Country Institutions and Foreign Investment: Evidence from European Multinational Companies

Abstract

We examine the impact of institutions in host countries on subsidiary location decisions made by European multinational companies (MNCs). Our analyses occur at the firm-level and our findings indicate that better protection of property rights, higher regulatory quality, and more developed financial markets attract more investment from MNCs. Results from an IV approach suggest our documented effects are directional. Next, in line with predictions, we find a stronger impact of institutions on foreign investment when (i) the entry barriers of the host country are higher, (ii) its trade barriers are higher, (iii) the distance between the home and host country is larger, and (iv) MNCs are more financially constrained. These findings expand our knowledge of how institutions affect foreign expansion and through what channels these effects potentially run. Our results also suggest that institutional improvements attract more business from abroad.

Keywords: Foreign direct investment, Property rights, Regulation, Financial development, Entry barriers, Trade barriers, Distance, Financial constraints.

1. Introduction

A significant part of the overall financial investments flows across international borders. Past research extensively examines how firm- and country-specific characteristics determine foreign investment decisions. A large body of international business research (e.g., Dunning et al. 2007; Flores and Aguilera 2007; Ghemawat 2003; Rugman 2003; Rugman and Verbeke 2004) documents and explains how and why firms expand, operate and coordinate operational activities abroad and outside of their home market.

International business research also contributes to the debate on which factors determine the attractiveness of a business location. In seminal work, Johanson and Vahlne (1977, 2009) develop a behavioral theory that firms follow a sequential search pattern for foreign locations. In this process, human rationality is bounded by the manager's limited ability to gather and process all the information required to make a perfectly rational allocation decision based on all relevant factors. Another related strand of influential literature explains how country institutions shape economic growth, financial development, and firm valuation and growth. Notably, Johnson et al. (2000) and Acemoglu and Johnson (2005) describe how the protection of private citizens and corporations against expropriation by the state, usually referred to as the protection of property rights, is an important determinant of financial development and growth.

These studies run parallel with how the increasing globalization in financial markets matches firms with potential investors diversifying their portfolios by holding foreign investments. Stulz (2005) describes the limits of the benefits of foreign expansion and financial globalization because of an additional agency problem that appears: not only are minority (or outside) shareholders prone to expropriation by corporate insiders, they are also potential victims of expropriation by foreign states. Influential work by La Porta et al. (1997, 1998) describes how the legal protection of investors shapes financial markets. A more recent paper by Lin et al. (2019) brings these two strands of literature together and finds that property rights protection, and not so much investor protection, is the main driver of foreign expansion.

Our study focuses on *several* aspects of a country's institutional environment, i.e., protection of property rights, regulatory quality, and financial development. We predict that, next to property rights, regulation and financial development of the host country are also important determinants of a firm's decisions on foreign expansion. Regulatory burdens and inefficiencies are likely to scare

off potential investors from abroad. As a general trend, data from the World Bank (2016) indicates that the extent of changes in regulations that liberalize or ease foreign direct investment (FDI, henceforth) have exceeded changes that are restrictive to FDI. Likewise, the development of financial institutions and markets should also matter. Host countries' financial development contributes to creating more opportunities for firms to expand abroad by enlarging access to external finance. Evidence shows that prior to the 2008-2009 financial crisis, FDI flows strongly grew worldwide but experienced an abrupt decline in these years. The fact that the tight external financing conditions resulting from the global financial crisis have been partly blamed for this backfall (UNCTAD 2010) suggests that access to external finance is an important determinant of FDI.

In a next step in our empirical analyses, we attempt to identify channels through which these institutions affect foreign investment decisions. We predict that the institutional quality of the potential host country plays a more important role in investment decisions when information problems faced by the MNC are larger and economic barriers higher. Specifically, we investigate the ability of strong institutions to mitigate investment concerns related to entry barriers, trade barriers, and operational risk due to a lack of information on the host country.

An important feature of our study is the focus on a corporate setting where international presence and expansion are highly important. Specifically, we consider a sample of 1,640 large stock-listed MNCs in Europe. For several reasons, European MNCs are significantly more likely to expand internationally than U.S. or Asian peers. First, many European countries are small economies, increasing the likelihood that firms will quickly expand abroad. Second, many European economies depend heavily on imports and exports. Finally, trade barriers within the European Union are low (and some have disappeared altogether), further increasing the likelihood of international presence, in this case within the E.U. itself. As such, focusing on the European context with a large international component increases the relevance of a study investigating how host-country institutions affect MNCs' geographic outlook.

Our empirical tests yield two sets of results. First, countries with stronger property rights protection, more efficient and higher quality regulation, and better developed financial institutions are more attractive for MNCs to locate subsidiaries in, controlling for various geographic, economic, and historic characteristics of the potential host countries. We find that the likelihood

of subsidiary presence in a particular country and the number of subsidiaries significantly increases with better institutions. In terms of magnitude, we find that a country at the 75th percentile of property rights protection and regulatory quality has a 4% higher probability of being selected as a host country than an otherwise equivalent country at the 25th percentile. For financial development, this probability difference is about 2%. Since the unconditional probability of subsidiary presence is 7.8% in our sample, these probability differences also appear to be economically significant, next to being statistically significant. Moreover, findings from our instrumental variables approach, using democratic origin, latitude, and English language presence as instruments, suggest that our documented effects are directional.

Second, we examine channels through which institutions may affect subsidiary location decisions. We consider different settings for which we have priors on a stronger or weaker institutional effect. Our results convey four conclusions. First, we find that property rights, regulation, and financial institutions matter significantly more for subsidiary location decisions when barriers of entry are higher and when trade barriers are higher. These results suggest that MNCs make a trade-off between different aspects of the institutional landscape: firms may still go through the trouble of investing in places with high entry or trade barriers, as long as property rights are sufficiently protected, regulation is of sufficient quality, and the financial system is healthy. Second, institutions matter significantly more for location decisions the larger the distance between the home and host country is, for both geographic and institutional distance. Remote countries seem only attractive for MNCs to invest in when institutions are of a sufficiently high quality. Finally, the institutional quality of potential host countries matters more for location decisions done by financially constrained MNCs compared to MNCs with less constraints. This latter finding suggests that firms with fewer investment opportunities are more likely to mainly invest in countries with high institutional quality. In contrast, firms with fewer financial constraints can take riskier "bets" and invest in countries with lower-quality institutions.

Our study contributes to the existing international business literature on at least two dimensions. First, we add to the stream of literature documenting how and which institutional aspects affect firm characteristics (Wu et al 2016; Cherchye and Verriest 2016; Demirgüc-Kunt and Maksimovic 1998), and particularly firm's international structure and foreign expansion decisions (Contractor et al. 2020; Desbordes and Wei 2017; Tag 2021; Choi et al. 2016; Farah et al. 2022). Closest to

our paper is Lin et al. (2019), who investigate how institutions affect U.S. MNCs' subsidiary location decisions. Their main finding is that these decisions are primarily driven by property protection rights rather than investor protection rights. We add to this study in three ways. First, we document on the equal relevance of two other institutional aspects for foreign expansion decisions: regulatory quality and financial development. Second, we focus on European MNCs, for which international expansion is more important than U.S. firms. Thirdly, we investigate situations and conditions in which institutions such as property rights may play a more important role (e.g., we find stronger effect of property rights when entry barriers are high).

Second, we add to the international literature that attempts to understand through which channels, country-or firm-specific, institutions affect corporate decisions, what trade-offs managers make when expanding abroad, and how institutional aspects of a host country may complement or substitute each other. Although there is some recent literature on these institutional complementarities and trade-offs (e.g., Du et al. 2022; Heavilin and Songur 2020; Contractor et al. 2020; Choi et al. 2016; Cherchye and Verriest 2016), this part of the international business literature is still in its infancy. Adding to this literature, our results suggest that trade barriers, entry barriers, and information asymmetries due to the distance between the home and host country, are mediators or conduits for the institutional impact on foreign expansion decisions. Finally, as far as we are aware, research on firm-specific channels through which institutions affect foreign expansion is very scarce. We open this potentially fruitful avenue for future research by showing that host countries' institutions are even more important for foreign expansion decisions for financially constrained MNCs than for less constrained ones.

The remainder of this paper is organized as follows. In Section 2, we motivate our study and outline our hypotheses. Section 3 explains the sample, variable measurement, and methodology. Section 4 discusses our empirical results. Section 5 concludes.

2. Motivation, theoretical underpinnings, and hypotheses

2.1 Institutions and foreign corporate expansion

Douglas North defines institutions as "the humanly devised constraints that structure human interactions; together, they define the incentive structure of societies and specifically economies"

(North 1994, p. 360). The institutional environment is a collection of government policies and formal and informal rules, including their enforcement, that constitutes and shape the economic environment. Strong institutions stimulate production and entail wealth and growth (Baumol 1990). Conversely, weak institutions curb and hamper economic development. Corruption and lack of the rule of law burden productive activities (Hall and Jones 1997). High-quality legal institutions spur economic growth (Acemoglu et al. 2005) and political stability (Alesina et al. 1996).

The past five decades have seen international trade growing exponentially, giving rise to many MNCs that trade globally and have subsidiaries all over the world. Although trade and foreign business expansion for MNCs from the U.S. and Europe usually starts locally, markets located further away have become more attractive in recent decades. A fifth of MNCs' total revenues were realized in emerging economies in 2009 (Barefoot and Mataloni 2011). Simultaneously, the level of investments in foreign businesses and the number of foreign subsidiaries also increased considerably in developed and emerging markets. Emerging markets' FDI increased from $395 billion in 2005 to $695 billion in 2019 (UNCTAD 2006 and 2020), representing more than half of the global FDI. A related report recorded that about 17,300 European firms have legal units outside the E.U. (Eurostat 2020). E.U. firms have more people employed in their foreign affiliates than U.S. counterparties (Insee 2015).

Although foreign investments have increased significantly over time, expanding abroad brings additional costs and risk factors for MNCs. Trade and entry barriers remain to exist between countries, burdening globally expanding firms. The foreign expansion entails additional risk for MNCs on top of the operational risk they already face. This additional risk often stems from the different and uncertain institutional context of the foreign country. Hitt (2016) concludes that formal regulatory factors may be “even more important” for international business strategies than the cultural and cognitive features of the host nation. Moreover, the regulatory environment comprising constitutions, laws, regulations, and property rights varies in different countries, leading to a 'regulative distance' between home and host countries.

Although the importance of country-specific institutions for foreign investment activity has been empirically documented, the existing body of research tackles either only emerging markets (Khanna and Palepu 2010), particular regions (Trevino et al. 2008; Botrić and Škuflić 2006), or

single countries (Kang and Jiang 2012; Stucchi et al. 2015), with a particular focus on the U.S. (Globerman and Shapiro 2003). Evidence on a global scale is scarce. Moreover, a lot of studies on international trade are at the country-level rather than at the firm level. Lin et al. (2019) is a notable exception, focusing on the impact of property rights protection on subsidiary location decisions for U.S. multinationals. In addition, most of the research done at the firm level focuses on one aspect of a host country's institutional environment, property protection, in most cases. In this study, we expand this literature by investigating the effect of three dimensions of a country's institutional outlook on its attractiveness for European multinationals: property rights protection, regulatory quality, and financial development. Below we review the literature on each of these three dimensions and state our hypotheses.

2.2 Hypotheses development

2.2.1 Foreign expansion and property rights

Property rights and their enforcement are fundamental for economic activity. They affect resource allocation, creation of incentives, and stimulate productive activities in society (Cooter and Ulen 2012). Strong property rights imply an effective and impartial legal system, stable public institutions, and credible and transparent government policies that favor free and open markets (Brewer 1993; Ngobo and Fouda 2012). When doing business in countries with high political risk (Kim and Hwang 1992), high investment risk (Agarwal and Ramaswami 1992), and weak intellectual property protection (Oxley 1999), the cost of contracting is especially high. Such a high cost may arise from difficulties in negotiating proper terms in a contract. For example, foreign firms encounter tremendous difficulties in specifying intellectual property rights in countries with poor intellectual property protection (Oxley 1999). High contracting costs also result from challenges of safeguarding against local government or partners' opportunistic behavior. Henisz (2000) finds that in countries with high "political hazards", partner collaboration is risky because local partners may collude with local government to manipulate the political system for their own benefit at the expense of foreign MNCs. In addition to the law on the books, inadequate enforceability of legal agreements further increases contracting costs. Roy and Oliver (2009) report that the quality of the host country's rule of law and control of corruption influence MNCs' concerns regarding collaboration activities and partner selection criteria in the host country. Their study specifically identifies managers' worries about their firm's ability to capture economic rents

generated by their international joint-venture activities, as well as the future costs of interacting with their partners when they perceive that "the host country's institutional environment would fail to provide an adequate safeguard against arbitrary rulings in individual cases, and that this environment would not serve to apprehend and punish those who commit crimes effectively" (Roy and Oliver 2009: pp.795). Such insufficient enforceability allows local partners to behave opportunistically without being caught or punished, and thus highly increases the costs of contracting—even though a collaborative agreement is well drafted and negotiated, it is still not enforceable. MNCs may hence hesitate to work with a local partner under such circumstances.

