market and world market returns as factors using dollar-denominated returns from the 250 days that precede the announcement (Source: SDC, Datastream, and own calculations)

Target CAR: Three-day cumulative abnormal return for targets around the deal announcement date, obtained using a two-factor international market model with the local market and world market returns as factors using dollar-denominated returns from the 250 days that precede the announcement (Source: SDC, Datastream, and own calculations)

Combined CAR: Weighted average between acquirer and target CARs where the weights are defined based on the relative market dollar capitalization of both firms 10 days prior to the announcement (Source: SDC, Datastream, and own calculations)

Premium: Price paid by acquirers to take control of targets relative to targets' price 30 days prior to the deal announcement (Source: SDC)

ROA: Net income divided by total assets (Source: Worldscope)

Appendix 2: Mapping between ISIC and SIC

Our various data sources are based on different industry classifications, notably the US Standard Industrial Classification (SIC 1987) classification and the International Standard Industrial Classification of All Economic Activities (ISIC Rev. 3) classification. To make the industry classification systems compatible, we define industries as the finest possible partition of industries in the 3-digit ISIC Rev. 3 system such that the 3-digit SIC 1987 classification is a refinement of this partition; that is, none of the 3-digit industries in the SIC 1987 has an intersection with two or more industries in the partition of industries we define. This yields a partition of 101 industries. Existing concordances between ISIC and SIC classifications do not exclude overlap, i.e. individual 3-digit SIC industries corresponding to more than one 3-digit ISIC industries, and vice versa.

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Table 1: Measures of Industry Specialization – Descriptive Statistics

This table presents descriptive statistics for our two main measures of industry specialization as presented in Section III.A. SP(sales) is specialization based on total sales, and SP(emp) is specialization based on total employment. Data on sales and employment are from Worldscope. The sample covers 46 countries, 85 distinct industries and the period 1990-2010. Industries are defined based on three-digit ISIC classification (see Appendix 2). Panel A displays aggregate summary statistics (average, median as well as 10th and 90th percentiles) for each country. Panel B displays the two most specialized industries (highest SP(sales)) for each country aggregated over the whole sample period.

Panel A	SP(sales)				SP(emp)			
Country	Average	10th	Median	90th	Average	10th	Median	90th
Argentina	0.51	0.00	0.00	0.78	0.34	0.00	0.00	0.00
Australia	1.38	0.00	0.29	4.19	1.22	0.00	0.10	3.42
Austria	0.76	0.00	0.00	1.99	0.81	0.00	0.00	2.56
Belgium	0.88	0.00	0.00	2.50	1.02	0.00	0.00	2.73
Brazil	0.51	0.00	0.08	1.50	0.67	0.00	0.00	2.10
Canada	1.26	0.00	0.42	3.03	1.08	0.00	0.22	2.90
Chile	0.75	0.00	0.00	2.26	0.79	0.00	0.00	2.50
China	1.08	0.00	0.35	2.49	1.11	0.00	0.28	2.65
Colombia	0.58	0.00	0.00	1.87	0.59	0.00	0.00	1.35
Czech Republic	0.39	0.00	0.00	0.50	0.41	0.00	0.00	0.55
Denmark	0.87	0.00	0.01	2.51	0.91	0.00	0.01	2.78
Finland	1.00	0.00	0.04	2.45	1.10	0.00	0.04	2.61
France	1.37	0.00	0.59	3.64	1.51	0.00	0.57	3.76
Germany	1.50	0.00	0.31	3.24	1.47	0.00	0.31	3.31
Greece	0.75	0.00	0.11	2.27	0.74	0.00	0.03	2.22
Hong Kong	1.38	0.00	0.51	3.11	1.34	0.00	0.27	3.77
Hungary	0.53	0.00	0.00	0.78	0.58	0.00	0.00	0.91
India	0.96	0.00	0.23	2.71	0.74	0.00	0.00	2.00
Indonesia	1.03	0.00	0.12	2.79	1.02	0.00	0.00	2.37
Ireland	0.72	0.00	0.00	2.13	0.73	0.00	0.00	2.06
Israel	0.80	0.00	0.00	2.06	0.61	0.00	0.00	1.80
Italy	0.68	0.00	0.09	2.09	0.76	0.00	0.11	2.31
Japan	2.02	0.08	0.91	6.10	2.00	0.10	0.66	5.74
Korea	1.37	0.00	0.40	3.77	1.34	0.00	0.47	3.14
Luxemburg	0.60	0.00	0.00	0.38	0.50	0.00	0.00	0.14
Malaysia	1.22	0.00	0.55	3.55	1.10	0.00	0.03	3.32
Mexico	0.94	0.00	0.00	2.94	0.76	0.00	0.00	2.20
Netherlands	0.99	0.00	0.15	2.26	1.26	0.00	0.14	2.82
New Zealand	1.15	0.00	0.00	3.18	0.92	0.00	0.00	1.40
Norway	1.14	0.00	0.00	1.90	1.49	0.00	0.00	2.55
Peru	0.54	0.00	0.00	1.75	0.40	0.00	0.00	1.18
Philippines	0.75	0.00	0.00	2.11	0.67	0.00	0.00	1.56
Poland	0.71	0.00	0.00	2.01	0.65	0.00	0.00	1.69
Portugal	0.54	0.00	0.00	1.52	0.54	0.00	0.00	1.60
Russia	0.44	0.00	0.00	0.66	0.40	0.00	0.00	0.87
Singapore	1.70	0.00	0.55	4.21	1.41	0.00	0.00	4.20
South Africa	1.28	0.00	0.28	3.56	1.29	0.00	0.17	3.31
Spain	0.74	0.00	0.00	1.83	0.79	0.00	0.00	1.93
Sweden	1.18	0.00	0.21	3.64	1.11	0.00	0.16	3.08
Switzerland	1.81	0.00	0.14	4.30	1.99	0.00	0.13	3.30
Taiwan	1.49	0.00	0.22	4.06	1.38	0.00	0.08	3.31
Thailand	0.97	0.00	0.34	2.63	1.23	0.00	0.07	3.28
Turkey	0.86	0.00	0.00	2.00	0.82	0.00	0.00	2.02
UK	1.46	0.02	0.67	3.03	1.81	0.03	0.65	3.94
USA	2.26	0.17	1.20	4.98	2.42	0.16	1.00	5.94
Venezuela	0.15	0.00	0.00	0.18	0.18	0.00	0.00	0.00
World	1.00	0.00	0.06	2.64	1.00	0.00	0.00	2.55

