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Why modern slavery thrives in multinational corporations’ global value chains

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Abstract

Purpose – Modern slavery, one of the most abhorrent crimes against humanity, is a profitable international business (IB). It often operates in a hidden form in the global value chains (GVCs) governed by multinational corporations (MNCs). The purpose of this paper is to examine why slavery exists in GVCs and what this means for MNCs.

Design/methodology/approach – The paper borrows insights from the GVC literature to conceptually link MNCs and modern slavery. Different from the IB literature that predominantly focuses on the MNC as a single firm, the paper emphasizes the importance of paying attention to the MNC value chains and their complexity and fragmentation.

Findings – Three factors which help explain modern slavery in GVCs are examined: the complexity of GVCs and the challenges this poses to their governance, the business case for slavery and the conditions that enable modern slavery. These factors, taken together, provide an explanation why modern slavery can creep into, persist and thrive in MNCs’ GVCs.

Research limitations/implications – The argument is put forward for the need for IB scholars to borrow from the GVC literature to help understand why slavery can exist in the GVCs of MNCs. This opens the opportunity for examining the MNC in ways not considered by IB scholars so far.

Originality/value – The paper addresses an issue long ignored in IB research and issues a call for IB scholars to study MNCs in a new way, namely, linking MNCs’ activities with modern slavery.

Keywords Global value chains, Multinational corporations, Modern slavery

Paper type Viewpoint

Since most businesses don’t want slavery in their products, the lies told to hide slavery cluster most thickly at the beginning of the supply chain (Bales, 2016, p. 52).

We’ve known about labor abuses in some factories for four years, and they’re still going on,” said one former Apple executive who, like others, spoke on the condition of anonymity because of confidentiality agreements. “Why? Because the system works for us. Suppliers would change everything tomorrow if Apple told them they didn’t have another choice (Cited in Duhigg and Barboza, 2012).

1. Introduction

Modern slavery, one of the most abhorrent crimes against humanity, is a profitable international business (IB) which is thriving on an unprecedented scale (Michailova and Stringer, 2018a, 2018b). It generates an estimated US$150bn in illegal profits annually [International Labour Organization (ILO), 2016]. Slavery operates in a hidden form in the complex global value chains (GVCs) governed by powerful multinational corporations (MNCs). GVCs link multiple countries, institutional settings and industries. They also link
numerous supplier firms, labour contractors and global retailers across borders. Therefore, it is not surprising slavery is prevalent in both developed and developing countries.

Why is it that slavery not only exists but also thrives on such an unprecedented scale across industries and geographical borders? In this viewpoint paper, we argue that this is, in part, because of challenges associated with organizing and governing GVCs, coupled with a business case that strongly supports the use of slave labour and conditions that enable modern slavery. Extensive sub-contracting networks characterize the activities of many MNCs, and because slavery is mostly (although not always) concentrated in the nodes of the value chain where subcontracting prevails, the question is often raised as to whether MNCs have at all the capability of fully governing labour standards throughout their value chains. Even MNCs that are well known for behaving responsibly and that are conscious of potential unethical conduct, acknowledge their “inability to effectively monitor their entire supply chains” (Dunning and Lundan, 2008, p. 661). On the other hand, “this line of reasoning seeks to downplay the role of corporations in shaping the market conditions in which suppliers produce their goods” (LeBaron, 2014, p. 246). Notwithstanding, as the opening quote by a former Apple executive states, MNCs can be (and often are) fully aware that slavery not only exists in their supply chains but also persists and thrives because “it works for them”. Why and how is this possible?

To answer this question, we start by sketching the ugly portrait of modern slavery in Section 2. We then move to the heart of the paper, namely, explaining how modern slavery creeps into, persists and thrives in MNCs’ GVCs in Section 3. In Section 4, our explanation rests on arguments related to three particular considerations – the complexity of GVCs and their governance, the business case for slavery and the conditions enabling modern slavery. In Section 5, we summarize the key features of our argument and outline their implications for IB research.

2. Modern slavery

While the term “modern slavery” lacks a legal definition, in recent years it has gained considerable currency as a term encompassing forced labour, human trafficking, slavery and other forms of exploitation (Lake et al., 2016). Legal instruments are however in place for each of the main forms of exploitation. The Slavery Convention of 1926 defines slavery as “the status or condition of a person over whom any or all of the powers attaching to the right of ownership are exercised” (League of Nations, 1926 Convention to Suppress the Slave Trade and Slavery, Article 1.1). Forced labour, as defined by the International Labour Organization (ILO), occurs “under the menace of penalty and for which the said person has not offered himself voluntarily” [ILO, 1930 Forced Labour Convention, No. 29, Article 2.1]. A key difference between the two definitions is that, at the time, forced labour was viewed as being practiced by governments and slavery by private individuals – the former under the remit of the ILO and the latter under the remit of the United Nations. It was not until the 1980s that the ILO widened its remit to include private actors as facilitators of forced labour.

In this paper, we use the term “modern slavery” as an encompassing term because “the line between slavery and other highly exploitative labour relations is by no means consistent or transparent” (LeBaron and Ayers, 2013, p. 876). In particular, we use “modern slavery” because of its “relative technical accuracy and its explicit critical discourse” (Michailova and Stringer, 2018a, p. 7).

While globalization has created “complex new networks”, it also introduced “new forms of exploitation” (Gallagher, 2010, p. 2). In the 1990s, it was clear that despite the array of international legal frameworks in place, exploitation was flourishing. Under the auspice of the United Nations, attention was focussed on defining human trafficking under
international law (Gallagher, 2010). In 2000, the United Nations Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children (hereafter Trafficking in Persons Protocol) was adopted (United Nations, 2000). The Trafficking in Persons Protocol contains three elements: the “act” (“recruitment, transportation, transfer, harbouring or receipt of persons”), the “purpose” (“whether for forced labour of other forms of exploitation”) and the “means”:

the threat or use of force or other forms of coercion, of abduction, of fraud, or deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person.

In contrast to historical slavery, modern slavery is usually contractual and temporal in nature. In some cases, individuals will voluntarily enter into an employment agreement and from this point onwards they become a slave; some for a short period, others for much longer. In 2016, an estimated 40.3 million people were victims of modern slavery, of whom 16 million were victims of forced labour in the private economy (ILO, Walk Free Foundation and IOM, 2017). According to the ILO, of the estimated US$150bn generated annually in illegal profits, US$51.2bn comes from forced labour exploitation. Slavery is not consigned to the global South or to countries practicing state-imposed slavery such as North Korea or Uzbekistan. The ILO estimates that annual profit per victim in developed countries and the European Union is US$34,800 compared to US$15,000 in the Middle East and US$7,500 in Latin America and the Caribbean (ILO, 2014). Notwithstanding, the largest number of victims of forced labour exploitation are in the Asia Pacific (ILO, Walk Free Foundation and IOM, 2017). Various industries are implicated – 18 per cent of victims are in the construction sector; 15 per cent in manufacturing; 11 per cent in agriculture; forestry and fisheries; and 9 per cent in wholesale trade (ILO, Walk Free Foundation and IOM, 2017); yet modern slavery also exists in information technology, high fashion and jewellery, just to mention but a few high-end industries.

Crane (2013) introduced a theory of modern slavery. The theory posits that there are industry, regulatory, geographic, cultural and socioeconomic factors that enable slavery, and when institutional forces are deflected, the latter can come into existence. Crane (2013, p. 58) also proposes that firms have specific “slavery management capabilities” that allow them to effect slavery while engaging in institutional deflection. He separates a firm’s slavery management capabilities into exploiting/insulating and sustaining/shaping capabilities. Through their exploiting and insulating capabilities, which are embedded in tacit knowledge, such as debt management, accounting opaqueness and labour and supply chain management, a firm can engage in institutional deflection. In turn, the sustaining and shaping capabilities include moral legitimization (the justification by the firm to use slaves) and domain maintenance (firms ensure their goals are met through, for example, the bribing of officials) (Crane, 2013).

3. Why modern slavery can (and often does) creep into, persist and thrive in GVCs

Kevin Bales, a leading author and commentator on slavery whom we cited in the opening of the paper, views modern slavery as mimicking the world economy in that it is being transformed to “an emerging standardized or globalized form” (Bales, 2012, p. 25). In other words, modern slavery is becoming globalized. A range of actors, including, but not limited to, MNCs, intermediaries and local producers, play a key role in the globalization of slavery. Modern slavery comes into existence and persists because, by their very nature, institutions are inherently complex, and by their very existence MNCs are embedded in multiple
institutional environments that are often highly fragmented and continuously changing. Thus, actors may structure their activities within GVCs in such a way that they operate on the margins of institutions where they can bypass rules (Michailova and Stringer, 2018a). Actors involved in slavery develop a keen understanding of what is possible and what is not; they use this knowledge and develop a specific expertise that allows them to exploit the cracks in the institutional environments where they operate. In essence, globalized modern slavery is there because of the complexity of GVCs and their governance, the established business case for slavery and the conditions that allow and enable slavery. These are the three issues to which we attend next.

3.1 The complexity of global value chains and their governance
In part an outcome of globalization, in part in search of increased profitability, major elements of capital have been configured into GVCs. GVCs are interconnected networks of production, trade and investment orchestrated and controlled by MNCs as lead firms. An understanding of GVCs can “explain geographical patterns of value creation, retention and capture in the global economy” (Neilson et al., 2014, p. 1). The GVC literature focuses on links between firms and thus can provide important insights into the way in which activities are divided among different firms with an emphasis on value capture, creation and differentiation (Barrientos et al., 2011; De Marchi et al., 2014). The focus of the GVC literature is on value chains as such; this is in contrast to the IB literature which tends to focus more on single firms (De Marchi et al., 2014).

GVCs comprise four key dimensions: an input–output structure, territoriality, governance and institutions (Gereffi, 1994). As GVCs are “inclusive of the full range of possible chain activities and end products” (Gereffi et al., 2001, p. 3), their input–output structure includes the stages products and services go through from initial conception to final stages, a transformation that occurs in a value-adding sequence. The second dimension, governance, refers to how a value chain is organized and controlled. Territoriality, the third dimension of GVCs is associated with the spatial distribution of production activities. It refers to the way in which firms use different geographical locations to access location-specific advantages, such as low labour costs in developing countries or intangible activities related to marketing and design in developed countries. Finally, the institutional dimension relates to the broader regulatory factors, both formal and informal, in which value chains operate, and which in turn can (re)shape the geography and configuration of the value chain (Bair, 2005; Palpacuer et al., 2005). More recently, the governance (co-ordination of the value chain) and institutional dimensions (the role of non-firm actors) have been combined, with governance defined as:

- institutions that constrain or enable market actor behaviour – both in the public sphere, in the form of governmental policies, rules and regulations, and in the private sphere, in the form of social norms, codes of conduct adopted by businesses, consumer demand for social responsibility or other non-governmental institutions and social movements (Mayer and Pickles, 2014, p. 17).

At this point, let us return to the governance dimension in more depth, as the key to our understanding of GVCs is the role lead firms play in coordinating the economic functioning – the input–output structure of the chain. To-date, research into GVCs governance has largely focussed on powerful economic actors that shape the value chain. Private governance is the control exercised by lead firms in creating and capturing value through commercial sourcing activities beyond just that of arm-length transactions (or in a coordinated process of economic activity). A GVC is not a single linear strand, but instead comprises a multi-tiered input–output structure with layers of independent contractors and subcontractors. The governance
dimension is important as lead firms, through their power relationships and networks, influence how resources (financial, materials and labour) are allocated along the chain (Bair, 2008; Gereffi et al., 2005). As lead firms transmit commercial pressures along the chain, they have the ability to “create and mobilize significant asymmetries of market and political power in the interests of generating profit” (Phillips and Mieres, 2015, p. 251). Such market asymmetries are “endogenous to the formation and governance of some GVCs” (Milberg and Winkler, 2013, p. 124).

Governance also includes public and social actors. Public governance refers to the rules and requirements established by different governance actors, whether the actors be nation-states or international and multi-lateral organizations. Civil society actors such as NGOs and labour unions are key drivers of social governance. The tools at their disposal include codes of conduct and multi-stakeholder initiatives. However, social governance initiatives are rarely mandatory (Gereffi and Lee, 2016).

The governance of a GVC can span multiple territories and increasingly the power of lead firms, particularly vis-à-vis governments, is leading to a governance gap (Bair and Palpacuer, 2015; Gereffi and Mayer, 2004). The complexity of lead firms’ networks is undeniable and GVCs are not necessarily “constructed in institutional contexts but depend upon shaping these institutions” (Strauss and McGrath, 2017, p. 201, emphasis in original). Further, the way in which lead firms drive the value chain has implications for labour and can create the conditions for precarious labour standards to exist, or they can ignore such conditions already in place (Stringer, Hughes, Whittaker et al., 2016b). Through the lead firms’ “ruthless pursuit of flexibility, relentless downward pressure on wages and conditions” (Phillips and Mieres, 2015, p. 252), working conditions akin to modern slavery can be, and sadly are being, realized.

3.2 The business case for slavery

Allain et al. (2013) in a report prepared for the UK-based Joseph Rowntree Foundation identified four business models which gave rise to and facilitate the use of forced labour: cost-minimization by producers, provision of ancillary services by producers, cost-minimization by labour-market intermediaries and provision of ancillary services by labour-market intermediaries. Two of the business models are focussed on the minimization of operating costs and risks while the other two are revenue-generating models. They are underpinned by product and labour supply chains.

To minimize costs, a producer or intermediary will seek to reduce labour costs often through coercion:

Employers in the emerging private sector [in traditional economies] are desperate to capitalize on world market opportunities by exacting as much labour as possible from a cheap and often unprotected workforce (ILO, 2005, p. 63).

If labour costs can be reduced to lower than market rates through coercion, then there is an incentive for the use of slave labour to achieve a higher profit margin (Allain et al. 2013; Stringer et al., 2016a).

While being a victim of slavery does not mean that individuals are not paid – they can be paid a nominal amount – they are, however, denied employment benefits and are subjected to wage theft. To generate revenue, workers are often charged an excess amount, compared to market rates, for ancillary services such as accommodation, transportation and food. This, in turn, can lead to debt bondage beyond that which they enter into to obtain employment. For example, Bangladeshi workers in the Greek agriculture sector, living in squalid conditions on the farms, found themselves in debt because of inflated prices they
were charged for food. In one case, workers were locked in a room for four days because of
the debt one friend owed (Horner, 2017).

Structural conditions, such as an individual’s temporary immigration status and labour
market inequalities, encourage employers to exploit workers (Allain et al., 2013). And here
lies part of the challenge – the connection between primary activities and the activities and
consumers further along the chain are very strong, yet difficult to trace and often invisible.
“[…] Forced labour in cocoa farms in the Ivory Coast can be conceptually linked to Western
confectionary companies and their customers” (Allain et al., 2013, p. 40). Consider this
example. Ouare Fatao Kwakou, from Burkina Faso, was sold to traffickers when he was 12
years old to work as a cocoa picker in Ghana. After a year of working he had not been paid.
The cocoa beans were sold into the supply chains of major chocolate makers. This is a
simple but clear illustration that traceability is difficult because of the numerous layers the
beans go through from the source to their final destination (BBC Panorama, 2010), an issue
that we pick up in the following subsection.

3.3 Conditions enabling slavery
Increasingly, MNCs are engaged in the outsourcing of non-core aspects of production and
services activities (Dunning and Lundan, 2008). Further, in their efforts to minimize
transaction costs, and to reduce risk and liability, MNCs externalize low-value or risky
activities. This has led to an increase in the production and trade of intermediate goods. A
key strength of the GVC approach is that it highlights the fragmented nature of production
networks both between firms and in different geographical locations (Buckley and Strange,
2015; Gereffi et al., 2005). Fragmentation is “not an automatic or spontaneous process, but
rather a business strategy to facilitate economic success” (LeBaron, 2014, p. 242). The
fragmentation of production may facilitate an underside to IB, often referred to in the critical
IB (and other) literature as a “race to the bottom”.

When MNCs engage in subcontracting they often operate at arm’s-length contractual
relationships. This can involve hundreds or even thousands of tier-one suppliers. MNCs
impose conditions pertaining to tight delivery schedules and price on their suppliers. This
pressure can result in tier-one suppliers outsourcing labour-intensive, lower-value activities
to sub-tier suppliers. In turn, sub-tier suppliers outsource activities, the result being multi-
tiered subcontracting networks. The bottom tiers can be unregulated “shadow factories
(LeBaron, 2014, p. 243) where there are no incentives to ensure decent working conditions
and indeed “exploitative labour practices are a core part of the business model” (LeBaron,
2014, pp. 243-244). Therefore, the question “how far and in what ways the reorganization of
production is fueling the use of forced labour by industry” (Crane et al., 2017, p. 1) is not only
legitimate but also crucial.

When firms outsource production, they also outsource the labour used in that production.
The decision by lead firms to subcontract value chain activities can have major impact on
capital–labour relations, as MNCs “offload risk on to less powerful chain actors, including
workers” (Phillips and Mieres, 2015, p. 251). This is particularly the case when value chain
activities are outsourced to geographical locations where governance and monitoring
capacities are weak and/or not enforced. Thus, decisions pertaining to labour supply and
demand are often external to national labour markets (Barrientos, 2013). As a typical GVC
touches down in several geographical locations, the question of jurisdiction arises, as a
single nation-state may not have comprehensive regulatory “reach” across a GVC, thus
making it difficult to ensure labour standards throughout the value chain (Coe et al., 2008)
(the possible exception being recent initiatives such as the UK Modern Slavery Act).
The fragmented nature of the multi-tiered subcontracting model can exacerbate the implementation, monitoring and enforcement challenges of labour standards, with the potential for MNCs, as well as tier-one suppliers, to distance themselves from precarious labour practices. Mosley (2010) sees a relationship between subcontracting networks and deteriorating labour standards; though, of course, not all subcontracting networks use indefensible labour standards. LeBaron (2014, p. 243) goes as far as to point out that “the links between forced labour and subcontracting are not coincidences, but rather are grounded in key facets of the retail business model”.

As each stage of the value chain involves labour, the use of slave labour can potentially occur at any stage along the chain. However, slavery is typically prevalent in labour-intensive stages of production – the beginning stages of the value chain – in industries incorporated into GVCs, such as agriculture, fishing, minerals and computer components [Allain et al., 2013; United Nations Office on Drugs and Crime (UNODC), 2011]. The trajectory to forced labour begins with the recruitment process and the use of labour intermediaries. Labour intermediaries often operate through multiple layers of networks, referred to by Frances, Barrientos and Rogaly (as cited in Barrientos, 2013, p. 1067) as a “complex “cascade” system” of subcontracting arrangements. The networks include registered (formal) or unregistered (informal) intermediaries with access to ready sources of migrant workers, particularly those from developing countries. The complexity of subcontracting arrangements can enhance the potential for exploitative practices ranging from non-contractual employment abuse through to slavery (Barrientos, 2013; Lerche, 2007; Rogaly, 2008; Strauss, 2013).

According to the social auditing organization Verité (2011, p. 4), “the use of labor brokers brings with it troubling issues of fragmented and opaque social accountability”. As Barrientos (2013, p. 1063) so aptly points out, the “cascade systems of labour subcontracting provides an opening for unscrupulous labour intermediaries, including those linked to the smuggling of undocumented migrant workers, to enter the system”. While it is widely acknowledged that the number and scope of labour intermediaries has increased in recent years, exact numbers are difficult (and often impossible) to obtain, particularly because of the number of unregulated or invisible contractors (Barrientos, 2013; Verité, 2011).

Those working in the beginning nodes of a GVC employed under a triangular employment arrangement can be subjected to “imperfect information” about their working conditions. Undocumented migrants, in particular, can be subject to illegal, insecure and exploitative labour practices; they are rarely employed on formal contracts and as such have few (if any) channels of complaint available to them (Phillips and Sakamoto, 2012). Individuals may voluntarily enter into an employment agreement only to find that they have been deceived and that they lack agency to freely exit the relationship (Skrivankova, 2010). They can be forced to remain in the employment relationship because of the non-payment of wages, debt bondage and/or the threat of runaway insurance being imposed if they leave their employment before the completion of their contract (Stringer et al., 2016a). Debt bondage which Bales (2012, p. 19) describes as “the most common form of slavery in the world” is prevalent especially in commodity industries (LeBaron, 2014). Consider another example. In Greece, supervisors began shooting at a group of migrant strawberry pickers – mostly undocumented workers from Bangladesh – who were asking for their wages. They had not been paid in six months. While they had freely entered the employment relationship, they were subsequently held by their employers under the threat of deportation (Chrysoloras and Penna, 2013; Smith, 2017).

The use of slave labour in supply chains is a reality. Commodities and products tainted by slave labour can form part of the supply chains of MNCs. Take, for example, CP Foods, a
Thai seafood company supplying MNCs including Costco, Walmart and Tesco. CP Foods purchased fishmeal for their prawn farms from suppliers that owned, operated or brought from vessels crewed by slaves. The “workers”, mainly from Burma and Cambodia, were exposed to extreme violence, with little or no pay. Some were chained up, treated worse than animals and sold from captain to captain. The prawns were fed using fish-meal caught and processed by slaves. This is but one example where tainted items are subsequently blended with non-tainted items in supply chains of MNCs.

4. Where to from here?

4.1 A path forward for multinational corporations

The paper began with a quote by Bales (2016, p. 52) highlighting that the “lies told to hide slavery cluster most thickly at the beginning of the supply chain”. Indeed, it is at the beginning nodes of the chain, where slavery is most prevalent, and yet most often hidden. While the fragmented nature of GVCs can go some way to obscure slavery, this does not mean that MNCs are unaware of the use of slave labour in their supply chains. Undeniably, some can create the conditions for slavery to exist – either through deliberate business strategies or by turning a blind eye. Inherently, the very nature of the way in which MNCs govern their GVCs and shape market conditions can create the conditions for slavery to exist. “The profit driven motives of individuals and corporations is a powerful force in driving slavery” (Michailova and Stringer, 2018a, p. 4).

Seldom have MNCs publicly acknowledged the use, or the extent, of slave labour in their GVCs. One recent exception is that of Nestlé. In 2015, after a year-long investigation by Verité, a third-party auditing organization, Nestlé, announced that slavery was embedded in its fisheries supply chain. Nestlé was sourcing fish products from Thailand. The extent of slavery in Thailand’s fishing industry was such that many European and North American companies were exposed to endemic risk (Urbina, 2015). Conducting due diligence in investigating the extent to which slavery exists in supply chains is often seen as not without substantial cost, and so, avoiding this type of expenditure reduces overall cost of running business. Yet one businessman says otherwise. Andrew Forrest,[1] founder of Fortescue Metals Group one of the world’s largest iron ore companies, sent a letter and affidavit to 3,000 suppliers asking them to affirm they had investigated their supply chains for forced labour and modern slavery practices. About 50 suppliers did not respond, Forrest in turn investigated some of these suppliers, including one company supplying to hundreds of companies in the Fortune 500 index. Subsequently, horrendous slavery practices were identified in this company’s supply chain and by extension the Fortescue Metals Group’s own supply chain. According to Forrest, this effort “cost next to nothing”. [2]

The efforts of Nestlé and Fortescue Metals Group are in sharp contrast to those of the Sajo Oyang Corporation, a South Korean fishing company, which, following the identification of labour and human rights abuses on board its fishing vessels operating in New Zealand’s waters, sought to evade responsibility to pay outstanding wages to their Indonesian crew. A number of the crew had engaged lawyers to act on their behalf, and following their return to Indonesia, they were contacted by representatives of the Sajo Oyang Corporation and offered a cash settlement (a fraction of what they were owed in wages) to withdraw their legal claims and forego legal representation. Over time, the financial incentives increased with some crew members being intimidated into accepting the payment (Stringer and Kartikasari, 2017; Stringer et al., 2016a).

In recent years, public governance initiatives have been introduced in an effort to bring about greater corporate accountability and transparency in supply chains. New models of legislation include the California Transparency in Supply Chains Act (CTSCA) and the UK
Modern Slavery Act. Both pieces of legislation require companies to report on their efforts to identify and address slavery in their supply chains. However, the CTSCA has been criticized as “having no teeth” (LexisNexis, 2016, p. 2), while the UK legislation has been described as “weak” (UK House of Lords and House of Commons Joint Committee on Human Rights, 2017, p. 42), as they lack enforcement mechanisms. These new models of legislation are reliant on private governance mechanisms. Modern slavery legislation also includes the French duty of vigilance[3] (devoir de vigilance) law, which strengthens the responsibility MNCs have vis-à-vis subcontractors, suppliers and subsidiaries requiring companies to implement a vigilance plan to prevent human rights violations in their supply chain. More recently, California state legislators are proposing that retailers be held responsible for labour abuses in the trucking companies they use (Murphy, 2018). MNCs are, and will be, increasingly confronted by obligations that require them to acknowledge and tackle abuses in their supply chains.

4.2 Ways forward for international business scholars
The firm in general and the MNC in particular has been and remains a central unit of analysis in IB research. To understand modern slavery in the context of MNCs’ GVCs, we need to shift the focus, whenever appropriate, from the single firm to its value chain. This would bring us closer to a more nuanced understanding of the phenomenon of modern slavery – from its causes through to practices and onto its consequences. Emphasizing the single firm and keeping the attention within the firm does not allow an examination of the complex and multilayered links (and the cracks between them) that seems to provide a fertile breeding ground for slavery. Therefore, we need to shift from a narrow understanding of the MNC to borrow and learn from other literatures such as the GVC literature. For example, what principles govern MNCs and their GVCs that allow modern slavery to persist and thrive? Are MNCs powerless in controlling their GVCs to the extent that slavery not only exists but also flourishes? Alternatively, how can MNCs eradicate slavery from their GVCs? What impact do emerging public governance initiatives have on the way MNCs currently shape, or are likely to shape in the future, their supply chains? How can MNCs move beyond an auditing approach? All these questions[4] link together MNCs with their GVCs rather than highlighting issues solely related to the MNC.

There are a number of IB theories (e.g. internalization theory, real options theory) that can be used as powerful tools to understand why and how GVCs can be(come) breeding ground for modern slavery.[5] For instance, if one sets the rights of one transactor to zero, slavery becomes an economically rational governance mode. Following the logic of real options theory, one would argue that production using slavery is the least expensive option to switch off if one is caught. Alternatively, a more promising location to engage in production (which might mean better slaves) becomes an option. Consider another indicative theoretical possibility – Forsgren’s (2017) six tales of the MNC. Each tale/theory can explain the existence of slavery in the MNCs’ GVCs in its own way, but there is particular potential in the market power, cost efficiency, business relationships and power tales as well as in the idea of the governing influence of MNCs and their increasing impact on society.

We see merit not only in conceptual and theoretical work but also in empirical investigations of the link between modern slavery and MNCs’ GVCs. As a start, and bearing in mind the sensitivity of the topic associated with difficulties in collecting primary data, it would be meaningful to work with secondary data that are available but largely scattered in both the popular and the business media. The news is filled with stories, examples and commentaries on modern slavery that, if looked at with the help of theoretical tools, can result in sound analyses. In addition, some MNCs are required to report on what they are
doing to try to monitor and govern their GVCs to ensure those are clean of slavery, for example, under the UK Modern Slavery Act. Textual analysis and content analysis would be appropriate methods to use to make sense of the phenomenon we address. In addition, IB scholars can systematically collect countless video films recorded in different parts of the world and apply various techniques to analyze them. Recent statistical breakthroughs have been used to estimate far more precisely than earlier the slavery victim population size. We imagine there are statistical techniques that can help trace slavery in GVCs.