The literature has widely documented the effect of property rights on economic growth (Mauro 1995), international trade (Globerman and Shapiro 2003), productivity (Klein and Luu 2003), and foreign investment (Henisz and Zelner 2004; Giambona et al. 2017; Lin et al. 2019). We state our first hypothesis as follows:

H1: Stronger protection of property rights attracts more investment from MNCs.

2.2.2 Foreign expansion and regulatory quality

A related stream of literature has highlighted the importance of the regulatory and government aspect of a country's overall institutional environment (Gani 2007; Globerman and Shapiro 2003; López-Duarte and Vidal-Suárez 2010; Slangen and van Tulder 2009). Poor governance quality is characterized by the inability to formulate and implement sound policies and regulations that permit and promote private sector development. Weak regulation discourages MNCs from entering that specific country, while good governance quality increases foreign MNCs' willingness to do business there (Gani 2007; Globerman and Shapiro 2003). Conversely, adequate regulatory arrangements entail effective policies and regulations designed to enable and promote business activities, including attracting foreign investments (Daude and Stein 2007; Lu et al. 2014; Mariotti and Marzano 2020; Nielsen et al. 2017; Pajunen 2008; Rammal and Zurbruegg 2006).

An interesting approach by comparative institutionalism holds that societal institutions develop in a mutually reinforcing way (Hall and Soskice 2001; Whitley 1999) so that the credibility of an institution depends on the co-evolution of the other institutions acting to pursue similar goals. In this light, regulatory quality is only one piece of the puzzle that, once completed, defines a country's regulatory, institutional environment, i.e., all the overarching policies, disciplines, rules,

and tools that increase the government's capacity to promote contracting efficiency and facilitate market transactions and business development (Radaelli and De Francesco 2013). In turn, regulatory quality is a fundamental component of the country's overall system of pro-market institutions (Cuervo-Cazurra et al. 2019). Therefore, we state our second hypothesis as follows:

H2: Higher quality regulation attracts more investment from MNCs.

2.2.3 Foreign expansion and financial development

A large body of empirical evidence unambiguously indicates that better-developed financial markets and deeper financial systems strongly facilitate foreign investment (Claessens et al. 2001; King and Levine 1993; Alfaro et al. 2008; Chee and Nair 2010; Choong and Lam 2011). This literature broadly identifies three channels through which capital markets affect foreign trade. The first channel of transmission is access to external financing. Well-functioning financial markets in the host countries reduce the costs of finding and attracting external financing for MNCs (e.g., Rajan and Zingales 1998). The importance of operating in host countries with high host country financial development for U.S. firms is highlighted in Feinberg and Phillips (2004), Desai et al. (2006), and Bilir et al. (2019). These studies show that the expansion of the activities of U.S. foreign affiliates is constrained in host countries where external finance is relatively limited and expensive. In the same vein, Desai et al. (2004) find that interest rates on external debt are different for affiliates of the same American parent company located in different host countries since interest rates depend on the capital market depth and creditor rights.

The second channel through which capital markets affect FDI is through local financial intermediaries. These entities, such as local banks, may help foreign investors alleviate informational asymmetries by sharing local knowledge on risks and market opportunities (Kinda 2010). Furthermore, better-developed financial markets in the host country could attract foreign investment by relaxing the credit constraints of local firms (Alfaro et al. 2010). Easier availability of intermediaries fosters FDI to the extent that foreign firms become subject to such inputs from local banks. More interactions between foreign and local firms may also encourage more foreign investments. In other words, financial market development may expand the local market size and, thus, promote market-seeking or horizontal FDI (Desbordes and Wei 2017). Moreover, more developed financial markets in host countries increase the likelihood of technology spill-overs between local and international companies (Hermes and Lensink 2003).

The third channel through which capital markets affect foreign investments stems from the agglomeration effect (Head et al. 1999; Barrell and Pain 1999; Norbäck 2001). Greater sector-specific activity may generate external economies of scale, encouraging firms to agglomerate in a given location rather than disperse their activities. Interestingly, Ju and Wei (2010) pose a competing hypothesis in which better financial development could foster competition and reduce the attractiveness of the host country. This effect ought especially to be the case for FDI aimed at serving the local market: more entry from local and foreign producers may increase the price of local inputs and fear off MNCs from entering. Despite the soundness of the alternative hypothesis, the agglomeration effect is empirically shown to dominate the negative competition effect as a larger number of existing domestic firms in a given sector and location positively influence the location choice of MNCs (Bobonis and Shatz 2007). Overall, the growth of local manufacturing sectors induced by higher financial development should positively affect foreign expansion. Therefore, we state our third hypothesis as follows:

H3: Better developed financial markets attract more investment from MNCs.

3. Data, Methodology and Descriptive Statistics

3.1 Sample Selection

To investigate our hypotheses, we use data from the Orbis database to obtain information on the location of European MNCs' subsidiaries. We start our sample selection process by considering all stock-listed companies in the Orbis database with European headquarters. We gather subsidiary location data from 2019.[1] We exclude firms without data on subsidiary locations, firms with no foreign subsidiaries, and observations lacking basic firm characteristics such as sales and assets. We also require non-missing ISIN indicators to link Orbis with Compustat Global. This process provides us with a dataset of 1,640 European multinational companies with at least one subsidiary abroad. In total, there are 199 different countries represented in which at least one of the firms has a subsidiary.

[1] This is the most recent year available, at the moment of gathering the data.

Next, we gather the necessary data on country institutions and control variables. For a country to be considered as a potential host country, we require available data on institutional measures (see Section 3.2) and country control variables (see Section 3.3). The overlap between the countries represented in the subsidiary locations from the European firms in Orbis (199 countries), the number of countries for which we have data on the key country institutions (mainly derived from data from the World Development Indicators and World Governance Indicators) and the country control variables is a set of 151 countries. Appendix B provides a full list of these countries. Our final sample consists of 1,640 unique European stock-listed MNCs with 18,808 firm-subsidiary country observations in 151 different countries. Our unit of analysis is firm-subsidiary. The total number of firm-subsidiary observations in our final sample is 240,241.[2]

[INSERT TABLE 1]

Table 1 Panel A shows the location of the MNCs' headquarters. British firms represent a quarter of our sample, followed by Sweden (12%), France (10%) and Germany (9%). Table 1 Panel B shows where these MNCs have foreign subsidiaries. There are 151 countries represented in our host country sample. For brevity, we only show the 50 countries with the highest number of subsidiary presences. Of the 18,808 subsidiary presences (which differs from the number of subsidiaries as firms may have more than one subsidiary in a host country), 923 or 4.9% are located in the U.S., followed by Germany (3.5%), the U.K. (3.2%), the Netherlands (2.8%) and France (2.6%). As can be gleaned from the table, the subsidiary locations are widely spread across the globe, including locations in Asia-Pacific (e.g., China, Australia, Singapore and Thailand), Latin America (e.g., Mexico, Brazil and Chile), and in the Middle East and Africa (e.g., United Arab Emirates, Turkey and Morocco). A large number of actual and potential host countries in the main sample is highly important to our analyses, given our interest in examining the effects of host-country institutions. To our knowledge, few other studies in this field have investigated institutional effects on such a large number of countries. We visualize the presence of subsidiaries in the host countries in Graph 1. The darker-colored countries are the ones that attract more subsidiaries from European MNCs based on our sample.

[2] This number is slightly less than 246,000 (150,151-1, potential locations for 1,640 MNCs) because of missing data on a (very few) amount of control variables for some countries.

[INSERT GRAPH 1]

3.2 Institutional Measures

To investigate the effect of host-country institutions on subsidiary location decisions, we require reliable institutional measures for the host countries. As explained in the previous section, we investigate three institutional dimensions: (1) property rights institutions, (2) regulatory quality, and (3) the development of financial markets. Below we provide information on how these dimensions are measured. Appendix B provides information on the subcomponents of the indicators for each of the 151 host countries in our sample. Descriptive statistics on the aggregated institutional indicators (used in our main regression analyses) are discussed further in Section 3.3.

To measure property rights protection and regulatory quality, we rely on the World Governance Indicators (WGI) provided by the World Bank.[3] These indicators are available for 214 countries and run from 1996 to 2019. The indicators are aggregates of several hundreds of single variables, perceptions, and measures of institutional quality and governance strength, defined broadly. The WGI are as such structured in six separate indicators: voice and accountability, political stability, government effectiveness, regulatory quality, the rule of law, and control of corruption. The indicators range between -2.5 and +2.5, with higher values indicating higher quality or stronger performance.

First, we define property rights as the strength of the regulation and legislation to protect citizens and corporations against the power and exploitation of the government and strongmen, following, among others, North (1987) and Acemoglu and Johnson (2005). To measure property rights, we use three of the six beforementioned World Governance Indicators: voice and accountability, the rule of law, and control of corruption. *Voice and accountability* measures the extent of democracy in countries and how governments are elected, monitored, and replaced. *The rule of law* measures the extent to which citizens have confidence in the rules of society, courts, contract enforcement, property rights, and the police. It also measures the likelihood of crime and violence. *Control of corruption* measures the extent to which public power is exercised for private gain, including corruption amongst public officials and administrators. To capture the strength of a country's

[3] WGI has been used as an indicator of institutional quality in many related studies, including Lin et al. (2019), Lu et al. (2014) and Cherchye and Verriest (2016).

property rights, we first average these three indicators over the period 2006-2019 and then take the first principal component of the three averages. We label this principal component *property rights*. Our measure of property rights is exactly the same as in Lin et al. (2019), making our analyses directly comparable to theirs. In robustness analyses, we use the property rights indicator provided by the Fraser Institute, an organization providing data on economic freedom (in their database labeled as "Legal System and Property Rights" and measured as a score out of ten), as an alternative measure of property rights protection. We label this alternative indicator *property rights-fraser*.

We define the regulatory quality of a country as the ability of its government to formulate and implement sound policies and regulations that permit and stimulate freedom and private sector development. This definition corresponds perfectly to the *regulatory quality* indicator of WGI. We average this indicator over the period 2006-2019 and consider it our main indicator of regulatory quality.[4] We label it *regulation*. In robustness analyses, we use *regulation-fraser* using their "Regulation" indicator (measured as a score out of ten) provided by the Fraser Institute as an alternative measure of regulatory quality.

To capture the development of the host countries' financial institutions (*financial development*), we also rely on data provided by the World Bank. Specifically, we consider the depth of credit markets and the health of a country's banks as our main inputs. We take three indicators: bank branches, private sector credit and z-score. First, *bank branches* measure the number of commercial bank branches per 100,000 adults in a country. A higher number of bank branches indicates easier access to credit for local and foreign parties. Next, we consider *private sector credit*, measured as the number of resources domestic money banks provide to the private sector as a share of GDP. Higher values of this indicator mean easier and more access to credit. Finally, we take the *z-score* of a country's banking system. The z-score compares the buffer of commercial banks' capital and returns against the volatility of those returns and is, therefore, an indicator of financial stability in a country. After averaging these three financial development indicators over the period 2006-2019, we take their first principal component and consider the outcome as our main indicator of *financial development*.

[4] As a robustness check, we also consider the government effectiveness indicator of WGI as an alternative measure of regulatory quality. Results are very similar throughout our study but not tabulated for brevity.

