National institutional systems, foreign ownership and firm performance: the case of understudied countries

NATIONAL INSTITUTIONAL SYSTEMS, FOREIGN OWNERSHIP AND FIRM PERFORMANCE: THE CASE OF UNDERSTUDIED COUNTRIES[1]

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[1] The authors acknowledge conversations with Klaus Meyer and Rajneesh Narula and guidance from the editor and anonymous referees. Rebeca Granda Marcos and Dustin Voss provided excellent research assistance. Any errors are the responsibility of the authors. An earlier version of the paper was presented at the 2017 Global Strategy and Emerging Markets Conference, at Northeastern University, Boston, June, 2017 and at the International Corporate Governance Society annual conference at the LUISS business school, Rome, September 2017. The first author acknowledges the financial support of the Canadian Social Science and Humanities Research Council.

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Abstract

We analyse the relationship between institutional systems (configurations of countries with similar institutional characteristics) and firm performance. We use a large sample of firms from understudied countries to explore whether the performance impact of these configurations is the same ("*equifinality*"), whether this holds across different measures of firm performance ("*Tversky effect*"), and whether some institutional configurations better support foreign-owned firms. We find that it is possible to rank institutional systems according to their impact on firm performance, but the ranking differs according to the performance measure. Although foreign ownership on average confers performance advantages, the magnitude of the impact depends on the configuration. Our findings contribute to the understanding of the importance of institutional similarities across countries, and to the implications of these similarities for the theory of the MNE.

Keywords: Varieties of Institutional Systems, Comparative Corporate Governance; Firm Performance; World Bank Enterprise Survey; Theory of the MNE; eclectic paradigm

INTRODUCTION

A central tenet of the international business (IB) literature is that institutions matter (Dunning & Lundan, 2008b; Peng, Wang & Jiang, 2008; Peng, Sun, Pinkham & Chen, 2009). In particular, institutional *differences* across countries can help explain the existence of "country effects" as determinants of differential firm performance (Makino, Isobe & Chan, 2004; Gao, Murray, Kotabe & Lu, 2010; Bamiatzi, Bozos, Cavusgil & Hult, 2016) as well as location (Globerman & Shapiro, 2002; Bevan, Estrin & Meyer, 2004; Bénassy-Quéré, Coupet & Mayer, 2007) and entry mode choices by multinational firms (Brouthers, 2002; Meyer, Estrin, Bhaumik & Peng, 2009). These institutional differences have arguably become more important as emerging markets add heterogeneity to the institutional spectrum (Peng, Wang & Jiang, 2008; Hoskisson, Wright, Filatotchev & Peng, 2013).

At the same time, there is a long intellectual history built around the analysis of the performance effects of economic systems: groupings of countries that share *similar* institutional characteristics (Koopmans & Montias 1971; Ostrom, 2009). One prominent example is the Varieties of Capitalism (VOC) perspective (Hall & Soskice, 2001) where it is argued that even within a single economic system, capitalism, countries could usefully be grouped in typologies based on institutional similarities, resulting in a "remarkable convergence on just a few configurations (Boyer, 2005, p. 13). Hall and Soskice looked at a relatively small group of developed economies in North America and Europe and identified two main variants of capitalism, Liberal Market (LME) and Coordinated Market (CME) economies. Importantly, in their approach, the two systems can generate the same levels of national and company performance, resulting in an outcome termed *equifinality*.

Subsequent scholarship on capitalist variety relies less on establishing typologies such as the VOC, and more on the development of empirically derived taxonomies of institutional systems (Hall & Gingerich, 2009; Schneider & Paunescu, 2012; Witt & Redding, 2013). To date, most scholars have restricted their analysis to developed countries, where institutions are stronger and arguably have a

different impact from those in emerging markets (Peng, Wang & Jiang, 2008). The major exception is Fainshmidt, Judge, Aguilera, and Smith (henceforth FJAS, 2016) who exploit known features of institutional structures in understudied emerging and developing countries to create a novel framework, which they refer to as *Varieties of Institutional Systems* (VIS). FJAS's focus on understudied countries is a welcome addition to the literature on capitalist variety, as scholars have criticized the VOC for its almost exclusive focus on mature OECD member economies (Allen, 2004). The VIS taxonomy consists of seven distinct, empirically derived national institutional systems, henceforth termed *configurations,* and incorporates factors considered to be relevant to the emerging market context such as the role of the state and diversified family business groups (Estrin, Meyer, Nielsen & Nielsen, 2016; Carney, Estrin, van Essen & Shapiro, 2017). However, to date, the performance implications of these systems have not been addressed.

