Multinational Firms' Market Entry and Expansion, with Evidence from Eastern Europe

Catherine Thomas

LSE, CEP, and CEPR

Andrew B. Bernard

Tuck School of Business, NBER, CEP, and CEPR

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Abstract

Multinationals' global footprints reflect their motives for operating in multiple countries, for bringing activities within firm boundaries, and their decisions to enter via acquisition or via greenfield investment. Researchers have used data about firms' entry and expansion decisions to reveal firms' motives. A common approach is to relate parent firm choices to observed variation in the host country characteristics that attract some types of investment but repel others. Parent firm attributes have been shown to interact with host country factors, and new evidence from Eastern Europe suggests firm-specific information frictions shape MNCs market entry decisions when controlling for host country factors.

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1 Introduction

Multinational corporations (MNCs) are diverse organizations that share one common feature—they operate in at least two countries (Caves (1996)). These firms differ from each other in many more dimensions, including in the activities undertaken by each production and non-production entity within the organization, and the relationships between them. The determinants of any one MNC's global reach reflect the cumulative market entry and expansion decisions made by the firm, and are similarly varied. This chapter focuses on how firms make these decisions.

Conceptually, an MNC chooses to establish or expand operations in a country when the new affiliate is expected to contribute to the value of the overall organization. Implicit in the existing empirical literature is that an MNC's decision to enter a country reveals that the chosen destination is most preferred out the available alternatives that were not chosen. Second, there must also be a good reason why the MNC prefers to own a foreign affiliate in the chosen location rather than interact with a separate entity there via arm's length contracts. Third, and related to the first two aspects of the decision, the MNC must choose how to enter, either by acquiring part or complete ownership of existing operations in the country or by building operations from scratch—greenfield investment. These three features of the entry or expansion decision are often interdependent because of value-creating complementarities between host-country characteristics, ownership, and entry mode. To add further complexity, the expected contribution of any new affiliate will also depend on attributes of the parent firm, including their industry(ies) and existing global footprint.

Theories of MNC entry and expansion are, collectively, broad enough to offer predictions related to all these margins of variation. However, it is rare to find theories that tackle them all at the same time. A useful starting point is to pin down the reason for operating abroad in the first place. As discussed in the chapter by Davies and Markusen in this volume, the research literature has developed two main motives. One rationale is that producing in a

local market allows firms to access the consumers in that market more profitably than by exporting to there from other production locations. Customer-seeking affiliates are referred to as "horizontal", and these affiliates may replicate the activities performed elsewhere in the organization. However, replication of the entire production process in a given market is not the only way to access those customers. MNC affiliates may perform only a share of downstream activities in a local market, such as processing imported intermediates, or even just final distribution, conducting more upstream production activities in other locations.

The second main reason to operate in a different country is to access the factor markets in that country rather than its customers. The locally-provided factors could act as inputs at any point in the firm's overall value chain. The new country may offer natural resources, or labor, or technologies, which can be combined with other factors owned by the firm. Investments in affiliates for the purposed of accessing local factors are referred to as "vertical" affiliates. The local output can then be exported elsewhere, back to the parent firm's country or to other countries altogether.

Empirical researchers seeking to understand MNC entry decisions typically start with available data on investment flows or on affiliate activities and ask what entry and expansion motives are most consistent with the observed variation in the data. Once a firm has identified a final market or factor market opportunity in a foreign country, decided that local operations rather than trading relationships are required to access that opportunity, and decided whether to enter via greenfield or acquisition, the firm makes the capital investment necessary to establish the affiliate. As long as the parent firm owns at least 10% of the foreign entity, it will be recorded in national statistics as a foreign direct investment (FDI). Data about such FDI flows, aggregated to the year-industry level, are readily available from sources such as CEPII.

Once an affiliate has been established, the reporting requirements in the affiliate's host country, and in the parent firm's country, shape the information that becomes available about affiliate activities. In many cases, data from financial statements reveals revenues, employee

numbers, and some balance sheet information. The main activity of the affiliate, in terms of industry classification, may also be available. Less frequently, data on the relationships between the various affiliates of a given country may be accessible by researchers outside the firm, or can be inferred by careful combination of several data sets.

To use these data to infer MNC entry motives, researchers relate variation in flows or in affiliate activities to variation in the attributes of affiliates' locations, the parent's location, and industry characteristics. Hanson, Mataloni, Slaughter, Lawrence, and Levinsohn (2001) review much of this literature and examine the relative volume of US MNC affiliate activity across different host markets. They comment that early work observed US affiliates had greater sales in relatively large and developed economies, in markets with high external tariffs, and where other trade costs were high. The inference often drawn was that, on average, US MNC affiliates were horizontal, existing as a way to access relatively high-income foreign consumers when serving them via export from the US was particularly costly. Hanson et al. (2001) go on to show that other data on affiliate activity suggests US affiliates often serve as export platforms to nearby markets, or are engaged only in local distribution activities.

Other cuts of the data point towards vertical motives. Bernard, Jensen, and Schott (2005) point out that imports from overseas affiliates make up nearly a half of US imports by value, which strongly suggests US parent firms are sourcing intermediate inputs from within firm boundaries. Other work finds evidence in host-country-industry variation that supports vertical motivations for FDI activity. Entry for the purpose of accessing local factor markets is more appealing when local factor costs are low, and in activities where production can be fragmented across locations in a global value chain. Alfaro and Charlton (2009) show that defining an affiliate as horizontal or vertical depends on the level of available detail about its activities, as much affiliate activity takes place within the closely related industries that provide inputs to the production activities of other parts of the firm.

There have been major theoretical advances in the last two decades that have helped

deepen our understanding of why MNCs decide to access customers or factors via investment rather than via arm's length contracts. Antràs and Yeaple (2014) provide an overview of these theories, which share the feature that in order for MNCs to exist, there must be some aspect of the environment that makes contracting incomplete. There could be significant transactions costs, or relationship-specific investments required where contracts cannot guarantee that the investing parties will recoup the full marginal return on any investments made. In these cases, firm boundaries are drawn to mitigate inefficiencies in joint production. These theories therefore predict that production will take place within MNC boundaries when arm's length contracts are particularly inefficient due to local institutions or to industry characteristics, such as the relative value of each party's investment. The parent firm is thought of as providing capital or knowledge, and vertical integration via the parent's ownership of the upstream stage of production is therefore expected in industries where production is capital or R&D intensive, because ownership of the affiliate helps mitigate the parent's underprovision of capital or R&D in production.

In setting up a foreign affiliate to avoid transactions costs, underinvestment and the reputation risks associated with contracting at arm's length, MNCs take on the challenge of coordinating and managing activities across country borders. Researchers have argued that the global footprint of MNCs from various countries, and their choices of entry mode, can be attributed to the difficulties of remote management. For example, Head and Ries (2008) argue that monitoring costs within firm boundaries shape the relative appeal of operating affiliates in a given country as a function of the location of the parent firm. They explain variation in bilateral FDI flows as a consequence of a competitive market for corporate control of productive assets distributed globally, where monitoring costs increase with geographic distance. This model provides a microfoundation for the well-known empirical pattern of "gravity" in FDI flows: the volume of FDI flows is decreasing in distance, controlling for source and host country fixed effects.

Antràs and Yeaple (2014) also discuss the empirical regularity that MNC entry is most

often via acquisition of a foreign firm rather than greenfield, and this particularly true for FDI between developed economies. Theories of entry mode often assume that this is a choice made by the parent firm that reflects a preference for one or the other for reasons related to the MNC production function. Nocke and Yeaple (2007) and Nocke and Yeaple (2008) model how the most productive parents sort into entry via greenfield because the parent firm prefers to employ of its own productive assets across country borders at some cost rather than utilize the assets that exist locally in potential acquisition targets.[1] Data on the entry modes chosen by US MNCs offer support for this rationale, but there is little other empirical work studying entry mode variation.

Researchers have asked what this implies for which local firms will be acquired by entering MNCs. One line of reasoning is that the MNC combines its own productive assets with the assets of local firm and, if productivity is a public good within firm boundaries, the productivity of the local firm is irrelevant to the value of the firm once it is an affiliate. If unproductive local firms can be acquired at a lower cost, the prediction is that MNCs will acquire the least productive local firms. However, if the MNC production function involves a complementarity between the inputs from both the local affiliate and the parent firm, parents will select the most productive local firms. Guadalupe, Kuzmina, and Thomas (2012) show evidence of this pattern in MNC acquisitions in Spain post-EU accession, although they do not compare the subsequent productivity of MNC greenfield versus acquired affiliates.

A researcher seeking to understand MNCs motives for international expansion using readily available data therefore faces the significant challenge that the empirical variation across host country-source country-industry triples can arise as the average of many confounding firm-level motivations. The rest of this chapter contains three sections that explore the different ways in which various observable factors shape MNC motives. The factors are: host

[1] A related literature motivates FDI in the form of cross-border M&A as a means to increase the market power of firms that trade internationally, see Neary (2007).

country characteristics; bilateral host-source country characteristics; and information frictions in the market for corporate control. Each section comments on the main theoretical predictions related to the factor, documents the main empirical findings, and discusses some remaining challenges.