These (and related) topics, research questions, theories and methods are more than worth pursuing, as they can help IB scholars become important players in the cause to eliminate one of the most inhuman practices in our world, modern slavery.

Notes

1. Andrew Forrest and his family are the founders of the Walk Free Foundation, an organisation dedicated to ending slavery.
2. available at: www.youtube.com/watch?v=nBkuaeYmPaE
4. While here we focus on MNC’s GVCs and modern slavery, in a recent call for papers (Michailova and Stringer, 2018c) we put forward more general topics and research questions that, we suggest, IB scholars should address.
5. We appreciate the discussions we had with Brent Burmester on this matter.

References


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Running out of steam on emerging markets? The limits of MNE firm-specific advantages in China

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Abstract

Purpose – The purpose of this paper is to explore the extent to which the firm-specific advantages (FSAs) which underlie international expansion have proved resilient for European multinational enterprises (MNEs) operating in a key emerging market – China.

Design/methodology/approach – The authors adopt a qualitative, case study approach, using interview data to explore the companies’ FSAs on market entry, how they evolved over time and the strategies adopted to defend them. They undertook 15 in-depth interviews with decision makers in six companies addressing their experience since market entry. To control for sector-level effects, the authors focus on companies in the environmental protection sector.

Findings – The authors found examples of significant erosion of the FSAs among the case study companies, which undermined their position on the host market and their long-term competitiveness. The key sources of erosion were limitations in market access, exclusion from local networks and the emergence and upgrading of local competitors, often firms with whom the MNEs had collaborated in the past.

Research limitations/implications – The relatively small number of cases (six) limits the generalisability of the findings by the authors. However, the authors are convinced that, given that the case companies are generally large and have long experience in China, the conclusions made are well grounded. In addition, there was the high level of coherence in the reported experiences of the interviewees, providing further support for the findings.

Practical implications – The experience of these case study companies highlights that MNEs have difficulty retaining their unique FSAs when faced with rapidly evolving local competition in a key emerging market. Key strategies mobilised included focussing on a sub-sector of the market and localising both the company and their supply chains. The difficulties experiencing by these case study companies in retaining their FSAs underline the need for MNEs in emerging markets to avoid complacency and constantly innovate, but they also raise questions about their capacity to extend their international reach in the long term.

Originality/value – Very few studies have explored the FSAs of firms and how they evolve over time using a case study-based qualitative approach, especially in emerging markets.

Keywords Emerging markets, Firm-specific advantages, Environmental industry, EU-China FDI

Paper type Research paper

Introduction

International business theory has long stressed the importance of firm-specific advantages (FSAs) to the success of multinational enterprises (MNEs) in their international operations. It is often held that these specific firm capacities enable them to overcome the costs of doing business abroad – otherwise known as the liability of foreignness (Zaheer, 1995) – and
compete successfully against domestic competitors which lack such advantages. Thus, FSAs are conceived of as the foundations through which MNEs develop their operations around the world. Retaining and leveraging them is fundamental to the success of international business operations. However, their dynamic nature has been little explored in the literature. Rather, there is often an implicit assumption that FSAs are permanent or semi-permanent company assets, which endure over time and space and thus enable MNEs to defend their position globally. However, many FSAs are intangible assets (branding, technology, managerial capabilities, work processes, etc.), which are potentially vulnerable to leakage and upgrading by local competitors. To put it another way, FSAs are only firm specific as long as the firm manages to ensure that other firms do not acquire or develop similar assets.

Over time, therefore, the FSAs on which MNEs rely to compete in international markets may be eroded, undermining their capacity to leverage these unique assets in their international operations. As Buckley (2017, p. 211) recently observed, “[…] ownership advantages are necessarily temporary, they can be copied, stolen, replication or competed away […].” The erosion of FSAs through leakage of knowledge and competence to competitors and collaborators has long been a concern in international business (Pucik, 1988; Hamel et al., 1989). However, it seems particularly likely in the current global context, where MNE operations are spread across many countries and regions and where new competitors are emerging very rapidly (Zeng and Williamson, 2003; Bhaumik et al., 2016; Horner and Nadvi, 2018). As noted by Khalid and Larimo (2012, p. 234):

With the rise of firms from the emerging markets, firms from the developed markets are facing challenges of how to remain strategically competitive and whether the firm-specific advantage (FSA) is still useful.

However, although the capacity to adapt their FSAs and develop new ones is acknowledged to be vital to a firm’s international success (Khalid and Larimo, 2012; Buckley, 2017), the evolution of FSAs over time has been little studied in the literature. This paper seeks to explore the evolution of FSAs in a challenging context, through a series of case studies of EU companies operating in China. The cases are all in the environmental protection (EP) sector – a sector where EU companies have historically had important competitive advantages, not least because of their relatively large home market (CEC, 2013; Chen et al., 2013). However, we find that these advantages have been eroded, especially due to the emergence of local competitors. We identify some of the key factors which explain the changes we observe and the implications which this has had for the case study companies, as well as their strategic responses. We conclude with some implications for theory and practice.

The theory of internationalisation – the importance of firm-specific advantages
Existing theories of firms’ international expansion are built upon exploitation of managerial resources (Penrose, 1959), advantages of the firm (Hymer, 1976) and intangible assets (Caves, 1982). Penrose (1959) argued that managerial resources in terms of experiences and cumulative knowledge provide the opportunities to use these resources in different ways, in turn creating incentives for further expansion, as the firm restructures to use its own resources more profitably. Hymer (1976) argued that a firm’s international expansion is motivated by the fact that the firm has advantages in a particular activity and may find it profitable to use these advantages to set up foreign operations. Similarly, Caves (1982) argued that intangible assets developed at home influence investment decisions to expand abroad. For these early theorists, therefore, a key factor explaining international expansion
was the intrinsic advantages which had been developed within the firm, which they could leverage in their international operations. Such FSAs include size, better financial resources to invest, special access to markets and raw materials, or patented technology. In addition, at the home country level, MNEs have FSAs that could deter new entrants from entering the market and thus limit competition at home, enabling them to strengthen their position.

Dunning (2002) built on these ideas to develop his “eclectic paradigm”. He considered that internationalisation builds on the ownership (O) advantage, which is internal to firm and the location (L) advantage, which is external. These become more salient and enhance MNEs’ competitiveness when they adopt internalisation (I-advantage) in their internationalisation process. Dunning (2002, p. 59) argued that when a firm possesses superior resources, they seek to exploit them within the firm in foreign markets, by internalising them. This protects their O-advantage because of a firm’s own resources are deployed in developing business in a foreign market. In this way, misappropriation of the FSAs by foreign agents is less likely. Dunning argues that technology is a key driver for internalisation because MNEs want to reap benefits from costly investment by maintaining sole ownership of that technology.

Rugman (1981) and, more recently, Rugman and Verbeke (2003) have differentiated between firm advantages related to location – country-specific advantages (CSAs) – and those related to the O and I advantages of the firm – their FSAs. This conceptualisation has stimulated extensive research, including on the role of FSAs in exports (Beleska-Spasova and Glaister, 2011), in state-owned enterprises (SOEs) (Rudy et al., 2016) and the nature of and balance between CSAs and FSAs in emerging market multinationals (Bhaumik et al., 2016; Buckley, 2017). However, few studies have addressed the dynamics of FSAs.

One recent exception is the work of Khalid and Larimo (2012), which explores this question within “born global” companies from developed countries. Their work builds on the strategic management literature on the “dynamic capabilities” of forms, defined by Teece (2014, p. 16) as: “[…] the ability of an organization and its management to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments”. Their work confirms that firm survival and growth are related to its dynamic capabilities. Indeed, their study is based on the assumption that initial FSAs will erode after market entry and that only by developing new market-specific capabilities will firms thrive. Yet this process of erosion has been little studied.

*Lessons from the literature on the internationalisation of emerging multinational enterprises*

In recent years, there has been an increasing academic interest in the internationalisation process of MNEs based in emerging markets such as China, India and Brazil (so-called EMNEs). Insights for our research can also be found in this expanding literature. Within the context of Dunning’s (1979) ownership, location, internalisation (OLI) eclectic paradigm, these EMNEs are not considered to possess any of the traditional advantages which enabled Western MNEs to internationalise (Mathews, 2006). However empirical work has shown that EMNEs have been very successful, not only at home (Zeng and Williamson, 2007) but also well beyond their domestic market (Deng, 2009; Dunford et al., 2013; Lewis, 2013; Luo and Tung, 2007; Luo et al., 2011; Ying et al., 2013).

Some scholars have suggested that firms in developing economies lack FSAs, posing something of a puzzle for their internationalisation process (Luo and Tung, 2007; Madhok and Keyhani, 2012; Buckley, 2017). However, Luo et al. (2011) have suggested that the FSAs of firms in developing and transition economies are simply different to those of traditional MNEs. Zeng and Williamson (2007) highlight the cost-innovation and product redesign
capabilities of Chinese companies that allow them to provide “variety at low cost”. Their constant search for cost effective business solutions gave them strong competitive advantages in the home market, which they subsequently exploited abroad. Others consider that their FSAs relate to their governance advantage, advantages from past connections with SOEs and the experience gained from inward internationalisation (by MNEs from developed countries) (Luo et al., 2011). Specifically, the accumulated experience learned through past connections as suppliers or customers of foreign partners in their home country may boost the confidence of local companies and encourage them to internationalise their activities (Zeng and Williamson, 2007).

Dunning (1979) had assumed that the O-advantages from the home country are used to exploit the foreign market, but empirical evidence suggests that the availability of host country resources (such as knowledge-intensive assets) to foreign investors could be inherited as an O-advantage in the home country, especially in the case of investments from emerging countries (Almeida, 1996; Cantwell, 1995; Dunning and Narula, 1995; Kogut and Chang, 1991). For example, Ying et al. (2013) found that Chinese MNEs sought to acquire Danish companies because of their technological know-how and their research and development (R&D) expertise, but these assets were subsequently also used to develop their operations in the home country – China. Deng (2009) studied outward foreign direct investment by three leading Chinese EMNEs. Their objective in entering developed countries was clearly to acquire superior technology and brand legitimacy. This was itself a response to strong home institutional support, a lack of resources at home to pursue strategic assets and positive corporate managerial experience accumulated from inward international joint ventures with foreign partners.

In China, home institutional support has encouraged local companies to become globally competitive, including through alliances with foreign operators. This strong role of the state in the development of EMNEs, especially those from China, recalls an earlier literature on the development of Japanese MNEs (Johnson, 1985; Anchordoguy, 1990, 2001). Although state ownership was less widespread, the Japanese Government was found to be “extremely intrusive” (Johnson, 1985, p. 61) into private companies, while in certain key sectors, like telecoms, the state in effect engineered the development of a local industry (Anchordoguy, 1990).

The role of foreign companies and knowledge in this process has been highlighted. Several decades ago, Hamel et al. (1989) warned of the danger of unequal gains from foreign collaborations with Korean and Japanese companies. From the beginning of industrial development in Japan, alliances and partnerships tended to lead to technology leakage from Western companies. As Anchordoguy (2001, p. 532) notes:

“[…] the state used scarce resources to import foreign technology and experts in order to learn from them. Then it sent the foreign experts home before they could gain a foothold in the domestic market (Anchordoguy, 2001, p. 532).

In their work, Hamel et al. (1989) found a consistent pattern of learning from international strategic alliances by Asian partners. However, rather than ceasing such collaborations to avoid leakage, they recommend that Western MNEs increase safeguards on their core knowledge, while also seeking to better leverage these alliances: “[…] the challenge for Western companies is not to write tighter legal agreements but to become better learners” (Hamel et al., 1989, p. 139).

The fact that Chinese MNEs have experienced substantial learning and technology transfer through their partnerships with foreign companies has been highlighted by many studies, including in the EP sector (Dunford et al., 2013; Lewis, 2013). Research shows that
collaboration with foreign companies in the wind industry, through licensing agreements, joint-ventures, joint research and development, as well as the direct acquisition of foreign strategic assets, provided Chinese companies with a bridge to access the global learning networks and technology transfer (Lewis, 2013). These learning networks helped them to build their reputation at home and created the opportunities to expand abroad. Financial support from local and central governments, as well as international investors, provided the capital to scale up capacity and reduce production costs. Over time, the long-term advantages of foreign companies in that context were eroded (Luo et al., 2011).

This rapid development of local Chinese competitors was mirrored in the solar industry. Initially, China did not possess the technology to compete with world leaders in the USA, Germany and Japan (Campillo and Foster, 2008). However, over the years, Chinese industry made remarkable progress to emerge as the top global solar producer in 2013 (EPIA, 2014), accounting for about 70 per cent of module production (Platzer, 2015). In parallel, foreign actors experienced shrinking margins and lower production capacity, compared to local producers (Dunford et al., 2013). The Chinese solar industry became such a threat to US and European companies that they started lobbying for protectionist measures to reduce competition in their home markets (Kolk and Curran, 2017). The enabling government policies and local market evolution in the wind and solar industries helped transform small local Chinese actors into global competitors. Over time, as Zeng and Williamson (2003) warned, these Chinese companies have become a threat to the European and US companies who were the early adopters in this field.

As we see below, the rapid learning and knowledge gained by the EMNEs in the above studies resonate very much with the experience of the local competitors of our case study companies. We find that the experience of working with foreign companies and markets has been key to upgrading the capacity of local Chinese businesses, not only when they seek to internationalise but also when competing with MNEs on the home market. This has eroded the FSAs of these foreign companies, undermining their capacity to compete and making the Chinese market more challenging over time. The difficulties experienced by the European MNEs in our study raise questions for their future internationalisation strategy, not least because it is estimated that 90 per cent of the growth in the world economy in the next 10-15 years will be outside of their home market (CEC, 2015). Thus, their future growth and performance is, to a large extent, predicated on succeeding in emerging markets.

**Approach and methodology**

In this study, we chose to focus on the EP sector because, by holding the sector constant, we avoid variations between companies due to the regulatory distance between sectors. In addition, the EP sector is one where we would expect a clear competitive advantage for EU companies, who are world leaders in many EP technologies, as well as strong emergent demand in China (CEC, 2013; Chen et al., 2013). Our key focus was on the MNE FSAs which enabled them to succeed in the Chinese market and how they evolved over time. In our interviews, we posed four key sets of questions:

*Q1.* What were the firms' FSAs on market entry?

*Q2.* How have their FSAs evolved over time?

*Q3.* What are the key factors explaining the changes in FSAs over time?

*Q4.* How did MNEs react to these challenges?
Six EU companies in the EP sector that had entered the Chinese market were identified and agreed to participate in this study. To avoid differences linked to mode of entry, we chose only companies that were operating as wholly owned enterprises (WOEs) – in theory enabling them to exploit internalisation advantages (Dunning, 1979). They have been operating in China for between 12 and 31 years. Fifteen semi-structured face-to-face interviews with the key informants of participating companies were conducted between June 2014 and June 2015 in Beijing, Shanghai and Wuxi, China. All interviews were conducted in English and were recorded and transcribed. They varied in duration, but all interviews lasted for at least an hour. Key informants were European and Australian expatriates and local Chinese employees. The individuals held key positions within the companies and were, to a large extent, decision makers.

These companies were mainly EP service providers. They included two waste management companies (CoA and B), consultancy relating to sustainable projects including green industrial and residential design and buildings (CoC), environmental impact assessment (EIA) (CoD) and advisory services in green-manufacturing procedures (CoE). We also include one environmental technology manufacturing company (CoF) (Table I).

Each individual interviewee was well placed to provide strategic and operational data because of their long service in the company and in China. Knowledge and learning accumulated over several years in the company legitimised their viewpoint and enhanced the validity and reliability of their answers to the questions (Yeung, 1995). In addition, the key informants can “[…] provide important insights into a situation. They also can provide shortcuts to the prior history of the situation, helping to identify other relevant sources of evidence” (Yin, 2002, p. 92). Finally, interviewing several informants in each company helped in triangulation of the findings. When two or more informants shared the same view to an emerging phenomenon, such as unfair treatment by the Chinese Government, this supports the validity of the information.

Findings and discussions
Initial FSAs and evolution
On market entry, all case study companies possessed O-advantages in the form of strong branding and reputation, as well as global leadership in their field of expertise, including technology, capital and human resources. These were actively deployed in their internationalisation strategy. I-advantages were consciously mobilised to protect these FSAs, through market entry as WOEs. The objective in all cases was to protect their knowledge-based FSAs from local competitors. In general, at the time of their market entry, China’s EP sector was underdeveloped. China lacked knowledge and expertise in EP technologies, hence, competition from the local firms was low and foreign involvement was welcomed.

However, as the tenure of the case study companies in China increased, it was evident that their FSAs were being challenged. Table II provides a summary of the FSAs of the case study companies and evidence of their erosion over time. A key challenge was the growing expertise and competitiveness of local companies, an evolution that was often underpinned by government policy support. CoA was facing increasing competition from local operators who were aggressively developing their capabilities to invest and operate waste plants. Although CoA’s inherited strong presence and a good reputation from its regional municipality waste operations in Hong Kong, Macau and Chinese Taipei, they could not leverage this experience across all market segments in China and local competitors were rapidly emerging: according to BUD (CoA) “they are getting bigger and more powerful now.”
<table>
<thead>
<tr>
<th>Company</th>
<th>Industry</th>
<th>Year of entry into China</th>
<th>Designation</th>
<th>Nationality</th>
<th>Date of interview</th>
<th>Length of interview (hours)</th>
<th>Years with Company</th>
<th>Years in China</th>
</tr>
</thead>
<tbody>
<tr>
<td>CoA</td>
<td>Waste management</td>
<td>2003</td>
<td>Business Unit Director, Incinerator (BUD)</td>
<td>European</td>
<td>6 November 2014</td>
<td>1.5 h</td>
<td>10</td>
<td>10</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Plant Manager (PM)</td>
<td>Chinese</td>
<td>3 March 2015</td>
<td>2 h</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>CoB</td>
<td>Waste management</td>
<td>1994</td>
<td>Managing Director, Energy Recovery (MD)</td>
<td>Australian</td>
<td>5 February 2015</td>
<td>2.15 h</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Project Development Manager (PDM)</td>
<td>Chinese</td>
<td>10 March 2015</td>
<td>1.30 h</td>
<td>6</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Research and Innovation Manager Asia (RIM)</td>
<td>European</td>
<td>11 February 2015</td>
<td>1.15 h</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>CoC (UK)</td>
<td>Sustainability</td>
<td>1984</td>
<td>Associate Director (AD)</td>
<td>European</td>
<td>21 January 2015</td>
<td>1.15 h</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Project Manager, Infrastructure and Sustainability (PIM)</td>
<td>Chinese</td>
<td>5 November 2014</td>
<td>2.5 h</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>CoD (UK)</td>
<td>Sustainability</td>
<td>1994</td>
<td>Financial Manager (FM)</td>
<td>Chinese</td>
<td>15 June 2015</td>
<td>1.5 h</td>
<td>15</td>
<td>N/A</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Director, Regulatory EIA services (DIR)</td>
<td>Chinese</td>
<td>18 June 2015</td>
<td>1.5 h</td>
<td>8</td>
<td>N/A</td>
</tr>
<tr>
<td>CoE (UK)</td>
<td>Sustainability</td>
<td>2000</td>
<td>Chief Operating Officer (COO)</td>
<td>European</td>
<td>13 June 2015</td>
<td>1.5 h</td>
<td>22</td>
<td>16</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Commercial Regional Director (CRD)</td>
<td>English</td>
<td>13 June 2015</td>
<td>2.5 h</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Head of Sustainability and Energy (HOS)</td>
<td>European</td>
<td>15 June 2015</td>
<td>1.5 h</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>CoF (Finland)</td>
<td>Environmental technology</td>
<td>1993</td>
<td>General Manager (GM)</td>
<td>European</td>
<td>15 May 2015</td>
<td>3 h</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heat Pump Manager (HPM)</td>
<td>European</td>
<td>15 May 2015</td>
<td>1 h</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GM's assistant (GMA)</td>
<td>Chinese</td>
<td>15 May 2015</td>
<td>1 h</td>
<td>12</td>
<td>N/A</td>
</tr>
</tbody>
</table>
CoB had concerns about the development of local companies, in part due to the leakage of their intellectual proprietary rights (IPR). The MD stated that initially:

Fifteen to twenty years ago, there was a great deal of IPR that foreign companies had that the Chinese wanted. We were managing the first landfill that China ever had.

However, very quickly this was appropriated by local companies. CoB had similar problems:

Our company had some intellectual property issues because our technology was copied and became an industry standard in the last 5 to 10 years (RIM, CoB).

Consequently, local business developed and began to operate in related industries. The result was a severe erosion of the companies FSAs: “We do not have anything at this particular point in time to distinguish ourselves in our businesses. We have declining opportunities for growth” (MD CoB). The SOE who owned the site of its gas-to-energy plant was seeking to evict CoB from the site, even though its contract was legally binding for another 13 years. Their expertise was no longer seen as necessary to the success of the project.

When CoC entered China, they had clear FSAs because China was at an early stage of growth, local competitors did not exist or were scarce. Their competitive advantage was their unique skills in building engineering design acquired through many years of international experience and award-winning projects. CoC could defend their advantage while the local competition did not have the knowledge and skills needed in their high-end

<table>
<thead>
<tr>
<th>Company</th>
<th>FSAs on market entry</th>
<th>Examples of erosion of FSAs</th>
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<tbody>
<tr>
<td>A</td>
<td>Brand, reputation, integrated process system design, regional networks</td>
<td>Expertise in managing municipality waste could not materialise because of competition from the SOEs</td>
</tr>
<tr>
<td>B</td>
<td>Brand, reputation integrated process system design</td>
<td>The SOE with whom they were in partnership felt that they could now run the business without CoB and were seeking to evict them from the site</td>
</tr>
<tr>
<td>C</td>
<td>Brand, reputation, regional networks</td>
<td>LDI had access to CoC’s unique engineering designs. This access escalated their learning and enabled them to becoming competitors to CoC</td>
</tr>
<tr>
<td>D</td>
<td>Brand, reputation, experts in EIA, political connections</td>
<td>Required to protect its Class A EIA licence diligently by continuously building its reputation to deliver complex EIA services. The local competitors’ expertise had increased over time as a result of learning from foreign partners and access to restricted sectors</td>
</tr>
<tr>
<td>E</td>
<td>Skills in building relationship with international clients</td>
<td>Internationally acquired skills could not be leveraged because of the local socio-cultural business context</td>
</tr>
<tr>
<td>F</td>
<td>Brand, reputation, technology</td>
<td>Burners copied by one of its biggest distributors. Although not an imminent threat, it will have long-term impact if market conditions change, favouring cheaper alternatives, or if the Chinese government further promotes the development of local combustion technology</td>
</tr>
</tbody>
</table>

Source: Author’s elaboration based on interview data
market segment. However, a mandatory alliance with the Local Design Institutes (LDI) imposed by the government impacted the competitive structure of CoC’s operations in China:

Back 20 years ago, there were not many high-level projects in China, for the Local Design Institutes (LDI), they did not know how to do that and our people came to China and began to do this kind of projects (PRM).

However, because the company lacked the building licence, they had no choice but to work with the LDIs, which had to sign off their engineering designs. Initially, CoC had neither the knowledge nor the skills to do this, thus relying on local expertise for this service was not a major concern. However, involving the LDI in their processes allowed the latter to learn over time (and copy CoC’s engineering design to become competitors). This alliance had clearly created the learning opportunities for the local collaborators to learn from their foreign partners and build their knowledge (as highlighted in previous work by Hamel et al., 1989).

In the meantime, CoC had also learned from their collaborations and developed local organisational capabilities. However, they could not exploit them, as their service provision was limited by the legal restrictions on their operations. In addition, CoC could not leverage their international expertise in executing concept design, as the imposition of local design codes acted as a barrier to innovation transfer:

[...] the development codes can be a bit slow here, so when you want to take advantage of innovations around the world, it can be difficult [...] They are not encouraging, as they are pushing local designs. Cannot adopt international codes have to use Chinese codes (AD).

CoD’s expertise lies in providing EIA services. At the time of initial market entry, local companies had limited experience of such assessments procedures: “There was a big market for our services. In, 2000, we had 5 people and our maximum staff strength was 80”. FD, CoD. However, over time local competitors emerged, making the sector much more competitive. In addition, as explained below, these competitors had access to a wider range of markets than foreign operators, enabling them to develop their local competences in sectors where CoD was excluded.

CoE had a long history of excellent working relationships with their industry partners. This accumulation of business knowledge constituted a competitive advantage that spurred CoE to identify a new area of business growth in sustainability advisory services. Their Sustainability Business Unit was established 10 years prior to the interviews to grow the company’s business. However, although they had extensive knowledge of Chinese industry, they could not leverage their knowledge and expand their high-level connection with the Chinese customers. Relationship building and continuous communication is very important in business consultancy, and in this case, the key actors were primarily Chinese. Interviewees in CoE were also keenly aware of the risk of leakage of their intellectual property. For example, they feared that a new business opportunity they were developing might leak to Chinese competitors with better access to the local government, providing them the advantage of leveraging their idea and implementing it:

Right now, we are the only one that has come up with this idea of retrofitting old manufacturing facilities in South China. I don’t think it is going to take very long before the local companies start to see this opportunity [...] (COM CoE).

CoF is an innovator in environmental combustion technology. They differed from the other companies in our study, in that they were goods manufacturers, rather than service providers. At the time of the interviews, CoF still felt they had strong FSAs in terms of brand, quality and technology. They considered that these were not under immediate threat;
However, in the medium term, they acknowledged that the emergence of local competition will undermine these FSAs and thus their business model.

**Key reasons behind the erosion of firm-specific advantages**

One of the key sources of erosion of FSA was *limitations in market access within China*, either through direct discrimination when foreign entities were barred from certain markets or indirectly through favouring of local actors for reasons of price or networks. CoA reported that tenders to manage municipality waste were always awarded to local SOEs because they could propose lower prices at the expense of profitability (also noted in Lewis, 2013). In this instance, CoA experienced unfair competition because the SOEs offered lower prices per ton to collect the municipal waste, even though it could mean minimal profit. In this context, they saw no potential in seeking to develop this market segment.

Exclusion from certain markets had consequences for learning. While foreign operators were restricted in their access to the municipal waste market, local competitors could develop extensive knowledge from their increasing activities in the sector. This narrowed the technology and process gap between foreign and local operators. As such, CoA and CoB were disadvantaged by the potential experiential learning of local actors in China’s municipality waste market because of their “outsidership” (Johanson and Vahlne, 2009).

Regulatory restrictions imposed on CoC excluded them from “one stop shop” services. This created an environment for the LDI to upgrade their skills and knowledge and become direct competitors to their former partners. As foreign companies could not receive a building licence, they were reliant on the LDIs. Initially, the latter were also reliant on them, but with learning over time, this became much less the case. This inability to provide a full range of services impacted on CoC’s staff retention. Skilled engineers sometimes left the company to pursue careers with their local competitors which provided a full package service. This experience enabled them to attain the status of “practiced engineers”, something they could not do if they stayed with CoC.

The exclusion of foreign operators from EIA in the mining and soil remediation sectors had important consequences on the long-term competitiveness of CoD. Every mining operation requires an assessment, making it a substantial captive market, while soil remediation is a huge market in China, where soil pollution is a serious problem (MEP, 2013). Thus, over time, local competitors had undertaken extensive assessments in these protected sectors and developed their competence in EIA to the level of CoD. Their cumulative experience had enabled 191 local companies to secure Class A EIA licences. CoD remained the only foreign operator to have such a licence. However, exclusion from the mining sector is a major disadvantage: “Their EIA experience far exceeds ours, because China had opened so many mines” (FD CoD).