Panel B	**Top#1**	**Top#2**
Argentina	Manufacture of footwear	Basic iron and steel
Australia	Repair of personal and household goods	Advertising
Austria	Architectural, engineering and others	Other wholesale
Belgium	Insurance and pension funding	Retail sale of food, beverages and tobacco
Brazil	Education	Retail trade in specialized stores
Canada	Repair of personal and household goods	Printing and service activities
Chile	Education	Sea and coastal water transport of freight
China	Non-scheduled air transport	Education
Colombia	Spinning, weaving and finishing of textiles	Beverages
Czech Republic	Tobacco products	Casting of metals
Denmark	Sea and coastal water transport of freight	Sea and coastal water transport of passengers
Finland	Television and radio transmitters	Paper and paper products
France	Electric lamps and lighting equipment	Tanning and dressing of leather
Germany	Retail trade not in stores	Sale, maintenance and repair of motor vehicles
Greece	Human health activities	Precious and non-ferrous metals
Hong Kong	Sea and coastal water transport of passengers	Education
Hungary	Plastics products	Refined petroleum products
India	Electric lamps and lighting equipment	Education
Indonesia	Tobacco products	Sale, maintenance and repair of motor vehicles
Ireland	General purpose machinery	Dairy products
Israel	Insurance and pension funding	Architectural and engineering activities
Italy	Aircraft and spacecraft	Motor vehicle and equipment
Japan	Accumulators, primary cells, primary batteries	Electrical equipment
Korea	Television and radio receivers	Other wholesale
Luxemburg	Structural metal products, tanks, reservoirs	Basic iron and steel
Malaysia	Sale, maintenance and repair of motor vehicles	Hotels and accommodation
Mexico	Glass and glass products	Restaurants, bars and canteens
Netherlands	Renting of construction or demolition equipment	Meat, fish, fruit, vegetables, oils and fats
New Zealand	Renting of transport equipment	Legal, accounting, and auditing activities
Norway	Oil and gas extraction	Non-scheduled air transport
Peru	Grain mill products and starched products	Legal, accounting, and auditing activities
Philippines	Education	Beverages
Poland	Renting of construction or demolition equipment	Wearing apparel, except fur apparel
Portugal	Products of wood, cork, and straw	Retail sale of food, beverages and tobacco
Russia	Transport via pipelines	Railway and tramway locomotives
Singapore	Building and repairing of ships and boats	Electronic valves and tubes
South Africa	Railway and tramway locomotives	Chemical and Fertilizer Minerals
Spain	Railway and tramway locomotives	Repair of personal and household goods
Sweden	Domestic appliances	Wearing apparel, except fur apparel
Switzerland	Watches and clocks	Electricity distribution, wire and cable
Taiwan	Office, accounting and computing machines	Casting of metals
Thailand	Miscellaneous Manufactures	Manufacture of footwear
Turkey	Domestic appliances	Glass and glass products
UK	Legal, accounting, and auditing activities	Advertising
USA	Renting of transport equipment	Education
Venezuela	Structural metal products, tanks, and reservoirs	Monetary intermediation

Table 2: Mobile Intangible Advantages and Industry Specialization

This table presents the associations between proxies for mobile advantages (margins, costs, and intangible assets) and industry specialization. We consider two measures of industry specialization, one based on sales (SP(sales)) and one based on employment (SP(emp)). Data on sales and employment are from Worldscope. We measure associations by separately regressing each variable of interest on our measures of industry specialization as well as various fixed effects (depending on the specification). We report the estimated coefficients on industry specialization (SP), their t-statistics, sample size, the fixed effects structure (which depends on the unit of observation of each specific variable), as well as the sample source. Panel A presents the link between industry specialization (country-industry-year observations), margins and costs (COGS/sales). Panel B presents the associations between industry specialization and measures of intangible assets. We consider the fraction of high skilled workers, the stock of software capital, the stock of information and communication technology (ICT) capital, the stock of R&D assets, the ratio of R&D to assets, all measured at country-industry-year level, the ratio of patent to assets measured at the industry-year level for US industries only, and management quality measured at the country-industry level. All variables are defined in Appendix 1. Industries are defined based on three-digit ISIC classification (see Appendix 2). Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