By way of illustration, each section takes the key concepts and asks how well they explain MNC entries and expansion in a newly collected data set on FDI in the 10 new Eastern European Union countries in the years since EU accession.[2] The data include entries via acquisition and greenfield from 116 source countries, and the 10 host countries vary in size and income levels. Since all 10 are in the single EU market, and have low wage levels relative to other EU countries yet are located nearby, the theory predicts that they are attractive locations for vertical FDI from Western Europe, while at the same time being attractive locations for horizontal FDI from the rest of the world to access consumers with growing incomes. These distinctions explain some of the overall patterns in the data, but there are interesting exceptions. For example, there is a large amount of investment from Asian manufacturing firms, particularly in the automotive sector. This appears to be vertical FDI from outside the single tariff area, and reflects the high degree of production fragmentation typical in this industry (Head and Mayer (2019)).

The data from Eastern Europe permit an investigation of how one aspect of across-parent firm variation relates to entry decisions. When MNCs are new to the region they are more likely to invest in countries that already host more investment from the same parent country. This fact has been documented in other settings and described as herding or agglomeration in MNC entry decisions, as discussed in Navaretti, Venables, and Barry (2006). In Eastern Europe, this relationship is limited to MNCs making their first entry, and so is unlikely to be related to the challenges for parent firms from the same location of operating affiliates in a given host country, or arising from any unobserved factor, such as

[2]The appendix details the data construction and presents summary statistics.

agglomeration externalities, that makes affiliate activities more valuable for MNCs from a given country. It is more likely arising from frictions to do with entry itself. One possibility is that MNCs have more information available to them about markets that are heavily populated by same source-country parents.

Although it is increasingly clear that MNCs choose to enter or expand in a given location for a variety of complex reasons, it is well known that their presence has a large impact on the host country. Multinational parents tend to be the largest and most productive firms in their home economy (Helpman, Melitz, and Yeaple (2004)), and their overseas affiliates are larger and more productive than local firms (Navaretti, Venables, and Barry (2006)). Further, several studies show that when entry occurs via acquisition, acquired affiliates become more productive than they were under domestic ownership (Arnold and Javorcik (2009); Guadalupe, Kuzmina, and Thomas (2012)). However, MNCs' local impact depends on the range of activities that they undertake in the local market. The inputs that they employ are likely to see increases in their factor prices, which may affect income distribution in the local economy, while purely horizontal affiliates are less likely to have redistributional effects. These affiliates may well generate consumption gains from variety in local markets. On the production side, affiliates are known to have spillovers to competitor local firms and also have spillovers upstream and downstream (Javorcik and Spatareanu (2008), Alfaro-Urena, Manelici, and Vasquez (2019)).

A consequence of the fact that FDI flows follow stocks is that affiliates from any one source country are increasingly unevenly and differently distributed across host countries in the region. It is well known in other literature that all FDI is not equal in its local impact. For example, whether a host country receives FDI from a high- or low-income country shapes the resulting productivity (Bloom, Sadun, and Van Reenen (2012a), Bloom, Sadun, and Van Reenen (2012b)). Hence, frictions in early decisions are likely to have a persistent impact on host economies.

The rest of this chapter examines what we know about how host country characteristics,

source country-host country bilateral factors, and market frictions create motives for MNC entry and expansion, and thereby shape the extent and impact of MNCs' global footprints.

2 The role of host country characteristics

2.1 Overview

What does the choice of entry or expansion location reveal about MNC motives? Early general equilibrium models of multinationals started with two symmetric countries, and showed that multinationals could exist even in contexts of factor price equalization and without barriers to trade because of features of the firm-level production function that facilitate multiplant economies.[3] In Markusen (1984), production requires an input that can be used as a public good within firm boundaries across plants. Multinationals can exist as a substitute to trade in some cases or as a complement to trade when the firm locates different production activities in each country.

Horstmann and Markusen (1987) explore market-seeking motives in a two country model where a firm's proprietary assets may suffer a negative reputation effect when transacting in arm's length relationship. FDI allows firms to access customers without risking their reputation. This work gives rise to predictions about the relative prevalence of MNCs by industry, where the production function varies across industries in the nature of firm-level fixed costs or extent of proprietary assets used as inputs. For example, we may expect more internalization of production in MNCs in R&D intensive industries. While these models explain why firms' internalize production across borders in some cases, some theoretical elaboration is needed to understand the choices made between different host country locations.

Viewing the internalization benefits of MNCs as a means to utilize proprietary assets

[3]The idea that there may be frictions at firm boundaries relates to earlier work motivating the existence of multinationals, (Hymer (1960)), and the OLI framework by Dunning (1980).

across country border without risking diminishing their value suggests that host-country factors related to the quality of the local institutions may affect the appeal of locating in a given country. Because local institutional quality is likely correlated with other country-level factors, it may be that poor quality institutions are associated with less MNC activity overall. However, conditional on wanting to access either customers or factors in a given market, MNCs are predicted to be more prevalent in settings where local institutional quality hampers efficient arm's length transactions. A recent paper that shows how intellectual property protection leads to integration along a global value chain is Bolatto, Naghavi, Ottaviano, and Zajc (2017).[4]

One country-level characteristic that has played an important role in helping researchers understand MNC decisions is the size and income of the local population. This is because the two main theories of why MNCs enter new markets offer contrasting predictions for the most appealing population attributes. Simply put, does the local market offer many high-income consumers or low-cost labor? Because it is unlikely that a single market offers both, relative variation across potential location choices together with data on the chosen location(s) helps categorize new FDI into being either market or factor seeking.

While the base case model in Markusen (1984) assumes no trade costs, in an extension, trade costs make multiplant horizontal MNCs relatively more profitable for the firm, and specialized MNCs less profitable. This line of thought raises the idea that country-specific barriers to trade, such as tariffs and other non-tariff barriers, play a large role in shaping MNC entry motives. A country that offers a large, high-income customer market yet has high import tariffs is an appealing location for horizontal FDI, especially in industries where transport costs are high. A country with a low-wage workforce and low import tariffs is

[4]In contrast, Nunn and Trefler (2008) appeal to a property rights logic in developing the reverse prediction that when contracts are incomplete, arm's length contracting serves to create incentives for the supplier that mitigate underinvestment. They show that when supplier's investments are important, there are more arm's length in poor quality institutional environments.

an attractive destination for vertical FDI, especially in industries where production can be fragmented into stages that differ in labor intensity and where intermediate goods' transport costs are low.

Brainard (1997) addresses many of these country-level sources of variation, together with production function variation across industries, in exploring the proximity-concentration hypothesis, predicting that firms should expand horizontally across borders whenever the advantages of access to the destination market outweigh the advantages from production scale economies. The results shows that firms are more likely to expand production horizontally across borders the higher are transport costs and trade barriers and the lower are investment barriers and the size of scale economies at the plant level relative to the corporate level. Because of these relationships, a large part of the variation in US affiliate sales relative to total US sales in a destination across countries can be explained by a combination of host country and industry fixed effects.

Building on Brainard (1997), much of the empirical work that uses data to uncover what MNC affiliates are actually doing in foreign markets adopts a common approach. It infers the motives for investment by relating variation in the extent of affiliate activities to variation in the characteristics of host countries, or of affiliate industries, or the interaction of country and industry characteristics. If an MNC has a large affiliate in a host country that offers low-cost labor but has a small overall market size, then it is likely that the FDI is of a vertical form and not horizontal. Because early empirical studies on this question found greater affiliate sales in markets with higher GDP, GDP per capita, and high tariffs, they concluded that horizontal customer-seeking FDI was the dominant form of cross-border investment.

Hanson et al. (2001) take this approach with their data on the activities of the affiliates of US MNCs available from the BEA. Their findings show the same overall patterns, but they go further by examining the affiliates' share of exports to local sales. Affiliates in larger markets have more local sales but the share of exports is increasing in gdp per capita, and decreasing in taxes, tariffs, and trade costs, while distance plays no role. They interpret

these findings as consistent with an Export Platform MNC strategy; Ekholm, Forslid, and Markusen (2007) model this strategy and also find support in the BEA data. Many MNCs have located final assembly in China to both serve the local market, export back to the home country, and serve other markets around the world, thus combining horizonal, vertical, and export platform motives in a single decision. In addition, MNCs expansion strategies may combine vertical and horizontal motives sequentially, over time. For example, Hallward-Driemeier (1997), shows that firms first establish distribution affiliates in a country before starting to produce there.

Hanson et al. (2001) also study affiliates' input sourcing. Foreign affiliates import more of their inputs in industries where production can be separated into stages, in certain manufacturing activities. More recent work by Alfaro and Charlton (2009) studies the industry classification of MNC affiliates throughout the world. They use different data and document that affiliates are often in activities that are close but not identical to their parent. This fact is consistent with the affiliates supplying related inputs to other entities within the firm, a form of vertical FDI. This distinction would have been obscured by data that classified affiliate activity at a more aggregated level.

The documented complexity of MNC location strategies has led researchers to conclude that it is important to distinguish between specific types of MNC operations when trying to understand impact of country or industry characteristics on FDI. Different strategies give rise to similar cross-country, or cross-industry, variation in the extent of affiliate activity (Carr, Markusen, and Maskus (2001)). Furthermore, there is a large literature on how variation in corporate taxes and in exchange rates impact the relative appeal of different host countries at different points in time. Blonigen (2005) presents a review of this work.