The exclusion of foreign actors from key market segments undermined learning opportunities and threatened their FSAs. The rapid learning and upgrading of the local competition suggests that transferable knowledge and experience can be gained within an industry, or part of the value chain, which is inaccessible to foreign firms. Thus, these foreign firms not only have to protect their own FSAs in those industries where they are free to operate, their overall legitimacy could also be threatened because of the gradual emergence of a pool of very qualified local competitors whose development has been fostered in restricted sectors.

Exclusion from local networks was an issue for several companies. SOE managers had strong relationships with the municipalities which gave them “guanxi” which CoA did not have. They had: “no chance to gain access to municipalities as client” (BUD CoA). One interviewee explained this thus: “The SOEs belong to the same institutionalised network
and thus have deeper working relationship with municipalities because of similar cultural background” (PDM CoB). Besides business contracts were awarded based on indirect personal relationship within the local networks: “The 2nd waste incinerator was given to a company which was the subsidiary of Hitachi. And the subsidiary GM was in a relationship with the mayor.” (GM CoB).

Being an outsider from the local networks created a relationship gap that impacted operations: “We shut down our incinerator for one month a year. But it is because of the poor relationship we had with the local government” (GM CoB). CoD considered that it was disadvantaged in inspections, as it was considered as “foreign” and was treated differently in yearly inspection routines: “Whenever the government come to inspect us, I asked to be treated nationally […] However this opportunity is not given. Reason given is always due to national security” (FD CoD).

Increased competition from local companies that had been partners was also a key reason for erosion of FSAs. The LDIs that had been partners of CoC began to offer one stop shop services to their clients. This was an advantage that CoC could not emulate and risk pushing them out of the market:

[…] our potential clients would incur extra time and cost because of the stamping fees on approving the engineering drawings. This could become a deterrent from coming to us and we stand to lose our competitive service edge.

In another example, CoB’s business was threatened by the SOE which owned the park in which its business was located. Having learned from their collaboration with CoB, they were seeking to treat the gas and convert it to energy by themselves. CoB felt that their position was now vulnerable and that, in the medium term, they would be eliminated from the project. The MD from CoB reported:

Eventually in a year or two years’ time there will not be enough gas to supply their engines and our engines. Our engines will slowly decrease, and we will be back in the corner, and eventually we will sell the business for a fraction of what is worth. And that is the local government objective.

As underlined by Hamel et al. (1989) in the context of Japan and Korea, the risks of leakage of technology and knowledge to foreign collaborators are very real. This is particularly the case because much knowledge is encompassed in the human resources which collaborate – the “gatekeepers” as they put it. Adequate controls are required to avoid leakage, a point also underlined by Pucik (1988). Clearly several of our case study companies had not managed to avoid unequal knowledge acquisition within their partnerships. Their openness to sharing their experience resulted in a loss of FSAs:

Fifteen years ago, visitors from all the government departments […] would come to visit our first landfill. They would take photos, get brochures and go away, and then copied our technology and processes. However, not only did they not renew the contract with us, they opened another landfill in Beijing that is a direct copy of the landfill that we were managing […] (GM CoB).

One of CoF’s distributors directly copied their burners, which was not an easy task: “You cannot take photo of a burner and copy it. You have to know how the burners and equipment are made” (GM CoF). As these were industrial burners, distributors had extensive product knowledge as well as in-house engineers and after-sales service to solve technical problems for their customers. They began to compete directly with CoF with their own version of the latter’s burner.

In Table III, we summarise the key findings in terms of the erosion of FSAs. The regulatory context is clearly an important element contributing to this process. Restrictions
on the capacity to leverage international and local-grown capabilities caused difficulties for the case study companies, as did locally crafted regulations which differed from international norms. As a result, the MNEs could not fully use their FSAs. At the same time, the frequent regulatory requirements to work with local actors to secure market access, while initially providing opportunities for the MNEs to learn, ultimately fostered the development of local competitors. Although all our case study companies entered China as WOEs precisely to protect their O advantages, they were often required to cooperate with local companies, which resulted in leakage of the very technologies and processes which they sought to protect through this entry mode. This process undermined the FSAs which had been key to their success. The emergence of these local actors was a threat to all the case study companies. They were concerned that many of their FSAs were not firm-specific anymore, and that their position in the market and their future performance was therefore jeopardised.

Strategic responses to the erosion of firm-specific advantages

The companies were clearly not passive faced with the threat to their FSAs on the local market. They adopted a variety of strategies. Some focussed on market segments where their FSAs were more valued or resistant to local competition. CoA’s management decided to focus on the industrial waste market, where there were fewer local competitors. They consciously avoided the municipal market, where, as discussed above, they were competing with large local players, which were mainly SOEs. The industrial market had many fragmented customers, thus reducing the risk of dependence on one customer. CoD avoided the local market altogether, judging it “very difficult” and focussed instead on providing EIA services to foreign-owned companies.

Another key strategy was localization – of both the company itself and its supply chain. In CoE, a local manager was hired to oversee the team comprising of 85 per cent local and 15 per cent foreign employees. Although the strategic vision of this new business development came from the COO and the COM who were British, they were convinced that their developmental strategy in China could only succeed if it was executed by local managers:

[…] it is very hard for foreign managers to manage Chinese projects without local managers involved. Even if we talk about international projects in China – the high- and mid-level people are Chinese […] Foreign managers do not have the language capabilities and naturally cannot fit into the socio-cultural business context (HOS CoE).

CoC and CoD built their local networks by establishing offices in cities where they had projects:

<table>
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<tr>
<th>FSA</th>
<th>Source of erosion</th>
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<tbody>
<tr>
<td>Technological advantage</td>
<td>Regulatory restrictions on leveraging international capacities (CoD) Cooperation with local firms enabled local capacity upgrading (CoB)</td>
</tr>
<tr>
<td>International experience</td>
<td>Impact of socio-cultural environment on developmental strategies gradually diverged from international norms, undermining capacity to leverage international experience (CoE)</td>
</tr>
<tr>
<td>Brand recognition</td>
<td>Emergence of local brands (CoA, CoB, CoC, CoD, CoF) links between local brands and local administration undermine international brand advantages (CoA, CoB, CoC, CoD)</td>
</tr>
</tbody>
</table>

**Table III.**

Key sources of FSA erosion

**Source:** Author’s elaboration, based on interview data
In the project process we work out with the major local players as well, the local design institutes, they come out with concept and review and give comments on how to work with local codes. We might be working with Shanxi, Hebei that has different codes than in Beijing (AD CoC).

Others localised their supply chains. In designing system processes for its customers, CoA used local equipment to design and integrate processes for customers. CoB was collaborating with innovation and technology-based local startups: “we are trying to corporate with innovation and technology-based startups to integrate their products in the process. We are trying to increase our connection with them” (RIM CoB). Through such collaborations, they not only localized their businesses but also kept costs down (Zeng and Williamson, 2007). CoF had started by exporting to China, but rapidly perceived a need for greater local presence and opened a manufacturing facility to better serve the market. The manufacturing facility was staffed by a local workforce, although most parts were imported, to maintain quality levels. In addition to providing “localised” advantages, the move reduced prices by 20 per cent and delivery times by six weeks. The company also maintained good relationships with the distributors and the business-to-business customers through frequent sales visits by the GM and his in-house interpreters. These interpreters were said to be critical interlocutors in all business meetings, as they possessed tremendous product knowledge and deep understanding of the business.

In cases where local government intervention or regulatory discrimination undermined their business, companies took a variety of approaches. Dealing with government intervention is not a new problem for companies, and devising a good balance between acquiescence and challenge has never been easy (Doz and Prahalad, 1980). CoB took a combative approach. They planned to seek legal redress against the SOE who owned the site of their gas-to-energy plant, as they considered their impending eviction to be illegal under their contract.

Such direct challenge to the local regulatory context was rare in the case study companies. Most preferred quiet diplomacy in addressing the perceived bias in the local regulatory system. For example, CoA acknowledged that the de facto exclusion of foreign operators from bidding for a second waste incinerator was illegal under WTO rules. However, rather than lobbying their home government to attack China in WTO, they sought informal support from their home government, while making their case at local level, hoping that the regulations would evolve in their favor organically over time.

CoD sought to use their high-level connection with the top Chinese Think Tank that advises the central government to gain access to the soil remediation market. The local director of CoD was a director of this Think Tank Committee and yet their efforts were unsuccessful, and they remain excluded: “The Chinese government will not let foreign companies benefit from its investment in soil remediation” (FM CoD). When CoF discovered that one of the biggest local distributors had copied its burners and were selling them direct to their clients (boiler companies), the distributorship was dissolved. “We gave them a chance to continue to be our distributors by stopping their act but they did not” (GM CoF). CoF did not threaten litigation in this case, as they felt it was not critical to their competitiveness, their technology was superior to the local versions and their networks were strong: “Our relationship with the boiler companies is so well that even if our distributors drop out we still can do business with the boiler companies.” (GM CoF).

Faced with losing their FSAs, several companies sought to continuously improve their capabilities, consistent with the idea of “dynamic capabilities” (Teece, 2014) discussed above. CoC continued to try to compete on their company FSAs: “Our strategy is to keep introducing new techniques, new concept from different parts of the world, share knowledge
within our subsidiaries around the world” (PRM CoC). However, faced with intense local competition, several case study companies were struggling to develop such a dynamic, as the institutionalized advantages of these local competitors limited their margin for maneuver within the market, as well as the potential to leverage new technologies or processes to expand their market share.

In addition, some companies consciously avoided leveraging the latest technology. For example, CoF has a clear strategy to protect its IPR. The manufacturing facility in China produced only products that the market needed, not the latest models. All the research and development was undertaken in their home country, even for new product development or product modification needed for the Chinese market. This strategy to protect their IPR may have been easier for CoF to deploy, as it was a manufacturing rather than a service company. Its FSAs were inherent in their products rather than their processes. In our case studies, the latter seemed to be easier for local companies to imitate.

Conclusions and implications for theory and practice
The FSAs of the case study companies on market entry into China supported the traditional O- and I-advantages. All the case study companies had strong international experience and reputations, although they deployed differing FSAs in their entry and developmental strategies in China. Their FSAs were valuable, rare, inimitable and non-substitutable (Barney, 1991) at the time when China needed foreign resources and skills to bolster its economic development.

In the context of the EP sector in China, our research shows that the Chinese actors were advantaged by the local institutional context, enabling them to acquire competencies and develop into formidable challengers to the case study companies. Over time, the latter had difficulty optimising their FSAs and were increasingly disadvantaged on the market. The reasons behind the erosion of their FSAs have been identified as limitations in market access; exclusion from local networks; upgrading of local competitors’ capacity, including through inward learning from foreign partners. These findings support the recent observation by Buckley (2017, p. 214) that, ‘FSAs’ are context dependent, ephemeral and subject to the competitive actions of rival firms”. Thus, the internalisation of company assets through use of a WOE entry strategy – traditionally considered to protect FSAs – did not enable the case study companies to avoid the loss of key technologies and knowledge to partners and competitors. If more sustainable internationalisation strategies are to be forged, there is a need for wider acceptance, by both MNEs and the academic community which studies them, of the transient nature of many FSAs.

It is clear from our findings that the Chinese institutional context favoured the development of local actors. Government policies which required local actors to be part of foreign entrants’ value chains, as well as the prohibition of foreign investors from certain sectors, contributed to the development of a stronger domestic industrial base. The FSAs of the companies studied, based on superior knowledge and technology, have been difficult to sustain in the face of this increasing local competition. All case study companies shared the same general sentiment that the latter was becoming more sophisticated, as well as more intense. Our findings resonate with those of Zeng and Williamson (2007) who found that MNEs in China often failed to leverage their technological advantage and became irresponsible to the market needs of low price and reasonable quality. It is also clear that local competition has grown and will continue to be intense, especially if the competitive structure favouring local operators remains unchanged.
The findings elucidated here are based on a relatively small number of cases (six). Although we recognise that this limits the generalisability of our research findings, we are convinced that our conclusions are well grounded. Our case companies are generally large and have long experience in China. In addition, there was the high level of coherence in the reported experiences of our interviewees, providing further support for our conclusions. Although obviously each company’s experience was unique, we quite quickly reached saturation in terms of our generic research findings, especially on the key issues of barriers to exploitation of FSAs created by local regulation and the emergence of local competition. While more research is certainly needed, it seems likely that other highly regulated sectors would suffer from similar difficulties linked to the bias in local regulatory structures.

In terms of the implications for practice, a variety of strategies were mobilised to defend the case study companies FSAs. Some companies focussed on market segments where they were less subject to local competition and their FSAs could be more easily leveraged. Several also used strategies of localisation – of the company workforce and of their production structures. This included sourcing technologies locally and thus integrating Chinese companies into their supply chain at the same time as they kept costs down. Over time, such strategies could be expected to increase the two-way flow of knowledge, in a manner recommended by scholars such as Hamel et al. (1989) and Zeng and Williamson (2007), such that European companies can maximize their learning from local actors. The “learning to learn from locals”, which the latter scholars promote, was not evident in our cases but may yet emerge in response to the voluntary inclusion of more local actors in the case study companies’ supply chains.

In terms of strategic responses to regulatory discrimination, although one company was planning litigation, most favoured a strategy of discreet diplomacy over more combative approaches. They felt that it was more productive in the long term to put their case informally to local and central governments, while relying on their home governments to also push for policy change in their exchanges with the Chinese administration. In terms of their product offer, most pursued a strategy of continuous technology upgrading, mobilising their “dynamic capabilities” (Teece, 2014) to stay ahead of the local competition. However, at least one company avoided bringing their really leading edge technology to China, to avoid leakage to local competitors. However, as highlighted above, deploying such a strategy in service-based companies may be difficult.

On the positive side, FSAs such as international networks and relationships have proven to be sustainable competitive advantages that ease market entry and overcome operational difficulties. Such FSAs are gained experientially. They require time to develop and nurture, making them more difficult to codify and imitate. Thus, while MNEs risk losing their FSAs in an environment where government policies promote local actors, at the same time, they have learned to be vigilant, upgrading technological know-how and improving processes.

A key conclusion of this research is that, while learning and experience are important FSAs, it is critical to be aware of their vulnerability in international markets, particularly those that are highly regulated and where foreign operators are denied access to key market segments. Moreover, it would be wrong to expect that technological prowess and brand recognition will continue to be sustainable competitive advantages in the new global context, where emerging market companies are increasingly important actors both at home and abroad (Horner and Nadvi, 2018; Zeng and Williamson, 2007). As the center of gravity of the global economy shifts towards emerging markets, new challenges emerge for traditional MNEs. Their capacity to survive in this new context will require both innovation and vigilance. It is clear from this research that the contribution of FSAs to a company’s
competitive position evolves in concert with changes in that environment; however, further research is needed to assess the dynamics of a company’s FSAs within different operating environments.

References


Further reading


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How does home country bribery affect firms’ foreign market focus?  
The case of firms in transition economies

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Abstract

Purpose – Drawing on the bribery literature, this paper aims to examine the effect of bribes paid in the home country on firms’ decision to internationalize through exports from transition economies. It also investigates whether the effect of home country bribery may vary from new ventures to established firms, and from those firms that operate in an environment with high to low informal competition.

Design/methodology/approach – This paper tests several hypotheses using a panel data with fixed effects based on a sample of firms in transition economies from the Business Environment and Enterprise Performance Survey.

Findings – First, home country bribery in transition economies can make domestic markets more lenient and dampen firms’ motivation to seek opportunities abroad. Second, new ventures have a higher motivation to focus on their domestic markets after paying bribes. Finally, despite the benefits accrued in the home country through bribery, firms that face a higher level of informal competition in the home country are more likely to seek opportunities abroad.

Practical implications – Managers in transition economies should consider their home country bribery activities in their evaluation of foreign market opportunities. Firms that use money to influence home country government officials, especially new ventures, are advised to have a more holistic view in evaluating foreign market opportunities so they will not miss out on new opportunities.

Originality/value – This paper advances literature on home country institutions and the research on firm global strategies. Moreover, it also highlights several contingencies that shape the effect of home country bribery on firms’ foreign market focus.

Keywords Transition economies, New venture, Foreign market focus, Home country bribery, Informal competition

Paper type Research paper

Introduction

Although illegal and unpalatable, business-related bribes exist in almost every society (Donaldson and Dunfee, 1999; Getz and Volkema, 2001). In transition economies especially, the estimated amount of bribes paid is US$20bn to US$40bn annually (Transparency International, 2009). Bribery is relatively salient in these countries (Filatotchev et al., 2008; Spicer et al., 2000) because governments have certain discretion over the use of valuable
resources, information and law enforcement (Lee et al., 2010). High levels of discretion and power attached to government officials allow them to solicit illegal payments from firms (Doh et al., 2003; Rodriguez et al., 2005) in exchange for needed resources and public services. While scholars have provided much insights for bribery (Cuervo-Cazurra, 2006; Park, 2003; Yim et al., 2017), most studies focus on the determinants of bribery rather than its strategic implications. In particular, the literature has been relatively silent regarding how bribery may affect firms’ foreign market strategies. To fill this gap, this study examines how bribery in the home country may influence firms’ motivation to seek opportunities abroad. Specifically, we ask the following questions:

- How does bribery in the home country influence firms’ interests in foreign markets?
- Under which conditions is this effect strengthened or weakened?

Drawing upon the literature on corruption and bribery (Rodriguez et al., 2005; Rose-Ackerman, 1997), we develop arguments examining how home country bribery affects firms’ foreign market focus and the contingencies that shape this proposed effect. By doing so, our study makes three contributions to literature. First, prior research has maintained that when market mechanisms are not well-developed, the institutional void would be substantial (Khanna and Plaepu, 1997, 2000). Our study adds to this literature by articulating how firms may cope with these institutional voids through bribery, in return for the needed resources or favors in the domestic market (Oliver, 1991; Witt and Lewin, 2007). Second, we contend that bribery in the home country has crucial implications for firms – it enhances firms’ interest in the domestic market while reducing the motivation to seek foreign markets. Third, our study examines whether this effect is moderated by key contingencies pertinent to transitional economies.

Whether firms are new ventures is a critical contingency in our study. We assert that new ventures are more vulnerable in hostile home countries, which could be described as a “sparse” entrepreneurial environment (Dubini, 1988) as adequate mechanisms that support new ventures are not fully established (Lyles et al., 1995). New ventures may also lack the experience, resources and support to move beyond their home market, thus having less motivation to enter foreign markets. As new ventures bribe home country officials, the advantages resulting from bribery may enhance their positions in the domestic market while reducing their interest in exploring foreign markets.

In addition, we propose that competitive pressure from the informal sector would shape the impact of home country bribery on firms’ interest in seeking foreign markets. The underdevelopment of institutions may also breed an informal economy, where business entities without the legal identities can operate and compete against legal ones (Castells and Portes, 1989; Schneider and Enste, 2000). These informal entities create obstacles for formal firms’ home country operations (Bruton et al., 2012; La Porta and Shleifer, 2008). In this study, we argue that the presence of informal firms in a country may erode the benefits from bribery and thus alter its effect on firm market focus.

Furthermore, the fact whether firms are new ventures or not and the informal competition can operate simultaneously in changing the effect of home country bribery. While new ventures that bribe home country officials have some motivation to focus on the domestic market, they are likely to seek opportunities abroad when there are strong competitive forces of the informal firms. We test these arguments using a panel data of firms located in 26 transition economies. We develop a unique database using the multi-country and multi-year surveys initiated by the European Bank for Reconstruction and Development (EBRD) and the World Bank. Our results provide broad support for our arguments.
Theoretical background

Bribery and firm internationalization

There have been a few studies on the effect of corruption on firms' decision for internationalization, but relatively little is known about the topic (Lee and Weng, 2013; Olney, 2016). While studies in the International Business (IB) literature have examined how institutional misalignments between the needs of firms and the environment lead to firms' escape to foreign countries (Witt and Lewin, 2007; Yamakawa et al., 2008), earlier studies have not examined the effect of bribery payments that are made by individual firms to government officials. While corruption level is one component of institutional quality, firms' decisions to bribe may depend on other factors besides just the institutional constraints that are faced.

Other studies have examined the relationship between corruption specifically and international trade (Levchenko, 2007; Nunn, 2007), but fail to account for individual firms' export decisions as response to perceived corruption. While Olney (2016) complements this literature by providing an individual firm analysis with the Business Environment and Enterprise Performance Survey (BEEPS) data, he proxies corruption as the degree to which firms perceive corruption to be an obstacle to their operations and finds that corruption in developing countries may adversely affect access to foreign markets (Olney, 2016). Our paper differentiates itself by focusing specifically on individual firms' bribes paid to government officials and how that decision affects firms' market orientation, namely, their tendency to venture out in foreign markets through exports.

According to the Merriam-Webster dictionary, bribery is “money or favor given or promised to influence the judgment or conduct of a person in a position of trust,” while corruption is “dishonest or illegal behavior especially by powerful people (such as government officials).” They are both used to describe illicit transactions between the giver and the receiver of payment in exchange for favors but are different in the sense that bribery is used from the giver (firm)’s perspective, while corruption is from the receiver (government officials). In the literature, studies such as Lambsdorff (2007) and Sandholtz and Koetzle (2000) define corruption offenses as inclusive of bribery, embezzlement, fraud, extortion, nepotism and kickbacks. From these definitions, we could infer that applied to our context, bribery is firms’ act of using payments for favors, while corruption means the overall, comprehensive tendency of government officials in a country to engage in and allow illicit behavior for their private gain.

The literature further suggests that firm bribery is quite common in transition economies (Doh et al., 2003; Rodriguez et al., 2005). Governments are an important source of influence on business policies and resource control, and the institutional voids in these countries (Khanna and Praepu, 1997, 2000) provide ample opportunities for mismanagement and corruption (Shleifer and Vishny, 1993). Many transition countries are also marked by the legacies of communism, in the form of political influence, bribery and corruption (Devinney, 2013).

Bribery transactions constitute both demand and supply (Martin et al., 2007; Rose-Ackerman, 1997, p. 34). On the demand side, officials’ discretionary power allows them to (mis)use this authority toward increasing personal welfare (Shleifer and Vishny, 1993). Government officials may accordingly request bribes and kickbacks from private agents to compensate for inadequate salaries (Holmes, 1999). On the supply side, there is no shortage of evidence showing that bribes are used by firms to “seek to influence the agent’s exercise of discretion” (Banfield, 1975, p. 596). Bribes can be offered by firms to ameliorate the inefficiency of formal channels for acquiring public resources. Consequently, researchers
report that more than half of surveyed managers admitted to engaging in bribes proactively rather than passively in less developed countries such as Nigeria (Ufere et al., 2012, p. 2444). While an institutional environment where extortionate bribery demands are common may be characterized as a hostile home country which some firms may respond to through escapism (Witt and Lewin, 2007), some firms may display other strategic responses such as acquiescence or abatement (Oliver, 1991; Witt and Lewin, 2007). We view bribery payments made by firms as an example of firms accepting the institutional misalignment and its cost, as well as attempting to reduce this cost (in the case of bribery to change laws – grand corruption [Rose-Ackerman, 2002]). Even though bribery makes firms’ operations costlier, and thus erode the potential profit that could be realized, the truth is that in an environment where every firm faces bribery demands or ample opportunity to voluntarily offer bribes in return for the anticipated benefits, those firms that choose to accept this condition and pay their dues earn benefits which put them momentarily ahead of their competitors who did not bribe.

The strategic implications of bribery

In countries where government officials hold discretionary power over the allocation of valuable resources, control of information, rulemaking and enforcement amid a lack of sound institutions, firms offer them bribery in “illegal informal exchanges” for certain preferential treatments (Mudambi et al., 2013). First, bribery greases the wheel of commerce (Banfield, 1975; Getz and Volkema, 2001; Luo, 2005; Rose-Ackerman, 1997). Hsieh and Moretti (2006), for instance, document government officials misusing their power to sell public resources or products (e.g. oil) at prices below market values. Under this system of dual prices consisting of “a low state price and a higher free market price” (Rose-Ackerman, 1997, p. 35), firms can obtain resources at a lower cost by bribing.

Second, bribes can buy favorable interpretations of the law and lenient treatments. This is particularly important in transition economies where rules and regulations change frequently and rapidly. Iakovleva et al. (2013, p. 325) interview managers in Russia and Ukraine and find that managers “have to be ready to overcome various bureaucratic barriers” to develop a business. As governments impose regulations, levy taxes, enforce criminal laws and impose these costs selectively on firms, the firms’ competitive positions within the domestic market are shaken. In response, firms may resort to bribes, as government officials have the discretion to “clarify regulatory requirements” and “lighten the regulatory load” (Rose-Ackerman, 1997, p. 36).

For instance, in Russia, bribery fuels the extensive illegal timber trade: firms selling illegally sourced logs can avoid some of the compliance costs and taxes, allowing them to offer logs at significantly reduced prices after bribing corrupt local officials (Vandergert and Newell, 2003). Bribery also allows firms to get away with other forms of corporate malfeasance: vodka manufacturers and retailers in Russia have used money so that officials would turn a blind eye toward tax evasion (Virkunen, 1999). As Pfeffer and Salancik (1978, p. 195) insightfully argue, money has the power to buy “exclusive coverage and competitive advantage.”

In addition, bribes can reduce the obstacles associated with home country operations and speed up necessary bureaucratic processes. This suggests that additional payments could help firms bypass the red tape (Luo and Han, 2009; Rose-Ackerman, 1997) and reduce the adverse impact of red tape (Cuervo-Cazurra, 2006; Doh et al., 2003; Lee and Weng, 2013). Similarly, key resources such as access to credit are usually controlled by governments (Barth et al., 2009). Certain amounts of financial incentives therefore can be instrumental in
helping firms acquire the needed financial capital for their operations (Khwaja and Mian, 2005).

Hypotheses

_How home country bribery affects firm foreign market focus_

One important strategic decision firms must make is whether to move beyond its domestic market by exploring international markets. While firms may have different options for tapping into foreign markets, making sales in foreign countries is a common method given the relatively low commitment and risk involved (Johanson and Vahlne, 1977; Oviatt and McDougall, 1994). As all firms have limited resources, an emphasis on foreign market sales would ultimately “affect the allocation of resources […] in the domestic market” (Campa and Guillén, 1999, p. 1463). On the other hand, a greater emphasis in the domestic market would mean that firms become more focused on their home countries and less on foreign markets.

We contend that firm bribery at home may influence its market focus and strategy to sell in foreign markets. This argument is supported by several reasons. First, government officials can “impose costs selectively in a way that affects the competitive position of firms in an industry” (Rose-Ackerman, 1997, p. 36). Firms that bribe can avoid certain costs and obtain additional benefits by seeking “unfair advantages and special treatments” relative to firms that do not (Martin _et al._, 2007, p. 1403). Then the extent to which bribes can strengthen firms’ domestic market positions and make the home country market more attractive.

While the lack of control over the needed resources – such as information regarding changing policies and favorable treatment – creates substantial uncertainty for entities operating within that environment, bribery can be one method to mitigate this uncertainty (Tan and Chintakananda, 2016). Bribery may allow firms to obtain inside information regarding future policies and regulations before their competitors do, such that bribing firms can “occupy a superior position in the market or grasp some early-mover opportunities” (Luo, 2005, p. 131). Since the benefits resulting from firm bribery are mainly applied within the home country (Claessens _et al._, 2008; Khwaja and Mian, 2005), firms that use bribery to acquire resources in the home country may be less likely to abandon these benefits. In contrast, firms that bribe less have relatively fewer benefits to give up should they decide to tap into markets beyond their home bases.