SP(x):	SP(sales)			SP(emp)			FE?	Source
	Coef	*t*-stat	N	Coef	*t*-stat	N		
				Panel A: Margins and Costs				
Margin	0.121***	(7.61)	43,817	0.107***	(5.86)	43,798	C/I/Y	Worldscope
COGS/sales	-0.001	(-0.20)	41,516	-0.057***	(-2.76)	41,500	C/I/Y	Worldscope
				Panel B: Intangibles				
High Skill (%Comp)	0.364***	(8.51)	23,838	0.181***	(3.64)	23,718	C/I/Y	KLEMS
High Skill (%Hours)	0.304***	(7.50)	23838	0.120**	(2.54)	23,718	C/I/Y	KLEMS
Software Stock	0.124***	(3.64)	13,930	0.238***	(6.11)	13,860	C/I/Y	KLEMS
ICT Stock	0.016	(0.46)	13,930	0.127***	(3.62)	13,860	C/I/Y	KLEMS
R&D Stock	0.199***	(3.38)	2,737	0.222***	(3.58)	2,737	C/I	Worldscope
R&D/Assets	0.119***	(6.48)	43,916	0.117***	(5.54)	43,897	C/I/Y	Worldscope
Patents/Assets	0.087*	(1.67)	1,749	0.027	(0.36)	1,749	I/Y	NBER
Management	0.161	(1.54)	527	0.075	(0.71)	527	C/I	WMS

Table 3: Mergers and Acquisitions - Descriptive Statistics

This table describes the sample of mergers and acquisitions. Data are from the SDC Platinum M&A Database. We include all mergers and acquisitions where more than 50% of the target shares are owned by the acquirer after the transaction. We exclude LBOs, spinoffs, recapitalizations, self-tender offers, exchange offers, repurchases, acquisitions of remaining interests, privatizations as well as deals involving government agencies. The sample period is 1990-2010. We display the breakdown of transactions across domestic, cross-border, horizontal and non-horizontal for the whole sample. We present the number of deals, the dollar value, the fraction of all deals, and cross-border or domestic deals. Industries are defined based on three-digit ISIC classification (see Appendix 2).

Deal Type:	Total	Domestic	Cross-Border
	Panel A: All Deals		
# Deals	365,496	284,357	81,139
% of Total	100%	77.80%	22.20%
$ Value	$21,612	$15,694	$5,918
% of Total	100%	72.60%	27.40%
	Panel B: Horizontal Deals		
# Deals	162,098	125,993	36,105
% of Total	44%	34%	10%
% of Domestic/Cross-Border	-	44%	44%
$ Value	$10,671	$7,472	$3,199
% of Total	49%	34%	15%
% of Domestic/Cross-Border	-	47%	54%
	Panel C: Non-Horizontal Deals		
# Deals	203,398	158,364	55,034
% of Total	56%	43%	13%
% of Domestic/Cross-Border	-	56%	56%
$ Value	$10,941	$8,222	$2,719
% of Total	51%	38%	13%
% of Domestic/Cross-Border	-	53%	46%

Table 4: Baseline Results

This table presents cross-sectional Tobit estimations of the baseline gravity specification (equation (2) in the text). The dependent variable is the total flow of acquisitions, in number (ln(#Acq.)) or dollar value (ln($Acq.)), in a given industry-country-pair over the 1990-2010 period. The variable of interest, ΔSP, is the average difference in specialization (in a given industry) between the acquirer and the target country over the sample period. We consider two measures of specialization, one based on sales (SP(sales)) and one based on employment (SP(emp)). The control variables include average acquirer and target country characteristics, as well as country-pair characteristics. All variables are defined in Appendix 1. All specifications include industry fixed effects, with industries defined based on three-digit ISIC classification (see Appendix 2). To facilitate economic interpretation, all dependent variables are standardized to have a unit variance. Standard errors are clustered at the acquirer-target country-pair level. We report t-statistics in parenthesis. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable:	ln(#Acq.)		ln($Acq.)	
	SP(sales)	SP(emp)	SP(sales)	SP(emp)
ΔSP	0.146***	0.133***	0.565***	0.496***
	(11.93)	(11.40)	(8.69)	(7.92)
log(Acq. GDP)	0.360***	0.360***	1.085***	1.084***
	(6.41)	(6.38)	(4.13)	(4.10)
log(Tar. GDP)	0.269***	0.269***	0.928***	0.928***
	(5.13)	(5.12)	(3.75)	(3.74)
log(Acq. GDP/capita)	0.466***	0.464***	1.561***	1.552***
	(13.74)	(13.67)	(10.30)	(10.23)
log(Tar. GDP/capita)	0.073**	0.074**	0.207	0.21
	(2.35)	(2.37)	(1.46)	(1.47)
log(Bilateral Trade)	0.623***	0.623***	2.730***	2.729***
	(5.73)	(5.71)	(5.20)	(5.17)
Exchange Rate Return	0.118***	0.120***	0.479***	0.489***
	(4.71)	(4.81)	(4.33)	(4.42)
log(Distance)	-0.279***	-0.279***	-0.775***	-0.776***
	(-5.66)	(-5.65)	(-3.23)	(-3.22)
Shared Border	-0.008	-0.008	-0.205*	-0.205*
	(-0.34)	(-0.34)	(-1.82)	(-1.82)
Same Religion	-0.004	-0.004	-0.193*	-0.193*
	(-0.16)	(-0.16)	(-1.73)	(-1.73)
Same Language	0.228***	0.228***	1.014***	1.015***
	(8.11)	(8.11)	(8.12)	(8.11)
Same Legal Origin	0.166***	0.166***	0.591***	0.589***
	(5.89)	(5.87)	(4.63)	(4.61)
log(ΔTax Rate)	-0.024	-0.024	-0.184*	-0.184*
	(-1.16)	(-1.15)	(-1.95)	(-1.95)
Double-Tax Treaty	-0.042*	-0.042*	-0.092	-0.092
	(-1.93)	(-1.95)	(-0.91)	(-0.92)
Bil. Investment Treaty	-0.018	-0.019	-0.139	-0.14
	(-0.87)	(-0.88)	(-1.44)	(-1.45)
#Obs.	175,950	175,950	175,950	175,950
Pseudo R^2	0.32	0.32	0.23	0.23