While much less studied, there is some empirical work that relates host country characteristics to the share of MNC entry and expansion that takes place via acquisition of existing assets versus greenfield investment. Nocke and Yeaple (2008) show that the share of FDI via cross-border acquisition is increasing in the level of the host country's development. Since it

is also known that most FDI flows between developed economies, they suggest that a better understanding of choice of entry mode will be informative about MNC motives overall. They observe that the main difference between an acquisition and greenfield entry is that the parent firm combines existing assets with their own in the former but not in the latter. Their inference is that the assets located in more developed economies are more complementary in multinational production.[5]

2.2 Eastern Europe evidence

Eastern Europe presents an interesting case study of how host country characteristics relate to MNCs entry decisions. Since 2004, 10 Eastern European countries have acceded to the European Union, and multinational affiliates make up varying, but important, shares of these host country economies. Although geographically adjacent, and in a single market, population varies across countries, and is negatively correlated with GDP per capita and corporate tax rate. Using various datasets, it is possible to construct the stock of MNC affiliates in each country, by industry, and by parent-firm country, as well as the parent-firm-level investments made between 2008 and 2017. The Appendix describes the available data in detail.

There is substantial heterogeneity in the stocks and flows of FDI across the 10 host countries. The $25,101$ foreign-owned firms account for 8.7% of firms with over 10 employees in the region in 2017. Investment flows between 2008 and 2017 were distributed among host countries in similar proportions to the stocks in 2017. Broadly the same countries received the lion's share of foreign investment before 2007 and from 2008 to 2017, but the investment in the latter period is even more focused on the the three countries with the largest populations.

[5]To the best of our knowledge, there is little existing empirical work that relates entry mode choice to other host country characteristics such as trade barriers and institutional quality, or to whether the investment is horizontal or vertical.

The Czech Republic, Poland, and Romania together accounted for more than 64% of the foreign-owned firms by 2007 but receive 70% of the subsequent investments and almost 74% of the greenfield investments in the latter period.

Manufacturing firms make up 24% of all firms in the region but account for 35% of the foreign-owned firms. Services and wholesale and retail firms are also more likely to be foreign owned than the firms in the social or transport, utilities, and construction sectors. Manufacturing investments are relatively frequent in the countries with the largest numbers of foreign investments: the Czech Republic, Poland and Romania. Foreign-owned firms in services sectors are relatively more common in host countries with lower overall numbers such as Bulgaria and Latvia. These patterns are more pronounced in the new investments between 2008 and 2017. The share of each country's affiliates that are in each sector is very stable across sectors. The large countries, Poland, Romania, and the Czech Republic have slightly more than their overall share of affiliates in manufacturing.[6] Across all countries, new investments in manufacturing are more likely to be via acquisition than services sector investments.

Table 1 presents pairwise correlations at the country level between some of the variables mentioned so far. The first column shows that the number of affiliates, total affiliate sales, employment, and total assets in a country, as well as average affiliate sales, employment, and total assets, are all positively correlated with population. Column 2 shows that the same variables are all negatively correlated with GDP per capita and corporate tax rate. Column 5 shows that affiliates in countries with a larger share of all firms under foreign control tend to be smaller in sales, employment, and revenues. The final two rows of Table 1 show that affiliate revenue per employee and total assets per employee are lower in large countries and higher in high GDP per capita countries. They are negatively associated with the number

[6]It is not that case that countries specialise in the sector of FDI affiliates that they host. However, some differences are apparent. For example, the sector composition of affiliates in Hungary skews towards manufacturing and towards services in Latvia.

of affiliates in a country and the share of firms under foreign control.

Taken together, these comparisons suggest that the bulk of FDI activity in the region is in activities that are labor intensive in low-wage countries, and that these affiliates are relatively unproductive. Worth noting however, is that even though these tend to be low GDP per capita countries, most consistent with MNCs entering for vertical motives, the countries' large size suggests that parent firms could also be seeking customers in this region. Foreign ownership is more prevalent in manufacturing, where vertical motives are expected to be more important, however the services sectors that are less amenable to the production fragmentation typical of vertical motives also exhibit large foreign ownership shares.

3 Bilateral source-host country factors

3.1 Overview

While host country factors are known to play a role in attracting different types of MNC affiliate, the origin of the parent firm affects the appeal of any given host market. Research on the flows of goods and services across border has long recognized that the size of the sending, and receiving, countries are positively related to flows while the distance between the countries impedes cross-border trade. Collectively the research in this area is referred to as the "Gravity" literature. Research has established that these empirical findings are valid also for various measures of MNC activity abroad. Antràs and Yeaple (2014) show that US affiliate sales decline in distance from the US, but at a lower rate than aggregate exports. Head and Ries (2008) document that FDI stocks fall with distance from the source country among bilateral country pairs of 30 OECD countries and 32 OECD investment partner countries.[7]

[7]See also Eaton and Tamura (1994), Wei (2000), Lougani, Mody, Razin, and Sadka (2004), and di Giovanni and Hizen Gord and Machin (2005) for M&A.

The positive role of GDP in both the home and host countries on FDI is relatively straightforward. As mentioned in the previous section, the greater the size of the host country market, the more desirable the destination for market-serving horizontal FDI. For vertical flows seeking production sites abroad, large host countries provide a greater potential set of targets for acquisitions as well as a richer set of capabilities. Turning to the source country, research on firm heterogeneity shows a strong positive relationship between firm size and performance and the probability that a firm will invest abroad (Helpman, Melitz, and Yeaple (2004)). And, larger countries should have more large firms. Hence, theory predicts a disproportionately large share of multinationals are based in large source countries.

However, the role of distance for the appeal of any potential host market for a MNC located elsewhere is less clear-cut. Greater distance means higher costs of communication and coordination between headquarters and affiliates which can reduce the probability of investment. This idea is developed in Head and Ries (2008). Alternatively, considering that local production and exports are considered substitute means of serving a given market, being closer makes it relatively more appealing to serve a market directly through exports because of lower transport costs over short distances. This might mean that more distant markets make desirable affiliate locations. The empirical evidence, however, is less ambiguous, and, as mentioned earlier, shows that distance reduces foreign investment in terms of numbers and size of investments.

Last, several studies have documented agglomeration, or herding, in MNC entry decisions for parent firms coming from the same source country. These studies observe that proximity to other firms plays a role in location choice, as discussed in Navaretti, Venables, and Barry (2006). For example, Head, Ries, and Swenson (1995) show that Japanese firms tend to locate affiliates in US states that already host many other Japanese-owned firms. Barry, Görg, and Strobl (2003) argue that such agglomeration could be due to the benefits of co-location or to demonstration effects, whereby previous investors' location decisions are interpreted by other same-source-country MNCs as a positive signal about the attractiveness of the host market.

If either of these factors are present, then another bilateral factor should be detectable in the data—bilateral source-host FDI flows are likely to be positively correlated with the levels of pre-existing bilateral FDI stocks.

3.2 Eastern European evidence

This section examines the role of gravity on flows of investment into Eastern Europe between 2008 and 2017. The analysis utilizes the gravity dataset from Head, Mayer, and Ries (2010), which was originally generated for the period 1984-2006, and contains the GDP of the origin country and the destination country and measures of distance between them. Bilateral distance between two countries is based on the distance between the biggest cities of those two countries, those inter-city distances being weighted by the share of the city in the overall countrys population. This distance measure is referred to as the weighted distance between two countries, and was inspired by Head and Mayer (2002).

First, variation in the volume of bilateral country-pair FDI flow is related to the distance measure. The data permit analysis of inward flows to the 10 Eastern European countries studied. For each of these hosts, there is information on the total count of investments and number of greenfield investments made by parent firms from each possible potential source country, and the volume of revenues of these new affiliates, local employment, and local total assets. These variables permit finding the mean revenues, number of employees, and total assets of each subsidiary in the year of the foreign investment. For both the extensive and intensive margins, all investments made over the 10-year period are summed separately for acquisition and greenfield for each country pair.

Table 2 presents the results. All specifications contain both source and host country fixed effects that control for differences in GDP, GDP per capita, and other country-specific characteristics. The first independent variable of interest is the log of the distance between the two countries. The dependent variables include the (log of) the count of investments

made in each host country by each pair, total revenues, employment, and total assets of new local affiliates.[8] All columns include an indicator variable for whether the dependent variable observation is acquisition flows or greenfield flows.

Column 1 establishes that the number of FDI investments to countries in the region is decreasing in the distance between the source and host country. Because the 10 host countries in this analysis are close together, most of the variation is coming from variation in distance across source countries. This finding reflects that fact that as much as 65% of the parent firms for MNC affiliates in the 10 countries are located in a Western EU country. Columns 2 to 4 find the same for the intensive margin of the total activity of new affiliates in the region. The revenues, employment, and total assets of new affiliates are greater for the affiliates of parents whose home country is closer. Columns 5 to 7 show that the mean size of the investment also declines with distance, most consistent with vertical motives being the prevalent reason for location choice.

The second row of coefficients in Table 2 shows that there is no significant difference in the relationship between distance and investment flows, on the extensive or intensive margins, for acquisitions or greenfield investments. That is, distance from the source country does not appear to affect the relative appeal of acquiring an existing firm or building an affiliate from scratch.[9] This finding can be related to the analysis in Head and Ries (2008), which explains gravity in FDI stocks as the consequence of information frictions that increase in distance between parent and affiliate. Parents located far away are willing to pay less to acquire a given target since they will incur larger monitoring costs that decrease the value of the investment. The findings in Table 2 suggest that this holds also for Greenfield investments.