Bribing firms may accordingly be motivated to focus on the reduced risks and enhanced competitive positions within their domestic market (Ito and Pucik, 1993). In general, foreign firms are inherently in a disadvantageous position relative to local competitors when operating within foreign countries, as local knowledge is difficult to obtain (Eden and Miller, 2004; Zaheer, 1995). The more firms bribe in the home country, the more attractive the domestic market will be. Thus, when bribing – acquiescing to the institutional weaknesses – gives firms benefits, paying more bribes would provide firms certain advantages in the home country. As such, these firms will be motivated to take advantage of the benefits resulting from bribery rather than look for opportunities elsewhere. We therefore argue:

_H1_. Bribery in the home country will reduce firm focus on foreign markets.

We note that this hypothesis is a general prediction, and its effect may vary depending on certain contextual factors. To better understand the effect of home country bribery, it is useful to examine these critical contingencies. In the present study, we consider two factors as such: the distinction between new ventures and established firms as well as the competition from informal firms in a home country.
Moderating role of new ventures

While both established and newer firms need government resources, new ventures are inherently in a more disadvantageous position since they are more vulnerable and resource-poorer than established firms. Prior research notes that young firms face certain difficulties and greater risk of failure (Coleman, 2004; Hannan and Freeman, 1984), also discussed as the “liability of newness” (Stinchcombe, 1965). New ventures face greater resource constraints and lack legitimacy (Aldrich and Fiol, 1994), and they also “possess comparatively little power and may be at the government’ mercy relative to firm performance” (Sproul et al., 2014, p. 1). Thus, the resources that they could gain from the government from bribing would be more crucial and valuable, compared to the same amount of government resources earned by established firms.

Especially in transition economies that lack adequate and legitimate market mechanisms that support new ventures (Dubini, 1988), ventures may resort to use bribes to create a more favorable environment (Pfeffer and Salancik, 1978). For example, some entrepreneurs in Russia reported that bribery expedites public utility service such as telephone installation, and the opportunity to purchase equipment from state enterprises (Webster and Charap, 1993). Some of the managers in venture firms also recognized that bribery was needed to obtain leases, lower raw material prices and lock in contracts, as well as bank credit (De Melo et al., 1995).

Jancsics’(2013) interviews with Hungarian entrepreneurs also find that bribery is necessary to acquire needed resources. One manager even commented that, “I would say that small entrepreneurs are trained for it [petty corruption] because it is necessary for survival” (Jancsics, 2013, p. 329). The importance of bribery is perhaps best illustrated in an entrepreneur’s comment that, “I see bribe payment as business investment [...] like buying input materials” (Ufere et al., 2012, p. 2445; emphasis added). These remarks suggest that bribery helps new ventures obtain the resources necessary for their domestic operations.

As new ventures started off with a greater need for resources compared to their established counterparts, the consequences of bribery – to obtain benefits and reduce costs – would have a different effect. For them, the benefits from bribery may seem more important to leverage for better survival and success. These benefits are obviously most useful for domestic operations, and in most cases, “for new ventures [...] the local environment is noted to be the primary source of resources needed for operations” (Fernhaber et al., 2008, p. 267, emphasis added). Home country government resources procured through bribery are therefore particularly important for new ventures. We thus argue that the effect of home country bribery will be more pronounced for new ventures than for established firms:

\[ H2. \] The negative relationship between home country bribery and firm focus on foreign markets will be stronger for new ventures.

Moderating role of competition from informal firms

Another condition that could change the effect of home country bribery is the competition from informal firms in firms’ home bases (Capelleras et al., 2008). Informal firms are business entities that are not registered but still operate and compete against legally registered firms (Bruton et al., 2012; La Porta and Shleifer, 2008). In other words, these firms do not officially exist in the government registry but operate in the marketplace. These “underground” firms are relatively away from government officials’ discretion (Castells and Portes, 1989).

While some competition and inter-firm rivalry is fair (Nickell, 1996), the competition from informal economy is often unfair and places significant pressure on legal firms. Informal
firms have certain advantages vis-à-vis formal firms owing to the cost savings generated by circumventing taxes, labor laws and other regulations: they can hire cheaper labor and price goods below the accepted formal market rate (Farrell, 2004; La Porta and Shleifer, 2008). Two-thirds of the 40,757 firms in the World Bank Enterprise Surveys from 2006 to 2011 considered informal competition as a major obstacle to their business (Friesen and Wacker, 2013).

We accordingly argue that the effect of benefits gained via bribery within the domestic market may be dissipated by informal competition. While firms bribe home country government officials for resources and improved positions in the domestic market, if these resources cannot be well protected and lose their value in their home country due to informal competition, there will no longer be a reason to focus on the domestic market, and firms may choose to avoid the home country environment, which could be done by investing more in foreign markets (Cuervo-Cazurra et al., 2014). If the government fails to curb the threat of unregistered firms, despite the fact that firms bribe officials for advantages in the home country, there will be less incentives for these firms to stay in an environment with unfair competition, and they would be inclined to look for opportunities abroad. We thus propose that the effect of domestic bribery may be reduced as the competition from informal firms in the home country increases:

H3. The negative relationship between home country bribery and firm focus on foreign markets will be weaker for firms operating in countries with stronger competition from informal entities.

**Moderating role of new ventures and informal competition**

We have argued that bribery within the home country can have differential impacts on new ventures versus established firms, and that the level of informal competition could alter the effect of home country bribery. These arguments consider the factors shaping the effect of home country bribery separately; yet these two contingencies could interact in shaping a firm’s foreign market focus. New ventures face reduced survival prospects and are particularly vulnerable (Baik et al., 2013) and thus value government resources gained through bribery relatively more than established firms. However, when competition from informal firms erodes the benefits of bribery, new ventures would be even more motivated to escape the home country environment which no longer helps them.

As new ventures are more sensitive to informal competition compared to established firms, they may perceive that the benefits from bribery is even more diminished as informal competition becomes intensified. Relatively young and small firms often consider informal pressures to be major challenges (Gonzalez and Lamanna, 2007). Many entrepreneurs in Albania, a former transition economy, responded that unfair competition from non-registered enterprises was “the largest obstacle to their success” (Bitzenis and Nito, 2005).

Put differently, among the firms that face high informal competition in a given country, new ventures would be particularly more susceptible to informal competition given the lack of experience and legitimacy – i.e. liability of newness (Freeman et al., 1983). Consequently, with greater informal competition, these new ventures will have a stronger motivation to seek opportunities overseas for resources than established firms. More developed foreign markets may provide a better regulated environment as well as having less informal competition (Ghemawat, 2001). New ventures from transition economies would therefore be motivated to seek opportunities in a more developed foreign market where they face reduced transaction costs (Lee et al., 2009; Luo and Wang, 2012).
This is in line with prior research noting that firms occupying non-dominant market positions are apt to explore foreign markets to avoid keen competition at home, particularly that from informal firms (Ito and Pucik, 1993; Sakaibara and Porter, 2001). We therefore contend that under the condition of strong informal competition in the home country, new ventures, even with more home bribery that would make domestic market attractive, will be more likely to seek opportunities abroad:

\[ H4. \] While the relationship between home country bribery and firm focus on foreign markets is stronger for new ventures, this effect will be weaker if the new ventures operate in countries with stronger competition from informal firms.

**Methods**

**Data**

We test our hypotheses using a panel data of firms from the BEEPS, a cross-country, large-scale project jointly conducted by the EBRD and World Bank. Its objective is to assess a country’s institutional environment from the perspective of businesses. Toward this goal, its researchers designed standardized questionnaires and collected data in 2002, 2005, 2009 and onwards. During each wave, the BEEPS covered more than 20 countries, primarily those in Eastern Europe and Central Asia.

This survey is one of the most suitable databases for studying firm bribery for three reasons. First, it includes detailed questions regarding bribery, asking managers to reflect the amount of bribe paid to officials. Second, the survey instrument was developed and modified multiple times before implementation, to be applied to different countries with reasonable consistency. Finally, it uses the stratified sampling method in each country, which ensures that the surveyed firms in different countries are properly chosen. Given these merits, the database has been used by prior studies (Lee and Weng, 2013; Spencer and Gomez, 2011; Yim et al., 2017).

While the BEEPS is a survey in nature, there are reasons to believe that it is not severely affected by potential response bias and common method variance (Chang et al., 2010). First, the main variables used in our study did not strongly rely on perceptual measures. We used questions that specifically asked for actual behaviors. For example, our primary variables such as firm focus on foreign markets and bribery within the home country are based on behaviors rather than perception. These questions are less cognitively demanding and encourage respondents to reply consistently. Second, following Svensson (2003), we test the non-response bias by examining the observable firm attributes for companies reporting bribery against those that did not. The t-tests on firm size and age were not significant (both \( p > 0.1 \)), suggesting that the non-response bias is not a major concern.

We gather our sample by taking three steps. First, we extract a set of firms that are repeatedly observed in 2002, 2005 and/or 2009. Firms that are observed only once in the observation period were excluded. Second, we focus on transition economies, which are defined as formerly communist countries that adopted the socialist system (Hoskisson et al., 2000). Third, we exclude observations with missing values in our theoretical variables. Taking these steps, we have 1,298 firms and 2,684 firm-year observations for analyses. The Appendix provides an overview of our sample.

**Dependent variable**

*M 25,51,000.00

**Firm foreign market focus** refers to the extent that a firm emphasizes foreign versus its domestic markets. This variable is measured using the ratio of foreign sales over total sales, which suggests the importance of foreign markets relative to the domestic market for the
firm. The indicator has been used by prior research (Geringer et al., 2000). This variable ranges from 0 to 100, with higher values indicating greater emphasis on foreign versus domestic market.

**Independent and moderating variables**

**Home country bribery.** Following Fisman and Svensson (2007), we identify a firm’s home country bribery by using the ratio of the firm’s payment to home country government officials scaled by its domestic sales. Information on the bribery amount is developed using the survey question from the BEEPS questionnaire: “[o]n average, what percent of total annual sales do firms like yours typically pay in unofficial payments/gifts to public officials?” Because the BEEPS is intended to “gather information and opinions about the investment climate in this country” (emphasis added), we believe that this item is mainly about domestic bribery rather than foreign bribery.

While this question does not directly ask what the focal firm paid, asking about “firms like yours” could be suitable for sensitive issues such as bribery. In fact, this method has been used extensively in studies using survey data in various fields. Indirectly framed questions were found to increase the response rate and motivate more honest responses because the respondents are bound by the social desirability bias of over-reporting their own good behavior and underreporting bad behavior (Fisher, 1993). The indirect questioning method allows respondents to feel that they are not being directly scrutinized, and thereby produces a clearer picture of what people actually did (Lusk and Norwood, 2009).

Respondents’ estimations regarding others have been found to be more exactly correlated with their actual future behaviors versus respondents’ statements about themselves (Epley and Dunning, 2000). It is also found that managers are most likely to respond to the indirect questions based on their own experiences; therefore, their responses can be interpreted as indicating the firm’s own behavior (Johnson et al., 2000). Accordingly, the question of bribery has been commonly used to measure bribery in the literature (Fisman and Svensson, 2007; Johnson et al., 2000, Lee and Weng, 2013).

**New venture.** The literature distinguishes new ventures from established firms using firm age (Fernhaber et al., 2008; McDougall et al., 2003). Following McDougall et al. (2003), we used a binary variable to categorize firms that are five years old or younger as new ventures, while firms above this threshold are noted as established firms (1 = new ventures, 0 = established firms). According to the Small Business Administration (1992), the first five years are a critical period during which survival is determined for most firms.

**Competition from informal firms in the home country.** Although prior research has suggested that competitive pressure can be measured by the Herfindahl-type index, such an indicator is unavailable as the information on unregistered firms’ sales is unobtainable. In this study, we measured competition from informal firms in the home country using the amount of goods or services in the market concealed from public authority scaled by that nation’s gross domestic product (GDP). The rationale behind is that a certain proportion of a country’s production is from unregistered firms, and that the greater this proportion, the more problematic informal competition would be. This variable is obtained from Schneider et al. (2010). This variable is a continuous indicator with higher values indicating stronger competitive forces from informal firms in a home country. In our data, the lowest value for this variable is 17 (Slovakia), and the highest is 67 (Georgia).

**Control variables**

Our model includes several control variables that account for correlates with firm foreign market focus. First, at the firm level, we control for firm size, R&D, advertising intensity and
government contract. Large firms are likely to have greater foreign market focus, and companies with stronger technological know-how and marketing resources have higher tendencies to explore foreign markets. Firm size is measured by the number of employees (logarithm). R&D intensity and advertising intensity are measured as the ratio of R&D expenditures and marketing expenditures over firm domestic sales. Government contract, on the other hand, is a binary variable indicating whether firms have home country governments as their clients (1 = yes and 0 = no).

Second, the decision to venture out into foreign markets can be influenced by shareholders. In contrast with foreign invested firms that often focus more on foreign markets (Filatotchev et al., 2008), companies owned by home country governments generally act otherwise (Estrin et al., 2016). Given this, we include foreign ownership and government ownership as control variables, which measure the proportion of ownership held by foreign shareholders and home country governments.

In addition, as resources and assets are likely to be distributed unequally among firms, firms that are efficient in managing their operations are likely to seek foreign markets. In light of this, our model included capacity utilization as a control, measured by firms' output over the maximum of possible output found in the survey. In a similar vein, we control for new product development, a dichotomous variable indicating whether firms had developed a new product within the past three years (Golovko and Valentini, 2014).

Third, as home country contexts have a profound impact on firm bribery (Martin et al., 2007), firms' motivation to explore foreign markets can be affected by the development of their home countries. In light of this, our models include GDP (logarithm) and EU, a binary variable that was coded as 1 if a nation had a European Union membership at the time of the survey year, and 0 otherwise. Finally, our models include a battery of year and industry dummies. We create two dummies to denote years 2005 and 2009 to capture any periodic effect in comparison to year 2002, which is the base year. Industry information, on the other hand, was based on a question asking respondents to indicate from which sector firms generated the most revenues: textiles, garments, chemicals, plastics and rubber, basic metals, etc. The baseline category is “other manufacturing.”

Analytic approaches
We have three issues to consider for the analytic approaches. First, as our data have firms appearing multiple times and thus has panel data structure, it is crucial to determine whether random or fixed effects models should be used. The Hausman test is useful in examining the correlation between unobserved individual effects and observed predictors (Greene, 2008, pp. 200-210). As the Hausman (1978) test is significant ($\chi^2 = 154.67, p < 0.001$), the null hypothesis that individual effects are uncorrelated with the regressors is rejected, suggesting that the fixed effect model would be more suitable. The use of firm-fixed effects means that the reported models explain within-firm variation in the market focus rather than inter-firm variation in the market focus. We used Stata’s “xtreg, fe” command for the estimation.

Second, the measure of home country bribery deserves our attention. An assumption of the OLS model is that independent variables are exogenous. As bribery is likely an endogenous variable (Martin et al., 2007; Svensson, 2003), models without considering the endogeneity problem may generate biased estimates. One way to alleviate the endogeneity issue is to use the instrument variable (IV) approach (Greene, 2008). A good instrument is expected to be strongly correlated with the independent variable but weakly correlated with the dependent variable. In the present study, we instrumented a focal firm’s bribery using the average bribery level of other firms from an industry located within the same city.
Firms’ locations were identified using an item in BEEPS which categorized all firms’ locations into 134 unique areas in 26 countries.

This instrument was considered as other firms’ bribery activities may be correlated with a focal firm’s bribery but not necessarily affect the focal firm’s focus on foreign markets. We obtained this instrument by first identifying a firm’s location using an item in BEEPS. We then calculated the average bribery level for other firms within the same industry while excluding a focal firm’s own bribery level. The average bribery level of other firms is strongly correlated with a focal firm’s own bribery ($r = 0.17, p < 0.001$) but weakly correlated with foreign market focus ($r = −0.06, p < 0.05$), suggesting that the instrument is suitable. In our models, all the independent and control variables are lagged. As our data set included multiple observations for the same firm, we used the Huber–White sandwich estimator that generates robust variance estimates and robust standard errors.

**Results**

**Main findings**

Table I summarizes the descriptive statistics and correlations of our variables. As shown, our sample firms have a relatively low focus on foreign markets (Mean = 10.63) and show a reasonable variation (S.D. = 25). On average, these firms paid 0.83 per cent of their sales to home country government officials. Multi-collinearity is not a major concern as the highest VIF value is 3.23, which is below the recommended threshold of 5.3 (Hair et al., 1998).

Table II summarizes the results of regression models. Model 1 includes the control variables, Model 2 tests the effect of home country bribery and Model 3 adds the interaction of bribery in the home country and new venture. Models 4 tests the moderating effect of informal competition, and Model 5 includes the three-way interaction term. All models are significant ($p < 0.001$), suggesting that the independent variables have high explanatory power.

$H1$ argues that firms that pay bribes in their home countries will focus less on foreign markets. In Model 2, the coefficient of bribery in the home country is negative ($β = -1.65, p < 0.05$). It means that holding all other factors as equal, a standard deviation increase of home country bribery will reduce firm focus on foreign markets by 4.43 per cent. As the average firm’s foreign market focus in our data is not high, the effect is economically relevant. This finding provides strong support to $H1$.

$H2$ contends that the effect of home country bribery will be stronger for new ventures than for established firms. According to Model 3, the interaction between bribery and new ventures is negative and significant ($β = -5.42, p < 0.001$). The economic significance of this variable can be examined by adjusting the values of home country bribery and new ventures. A standard deviation increase of home country bribery from the mean would lower an established firm’s focus on foreign markets by 4.11 per cent. In contrast, for new ventures, a standard deviation increase in home country bribery will reduce foreign market focus by 18.50 per cent. As the change of the foreign market focus is fairly large (14.39 per cent), $H2$ is supported.

$H3$ argues that the negative effect of home country bribery will be reduced when firms face greater competition from the informal sector within their home countries. A positive interaction between home country bribery and competition from informal firms would support this hypothesis. In Model 4, we find a positive interaction between bribery within the home country and competition from informal firms ($β = 0.15, p < 0.01$). The effect of this estimate is also economically relevant. If we set informal competition at the mean level, then a standard deviation in home country bribery will decrease firm focus on foreign markets by 9.58 per cent. However, if we move informal competition to a one standard
### Table I. Descriptive statistics and correlations

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<td>2. Home country bribery</td>
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<td>8. Capacity utilization</td>
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<td>9. Government contract</td>
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<td>-0.02</td>
<td>0.32</td>
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<td>10. Government ownership</td>
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<td>11. Foreign ownership</td>
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<td>12. New product development</td>
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<td>13. GDP</td>
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<td>-0.01</td>
<td>-0.12</td>
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<td>0.00</td>
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<td>14. EU</td>
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<td>-0.02</td>
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<td>-0.47</td>
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**Notes:** N = 2,684; correlations greater than 0.05 are significant at the 0.05 level; correlations greater than 0.07 are significant at 0.01 level
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<th>Independent variables</th>
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<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
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<td>Firm size</td>
<td>$6.52^{*}$ (3.56)</td>
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<td>$4.78^{*}$ (2.24)</td>
<td>$5.74^{*}$ (2.42)</td>
<td>$5.43^{*}$ (2.10)</td>
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<td>R&amp;D intensity</td>
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<td>$-0.25$ (0.20)</td>
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<td>$-0.24$ (0.18)</td>
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<td>Advertising intensity</td>
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<td>$0.17$ (0.24)</td>
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<td>$0.14$ (0.21)</td>
<td>$0.15$ (0.18)</td>
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<td>Capacity utilization</td>
<td>0.04 (0.11)</td>
<td>0.04 (0.08)</td>
<td>$-0.04$ (0.07)</td>
<td>0.09 (0.07)</td>
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<td>Government contract</td>
<td>1.61 (4.91)</td>
<td>5.07 (3.93)</td>
<td>$5.65^{*}$ (3.27)</td>
<td>5.61 (3.49)</td>
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<td>$-0.77^{*}$ (0.34)</td>
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<td>$-0.66^{*}$ (0.31)</td>
<td>$-0.51^{*}$ (0.27)</td>
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<td>Foreign ownership</td>
<td>7.77 (7.92)</td>
<td>8.46 (5.87)</td>
<td>3.59 (4.97)</td>
<td>11.97 (5.29)</td>
<td>7.65 (4.75)</td>
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<td>New product development</td>
<td>$-3.64$ (5.20)</td>
<td>$-3.25$ (3.91)</td>
<td>$-1.73$ (3.26)</td>
<td>$-2.11$ (3.48)</td>
<td>$-2.53$ (3.08)</td>
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<td>GDP</td>
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<td>12.23 (14.93)</td>
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<td>$-0.85$ (3.52)</td>
<td>0.18 (3.78)</td>
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<td>New venture</td>
<td>0.69 (5.21)</td>
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<td>$-0.11$ (3.46)</td>
<td>0.47 (3.70)</td>
<td>$-1.34$ (3.42)</td>
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<tr>
<td>Competition from informal firms</td>
<td>$-3.12$ (7.19)</td>
<td>5.52 (5.75)</td>
<td>4.76 (4.78)</td>
<td>1.53 (5.21)</td>
<td>$-0.14$ (4.67)</td>
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<tr>
<td>Home country bribery (H1, −)</td>
<td>$-1.65^{*}$ (0.63)</td>
<td>$-1.54^{*}$ (0.53)</td>
<td>$-3.56^{*}$ (0.74)</td>
<td>$-2.73^{*}$ (0.69)</td>
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<tr>
<td>Bribery × New venture (H2, −)</td>
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<td>$-5.42^{*}$ (1.08)</td>
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<td>$-4.60^{*}$ (1.14)</td>
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<tr>
<td>Bribery × Competition from informal firms (H2, +)</td>
<td></td>
<td></td>
<td></td>
<td>0.15^{**} (0.04)</td>
<td>0.10^{**} (0.03)</td>
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<tr>
<td>New Venture × Competition from informal firms</td>
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<td></td>
<td>0.39^{*} (0.20)</td>
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<td>Bribery × New venture × Competition from informal firms (H4, −)</td>
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<td></td>
<td></td>
<td>0.09 (0.08)</td>
</tr>
<tr>
<td>Intercept</td>
<td>4.72 (8.56)</td>
<td>$-5.11$ (6.96)</td>
<td>$-4.69$ (5.59)</td>
<td>$-2.97$ (5.61)</td>
<td>$-6.95$ (5.44)</td>
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<tr>
<td>$R_2$</td>
<td>0.40</td>
<td>0.47</td>
<td>0.64</td>
<td>0.59</td>
<td>0.45</td>
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<tr>
<td>Model F</td>
<td>1.78^{**}</td>
<td>3.38^{**}</td>
<td>1.78^{**}</td>
<td>2.72^{**}</td>
<td>3.96^{**}</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05; **p < 0.01; ***p < 0.001; +p < 0.1; Robust standard errors clustered at the firm level are shown in the parentheses.
deviation above the mean, the same amount of bribery would lower firm focus on foreign markets only by 4.88 per cent. As the change of foreign market focus is non-trivial (4.7 per cent) in our context, the finding provides support for H3.

H4 proposes that the interaction effect between bribery and new ventures will be reduced in countries where informal competition is intense. This hypothesis predicts a positive three-way interaction of between country bribery, new ventures and informal competition that affects firm focus on foreign markets. The result is shown in Model 5. While the sign of the interaction variable is positive as expected, it is non-significant ($p < 0.1$), thus $H4$ is not supported.

To gain additional insight, we graphed the interaction effects in Figure 1. In creating Figure 1, we set the low (high) value as one standard deviation below (above) the mean and calculated the predicted values for the outcome variables. The plots shown in Figure 1 are

![Figure 1](image.png)

**Figure 1.** Interaction plots

**Notes:** (a) Interaction of home country bribery and new ventures; (b) interaction of home country bribery and competition from informal firms
consistent with our hypotheses. Plot (a) shows that although bribery in the home country generally reduces firms’ focus on foreign markets, the impact of bribery is greater for new ventures than for established firms, which supports H2. Similarly, plot (b) indicates that while the relationship between home country bribery and foreign market focus are both negative for firms facing lower and higher informal competition, the slope of the firms operating in countries with higher informal competition is flatter than the slope than those firms operating in countries with lower informal competition. Such a finding is consistent with the idea of H3.

Robustness checks
Aside from the main findings, we also perform several additional analyses to ensure that our results are robust. First, as our dependent variable has both a lower and upper limit bound (0 and 100 per cent, respectively) we use a two-sided Tobit regression as estimation technique (Greene, 2000). We run Tobit models with clustered errors by industry using the command `xttobit varlist, ll(0) ul(100)`. According to Table III, our results also hold in the Tobit models.

We also consider the multi-level structure of the variables (firm-, industry- and country-level), and use multilevel modeling techniques to analyze our data with Stata’s `xtmixed` command. Our use of these mixed models allows for clustering of observations in groups, which constitute a hierarchical level above each data level, such as industry and country levels (Schielzeth and Nakagawa, 2013). We find that the results of these models are also consistent, with the exception of the non-significance for the interaction term between bribery and competition from informal firms, which is one of the limitations.

Second, we consider several additional country-level variables that may be relevant given our research topic including government corruption (Kaufmann et al., 2009), rule of law (Kaufmann et al., 2009), political constraint (Henisz, 2000) and incidence of national leader change. Government corruption was measured by control of corruption index; the original values range from −2.5 to 2.5, with higher values indicating high control of corruption. To facilitate interpretation, we reverse-code it such that higher values indicate that the government corruption issue is more prevalent. The variable of rule of law is from Kaufmann et al. (2009), and the information of political constraint index is from Henisz (2000). We create a dummy variable `National leader change` to indicate whether a nation’s leader changed in each year. We add these variables separately into our models and perform estimations. The results with these additional controls are consistent with our main findings and may be provided upon request.

Third, although our measure of bribery provides useful information regarding a firm’s home country bribery, a potential limitation is that it may include both passive bribery (e.g. bribes extorted by home country government officials) and active bribery (e.g. bribes used proactively to seek preferential treatments). We therefore endeavor to differentiate active bribery from the passive one. To do so, we first regress the observed bribery amount on government corruption, GDP, firm size, research and development (R&D) intensity, advertising intensity, government contract, new ventures, informal competition and other control variables. Using the estimate results, we calculate the predicted home country bribery.