Table 5: Alternative Specifications

This table presents alternative cross-sectional Tobit estimations of the baseline gravity specification (equation (2) in the text). The dependent variable is the total flow of cross-border horizontal acquisitions, in number (ln(#Acq.)) or dollar value (ln($Acq.)), in a given industry-country-pair over the 1990-2010 period. The variable of interest, ΔSP, is the average difference in specialization (in a given industry) between the acquirer and the target country over the sample period. We consider two measures of specialization, one based on sales (SP(sales)) and one based on employment (SP(emp)). In Panel A, we include country-pair fixed effects instead of average acquirer and target country characteristics and country-pair characteristics. In Panels B, C and D, we modify the measurement of industry specialization. In Panel B, we compute industry specialization using aggregate industry-level data from UNIDO (i.e. including all private and public firms in manufacturing industries for 43 countries). In Panel C, we compute industry specialization using firm-level data from Amadeus (i.e., including all private and public firms in all industries for 14 countries). In Panel D, compute industry specialization using aggregate industry-level data from KLEMS (i.e., including all private and public firms in all industries for 25 countries, with a coarser industry definition). The alternative measures of specialization are presented in Section IV.C. All variables are defined in Appendix 1. All specifications include industry fixed effects, with industries defined based on three-digit ISIC classification, except in Panel D (see Appendix 2). To facilitate economic interpretation, all dependent variables are standardized to have a unit variance. Standard errors are clustered at the acquirer-target country pair level. We report t-statistics in parenthesis. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dep. Variable:	ln(#Acq.)		ln($Acq.)	
SP(x):	SP(sales)	SP(emp)	SP(sales)	SP(emp)
	Panel A: Country-Pair Fixed Effects			
ΔSP	0.115***	0.112***	0.466***	0.438***
	(10.11)	(9.72)	(6.98)	(6.28)
#Obs.	175,950	175,950	175,950	175,950
Pseudo R^2	0.10	0.10	0.08	0.08
	Panel B: Specialization based on UNIDO data			
ΔSP	0.052***	0.046**	0.189*	0.198*
	(2.87)	(2.52)	(1.78)	(1.95)
#Obs.	77,658	77,658	77,658	77,658
Pseudo R^2	0.32	0.32	0.22	0.22
	Panel C: Specialization based on AMADEUS data			
ΔSP	0.106***	0.121***	0.552***	0.573***
	(5.39)	(6.03)	(4.64)	(4.93)
#Obs.	11,544	11,544	11,544	11,544
Pseudo R^2	0.29	0.29	0.20	0.20
	Panel D: Specialization based on KLEMS data			
ΔSP	0.112***	0.122***	0.497***	0.453***
	(4.61)	(5.12)	(3.78)	(3.24)
#Obs.	15,708	15,708	15,708	15,708
Pseudo R^2	0.31	0.31	0.20	0.20

Table 6: Country-Industry Characteristics (Controls)

This table presents cross-sectional Tobit estimations of the baseline gravity specification (equation (2) in the text) augmented with several additional control variables measured at the country-industry level. The dependent variable is the total flow of cross-border horizontal acquisitions, in number (ln(#Acq.)) or dollar value (ln($Acq.)), in a given industry-country-pair over the 1990-2010 period. The variable of interest, ΔSP, is the average difference in specialization (in a given industry) between the acquirer and the target country over the sample period. We consider two measures of specialization, one based on sales (SP(sales)) and one based on employment (SP(emp)). We further include proxies for differences in size (ΔSize), number of firms (ΔFirms), valuation (ΔMB), debt and cash ratios (ΔDebt/A and ΔCash/A), market power (Δ(1-Lerner)), Herfindahl index (ΔHHI), ownership concentration (ΔCHS), and global market shares (ΔGMS) in a given industry between acquirer and target countries. Baseline control variables (average acquirer and target country characteristics and country-pair characteristics) are included but not reported. All variables are defined in Appendix 1. All specifications include industry fixed effects, with industries defined based on three-digit ISIC classification (see Appendix 2). To facilitate economic interpretation, all dependent variables are standardized to have a unit variance. Standard errors are clustered at the acquirer-target country pair level. We report t-statistics in parenthesis. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dep. Variable:	ln(#Acq.)		ln($Acq.)		ln(#Acq.)		ln($Acq.)	
SP(x):	SP(sales)	SP(emp)	SP(sales)	SP(emp)	SP(sales)	SP(emp)	SP(sales)	SP(emp)
ΔSP	0.067***	0.061***	0.229***	0.208***	0.105***	0.070***	0.383***	0.260***
	(4.42)	(4.35)	(3.06)	(2.97)	(5.93)	(3.62)	(4.22)	(2.61)
ΔSize	0.106***	0.110***	0.526***	0.538***				
	(7.90)	(8.54)	(7.36)	(7.78)				
ΔFirms	0.064***	0.066***	0.274***	0.279***				
	(5.01)	(5.14)	(5.25)	(5.36)				
ΔMB	0.005	0.005	-0.015	-0.015				
	(0.36)	(0.36)	(-0.22)	(-0.22)				
ΔDebt/Assets	0.011	0.011	-0.019	-0.017				
	(0.85)	(0.88)	(-0.29)	(-0.26)				
ΔCash/Assets	0.001	0.002	-0.018	-0.017				
	(0.11)	(0.13)	(-0.31)	(-0.30)				
Δ(1-Lerner)	-0.026	-0.025	-0.106	-0.104				
	(-1.49)	(-1.46)	(-1.29)	(-1.27)				
ΔHHI	-0.086***	-0.087***	-0.329***	-0.332***				
	(-5.23)	(-5.27)	(-4.36)	(-4.40)				
ΔCHS	-0.01	-0.01	-0.08	-0.079				
	(-0.88)	(-0.85)	(-1.43)	(-1.42)				
ΔGMS					0.067***	0.092***	0.300***	0.354***
					(3.37)	(4.24)	(3.29)	(3.46)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
#Obs.	88,804	88,804	88,804	88,804	175,950	175,950	175,950	175,950
Pseudo R^2	0.28	0.28	0.19	0.19	0.31	0.31	0.22	0.22