The data offer one other bilateral country-pair variable that is of interest when examining

[8]Taking logs of the dependent variable excludes any information from the absence of any flows, hence the results are limited to variation in the volume of flows between those pairs of countries with positive flows.

[9]There is a negative coefficient on the Greenfield indicator in each column, reflecting the fact that the majority of investments over the decade are via acquisition.

the attractiveness of a given host location for FDI flows: the existing stock of FDI from each parent country in each host country. As mentioned above, there are several reasons why the presence of MNCs from the same source in each market could be associated with its appeal for subsequent investment. A positive association would lead to greater agglomeration of investment activity by source country. Table 3 includes measures of prior bilateral investment in the basic gravity regression. This variable is found by aggregating the affiliate-level data by parent firm country for all foreign firms that are not the result of recent FDI flows. The dependent variables in each of these specifications mirror those in Table 2. Columns 1 to 4 show that the log of the number of affiliates at the end of 2007 is positively associated with investments made over the following decade, and the total size of new affiliate activity. For a given source country, subsequent investments are more likely to be in the same host country as past investments.

Columns 5 to 7 show that the average revenues, employment, and total assets of new affiliates are unrelated to the number of pre-existing foreign affiliates in a country that are owned by parents from the same source country. That is, the number of entries, but not the size of the entry, is related to the presence of same-parent-country affiliates. The presence of FDI from the same source country has a significantly lower effect on the number of greenfield entries in a host country than on the number of acquisitions. However, there are no differential effects on the extensive margins. A comparison of Tables 2 and 3 shows that including the stock of FDI from the same source country and its interaction with a greenfield indicator reduces the magnitude of the negative coefficient on bilateral distance.

4 Entry and operating frictions

4.1 Overview

Prior work has observed that agglomeration in FDI flows from a given source country could be due to the inherent advantages of the location, source-country specific agglomeration externalities, or to demonstration effects. The idea is that while customers or low-cost factors may attract MNCs to a particular economy, they may also prefer to locate in countries that host other similar MNC affiliates. For example, Head, Ries, and Swenson (1995) show that Japanese firms tend to location affiliates in US states that already host many other Japanese-owned firms.

Most of the literature on this topic has focused on one source country and examined whether more FDI flows from that country to host countries that have the particular features that are associated with, for example, positive agglomeration externalities. Wheeler and Mody (1992) focus on local infrastructure and specialized inputs, as well as policy variable such as tax incentives. Devereux and Griffith (1998) show that production-related industry-specific agglomeration benefits are important in determining location choice, as are average tax rates. Head and Mayer (2004) show that Japanese firms' investment decisions reflect both a desire to be close to consumers but also exhibit agglomeration effects.

In general, it is difficult to distinguish empirically between the characteristics of locations that make them desirable to parent firms from all countries, and those that are relevant only to MNCs from a given source country. At the same time, the factors that attract parent firms from any one country may be related herding in location choice due to imperfect information. There are several studies that make the point that parent firms may choose to follow the location choices of their compatriot firms because their choices are interpreted as a positive signal about location quality, in the face of uncertainty about host countries and reputation concerns (DeCoster and Strange (1993), Barry, Görg, and Strobl (2003)).

4.2 Eastern European evidence

The Eastern European data offer an approach to try and determined whether observed agglomeration is "spurious", in that it reflects information frictions. The approach is based on the idea that an MNC's direct experience increases the information they have about a market, and the data contain the ordering of sequential MNC entries and, hence, their information. Efficiency-driven motives could be thought of as independent of the extent of any one MNCs local experience. However, the value of the information in a signal from same-source-country MNCs is likely to be less valuable if a parent firm has first-hand experience and information about the region.

The data reveal whether an individual parent has multiple affiliates in a given host country or in the region. They also contain information about how these subsidiaries' ownership histories have evolved since 2007. Of the $25,101$ subsidiaries under foreign control in 2017, $14,658$ were the targets of foreign acquisition between 2008 and 2017 ($11,459$ of the total) or were greenfield investments (the remaining $4,497$) made by foreign firms over the same time period.[10] There are $15,933$ parent firms in the data that own at least one affiliate in the region. Of these, $6,288$ have only affiliates that were already prior to 2008. $8,256$ made at least one investment between 2008 and 2017 and did not have any prior presence in the region. The remaining $1,389$ parents had at least one affiliate in the region and made further investments there between 2008 and 2017.

The estimation proceeds as follows: the total number of new investments that a parent firm makes in each year from 2008 to 2017 is taken as given, as is their choice about whether to make an entry via acquisition or greenfield. Conditioning on the number of entries and mode of entry, the probability a parent makes an entry in a given host country is related to

[10]The sum of the number of acquisitions and greenfield investments exceeds the number of new affiliates between 2008 and 2017 because some affiliates were first greenfield investments and then acquired by another foreign parent firm.

the number of affiliates of parents from the same source country that are already present in that host in 2008.[11]

The first two columns in Table 4 consider all parent firms making new entries in any year between 2008 and 2017. Parent firms are more likely to choose locations where there already is a large number of affiliates of parents from the same source country. The association is larger for entry via acquisition, but remains positive and only slightly reduced for entry via greenfield. The following columns segment the parent firm-years being considered. Columns 3 and 4 look only at the 1,389 parent firms who had at least one investment in the region by the start of 2008. There is a positive association between the presence of same-source-country affiliates and the likelihood of choosing a given host market for a subsequent entry, but it is much smaller in magnitude than for the sample of all parents making entries. Columns 5 and 6 control for whether the parent firm itself had made a prior investment in the same host country. The impact of same-source-country affiliates on entry remains unchanged from Columns 3 and 4. When distinguishing between the effect on the probability of acquisition and greenfield entry, the role of same-source-country affiliates becomes insignificant for both.

Columns 7 to 10 are of particular interest. These are the results for the entry decisions made by the 8,256 parent firms who did not have any affiliates in the region prior to 2008. These results show that these firms choose to enter countries in the region where there are more same-source-country affiliates. A comparison of Columns 7 and 9 shows that this relationship is particularly strong when firms are making their first entry to the region. Columns 8 and 10 show that the effect is not significantly different for entry via acquisition or via greenfield.

Table 5 narrows the sample even further to those MNCs that make at least two investments between 2008 and 2017. It presents further conditional logit specifications, focusing

[11]Specifically, the conditional logit specification asks whether characteristics of the host country, such as the stock of FDI from the same source country, associated with the investment locations that the parent chooses given that the parent firm makes k new investments in a given year.

only on entries made after the first recent entry to the region. For all parents who have made at least one investment already since 2007 and go on to make at least one more, the presence of same-source-country affiliates in a country has only a very small impact on the whether the parent firm enters that country next. That is, once a parent has a newly-established affiliate in the region, its subsequent entry decisions are unrelated to the presence of affiliates with parents from the same source. This holds true for acquisition and greenfield investments. Table 5 also shows that a firm is likely to enter elsewhere in the region rather than make subsequent entries in the same market as its first entry. It appears that once they have an affiliate in the region, their expansion decisions to other countries are unrelated to the presence of other firms' affiliates.

5 Discussion and conclusion

This chapter has focused on the main empirical methods used to ascertain MNCs' entry and expansion decisions, and on the key findings in that literature. One useful summary is that the motive for being present in a market—whether seeking customers or input factors—determines whether several host country characteristics either encourage or deter new FDI. These characteristics include the income level of the population, and its size, its proximity to other markets, and trade barriers such as tariffs. Other host country characteristics are seen as potentially conducive to FDI motivated by either market or factor access, such as low corporate taxes and favourable exchange rate movements, although the empirical evidence about these effects is more mixed. On the other hand, local institutional quality is thought to have a direct effect that discourages investment, but also the indirect effects that, conditional on operating in the market, poor quality institutions encourages internalization within firm boundaries rather than arm's-length transacting.

While the strong association with gravity forces suggests that the distance between source and host is important in shaping FDI flows, a full understanding of the reasons for this remain

elusive. It is perhaps more consistent with vertically-fragmented production processes within global value chains that straddle country borders to access input factors at low cost than with horizontal FDI that substitutes for final good exports. Head and Ries (2008) offer one explanation based on MNC parents having lower value for distant affiliates because of imperfect monitoring within firm boundaries. Although empirical work to shed light on the role of entry mode choice is particularly limited, the Eastern European data suggest the Head and Ries (2008) mechanism holds for greenfield as well as for the global acquisitions they study in their paper.

So far, the literature has constructed theoretical predictions based on MNC's motives and the data reveals whether observed patterns are, on average, consistent with these predictions. Relatively little empirical work has run explicit tests of the various theories and, hence, it is hard to rule out the presence of possible motives, especially in aggregate data. As data access improves, and more information is available at the firm level, it will become possible to gain a deeper understanding of MNC motives.

The analysis discussed here makes some progress on the reasons for parent-country agglomeration using firm-level entry decisions over time. The findings suggest that the observed agglomeration in the data cannot be due solely to operating factors such as externalities. The observed increase in same-source-country affiliates between 2008 and 2017 in Eastern Europe can be attributed to the entry decisions of MNCs entering the region for the first time. For firms that already have a presence in the region, their subsequent entry is unrelated to the volume of FDI stocks originating from the same parent country. Therefore, this relationship is unlikely to be related to the challenges parent firms face in operating affiliates in a given host country, or to arise from any unobserved factor, such as agglomeration externalities, that makes affiliate activities more valuable for MNCs from a given country. It is more likely arising from frictions to do with entry itself. One possibility is that MNCs have more information available to them about markets that are heavily populated by same source-country parents, and this information is useful only when the MNC has no direct

affiliate experience in the market or region.