The emphasis in this indicator lies on the size and strength of banks and private credit availability. However, prior research documents that public markets are also a potential engine for growth and prosperity (e.g., La Porta et al. 1998). Moreover, large private credit markets do not necessarily mean that public capital markets are large as well. Therefore, as an alternative, we measure financial development using indicators that capture the breadth and depth of a country's public capital markets. Specifically, we consider the size of the country's stock market as captured by two indicators: the number of listed companies per million inhabitants (*listed firms*) and the combined market capitalization scaled by the country's GDP (*stock market size*). Higher values of these two variables indicate broader and deeper public capital markets. We continue to include *private sector credit* in this alternative financial development measure. We take the first principal component of *listed firms*, *stock market size* and *private sector credit* as an alternative indicator of financial development, which we label *capital markets* in additional analyses.

3.3 Model Design

We investigate the relation between host-country institutions and subsidiary location decisions by MNCs in an OLS regression analysis, including host-country control variables, host-country - MNC controls, and MNC effects. Our empirical specification looks as follows in its generalized form:

$$Subs\_number_{c,i} = \alpha_0 + \beta_1 . Institutional\ Quality_c + \beta_2 . Country\ Controls_c + \beta_3 . Country - MNC\ Controls_{,i} + \omega_i + \varepsilon_{i,q}$$

Where *c* and *i* stand for host country and multinational firm, respectively. ω_i signifies the inclusion of an MNC fixed effect in our analyses. These effects capture any time-invariant firm-specific effect on subsidiary location decisions.

Our principal dependent variable, *subs_present*, captures the number of subsidiaries multinational firm *i* has in a particular host country *c*. Specifically, we measure *subs_present* as the natural logarithm of one plus the number of subsidiaries a firm has in a particular country. For instance, *subs_present* equals 0 (0.693) for a firm with no (one) subsidiar(y)(ies) in a particular host country. The host country cannot be the same as the firm's home country. Alternative to *subs_number*, we consider *subs_present*, an indicator variable equal to one if firm *i* has one or more subsidiaries in

host country *c*, and zero otherwise. Our principal test variables for institutional quality are *property rights*, *regulation*, and *financial development*, as defined in Section 3.2.

Throughout our analyses, we include a battery of control variables that we expect to be relevant drivers of a firm's decision to do business in a particular country. We add two types of control variables. First, we add controls specific to the host countries but independent of the firm. We include the size of the host country's economy (*gdp*), measured as the logarithm of its gross domestic product of 2017 in constant USD, and the growth of its economy (*gdp growth*), measured as the average percentage growth in GDP between 2006 and 2019. We expect larger and faster-growing economies to attract comparatively more foreign investment and therefore predict positive coefficients on these controls. Next, we include the host country's legal origin with the *legal origin* indicator variable equal to one for countries with a common law background and zero otherwise. We add an indicator variable *tax haven*, equal to one for host countries considered a tax haven by Dyreng and Lindsay (2009), and zero otherwise. As argued by La Porta et al. (1998), countries with common law backgrounds are typically more attractive for foreign businesses to enter. Tax havens are also more attractive, so we expect positive coefficients on both *legal origin* and *tax haven*.

Second, we add a number of control variables that vary according to the relation between the host country and the firm's home country. Importantly, we conjecture that the location of the host country plays a highly important role in foreign investment decisions. Host countries located close to the country where the MNC has its headquarters are much more attractive because of lower transaction costs, transportation costs, monitoring costs, etc. Therefore, we include *contiguous*, an indicator variable equal to one if a country shares a border with the firm's home country and zero otherwise. Next, we include *geographic distance*, measured as the logarithm of the crow's distance in kilometres between the capital of the firm's home country and the host country's capital. We predict to find positive coefficients on *contiguous* and negative ones on *geographic distance*. Next, we include *colony*, an indicator variable equal to one if the firm's home country has a colonial tie with the host country and zero otherwise. Finally, we add *common language*, an indicator equal to one if the firm's home country shares an official language with the host country and zero otherwise. As sharing a colonial tie or a language with a country potentially eases doing business, we predict finding positive coefficients on these control variables.

Please note that in our main tests, we do not control for the wealth of the host country or GDP per capita because of its high correlation with institutional dimensions, especially property rights and regulation. However, in untabulated results, we find that our main findings continue to hold when including GDP per capita.

Table 2 shows descriptive statistics for our main sample on dependent, test, and control variables. The average number of subsidiaries per country in the total firm-subsidiary sample is 0.42; in its logarithmic form, the average equals 0.093. These numbers are hard to interpret and, in fact, not very relevant. These numbers are low because we consider a total of 151 potential host countries for each MNC. Obviously, most firms only have subsidiaries in a minority of these potential countries, given the number of countries we consider. Also, *subs_number* is a mixture of non-presences (zeros) and firms with several subsidiaries in one country, making it even harder to interpret these descriptive statistics. Rather, when collapsing the sample to the individual MNC level, we find that the average (median) MNC in our sample of 1,640 firms has 66 (10) subsidiaries with a standard deviation of 237. One-quarter of our sample firms have 40 or more subsidiaries, and ten percent of MNCs have more than 143 subsidiaries across the globe. Less than ten percent of our sample of MNCs has only 1 or 2 subsidiaries. In Table 2, the average on the indicator *subs_present* of 0.078 is easier to interpret: 7.8% of all host country – MNC combinations actually involves a subsidiary presence.

[INSERT TABLE 2]

Using principal components for property rights and financial development, the descriptive stats suggest that these composite measures are appropriately distributed with a mean similar to the median and centered around zero. The country with the lowest *property rights* value is the Democratic Republic of Congo. The highest value is obtained by Finland, followed by Denmark, Norway and New Zealand. The indicator *regulation*, directly taken from the WGI, ranges between -1.85 for the country with the worst regulatory quality (North Korea) and +2.00 for the countries with the best regulatory quality (Singapore and Hong Kong). Switzerland, Denmark, Luxemburg, and Spain score highest on *financial development*, partially because these are all economies with a very big presence of local banks and bank activity in general. When considering our alternative financial development indicator, *capital markets*, we find that Hong Kong, Singapore, Canada, and Switzerland top the list because of their large equity markets.

Descriptive stats in Table 2 also convey that the average host country grew by about 3% over the period 2006-2019. About a quarter of the host countries have a common law legal origin, and 12.6% are tax havens. Further, we find that 2.4% of firm-subsidiary observations are between home and host countries that are neighbors (*contiguous*), 10% share a colonial bond, and 11.3% share at least one language. Finally, we find that the average distance between the firm's home and host country is 5,750 km. For less than 10% of observations, the distance is less than 1,000 km. By taking the logarithm, we ensure that *geographic distance* is normally distributed.

4. Empirical Results

4.1 Main results

The main aim of this study is to examine the effect of institutions on foreign expansion decisions of European multinational firms. Table 3 shows our main results. In Panel A, we use *subs_number* as the dependent variable.[5] In line with Hypothesis 1, we find a significantly positive coefficient on *property rights* in specification 1, indicating that potential host countries with higher property rights have a significantly higher probability of being selected by a multinational company to do business in. This result is consistent with the findings of Lin et al. (2019) for U.S. multinational companies. However, our analyses go further than theirs, as we also focus on regulation and financial development. In specification 2, we find a significantly positive coefficient on *regulation*, suggesting that higher regulatory quality increases the likelihood of foreign investment in line with Hypothesis 2. In specification 3, we find that better financially developed countries are, ceteris paribus, also significantly more likely to attract foreign firms to establish businesses in their country, as put forward in Hypothesis 3. We continue to find significant coefficients when combining all three institutional dimensions in the same regression (specification 4). In Panel B, we show equivalent regression results using *subs_present* as the dependent variable. We find a significantly positive coefficient on each of the three institutional variables, indicating that

[5] Throughout our study, we emphasize the results with *subs_number* as the dependent variable rather than *subs_present*. We do so because of the empirical observation that many MNCs often have several subsidiaries in a particular country. The variable *subs_present* does not consider the notion that firms have more than 1 subsidiary in a particular country. We conjecture that high-quality institutions do not just increase the likelihood of entering a specific country but also the likelihood that MNCs decide to expand further within this country and establish more than 1 subsidiary. This dimension is ignored in *subs_present*. However, the results with *subs_present* are important for reasons such as ease of interpretation of economic magnitudes of our documented findings, among others.

potential host countries with stronger property rights, better regulation, and bigger financial institutions have a higher probability of being selected as a place to establish a subsidiary by European MNCs.

Our core analyses yield strong statistical significance. Importantly, our findings also prove to be economically significant. For instance, when using *subs_present* as the dependent variable (for which results are easier to interpret than for *subs_number*) and when putting all controls either at the sample average or at zero for the binary variables, we find that a country at the 75th percentile of *property rights* has a 3.92% higher probability of being selected as a country to do business in than an otherwise similar country at the 25th percentile of *property rights*. An equivalent analysis for *regulation* and *financial development* increases the probability of subsidiary presence by 4.00% and 2.02%, respectively.

Control variables carry the expected signs. Larger countries are more attractive than countries with a common law background and tax havens. GDP growth may carry a negative sign as faster-growing countries are institutionally weaker and less attractive. Although significant, the size of the coefficient on growth is small. Countries located closer by and neighboring countries are, as expected, more likely to be chosen as a business location, as are countries with colonial ties and a common language.

[INSERT TABLE 3]

As robustness analyses, we replace our measures of institutional quality with other proxies. Specifically, we use indicators from the Fraser Institute to measure property rights and regulation in an alternative fashion. The "legal system and property rights" index, which we label *property rights – fraser*, is a score out of 10 with an average of 5.14 with a standard deviation of 1.4. The "regulation" index, *regulation – fraser*, is 7.15 on average, with a standard deviation of 1. In our main measure of financial development, the private credit market stands central. In our alternative indicator, we shift the focus more to the size of the public equity market and label the alternative composite measure *capital markets*. One downside of this alternative financial measure is that it is available for less countries than our original financial development indicator.

Regression results using these alternatives can be seen in Table 4. In line with our hypotheses, we find a significantly positive association between the likelihood that an MNC establishes one or

several subsidiaries in a particular country if that country has higher property protection rights, better regulation, and more developed capital markets. Untabulated results using the binary *subs_present* as the alternative dependent variable yield very similar results. In terms of economic significance, for instance, we find that moving from the 25th percentile to the 75th percentile on *property rights – fraser* increases the likelihood that a firm has a subsidiary in the country by about 5%. We conclude from the results shown in Tables 3 and 4 that we find convincing evidence in line with all of our hypotheses.

[INSERT TABLE 4]

4.2 Instrumental Variables Approach

A potential issue with the results from our main model is that they may be affected or driven by endogeneity or even reverse causality. If countries improve their institutional quality after a stream of foreign investment, we may find similar positive relations. As we can only capture where firms have subsidiaries at one point in time, in our case, 2019, but not when the firm has established its subsidiary in a particular country, it is hard to capture the relation correctly in time.[6] Also, institutional quality measures may capture unobserved and/or omitted country factors relevant to attracting foreign investment.

To address these endogeneity concerns, we perform an instrumental variables analysis with three different instruments. For our first instrument, we consider the strength of democracy between 1900 and 1950, using data from the Polity III database provided by Gurr (1999). It is conceivable that this measure is related to the current protection of property rights in a country (our independent variable) but should not be in any way directly correlated with location decisions made by MNCs today (our dependent variable). Our second instrument is the latitude of a country or its distance to the equator. We measure the distance to the equator as the logarithm of the distance in km between the country's capital and the equator. It is widely known that countries further from the equator are more prosperous (e.g., Nordhaus 1994) and have much higher institutional quality. For instance, Scandinavian countries persistently top the league on most legal, political and regulatory quality variables. Hall and Jones (1997) use the same instrument to test for the effects of country institutions on productivity. It is also conceivable that distance to the equator does not, in any

[6] However, we attempt to do so by averaging our institutional measures between 2006 and 2019.

material fashion, correlate with location decisions done by MNCs. The third instrument we employ is the proportion of the population with English as a native language. As Hall and Jones (1997), we argue that the extent to which languages of Western Europe are spoken as a mother tongue is associated with the degree of Western European influence and therefore correlated with institutions. However, one may debate whether language has no predictable effect on the location choice of MNCs. It is indeed conceivable that firms from countries with English as the main language are more likely to settle businesses in English-speaking countries. Given that about one-quarter of our sample firms stem from the U.K. or Ireland, this potential effect is limited and would be a bigger issue when considering other main European languages, including Spanish and French. We deliberately refrain from doing so and only choose the English-speaking proportion of host countries as an instrument. Nevertheless, we admit that this third instrument is likely the weakest.