Accordingly, an alternative home country bribery measure can be developed by subtracting the predicted bribery amount from the observed bribery amount. For instance, if one firm X had the predicted home country bribery of 2.2 per cent and its reported bribery amount is 3 per cent, then the firm’ home country bribery can be coded...
Robustness tests

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Tobit analyses</th>
<th>Mixed effects analyses</th>
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<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Firm size</td>
<td>13.57*** (1.67)</td>
<td>12.50*** (1.10)</td>
</tr>
<tr>
<td>R&amp;D intensity</td>
<td>0.21 (0.28)</td>
<td>0.26* (0.13)</td>
</tr>
<tr>
<td>Advertising intensity</td>
<td>−0.85 (0.53)</td>
<td>−0.90* (0.38)</td>
</tr>
<tr>
<td>Capacity utilization</td>
<td>0.13 (0.12)</td>
<td>0.13* (0.06)</td>
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<td>Government contract</td>
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<td>9.86*** (2.74)</td>
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<td>Government ownership</td>
<td>−0.26*** (0.10)</td>
<td>−0.24*** (0.06)</td>
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<td>Foreign ownership</td>
<td>25.89*** (7.20)</td>
<td>21.06*** (4.58)</td>
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<td>New product development</td>
<td>14.21** (5.23)</td>
<td>7.58* (2.79)</td>
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<tr>
<td>GDP</td>
<td>−1.97 (1.81)</td>
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<td>New venture</td>
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<tr>
<td>Competition from informal firms</td>
<td>−1.17*** (0.28)</td>
<td>−1.12*** (0.21)</td>
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<td>Home country bribery (H1, −)</td>
<td>−2.87* (1.13)</td>
<td>−2.62*** (0.62)</td>
</tr>
<tr>
<td>Bribery × New venture (H2, −)</td>
<td>−5.73*** (1.44)</td>
<td>−5.72*** (1.40)</td>
</tr>
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<td>Bribery × Competition from informal firms (H3, +)</td>
<td>0.12* (0.05)</td>
<td>0.11* (0.05)</td>
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<td>New venture × Competition from informal firms</td>
<td>0.91*** (0.26)</td>
<td>0.41*** (0.12)</td>
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<td>Bribery × New venture × Competition from informal firms (H4, −)</td>
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<td>−0.01 (0.05)</td>
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<td>Intercept</td>
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<td>Log likelihood/Wald χ²</td>
<td>−2094.92</td>
<td>−2090.58</td>
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Notes: *p < 0.05; **p < 0.01; ***p < 0.001; +p < 0.1; *Robust standard errors clustered at the firm level are shown in the parentheses
as 0.8 per cent (3.2 - 2.2 = 0.8). Alternatively, if another firm Y had the predicted home country bribery of 1.4 per cent, while the reported bribery amount is 0.9 per cent, the home country bribery of this firm would be documented as −0.5 per cent (1.4 - 0.9 = −0.5). As can be reasoned, negative values suggest firms paid less bribes than the predicted levels; these are passive bribers. Alternatively, positive values indicate that firms paid bribes more than the predicted amounts and thus are active bribers. Using this alternative bribery variable, we performed additional analyses. The estimations based on this alternative measure of bribery are consistent with our main results.

Fourth, we considered an alternative measure of informal competition in the home country. Although measuring the strength of informal competition is “inherently difficult” (La Porta and Shleifer, 2008, p. 280), we strove to capture the level of competition from informal firms in a particular industry by following two steps. First, we sorted out an item in BEEPS that asked managers to indicate the challenges posed by informal firms: “To what extent the practices of competitors in the informal sectors create obstacle to this establishment?” This item used a 0-4 scale, with 0 being “no obstacle,” while “four being very severe obstacle.” Second, we averaged the values by firms within an industry in a home country to measure the competition from informal firms for each industry. To ease interpretation, we re-scaled this variable to 1-5, with higher values indicating more obstacles created by informal firms in an industry. Results with these industry averaged values for informal competition were very consistent with our main findings[1].

Discussion
The purpose of this study is to examine the effect of home country bribery on firms’ foreign market focus. Researchers have begun to investigate the determinants of firm bribery, a growing topic in the management literature (Cuervo-Cazurra, 2006; Luo, 2005; Spencer and Gomez, 2011). Despite the rich and useful findings, a less explored question is: what are the strategic implications of bribery? In addition, while many studies focus on firms’ bribery activities in host countries (i.e. Di Guardo et al., 2016; Keillor et al., 2005), we look at firms’ bribery in their home country and how this affects their foreign market strategies. In doing so, we wish to advance the literature on home country institutions and the research on firm global strategies (Cuervo-Cazurra, 2011; Ngo et al., 2016; Tan and Chintakananda, 2016).

In this study, we use the literature on corruption (Martin et al., 2007) to study the consequences of firm bribery. We contend that the more firms bribe to gain resources, the more likely their domestic markets would appear attractive, and the less motivation they will have in exploring foreign markets. Building on this baseline argument, we also examine the conditions that may alter the effect of home country bribery, depending on whether firms are new ventures or established firms and the level of informal competition in the home country. We tested these arguments using a panel data of firms in transition economies, and the results provide broad support to our arguments.

Theoretical implications
This study contributes to the IB literature in two major ways. First, our study adds to the literature on government corruption (Doh et al., 2003; Rodriguez, Uhlenbruck, and Eden, 2005) by investigating the implications of home country bribery. We contend that bribery has strategic implications for firms via the benefits and resources it provides. These benefits would induce bribing firms to focus more on the domestic market where obtained government resources and preferential treatments can be harnessed, therefore decreasing their interest in foreign markets.
The second contribution is that our study examines the contingencies that shape the effect of home country bribery. While both established firms and new ventures have incentives to approach officials to achieve their strategic goals, the impact of home country bribery is not the same for them. New ventures generally need more government resources than their established counterparts; thus, the effect of home country bribery which creates a more favorable home country environment is more pronounced for new ventures. Due to these benefits, new ventures’ tendencies to focus on foreign markets diminish considerably more as they pay bribes to home country government officials.

The other contingent factor is the competition from informal firms in the home country (Bruton et al., 2012; La Porta and Shleifer, 2008). These unregistered businesses can move quickly without being regulated and pose challenges to the domestic operations of registered firms. With much informal competition, the benefits of bribery are reduced. In such a case where the home country environment becomes burdensome without much benefits, firms may seek to avoid home countries by exploring foreign markets (Cuervo-Cazurra et al., 2014). This reasoning suggests that while bribery can enhance a firm’s focus on its domestic market, the effect decreases when firms are challenged by intense competition from the informal entities in the home country. By considering these contingencies both theoretically and empirically, our study wishes to provide a more nuanced picture regarding how firms’ bribery in their home country affects foreign market focus.

Practical implications
Our findings have several implications for practitioners. First, managers should be aware that bribery has consequences for their global strategies. Given that the benefits from government resources are country-specific, many bribing firms may find their domestic markets more attractive and thus overlook opportunities in foreign markets. Consequently, practitioners should consider their home country activities (especially bribery) in their evaluation of foreign market opportunities. Firms that use money to influence home country government officials are advised to have a more holistic view in evaluating foreign market opportunities. Despite the potential challenges, new markets in other nations may have the unique resources and endowments that home countries do not readily offer (Ghemawat, 2001). Missing these opportunities may not be in the best interest of firms.

Second, managers in new ventures should be particularly mindful of the implications of bribery. We find that relative to established firms, new ventures generally have greater dependences on the government, and that such reliance will intensify the effect of home country bribery. Due to their newness and resource constraints, ventures are more challenged to compete for public resources against established counterparts. Using money to influence government officials thus is one method to support new ventures’ domestic operations. Aside from this method, entrepreneurial firms could also consider strategically allocating their resources and efforts on nascent industries or to operate in sectors with fewer dominant players, or where governments provide more generous support. By choosing their domains strategically, new ventures will have more chances to secure public resources and improve their survival prospects in the home countries.

Limitations and future directions
Our paper has several limitations that provide opportunities for future research. First, to gain additional insights, we encourage researchers to adopt other methods such as qualitative interviews or more sophisticated questionnaires to capture this effect. Second, in addition to bribery, firms can also cultivate interpersonal relationships or develop political
connections with home country governments (Pfeffer and Salancik, 1978) which would have a positive impact on firm performance. As extensions, researchers can develop frameworks to study these alternative methods.

Third, our research setting is transition economies. Aside from countries included in this study, future studies can examine other emerging economies (such as India or China). Despite the market potential and resources, the institutions in these countries are not fully developed yet and government corruption issues may exist. Scholars therefore can design research to examine how the domestic activities may influence firm global strategies. Fourth, while BEEPS provides rich and detailed information regarding firms’ bribery activities in the home country, information regarding the host countries which these firms explore is largely unavailable. It would be interesting to know whether the effect of home country bribery influence critical decisions in global strategies such as location choices and entry modes.

Conclusion
This study examines how home country bribery may influence firms’ foreign market focus. We contend that domestic bribery allows firms to receive favorable treatments, which makes their domestic environments more attractive. Consequently, home country bribery can facilitate domestic operations and in turn influence firms’ market focus. Building on this premise, we also argue that the effect of home country bribery may be altered depending on two crucial conditions, including whether firms are new ventures or established companies and the competition from informal firms in the home country. Amassing a panel data of firms in multiple transition economies, we find that new ventures have higher tendencies to focus on their domestic markets when they gain benefits from bribery. Moreover, competition from informal firms in the home country prompts firms to seek opportunities abroad despite the resources and favorable treatments acquired from bribery. These findings collectively suggest that firms’ decisions to explore foreign markets are closely related to their home country activities and domestic contexts. In closing, we hope these arguments and findings can simulate more research examining the relationship between home country and firm internationalization.

Note
1. In the interest of space, only part of the robustness checks is shown here, but the full results are available upon request.

References


**Further reading**


### Appendix

#### Table AI. Sample distribution by country

<table>
<thead>
<tr>
<th>Country</th>
<th>No. of firms</th>
<th>No. of observations</th>
<th>Average amount of bribery (percentage in firm sales)</th>
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<td>19</td>
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<td>1.46</td>
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<td>Armenia</td>
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<td>1.33</td>
</tr>
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<td>Azerbaijan</td>
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<td>Belarus</td>
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<td>1.72</td>
</tr>
<tr>
<td>Bosnia</td>
<td>25</td>
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<td>0.72</td>
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<td>Croatia</td>
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<td>Czech Republic</td>
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<td>Estonia</td>
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<td>Ukraine</td>
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**Home country bribery**

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Abstract

Purpose – This paper aims to link location choice and ownership structure to the debate on the multinationality–performance relationship.

Design/methodology/approach – This paper draws on a panel data set that covers 1,321 emerging economy multinational enterprises (EMNEs) and includes 4,227 observations from 44 emerging economies between 2004 and, 2013.

Findings – The empirical results find that multinationality has a positive effect on EMNEs’ performance, and that this positive effect is larger for their investments in developed countries than in developing countries. The study also finds that this positive effect of foreign operation in developed countries switch to negative at higher levels of multinationality for privately owned EMNEs than for state-owned EMNEs.

Originality/value – This paper provides new empirical evidence to support an institutional perspective of the internationalisation of EMNEs that are investing in developed countries, contributing to the multinationality-performance literature, highlighting the importance of foreign direct investment location decision and ownership structure.

Keywords Emerging economies, Firm performance, Ownership structure, Location choice, Multinationality

Paper type Research paper

Abbreviations

CSA = Country-specific advantage
DMNE = Developed economy multinational enterprise
EMNE = Emerging economy multinational enterprise
FDI = Foreign direct investment
FSA = Firm-specific advantage
IB = International business
MNE = Multinational enterprise
MP = Multinationality-performance
POE = Privately owned enterprise
R&D = Research and development
SOE = State-owned enterprise
TCI = Transaction cost/internalisation

Editor notes: We were invited by Prof Davide Castellani (davide.castellani@henley.ac.uk) for the submission of revised manuscript (minor revision) to a multinational business review special issue that is linked to 12th ISGEP 2017 workshop at the University of Reading in the UK.
Introduction
The relationship between multinationality and firm performance has remained an important research issue for business scholars over the past three decades (Contractor et al., 2003; Majocchi and Strange, 2012; Yang and Driffield, 2012; Castellani et al., 2017). Multinational enterprises (MNEs) expand operations across foreign countries. Internationalisation results in costs such as unfamiliarity with foreign markets, sunk costs at early internationalisation and great coordination costs. International expansion also benefits firm performance by helping MNEs access cheaper resources, acquire foreign knowledge, realise economies of scale and exploit firm-specific assets in foreign markets. Overall, the observed multinationality–performance (MP) relationship is the net effect of these costs and benefits (Contractor, 2007).

This paper seeks to link location choice and ownership structure to the debate on the MP relationship in the emerging economy context. The large MP literature mostly relies on the data from developed countries MNEs, and insufficient attention has been given to the emerging economy multinational enterprises’ (EMNEs) international activity, while EMNE’s foreign direct investment (FDI) motivation and investment patterns are very different from developed MNEs (DMNEs; Ramamurti, 2012). Moreover, the extant literature tends to focus on whether the MP relationship is linear; it proposes various functional forms by adding second-order or higher-order terms. The studies on developed MNEs find inconsistent empirical results, including insignificant, positive, negative, U-shaped, inverted U-shaped, S-shaped or even M-shaped relationships. However, they generally ignore how important moderators, such as location choice and ownership structure, shape the MP relationship. Drawing on a data set of 1,321 emerging economy firms, this paper aims to fill these gaps by providing a better understanding of EMNEs’ foreign operations and their performance implications.

FDI location is one important aspect of Dunning’s eclectic paradigm (Dunning, 2000). The location decisions might be influenced by a number of country characteristics that include, but are not limited to, low-cost labour force, cheap natural resources, market size and income level (Dunning, 1988). However, the large literature generally disregards the heterogeneity among different FDI locations and instead chooses an aggregate view of foreign investments. With a few exceptions (Pantzalis, 2001; Berry, 2006), they did not consider the curvilinear MP relationship when considering location choices. Crucially, our data have the information regarding the FDI location. We intend to look into whether the returns to multinationality for EMNEs investing in developed countries are different from those investing in developing countries.

We explore the importance of ownership structure in internationalisation and firm performance. Ownership structure affects FDI motivation and interacts with the home and host environments (Li and Oh, 2016); this will then have an impact on firm’s multinational performance (Child and Rodrigues, 2005). The extant MP literature gives limited attention to ownership structure, particularly from an institutional perspective. The multinational network determines that the MNE could be influenced by home and host institutional environments (Xu and Shenkar, 2002). We aim to examine how the multinational performance of MNEs is affected by the interaction between institutional ownerships (private vs state ownership) and institutional environments in the home and host countries. We compare the performance differences between privately owned enterprises (POEs) and state-owned enterprises’ (SOEs) when investing in developed countries.

It is argued that international business scholars should increase the use of longitudinal data to better understand the relative change of an MNE’s internationalisation over time
To test our hypothesis, we draw on panel data containing 1,321 MNEs from 44 emerging economies over a period from 2004 to 2013.

As in previous related research, we find an inverted U-shaped MP relationship for EMNEs, which seems to be similar to that of DMNEs in some studies (Ruigrok and Wagner, 2003; Qian et al., 2008); however, additional factors matter in EMNEs. Firstly, although a significant positive effect of multinationality on performance at the initial stage is proved, we find that this positive effect is larger when investing in developed than in developing countries. In addition, we find that the positive effect of investing in a developed country at the initial stage is stronger for POEs than for SOEs. These results indicate that EMNEs’ performance benefits a great deal from the enhanced firm-specific advantage (FSA) derived from assets-augmenting FDI in developed countries. This seems to explain why EMNEs tend to invest more in developed countries than in other developing countries (Ramamurti, 2012). Also, these results seem to explain private EMNEs’ institutional escapism (Li and Oh, 2016) and why POEs perform better than SOEs in international operations when facing home institutional push and host institutional pull.

The structure of this paper is as follows. After the introduction section, we provide a review of the relevant literature and develop the hypotheses. The section after explains the methodology, while the section following that discusses the regression results. The final section concludes.

**Literature review and hypotheses development**

Internationalisation provides firms with many benefits (Castellani and Zanfei, 2006). Going abroad can help firms gain access to resources such as cheap labour force (Contractor, 2007). Expanding sales by either exporting or investing abroad allows firms to benefit from economies of scale (Krugman, 1980). MNEs may enjoy reduced costs per unit of output because fixed costs can be spread over a large scale of production. MNEs could exploit their firm-specific assets in the foreign countries and earn abnormal profits through an internalised multinational network (Castellani and Zanfei, 2007; Buckley and Strange, 2011). When investing abroad, a firm can obtain experience and foreign knowledge, which could help MNEs perceive and seize other foreign markets’ opportunity, contributing to their superior performance (Johanson and Vahlne, 1977).

While a number of factors lead to the prediction of a positive effect of multinationality on firm performance, several factors may impose negative impact on profitability. The most important ones are a lack of international experience and growing coordination costs (Qian, 2002). The coordination and governance costs rise with the increased foreign operation (Lu and Beamish, 2004). When operating in multiple countries, the differing institutions and culture add to the complexity of coordination issues (Sundaram and Black, 1992). Hennart (2007) adopts a transaction cost/internalisation (TCI) model to critique the theoretical background of MP literature, particularly focusing on economies of scale, operational flexibility and learning experience. He argues that there is no direct MP relationship. However, Contractor (2007) contends that Hennart’s assumptions about MNEs are too stringent and a TCI lens provides too limited a view, indicating alternative perspectives from strategy and international business literature. Contractor concludes that internationalisation is good for companies.

There is a considerable literature on the MP relationship, but much of it uses data on DMNEs. The empirical results are rather mixed. Some empirical evidence supports that international diversification can enhance firm performance (Kim et al., 1993; Goerzen and Beamish, 2003). However, some papers find a negative relationship (Siddharthan and Lall, 1982; Denis et al., 2002). Recently, scholars have focused more on a non-linear relationship.
Some empirical works find a U-shaped relationship (Lu and Beamish, 2001; Thomas and Eden, 2004), while others discover an inverted U-shaped relationship (Hitt et al., 1997; Qian et al., 2008). Alternatively, some scholars propose S-shaped (Contractor et al., 2003), inverted S-shaped (Ruigrok et al., 2007) or M-shaped MP relationships (Lee, 2010). For a comprehensive summary of the findings of these extant studies, see the recent meta-analysis of Yang and Driffield (2012).

It can be seen that previous empirical literature provides decidedly mixed evidence of the MP relationship, which may be partly owing to the ignorance of important variables such as location and ownership structure, which we will consider in this paper. In addition, these findings are mainly based on the analysis of DMNEs (e.g. the US firms). A few exceptions (Contractor et al., 2007; Gaur and Kumar, 2009) only focus on one emerging country. We need to further discuss whether these findings can be applied to MNEs from various emerging economies. EMNEs are different from DMNEs with respect to the content of their FSA. The emerging giants from several countries, including Huawei (China) and Infosys (India), have attracted attention from both scholars and managers (Khanna and Palepu, 2006). It is fascinating and interesting for academics to understand why and how EMNEs go international and subsequently perform.

Multinationality-performance relationship and emerging economy multinationals

Drawing on Rugman’s CSA/FSA framework, this paper aims to provide a better understanding of the MP relationship for EMNEs. This framework is widely adopted in the international business field to analyse the competitive advantages of an MNE. Linking to internalisation theory (Buckley and Casson, 1976) and the resource-based view (Wernerfelt, 1984), the CSA/FSA framework (Rugman and Verbeke, 2003) emphasises that the interaction and combination of CSAs (e.g. labour force and natural resources) and FSAs (strength, capabilities and unique resources) determine an MNE’s internationalisation activities and its performance implications. Previous studies have positioned the majority of EMNEs in Quadrant 1 (weak FSAs and strong CSAs) in the CSA/FSA matrix (Li and Oh, 2016).

One may incorrectly conclude that EMNEs do not possess FSAs that are similar to those owned by western MNEs. However, EMNEs do own FSAs and we need to consider a broader definition of FSA that a firm can have. Scholars made comparable efforts to identify the non-traditional and unique FSA of EMNEs (Ramamurti, 2009). Based on Rugman and Verbeke (2003)’s CSA/FSA matrix, firms internationalise by leveraging firm-specific advantages (FSAs) and country-specific advantages (CSAs). EMNEs tend to drive performance by leveraging CSA rather than traditional FSA.

Economies of scale are an important CSA for EMNEs as they typically enjoy a large and growing domestic demand base. In addition, EMNEs may have an advantage in the access to some resources (e.g. cheap gas, oil and a cheap semi-skilled labour force). This competitive advantage tends to be location-bound and country-specific (Bhaumik et al., 2016).

EMNEs have non-traditional FSAs in the strategic flexibility in coordinating the use of existing resources and producing low-cost goods (Wright et al., 2005). They have strong capability in adapting the available technology to resource-scarce and labour-intensive production (Bhaumik et al., 2016). For instance, the competitive advantage of India’s IT service industry partly relies on the adaptation of existing communication technology and the abundant supply of educated English-speaking Indian workers who graduate from various engineering education institutes in India (Pack and Saggi, 2006). Also, EMNEs have non-traditional FSAs that it is argued helps facilitate leveraging CSA across national
borders. Internationalisation allows EMNEs to leverage CSA (e.g. economies of scale) across various foreign countries, augmenting their FSAs by leveraging location advantage of host countries, enhancing EMNEs competitiveness and performance in the home country (Bhaumik et al., 2016).

Apart from the developing non-traditional FSAs, recently, they have also been developing the strong FSAs similar to those owned by traditional western MNEs. In emerging economies, a modern set of knowledge-intensive high-tech sectors that are capital-intensive and skill-dependent have grown in parallel with traditional sectors that depend on labour-intensive and natural resource-intensive activities (Narula, 2015). Unlike the DMNEs that use existing resources to expand abroad, EMNEs expand abroad while creating resources (e.g. acquisition of foreign technology; Cuervo-Cazurra, 2012). EMNEs can quickly enlarge firm-specific advantage through acquisitions of foreign strategic assets (e.g. strong brand and technology), if they invest a great deal in their own R&D activity and have high absorptive capacity (Narula, 2015).

Indeed, in recent years, EMNEs have become increasingly able to rely on stronger ownership-specific assets (e.g. latest technology) as a result of the co-evolution of their ownership-specific advantages and their home countries’ national innovation systems (NIS; Elia and Santangelo, 2017). The development of CSA (e.g. knowledge and institutional infrastructure such as universities and R&D clusters conducting research in cutting-edge technologies) in the emerging economies has fed the absorptive capabilities of EMNEs. For instance, China has been ranked number one in the world for host location of greenfield FDI in R&D projects since 2010 (Laursen and Santangelo, 2017). The emerging economies have experienced an upgrade of their technological capabilities and the large availability of talents (Laursen and Santangelo, 2017). This enables them to better understand and absorb the knowledge acquired in the strategic assets augmenting acquisition in developed countries with a strong NIS context (Elia and Santangelo, 2017). This has also fostered the country-specific advantage and, thus, the domestic firms’ FSA (Laursen and Santangelo, 2017).

Given the fast evolution of EMNEs, the international business literature suggests that EMNEs are more and more similar to advanced MNEs in terms of strategic behaviour and performance implications. As the EMNEs become more internationalised or more experienced by operating in a large number of countries, their multinationality does not differ greatly from that of DMNEs, leading to a higher similarity between EMNEs and DMNEs (especially in terms of CSAs and FSAs; Cuervo-Cazurra, 2012).

We draw on Haans et al. (2016) to have a deeper understanding of how the interplay of costs and benefits shapes the effect of multinationality on firm performance. We do this by considering the two latent mechanisms (benefits and costs of multinationality) that determine the relationship (net effects of multinationality on firm performance)

On the one hand, the positive effects are derived from foreign operations. EMNEs have their unique firm-specific advantage derived from country-specific advantage; these include scale economies, natural resources, cheap semi-skilled labour, government support in financing and overseas investment (Bhaumik et al., 2016; Li and Oh, 2016). Their FSAs includes producing products at ultra-low costs, coordinating the use of existing resource, adaptation skills of the available technology and ability to use and upgrade capabilities (Cuervo-Cazurra and Genc, 2008; Ramamurti, 2012). In addition, owing to the enhanced absorptive capabilities fed by improved domestic knowledge and institutional infrastructure, they are able to absorb acquired foreign knowledge and develop traditional FSAs (e.g. advanced technology, global brand and good management team; Laursen and Santangelo, 2017). They are becoming increasingly able to rely on stronger ownership-
specific assets (e.g. latest technology) as a result of the co-evolution of their ownership-specific advantage and the home country’s national innovation system (NIS; Elia and Santangelo, 2017). The positive effect is expected to grow at a declining rate, owing to the diminishing benefit of FSA when it is overstretched in geographically diverse operations (Tallman and Li, 1996; Hitt et al., 1997).

On the other hand, the negative effects are arising from foreign investment. International operations create managerial complexity owing to dissimilar environments such as trade barriers and cultural difference. Coordination problems occur when the firm is operating in unfamiliar foreign environments (Hitt et al., 1997). Managerial complexity increases with multinationality (Grant, 1987), as more intensive foreign operations impose higher requirements on communication and coordination not only between headquarters and overseas subsidiaries, but also among overseas subsidiaries in different countries (Ruigrok and Wagner, 2003). Also, the environmental difference, which increases with the foreign expansion, enhances the risk of misallocation of resources in the firm’s various markets (Hitt et al., 1994). This negative effect of an international presence would grow at an increasing rate.

Taking these two counteracting forces of foreign operations on firm performance together, we subtract the convex increasing function from the concave increasing function. The net effect is an inverted U-shaped relationship between multinationality and firm performance. At low levels of multinationality, the positive effect of firm-specific advantage dominates, leading to a positive impact of multinationality on firm performance. In contrast, at high levels of multinationality, the negative effect of accelerating global coordination costs prevails, thus driving a negative impact of diversification on firm performance. On the basis of the above argument, we propose the following hypothesis:

**H1:** Multinationality has an inverted U-shaped relationship with firm performance for emerging economy multinationals: (a) there is a positive linear effect and (b) a negative quadratic effect of multinationality on performance.

Considering the possibility that the relative strength of two countervailing effects may vary several times throughout the internationalisation process, which leads to higher function forms such as S-shaped (Contractor, 2007) and inverted S-shaped (Ruigrok et al., 2007) MP relationships, we will test these cubic relationships as a robustness check.

**Location choice**

Although we expect the same kind of MP relationship (i.e. inverted U-shaped) for EMNEs relative to DMNEs, additional factors will be relevant in EMNEs, including location choice and ownership structure. To draw a conclusion regarding the MP relationship, most studies discuss internationalisation costs and benefits, and regress the performance measure on different proxies of the multinationality measure. However, the literature generally uses an aggregate measure to examine the multinationality, ignoring the heterogeneity of FDI locations (Beugelsdijk et al., 2010). Yang et al. (2013) find that the returns from FDI are determined by the economic distance between the home and host country. A few papers (Pantzalis, 2001; Berry, 2006) examining the role of location on the MP relationship consider the differences between developed and developing countries. Doukas and Travlos (1988)'s results indicate that if a US MNE acquires a firm in an unfamiliar country, this cross-border acquisition can improve the value of the MNE, suggesting that good location choice enhances firm performance. However, they did not find curvilinear MP relationship when considering location choice.
Much research has been done with respect to the FDI flows from developed country to developing countries, an FDI pattern predicted in the product cycle hypothesis (Vernon, 1966; Ramamurti, 2012). However, the opposite FDI pattern, namely, from developing countries to developed country, has not received enough attention. Further, this opposite FDI pattern could not be explained by an incremental internationalisation process model (Johanson and Vahlne, 1977). EMNEs from some emerging economies tend to invest more in developed countries (dissimilar to home) than in other developing countries (similar to home; Ramamurti, 2012). Therefore, we need a more promising explanation of EMNEs’ FDI location choice. Also, particular attention should be given to the EMNEs’ FDI motivations in developed countries.

It is important to distinguish between asset-exploiting FDI and asset-augmenting FDI. Asset-augmenting FDI has become increasingly important in recent years, particularly among emerging economy MNEs. On the one hand, asset-exploiting FDI prevails among the investments in developing countries. MNEs exploit their firm-specific assets in the developing countries and establish competitiveness in these countries (Dunning, 2000). On the other hand, asset-augmenting FDI dominates among the investments in developed countries. EMNEs acquire foreign strategic assets in the developed countries with the aim of strengthening their capabilities (e.g. technology, marketing and managerial capabilities), leading to enhanced competitiveness and market position in the home countries or other countries (Meyer, 2015). This explains why EMNEs often adopt a high commitment mode such as acquisition to enter a new market, instead of low commitment and low-risk choice such as establishing sales subsidiaries (Madhok and Keyhani, 2012; Ramamurti, 2012).