Data Appendix: Eastern European Analysis

Context

This chapter examines a new data set on FDI stocks and recent flows into Eastern Europe. In the thirty years since the end of communist rule in Central and Eastern Europe, the national economies in the region have undergone dramatic transitions. Decades of state-directed economic control have been subject to substantial institutional reform and the development of market mechanisms. GDP per capita has increased and foreign investors have directed large flows of capital into the region.

While the focus here is on investment in the recent past, earlier research has considered the levels and types of MNC activity in the immediate aftermath of the opening of these economies. Hanson et al. (2001) document that between 1989 and 1998, US affiliates had rapid annual employment growth of 39.7 percent in Central and Eastern Europe. Because the growth rate was high in this region of relatively low GDP per capita, it was interpreted as consistent with vertical FDI increasing in global prominence. However, the growing size of the regional market meant that such investment was also consistent with horizontal FDI motives to access the new consumer base. Shatz and Venables (2000) show that MNCs from other regions were also increasing activity in Eastern Europe in the 1990s. From 1993 to 1997, Hungary and Poland were among the top 10 global developing economy recipients of FDI). Hanson et al. (2001) also show some evidence consistent with a decrease in export platform strategy in the region in the same time period. The ratio of affiliate exports to local sales in non-OECD Europe was at 60% in 1982 and had fallen to 20% by 1998, although it rose in manufacturing.

Data

Bureau van Dijk databases describe foreign ownership and permit analysis of MNC entry decisions by analyzing changes in ownership. We use the latest available information from ORBIS for all firms with more than 10 employees in 10 Eastern European countries.[12] The 10 countries are the Eastern European countries that acceded to the EU in 2004, the Czech Republic (CZ), Estonia (EE), Hungary (HU), Lithuania (LT), Latvia (LV), Poland (PL), Slovenia (SI), and Slovakia (SK), and in 2007, Bulgaria (BG) and Romania (RO). The data include highlights from firms' financial statements, the number of employees, and primary industry (NACE) code. Of key importance , the data also reveal each firm's global ultimate owner. These data are combined with Historical ORBIS, which contains the firms date of incorporation and financial information from 2007 to 2018.[13]

The ORBIS data record whether a firm is owned by a foreign entity in each year, giving a snapshot of the stock of FDI at each point in time allowing the measurement of FDI flows in a given year. Foreign-owned firms are classified as greenfield investment if they satisfy two criteria: (1) they appear for the first time in the historical ORBIS database with a foreign owner, and (2) the firm was incorporated in the year in which it first appeared in the data or in the previous year. Investments are classified as acquisitions if they appear in the historical data in years before they appear for the first time with a foreign owner and if the year of incorporation was at least two years before the new owner was recorded in the data. Some firms were first a greenfield investment and then had a change in ownership to a new foreign owner. These firms are shown as both a greenfield investment and acquisition. Since the data start in 2007, they show the entry of parents who made new investments

[12]Data on smaller companies with fewer than 10 employees can vary across countries due to data collection techniques. Companies with private individuals as ultimate owners are also excluded.

[13]Historical ORBIS does not track the change of primary activity. Therefore, there is information about the latest industry activities of the companies only.

from 2008 onward. Thus, the dataset contains two type of foreign-owned companies: those that comprise the stock of old investments made prior to 2008, and those that were new investments made from this year onward. The latter group of subsidiaries are classified as either greenfield or acquisition, or both.[14]

The primary NACE code data are helpful since the appeal of any one host market to an MNC depends on the industry and set of activities that the affiliate performs there. Also, industries vary in the extent to which they are amenable to production fragmentation necessary for vertical FDI. The four-digit NACE codes allow the grouping of companies according to their business activities. We utilize only the first two digits, which record the industry of the company (for example, manufacturing) as well as its specific business activities (for example, manufacture of vehicles). Industries are grouped into five broader sectors: 1) Manufacturing, 2) Wholesale and Retail, 3) Services, 4) Social Services, and 5) Transportation, Utilities and Construction.

Manufacturing includes NACE codes 0-35, so rather than referring to manufacturing in a narrow sense, it also includes all natural resource-based activities. For instance, farming, fishing, mining and manufacturing are all in this category. Transportation, utilities and construction includes NACE codes 36-44 and 49-53. Wholesale and retail includes NACE codes 45-48. Services includes NACE codes 55-84, covering sectors such as food and accommodation, financial and insurance activities and real estate. Social services includes NACE codes from 85-90. Health care activities, education (for example, private schools), art and entertainment are all in this category.

[14]The data do not contain any information about firms that are no longer active in 2017, or firms that were under foreign ownership prior to 2017 but became domestically-owned by this year. Hence, the findings relate only to the entry mode decisions leading to the current cross-section of MNC activity in the region.

Focus on Poland

Poland is the largest country in the region, with population of 38 million. It is the only one of the sample countries broken out in Antràs and Yeaple (2014)'s Table 2.1 of affiliate activity relative to all local firms. Their data comes from the OECD in 2007, but is reassuring similar to the aggregate numbers for Poland that emerge from the ORBIS data. They document that 16% of Poland's enterprises were foreign-owned, affiliates accounted for 28.1% of employment and 45.2% of sales. In the data studied here, which are at least 10 years later, affiliates are 14% of the enterprises with available operations data in Poland, and account for 32% of employment and 40% of revenues. Antràs and Yeaple (2014) also show that, among manufacturing industries, MNC affiliates account for 21% of Poland's R&D expenditure in firms and 69% of exports. These two numbers are interesting because the relative R&D intensity of Polish affiliates (relative R&D share divided by relative revenues share) is less than for affiliates in Finland, France, Ireland, Holland, and Sweden. It is consistent with these affiliates performing different stages of production to those performed by affiliates in higher-income countries, suggesting that their role in the MNC network is of a vertical nature. The ratio of relative exports to relative total sales in Polish affiliates is largest out of all of these countries. Again, this is consistent with more of FDI in Poland being vertical, or for the purpose of export platforms, than in the other locations.

Country comparison

Appendix Table 1 shows the importance of MNC affiliates in the region overall and in each of the 10 countries in 2017. The first column gives the total count of affiliates identified in the ORBIS data. Of these 25,101 affiliates, ORBIS reports revenues, employee numbers, and total assets for 19,630 firms, which make up 9.7% of all the firms with these variables. The average affiliate had revenues of 41 million USD, 195 employees, and total assets of 34 million USD (see Columns 5, 7, and 9). Comparing these mean values to those for the

whole available firm population, MNC affiliates' revenues are 4.47 times as large as those of the average local firm, with 2.86 times as many employees, and total assets that are 4.05 times as large. The ratios of these numbers show that MNC affiliates have higher levels of labor productivity and total assets per employee than local firms. These data confirm the finding from other settings and data sets that multinational affiliates are the largest and most productive firms in any local economy. They are also more capital intensive. The next 10 rows of Table 1 give analogous statistics for each of the 10 countries in the region. MNC affiliates account for between 35 and 53 percent of revenues, and between 16 and 39 percent of employment and between 21 and 53 percent of total assets.

Variation across affiliate industries and parent-firm region

Appendix Table 2 documents the main characteristics of foreign direct investments across broad sectors defined above for the stock of foreign-owned firms in 2017. Manufacturing is the largest sector as measured by the number of foreign affiliates, at 35% of the total, Services account for 29% and Wholesale and Retail are 23% of the total. The Transport/Utilities/Construction and especially Social sectors are substantially smaller. The FDI inflows between 2008 and 2017 are distributed across sectors remarkably similarly to the FDI stocks in 2007 and 2017. Manufacturing affiliates are the largest in terms of revenues and total assets, and particularly in terms of employment. Somewhat surprisingly, revenues and total assets per employee are lower in Manufacturing than in Services and Wholesale and Retail.

The global ultimate owners of Eastern European subsidiaries are grouped into six different source regions. While the majority of FDI flows are between developed countries, Eastern Europe as a host region began as relatively low income and has grown substantially in the last three decades (see Appendix figure). The motives for FDI for the purposes of wage arbitrage are lower than they have been in recent history. One factor worth noting is that

FDI source countries fall into two categories, those inside and those outside the single market and customs union of the EU. Parent firms within the EU, in Western or Eastern Europe, face very low barriers to trade with any affiliates hosted in the ten countries studied here.

The six groups of source countries are 1) Western Europe, consisting of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland, The Netherlands, Norway, Portugal, UK, Spain, Sweden and Switzerland; 2) Eastern Europe, which are the 10 Eastern European countries of the research interest who joined the EU in 2004 and 2007. 3) Asia, including China, Hong Kong, Korea, India, Japan, Singapore and Taiwan; 4) North America, including US and Canada; 5) Tax havens, including Bermuda, Cyprus, Cayman Island, US Virgin Islands and British Virgin Islands. All other source countries are grouped together as "Other".