In this paper, we pursue two related broad research questions that both extend and link the literature on institutional systems and international business. Our first research question asks whether the institutional systems defined by FJAS exhibit *equifinality*, and if so whether that outcome holds for all performance measures (which we refer to as the *Tversky effect*). We argue that, in contrast to VOC, when we extend the scope of the analysis to emerging markets, equifinality as measured by firm performance across national systems, will not hold. We hypothesize that in the context of these understudied countries, some configurations are better at supporting firm performance than others - (H1) - and we test this hypothesis using firm-level data. Our results establish that performance does vary across configurations and *equifinality* is therefore rejected.

We extend the analysis in our first research question by building on an insight of Tversky (1977) that the ranking of alternatives is context dependent. We apply this argument to the relationship between firm performance and institutional configurations. This extension leads us to offer a novel theory-based hypothesis suggesting that the *relative* impact (ranking) of the configurations on firm performance will

differ according to the performance measure chosen. Specifically, we propose that there will be variation in the extent to which different configurations support alternative dimensions of firm performance (H2). We also find evidence confirming this hypothesis from our sample of understudied countries.

Our second research question asks whether national institutional systems affect the performance of foreign-owned firms in these understudied countries. Here, we both extend the IB literature and link it to the literature on institutions. Specifically, we first draw on the familiar OLI (eclectic) paradigm, and its variations (Dunning, 1988; Rugman & Verbeke, 1990; Hennart, 2009) to explore whether the firm-specific advantages associated with foreign-owned firms (FOEs) and internally transfered through majority ownership provide these firms with performance advantages in understudied countries (H3). This proposition has been widely supported for developed economies (Caves, 1996; Estrin, Hanousek, Kočenda, & Svejnar, 2009) but has not been tested in a cross-national sample of emerging market countries, where institutional heterogeneity is greater, instutional voids and regulatory barriers are higher and therefore the liability of foreigness is higher (Khanna and Paleu, 2010; Wright, Filtatotchev, Hoskisson and Peng, 2005; Zaheer, 1995) . Our results suggest that FOEs do display performance advantages over domestic firms, even in these understudied economies. On this basis, we then extend the framework to account for the effects of national institutional systems, by proposing that magnitude of the positive foreign ownership performance effects are contingent on the configuration to which the host economy belongs (H4). Thus we suggest and find empirical support for the argument that, that some configurations provide better institutional support for the ownership advantages of FOEs than others. Our findings indicate that institutional similarities among countries as captured in our configurations, are important determinants of both domestic and foreign-owned firm performance, and should therefore be considered in addition to measures of institutional distance as a component of host country location (L) advantage.

From an empirical perspective, we develop a unique dataset that combines the seven FJAS configurations (see Table 1) with firm-level data from the World Bank Enterprise Survey (WBES), resulting in a sample of over 50,000 firms from 57 understudied countries, including emerging capitalist, former socialist and socialist ones. Thus, we pursue the suggestion of FJAS that they provide an "improved platform for scholars examining the implications of cross-national institutional differences for organizations embedded in different types of institutional systems" (FJAS, p. 2). In bringing together the FJAS taxonomy and the World Bank microdata, we not only extend the theoretical and empirical understanding of institutional systems, but we also link that understanding to the theory of the MNE.

We conclude that the study of national institutional systems, when extended to understudied economies, reveals a considerable variation in institutional architectures, which differentially affect the performance of firms, both foreign and domestic, embedded in them. While we find that some systems better support firm performance than others, we also find heterogeneity among the better-performing systems. Our findings caution against the use of oversimplified categories to describe these countries, but also suggest the theoretical and empirical relevance of national institutional systems in analysing the country-specific (location) advantages of emerging markets.