The extent of knowledge emerging country firms learn through international expansion in developed countries is positive and pronounced. A meta-analysis by Yang and Driffield (2012) finds that developing country firms are, on average, away from the technology frontier, and could learn customer or segment information in overseas markets, leading to a great improvement in technological capability and knowledge know-how. This finding is in line with reverse knowledge transfer literature that states that countries with high technological capabilities can transfer knowledge back to their headquarters, leading to productivity improvements (Driffield et al., 2016).

Again, we use the approach of Haans et al. (2016), with particular consideration given to the two counteracting latent mechanisms (benefits of FDI to developed countries and costs of FDI to developed countries) that determine the relationship (net effect of foreign presence in developed countries on firm performance).

On the one hand, the firm’s enhanced FSAs resulting from asset-augmenting FDI in developed countries (Makino et al., 2002) reinforces the positive effect of foreign operations on firm performance. Through acquiring firms in developed countries to augment strategic assets (e.g. foreign technology and brand and managerial skills), EMNEs have the opportunity to develop their own intangible assets (e.g. technological capability and marketing skills) under the strong protection of intellectual property in developed countries. This is nearly impossible in the home country context where the poor intellectual property enforcement discourages firms from investing in R&D and creating new products (Gaur and Kumar, 2009). If an EMNE holds a geographically diversified portfolio with strong presence in developed countries, its performance is likely to benefit from the increased competitiveness and enhanced FSA to be exploited in the foreign and home markets (Ramamurti, 2012). These effects tend to sharpen the benefit curve at low levels of multinationality and smooth it down at high levels of multinationality; this is because FSA is becoming increasingly overstretched over the geographically diversified operations. This is illustrated by the strengthened latent mechanism of multinationality benefits. In contrast,
the attractiveness of developing countries is characterised by cheap labour and raw materials, which largely resemble that of the home country (Berry, 2006). Therefore, the benefits of a reduction in production costs for a developing country firm through investing in other developing countries are small (Qian et al., 2008). Also, it is less likely to enhance FSA through acquiring strategic assets in developing countries where there are less abundant assets of this type. Therefore, the benefits are less for EMNEs investing in developing countries.

On the other hand, the negative effect on firm performance increases faster at high levels of multinationality when EMNEs invest in developed countries. A greater foreign presence in developed countries makes the coordination more likely to be complex; this is owing to the increasing differences in economic environment and locational factors among developed countries (Qian et al., 2008). Consequently, we could expect a steeper costs curve, where the costs increase much more rapidly when moving to high multinationality. This could be illustrated by the sharper latent curvilinear mechanism of multinationality costs.

Subtracting such negative effects from positive effects of foreign operations in developed countries generates an inverted U-shaped MP relationship. When comparing the net effect of multinationality in developed countries with that of the baseline model, it indicates the different turning points of the two MP relationships. The turning point tends to shift to the left, together with the steepening inverted U curve, suggesting that the peak firm performance will occur earlier when investing in developed countries:

\[ H2a. \text{ Multinationality has a larger positive effect on performance for emerging economy multinationals' investment in developed countries than in developing countries.} \]

\[ H2b. \text{ This positive effect of the investment in developed countries will switch to negative at lower levels of multinationality.} \]

Ownership structure effects

The final concern of our paper is the important role of ownership in the MP relationship, which is insufficiently examined in the extant literature (Al-Obaidan and Scully, 1993). The multinational structure determines that the MNE can be affected by the institutional environment in the home and host countries (Xu and Shenkar, 2002). Institutional ownership (private vs state ownership) plays a vital role in EMNEs' internationalisation (Child and Rodrigues, 2005). SOEs account for many listed firms in several countries such as in China and Singapore (Claessens and Fan, 2002). Among the large firms from the 27 wealthiest economies where privatisation is not completed, 18 per cent are state-owned. State ownership is more common in countries with bad shareholder protection, which is more likely to be the case in emerging economies in which the institution is weak (La Porta et al., 1999). Both POEs and SOEs are increasingly engaging in internationalisation activities (Ralston et al., 2006). It is interesting to understand their internationalisation activity and its performance implications. Previous empirical studies show that state ownership has a negative or non-linear relationship with firm’s performance (Qi et al., 2000; Claessens and Fan, 2002). However, there is insufficient evidence regarding SOE’s multinational performance.

FDI motivations play a pivotal role in EMNEs’ international activities and their performance (Guillén and García-Canal, 2009). POEs tend to have commercial objectives (e.g. escape motive). They seek to escape the poor institution and constraints of their home country and explore for a better host country condition (location-specific advantage). Most POEs are relatively small and constrained by an adverse competition environment in the
home market (Boisot and Meyer, 2008). Thereby, they are more willing to escape this environment, realising economies of scale in a wider global market. POEs’ foreign activities tend to be motivated for economic reasons, suggesting that POEs internationalise for value-adding activities (Lin, 2010). This brings benefits to the host country, including spillover efficiency benefits (Globerman and Shapiro, 2009). Therefore, compared with SOEs, POEs’ FDI activities face less host government discrimination.

SOEs are less likely to have an escape motive as their embeddedness in the political system and their relationship with government guarantees access to domestic financial resources (Li and Oh, 2016). Instead, SOEs have non-commercial objectives. As SOEs’ state ownership conflicts with the dominant ideology in the host country where the market force dominates the economy, their non-commercial objectives may damage the economic infrastructure, imposing costs and risks to the host country (Globerman and Shapiro, 2009). SOEs have to earn legitimacy, as institutional pressures on SOEs are particularly strong when they enter developed countries that have a strong institutional environment (La Porta et al., 1999; Meyer et al., 2014). SOEs’ foreign acquisition projects are more likely to be restricted by the host government (Cui and Jiang, 2012). Therefore, SOEs are more likely to enter the developed countries through greenfield investment (Meyer et al., 2014).

We compare the MP relationships for EMNEs with two types of ownership, namely, private and state ownership. EMNEs’ investment in developed countries has been of particular interest as the recent pivotal phenomenon of POEs’ institutional escapism and SOEs’ investment in developed countries (Li and Oh, 2016). On the one hand, we maintain that the positive effect of multinationality in investment in developed countries is strengthened for POEs. The extent to which POEs and SOEs escape from home country institutional pressure is different. POEs’ goals conflict with those of the home government and complement those of the host government (Li and Oh, 2016). POEs have the incentive to escape from poor home conditions (institutional constraints such as limited access to financial resources, political instability such as a massive negative consequence from allying themselves with the “wrong” political parties and poor intellectual property protection) and look for better host conditions; this is also called POEs’ institutional escapism (Witt and Lewin, 2007; Cuervo-Cazurra et al., 2015; Luiz et al., 2017; Krammer et al., 2018). By investing abroad, POEs not only avoid the poor institutions that limit their development in their home countries, but also gain efficiency improvement from operating at an international scale and develop their FSA by acquiring strategic assets in the host country (Cuervo-Cazurra et al., 2015). Therefore, POEs could be more efficient in exploring foreign countries and benefit more from international operations than SOEs.

The positive effects of multinationality on investment in developed countries are smaller for SOEs. SOEs are embedded in the political systems and can leverage their relationship with the government to mitigate the negative effect of a weak home institutional environment. SOEs’ internationalisation goals complement those of the home government and conflict with those of the host government. SOEs are, therefore, less likely to escape from the home country (Li and Oh, 2016). SOEs may have other non-commercial objectives, such as public policy goals, establishing a foothold, securing crucial natural resources for the home economy and acquiring advanced technology that may be passed to other SOEs in the military sector (Meyer et al., 2014). These non-commercial objectives impose costs and risk to the host country. The host country tends to resist or discriminate against foreign SOEs’ investment (Globerman and Shapiro, 2009). To overcome distrust, SOEs are inclined to adapt their foreign entry strategies to the host’s institutional pressure. SOEs are less likely to use acquisition as the establishment mode, and more likely to adopt a low ownership control mode relative to POEs (Meyer et al., 2014). Therefore, SOEs tend to be less
able to benefit from the enhanced FSA derived from the acquisition of foreign technology, and the larger internalisation benefits resulting from a high ownership control mode. The positive effects for POEs and SOEs are both expected to grow at a decreasing rate, owing to the diminishing benefits of FSAs when overstretched in geographically diverse operation.

On the other hand, the negative effects of multinationality are smaller for POEs than SOEs. Compared with SOEs that face host country discrimination owing to their non-commercial objectives, POEs tend to enjoy host institutional pull and face less host country discrimination owing to their commercial objectives (e.g. profitability), which are regarded as beneficial to the host economy (Globerman and Shapiro, 2009). The negative effects for POEs and SOEs are both expected to rise at an increasing rate; this is because of the accelerating coordination costs and risk of resources misallocation in geographically diverse markets.

The differences of multinationality benefits and costs between POEs and SOEs lead to the different turning points of quadratic net effects. The positive effect of multinationality on performance is strengthened for firms under control of private ownership. It sharpens the benefits curve of POEs at a low multinationality level, and smooths it down at a high multinationality level. The negative effect is weakened for privately owned firms. The costs curve for POEs is increasing at a lower rate compared with SOEs. The turning point shifts to the right for POEs relative to SOEs when investing in a developed country. Our research model is presented in Figure 1:

**H3a.** Multinationality has a larger positive effect on performance for privately owned enterprises than for state-owned enterprises when investing in developed countries.

**H3b.** This positive effect will switch to negative at higher levels of multinationality for privately owned enterprises relative to state-owned enterprises.

**Method**

**Data**

Company data are collected from Orbis data set whose information is maintained by a consultancy called Bureau van Dijck. It provides MNEs’ detailed accounting information, parent–subsidiary ownership links and locations of subsidiaries. We select EMNEs that have an ownership stake of minimum 10.01 per cent (Bureau of Economic Analysis, US Department of Commerce, 1999) of its foreign subsidiaries and have information about

![Diagram](image_url)
subsidiaries’ location, such that we can calculate a key explanatory variable multinationality (MULT, calculated as overseas/total subsidiaries). Information is available from 2004 to 2013.

We select firms that have data available on return on assets, employees, leverage, sales, parent’s ownership structure, parent’s ownership stake of subsidiaries and their locations. Country-level data (GDP per capita, GDP growth and institution) are collected from World Bank sources. Firms with missing values for any of these variables are excluded. In the panel data set, on average, each firm has 3.2 years’ observations. All monetary measures are reported in the US dollars. The final sample includes 1,321 firms with 4,227 observations from 44 emerging economies. Our panel data allow us to examine the dynamic relationships within the data, which is not possible with pure cross-sectional data as in many previous studies (Wooldridge, 2010).

The empirical specification

Multiple regression models with fixed effects estimators are used. Following the empirical specification of several scholar’s works (Contractor et al., 2003; Ruigrok et al., 2007), we use multiple regression models to test the above three hypotheses. We compare the fixed effects estimates and random effects estimates using misspecification test. The results reject random effects application (Hausman, 1978). Thus, multiple regression models with fixed effects estimators are used.

To examine the inverted U-shaped MP relationship (H1), the following equations are presented:

\[ Y_{it} = \beta_1 MULT_{it} + \beta_2 (MULT_{it})^2 + \lambda X_{it} + \gamma_t + e_{it}, \]  

(1)

It is important to include the second-order term in the equation. A significant negative \( \beta_2 \) indicates an inverted U-shaped relationship, while a significant positive \( \beta_2 \) suggests a U-shaped relationship (Meyer, 2009; Lind and Mehlum, 2010; Haans et al., 2016).

To examine the impact of location decision and ownership structure on MP relationship (H2-H3), the following equation is introduced:

\[ Y_{it} = \beta_3 MULT_{it}^{D\text{ED}} + \beta_4 (MULT_{it}^{D\text{ED}})^2 + \beta_5 MULT_{it}^{D\text{ING}} + \beta_6 (MULT_{it}^{D\text{ING}})^2 + \lambda X_{it} + \gamma_t + e_{it}, \]  

(2)

We again include the second-order terms of (MULT\text{ED} and MULT\text{IND}) in equation (2) to test the curvilinear MP relationship when considering location choice. The main focus is the term \( \beta_4 \) with respect to H2-H3. The main variables in the above equations are explained as follows.

Dependent variable. \( Y_{it} \) refers to the firm performance. In this paper, it is measured by return on assets. Return on assets [the ratio of net income to total assets (Lu and Beamish, 2004)] has been widely used in the previous MP literature (Lu and Beamish, 2004; Ruigrok et al., 2007; Qian et al., 2008).

Explanatory variables. This paper uses the number of overseas subsidiaries divided by total number of subsidiaries as a proxy for multinationality (MULT; Yang et al., 2013; Castellani et al., 2017). Other scholars have used different measures[1] of multinationality. The most common measure is foreign/total sales (FSTS). FSTS does not distinguish between exports and sales from overseas production. Further, after exploiting the data availability of Orbis, we found difficulty in identifying foreign sales subtracting exporting
and licensing when using FSTS measure. Foreign/total assets (FATA) does not take account of internationalisation through exports and is highly correlated with FSTS (Annavarjula et al., 2006). Therefore, FSTS and FATA are ruled out. Meanwhile, OSTS does not distinguish business production and sales subsidiaries, or take into account the size of the subsidiaries. Though OSTS is not perfect, it is the only feasible measure using Orbis data set because Orbis has the information about the number of subsidiaries and their locations.

To capture the effects of different location choices of FDI on MP relationship, particularly considering the developed and developing countries (Berry, 2006) defined by the (World Bank, U.N., 2013), we create two more variables, namely, \( \text{MULT}_{it}^{DE} \) and \( \text{MULT}_{it}^{DI} \), which are defined as the number of foreign subsidiaries in developed (developing) nations divided by total number of subsidiaries. The developed (developing) nations are defined as high-income (middle- and low-income) countries in the World Bank, U.N. (2013).

**Control variables.** Following previous work (Geringer et al., 2000), several variables that are known to affect business performance and be correlated with multinationality are controlled in the empirical models, represented by \( X_{it} \), involving employee count, leverage and sales per worker. Firms with large size (SIZE; Zahra et al., 2000) tend to perform better than small firm. Leverage (LEV; Qian et al., 2008) is expected to have a negative impact on firm performance as risky debt results in firm’s sub-optimal investment strategy. Firms with high labour productivity (PROD) are more likely to have higher performance than firms with low labour productivity (Al-Obaidan and Scully, 1993). Firm age (AGE), as a proxy for experience, may affect the level of learning, international activities and multinational performance (Zahra et al., 2000). We control firm’s home country characteristics, including GDP per capita (ECON) and GDP growth (GROW; Li and Qian, 2005), retrieved from World Development Indicators (WDI). Home and host institutional dimensions are included as FDI escapes from home countries with poor institution and is attracted to countries with good institution (Li and Oh, 2016). We adopt the widely used Worldwide Governance Indicators (WGI) (Cuervo-Cazurra and Genc, 2008; Driffield et al., 2016) provided by Kaufmann et al. (2009). Following previous studies (Kolstad and Wiig, 2012), we use voice and accountability in the analysis as it captures the perception of the extent to which the citizens are able to participate in selecting the government, freedom of expression, association and free media (Kaufmann et al., 2009). We also use other dimensions of WGI to measure institutional quality and find similar results (available upon request). The quality of the home country institution (HOMI) is measured by voice and accountability for the EMNE’s home countries. The quality of the host country institutions (HOSI) is measured by the average score of voice and accountability for the EMNE’s host countries. In addition, firm performance may be affected by unobserved macroeconomic factors over the period. Therefore, we control for time fixed-effects \( \gamma \) (Yang et al., 2013). We also control for firm fixed-effects (Berry, 2006). Table I provides definitions and sources of data for the variables included in the empirical models.

**Results**

**Descriptive statistics**

Table II shows the descriptive statistics. On average, an emerging economy multinational has 57 per cent subsidiaries locating in overseas countries. It sets up 36 per cent subsidiaries in overseas developed countries and 22 per cent subsidiaries in overseas developing countries. We also find that on average, return on assets is 5.21 per cent, labour force is 12,663, labour productivity is US$1,141.91 thousand, leverage is 73 per cent and age is 29.47 years. As shown in the right panel, most of the correlation coefficients are low.
The data cover 177 economies, including 44 home emerging economies[2] and 177 host economies[3]. Table III presents the home economy list and the mean value for key variables by each economy, including Y, MULT, MULT$_{DE}$, MULT$_{IND}$ and SIZE. Unsurprisingly, the parents are concentrated on large emerging economies, with significant numbers in the BRICS economies (a major emerging economies group that includes Brazil, Russia, India, China and South Africa; Holtbrügge and Kreppel, 2012), which comprise 33 per cent of all parents in the sample. The host economy list (available upon request) shows that the EMNEs’ top host locations (as measured by the greatest number of foreign subsidiaries) are China, Hong Kong, Russia, Singapore, Mexico, Poland, Australia, Germany, Brazil and South Korea, and the Czech Republic, British Virgin Islands, USA, UK and Netherlands.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Operationalisation</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>The firm’s return on assets using net income (%)</td>
<td>Orbis</td>
</tr>
<tr>
<td>MULT</td>
<td>The ratio of the number of overseas subsidiaries to the total number of subsidiaries</td>
<td>Orbis</td>
</tr>
<tr>
<td>MULT$_{DE}$</td>
<td>The ratio of the number of subsidiaries in overseas developed countries to the total number of subsidiaries</td>
<td>Orbis</td>
</tr>
<tr>
<td>MULT$_{IND}$</td>
<td>The ratio of the number of subsidiaries in overseas developing countries to the total number of subsidiaries</td>
<td>Orbis</td>
</tr>
<tr>
<td>SIZE</td>
<td>The natural logarithm of the firm’s number of employees</td>
<td>Orbis</td>
</tr>
<tr>
<td>LEV</td>
<td>The firm’s debt to equity ratio</td>
<td>Orbis</td>
</tr>
<tr>
<td>PROD</td>
<td>The natural logarithm of the firm’s sales divided by the number of employees (US$)</td>
<td>Orbis</td>
</tr>
<tr>
<td>AGE</td>
<td>The age of the firm (in years) since the date of establishment</td>
<td></td>
</tr>
<tr>
<td>ECON</td>
<td>The natural logarithm of the home country’s GDP per capita (US$)</td>
<td>WDI</td>
</tr>
<tr>
<td>GROW</td>
<td>The home country’s GDP annual growth rate (%)</td>
<td>WDI</td>
</tr>
<tr>
<td>HOMI</td>
<td>The “voice and accountability” score for the home country of the EMNE</td>
<td>WGI</td>
</tr>
<tr>
<td>HOSI</td>
<td>The average “voice and accountability” score for host countries in which the EMNE has subsidiaries</td>
<td>WGI</td>
</tr>
</tbody>
</table>

Note: We take the natural logarithm of employee count, lab productivity, firm age and GDP per capita (plus 1 as the logarithm is not defined for zero; Majocchi and Strange, 2012) to normalise their distribution.

<table>
<thead>
<tr>
<th>No. Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<tr>
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<tr>
<td>4. MULT$_{IND}$</td>
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<td>0.05</td>
<td>0.15</td>
<td>0.09</td>
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<td>0.02</td>
<td>0.00</td>
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<td>7. PROD</td>
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<td>0.00</td>
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<td>0.02</td>
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<td>10. GROW</td>
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<td>0.13</td>
<td>0.04</td>
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<td>0.03</td>
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<td>11. HOMI</td>
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<td>1.00</td>
<td>0.03</td>
<td>0.22</td>
<td>0.02</td>
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<td>0.11</td>
<td>0.27</td>
<td>0.54</td>
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<td>12. HOSI</td>
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<td>0.97</td>
<td>0.02</td>
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<td>0.47</td>
<td>0.13</td>
<td>0.07</td>
<td>0.04</td>
<td>0.13</td>
<td>0.12</td>
<td>0.04</td>
<td>0.08</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: There are 4,227 observations. All correlation coefficients have a value of above 0.11 are at least significant at 10 per cent level.
Regression results

Regression models with fixed-effects estimators are used. We control for firm and time fixed effects. Table IV shows the main results. One column represents one model. There are 4,227 observations in the full sample. Most control variables are significant and have the expected signs. For instance, firm size (SIZE) and labour productivity (PROD) have significant

<table>
<thead>
<tr>
<th>Country</th>
<th>N</th>
<th>Y</th>
<th>MULT</th>
<th>MULT^xed</th>
<th>MULT^ying</th>
<th>SIZE</th>
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**Notes:** Return on assets is the dependent variable. All models control for firm and time fixed effects. Values in parentheses are robust standard errors. Significance levels: *0.1; **0.05; ***0.01
positive coefficients, suggesting large firms and firms with high labour productivity perform better. Moreover, these signs remain largely unchanged across different specifications in Models 1-8.

Models 1-2 in Table IV are to test $H_1$. The key variable of our interest is MULT. Following previous work that studies the curvilinear relationship (Chang and Park, 2005), we gradually add the higher-order terms into the models. In Model 1, which assumes the linear relationship, we find a significant positive sign of MULT, suggesting multinationality has positive impact on firm performance.

We add the squared term of MULT in Model 2 to test the curvilinear relationship. The $F$-test comparing two models indicates that the Model 2 is significantly (at 10 per cent level) better than Model 1 by introducing the squared term of MULT. We find (from Model 2) the negative sign of squared term (significant at 10 per cent level) and positive sign of linear term (significant at 5 per cent level), which suggest there is inverted U-shaped MP relationship. The optimal level is 69.66 per cent. This indicates that EMNEs can benefit from investing in overseas countries initially, although the costs will exceed benefits when the firm has 69.66 per cent subsidiaries locating in overseas countries. Overall, Models 1-2 support the $H_1$ and confirm an inverted U-shaped MP relationship for EMNEs. As EMNEs become more experienced, they do not greatly differ from DMNEs. EMNEs are increasingly able to rely on stronger firm-specific assets as a result of the co-evolution of their FSAs and the home country national innovation system. Meanwhile, coordination costs are accelerating at high level of multinationality. Hence, it is unsurprising to see that EMNEs have inverted U-shaped MP relationship that is similar to the results of DMNEs (Hitt et al., 1997), but additional factors (e.g. location choice and ownership structure) still matter for EMNEs.

Models 3-8 are used to test $H_{2a}$ and $H_{2b}$. We divide MULT into two parts, namely, MULT$^{DE}$ and MULT$^{IND}$. Models 3-4 and 5-6 show separately the performance implications of developed and developing country subsidiaries. In Models 7-8, when we control for MULT$^{DE}$, MULT$^{IND}$ and their higher-order terms, the developed MULT’s coefficients have much clearer pattern of positive relationship in linear model and inverted U-shaped relationship in curvilinear model, compared with developing country subsidiaries whose coefficients are not significant. We interpret that developed countries’ subsidiaries have a significant positive effect on firm performance. This positive effect will switch to negative at a multinationality of 54.04 per cent. Therefore, $H_{2a}$ and $H_{2b}$ are supported. Developed countries have abundant technological resource and strong institutional protection on investment and intellectual property. This helps EMNEs enhance their FSAs by acquiring new resources and competence that are not available in the home country. Their enhanced FSAs strengthen the positive effect of multinationality on performance. However, the coordination costs increase faster at high level of multinationality in developed countries owing to the increasing difference in economic environment and locational factors among developed countries. Therefore, the positive effect of developed country subsidiaries will switch to negative at lower level of multinationality.

Table V is to test $H_{3a}$ and $H_{3b}$, whether ownership structure matters in MP relationship. We rerun equations (1-2) but using two subsamples. The first subsample consists of 1,206 POEs. The second subsample consists of 115 SOEs. The difference in these two numbers is reasonable because SOEs is usually the minority group in emerging economies after economic reform. However, this minority group often plays an important role in emerging economies and are increasingly investing abroad (Ralston et al., 2006).
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Notes: Return on assets is the dependent variable. All models control for firm and time fixed effects. Models 1-4 include POEs. Models 5-8 include SOEs. Values in parentheses are robust standard errors. Significance levels: *0.1; **0.05; ***0.01
Models 1-4 report the results for POEs. We again find that investing in foreign countries has a significant positive effect on firm performance at initial stage. The positive linear and negative quadratic term are significant at 5 and 10 per cent levels, respectively, suggesting there is an inverted U-shaped MP relationship for POEs. Similar to the results in full sample, setting up subsidiaries in developed countries enhances firm’s performance while investing in developing countries does not have significant effect on firm performance. The turning point is 55.59 per cent for the POEs’ overseas developed country investment.

Models 5-8 present the results for state-owned emerging MNEs. The number of observations drops substantially, which may have implications with respect to the statistical significance of the results. We find no significant linear MP relationship. We find significant quadratic relationship when considering FDI location choice. We find foreign presence in developed countries has an inverted U-shaped relationship with SOEs’ performance, whose turning point is 47.89 per cent. Overall, these results indicate that POEs have large positive effect of foreign operation on performance, and this positive effect switch to negative at higher level of multinationality relative to SOEs. Thus H3a and H3b are supported.

To check the robustness of our primary results, we perform several robustness tests. Firstly, in some curvilinear relationships, the relative strength of two counteracting effects might vary several times throughout the range of variable, suggesting higher function forms (e.g. cubic). For instance, in S-shaped relationship, the negative effect dominates at low and high levels, while the positive effect dominates at moderate level (Meyer, 2009). To check whether the relationship is perhaps cubic rather than quadratic, following Haans et al. (2016) and Meyer (2009), we added a cubic term and propose the following equation. The results (available upon request) show that the cubic term is not significant and did not improve the model fit, thus strongly supporting the quadratic relationship:

\[ Y_{it} = \beta_7 MULT_{it} + \beta_8 (MULT_{it})^2 + \beta_9 (MULT_{it})^3 + \lambda X_{it} + \gamma_t + e_{it}, \]  

Secondly, we break the sample period to investigate a possible evolution of the MP relationship over time. The results (available upon request) show that there is a U-shaped MP relationship during a period of, 2004-2007, while an inverted U-shaped MP relationship over a period of, 2008-2013 (though the coefficient on the quadratic term is marginally significant at 15 per cent level). A possible explanation might come from Contractor et al. (2007). They propose a “stages” model which suggests that firms make losses owing to the huge set-up costs at the initial internationalisation stage, obtain profits later because of various benefits of multinationality and experience again negative performance resulting from accelerating coordination costs when internationalise too much. Therefore, the first part of U-shaped and the second part of inverted U-shape MP relationship might jointly form the S-shaped relationship. They find a U-shaped relationship for the Indian firms in the period 1997-2001 and suggested that this might be the first part of an S-shaped relationship, while the second part (i.e. inverted U-shaped) would have arisen later with the development of the EMNEs. It may well be that our analysis is capturing the second part of this S-shaped relationship.

Given the fast evolution of EMNEs (Elia and Santangelo, 2017), the MP relationship might have evolved over time and EMNEs has experienced the first part in 2004-2007 and reached the second part in 2008-2013. However, our results indicate that the majority of EMNEs and period (six years out of a ten-year timespan) may occupy the second part,
suggesting an initial upward slope and followed by a downward slope of multinationality’s effect on firm performance (an inverted U-shaped relationship). Also, we consider different ownership threshold. We restrict our sample by only including foreign subsidiaries whose minimum 25.01 per cent equity is owned by the parent (Yang et al., 2013). The results (available upon request) reaffirm that EMNEs’ investment in overseas countries has a positive effect on performance before a certain level of multinationality.

Next, FDI is a strategic decision of firms, so endogeneity should be taken into account. Perhaps better-performing firms invest more in overseas countries. The use of firm fixed-effects can certainly alleviate these estimation problems. Further, we conduct a robustness check by lagging all independent variables and rerun the analysis. Though this method cannot fully resolve the endogeneity issue, it does mitigate the reverse causality problem (Lin, 2014). The results (available upon request) show that the inverted U-shaped MP relationship largely remains in different lag models, including from one- to three-year lag models.