Table 5 shows the results of first and second-stage regressions of our IV analyses. In the upper part of the table, we find that the coefficients of the three instruments have the expected positive signs and are highly significantly related to institutional quality, in line with prior research (e.g., Acemoglu et al. 2001; Hall and Jones 1997). R-square values are high, suggesting our instruments are strong and pertinent. Importantly, in the second stage estimations (in the lower half of Table 5), we find significantly positive coefficients on the instrumented *property rights*, *regulation*, and *financial development*. In sum, our IV approach exhibits evidence in support of our hypotheses. Endogeneity and omitted variables issues are likely to be only minor.

[INSERT TABLE 5]

Until now, we have documented a positive relation between the presence and magnitude of MNCs' foreign subsidiaries and the host country's property rights, regulatory quality, and financial development. In what follows, we investigate in which situations, or under which conditions these effects intensify or weaken. We investigate three sets of conditions based on which we differentiate the sample: 1. The extent to which the host country imposes entry barriers and trade barriers on foreign firms; 2. The geographic and institutional distance between the host country and the MNC's home country; and 3. The financial constraints faced by the MNC making foreign location decisions. In what follows, we explain our priors for these conditions and show results on how institutions differentially affects location decisions according to different circumstances.

4.3 Entry Barriers and Trade Barriers

In this section, we investigate whether the documented institutional effects on location decisions differ according to the level of entry barriers and trade barriers. We start by examining the regulation of entry. Djankov et al. (2002) present data on entry regulation and show that more democratic and smaller governments have lighter regulation, while regimes with more corruption and larger unofficial economies have heavier entry regulation. We make two predictions. First, we predict that the presence of subsidiaries in countries with high entry barriers is smaller than in otherwise equal countries with lower entry barriers. Second, we predict stronger effects of property rights, regulation, and financial development on subsidiary location decisions in environments with high entry barriers than in environments with low entry barriers.

As our main indicator for entry barriers, we consider the number of procedures a start-up firm must do before it can start. Data are provided by Djankov et al. (2002) and are widely available across the globe. We take the logarithm of one plus the number of start-up procedures and label the variable *start-up procedures*. Most likely, entry regulation indicators correlate and partially capture institutional properties, including regulation and property rights. To mitigate multicollinearity issues, we split our sample into two parts based on the median of the *start-up procedures*. We expect to find the strongest results for the high entry barriers subsample. Table 6 Panel A shows results for entry barriers. In the first specification, we do not split the sample but test for the impact of entry barriers on *subs_number* and find a significantly negative coefficient as predicted. When splitting the sample (and continuing to include start-up procedures in the model), we find that property rights, regulation, and financial development coefficients are significantly positive in each subsample.[7] When testing for differences in the magnitude of the coefficients, we find that the coefficients on the institutional variables in the subsamples with high entry barriers, i.e. in economies in which it is more burdensome to enter for a foreign company, are significantly larger than in the subsamples with lower entry barriers. The result of the Chow test reported at the bottom of the table shows the significance of the difference between the coefficients. As predicted, we find that property rights, regulation, and financial development matter comparatively more for location decisions when entry barriers are higher.

[7] Please note that we cannot split into two parts with *exactly* equal number of observations, as there are many countries with the median number of start-up procedures. The median equals 6, and we split the sample into high entry barriers (more than 6 procedures) and low entry barriers (6 procedures or less). Robustness tests show that splitting the sample into 5 or 7 procedures yields qualitatively the same results.

[INSERT TABLE 6]

Next, we investigate trade regulation and openness. Countries differ vastly in terms of how burdensome and bureaucratic it is for foreign firms to enter the local market and how protected local markets are. We predict that trade barriers are inversely correlated with the presence and number of subsidiaries MNCs are establishing in a foreign country, in a similar vein as with entry barriers. We expect firms to be looking for less costly and burdensome places to trade. Next, and pertinent to our object of study, we predict that property protection rights, regulation, and financial development are more relevant for subsidiary location decisions in environments with higher trade barriers. Foreign firms may go through the trouble of bureaucracy and other trade barriers as long as they have sufficient certainty that their property rights are protected in case of a legal dispute. Similarly, despite high trade barriers, firms may still opt to establish subsidiaries in a country if other vital institutional aspects are sufficiently high quality.

We capture trade barriers by the variable "time to export – border compliance" provided by the World Bank, which measures how long it takes to comply with the necessary documents at the border before the trade can occur. We label this indicator *export time*. Table 6 Panel B shows the results. As expected, countries with higher trade barriers attract less foreign subsidiaries (specification 1). When splitting the sample based on high versus low *export time*, split at the median, we see that when trade barriers are high, property rights, regulation, and financial development matter significantly for subsidiary location decisions, but not so when trade barriers are low (in which case the institutional variables do not carry significant coefficients). These results again align with our expectations and suggest that institutional quality matters, especially when trade becomes more burdensome. In sum, we conclude from this set of tests on trade and entry barriers that high barriers do not necessarily prevent expansion from MNCs in these environments but make it more difficult. Importantly, we find evidence that suggests that property rights, high-quality regulation, and strong financial institutions help to overcome these barriers.

4.4 Distance

In the next set of empirical tests, we examine how the distance between the firm and the potential host country affects the relation between institutions and foreign investment decisions. First, we start by investigating geographic distance, which is already included as a control variable in the main model (*geographic distance*). As expected, we find that countries located further away from

the home market of the MNC have a lower likelihood of being selected than countries located closer by. Subsidiaries located further away from the home market involve more information problems and asymmetries, and therefore higher transaction and monitoring costs (e.g., Baaij and Slangen 2013; McCann 2013).

Second, we take an alternative measure of distance and look at the institutional distance between the home country and the host country. Specifically, we measure the difference between the average of the six World Governance Indicators of the home country and the host country (*institutional distance*). As for institutional distance, it is conceivable that larger institutional differences also bring along additional difficulties in doing business in those locations (e.g., Wu et al. 2016). Therefore, we predict that MNCs prefer subsidiaries in locations that do not deviate overly from the institutional context of the home market. We predict that better institutions may help to overcome or mitigate the issues involved when doing business in locations over a long distance, whether it be geographic or institutional. In other words, we expect to find stronger impacts of institutions on subsidiary location decisions when geographic and institutional distances are larger.

In the third set of tests related to distance, we make an a priori selection of the potential host countries MNCs can choose from to do business in. Specifically, we constrain the set of potential host countries to the 45 countries from Europe versus the other 106 countries outside Europe. We expect institutions to play a more vital role in subsidiary location decisions for the latter group because of higher information asymmetry. This third set of tests also serves as a robustness check on our main result, to see if our results hold for alternative (sub) samples of host countries. Table 7 shows the results.

[INSERT TABLE 7]

For brevity, we only show coefficients on the main variables of interest: *property rights*, *regulation*, and *financial development*. Control variables are the same as in previous analyses. We split the sample based on the median of *geographic distance* (Panel A) and *institutional distance* (Panel B). We test and report for differences in the magnitude of the coefficients on the institutional measures using the Chow test. In Panel A, we find a significantly positive coefficient on each institutional measure, in each of the two subsamples. However, we find that the coefficients on *property rights*, *regulation*, and *financial development* are significantly larger when the geographic

distance between the home country of the MNC and the potential host country is larger, in line with our predictions. Differences are also economically significant. In Panel B of Table 7, we find equivalent results for institutional distance. We conclude from these tests that the institutional quality of a host country can overcome and mitigate distance-related information and monitoring problems, and as such foster growth and foreign investments.

In Panel C of Table 7, we do not split the sample but restrain the potential host countries to either European or non-European ones. As predicted, we find that institutional quality has a high impact on the number of subsidiaries in the host country in the subsample of 106 non-European countries, with even stronger coefficients than those reported in our main analyses. Equally important, we find significant coefficients on *property rights*, *regulation*, and *financial development* when only considering the 45 European countries as potential countries to invest in. Although institutional variation amongst this group of countries is lower than among the other countries, institutional quality continues to play a significant role in investment location decisions. This finding again underscores the vital role of institutions. Our main results prove to be robust to using smaller samples of potential host countries. Also, these findings are in line with predictions and with the previously documented distance-related findings.

4.5 Firm Financial Constraints

In a final set of additional tests, we consider the financial conditions faced by the MNC. We expect that financially constrained firms have fewer options to expand internationally than firms with fewer of such constraints. We also expect constraint firms to be more careful in selecting countries to do business in, as a bad investment decision may turn out to be more costly to them than to firms with fewer financial constraints. Therefore, we predict that a host country's institutional quality plays a more important role in subsidiary location decisions of financially constrained firms compared to less constrained firms as the risk of investments and entering the market is mitigated by the higher quality institutions. In addition, firms without any financial constraints may overcome institutional difficulties in a particular foreign market by using their deep pockets to circumvent or deal with low-quality institutions. Both of these forces make us predict that financially constrained firms are less likely to engage in subsidiary locations with low-quality institutions.

We employ four indicators of financial constraints: leverage, cash holdings, current ratio, and profitability. First, we consider *leverage* or the amount of debt the MNC has measured, as the sum of long-term and short-term debt scaled by total assets. Second, a firm's cash holdings are measured by scaling cash and cash equivalents with total assets. This variable is labeled *cash*. Third, we calculate the firm's current ratio by dividing short-term assets by short-term liabilities. The current ratio is a widely used indicator of liquidity. Our fourth and final measure is *profitability*, measured as net income scaled by assets and adjusted for industry. Higher leverage, lower cash holdings, a lower current ratio, and lower profitability indicate more financial constraints. All variables are measured in 2018 using data from the Compustat Global database.

Results are shown in Table 8. For brevity, we only show coefficients on the institutional variables. Control variables are identical to those used in the main specification. We subdivide our sample into two groups based on the category the MNC belongs to: below or above the sample median of *leverage*, *cash*, *current ratio*, and *profitability*. In line with previous results, we find that institutions have a significant and positive association with the number of subsidiaries firms have in host countries. We find this result across all subsamples in Table 8, adding further to the robustness of our main findings. Importantly, we also find significant differences between the magnitude of the effect of institutions on location decisions. Specifically, our results show that the effect of *property rights* is stronger amongst firms with higher leverage, lower cash holdings, a lower current ratio, and lower profitability. We find qualitatively similar results for *regulation* and *financial development*. The differences in the magnitude of the relevant institutional coefficients are statistically significant in each case. These findings are very much in line with our expectations that firms experiencing more financial constraints are more likely to select counties with high-quality institutions than firms with fewer constraints. This finding has not been documented in the literature, yet is a highly relevant one. It expands our knowledge of how firm-specific characteristics affect location decision choices, in combination with institutional aspects of host countries. Our findings suggest that firms with fewer financial constraints are more likely and willing to overcome the difficulties and face the threats of entering countries with weaker property protection, regulation, and financial institutions. This findings has, to the best of our knowledge, never been documented in the literature and serves as a key contribution of the current study.

[INSERT TABLE 8]

5. Conclusion

Our study adds to the international business and economics literature on how institutions affect corporate behavior and decision making. We investigate to what extent a country's institutional context affects its attractiveness for multinational companies to invest. To do so, we select a large dataset of European stock-listed companies, for which foreign expansions are vital to their strategy. We find that property protection rights are an important driver of location decisions made by European MNCs, in line with the findings of Lin et al. (2019). Complementing their insights, we additionally document that regulatory quality has an equally strong impact. Next, we document that the financial development of a potential host country also positively relates to its attractiveness for foreign business. Our results prove to be robust for various institutional indicators.

Two particular features of our research are important. First, we tackle endogeneity using instrumental variables and find strong indications of a directional impact of institutional quality on MNC location decisions. Second, we show that the effects of institutional quality on foreign investment logically and predictably vary across different settings. Specifically, we find that institutional effects on MNC's subsidiary location decisions are stronger when (i) entry barriers are higher, (ii) trade barriers are higher, and (iii) distance-related information and monitoring problems are larger. As such, our study adds to the growing but still limited literature on institutional interdependencies and complementarities in shaping a country's economy. Finally, and perhaps most intriguingly, our results indicate that institutions have a stronger effect on foreign investment decisions for MNCs that are financially constraint compared to those which face less of such constraints.