THEORY AND HYPOTHESES

National institutional systems provide the formal and informal rules of the game to which domestic and foreign firms must adapt their governance and ownership structures (North, 1990). One strand of the corporate governance literature suggests that national and firm-level systems of corporate governance were converging on a single 'best' form of economic governance, as manifested in an Anglo-Saxon, capital market-driven investment regime characterized by a sharp separation between ownership and control and secure legal protection for minority investors (Hansmann & Kraakman, 2004). Related to this, a shareholder value model emerged prescribing codes of best corporate governance practice: a vigilant

board of independent directors; the separation of key leadership roles; and compensation systems aligning shareholder and top management interests (Lazonick & O'Sullivan, 2000). This liberal market economy (LME) view of national and firm-level corporate governance configuration encapsulates the notion of *unifinality*, in which across the variety of possible institutional arrangements there exists an optimal configuration of institutions for economic performance (Fiss, 2007). In contrast, Hall and Soskice (2001) argue that within the developed capitalist world, other institutional systems, notably what they refer to as coordinated market economies (CME), can be as high performing as LMEs, consistent with *equifinality*, whereby different systems produce similar economic outcomes (see also Judge, Fainshmidt & Brown, 2014).

An earlier example of this type of debate arose in the 1920s over whether socialist states could design an economic system that would match the capitalist system (see Levy & Pert, 2008, for a summary). At its heart was the question of whether two fundamentally different economic systems could perform equally well; that is, whether there could be *equifinality* of economic outcomes. The tenor of the argument did not support the idea of equifinality, and neither did the actual comparative performance of the systems, which suggested unifinality (Kornai, 1992).

Institutional configurations and firm performance

We first consider why differences in institutional and governance systems might explain cross-national differences in firm performance (Aguilera & Crespi-Cladera, 2016). The VOC literature (Hall & Soskice, 2001; Amable, 2003; Hancké, Rhodes & Thatcher, 2007) identifies a social democratic economic model of capitalism in north European countries as a viable alternative architecture of national competitiveness to liberal market economies. There are two ideas at the heart of the VOC model: *complementarity* and *isomorphism*. First, a nation-state can provide a performance advantage to its firms if it achieves complementarity between institutional spheres, including the financial sector, the labor, and industrial relations regime, and the educational and skills training systems. Actors in each institutional sphere are

perceived as politically rational, having an acute sense of their interests but recognizing the power of cooperation and negotiation to achieve collective ends (Hall & Thelen, 2009). Thus, institutional variation arises from the way different national institutional systems achieve cohesion and ways of 'hanging together' (FJAS) to support high-performing firms and achieve high economic growth (Peck & Zhang, 2013).

The focus of this approach is therefore on the institutional complementarities within countries that co-evolve with those of other countries to produce distinct governance configurations. Thus, no single institutional characteristic is sufficient to explain outcomes; instead, the outcome is related to combinations of conditions (Fiss, 2007) often identified *via* fuzzy set and clustering analysis (Hotho, 2014). This strand of research has been able both to identify fine-grained configurations and to evaluate their impact on a number of different national economic outcomes including foreign direct investment (FDI) inflows (Pajunen, 2008), exports (Schneider, Schulze-Bentrop & Paunescu, 2010), national growth rates (Hall & Gingerich, 2009), and economic equality (Judge, Fainshmidt & Brown, 2014) as well as different national corporate governance systems (Haxhi & Aguilera, 2016; Iannotta, Gatti & Huse, 2016).