Table 7: Country-Industry Characteristics (Human and Technological Capital)

This table presents cross-sectional Tobit estimations similar to the baseline gravity model (equation (2)). The dependent variable is the total flow of cross-border horizontal acquisitions in a given industry-country pair over the period 1990-2010. The flow is in number of deals (ln(#Acq.)). The variables of interest are average differences in measures of intangibles in a given industry between the acquirer and the target country over the sample period (ΔIntangibles). We consider seven measures of intangibles: the fraction of high skilled workers, the stock of software capital, the stock of information and communication technology (ICT) capital, the stock of R&D assets, the ratio of R&D to assets, all measured at country-industry-year level, and management quality measured at the country-industry level. Baseline control variables (average acquirer and target country characteristics and country-pair characteristics) are included but not reported. All variables are defined in Appendix 1. All specifications include industry fixed effects, with industries defined based on three-digit ISIC classification (see Appendix 2). To facilitate economic interpretation, all dependent variables are standardized to have a unit variance. Standard errors are clustered at the acquirer-target country pair level. We report t-statistics in parenthesis. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dep. Variable:	ln(#Acq.)						
Intangible:	High Skill (%Comp)	High Skill (%Hours)	Software Stock	ICT Stock	R&D Stock	R&D/Assets	Management
ΔIntangibles	0.043***	0.055***	0.072***	0.012	0.027***	0.022***	0.028
	(3.29)	(4.18)	(3.57)	(0.06)	(3.36)	(2.87)	(1.088)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
#Obs	34,196	34,196	11,544	11,544	94,020	94,020	8,756
Pseudo R^2	0.29	0.29	0.30	0.30	0.26	0.26	0.32

Table 8: Omitted Variables

This table presents panel estimations of the baseline gravity specification (equation (2) in the text). The dependent variable is the total flow of acquisitions in number (ln(#Acq.)) or dollar value (ln($Acq.)) in a given industry-country-pair-year. The variable of interest, ΔSP, is the difference in specialization (in a given industry and a given year) between the acquirer and the target country. The sample period is from 1990 to 2010. All specifications include time-varying country-level control variables (similar to the baseline control variables). In Panel A, we estimate the baseline gravity specification using a Tobit model and include industry-country-pair fixed effects. In Panel B, we estimate the baseline gravity specification using the Fama and MacBeth (1973) methodology. In all specifications industries are defined based on three-digit ISIC classification (see Appendix 2). To facilitate economic interpretation, all dependent variables are standardized to have a unit variance. Standard errors are clustered at the acquirer-target country pair level. We report t-statistics in parenthesis. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dep. Variable:	ln(#Acq.)		ln($Acq.)	
SP(x):	SP(sales)	SP(emp)	SP(sales)	SP(emp)
		Panel A: Panel Tobit		
ΔSP	0.008*	0.011**	0.068*	0.105***
	(1.86)	(2.41)	(2.27)	(3.25)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry-country-pair FE	Yes	Yes	Yes	Yes
#Obs.	3,694,950	3,694,950	3,694,950	3,694,950
Pseudo R^2	0.01	0.01	0.01	0.01
		Panel B: Fama and MacBeth		
ΔSP	0.001***	0.001***	0.001***	0.001
	(7.191)	(8.075)	(5.473)	(1.62)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
#Obs.	3,694,950	3,694,950	3,694,950	3,694,950
Adj.R^2	N/A	N/A	N/A	N/A