In sum, our study underscores the importance of strong property rights, high-quality regulation, and deep and broad capital markets to attract foreign investment and offers new insights on how institutions shape economic outcomes and firm decisions.

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Graph 1

This graph shows the distribution of the 18,808 subsidiaries of the 1,640 European MNC across the 151 host countries.

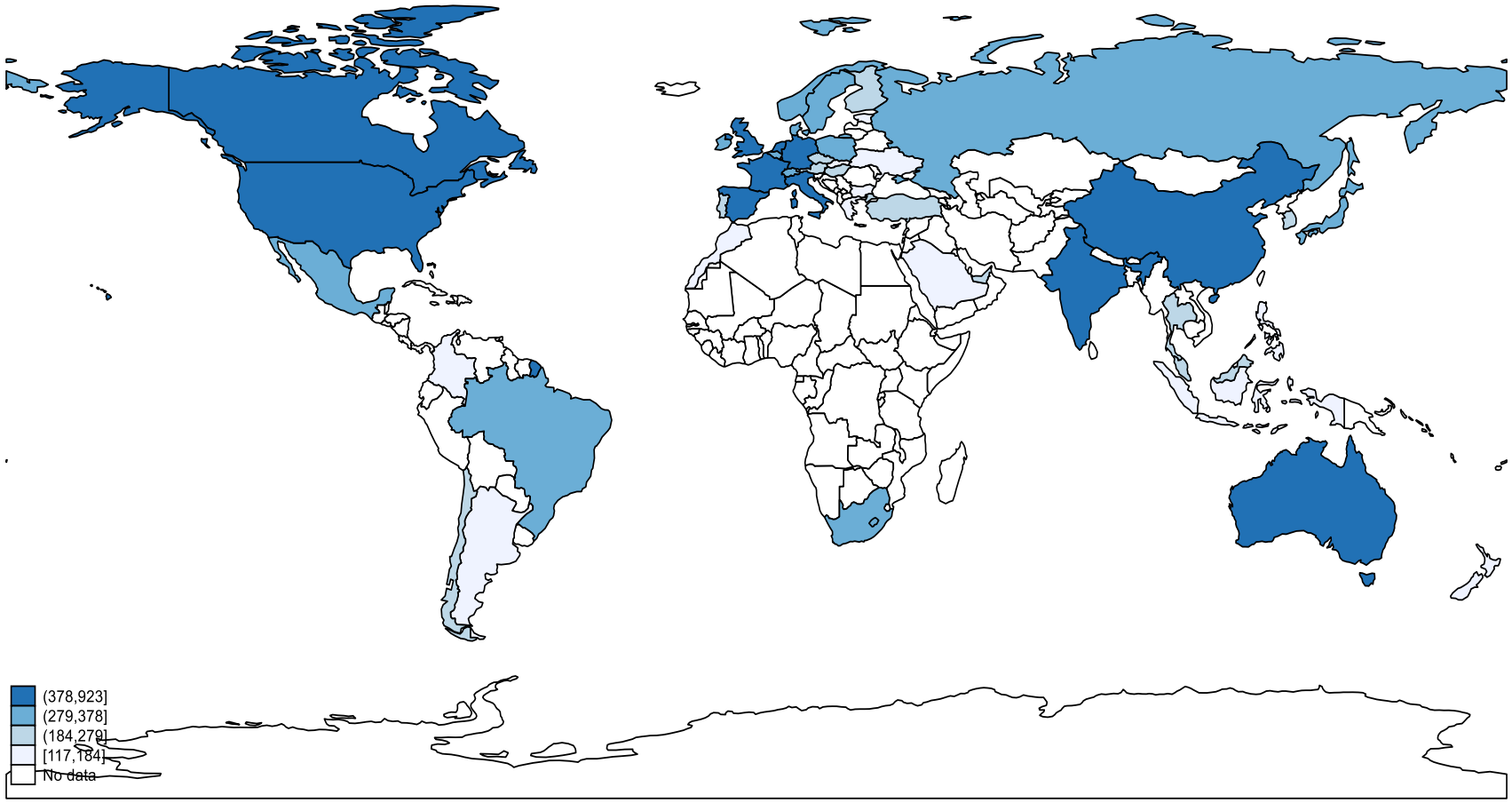

Table 1: Sample Composition

Panel A: Sample of European MNCs

Table 1 shows the sample composition. Our sample consists of 1,640 European MNCs which have 18,808 subsidiaries in 151 countries. In Panel A, we show where the MNCs' headquarters are located, i.e. their home-country. In Panel B we show the 50 host countries with the largest subsidiary presence, and the percentage of MNCs that have at least one subsidiary in the host country.

Home Country	# of MNCs per home country	% Sample
Austria	21	1.28%
Belgium	62	3.78%
Bulgaria	8	0.49%
Croatia	8	0.49%
Cyprus	17	1.04%
Czech Republic	1	0.06%
Denmark	49	2.99%
Estonia	3	0.18%
Finland	69	4.21%
France	158	9.63%
Germany	145	8.84%
Greece	30	1.83%
Hungary	4	0.24%
Iceland	5	0.30%
Ireland	27	1.65%
Italy	49	2.99%
Latvia	3	0.18%
Liechtenstein	1	0.06%
Lithuania	7	0.43%
Luxemburg	25	1.52%
Malta	6	0.37%
Netherlands	47	2.87%
Norway	55	3.35%
Poland	57	3.48%
Portugal	3	0.18%
Romania	2	0.12%
Russia	6	0.37%
Serbia	1	0.06%
Slovakia	2	0.12%
Slovenia	5	0.30%
Spain	45	2.74%
Sweden	193	11.77%
Switzerland	98	5.98%
Turkey	27	1.65%
United Kingdom	401	24.45%
Total	1,640	100.00%

Panel B: Subsidiaries per host country

Host Country	No. of Firms with at least 1 Subsidiary in Host Country (of 1,640 MNCs)	% of Total of 18,808 Presences	% of 1,640 MNCs
United States	923	4.91%	56.28%
Germany	653	3.47%	39.82%
United Kingdom	593	3.15%	36.16%
Netherlands	528	2.81%	32.20%
France	494	2.63%	30.12%
China	473	2.51%	28.84%
Spain	451	2.40%	27.50%
Canada	439	2.33%	26.77%
Italy	424	2.25%	25.85%
Australia	411	2.19%	25.06%
Singapore	385	2.05%	23.48%
India	383	2.04%	23.35%
Poland	378	2.01%	23.05%
Hong Kong	377	2.00%	22.99%
Switzerland	369	1.96%	22.50%
Sweden	360	1.91%	21.95%
Brazil	358	1.90%	21.83%
Belgium	350	1.86%	21.34%
Russia	343	1.82%	20.91%
Mexico	331	1.76%	20.18%
Denmark	306	1.63%	18.66%
Japan	292	1.55%	17.80%
South Africa	287	1.53%	17.50%
Norway	281	1.49%	17.13%
Ireland	280	1.49%	17.07%
Austria	278	1.48%	16.95%
Czech Republic	271	1.44%	16.52%
Luxembourg	263	1.40%	16.04%
Malaysia	244	1.30%	14.88%
Turkey	240	1.28%	14.63%
United Arab Emirates	240	1.28%	14.63%
Portugal	232	1.23%	14.15%
Finland	228	1.21%	13.90%
Hungary	221	1.18%	13.48%
Korea Rep.	201	1.07%	12.26%
Thailand	196	1.04%	11.95%
Chile	195	1.04%	11.89%
Ukraine	184	0.98%	11.22%
Argentina	180	0.96%	10.98%
Colombia	179	0.95%	10.91%
Slovak Republic	177	0.94%	10.79%
Indonesia	174	0.93%	10.61%
New Zealand	174	0.93%	10.61%
Greece	159	0.85%	9.70%
Cyprus	157	0.83%	9.57%
Bulgaria	147	0.78%	8.96%
Morocco	134	0.71%	8.17%
Estonia	120	0.64%	7.32%
Philippines	117	0.62%	7.13%
Saudi Arabia	117	0.62%	7.13%
Other	3,511	18.67%	
Total No. of Subs.	18,808	100.00%	

Table 2: Descriptive Statistics

Table 2 shows descriptive statistics on the main dependent, independent and control variables. The sample consists of 240,241 firm-subsidiary country observations in 2019 from 1,640 European MNCs. A detailed description of these variables is provided in Appendix A.

Variable	N Obs	Mean	Median	Std. dev.	Min	Max
subs_number	240,241	0.093	0.000	0.383	0.000	7.708
subs_present	240,241	0.078	0.000	0.269	0.000	1.000
property rights	240,241	0.051	-0.355	1.688	-2.578	3.738
regulation	240,241	0.084	-0.130	0.928	-1.850	2.000
financial development	240,241	-0.040	-0.238	1.039	-1.396	5.545
gdp	240,241	24.905	24.731	2.008	20.986	30.575
gdp growth	240,241	3.054	3.136	2.436	-7.918	10.141
legal origin	240,241	0.252	0.000	0.434	0.000	1.000
contiguous	240,241	0.024	0.000	0.152	0.000	1.000
geographic distance	240,241	8.354	8.609	0.913	1.900	9.883
tax haven	240,241	0.126	0.000	0.332	0.000	1.000
colony	240,241	0.100	0.000	0.300	0.000	1.000
common language	240,241	0.113	0.000	0.317	0.000	1.000

Table 3: Host country institutions and MNC subsidiary locations

Table 3 shows coefficients from OLS regressions of MNCs' subsidiary location decisions on institutional characteristics of the potential host country. Robust standard errors are shown between brackets. In Panel A, the dependent variable is *subs_number*, measured as the natural logarithm of one plus the number of subsidiaries a firm has in a particular host country. In Panel B, the dependent variable is *subs_present*, an indicator variable equal to one if the firm has one or more subsidiaries in a particular host country and zero otherwise. All specifications include MNC fixed effects and standard errors are clustered at the firm (MNC) level. Definitions and sources of all independent and control variables are reported in Appendix A. ***, **, * denote significance at 1%, 5%, and 10% respectively.

Panel A: Dependent variable = subs_number

	Dependent variable = subs_number			
	(1)	(2)	(3)	(4)
property rights	0.021***			0.014***
	(0.001)			(0.001)
regulation		0.035***		0.010***
		(0.002)		(0.002)
financial development			0.018***	0.007***
			(0.001)	(0.001)
gdp	0.044***	0.044***	0.048***	0.043***
	(0.002)	(0.002)	(0.002)	(0.002)
gdp growth	-0.002***	-0.002***	-0.001***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
legal origin	0.019***	0.024***	0.028***	0.020***
	(0.002)	(0.002)	(0.002)	(0.002)
contiguous	0.240***	0.242***	0.245***	0.242***
	(0.013)	(0.013)	(0.013)	(0.013)
geographic distance	-0.006***	-0.008***	-0.013***	-0.005***
	(0.002)	(0.002)	(0.002)	(0.002)
tax haven	-0.005**	0.000	0.008***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)
colony	0.035***	0.033***	0.035***	0.035***
	(0.004)	(0.004)	(0.004)	(0.004)
common language	0.046***	0.049***	0.050***	0.048***
	(0.004)	(0.004)	(0.004)	(0.004)
constant	yes	yes	yes	yes
firm effects	yes	yes	yes	yes
cluster	firm	firm	firm	firm
Observations	240,241	240,241	240,241	240,241
Adj. R-squared	0.252	0.252	0.249	0.253

Panel B: Dependent variable = subs_present

	Dependent variable = subs_present			
	(1)	(2)	(3)	(4)
property rights	0.016***			0.007***
	(0.001)			(0.001)
regulation		0.029***		0.015***
		(0.001)		(0.002)
financial development			0.015***	0.006***
			(0.001)	(0.001)
gdp	0.032***	0.031***	0.035***	0.031***
	(0.001)	(0.001)	(0.001)	(0.001)
gdp growth	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
legal origin	0.005***	0.009***	0.011***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
contiguous	0.176***	0.178***	0.180***	0.178***
	(0.007)	(0.007)	(0.008)	(0.008)
geographic distance	-0.006***	-0.007***	-0.011***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
tax haven	-0.002	0.001	0.008***	-0.007***
	(0.002)	(0.001)	(0.002)	(0.002)
colony	0.022***	0.020***	0.022***	0.022***
	(0.003)	(0.003)	(0.003)	(0.003)
common language	0.026***	0.028***	0.029***	0.028***
	(0.003)	(0.003)	(0.003)	(0.003)
constant	yes	yes	yes	yes
firm effects	yes	yes	yes	yes
cluster	firm	firm	firm	firm
Observations	240,241	240,241	240,241	240,241
Adj. R-squared	0.27	0.27	0.266	0.271

Table 4: Alternative institutional indicators

Table 4 shows coefficients from OLS regressions of MNCs' subsidiary location decisions on alternatively measured institutional characteristics of the potential host country. Robust standard errors are shown between brackets. The dependent variable is subs_number, measured as the natural logarithm of one plus the number of subsidiaries a firm has in a particular host country. All specifications include MNC fixed effects and standard errors are clustered at the firm (MNC) level. Definitions and sources of all independent and control variables are reported in Appendix A. ***, **, * denote significance at 1%, 5%, and 10% respectively.