In addition, there are potential issues in using the ratio of the foreign subsidiary count to total subsidiaries count. We consider the fact that a firm

- with one domestic and one foreign subsidiary has the same multinationality as the other firm; and
- with ten domestic and foreign subsidiaries each.

To address this issue, we consider a set of alternative multinationality measure, including the number of overseas subsidiaries (OS), the number of overseas countries (OC) and the ratio of overseas majority-owned subsidiaries’ sales to all majority-owned subsidiaries’ sales (FSTS). The results (available upon request) show that there is a U-shaped relationship for developed country subsidiaries when measured by OS given the negative linear term and positive quadratic term, and the quadratic term is significant. Moreover, we consider alternative performance measures, namely, return on sales (ROS), return on equity (ROE), net profit and gross profit. The results (available upon request) reaffirm the inverted U-shaped MP relationship, particularly in the case of developed countries’ subsidiaries. Finally, we expand and explore further the effect of ownership structure on the returns from multinationality, particularly by considering POEs’ characteristics such as industrial context (high- vs low-tech sectors; manufacturing vs service sectors; Mayer et al., 2015; Berry and Kaul, 2016). Generally, these results (available upon request) support that the significance of inverted U-shaped MP relationship varies across industrial contexts. The turning points also vary for these different types of POEs.

Overall, we regard the results of robustness tests as supportive to our primary finding. Developed country subsidiaries play a more important role in enhancing EMNEs’ performance than developing country subsidiaries before a certain level of multinationality.

**Discussion and conclusions**

The extant literature on the MP relationship has been largely limited to MNEs from developed economies (mainly US firms) and to some individual emerging economies (e.g. India). In this paper, we present empirical evidence for MNEs from various emerging economies. Moreover, although location advantage is emphasised in eclectic theory, surprisingly most MP literature disregards the huge differences between developed and developing countries and uses an aggregate multinationality measure. In addition, ownership structure is rarely considered in previous MP studies, while institutional ownerships (private vs state ownership) plays a vital role in multinational performance.
From an institutional perspective, POEs and SOEs are affected differently by home and host institutional environment when they go abroad. Finally, most of the data used in extant MP papers are cross-sectional in nature. This prevents those papers from controlling unobserved firm fixed effects and analysing the dynamic nature of the multinationality over time. These research gaps are filled in this paper by using a panel data from a sample that includes 1,321 multinationals from 44 emerging economies over a period from 2004 to 2013.

This paper provides new empirical evidence on emerging economy MNEs, contributing to the existing MP literature, highlighting the importance of FDI location and ownership structure. Firstly, our main finding is that while a general positive pattern exists in EMNEs’ MP relationship, this positive relationship is strengthened in the case of developed country subsidiaries. These results are to some extent consistent with Berry (2006) and Qian et al. (2008)’s finding, suggesting that investing in developed countries could strengthen the performance enhancement arising from foreign operation.

Our results emphasise the great benefits of foreign operation to EMNEs’ performance, particularly for foreign operation in developed countries, before the optimal level of multinationality. EMNEs have their unique FSA that mainly derives from CSA, such as the adaptation skills of the available technology, and the ability to use and upgrade the capabilities. EMNEs are also developing western MNEs’ traditional FSA (e.g. latest technology and brand and managerial skills) through acquiring foreign strategic assets. The positive effect of FSA help EMNEs realise the multinationality benefits at the initial stage of internationalisation. Therefore, it is unsurprising to find that EMNEs have inverted U-shaped MP relationship similar to the results of DMNEs (Hitt et al., 1997). However, additional factors, such as location choice and ownership structure, are relevant in EMNEs. Also, given the possible evolution of MP relationship over time, it may well be that the EMNEs’ MP relationship has evolved from the U shape during 1997-2001 in Contractor et al.’s (2007) study to inverted U shape during 2004-2013 in our paper. The majority of the EMNEs in our analysis might occupy the second part of an S-shaped relationship that is proposed by Contractor et al. (2003).

Moreover, the advanced countries are associated with high technological capability and institutional conditions, and this facilitates the extent of knowledge flows from host country to home country (Martins and Yang, 2009; Driffield et al., 2016), leading to performance improvement. Hence, regarding the FDI location strategy, emerging market multinationals are advised to set up a moderate number of overseas subsidiaries in developed countries. We find that the positive effect of developed country subsidiaries will switch to negative at certain level of multinationality (54.04 per cent) owing to increasing coordination costs. Qian et al. (2008), for instance, find that diversification into a moderate number of developed countries benefits firm performance.

The final results suggest the important effect of ownership structure on EMNEs’ multinational performance. It indicates the relative success of POEs in the foreign expansion, compared with SOEs. The positive effect of multinationality is strengthened for the EMNEs that are privately owned. The turning point shifts to higher level of multinationality for POEs (55.59 per cent) compared with SOEs (47.89 per cent). In the face of home country’s institutional pressure and host country’s institutional pull, POEs are motivated to escape from the adverse institutional environment and benefit from the better conditions in developed countries. In contrast, SOEs are embedded in the favourable home institutional environment and have to adapt their entry strategies when entering developed country owing to their poor political image. They are less likely to adopt acquisition as the establishment mode owing to the host institutional pressure. Therefore, they are less able to obtain the benefit of the enhanced FSA from the acquisition of foreign strategic assets (e.g. foreign technology). This provides some evidence on POEs’ institutional escapism and
SOEs’ investment in developed countries (Li and Oh, 2016). We believe our findings provide an understanding of EMNEs’ internationalisation behaviour. There is a surge of FDI outflow from emerging economies since 2000 (UNCTAD, 2017). We also believe it has some important managerial implications. It helps to explain, for instance, why emerging economy firms are actively investing in developed countries, as well as why POEs are more successful in the expansion to developed countries than SOEs.

Although this paper advances the research on firm’s foreign investment behaviour by unveiling its complex performance implications under important underlying factors such as location choice and ownership structure, this research is not free from certain limitations that may point to interesting further research directions. Firstly, our multinationality–performance study currently focuses on emerging economy multinational enterprise. It may prove interesting for future study to estimate an MP model with data from both emerging economy and developed economy multinational enterprises so as to test for differences between the two groups. In addition, FDI is a strategic decision of firms, so the endogeneity issue needs to be properly addressed. Perhaps better-performing firms are more likely to go abroad and can afford to establish overseas subsidiaries. Our estimates do not rule out some form of reverse causality. In addition, our analysis covers a period until, 2013. Given the rapid and evolving phenomenon of EMNEs, further research could seek to extend our study by repeating the same tests for more recent years and investigate the causal relationship between multinationality and performance. Finally, we have considered the industry context of privately owned firms, such as comparing high-/low-tech and manufacturing/service sectors. Future research avenues are encouraged to expand and explored further by considering characteristics of these privately owned firms such as size and experience. We leave these topics for further research.

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Notes
1. For thorough review of different measures, see Hassel et al. (2003).
2. These 44 emerging economies include Argentina, Bahrain, Brazil, Bulgaria, Chile, China, Colombia, Czech Republic, Egypt, Estonia, Greece, Hong Kong, Hungary, India, Indonesia, Israel, Jordan, Kuwait, Latvia, Lithuania, Malaysia, Mexico, Morocco, Nigeria, Oman, Pakistan, Peru, Philippines, Poland, Qatar, South Korea, Romania, Russia, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, Sri Lanka, Thailand, Turkey, Ukraine, UAE and Vietnam. To capture the largest possible country coverage of the emerging economy group, the country grouping is based on the definitions provided by several institutions (IMF, BRICS+NEXT Eleven, FTSE, MSCI, S&P, EM bond index, Dow Jones, Russell and Columbia University EMGP) and previous studies (Bebenroth and Hemmert, 2015).
3. The 177 host countries include Afghanistan, Albania, Algeria, Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bermuda, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Cayman Islands, Central African Republic, Chile, China, Colombia, Congo, Costa Rica, Cote d’Ivoire, Croatia, Curacao, Cyprus, Czech Republic, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Guatemala, Guinea, Guinea-Bissau, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kosovo, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Macao, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Moldova Republic, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palestinian Territories, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, Samoa, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, Solomon Islands, South Africa, South Korea, Spain, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syria, Taiwan, Tajikistan, Tanzania United Republic, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, UAE, UK, US, Uganda, Ukraine, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zambia and Zimbabwe.

References


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Investigating the link between foreign ownership and firm performance – an endogenous threshold approach

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Abstract
Purpose – This paper aims to examine the relationship between foreign ownership and firm performance, using an approach which the authors show is more advanced than existing methods, and more aligned with accepted theory and conceptual frameworks developed in international business. The authors demonstrate that simply relying on a binary distinction between foreign and domestic firms ignores much of the information regarding the importance of ownership structure and is disconnected from the wider literature on ownership structure, motivations for Foreign Direct Investment (FDI) and performance.

Design/methodology/approach – The authors illustrate this by using a threshold estimation method to endogenously uncover the level of foreign ownership up to which the transfer of foreign firm advantage from the parent company to the affiliate is the strongest.

Findings – The results show that for Germany, Poland, Italy and the UK, there are significantly different thresholds of foreign ownership over the period, 2001-2010. Due to non-linearities and different thresholds, the authors argue that before one can entertain secondary considerations concerning foreign firm impact on host countries, one needs to apply the appropriate approach.

Originality/value – This is the first paper that uses an endogenous threshold approach on a large firm level data set to show that there are significant differences and non-linearities in the relationship between foreign ownership and productivity.

Keywords Foreign ownership, Firm performance, Foreign direct investment, Spillovers, Threshold approach

Paper type Research paper

1. Introduction
One of the most researched issues in the International Business (IB) literature is the extent to which foreign subsidiaries of multinational enterprises (MNEs) exhibit some form of performance advantage over domestic host firms. The empirical literature concerning the

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The performance advantage of MNEs is conceptually based on the classic theoretical work of IB scholars such as Dunning (1979, 1988), Buckley and Casson (1976), Rugman (1981) and Hennart (1982). The essential premise is that MNEs are unfamiliar with the business environments in foreign countries. This unfamiliarity or “liability of foreignness” (Hymer, 1976; Kindleberger, 1969; Zaheer, 1995) argues that MNEs face significant upfront or sunk costs when setting up subsidiaries in foreign markets, which requires investing significant time, effort and resources in learning about different cultural, institutional, political and economic factors of host countries.

In turn, the ability to overcome these additional sunk costs emanating from the liability of foreignness means that MNEs need to possess significant and unique firm-specific advantages (FSAs) that can be exploited in foreign markets. As long as FSAs outweigh the sunk costs incurred during the host country learning phase, the MNEs foreign expansion would be worthwhile undertaking. These FSAs can be in the form of superior resources, such as technology or other know-how, or other managerial and organizational advantages that can be transferred from the parent headquarters to the subsidiary in the host country.

This superior performance of foreign firms over domestic companies has become a stylized fact in the applied and policy-oriented literature concerned with Foreign Direct Investment (FDI) flows or with the impacts of inward investment. However, the extant IB literature has either relied on the use of official administrative data, which classifies firms directly as “foreign” or “domestic”, or through a pre-determined distinction based on a particular ownership threshold. In other words, the literature has mostly relied on definitions generated outside of the sample, such that at least 10, 25 or 50 per cent are seen as the required level of foreign ownership to be classed as “foreign”[1].

We argue that this approach, in addition to making comparison between studies problematic, is also inconsistent with more recent theoretical contributions. For example, Driffield et al. (2014, 2016) explore the determinants of ownership shares of foreign affiliates and show how these vary not only with both changes in institutional quality of host countries but also with the motive for MNEs to engage in technology transfer. As such, these pre-determined thresholds are likely to cause issues in the results because the definitions that are employed being so varied between studies, any comparison of this large literature is likely to be biased, even before one seeks to relate it to performance differences or tries to explain the differences in this relationship across countries[2].

To address this, we contribute to the literature by using an endogenous threshold approach on a large firm level data set to show that there are significant differences in the relationship between foreign ownership and productivity. Due to non-linearities and different thresholds, we argue that before one can entertain secondary considerations concerning foreign firm impact on host countries, one needs to apply the appropriate approach.

The rest of the paper is organized as follows. Section 2 discusses a number of important strands of the previous literature on foreign ownership and firm performance. Section 3 describes our research design followed by the data discussion in Section 4. Section 5 presents our results and Section 6 concludes.

2. Literature review and hypothesis development
The essential premise for exploring the nature of the performance advantage of foreign subsidiaries is to know the extent to which FDI stimulates technology transfer which leads
to productivity growth in the host country (Driffield, 2001). This foreign firm advantage in host countries has generated extensive applied work in a number of literature strands. For example, the large multinationality-performance literature is concerned with the extent to which multinationality leads to increased firm performance (Contractor et al., 2003; Contractor, 2007). However, ownership structure is seldom mentioned (Yang and Driffield, 2012), and the results reported in this literature are quite varied. Findings at the subsidiary level in terms of the productivity differential between domestic and foreign firms, and the importance of ownership may therefore inform this debate.

A second important strand of the literature relates to ownership change, more specifically acquisition of host country firms by foreign firms and the impact of this on firm performance (Harris and Robinson, 2002; Conyon et al., 2002; Ascani, 2017). Another large strand of the literature relates to spillovers from FDI. The argument proceeds in a similar vein. To overcome the liability of foreignness, the MNE must possess some form of firm-specific advantage, and that in turn the key question for policy makers is whether this productivity or ownership advantages somehow is transferred to the host country sector (for a discussion of this literature, refer Driffield and Love, 2007 in an IB context, or Haskel et al., 2007 in an international economics setting). As is well understood, the results generated in this literature are extremely varied, with much of this variation ascribed to different data sets, or different econometric approaches, see for example Görg and Greenaway (2004) or Meyer and Sinani (2009).

Taken together, these strands of literature are undertaken on the basis of foreign ownership advantages. However, the literature on measuring the foreign productivity advantage is mixed. On the one hand, the literature which stems from Davies and Lyons (1991) seeks to measure the extent to which foreign firms in a given location have an aggregate labour productivity advantage over domestic firms. Davies and Lyons (1991) for example find that in manufacturing industries over the period 1971-1987, foreign firms in the UK are on average 48.6 per cent more productive in terms of labour productivity over domestic firms. Their analysis is undertaken for the UK manufacturing sector over the period 1971-1987, and they argue that half of this productivity differential is due to MNEs being more concentrated in high productivity sectors (Oulton, 1998a,b). Extending this line of research, Griffith (1999) and Dimelis and Louri (2002) also use a regression-based approach to control for a number of factors, such as firm size, location or multinationality. They find that the marginal effect of the foreign ownership declines as one controls for heterogeneity in the domestic sector. Similar results are found by Girma et al. (2001), Harris (2002) and Harris and Robinson (2002), who find positive difference in favour of foreign firms operating in the UK.

On the other hand, Benfratello and Sembenelli (2006) find no evidence of a higher performance in terms of total factor productivity (TFP) of foreign firms in Italy, after controlling for unobserved heterogeneity, input simultaneity and measurement error. Bellak and Pfaffermayr (2002) for example argue that some results suggest that domestically owned firms can even outperform foreign-owned firms, contrary to expectations. Subsidiaries with low-skill, labour-intensive assembly line operations may be less productive than their domestic counterparts which may use superior technology in the same industry.

We argue that the answer to the problem lies in establishing first the ownership strategies that MNE adopt in their subsidiaries in diverse host country settings (Agarwal and Ramaswami, 1992; Spencer and Gomez, 2011; Santangelo and Meyer, 2011; Hill et al., 1990; Javorcik and Wei, 2009; Meyer et al., 2009; Straub, 2008; Delios and Henisz, 2003), which then can lead to meaningful analysis, such as multinationality-performance, M&A or spillovers from FDI.
This literature finds that optimal ownership structures will vary with institutional quality, and with the nature of technology employed in the affiliate, such that optimal ownerships structure can vary between countries. This therefore suggests that a universal definition of what is defined as a “foreign firm”, used across countries is likely to be biased, even before one seeks to relate it to performance differences vis-à-vis domestic host firms. Driffield et al. (2014, 2016) also discuss this in detail, linking eventual ownership structures to the need to transfer technology into the subsidiary from the parent. This transfer is crucially influenced by institutional quality in the host country. This highlights a conceptual problem with the existing literature and motivates our first hypothesis:

H1. The productivity advantage of foreign subsidiaries will vary with the degree of ownership in these foreign subsidiaries.

As we explore above, the literature on foreign ownership and performance generates very mixed results. It is our assertion that this is not, as some have argued, because of the difficulties in operationalizing the theories of FDI, see e.g. the wide ranging debate that followed the various comments and critiques of Carr et al. (2001), or because of the endogeneity in foreign ownership problem. Rather, it might be due to the utilization of a universal definition of what is defined as a “foreign firm” and the extent to which any legal or institutional definitions are aligned to the econometric evidence. As such, with the definitions that are used being so varied between studies, any comparison of this large literature is likely to be biased, even before one seeks to relate it to performance differences or explains the differences in this relationship across countries.

A good example of the problems faced in this area is Sabirianova et al. (2012), who build on the analysis of by Helpman et al. (2004). To test the theoretical proposition that there exists a “pecking order” where the most efficient firms engage in FDI, followed by the next group who export, followed by the least efficient who remain domestic, it is necessary to make this distinction. As such, Sabirianova et al. (2012) carefully address the issue of endogeneity of foreign ownership when seeking to link multinationality to economic performance, but using a pre-determined threshold.

There is, however, a wider literature that relies on a similar approach. For example, Guadalupe et al. (2012) examine the importance of foreign ownership for innovation, while Egger et al. (2009) link foreign ownership to tax rates. A similar point is made by Ascani (2017) concerning the heterogeneity of targets by foreign firms. As Driffield et al. (2014, 2016) point out, this heterogeneity manifests itself not only in terms of the nature of activities performed but also ownership structures, and in turn knowledge transfer (Driffield et al., 2016). Apart from highlighting the potential endogeneity of foreign ownership, these papers also highlight the essential problem in this literature they cite, which is the adoption of the same strategy of distinguishing between foreign and domestic companies, often limited in choice by data availability or classifications in official data.

There is also a large literature that is concerned with the relationship between FDI flows and global technology flows, which is often linked to the question of whether FDI generates technology transfer into the wider host economy (Haskel et al., 2007). A related theoretical literature suggests that this technology transfer is more likely where the stake held by the foreign firm is higher, see for example Mattoo et al. (2004), but this has not been tested empirically, possibly due to data limitations. This issue becomes of paramount importance, not only in an academic context but also in a policy setting, for those seeking, not only to attract inward investment to a given location, but more significantly, to maximize the benefit to the host region of such investment.
One of the few studies that analyses the link between productivity and foreign ownership that does not simply allocate firms to the foreign or domestic sample, but rather allows ownership to vary in the relationship between foreign ownership and productivity is Greenaway et al. (2014) for China. They investigate this question by using the share of foreign ownership and adding higher-order terms to look for turning points in the relationship. They find for a large panel of Chinese firms over the period, 2000-2005, that foreign ownership is positively but inverted U-shaped associated with firms’ performance that is measured in a number of ways, including profitability and productivity. Firm performance is optimized in joint ventures where foreign participation declines at higher levels. This, therefore, motivates our second hypothesis:

H2. The relationship between foreign ownership and subsidiary performance is nonlinear.

Our final hypothesis is motivated by a distinct strand of IB literature and focuses not on ownership shares per se, but derives from the wider literature on the decision to internationalize and subsequent firm performance. For example, the literature developed from Brouthers (2002) considers mode of entry to be a discrete set of decisions, which may be considered to be minority joint venture, majority joint venture or wholly owned subsidiary. This literature of course highlights the issue that ownership structures are determined by the firm and are therefore not exogenous events. Santangelo and Meyer (2011) show that ownership shares, like the commitment to a country of a given MNE, will evolve over time. It is again interesting, however, that this literature, see for example a recent contribution by Alfaro and Chen (2012), seeks to explain why foreign firms outperform others, but largely focusses on the heterogeneity within the MNE sector explained in terms of intra-firm links. Despite stressing the importance of intra and interfirm links in terms of explaining performance, Alfaro and Chen (2012), among others, are still unable to identify a key level of foreign ownership required to achieve the increased performance[3]. It is surprising that more work does not exist in this area, given the constant debate in the policy literature concerning the minimum level of ownership required to induce MNEs to transfer frontier technology into its foreign affiliates. This is consistent with the literature that links FDI decisions to institutional quality in the home country (Cuervo-Cazurra, 2016). This illustrates that the motivation to enter a given country is non-monotonically related to the eventual ownership share, as weak institutions may encourage either higher ownership shares for the MNE [to protect intellectual property or alternatively lower shares, to motivate local partners and navigate local institutional voids (Driffield et al., 2016; Dau and Cuervo-Cazurra, 2014)]. In itself, this cannot be seen as being independent of firm performance, and institutional quality is often seen to be a driver of not merely productivity but of the ability of the firm to level this into profits, Cuervo-Cazurra and Dau (2009). Driffield et al. (2016) and Greenaway et al. (2014) illustrate that the motivations to transfer technology into an affiliate, or to seek to change the size of ownership are multifaceted, and depend on both firm level and country level factors. This will in turn complicate the nature of the apparent productivity advantage, and its relations to the ownership percentage. Taken together, these arguments suggest two related issues which, to the best of our knowledge, have not been formally tested:

H3a. There is a threshold above which the relationship between foreign ownership and performance breaks down.

H3b. Foreign ownership is endogenous in any relationship between subsidiary investment and performance.
3. Research design

The approach taken in much of the existing literature is to estimate a version of the following. First, an estimate of TFP is obtained from a production function:

\[ y_{it} = a_0 + a_k k_{it} + a_l l_{it} + a_m m_{it} + \varepsilon_{it} \] (1)

where \( y \) is the output in log, and \( k, l \) and \( m \) are three typical inputs in logs, i.e. capital, labour and material, respectively. The residual \( \hat{\varepsilon}_{it} \) from equation (1) is interpreted as TFP in log and then foreign ownership is regressed against the TFP, with the error structures in both cases depending on the nature of the data:

\[ \hat{\varepsilon}_{it} = \rho MNE_{it}^{\text{Foreign}} + \sum_j \pi_j X_{jit} + u_{it} \] (2)

where the \( MNE_{it}^{\text{Foreign}} \) variable is defined using an arbitrary ownership classification, and the \( X \) vector includes all exogenous factors.

We argue that the approach taken in the existing literature of classifying firms as foreign or domestic, or even multinational using an arbitrary threshold leads to biased results. To extend the literature, we use a threshold regression approach on a large firm level data set to test for differences in the relationship between foreign ownership and productivity across four countries. First, we find that non-linearities exist in the relationship between firm ownership and performance, and second, that this relationship differs across firms located in the UK, Germany, Italy and Poland.

The reason for choosing this set of countries is to test for threshold effects where we would \textit{ex ante} expect to uncover interesting differences in foreign ownership performance. Within their own regions of Western, Central and Eastern Europe, they can be viewed as representative countries in terms of the volume of FDI stocks and flows, the distance to the technology frontier, nature of the host country sectors with respect to competition and level of development. However, significant historical differences across the countries make the choice particularly useful. This can be seen in terms of varying institutional characteristics, such as the level of bureaucracy, law and order and Intellectual Property (IP) Rights protection.

These countries also provide a useful comparison in terms of the overall performance of the economy, as well as in ownership structures and governance. For example, domestic productivity is higher in Germany than for the other countries. As such, for inward investors to compete with domestic firms, the foreign affiliate needs to operate close to the global technology frontier, requiring transfer of knowledge into the affiliate from the parent firm. Domestic institutions protect this intellectual property, such that firms are willing to transfer knowledge into the affiliates, even in the absence of majority control. In contrast, Italy has a number of sectors operating with high levels of domestic productivity, but with more heterogeneity and lower levels of IP protection, while in Poland both domestic productivity and IP protection are weak. This suggests that inward investors in Poland will only transfer technology into their affiliates when it can be protected with high degrees of control through ownership.

We propose a more finely grained estimator, which instead of taking the threshold as given from the administrative data, explores the threshold required for foreign ownership to impact on TFP. To do this, we apply Hansen’s (2000) threshold estimation approach to test whether a firm is foreign enough for the foreign ownership to generate the strongest transfer of advantage from the parent company to the affiliate. The threshold estimation method
allows us to investigate the possibly non-linear relationship between firm productivity and foreign ownership by endogenously identifying and estimating the value of foreign ownership at which the impact of foreign ownership either switch in sign or in magnitude and our sample should be split. This practice is more statistically sound than arbitrarily splitting the sample using a pre-determined value of foreign ownership. It is better at showcasing non-linearity than the traditional ordinary least squares (OLS) method. The threshold method splits the sample into two or more sub-samples by identifying one or more valid thresholds, before the OLS is applied to each sub-sample. This means that the threshold estimation method is more general than the OLS[4]. The estimating threshold equation is specified as:

\[
\ln TFP_{it} = \alpha + \beta'Z_{it-1} + \theta_1 FO_{it-1} \cdot I(FO_{it-1} \leq \gamma) + \theta_2 FO_{it-1} \cdot I(FO_{it-1} > \gamma) + \epsilon_{it}
\]

where \(\ln TFP\) is the natural logarithm of \(TFP\) and estimated (for every 2 digit industry separately) using the Levinsohn and Petrin (2003) approach that controls for the endogeneity of inputs; \(Z\) is a vector of exogenous factors, including the ratio of intangible to tangible assets (\(INT\_TAN\)), capital-labour ratio (\(K\_L\)) and leverage (i.e. the ratio of long-term debt to total assets, or \(LTD\_TA\))[5]. \(\alpha\) is the intercept and \(\beta\) is the parameter vector associated with \(Z\). The coefficients of \(FO, \theta_1, \theta_2\) may vary depending on whether \(FO\) is below or above an endogenously estimated threshold parameter, \(\gamma\). In particular, \(I(\cdot)\) is the indicator function, whose value is 1 if the statement in the parenthesis is true; and zero otherwise. Therefore, \(\theta_1 (\theta_2)\) measures the marginal effect of \(FO\) before (after) the threshold. Instead of arbitrarily setting the threshold, we follow Hansen (2000) who proposed a methodology of estimating the level of and testing the validity of the threshold.

The regression parameters (i.e. \(\alpha, \beta, \theta, \gamma\)) in equation (3) can be estimated via least squares method. Explicitly, \(\hat{\gamma} = \arg\min \sum_{n} \text{S}_{\text{n}}(\gamma)\) where \(n\) denotes sample size and \(\text{S}_{\text{n}}(\gamma)\) is the sum of squared errors from equation (3), conditional on \(\gamma\)[6]. Once the threshold parameter \(\gamma\) is estimated via grid search on the support of \(FO\) (i.e. 0 to 100), the regression coefficients can be easily estimated via the OLS.

Following Hansen (2000), the confidence interval of \(\gamma\) can be constructed via the likelihood ratio (LR) statistic: \(LR_{n}(\gamma) = n\frac{\text{S}_{\text{n}}(\gamma) - \text{S}_{\text{n}}(\gamma)}{\text{S}_{\text{n}}(\gamma)}\). Hansen (2000) derived its distribution function and provided asymptotic critical values. Note that when \(\text{S}_{\text{n}}(\gamma) = \text{S}_{\text{n}}(\gamma), LR_{n}(\gamma)\) is minimized with a value of zero. In practice, one can plot the LR against the threshold variable, \(FO\), and draw a horizontal line at, say, the critical value [7] at the 5 per cent level, the confidence interval then can be read off where the LR crosses the horizontal line. To put it another way, we can plot the LR statistic against all possible threshold estimates (for the \(FO\) case, this means from 0 to 100). The \(FO\) level that corresponds to the smallest LR statistic is the threshold estimate. All the \(FO\) levels that correspond to the LR statistic that is below the critical value are within the confidence interval of the threshold estimate. We can then find the lower and upper bounds of the confidence interval using these \(FO\) levels.