The second key concept is isomorphism. Each variety of capitalism is said to produce an 'emblematic firm' (Boyer, 2005), an organisational form particularly well adapted to its national institutional system. In the LME, the emblematic firm is a capital market-governed, managerially controlled, shareholder value-maximizing firm, whereas the emblematic firm in CME is a bank-centered, stakeholder-oriented firm. More recently, the high-performing Asian variety of capitalism model views the diversified business group as the emblematic form of corporate organization (Carney, Gedajlovic, & Yang, 2009)[2]. The institutional system, therefore, supplies firms with 'institutional capital' so that firms fit, or become isomorphic with, prevailing modes of institutional functioning. National institutional

[2] There is also evidence to suggest that the adoption of best practice Western models of corporate governance Is not effective in China (Chen, Li & Shapiro, 2011).

systems will differ in the way they influence the structure of emblematic firms, and their capacity to accommodate non-emblematic firms, and isomorphic processes in different configurations, therefore, result in varied forms of comparative institutional advantage (Schneider, Schulze-Bentrop & Paunescu, 2010). Thus, as firms strive to access resources in their local environment, they are likely to develop similar practices adapted to their particular institutional configuration (Hall & Soskice, 2001).

The original VOC arguments derived from studies of a limited group of developed economies. Indeed, critics of the VOC seized on its Euro-centricity, noting that VOC did not adequately capture the variety of institutional configurations found around the world (Allen, 2004). Boyer suggested that there would be 'an even larger diversity for emerging economies' (Boyer, 2005, p.15) and other theoretical approaches identified new typologies (Whitley, 1999; Amable, 2003). An important methodological innovation was the application of clustering and fuzzy set theory to derive taxonomies based upon multiple measurements of national institutional characteristics (Hotho, 2014). Applying fuzzy set analysis, FJAS identify seven distinct configurations among emerging, developing and transition countries. Nevertheless, with the growing interest in taxonomical elaboration, the question of impact on firm performance at the heart of the earlier literature has faded, and to our knowledge, very few have considered the firm-level performance implications of different configurations.

The link between the capitalist taxonomy literature and their performance consequences remains central, however, because the VIS and VOC literature both claim to explain the country-specific institutional basis of *firm-level* competitive advantage. Hence it is a significant research question to explore the firm-level performance effects of these new institutional configurations identified outside developed OECD countries. VOC scholars have already raised questions about the relevance of complementarity amongst the institutional contradictions and frictions of less developed economies and obvious cases of dysfunctional varieties of capitalism also challenge the idea of equifinality (Howell,

2003; Hancké, Rhodes & Thatcher, 2007; Peck & Zhang, 2013)[3]. Widening the geographic lens to emerging markets in Asia, Latin America and Africa, a more variegated range of capitalisms come into view comprising dynamic 'rising powers' (Sinkovics, Yamin, Nadvi & Zhang, 2014). Other scholars describe static capitalist economies mired in a middle-income trap and low skill equilibria (Schneider, 2009); and even outright failures (Wood & Frynas, 2006).

In the OECD, we find some developed countries which have achieved complementarity and firm isomorphism in one way or another, leading to higher levels of national and firm economic performance. In contrast, we expect to find greater variability in the extent to which institutional systems are moving toward such complementarity and firm isomorphism in emerging economies. This is because some states are dynamically transforming their institutional systems with far-reaching institution-building projects, while others have stagnated as states appear to accept the existing institutional equilibrium. The resulting heterogeneity may lead to more significant differences in firm performance across configurations. Using the VIS framework, (see Table 1 for the composition of each configuration), we can identify different institutional templates that might produce similar or different effects on firm performance. For example, there is some evidence in the literature that, the state and economic actors in FJAS's emerging LME and state-led configurations would seek resolution of institutional contradictions, with firms dynamically adapting in the process (Peck & Zhang, 2013). Alternatively, other VIS configurations may have already settled into a stable institutional equilibrium; for example, the family-led configuration dominated by powerful rent-seeking business groups, which resist institutional developments that challenge their rents (Morck, 2010; Carney, Duran, van Essen & Shapiro, 2017). In this institutional configuration, we expect that firms will face obstacles to achieving efficiency because these countries lack the relevant complementarity and contain contradictions that fail to provide a sustained institutional advantage.

[3] Even within the Europe, an underperforming group of Mediterranean varieties of capitalism has been identified (Amable, 2003) while at the European periphery, Cernat (2006) describes an incoherent form of "cocktail capitalism" and Nölke & Vliegenthart (2009) refer to "dependent-market" capitalism.