Dependent variable = subs_number				
	(1)	(2)	(3)	(4)
property rights - fraser	0.033***			0.019***
	(0.002)			(0.001)
regulation - fraser		0.042***		0.022***
		(0.002)		(0.001)
capital markets			0.021***	0.005***
			(0.001)	(0.001)
gdp	0.062***	0.068***	0.064***	0.064***
	(0.002)	(0.002)	(0.002)	(0.002)
gdp growth	-0.002***	-0.005***	-0.002***	-0.003***
	(0.000)	(0.000)	(0.000)	(0.000)
emissions	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
legal origin	0.037***	0.030***	0.036***	0.030***
	(0.002)	(0.002)	(0.002)	(0.002)
contiguous	0.184***	0.189***	0.193***	0.188***
	(0.012)	(0.012)	(0.012)	(0.013)
geographic distance	-0.012***	-0.019***	-0.026***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)
tax haven	0.009***	0.016***	0.017***	0.007***
	(0.002)	(0.002)	(0.002)	(0.002)
colony	0.072***	0.065***	0.058***	0.069***
	(0.007)	(0.007)	(0.007)	(0.007)
common language	0.057***	0.057***	0.068***	0.055***
	(0.006)	(0.006)	(0.006)	(0.006)
constant	yes	yes	yes	yes
firm effects	yes	yes	yes	yes
cluster	firm	firm	firm	firm
Observations	160,691	160,691	160,691	160,691
Adj. R-squared	0.297	0.297	0.294	0.298

Table 5: IV Regression Approach

Table 5 shows results from a two-stage least squares regression approach using instrumental variables. The table shows coefficients from the first stage and second stage regressions of MNCs' subsidiary location decisions on host countries' institutional characteristics. Standard errors are reported between brackets. The dependent variable is subs_number, measured as the natural logarithm of one plus the number of subsidiaries a firm has in a particular host country. We use three different variables as instruments for the quality of property rights, regulation and financial development: the host country's strength of democracy between 1900 and 1950, the host country's latitude and the proportion of its population that has English as the native language. All control variables from previous specifications in Table 3 and 4 are included in the first stage. Robust standard errors are shown between brackets and clustered at the MNC (firm) level. All variable definitions are reported in Appendix A. ***, **, * denote significance at 1%, 5%, and 10% respectively.

IV Regression - First Stage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Instrumented variable =	**property rights**			**regulation**			**financial development**		
democracy 1900-1950	0.024***			0.016***			0.008***		
	(0.000)			(0.000)			(0.001)		
latitude		0.049***			0.024***			0.016***	
		(0.001)			(0.000)			(0.000)	
native english			1.964***			1.188***			0.549***
			(0.007)			(0.003)			(0.003)
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	98,642	240,241	240,241	98,642	240,241	240,241	98,642	240,241	240,241
Adj. R-squared	0.528	0.494	0.470	0.494	0.505	0.460	0.255	0.391	0.365

IV Regression - Second Stage									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable =	subs_number			subs_number			subs_number		
Instrumental variable =	**democracy 1900-1950**			**latitude**			**native english**		
property rights	0.020***			0.013***			0.122***		
	(0.004)			(0.001)			(0.005)		
regulation		0.031***			0.027***			0.202***	
		(0.007)			(0.003)			(0.008)	
financial development			0.065***			0.040***			0.438***
			(0.014)			(0.004)			(0.017)
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	98,642	98,642	98,642	240,241	240,241	240,241	240,241	240,241	240,241
Adj. R-squared	0.097	0.098	0.089	0.110	0.110	0.105	0.107	0.106	0.103

Table 6: Entry and trade barriers, host country institutions and MNC subsidiary locations

This table shows coefficients from OLS regressions of MNCs' subsidiary location decisions on institutional characteristics of the potential host country. Panel A includes *start-up procedures*, a measure for the level of entry barriers, and shows results for high vs low entry barriers. Panel B includes *export time*, a measure for the level of trade barriers, and shows results for high vs low trade barriers. The result (p-value) of a Chow test on the difference between high vs low entry and trade barriers is shown at the bottom of the table. Robust standard errors are shown between brackets. The dependent variable is subs_number, measured as the natural logarithm of one plus the number of subsidiaries a firm has in a particular host country. All specifications include MNC fixed effects and standard errors are clustered at the firm (MNC) level. Definitions and sources of all independent and control variables are reported in Appendix A. ***, **, * denote significance at 1%, 5%, and 10% respectively.

Panel A: Entry barriers

	Entry	Entry barriers		Entry barriers		Entry barriers	
	Barriers	High	Low	High	Low	High	Low
start-up procedures	-0.057***	0.002	-0.030***	0.023***	-0.031***	-0.004	-0.039***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
property rights		0.024***	0.004***				
		(0.001)	(0.001)				
regulation				0.042***	0.007***		
				(0.002)	(0.002)		
financial development						0.021***	0.002**
						(0.002)	(0.001)
gdp	0.050***	0.030***	0.059***	0.029***	0.059***	0.034***	0.060***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
gdp growth	-0.002***	-0.002***	0.001***	-0.003***	0.001***	-0.002***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
legal origin	0.028***	-0.017***	0.068***	-0.010***	0.069***	-0.003	0.070***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)
contiguous	0.244***	0.346***	0.184***	0.350***	0.185***	0.372***	0.184***
	(0.013)	(0.023)	(0.013)	(0.023)	(0.013)	(0.023)	(0.014)
geographic distance	-0.014***	-0.003	-0.017***	-0.005**	-0.017***	-0.006***	-0.018***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
tax haven	0.025***	-0.023***	0.009***	-0.008***	0.009***	0.004**	0.012***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)
colony	0.033***	0.002	0.068***	0.001	0.068***	-0.005	0.069***
	(0.004)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)
common language	0.046***	0.040***	0.045***	0.043***	0.045***	0.048***	0.044***
	(0.004)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.005)
constant	yes	yes	yes	yes	yes	yes	yes
firm effects	yes	yes	yes	yes	yes	yes	yes
cluster	firm	firm	firm	firm	firm	firm	firm
Observations	240,241	114,552	125,689	114,552	125,689	114,552	125,689
Adj. R-squared	0.250	0.250	0.267	0.250	0.267	0.245	0.267
Chow test on the difference between the coefficients on *property rights, regulation and financial development*							
Prob>F	/	**0.000**		**0.000**		**0.000**	

Panel B: Trade barriers

	Trade	Trade barriers		Trade barriers		Trade barriers	
	Barriers	High	Low	High	Low	High	Low
export time	-0.020***	-0.011***	-0.019***	-0.011***	-0.021***	-0.016***	-0.020***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
property rights		0.010***	0.002*				
		(0.001)	(0.001)				
regulation				0.017***	0.000		
				(0.001)	(0.002)		
financial development						0.005***	0.002
						(0.001)	(0.001)
gdp	0.046***	0.018***	0.064***	0.017***	0.065***	0.018***	0.064***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
gdp growth	-0.002***	-0.002***	-0.006***	-0.002***	-0.006***	-0.002***	-0.006***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
legal origin	0.034***	-0.009***	0.063***	-0.006***	0.065***	-0.005***	0.064***
	(0.002)	(0.001)	(0.004)	(0.001)	(0.004)	(0.001)	(0.004)
contiguous	0.247***	0.156***	0.202***	0.156***	0.202***	0.158***	0.203***
	(0.013)	(0.027)	(0.013)	(0.027)	(0.013)	(0.027)	(0.013)
geographic distance	-0.004**	-0.004***	-0.012***	-0.005***	-0.013***	0.000	-0.012***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
tax haven	0.018***	-0.006***	0.035***	-0.004***	0.038***	-0.004***	0.036***
	(0.002)	(0.002)	(0.003)	(0.001)	(0.003)	(0.002)	-0.003
colony	0.036***	0.015***	0.087***	0.015***	0.088***	0.016***	0.087***
	(0.004)	(0.003)	(0.009)	(0.003)	(0.009)	(0.003)	(0.010)
common language	0.047***	0.009***	0.054***	0.010***	0.054***	0.011***	0.054***
	(0.004)	(0.003)	(0.009)	(0.003)	(0.009)	(0.003)	(0.009)
constant	yes	yes	yes	yes	yes	yes	yes
firm effects	yes	yes	yes	yes	yes	yes	yes
cluster	firm	firm	firm	firm	firm	firm	firm
Observations	238,650	116,143	122,507	116,143	122,507	116,143	122,507
Adj. R-squared	0.252	0.175	0.318	0.175	0.318	0.174	0.318
Chow test on the difference between the coefficients on *property rights, regulation and financial development*							
Prob>F		**0.000**		**0.000**		**0.058**	

Table 7: Distance, host country institutions and MNC subsidiary locations

This table shows coefficients from OLS regressions of MNCs' subsidiary location decisions on institutional characteristics of the potential host country, split on the distance between the home and the host country. Panel A shows results for the split on geographic distance, Panel B results for the split on institutional distance and Panel C shows separate results for European (small distance) and non-European (large distance) host countries. The result (p-value) of a Chow test on the difference between the small and large distance group is shown at the bottom of the table. Robust standard errors are shown between brackets. The dependent variable is subs_number, measured as the natural logarithm of one plus the number of subsidiaries a firm has in a particular host country. All specifications include MNC fixed effects and standard errors are clustered at the firm (MNC) level. Definitions and sources of all independent and control variables are reported in Appendix A. ***, **, * denote significance at 1%, 5%, and 10% respectively.

Panel A: Geographic distance

	Sample split at median geographic distance between MNC's home country and host country					
	small distance	***large distance***	***small distance***	***large distance***	***small distance***	***large distance***
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	subs_number	subs_number	subs_number	subs_number	subs_number	subs_number
Institutional measure =	**property rights**		**regulation**		**financial development**	
Institutional measure	0.012***	0.033***	0.024***	0.047***	0.012***	0.033***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
Country Controls	yes	yes	yes	yes	yes	yes
Observations	120,120	120,121	120,120	120,121	120,120	120,121
Adj. R-squared	0.253	0.267	0.254	0.265	0.253	0.263
Chow test on the difference between the coefficients on *institutional measure*						
Prob>F	**0.000**		**0.000**		**0.000**	

Panel B: Institutional distance

	Sample split at median institutional distance between MNC's home country and host country					
	small distance	***large distance***	***small distance***	***large distance***	***small distance***	***large distance***
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	subs_number	subs_number	subs_number	subs_number	subs_number	subs_number
Institutional measure =	**property rights**		**regulation**		**financial development**	
Institutional measure	0.006***	0.031***	0.003	0.041***	0.005***	0.021***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.000)
Country Controls	yes	yes	yes	yes	yes	yes
Observations	120,120	120,121	120,120	120,121	120,120	120,121
Adj. R-squared	0.302	0.211	0.301	0.209	0.302	0.199
Chow test on the difference between the coefficients on *institutional measure*						
Prob>F	**0.000**		**0.000**		**0.000**	

Panel C: European vs non-European countries host countries

Sample of potential host countries =	***45 European countries***	***106 Non-European countries***	***45 European countries***	***106 Non-European countries***	***45 European countries***	***106 Non-European countries***
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	subs_number	subs_number	subs_number	subs_number	subs_number	subs_number
Institutional measure =	**property rights**		**regulation**		**financial development**	
Institutional measure	0.003**	0.027***	0.015***	0.040***	0.006***	0.022***
	(0.001)	(0.001)	(0.003)	(0.002)	(0.002)	(0.001)
Country Controls	yes	yes	yes	yes	yes	yes
Observations	58,867	181,374	58,867	181,374	58,867	181,374
Adj. R-squared	0.361	0.214	0.302	0.214	0.362	0.214
Chow test on the difference between the coefficients on *institutional measure*						
Prob>F	**0.000**		**0.000**		**0.000**	

Table 8: MNC financial constraints, institutions and MNC subsidiary locations

This table shows coefficients from OLS regressions of MNCs' subsidiary location decisions on institutional characteristics of the potential host country, split on the financial constraints faced by the MNC: Panel A shows results for high vs low leverage, Panel B for high vs low cash levels, Panel C for high vs low current ratio and Panel D for high vs low profitability. The result (p-value) of a Chow test on the difference between high vs low financial constraints is shown at the bottom of the table. Robust standard errors are shown between brackets. The dependent variable is subs_number, measured as the natural logarithm of one plus the number of subsidiaries a firm has in a particular host country. All specifications include MNC fixed effects and standard errors are clustered at the firm (MNC) level. Definitions and sources of all independent and control variables are reported in Appendix A. ***, **, * denote significance at 1%, 5%, and 10% respectively.