Appendix Table 3 presents the distribution of FDI by source region and host country for existing stocks in 2017 as well as new flows from 2008-2017 in total. The large majority of foreign owned firms have parents in Western Europe, 16,363 or 65%. Eastern Europe and North America each have 8% and Asia has 4%. Western European firms own more than 70% of the foreign-owned firms in Poland, Estonia, and Hungary, whereas Eastern Europe is relatively over-represented in Latvia , Lithuania, and Slovakia. Panel 3 shows that North American parents are over-represented in the Czech Republic, Hungary, and Poland, and Asian parents are also found disproportionately in Hungary. 73% of the affiliates in the ten countries are owned by a parent firm within the EU.

Panel B of Appendix Table 2 describes the relative performance of affiliates owned by parents from different source regions. The subsidiaries of Asian MNCs have the largest revenues, employees, and assets, followed by the subsidiaries of North America. Eastern European-owned affiliates tend to be the smallest. Asian affiliates also have the highest revenues and assets per employee, and Eastern European affiliates have the lowest on both counts. Together with Appendix Table 3, these comparisons reveal that part of the performance premium in Hungarian affiliates relative to those in Latvia, for example, can be

attributed to the fact that MNCs from Asia, North America, and Western Europe are more likely to be found in Hungary, and Eastern European parents in Latvia. Unreported data shows that Western European affiliates are disproportionately in manufacturing activities, and relatively less active in Services and Wholesale or Retail. Asian parents are also more prevalent in manufacturing, and less so in Services, although Asian parent own more wholesale and retail affiliates compared to their overall share of affiliates. Eastern European affiliates are over-represented in services, transport, utilities and construction, and in wholesale and retail. North American affiliates specialize in services. Hence, while some of the affiliate performance premium between Hungary and Latvia may be due to the sector composition, more of it can be attributed to the source country of the parent firms.

Entry Mode

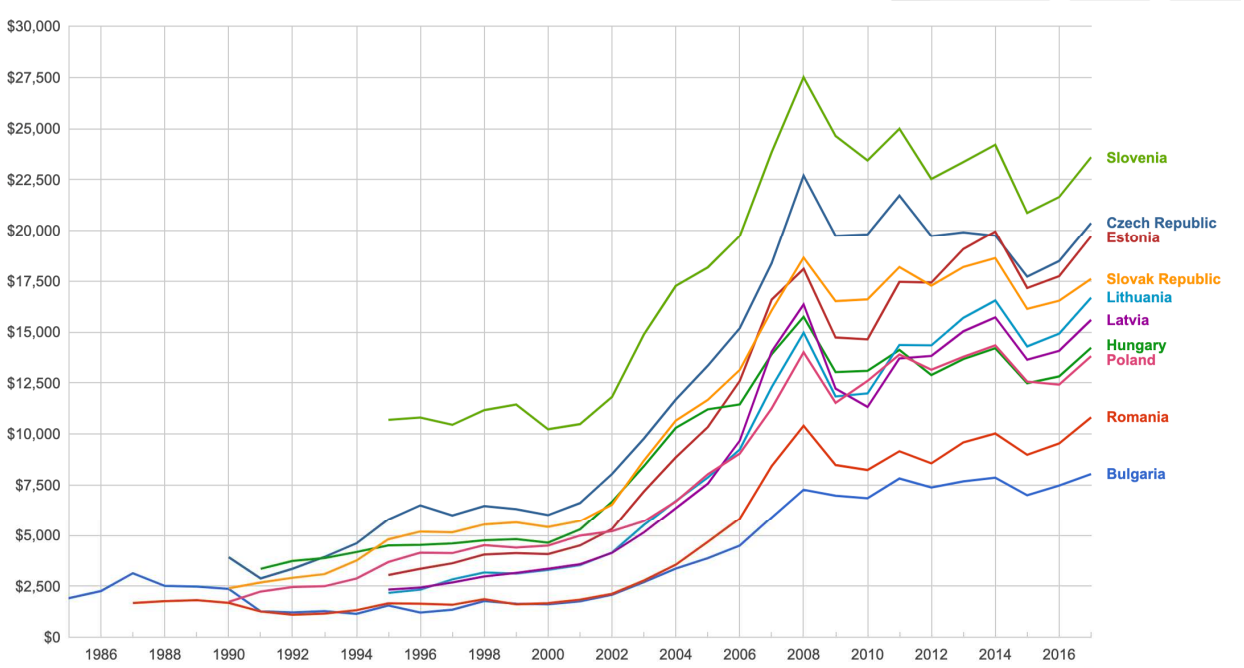
Of the 25,101 foreign-owned firms in 2017, 10,443 had the same foreign owner in 2007 while almost 60% were new foreign investment in Eastern Europe, either greenfield or by acquisition. Citing UNCTAD data, Antràs and Yeaple (2014) comment that M&A accounted for 50% of FDI flows globally in 2007, and 68% for the flows between developed countries. For the 14,658 affiliates in Eastern Europe in 2017 that had received foreign investment between 2018 and 2017, 73% of investments came in the form of acquisition and 27% were greenfield entries. The final two panels of Appendix Table 3 show the entries via acquisition and entries via greenfield in the data, the figures are the percentages of all 14,658 investments, by host country and sector. Romania, Latvia, and Slovakia have much higher rates of greenfield relative to acquisitions. In contrast, Hungary, Lithuania and Slovenia are destinations with much higher shares of acquisitions. The share of new entries via acquisition is much higher in manufacturing than in services.

The final two panels of Appendix Table 3 show the share of new investments by source region and host country. They show that the difference in greenfield versus acquisition are

sharper across source countries. Western European parent firms are significantly more likely to enter through acquisition while parents from Eastern Europe are almost twice as likely to do a greenfield investment.

In sum, when looking at the composition of foreign ownership or recent inflows separately by parent firm region, by destination industry, or by entry mode, there is little that emerges to clearly differentiate individual host countries. Considering the distribution of parent region and host industry jointly, Western European and Asian parents own proportionally more manufacturing, at 40% and 42% respectively, relative to the average level of 35%. In contrast, North American and Eastern European parent firms own proportionally more services sector subsidiaries, at 33% and 43%, relative to the average level of 29%. These patterns suggest that being inside the single market and customs union of the EU is not disproportionately important for affiliate activities in manufacturing or services. On balance, manufacturing affiliates in large Eastern European countries are more likely to be owned by Western European parents. Asian and North American parent firms are particularly likely to be the owners of Hungarian affiliates. Eastern European parents are more likely to invest in the smaller host countries.

Figure 1: GDP per capita in the 10 Eastern European EU Countries



References

Alfaro, Laura and Andrew Charlton. 2009. "Intra-industry foreign direct investment." *American Economic Review* 99 (5):2096–2119.

Alfaro-Urena, Alonso, Isabela Manelici, and Jose P Vasquez. 2019. "The Effects of Joining Multinational Supply Chains: New Evidence from Firm-to-Firm Linkages." *SSRN 3376129* .

Antràs, Pol and Stephen R Yeaple. 2014. "Multinational firms and the structure of international trade." In *Handbook of International Economics*, vol. 4. Elsevier, 55–130.

Arnold, Jens Matthias and Beata S Javorcik. 2009. "Gifted kids or pushy parents? Foreign direct investment and plant productivity in Indonesia." *Journal of International Economics* 79 (1):42–53.

Barry, Frank, Holger Görg, and Eric Strobl. 2003. "Foreign direct investment, agglomerations, and demonstration effects: an empirical investigation." *Review of world economics* 139 (4):583–600.

Bernard, Andrew B, J Bradford Jensen, and Peter K Schott. 2005. "Importers, exporters, and multinationals: A portrait of firms in the US that trade goods." Tech. rep., National Bureau of Economic Research.

Blonigen, Bruce A. 2005. "A review of the empirical literature on FDI determinants." *Atlantic Economic Journal* 33 (4):383–403.

Bloom, Nicholas, Raffaella Sadun, and John Van Reenen. 2012a. "Americans do IT better: US multinationals and the productivity miracle." *American Economic Review* 102 (1):167–201.

———. 2012b. "The organization of firms across countries." *The quarterly journal of economics* 127 (4):1663–1705.

Bolatto, Stefano, Alireza Naghavi, Gianmarco IP Ottaviano, and Katja Zajc. 2017. "Intangible assets and the organization of global supply chains." .

Carr, David L, James R Markusen, and Keith E Maskus. 2001. "Estimating the knowledge-capital model of the multinational enterprise." *American Economic Review* 91 (3):693–708.

Caves, Richard E. 1996. *Multinational enterprise and economic analysis*. Cambridge university press.

DeCoster, Gregory P and William C Strange. 1993. "Spurious agglomeration." *Journal of Urban Economics* 33 (3):273–304.

Devereux, Michael P and Rachel Griffith. 1998. "Taxes and the Location of Production: Evidence from a Panel of US Multinationals." *Journal of public Economics* 68 (3):335–367.

Dunning, John H. 1980. "Toward an eclectic theory of international production: Some empirical tests." *Journal of international business studies* 11 (1):9–31.

Ekholm, Karolina, Rikard Forslid, and James R Markusen. 2007. "Export-platform foreign direct investment." *Journal of the European Economic Association* 5 (4):776–795.

Guadalupe, Maria, Olga Kuzmina, and Catherine Thomas. 2012. "Innovation and foreign ownership." *American Economic Review* 102 (7):3594–3627.

Hallward-Driemeier, Mary Clare. 1997. *Foreign direct investment by firms and local capital markets in Hong Kong*. Ph.D. thesis, Massachusetts Institute of Technology.