Table 9: Contracting and Exporting Costs

This table presents cross-sectional Tobit estimations of the interacted gravity specification (equation (3) in the text). The dependent variable is the total flow of cross-border horizontal acquisitions in number (ln(#Acq.)) or dollar value (ln($Acq.)) in a given industry-country-pair over the 1990-2010 period. The variable ΔSP is the average difference in specialization (in a given industry) between the acquirer and the target country over the sample period. We consider two measures of specialization, one based on sales (SP(sales)) and one based on employment (SP(emp)). The interacted specification augments the baseline gravity specification (equation (3) in the text) with interaction terms between all baseline variables (ΔSP and control variables) and proxies for (1) contracting costs in target countries, and (2) bilateral trade costs between the acquirer and target countries. We only report the estimated coefficients on the interaction between ΔSP and these proxies. In Panel A, we consider three variables as proxies for contracting costs: (1) the time required to enforce contracts, (2) the number of procedure to enforce contracts, and (3) an overall index of formal legal procedures. In Panel B, we consider two variables as proxies for bilateral exporting costs: (1) whether countries share a common border, (2) the geographic distance (in logs) between countries' capital cities, and (3) bilateral trade between countries (in logs). All variables are defined in Appendix 1. All specifications include industry fixed effects, with industries defined based on three-digit ISIC classification (see Appendix 2). To facilitate economic interpretation, all dependent variables are standardized to have a unit variance. Standard errors are clustered at the acquirer-target country pair level. We report t-statistics in parenthesis. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dep.Variable:	ln(#Acq.)		ln($Acq.)	
SP(x):	SP(sales)	SP(emp)	SP(sales)	SP(emp)
Interaction Variable:	*Panel A: Contracting Costs in Target Country*			
ΔSP × Contracting Costs (procedures)	0.211***	0.129**	1.001***	0.599*
	(3.12)	(2.11)	(2.98)	(1.79)
ΔSP × Contracting Costs (duration)	0.096***	0.091***	0.370***	0.329***
	(4.85)	(4.77)	(3.86)	(3.30)
ΔSP × Contracting Costs (enforcement)	0.217***	0.204***	0.778***	0.729***
	(4.24)	(4.14)	(2.84)	(2.70)
	Panel B: Bilateral Exporting Costs			
ΔSP × Common Border	-0.019***	-0.016**	-0.076**	-0.065*
	(-3.03)	(-2.44)	(-2.05)	(-1.76)
ΔSP × ln(Geographic Distance)	0.153**	0.014*	0.450	0.236
	(1.977)	(1.90)	(1.09)	(0.57)
ΔSP × ln(Bilateral Trade)	-0.271***	-0.225***	-1.333***	-1.045**
	(-3.29)	(-2.61)	(-3.11)	(-2.21)

Table 10: Specialization Profile of Acquirers and Targets at the Deal-Level

This table presents the mean and median degree of industry specialization between the acquirer's industry and the target's industry at the deal-level. We consider two measures of specialization, where SP(sales) is specialization based on total sales, and SP(emp) is specialization based on total employment. Data on sales and employment are from Worldscope. The sample covers 46 countries, 85 distinct industries and the period 1990-2010. Industries are defined based on three-digit ISIC classification (see Appendix 2). Panel A reports means and median values. We test for the significance of the mean (t-test) and median (sign-rank test) difference in the degree of specialization between the acquirer and target, and report the significance levels next to the mean and median for the acquirer. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. In Panel B we report the fraction of all horizontal cross-border deals and the fraction of the dollar value in these deals for which the degree of specialization of the acquirer is larger than that of the target ($SP(x)_{Acquirer} > SP(x)_{Target}$).

Panel A		Domestic	Cross-Border	All
$SP(sales)_{Acquirer}$	Mean:	2.165	1.981***	2.124***
	Median:	1.219	1.235***	1.222
$SP(sales)_{Target}$	Mean:	2.165	1.458	2.008
	Median:	1.219	0.858	1.124
$SP(emp)_{Acquirer}$	Mean:	2.246	2.017***	2.195***
	Median:	1.036	1.083***	1.046***
$SP(emp)_{Target}$	Mean:	2.246	1.467	2.073
	Median:	1.036	0.768	0.963

Panel B	%(# of deals)	$ value	%($ value)
$SP(sales)_{Acquirer} > SP(sales)_{Target}$	63.58%	$2.38 Bn.	67.50%
$SP(emp)_{Acquirer} > SP(emp)_{Target}$	63.06%	$2.36 Bn.	66.90%

Table 11: Selection Model at the Deal-Level

This table presents estimates from probit models predicting firms' participation in horizontal cross-border acquisitions. We create a sample of actual and potential deals constructed from all firms participating in horizontal cross-border acquisitions for which we have firm-level information. For each industry-year that features at least one deal, we create all possible cross-border transactions by pairing each acquirer to each target in that industry-year. This procedure generates 14,610 transactions, 680 of which are actual transactions. The dependent variable in the probit models is a dummy variable that is equal to one if a given pair of firms (acquirer-target) is an actual transaction and zero otherwise. The variable of interest, ΔSP, is the difference in industry specialization (in a given industry and year) between the acquirer and the target. We consider two measures of specialization, one based on sales (SP(sales)) and one based on employment (SP(emp)). All estimations include industry and year fixed effects, with industries defined based on three-digit ISIC classification (see Appendix 2). Estimations reported in columns (2) and (4) include the baseline country-level controls used in the baseline gravity specification (equation (3) in the text). Estimations reported in columns (3) and (6) further include acquirer and target characteristics (size, market-to-book, sales growth, cash-to-asset and debt-to-asset ratios, the fraction of foreign sales, ownership structure, and global market shares). To facilitate economic interpretation, all dependent variables are standardized to have a unit variance. Standard errors are clustered at the acquirer-target country pair level. We report t-statistics in parenthesis. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dep.Variable:	Prob(Actual Deal)					
SP(x):	SP(sales)			SP(emp)		
	(1)	(2)	(3)	(4)	(5)	(6)
ΔSP	0.139***	0.203***	0.117**	0.123***	0.228**	0.117**
	(2.97)	(4.22)	(2.20)	(2.66)	(4.55)	(2.16)
Acquirer and Target controls	No	No	Yes	No	No	Yes
Country controls	No	Yes	Yes	No	Yes	Yes
Industry and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
#Obs.	14,610	14,514	12,220	14,610	14,514	12,220
Pseudo R^2	0.02	0.08	0.10	0.02	0.08	0.10