Panel A: High versus low leverage MNCs

	high leverage	***low leverage***	***high leverage***	***low leverage***	***high leverage***	***low leverage***
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	subs_number	subs_number	subs_number	subs_number	subs_number	subs_number
Institutional measure =	**property rights**		**regulation**		**financial development**	
Institutional measure	0.024***	0.013***	0.043***	0.022***	0.021***	0.012***
	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Country Controls	yes	yes	yes	yes	yes	yes
Observations	106,304	106,304	106,304	106,304	106,304	106,304
Adj. R-squared	0.278	0.207	0.278	0.207	0.275	0.205
Chow test on the difference between the coefficients on *institutional measure*						
Prob>F	**0.000**		**0.000**		**0.000**	

Panel B: High versus low cash levels

	low cash	***high cash***	***low cash***	***high cash***	***low cash***	***high cash***
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	subs_number	subs_number	subs_number	subs_number	subs_number	subs_number
Institutional measure =	**property rights**		**regulation**		**financial development**	
Institutional measure	0.023***	0.015***	0.040***	0.025***	0.019***	0.014***
	(0.001)	(0.001)	(0.003)	(0.002)	(0.001)	(0.001)
Country Controls	yes	yes	yes	yes	yes	yes
Observations	106,304	106,304	106,304	106,304	106,304	106,304
Adj. R-squared	0.267	0.219	0.267	0.218	0.263	0.216
Chow test on the difference between the coefficients on *institutional measure*						
Prob>F	**0.000**		**0.000**		**0.000**	

Panel C: High versus low current ratio

	low current ratio	***high current ratio***	***low current ratio***	***high current ratio***	***low current ratio***	***high current ratio***
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	subs_number	subs_number	subs_number	subs_number	subs_number	subs_number
Institutional measure =	**property rights**		**regulation**		**financial development**	
Institutional measure	0.023***	0.015***	0.041***	0.024***	0.020***	0.013***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Country Controls	yes	yes	yes	yes	yes	yes
Observations	106,304	106,304	106,304	106,304	106,304	106,304
Adj. R-squared	0.268	0.211	0.268	0.21	0.264	0.208
Chow test on the difference between the coefficients on *institutional measure*						
Prob>F	**0.000**		**0.000**		**0.000**	

Panel D: High versus low MNC profitability

	low profitability	***high profitability***	***low profitability***	***high profitability***	***low profitability***	***high profitability***
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	subs_number	subs_number	subs_number	subs_number	subs_number	subs_number
Institutional measure =	**property rights**		**regulation**		**financial development**	
Institutional measure	0.028***	0.012***	0.050***	0.019***	0.024***	0.011***
	(0.002)	(0.001)	(0.003)	(0.001)	(0.002)	(0.001)
Country Controls	yes	yes	yes	yes	yes	yes
Observations	99,661	99,661	99,661	99,661	99,661	99,661
Adj. R-squared	0.296	0.155	0.295	0.155	0.292	0.153
Chow test on the difference between the coefficients on *institutional measure*						
Prob>F	**0.000**		**0.000**		**0.000**	

Appendix A: Variable Definitions

capital markets	An alternative measure of host countries financial development that captures the breadth and depth of a country's public capital markets calculated as the first principal component of three indicators: listed firms, stock market size and private sector credit. Source: World Bank database
cash	Cash and cash equivalents scaled by total assets. Data are used from 2019 from the Compustat database.
colony	An indicator variable equal to one if the home country of the firm has a colonial tie with the host country, and zero otherwise. Source: Mayer and Zignago (2011).
common language	An indicator variable equal to one if a country shares a common language with the firm's home country, and zero otherwise. Source: Mayer and Zignago (2011).
contiguous	An indicator variable equal to one if a country shares a border with the firm's home country, and zero otherwise. Source: Mayer and Zignago (2011).
current ratio	Short-term assets divided by short-term liabilities. Data are used from 2019 from the Compustat database.
democracy 1900-1950	A measure of the strength of country democracy in the early twentieth century (Gurr 1999). Higher values indicate more democracy.
export time	Our indicator for trade barriers. Border compliance captures the time and cost associated with compliance with the economy's customs regulations and with regulations relating to other inspections that are mandatory in order for the shipment to cross the economy's border, as well as the time and cost for handling that takes place at its port or border. The time and cost for this segment include time and cost for customs clearance and inspection procedures conducted by other government agencies. Source: World Bank, doing business project.
financial development	A measure of the development of the host countries' financial institutions, calculated as the first principal component of three indicators: bank branches, private sector credit and z-score. Source: World Bank database
gdp	A natural log transformation of a country's annual GDP. Source: World Bank database
gdp growth	A country's annual GDP growth rate. Source: World Bank database.

geographic distance	A natural log transformation of the crow's distance in kilometres between the capital of the firm's home country and the capital of the host country.
institutional distance	The difference between the average of the six World Governance Indicators of the home country and the host country. Source: World Bank database.
latitude	Distance to the equator as the natural log transformation of the distance in km between the country's capital and the equator.
legal origin	An indicator variable equal to one for countries with a common law background and zero otherwise. Source: La Porta et al. 1997.
leverage	A firm's book financial leverage measured as short-term plus long-term debt scaled by total assets. Data are used from 2019 from the Compustat database.
native english	The proportion of the population that has English as a native language. Source: Mayer and Zignago (2011).
profitability	Net income divided by total assets. Data are used from 2019 from the Compustat database.
property rights	A measure of the quality of property rights institutions in a country, calculated as the first principal component of three governance dimensions: Rule of Law, Control of Corruption, and Voice and Accountability. Details of these three indicator are provided in Section 3.2. Source: World Bank database
property rights–fraser	An indicator that measures key ingredients of the legal system consistent with economic freedom are rule of law, security of property rights, an independent and unbiased judiciary, and impartial and effective enforcement of the law. Source: The Fraser Institute database.
regulation	A measure that captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private-sector development. Source: The World Governance Indicators (2021), provided by the World Bank (Kaufmann and Kraay).
regulation–fraser	A measure of the extent to which regulation limits the freedom of exchange in credit, labor, and product markets in a specific country. The variable ranges from 0 to 10, with higher ratings indicating that countries have less control on interest rates, have higher freedom to market forces to determine wages and establish the conditions of hiring and firing, and generally possess lower administrative burdens. Source: The Fraser Institute database.

start-up procedures	Our indicator for entry barriers measures by the natural log transformation of one plus the number of start-up procedures. Source: Djankov et al. (2002)
subs_number	A count variable of the number of MNC subsidiaries presence in the host countries. Source: Bureau Van Dijk database and own calculation.
subs_present	An indicator variable equal to one if an MNC has one or more subsidiaries in host country, and zero otherwise. Source: Bureau Van Dijk database and own calculation.
tax haven	An indicator variable of whether a country is a tax haven. Source: Dyreng and Lindsey (2009).

Appendix B: Country Institutions

Nr.	Host Country	Voice and Accountability	Rule of Law	Control of Corruption	Regulation	Bank Branches	Private Credit	Z Score	Start-up Procedures	Export Time
1	Albania	0.13	-0.47	-0.58	0.18	21.79	33.30	15.15	6	9.67
2	Algeria	-0.94	-0.79	-0.58	-1.09	5.15	15.74	16.94	13	80.00
3	Angola	-1.1	-1.2	-1.31	-1.01	7.79	16.14	11.09	9	242.67
4	Argentina	0.41	-0.57	-0.35	-0.7	13.20	11.73	6.45	14	21.00
5	Armenia	-0.59	-0.35	-0.57	0.28	19.87	30.14	11.25	5	38.50
6	Australia	1.39	1.77	1.92	1.81	30.26	121.49	15.11	3	35.50
7	Austria	1.39	1.86	1.62	1.5	13.46	90.60	24.49	8	0.00
8	Azerbaijan	-1.4	-0.74	-1.03	-0.35	9.58	20.41	7.59	6	26.83
9	Bahamas	0.96	0.63	1.27	0.46	34.88	58.84	16.86	7	44.00
10	Bangladesh	-0.48	-0.77	-0.98	-0.89	7.71	34.49	7.49	9	168.00
11	Barbados	1.1	0.97	1.43	0.6	18.77	77.77	14.92	7	41.40
12	Belarus	-1.52	-0.96	-0.45	-1.05	2.57	23.32	3.53	7	7.30
13	Belgium	1.36	1.39	1.52	1.29	43.75	59.70	12.87	5	0.00
14	Belize	0.61	-0.53	-0.22	-0.48	23.63	57.19	10.53	9	96.00
15	Benin	0.28	-0.59	-0.57	-0.43	3.00	20.32	14.62	9	88.00
16	Bolivia	-0.03	-1.05	-0.6	-0.88	24.99	38.96	12.03	14	48.00
17	Bosnia and Herzegovina	-0.08	-0.3	-0.39	-0.16	31.76	52.12	15.76	13	5.20
18	Botswana	0.47	0.61	0.91	0.5	8.20	26.90	7.78	10	6.50
19	Brazil	0.48	-0.17	-0.18	-0.04	19.71	51.91	15.39	11	51.00
20	Brunei Darussalam	-0.8	0.58	0.63	0.91	21.97	34.66	7.08	14	118.00
21	Bulgaria	0.46	-0.06	-0.2	0.6	70.81	58.29	7.97	8	4.40
22	Burkina Faso	-0.21	-0.41	-0.31	-0.27	2.19	21.29	7.33	4	74.50
23	Burundi	-1.1	-1.19	-1.26	-0.99	2.51	15.89	16.69	5	58.70
24	Cambodia	-1.03	-1.06	-1.2	-0.48	4.72	39.37	13.78	10	48.00
25	Cameroon	-1.04	-1.07	-1.13	-0.84	1.65	11.31	9.55	8	202.00
26	Canada	1.43	1.8	1.94	1.71	23.58	125.05	15.47	2	2.00
27	Cape Verde	0.93	0.53	0.87	-0.13	30.30	55.83	23.95	10	72.00
28	Central African Republic	-1.16	-1.57	-1.13	-1.29	0.73	9.82	6.38	10	141.40