If the confidence interval is too wide, then one might guess that the threshold effect is not strong. In that case, it is quite appealing to test for significance of the threshold effect, by testing the null hypothesis: \(H0: \theta_1 = \theta_2\), which states that the threshold effect does not exist. We follow Hansen’s (1996) bootstrap method to construct \(p\)-value to
decide whether to reject the null hypothesis. The following briefly describes the bootstrap procedure:

- **Step 1**: Estimate the unrestricted model, equation (3), and obtain the residuals $\hat{e}_{it}$;
- **Step 2**: Estimate the restricted model of no thresholds using OLS and calculate a LR-type test statistic, call it $W$;
- **Step 3**: Generate $\hat{e}_{it}^*$ from the distribution of $N(0, \hat{e}_{it}^b)$, where $\hat{e}_{it}^b$ are residuals resampled from Step 1 with replacement;
- **Step 4**: Generate a bootstrap sample: $\ln TFP_{it}^* = \alpha + \beta Z_{it-1} + \theta_1 FO_{it-1} + \hat{e}_{it}^*$;
- **Step 5**: Calculate the LR-type statistic using the bootstrap sample, call this $W^*$; AND
- **Step 6**: Repeat Steps 3-5 a large number of times, say, $B = 999$, and the asymptotically valid p-value is given by $p = \frac{1}{B} \sum_{b=1}^{B} I\left(W_b^* > W\right)$, where $I(.)$ is an indicator function equal to one if the event in the parenthesis is true, and zero otherwise. One can reject the null hypothesis if $p < \alpha$, the level of significance.

If one cannot reject the existence of threshold effect, then one can sequentially test for higher thresholds, with the same procedure (Girma, 2005). More specifically, for each country and each sector, we use the entire sample to test for the first threshold; if the first threshold effect is significant at the 1 per cent level, then we split the sample with the first threshold estimate, and then test for the second threshold using the subsample whose $FO$ is above the first threshold estimate. If the second threshold is insignificant at the 1 per cent level, then we can decide that only one threshold exists; otherwise, we would split the subsample whose $FO$ is greater than the second threshold estimate, and test for the third threshold. We implement the preceding steps until the test shows an insignificant threshold effect. This procedure allows us to identify multiple thresholds.

This method of modelling non-linearity has several advantages over simply adding squared foreign ownership into a linear parametric model (Greenaway et al., 2014). First, the threshold method is data-driven and does not require any prior knowledge of the number of thresholds. Therefore, it avoids the complication of how many higher-order terms should be added. Second, it allows for a more flexible functional form when more than one threshold can be identified. Third, the regression coefficients in equation (3) are more interpretable than those in the linear parametric model. Indeed, $\theta_1$ in equation (3) indicates the marginal effect of foreign ownership when it is below the threshold, and $\theta_2$ in equation (3) indicates the marginal effect of foreign ownership when it is above the threshold.

More importantly, this method addresses the fundamental question of the nature of the relationship between the degree of ownership and the foreign productivity advantage. The conceptual literature does not discuss the nature of this relationship, while the empirical literature (with the exception of Greenaway et al., 2014) assumes that once one gets above a certain level, firms may be characterized as foreign or domestic, such that there exists no particular relationship between ownership shares and productivity.

The approach we use, therefore, offers a two-stage test of this problem. First, by seeking to determine the existence of thresholds in the relationship between the share of the foreign holding and productivity, it is possible to compare these thresholds with the assumptions that are made in the voluminous literature discussed above. Second, once
the existence (or otherwise) of these thresholds have been determined, it is then important to check for generality by comparing between countries, and subsequently to investigate the nature of the relationship. One crucial advantage of this approach, as discussed briefly in Hansen (2000) and expanded on at some length in Coricelli et al. (2012), is that subsequent to identifying the thresholds, one can then use this information to determine the nature of the nonlinear relationship across the various parts of the distribution (Girma, 2005 for further discussion on this). Furthermore, it allows comparison among the thresholds, of the relationship across sectors (i.e. manufacturing and services) and across countries[8].

For completeness, we replicate the models of Greenaway et al. (2014) by using a more standard approach to test for the relationship between foreign ownership and performance, by including higher-order terms to contrast the standard turning point approach with our threshold model[9]. With regards to the potential endogeneity of ownership, we attempted various instruments a number of variables that the FDI literature suggests may be correlated with the FDI decision ownership structure (Driffield et al., 2013), but uncorrelated with productivity, including free cash flow, profitability and firm size. While our results are robust to the use of these instruments, standard tests suggested that they were not good instruments as they were only weakly correlated with the foreign ownership variable. Therefore, we prefer to use the one-year lag of foreign ownership as the main regressor in the OLS specifications, as in the absence of a good instrument this can at least attempt to alleviate the problem of endogeneity.

4. Data
The data used in this paper are drawn from ORBIS which is a rich and commercially available firm-level data set provided by Bureau van Dijk. The advantages of this data set include its possibility to conduct cross-country analysis on all public and private firms that are made to report their accounts with their respective authorities. In addition, it offers detailed and varied financial and ownership information for many firms in both the manufacturing and services sector, with the latter becoming increasingly more important in the globalization process. This allows us to estimate performance and in particular TFP which with some official national data sets is not possible (e.g. due to lack of capital stock figures). One can thus construct longitudinal panels of up to 10 years to investigate firm behaviour by industry, ownership, enterprise size or by geographical area[10].

The benefits of this data set have been recognized by a number of statistical offices including the UK Office of National Statistics (BERR, 2009), the German Central Bank (Buch et al., 2009) and the OECD (Ribeiro et al., 2010). With regards to ownership differences and firm performance, Temouri et al. (2008) use ORBIS for Germany, Kosova (2010) uses it to analyse whether domestic firms are crowded out by foreign firms in the Czech Republic and Budd et al. (2005) estimate international rent sharing activity between MNEs and their affiliates.

In this paper, we use detailed information about ownership structure which is given for every year of the sample period. This is an advantage to previous studies which assume (using the same data set) that the ownership information for the latest year of their sample period is valid for the entire period (e.g. Konings and Murphy, 2006; Peri and Urban, 2006). We can in effect trace and retrieve changes in ownership for firms and determine the amount and the source country of the foreign capital throughout the panel period using earlier releases of the data set. Furthermore, we use unconsolidated accounts for firms that operate in four large European countries,
namely, Germany, the UK, Italy and Poland. The first three countries represent quite different EU member countries, whereas Poland is a newer EU-transition economy. For these countries, we were able to obtain ownership information on firms over the period 2001-2010.

Table I shows summary statistics on the key variables used in the analysis. Perhaps, the most striking is the lower level of wholly owned subsidiaries by foreign firms in the UK and Italy compared with Germany and Poland, and also the much higher proportion of firms in the UK with no reported intangible assets compared to the other three countries. Capital-labour ratios are on average higher in Germany and Italy in the manufacturing sector and higher in Germany and the UK in the service sector. However, debt levels in Germany are higher than the UK and Italy for manufacturing, but lower than the UK for services. With

| Table I. Summary statistics | Note: *All variables, except log of TFP, are with one-year lag |

<table>
<thead>
<tr>
<th></th>
<th>Manufacturing sector</th>
<th>Service sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
<td>Germany</td>
</tr>
<tr>
<td>lnTFP Percentiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>4.494</td>
<td>4.993</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.52</td>
<td>0.51</td>
</tr>
<tr>
<td>Foreign ownership Percentiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.52</td>
<td>15.85</td>
</tr>
<tr>
<td>&lt;10(%)</td>
<td>95.31</td>
<td>82.36</td>
</tr>
<tr>
<td>&gt;90(%)</td>
<td>4.37</td>
<td>13.94</td>
</tr>
<tr>
<td>Intangible-tangible assets ratio Percentiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.340</td>
<td>5.815</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>29.03</td>
<td>276.17</td>
</tr>
<tr>
<td>Capital-labour ratio Percentiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>49.707</td>
<td>87.368</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>150.15</td>
<td>2167.31</td>
</tr>
<tr>
<td>Long-term debt-total asset ratio Percentiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.146</td>
<td>0.171</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.47</td>
<td>0.26</td>
</tr>
<tr>
<td>Number of firms</td>
<td>5044</td>
<td>3139</td>
</tr>
</tbody>
</table>
regards to productivity, we see that German firms have the highest level of $TFP$, followed by the UK, Italy and Poland across the entire distribution for the manufacturing sector, whereas Italian firm productivity comes second after Germany in the service sector, followed by the UK and Polish firms.

To get a clearer picture of the distributions of $FO$ and the relationship between $FO$ and $TFP$, Figures 1 and 2 present scatter plots of $\ln TFP$ vs $FO$ across the manufacturing and service sector for the countries in our study. As expected, the distribution of foreign ownership is bi-modal, with large numbers of firms with no foreign ownership, and a large number with 100 per cent. However, what are also noticeable are the differences between countries across the rest of the distribution. The UK has very few firms in the rest of the distribution, while ownership structures in the other three countries. These differences present two interesting issues. First, in the case of the UK, it suggests that where a significant, but minority foreign holding leads the researcher to define a firm as foreign, then any results based on this are unlikely to be sensitive to the actual threshold employed. However, if one assumes, as many official data do, that a firm must have a majority foreign owner to be classed as foreign, then a large number of firms with 50 per cent foreign ownership may easily be re-classified. Equally, however, any estimation for the UK which does not take the nature of the distribution into account may cause the estimation to be less precise. However, for the other countries, it is clear that any arbitrary cut-off point within either the minority or majority holding range may well change the results concerning any apparent relationships between foreign ownership and firm performance.

To further address potential concerns about our point estimates, we report the confidence intervals of the threshold parameter, as well as the standard errors of the regression coefficients in the results section. Our samples are large enough to counteract the effect of the variations in $FO$ in most cases, as most coefficients are statistically significant at the 5 per cent level.

![Scatter plots: $\ln TFP$ vs $FO$ for manufacturing industry](image)
5. Results

Table II summarizes the estimated threshold values across different sectors and countries. The results for the UK are not strong, with \( p \)-values generally larger than those of the other countries for both manufacturing and service industries. This is related to the distribution of ownership structures within the UK, the fact for example that the distribution is quite bimodal. Such phenomena highlight the problems that researchers encounter when failing to allow for this distribution when distinguishing between foreign and domestic firms. This finding is consistent with the estimation of the more standard model and also offers support for our first hypothesis. The quadratic term (Table A1) is not significant at the 5 per cent level for Germany; however, while in contrast, Italy has very strong threshold effects of foreign ownership. The results in Table II show that there are multiple thresholds in both sectors in Italy, possibly reflecting the greater heterogeneity of ownership structures present.

We then report in Table III the estimated regression coefficients, along with the threshold estimates and their 95 per cent confidence intervals. In contrast to the UK, we find several changes in the relationship between \( FO \) and productivity for Italy. Taken

<table>
<thead>
<tr>
<th>( \ln TFP )</th>
<th>Manufacturing</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>| UK</td>
<td>Germany</td>
<td>Poland</td>
</tr>
<tr>
<td>One threshold</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two thresholds</td>
<td>1</td>
<td>0.01</td>
</tr>
<tr>
<td>Three thresholds</td>
<td></td>
<td>0.015</td>
</tr>
<tr>
<td>Four thresholds</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table II. Tests for threshold effects: bootstrapped \( p \)-values

Note: If the \( p \)-value is greater than or equal to 0.01, then the threshold does not exist
### Threshold estimates

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Estimate</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \hat{\gamma}_1 )</td>
<td>99.5996</td>
<td>[99.0991, 99.8999]</td>
</tr>
<tr>
<td>( \hat{\gamma}_2 )</td>
<td>73.27327</td>
<td>[53.75375, 79.97998]</td>
</tr>
<tr>
<td>( \hat{\gamma}_3 )</td>
<td>76.27628</td>
<td>[12.21221, 90.19019]</td>
</tr>
<tr>
<td>( \hat{\gamma}_4 )</td>
<td>12.96296</td>
<td>[12.91291, 13.01301]</td>
</tr>
</tbody>
</table>

### Notes:
- INT\_TAN\(_{it-1}\) is intangible-tangible assets ratio.
- K\(_{L_{it-1}}\) is the capital-labour ratio.
- LTD\_TA\(_{it-1}\) is long-term debt-total asset ratio.
- They are included in the Z vector in equation (3).
- If Table II indicates that there are two or more thresholds, then these thresholds are also estimated and reported here, along with the regression coefficients associated with foreign ownership (FO) conditional on these threshold estimates.
- Heteroscedasticity-robust standard errors are in the parenthesis.

(continued)
Table III.

<table>
<thead>
<tr>
<th>Dep. Var. = $\ln TFP_i$</th>
<th>UK</th>
<th>Germany</th>
<th>Poland</th>
<th>Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>4.469729 (0.005374)</td>
<td>4.862047 (0.008503)</td>
<td>4.031176 (0.010494)</td>
<td>4.694083 (0.004407)</td>
</tr>
<tr>
<td>$FO_{it-1} \cdot I(FO_{it-1} \leq \hat{\gamma}_1)$</td>
<td>0.002822 (0.000196)</td>
<td>0.047025 (0.008327)</td>
<td>0.019238 (0.001406)</td>
<td>0.039040 (0.003644)</td>
</tr>
<tr>
<td>$FO_{it-1} \cdot I(\hat{\gamma}<em>1 &lt; FO</em>{it-1} \leq \hat{\gamma}_2)$</td>
<td>-</td>
<td>0.005756 (0.000186)</td>
<td>0.010303 (0.001354)</td>
<td>0.015100 (0.003096)</td>
</tr>
<tr>
<td>$FO_{it-1} \cdot I(\hat{\gamma}<em>2 &lt; FO</em>{it-1} \leq \hat{\gamma}_3)$</td>
<td>-</td>
<td>-</td>
<td>0.008722 (0.001155)</td>
<td>0.009324 (0.001009)</td>
</tr>
<tr>
<td>$FO_{it-1} \cdot I(FO_{it-1} &gt; \hat{\gamma}_3)$</td>
<td>-</td>
<td>-</td>
<td>0.008006 (0.000204)</td>
<td>0.008310 (0.000392)</td>
</tr>
<tr>
<td>$INT_{TAN}_{it-1}$</td>
<td>0.000011 (0.000013)</td>
<td>0.0000006 (0.0000000003)</td>
<td>0.009163 (0.003622)</td>
<td>0.000254 (0.000100)</td>
</tr>
<tr>
<td>$K_L_{it-1}$</td>
<td>-0.000001 (0.000003)</td>
<td>-0.000041 (0.000013)</td>
<td>-0.000010 (0.000033)</td>
<td>0.000010 (0.000003)</td>
</tr>
<tr>
<td>$LTD_{TA_{it-1}}$</td>
<td>-0.077225 (0.019668)</td>
<td>0.000270 (0.001686)</td>
<td>-1.050826 (0.102863)</td>
<td>-1.628864 (0.032018)</td>
</tr>
</tbody>
</table>

Threshold estimates

| $\hat{\gamma}_1$ | - | 14.16416 | 62.06206 | 50.5005 |
| $\hat{\gamma}_2$ | - | - | 86.55455 | 54.0000 |
| $\hat{\gamma}_3$ | - | - | 94.41316 | 95.75158 |

Confidence interval of $\hat{\gamma}_1$ | [7.607608, 69.969970] | [55.05506, 64.96496] | [50.05005, 50.95095] |
Confidence interval of $\hat{\gamma}_2$ | [83.31171, 99.96207] | [51, 99.95095] |
Confidence interval of $\hat{\gamma}_3$ | [93.30581, 94.99499] | [60.04303, 99.65141] |

Number of observations 39,906 13,138 12,090 50,224
together, these offer support for \( H2 \), but equally importantly illustrate the limitations of even using a quadratic expression for this relationship and highlights the problems of seeking a foreign productivity differential with arbitrary distinction.

Table III also shows that for the service sector, the first threshold for Germany is only 14 per cent compared with around 62 per cent for Poland. This highlights perhaps the more intangible nature of knowledge or technology in the service sector, and the difficulty of protecting this, particularly in the context of countries with lower levels of IP protection. The results suggest that the threshold for productivity advantage in terms of foreign ownership in Poland occurs at a much higher level than for Germany, suggesting that knowledge transfer into Poland in the service sector is associated with much higher levels of foreign ownership than for Germany. This is consistent with the literature discussed above, which suggests that in the presence of weak institutions, firms only transfer intangible knowledge when it is protected by high levels of ownership. If one thinks in terms of the standard drivers of productivity in services, such as brands and other forms of intangibles, this suggests that investors in Germany exploit these with much lower ownership shares than in Poland, possibly because they are better able to protect the brand in Germany. In contrast, the thresholds for the manufacturing sector are very similar, where technology is easier to protect with international patents etc.

Turning now to our final hypothesis, the demonstrated existence of threshold effects supports \( H3a \), and given the estimated threshold, we can then focus on the magnitude of the regression coefficients [i.e. \( \alpha, \beta \) and \( \theta \) in equation (3)], reported in Table III. It can be seen that all of the coefficients associated with \( FO \) are statistically significant at the 1 per cent level. The only exception is that for UK’s manufacturing industry, the ownership effect becomes insignificant after the threshold. In terms of the magnitude of these coefficients, we observe that, in general, the marginal effect of \( FO \) decreases once \( FO \) exceeds a threshold. However, in Italy’s manufacturing sector, the marginal effect of \( FO \) decreases up to the second threshold. After the second threshold, the marginal effect increases again, suggesting that there is an additional productivity effect associated with wholly owned subsidiaries. This result not only may be linked to the corporate governance arguments but also provides support for \( H3b \), which is that there exist endogenous thresholds within the relationship between foreign ownership and productivity. Recent findings by Driffield et al. (2014) suggest that weak institutions in Central and Eastern European host countries imply higher minority share held by local partners, and that applies to knowledge-intensive parent firms in particular. Weak institutions indeed make foreign investors less likely to invest. However, once they invest, while seeking majority shares, they offer higher minority share to local partners where institutions are weaker. The effect is reinforced for high-tech parent firms who, while deterred from entering in general, do tend to offer higher minority stakes when investing in more corrupt environment (or one with insecure property rights) once they enter. To protect their knowledge advantage, high-tech firms take controlling stakes in foreign affiliates, the level of ownership increasing with perceived corruption in the host country.

The threshold effect of \( FO \) in Germany’s service sector is stronger than that in the UK but weaker than that in Poland and Italy: there is one significant threshold in Germany, and three significant thresholds in Poland and Italy, while no significant threshold is found in the UK. Interestingly, but perhaps not surprisingly given the nature of the data, for the UK, the threshold estimate is 99.6 per cent for the manufacturing sector. This effectively shows that productivity linearly increases with foreign ownership through the whole range
of foreign ownership. While this produces results which for our purposes have rather large confidence intervals, it also demonstrates that using, for example, the UK Office of National Statistics definition of 10 per cent, or even the much used value of 25.1 per cent of FO to classify a firm as foreign, will understate the size of the foreign productivity advantage, compared with a higher figure. Similarly, the threshold derived for Germany is slightly lower, with 73 per cent ownership being required to change the marginal effect of foreign ownership. It is also noticeable that higher ownership generates further productivity in foreign-owned firms in Germany. This may be due to the nature of the domestic sector in Germany, where compared with other countries, more domestic firms operate at or close to the technology frontier.

A reminder is that the estimated coefficients of foreign ownership between the OLS method (Table AI) and the threshold method (Tables III) are not directly comparable. We can only compare the general shapes of the regression functions between these two methods. While the OLS method with a quadratic ownership term can only give us inverse U-shaped relationships between foreign ownership and productivity, the threshold method can yield any shape that we can imagine, and it turns out that such a shape shows a monotonically increasing relationship between foreign ownership and productivity.

6. Conclusion
We show that there is an increasing but non-linear relationship between foreign ownership and productivity. In turn, we highlight the limitations in the existing literature that uses arbitrary measures of ownership to designate firms as domestic or foreign. Our findings are important for both the literatures on technology transfer, spillovers from FDI and the MNE-productivity relationship, as well as for policy makers. Clearly, firms with higher foreign stakes have higher productivity, and in turn, building on the work of Driffield (2001) and Haskel et al. (2007) that links the productivity advantage in the foreign sector to spillovers, it is the firms with greater foreign shares that will be expected to generate the greatest spillovers. On the other hand, finding no evidence of significant spillovers may be a result of using a low FO definition (e.g. 10 per cent). From a policy perspective, this suggests that the social returns to the attraction of inward investment will be greatest where the foreign share is higher, and also suggests that if a higher cut-off value of foreign were used in the academic literature, then the scale of the foreign productivity advantage would be much larger than much of the literature suggests.

Further work may also seek to explain why we may observe such large differences in the apparent threshold ownership effects, not only between countries in terms of institutional differences but also across different types of industries, for example, comparing knowledge-intensive services (where the knowledge may be less codified) with high-tech manufacturing (where one could argue that technology is both more codified, and protected through intellectual property rights protection). Overall, this highlights the importance of our research question, whereby our attempt in answering it presents a significant first contribution to the wider area.

Taken together, our results suggest that the threshold in the relationship between foreign ownership and productivity is higher than the arbitrary cut-off point for designating a firm to be foreign assumed by the previous literature. While this in itself is an important result (which holds for countries with very different institutional structures), it also relates to a wider issue. This concerns the policy aspects of attracting inward investment and the associated gains from productivity growth and international technology transfer. Designating firms as foreign with low levels of foreign investment may be convenient for
applied researchers, but we have shown that it will give policy makers misleading results. One needs to focus on much higher levels of foreign ownership to attain the intended benefits of productivity growth and international technology transfer that are associated with inward investment.

Notes

1. Statistical agencies often assume, for example, that any investment with at least 10 per cent foreign ownership is labelled “inward investment” – irrespective of the source of capital, while applied work has also used 20, 25 or 50 per cent as the thresholds, and assumed that the definition is applicable across time and space. It is also well-known that because of classification changes, a company such as Shell, has changed from being foreign to domestic and vice versa within UK official statistics, without any significant changes in ownership. Some data sets also use the domicile of the head office, which may also be misleading.

2. The result of an increasing effect of foreign ownership on productivity shows that the standard approach, i.e. the use of a low cut-off of the order of 10%, leads to underestimation of this effect. The higher the cut-off, the higher the productivity of both groups, the “foreign owned” (i.e. the group of firms whose foreign share is above the threshold) and the “domestic” one (i.e. the group of fully domestic-owned firms and of firms whose foreign share is strictly positive but below the threshold). However, the increase in cut-off has a stronger effect on the average productivity of the first group than in the second one (as it only affects the average productivity of the subset of firms whose foreign share is strictly positive but below the threshold).

3. It is interesting to note that this problem is not confined to the economics literature. International business and management literatures suffer from the same limitation of having to identify a level of ownership that determines a firm is foreign. This is most commonly found in the so called “multinationality-performance” literature, see e.g., Yang and Driffield (2012) or the much wider literature on FDI spillovers, see e.g. Haskel et al. (2007).

4. However, the cost of sample-splitting is that sometimes if a sub-sample is too small, then we may not be able to perform the OLS, add fixed effects or have good inference on that sub-sample because of the micro-numerosity problem.

5. Nominal values of the monetary variables are deflated using GDP deflators.

6. Note that all the other parameters, $\alpha$, $\beta$, and $\theta$ can be concentrated out because all of them can be considered as functions of $\gamma$. While $\alpha$ and $\beta$ are constant (i.e. not regime-specific) parameters, $\theta$ is regime-specific. Therefore, the $S_n(\gamma)$ includes constant and varying coefficients.

7. This value is 7.35 by Hansen (2000).

8. Equally, in the context of the wider literature, it is possible within this framework to determine the nature of the relationship between ownership shares and productivity. In turn, this facilitates a comparison with the wider literature on spillovers with the findings of the threshold analysis. As discussed above, a fundamental principle of the spillovers literature is that to generate spillovers the foreign sector must possess some form of productivity or technological advantage. The threshold estimates therefore provide evidence of the ownership structure that is related to the productivity levels up to which the transfer of foreign firm advantage from the parent company to the affiliate is the strongest, with the coefficient estimates providing evidence of the relationship between ownership and performance above and below the thresholds. Both of these factors would be expected to influence the scale and scope of spillovers, but these are not mentioned, even within the high profile review and meta-analysis papers in this area (Görg and Greenaway, 2004; Görg and Strobl, 2001).

9. For comparison, we estimate pooled OLS for the quadratic model (Table AI).

10. This is an unbalanced panel and not every firm is observed for 10 years.
11. The result of an increasing effect of foreign ownership on productivity shows that the standard approach, i.e. the use of a low cut-off of the order of 10 per cent, leads to underestimation of this effect. The higher the cut-off, the higher the productivity of both groups, the “foreign owned” (i.e. the group of firms whose foreign share is above the threshold) and the “domestic” one (i.e. the group of fully domestic-owned firms and of firms whose foreign share is strictly positive but below the threshold). However, the increase in cut-off has a stronger effect on the average productivity of the first group than in the second one (as it only affects the average productivity of the subset of firms whose foreign share is strictly positive but below the threshold).

References


Hansen, B. (1996), “Inference when a nuisance parameter is not identified under the null hypothesis”, *Econometrica*, Vol. 64 No. 2, pp. 413-430.


Appendix. The quadratic model

To provide a comparison with the existing literature in this area, such as Greenaway et al. (2014), we also estimate the specification that $\ln TFP$ is a quadratic function of $FO$:

$$
\ln TFP_{it} = \alpha + \beta' Z_{it-1} + \delta_1 FO_{it-1} + \delta_2 FO_{it-1}^2 + e_{it} 
$$

Equations (3) and (4) have one thing in common, that is, the marginal effect of $FO$ changes with the level of $FO$. However, the threshold method allows for more than one threshold, and therefore yields a more flexible regression function than the particular specification of equation (4).
<table>
<thead>
<tr>
<th>Dep. Var. = In $TPF_t$</th>
<th>Manufacturing service</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>Germany</td>
<td>Poland</td>
</tr>
<tr>
<td>Intercept</td>
<td>4.210 (0.005)</td>
<td>4.754 (0.014)</td>
</tr>
<tr>
<td>$FO_{t-1}$</td>
<td>0.003 (0.003)</td>
<td>0.011 (0.002)</td>
</tr>
<tr>
<td>$INT_TAN_{t-1}$</td>
<td>0.000 (0.000)</td>
<td>0.000 (0.000)</td>
</tr>
<tr>
<td>$K_L_{t-1}$</td>
<td>0.002 (0.000)</td>
<td>0.002 (0.000)</td>
</tr>
<tr>
<td>$LTD_TA_{t-1}$</td>
<td>0.108 (0.023)</td>
<td>-0.330 (0.071)</td>
</tr>
<tr>
<td>Number of observations</td>
<td>21,461</td>
<td>8,916</td>
</tr>
</tbody>
</table>

Notes: $INT\_TAN_{t-1}$ is intangible-tangible assets ratio, $K\_L_{t-1}$ is the capital-labour ratio, $LTD\_TA_{t-1}$ is long-term debt-total asset ratio; heteroscedasticity-robust standard errors are in the parenthesis; the endogeneity of foreign ownership ($FO_t$) for the OLS regressions is also considered, and one-year lag of foreign ownership is used as the instrument. The results between the OLS models with and without endogeneity are qualitatively the same; the inclusion of year dummies into the OLS models yields almost the same estimation results.
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