Table 12: Market Reaction and Premiums

This table presents OLS regressions on abnormal returns around deal announcement and premiums paid by acquirers. We compute acquirers and targets abnormal returns (CARs) over a three-day event window (-1,+1) around the deal announcement for all deals where acquirers or targets are publicly traded firms with returns data on Datastream. We estimate abnormal returns using a two-factor international market model, with local returns and the world-market return as factors. We estimate market models using daily dollar-denominated returns using 250 days preceding each transaction. We compute the combined value-weighted acquirer-target CARs using weights defined based on the relative market capitalization 10 days prior to the deal. We restrict our analysis to deals in which acquirers or targets are not involved in other types of deals (e.g. domestic or non-horizontal) during the quarter that precedes the deal. We measure the premium paid by acquirers using the price offered relative to the target stock price 30 days prior to the deal's announcement (as reported by SDC). The variable of interest, ΔSP, is the difference in industry specialization (in a given industry and year) between the acquirer and the target. We consider two measures of specialization, one based on sales (SP(sales)) and one based on employment (SP(emp)). All estimations include deal-level controls (the log of deal value, dummy variables for whether the acquirer (or target) is private, whether the transaction is a merger, the number of bidders, the fraction of ownership held by the acquirer prior to (i.e. toehold) and after deal completion, and whether the acquisition is paid with stocks), firm-level controls (size, market-to-book, sales growth, cash-to-asset and debt-to-asset ratios, the fraction of foreign sales, ownership structure, previous year stock return , and global market shares), the baseline country-level controls used in the baseline gravity specification (equation (3) in the text), as well as industry and year fixed effects. We also include the previous year stock return of firms' country-industry. Industries are defined based on three-digit ISIC classification (see Appendix 2). To facilitate economic interpretation, all dependent variables are standardized to have a unit variance. Standard errors are clustered at the acquirer-target country pair level. We report t-statistics in parenthesis. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: Summary Statistics

Variable:	Acquirer CAR	Target CAR	Combined CAR	Premium
Mean	0.010	0.099	0.082	0.354
Median	0.001	0.031	0.016	0.234
#Deals	6,824	1,072	488	526

Panel B: OLS Results

Dep. Variable:	Acquirer CAR		Target CAR		Combined CAR		Premium	
SP(x)	SP(sales)	SP(emp)	SP(sales)	SP(emp)	SP(sales)	SP(emp)	SP(sales)	SP(emp)
ΔSP	0.002**	0.002**	0.021***	0.016**	0.008	0.001	0.043*	0.061**
	(2.08)	(2.22)	(2.79)	(2.14)	(0.76)	(0.10)	(1.77)	(1.98)
Deal controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer controls	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Target controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Countries controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind. and year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
#Deals	6,824	6,823	1,072	1,072	488	488	526	526
Adj. R^2	0.04	0.04	0.23	0.23	0.45	0.45	0.24	0.24

Table 13: Acquirers' Ex Post Performance

This table presents OLS regressions on acquirers' change in performance following cross-border horizontal acquisitions. We define performance as operating income over assets, and examine changes from year t+1 to year t+1 (one-year horizon), or t+4 (three-year horizon), where t=0 is the year of the acquisition. We restrict to firms that only acquire assets in cross-border horizontal transactions over the three-year horizon. We adjust the performance of each acquirer by subtracting the performance of a matched peer, where peers are the closest firms in terms of size that are active in the country-industry of the acquirer and do not participate in any acquisition during a six-year window surrounding the transaction. The variable of interest, ΔSP, is the difference in specialization between the country-industry of the acquirer and that of the target, measured in year t=0. We consider two measures of specialization, one based on sales (SP(sales)) and one based on employment (SP(emp)). All specifications include the following control variables: logarithm of acquirer assets, the relative size of the acquirer compared to the target, and a dummy variable indicating whether the transaction is a merger. All the variables are defined in Appendix 1. Moreover, all specifications include industry and year fixed effects, and country-level controls. Industries are defined based on three-digit ISIC classification (see Appendix 2). To facilitate economic interpretation, all dependent variables are standardized to have a unit variance. Standard errors are clustered at the acquirer-target country pair level. We report t-statistics in parenthesis. Symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dep. Variable:	Change in ROA			
SP(x):	SP(sale)		SP(emp)	
Horizon:	one-year	three-year	one-year	three-year
ΔSP	0.006**	0.006**	0.004*	0.005**
	(2.17)	(2.45)	(1.87)	(1.96)
Acquirer and Deal Controls	Yes	Yes	Yes	Yes
Countries controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
#Obs.	4,343	4,343	4,343	4,343
Adj. R^2	0.17	0.20	0.17	0.20

Figure A: Difference in Industry Specialization by Acquirer Country (Sales)

This figure presents the average difference in industry specialization between acquirers and target in horizontal cross-border acquisitions by acquirer country. SP(sales) is specialization based on total sales, as detailed in in Section III.A. Data on sales are from Worldscope. The sample covers 46 countries, 85 distinct industries and the period 1990-2010. Industries are defined based on three-digit ISIC classification (see Appendix 2).