29	Chad	-1.39	-1.4	-1.39	-1.12	0.71	4.93	9.60	10	106.00
30	Chile	1.05	1.27	1.35	1.43	16.76	70.31	7.00	8	60.00
31	China	-1.63	-0.42	-0.41	-0.22	8.26	120.90	19.89	7	25.03
32	Colombia	-0.03	-0.36	-0.3	0.33	14.47	36.00	5.93	9	112.00
33	Congo Rep.	-1.14	-1.16	-1.21	-1.27	2.29	9.95	5.15	12	276.00
34	Costa Rica	1.06	0.49	0.63	0.47	21.39	46.54	18.59	11	20.00
35	Côte d'Ivoire	-0.74	-0.98	-0.8	-0.66	3.86	17.27	17.09	8	238.70
36	Croatia	0.51	0.23	0.11	0.48	34.37	64.28	5.00	8	0.10
37	Cyprus	1.04	1.02	0.97	1.16	50.56	158.11	7.98	6	18.00
38	Czech Republic	1	1.02	0.39	1.15	22.88	46.53	13.28	9	0.00
39	Denmark	1.56	1.94	2.32	1.76	36.63	182.40	16.51	5	0.00
40	Dominican Republic	0.15	-0.56	-0.79	-0.12	11.27	21.10	26.28	8	16.00
41	Ecuador	-0.19	-0.98	-0.67	-1.05	11.61	24.21	5.02	13	96.00
42	Egypt	-1.17	-0.4	-0.65	-0.56	4.50	31.59	17.73	9	48.00
43	El Salvador	0.09	-0.7	-0.4	0.2	11.99	46.78	25.97	9	28.00
44	Estonia	1.14	1.22	1.18	1.5	16.80	76.06	6.31	4	2.00
45	Ethiopia	-1.28	-0.61	-0.56	-0.99	1.53	17.39	9.90	12	53.90
46	Fiji	-0.45	-0.49	0.04	-0.47	11.49	54.29	12.43	10	56.00
47	Finland	1.53	1.99	2.25	1.78	12.16	86.27	11.50	3	36.00
48	France	1.21	1.45	1.39	1.2	40.52	92.55	17.50	5	0.00
49	Gabon	-0.92	-0.6	-0.86	-0.68	5.50	10.72	13.67	9	96.00
50	Gambia, The	-0.97	-0.52	-0.63	-0.43	8.05	8.33	9.37	8	109.30
51	Georgia	0.04	0.01	0.35	0.72	25.79	35.19	5.79	3	6.00
52	Germany	1.37	1.69	1.82	1.64	15.07	86.64	18.46	9	36.00
53	Ghana	0.5	0.04	-0.09	-0.02	5.76	14.31	7.61	8	108.00
54	Greece	0.81	0.47	0	0.56	34.74	102.30	4.71	9	24.00
55	Guatemala	-0.29	-1.04	-0.7	-0.2	31.63	27.75	18.32	11	36.00
56	Guinea	-0.99	-1.36	-1.07	-1.01	1.65	5.24	5.88	9	72.00
57	Guinea-Bissau	-0.82	-1.36	-1.34	-1.17	2.09	7.52	5.74	12	118.00
58	Guyana	0.14	-0.48	-0.53	-0.56	7.47	30.92	13.97	7	72.00
59	Haiti	-0.72	-1.23	-1.24	-1.05	2.73	14.61	11.85	12	27.80
60	Honduras	-0.42	-1	-0.8	-0.34	20.11	48.79	28.49	12	108.00

61	Hong Kong	0.49	1.63	1.75	2	22.90	178.73	13.70	3	1.00
62	Hungary	0.68	0.67	0.3	0.9	16.15	50.56	5.86	6	0.00
63	Iceland	1.41	1.72	1.97	1.26	52.35	150.61	1.78	5	36.00
64	India	0.42	0	-0.37	-0.34	11.30	46.21	16.66	13	91.52
65	Indonesia	0.07	-0.51	-0.57	-0.25	12.78	26.17	5.12	12	61.55
66	Iran	-1.5	-0.89	-0.76	-1.47	29.17	48.21	6.31	10	103.03
67	Iraq	-1.07	-1.6	-1.34	-1.19	4.58	5.37	23.10	10	84.60
68	Ireland	1.34	1.66	1.61	1.7	26.86	112.95	6.09	4	24.00
69	Israel	0.69	0.98	0.88	1.2	20.23	75.98	28.39	5	36.00
70	Italy	1.01	0.38	0.18	0.82	54.85	86.29	13.19	8	0.00
71	Jamaica	0.58	-0.32	-0.23	0.22	6.01	26.94	8.19	4	57.70
72	Japan	1.01	1.42	1.49	1.2	33.95	100.57	14.90	8	23.28
73	Jordan	-0.74	0.32	0.18	0.17	16.11	73.86	55.29	7	53.70
74	Kazakhstan	-1.17	-0.62	-0.85	-0.19	3.21	36.95	4.22	7	123.67
75	Kenya	-0.23	-0.7	-0.96	-0.24	4.68	26.95	18.04	12	21.50
76	Korea Rep.	0.71	1.03	0.52	0.97	17.62	102.92	9.13	6	13.40
77	Kuwait	-0.59	0.34	0	0.05	15.17	69.74	16.01	11	94.80
78	Kyrgyz Republic	-0.65	-1.12	-1.16	-0.37	7.24	14.35	18.64	5	17.33
79	Laos	-1.72	-0.9	-1.07	-0.92	2.56	9.25	7.05	10	11.67
80	Latvia	0.82	0.83	0.35	1.06	27.32	65.61	5.88	4	24.00
81	Lebanon	-0.44	-0.75	-0.94	-0.22	24.00	80.20	34.39	8	96.00
82	Lesotho	0.03	-0.25	0.07	-0.52	3.07	12.62	8.80	7	4.00
83	Liberia	-0.18	-0.93	-0.68	-1.06	2.78	555.22	7.64	6	193.00
84	Libya	-1.54	-1.34	-1.38	-1.74	11.36	21.45	39.72	10	72.00
85	Lithuania	0.93	0.86	0.41	1.1	21.70	46.69	6.03	6	8.43
86	Luxembourg	1.56	1.81	2.05	1.71	85.59	90.56	34.16	5	0.00
87	Madagascar	-0.49	-0.75	-0.64	-0.56	1.66	11.09	6.07	8	73.80
88	Malawi	-0.14	-0.24	-0.6	-0.65	2.38	9.49	14.97	9	81.60
89	Malaysia	-0.39	0.48	0.17	0.6	10.95	107.01	16.00	8	40.83
90	Mali	-0.09	-0.58	-0.65	-0.49	4.36	17.86	9.16	6	49.37
91	Malta	1.18	1.3	0.81	1.23	37.87	102.11	26.33	9	24.00
92	Mauritania	-0.86	-0.82	-0.76	-0.71	5.64	13.75	27.46	8	67.00
93	Mauritius	0.84	0.87	0.37	0.9	20.71	86.68	15.61	5	38.33

94	Mexico	0.07	-0.54	-0.54	0.31	13.86	19.40	21.58	8	20.40
95	Moldova	-0.1	-0.4	-0.73	-0.11	36.92	31.14	6.78	7	3.00
96	Mongolia	0.22	-0.32	-0.56	-0.22	62.52	39.23	19.91	8	134.00
97	Morocco	-0.68	-0.19	-0.29	-0.16	20.34	64.88	39.74	6	15.50
98	Mozambique	-0.25	-0.76	-0.63	-0.53	3.48	21.86	4.17	11	72.00
99	Myanmar	-1.56	-1.29	-1.14	-1.6	2.37	9.09	1.47	13	142.85
100	Namibia	0.47	0.22	0.34	0	12.80	47.57	9.00	10	120.00
101	Nepal	-0.43	-0.7	-0.72	-0.72	7.03	50.95	24.73	7	29.48
102	Netherlands	1.54	1.84	2.04	1.82	20.30	113.61	8.89	5	0.00
103	New Zealand	1.54	1.9	2.29	1.89	32.44	144.06	20.42	1	37.00
104	Nicaragua	-0.55	-0.79	-0.83	-0.45	7.95	27.50	17.07	8	64.00
105	Niger	-0.41	-0.58	-0.66	-0.59	1.15	12.04	15.17	8	48.00
106	Nigeria	-0.59	-1.04	-1.09	-0.8	5.52	13.80	16.41	8	134.23
107	North Macedonia	0.01	-0.27	-0.21	0.34	23.99	42.05	4.86	7	8.50
108	Norway	1.64	1.97	2.13	1.58	9.62	104.58	8.12	5	2.00
109	Oman	-1.07	0.47	0.3	0.49	18.75	45.47	19.78	7	52.38
110	Pakistan	-0.81	-0.81	-0.91	-0.62	8.68	19.43	11.00	11	73.47
111	Panama	0.55	-0.09	-0.37	0.39	22.79	72.31	40.26	6	24.00
112	Papua New Guinea	0.03	-0.85	-1.01	-0.56	1.66	16.53	7.36	6	42.00
113	Paraguay	-0.09	-0.78	-0.89	-0.35	8.23	26.59	15.85	8	128.00
114	Peru	0.17	-0.57	-0.37	0.43	7.11	27.17	16.23	9	48.00
115	Philippines	0.01	-0.45	-0.6	-0.08	8.10	31.94	17.87	17	42.50
116	Poland	0.93	0.62	0.56	0.93	31.59	46.42	8.49	7	0.00
117	Portugal	1.15	1.08	0.98	0.9	56.81	138.34	10.54	6	0.00
118	Qatar	-1.07	0.78	0.99	0.6	14.13	47.03	25.69	9	27.15
119	Russian Federation	-0.99	-0.81	-0.97	-0.4	34.33	41.88	7.06	5	70.00
120	Rwanda	-1.21	-0.2	0.41	-0.12	4.78	15.33	8.17	7	92.63
121	Saudi Arabia	-1.78	0.12	0.05	0.04	8.29	41.33	17.84	13	60.50
122	Senegal	0.05	-0.24	-0.24	-0.2	4.29	21.76	14.58	5	61.50
123	Seychelles	0.09	0.1	0.52	-0.38	47.99	23.00	10.06	10	82.67
124	Sierra Leone	-0.23	-0.87	-0.81	-0.87	2.20	5.12	4.53	6	54.90
125	Singapore	-0.17	1.72	2.15	1.99	9.83	105.25	23.66	3	11.00
126	Slovak Republic	0.94	0.54	0.26	0.97	26.98	45.32	16.68	8	0.00

127	Slovenia	1.02	1.02	0.89	0.73	36.01	66.30	2.92	4	0.00
128	South Africa	0.62	0.09	0.09	0.35	9.32	67.96	13.82	7	92.00
129	Spain	1.08	1.07	0.87	1.03	83.97	147.16	18.88	9	0.00
130	Sri Lanka	-0.36	-0.03	-0.31	-0.18	16.14	27.56	12.20	8	43.00
131	Sudan	-1.74	-1.25	-1.37	-1.44	2.92	9.03	16.26	11	180.00
132	Suriname	0.43	-0.13	-0.24	-0.58	11.13	24.13	10.50	12	88.00
133	Sweden	1.58	1.95	2.21	1.76	21.33	121.56	11.83	3	1.80
134	Switzerland	1.56	1.86	2.08	1.69	49.12	159.59	12.30	6	1.00
135	Tajikistan	-1.5	-1.21	-1.21	-1.05	5.57	15.11	12.92	7	74.40
136	Tanzania	-0.22	-0.45	-0.52	-0.45	1.97	11.53	11.19	11	96.00
137	Thailand	-0.69	-0.1	-0.38	0.2	11.28	98.02	6.44	8	48.67
138	Togo	-0.86	-0.82	-0.89	-0.84	4.23	25.98	4.46	7	69.50
139	Trinidad and Tobago	0.54	-0.15	-0.2	0.3	12.81	30.44	26.80	8	60.00
140	Tunisia	-0.43	0	-0.13	-0.23	17.09	64.82	32.70	10	12.00
141	Turkey	-0.33	-0.04	-0.05	0.26	17.72	42.92	8.71	10	9.80
142	Uganda	-0.55	-0.35	-0.98	-0.23	2.36	11.50	12.73	15	70.35
143	Ukraine	-0.05	-0.76	-0.92	-0.49	1.91	51.11	4.40	8	6.00
144	United Arab Emirates	-1	0.57	1.08	0.75	12.40	65.91	25.10	6	27.00
145	United Kingdom	1.32	1.72	1.74	1.75	25.03	157.86	7.96	5	24.00
146	United States	1.1	1.6	1.34	1.44	33.92	53.03	28.37	6	1.50
147	Uruguay	1.12	0.64	1.28	0.44	12.73	23.90	6.00	7	96.00
148	Vietnam	-1.44	-0.34	-0.55	-0.53	3.47	92.39	14.25	9	57.25
149	Yemen	-1.42	-1.31	-1.28	-0.99	1.79	6.20	13.97	7	.
150	Zambia	-0.21	-0.39	-0.44	-0.49	4.04	10.80	8.77	7	122.33
151	Zimbabwe	-1.36	-1.57	-1.34	-1.85	6.29	15.52	3.44	10	88.30
	Average	-0.0145	-0.0244	-0.0219	0.0026	18.82	52.05	13.69	8	56.19