Hanson, Gordon H, Raymond J Mataloni, Matthew J Slaughter, Robert Z Lawrence, and James Levinsohn. 2001. "Expansion Strategies of US Multinational Firms [with Comments and Discussion]." In *Brookings Trade Forum*. JSTOR, 245–294.

Head, Keith and Thierry Mayer. 2002. *Illusory border effects: Distance mismeasurement inflates estimates of home bias in trade*, vol. 1. Citeseer.

———. 2004. "Market potential and the location of Japanese investment in the European Union." *Review of Economics and Statistics* 86 (4):959–972.

———. 2019. "Brands in motion: How frictions shape multinational production." *American Economic Review* 109 (9):3073–3124.

Head, Keith, Thierry Mayer, and John Ries. 2010. "The erosion of colonial trade linkages after independence." *Journal of International Economics* 81 (1):1–14.

Head, Keith and John Ries. 2008. "FDI as an Outcome of the Market for Corporate Control: Theory and Evidence." *Journal of International Economics* 74 (1):2–20.

Head, Keith, John Ries, and Deborah Swenson. 1995. "Agglomeration benefits and location choice: Evidence from Japanese manufacturing investments in the United States." *Journal of international economics* 38 (3-4):223–247.

Helpman, Elhanan, Marc J Melitz, and Stephen R Yeaple. 2004. "Export versus FDI with heterogeneous firms." *American economic review* 94 (1):300–316.

Horstmann, Ignatius and James R Markusen. 1987. "Licensing versus direct investment: A model of internalization by the multinational enterprise." *Canadian Journal of Economics* :464–481.

Hymer, Stephen Herbert. 1960. "1976. The international operations of national firms: A study of direct foreign investment."

Javorcik, Beata Smarzynska and Mariana Spatareanu. 2008. "To share or not to share: Does local participation matter for spillovers from foreign direct investment?" *Journal of development Economics* 85 (1-2):194–217.

Markusen, James R. 1984. "Multinationals, multi-plant economies, and the gains from trade." *Journal of international economics* 16 (3-4):205–226.

Navaretti, Giorgio Barba, Anthony J Venables, and Frank Barry. 2006. *Multinational firms in the world economy*. Princeton University Press.

Neary, J Peter. 2007. "Cross-border mergers as instruments of comparative advantage." *The Review of Economic Studies* 74 (4):1229–1257.

Nocke, Volker and Stephen Yeaple. 2007. "Cross-border mergers and acquisitions vs. greenfield foreign direct investment: The role of firm heterogeneity." *Journal of International Economics* 72 (2):336–365.

———. 2008. "An assignment theory of foreign direct investment." *The Review of Economic Studies* 75 (2):529–557.

Nunn, Nathan and Daniel Trefler. 2008. "The boundaries of the multinational firm: an empirical analysis." *The organization of firms in a global economy* :55–83.

Shatz, Howard J and Anthony Venables. 2000. *The geography of international investment*, vol. 2338. World Bank Publications.

Wheeler, David and Ashoka Mody. 1992. "International investment location decisions: The case of US firms." *Journal of international economics* 33 (1-2):57–76.

Table 1: Pairwise Correlations between Host Country Characteristics

	Population	GDP per capita	Corporate tax rate 2017	Number of Affiliates	Share of Firms under Foreign Control
	(1)	(2)	(3)	(4)	(5)
Population	1				
GDP per capita	-0.39	1			
Corporate tax rate 2017	-0.18	0.76	1		
Number of Affiliates	0.72	-0.40	-0.06	1	
Share of Firms under Foreign Control	0.11	0.15	0.37	0.35	1
Total Affiliate Revenues	0.85	-0.31	-0.28	0.84	0.10
Total Affiliate Employment	0.85	-0.47	-0.26	0.95	0.20
Total Affilate Total Assets	0.74	-0.30	-0.41	0.72	0.00
Mean Affiliate Revenues	0.22	-0.07	-0.61	0.02	-0.30
Mean Affiliate Employees	0.33	-0.31	-0.74	0.18	-0.23
Mean Affiliate Total Assets	0.06	-0.02	-0.55	-0.13	-0.28
Mean Affiliate Revenue per Employee	-0.03	0.58	0.07	-0.30	-0.43
Mean Affiliate Total Assets per Employee	-0.31	0.49	0.21	-0.50	-0.12

Table 2: GRAVITY-TYPE REGRESSION, EXTENSIVE AND INTENSIVE MARGINS

	ln(Counts of Investments)	ln(Total Revenues Year of Investment)	ln(Total Employees Year of Investment)	ln(Total Total Assets Year of Investment)	ln(Mean Revenues Year of Investment)	ln(Mean Employees Year of Investment)	ln(Mean Total Assets Year of Investment)
	All Pairs	All Pairs	All Pairs	All Pairs	All Pairs	All Pairs	All Pairs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Distance (ln, weighted)	-1.5228***	-2.1449***	-1.9480***	-2.2108***	-0.5758***	-0.3949***	-0.7079***
	(0.116)	(0.212)	(0.207)	(0.214)	(0.162)	(0.142)	(0.172)
Distance (ln, weighted)*Greenfield	0.0260	-0.0229	0.1437	0.0479	-0.1111	0.0580	-0.0095
	(0.047)	(0.135)	(0.099)	(0.118)	(0.121)	(0.078)	(0.105)
GreenfieldYN	-0.9347**	-2.4895**	-3.2674***	-2.9249***	-1.0030	-1.7831***	-1.6794**
	(0.364)	(1.013)	(0.763)	(0.969)	(0.907)	(0.597)	(0.805)
Constant	13.3089***	34.9057***	18.9962***	22.9158***	20.4844***	8.9732***	13.2693***
	(1.119)	(2.027)	(1.400)	(1.425)	(1.558)	(0.981)	(1.155)
Source Country FE	Y	Y	Y	Y	Y	Y	Y
Host Country FE	Y	Y	Y	Y	Y	Y	Y
Observations	894	820	808	813	820	808	813
R-squared	0.723	0.635	0.668	0.686	0.471	0.475	0.546

Robust standard errors in parentheses, clustered at the country pair.
*** p<0.01, ** p<0.05, * p<0.1

Table 3: GRAVITY-TYPE REGRESSION, EXTENSIVE AND INTENSIVE MARGINS, INCLUDING BILATERAL STOCK

Panel B: Distance and Bilateral FDI Stock	ln(Counts of Investments)	ln(Total Revenues Year of Investment)	ln(Total Employees Year of Investment)	ln(Total Total Assets Year of Investment)	ln(Mean Revenues Year of Investment)	ln(Mean Employees Year of Investment)	ln(Mean Total Assets Year of Investment)
	All Pairs	All Pairs	All Pairs	All Pairs	All Pairs	All Pairs	All Pairs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Distance (ln, weighted)	-0.4681***	-1.1614***	-0.8449***	-1.2241***	-0.5427**	-0.2826*	-0.6680***
	(0.106)	(0.270)	(0.214)	(0.266)	(0.225)	(0.160)	(0.227)
Distance (ln, weighted)*Greenfield	-0.0723	-0.2329	-0.0513	-0.1456	-0.1584	0.0149	-0.0494
	(0.051)	(0.185)	(0.111)	(0.134)	(0.169)	(0.091)	(0.120)
Log of Country-Pair Old FDI Stock	0.6803***	0.6279***	0.7090***	0.6350***	0.0070	0.0695	0.0014
	(0.040)	(0.097)	(0.071)	(0.086)	(0.081)	(0.052)	(0.070)
Log of Country-Pair Old FDI Stock * Greenfield	-0.1457***	-0.1931	-0.1496**	-0.1082	-0.0063	0.0237	0.0787
	(0.032)	(0.125)	(0.069)	(0.086)	(0.113)	(0.056)	(0.078)
GreenfieldYN	0.0044	-0.6060	-1.5939*	-1.3954	-0.6519	-1.5339**	-1.6046
	(0.424)	(1.620)	(0.944)	(1.128)	(1.474)	(0.771)	(1.006)
Constant	4.3302***	21.1799***	8.0170***	19.3452***	18.7612***	5.9775***	17.0197***
	(1.098)	(1.760)	(1.348)	(1.865)	(1.463)	(0.991)	(1.556)
Source Country FE	Y	Y	Y	Y	Y	Y	Y
Host Country FE	Y	Y	Y	Y	Y	Y	Y
Observations	737	682	675	678	682	675	678
R-squared	0.831	0.675	0.735	0.735	0.488	0.510	0.571

Robust standard errors in parentheses, clustered at the country pair.
*** p<0.01, ** p<0.05, * p<0.1

Table 4: PROBABILITY PARENT ENTERS A HOST MARKET AS A FUNCTION OF SOURCE COUNTRY PRESENCE IN THAT MARKET

Conditional Logit, i.e. conditioning on the number of new investments a parent makes in any one year.