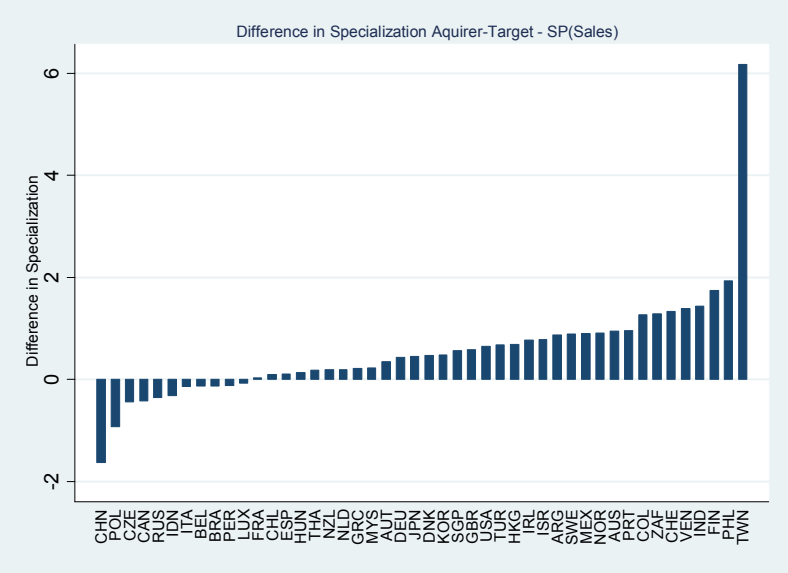

Figure B: Difference in Industry Specialization by Target Country (Sales)

This figure presents the average difference in industry specialization between acquirers and target in horizontal cross-border acquisitions by target country. SP(sales) is specialization based on total sales, as detailed in in Section III.A. Data on sales are from Worldscope. The sample covers 46 countries, 85 distinct industries and the period 1990-2010. Industries are defined based on three-digit ISIC classification (see Appendix 2).

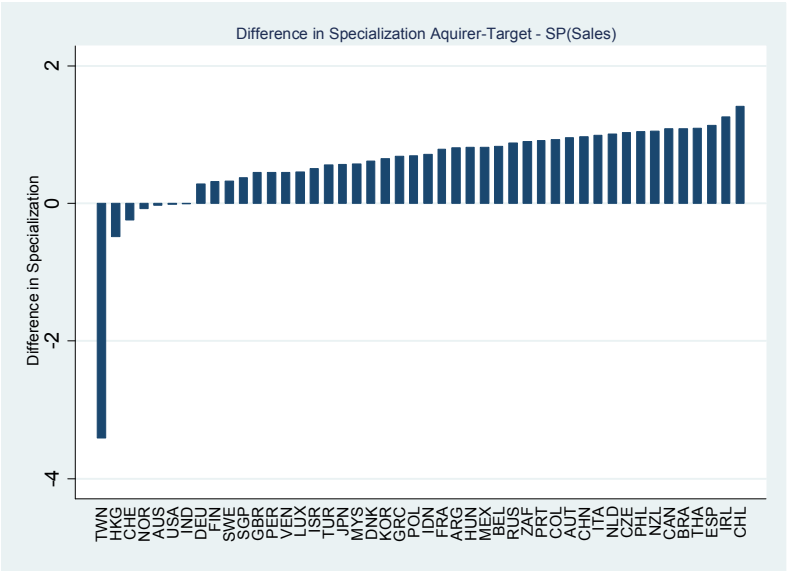

Figure C: Difference in Industry Specialization by Year (Sales)

This figure presents the average difference in industry specialization between acquirers and target in horizontal cross-border acquisitions by year. SP(sales) is specialization based on total sales, as detailed in in Section III.A. Data on sales are from Worldscope. The sample covers 46 countries, 85 distinct industries and the period 1990-2010. Industries are defined based on three-digit ISIC classification (see Appendix 2).

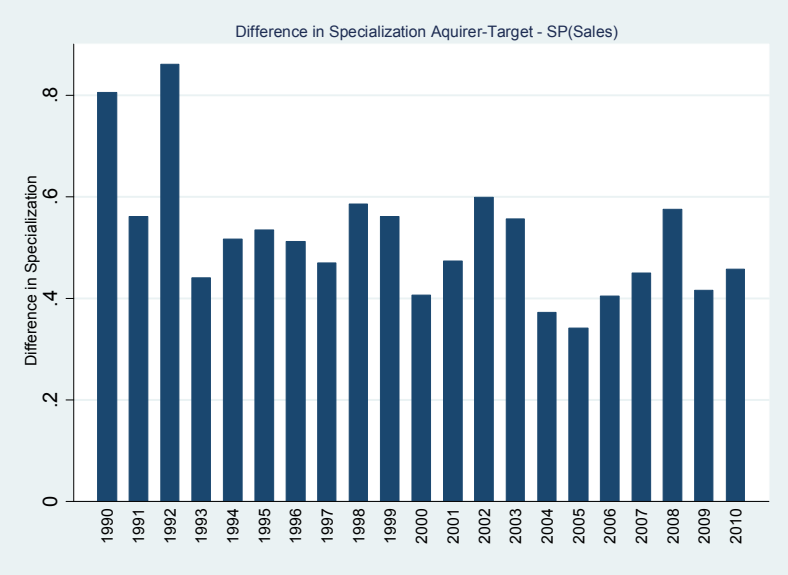

Figure D: Difference in Specialization by industry (Sales)

This figure presents the average difference in industry specialization between acquirers and target in horizontal cross-border acquisitions by industry. SP(sales) is specialization based on total sales, as detailed in in Section III.A. Data on sales are from Worldscope. The sample covers 46 countries, 85 distinct industries and the period 1990-2010. Industries are defined based on three-digit ISIC classification (see Appendix 2).