	ALL FIRMS THAT MAKE AT LEAST ONE NEW INVESTMENT POST 2007									
	Entries made by all firms		Entries made by firms with prior investment in the region		Entries made by firms with prior investment in the region		Entries made by firms with no prior investment in the region		First entries made by firms with no prior investment in the region	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	entry	entry	entry	entry	entry	entry	entry	entry	entry	entry
Number of MNC affialiates in Host from same Source Country, at end 2007	0.0321***	0.0335***	0.0008**	0.0006	0.0008**	0.0006	0.0696***	0.0704***	0.1211***	0.1128***
	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.005)	(0.010)	(0.010)
Number of same-source affiliates in Host at end 2007 * Greenfield		-0.0048**		0.0006		0.0006		-0.0032		0.0479
		(0.002)		(0.001)		(0.001)		(0.009)		(0.032)
MNC itself had an affiliate in Host at end 2007					-0.0239	0.0253				
					(0.084)	(0.103)				
Number of MNC affiliates in Host at end 2007 * Greenfield						-0.1470				
						(0.166)				
Grouped by Parent-Year	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Host Country Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	113,610	113,610	8,268	8,268	8,268	8,268	89,090	89,090	82,550	82,550

Robust standard errors in parentheses, clustered at the parent firm level.

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

Table 5: PROBABILITY PARENT ENTERS A HOST MARKET AS A FUNCTION OF SOURCE COUNTRY PRESENCE AND OWN RECENT ENTRY TO THAT MARKET

Conditional Logit, i.e. conditioning on the number of new investments a parent makes in any one year.

	Second or later new investment			
	Entries made by firms with prior investment in the region		Entries made by firms with no prior investment in the region	
	(1)	(2)	(3)	(4)
VARIABLES	entry	entry	entry	entry
Number of MNC affialiates in Host from same Source Country, at end 2007	0.0009*	0.0005	-0.0009	-0.0004
	(0.001)	(0.001)	(0.001)	(0.001)
Number of same-source affiliates in Host at end 2007 * Greenfield		0.0012		-0.0023
		(0.001)		(0.002)
MNC itself had an affiliate in Host at end 2007	-0.5205***	-0.5940***	-3.2051***	-3.3153***
	(0.084)	(0.098)	(0.219)	(0.235)
Number of MNC affiliates in Host at end 2007 * Greenfield		0.2215		0.3755
		(0.153)		(0.402)
Grouped by Parent-Year	Y	Y	Y	Y
Host Country Fixed Effects	Y	Y	Y	Y
Observations	4,714	4,714	1,384	1,384

Robust standard errors in parentheses, clustered at the parent firm level.

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

Appendix Table 1: MNC Majority-Owned Foreign Affiliates in the Eastern European EU countries in 2017

	Number of Affiliates	% of Total Firms	Number of affiliates on which we have data	Share of total on which we have data	Average Affiliate Revenues, $m	Average revenues relative to all firms	Average Employment	Average employment relative to all firms	Average Total Assets, $m	Average Total Assets relative to all firms	Affiliate Labor Productivity	Labor Productivity relative to all firms	Affiliate Total Assets per Employee	Total Assets per employee relative to all firms
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total	25101	8.7%	19630	9.7%	41.11	4.47	194.92	2.86	34.44	4.05	0.21	1.56	0.18	1.42
BG	2150	4.8%	2007	4.9%	24.36	7.18	176.21	3.35	22.17	6.18	0.14	2.14	0.13	1.84
CZ	4984	9.9%	2842	15.8%	57.35	3.37	221.04	2.46	42.22	2.99	0.26	1.37	0.19	1.21
EE	946	13.9%	887	14.2%	17.02	2.52	97.63	2.15	38.78	3.74	0.17	1.17	0.40	1.73
HU	1383	3.6%	1282	4.0%	106.08	10.73	359.02	5.87	120.90	11.48	0.30	1.83	0.34	1.96
LT	1057	5.7%	650	5.9%	46.92	5.88	188.62	2.83	29.85	3.63	0.25	2.08	0.16	1.28
LV	1467	14.6%	1356	14.2%	14.68	2.39	78.33	1.55	10.91	2.07	0.19	1.54	0.14	1.33
PL	4911	10.9%	3203	13.6%	65.88	2.96	289.84	2.34	46.52	2.59	0.23	1.27	0.16	1.11
RO	7124	12.6%	6739	12.4%	22.56	4.06	151.45	2.63	16.77	3.53	0.15	1.54	0.11	1.34
SI	746	10.9%	660	10.4%	45.30	3.36	179.58	2.42	36.67	2.62	0.25	1.39	0.20	1.08
SK	333	3.3%	4	19.0%	78.50	2.29	314.25	0.88	83.25	2.23	0.25	2.61	0.26	2.55

Appendix Table 2: MNC Majority-Owned Foreign Affiliates in the Eastern European EU countries in 2017

Panel A: Affiliates by Sector Group

	Number of Affiliates	% of Total Firms in Sector	Number of affiliates on which we have data	Share of total in sector for which we have data	Average Affiliate Revenues, $m	Average revenues relative to all firms	Average Employment	Average employment relative to all firms	Average Total Assets, $m	Average Total Assets relative to all firms	Affiliate Labor Productivity	Labor Productivity relative to all firms	Affiliate Total Assets per Employee	Total Assets per employee relative to all firms
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total	25101	9%	19630	10%	41.10	4.46	195	2.86	34.42	4.06	0.21	1.56	0.18	1.42
Manufacturing	8739	12%	7078	13%	54.11	4.25	261	2.89	40.83	3.90	0.21	1.47	0.16	1.35
Services	7245	10%	5290	10%	16.24	3.65	168	2.76	39.89	4.54	0.10	1.32	0.24	1.64
Social	344	1%	253	2%	8.50	4.74	141	2.09	7.71	2.08	0.06	2.27	0.05	0.99
Transport Utilities & Construction	3015	6%	2372	6%	36.17	4.46	133	2.10	30.65	3.04	0.27	2.13	0.23	1.45
WholesaleRetail	5758	10%	4637	10%	53.91	4.06	159	2.99	21.78	3.85	0.34	1.36	0.14	1.29

Panel B: Affiliates by Source Region, 2017

	Number of Affiliates	Number of affiliates on which we have data	Average Affiliate Revenues, $m	Average Employment	Average Total Assets, $m	Affiliate Labor Productivity	Affiliate Total Assets per Employee
	1	2	3	4	5	6	7
Total	25101	19630	41.10	195	34.42	0.21	0.18
Asia	963	721	100.69	333	61.58	0.30	0.19
Eastern Europe	2132	1446	23.86	117	14.94	0.20	0.13
Havens	1335	1115	23.41	136	19.10	0.17	0.14
North America	2090	1626	54.31	275	47.91	0.20	0.17
Western Europe	16363	13003	42.45	204	36.84	0.21	0.18
Other	2218	1719	19.66	95	18.73	0.21	0.20

Appendix Table 3: EASTERN EUROPEAN FIRMS IN ORBIS WITH 10 OR MORE EMPLOYEES.

All firms by country

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	Total
Total	49,242	50,103	6,975	39,615	19,653	11,327	47,258	56,465	7,809	10,239	298,686

All foreign-owned subsidiaries by parent-firm region and country 2017, share from each source region in each country.

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	Total
Asia	2%	5%	2%	8%	2%	2%	4%	3%	5%	5%	4%
Eastern Europe	6%	11%	10%	3%	15%	21%	3%	7%	9%	49%	8%
Havens	10%	4%	2%	1%	4%	6%	4%	7%	3%	2%	5%
North America	8%	10%	7%	13%	6%	5%	10%	6%	7%	6%	8%
Western Europe	60%	63%	72%	72%	66%	43%	76%	64%	69%	36%	65%
Other	15%	7%	7%	3%	6%	23%	3%	12%	7%	3%	9%
Total	2,150	4,984	946	1,383	1,057	1,467	4,911	7,124	746	333	25,101

All foreign-owned subsidiaries by parent-firm region and country 2017, share by country from each source region.

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	Total
Parent Region											
Asia	5%	26%	2%	12%	2%	4%	20%	24%	4%	2%	963
Eastern Europe	6%	26%	4%	2%	8%	15%	7%	23%	3%	8%	2,132
Havens	16%	15%	2%	1%	4%	7%	16%	38%	2%	0%	1,335
North America	8%	24%	3%	9%	3%	3%	24%	21%	3%	1%	2,090
Western Europe	8%	19%	4%	6%	4%	4%	23%	28%	3%	1%	16,363
Other	14%	15%	3%	2%	3%	15%	6%	39%	2%	0%	2,218
Total	9%	20%	4%	6%	4%	6%	20%	28%	3%	1%	25,101

All acquisition investments post 2007 by parent-firm region and country, share of total investments by source region and host country

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	Total
Parent Region											
Asia	0%	1%	0%	0%	0%	0%	1%	1%	0%	0%	3%
Eastern Europe	0%	1%	0%	0%	0%	1%	0%	1%	0%	0%	5%
Havens	1%	1%	0%	0%	0%	0%	1%	2%	0%	0%	5%
North America	1%	2%	0%	0%	0%	0%	2%	1%	0%	0%	6%
Western Europe	4%	10%	2%	3%	2%	2%	12%	11%	2%	0%	48%
Other	1%	1%	0%	0%	0%	1%	1%	2%	0%	0%	6%
Total	6%	15%	3%	4%	3%	4%	17%	18%	2%	1%	73%

All greenfield investments post 2007 by parent-firm region and country, share of total investments by source region and host country

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	Total
Parent Region											
Asia	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Eastern Europe	0%	1%	0%	0%	0%	1%	0%	1%	0%	0%	3%
Havens	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%
North America	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%	2%
Western Europe	1%	3%	1%	0%	0%	1%	3%	7%	0%	0%	16%
Other	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	3%
Total	1%	5%	1%	1%	1%	2%	4%	12%	0%	0%	27%