Hence, we expect that the configurations identified by FJAS will vary in their capacities to provide the institutional frameworks that support competitive firms; as a result, we do not expect equifinality across systems.

Hypothesis 1: Firms operating in different institutional configurations will display differentiated levels of economic performance (no equifinality).

Institutional configurations and different measures of performance

In a classic article, Tversky (1977) argued that similarity measures based on distance could at times violate simple axioms of minimality, symmetry, and triangle inequality (Tversky, 1977, p. 328). For example, symmetry would require that if country A is judged to be similar to country B, then country B must also be similar to country A. In our context, this implies that countries should belong to the same configuration regardless of whether one begins with A or B. Tversky provides the counter-example of China and North Korea, whereby North Korea is judged to be more similar to China than China is to North Korea and suggests that the differences arise because China and North Korea have multiple attributes, and depending on the context there may be asymmetrical judgments about which are relevant.

Thus, measures of similarity derived from multiple attributes and created by using distance measures may fail these logical tests. Taxonomies derived through cluster analysis fall into this category. Indeed, FJAS rely on a two-step clustering procedure which uses log-likelihood distance rather than squared Euclidean distance, and this includes both continuous and dichotomous variables (FJAS, 2016, p. 9). This procedure is appropriate to their data but, in using them, it is important to carefully consider the implications of Tversky's arguments about the asymmetries of effects; namely whether two configurations can be judged to be similar in one analytical context, but not in another. Thus, two configurations found to be equally favourable to enhancing one aspect of firm performance may not be equally favourable concerning another. That is, a configuration's multiple attributes may be seen differently (asymmetrically) depending on the activity the firm is considering, and so the value (ranking)

of any configuration may vary according to the activity. This implies that conclusions regarding equifinality will be contingent on the performance measure under consideration.

Thus, arguments drawing on classifications that are based on multiple attributes and derive from measures of distance, such as the institutional configurations of VIS, must be considered as being *context dependent*. Therefore, we hypothesize that rankings or comparisons of configurations derived from firm performance may yield different results depending on the particular performance measure chosen.

Hypothesis 2: The impact (ranking) of any given configuration on firm performance will vary according to the way that firm performance is measured.

Foreign Ownership

We now address the question of whether foreign-owned firms (FOEs) have performance advantages over domestically owned firms (DOEs), and most importantly whether these advantages (if they exist) vary with the institutional context.

The traditional view in the IB literature is that FOEs benefit from the ownership of tangible and intangible assets (O advantages) that can be internally transferred to the host market to provide a performance advantage in the host market, a view summarized in Dunning's OLI model (Dunning, 1988; Rugman & Verbeke, 1990). Despite the liability of foreignness associated with operating abroad (Zaheer, 1995), there is ample empirical evidence from developed economy host markets that foreign-owned firms do display such performance advantages (Davies & Lyons, 1991; Bellak, 2004). However, it is not at all clear that the positive foreign ownership effect will hold in transitional, emerging and developing markets, for two reasons. First, it is likely the case that the institutional environment in these countries enhances the liabilities of foreignness (Eden & Miller, 2004; Gaur, Kumar & Sarathy, 2011), and therefore dissipates the advantages of FOEs. For example, institutional voids may result in the emergence of powerful business groups (Carney, van Essen, Estrin, & Shapiro, 2018) whose structures and relations to political elites may be quite different from those of FOEs. Thus, FOEs, do not fit well in the local

institutional environment, which may negatively affect their performance. Second, because many of the FOEs in emerging markets may originate in other emerging markets, they may lack the firm-specific assets underlying the positive performance effects (Ramamurti, 2009, and 2012; Rugman, 2009; Gammeltoft, Barnard & Madhok, 2010)[4]. As noted by Peng (2012, p. 99), a "big chunk of the O" may be missing for EMNEs, thus resulting in limited performance advantages.

Despite these possibilities, we follow Dunning (1988) and Rugman (2009) in proposing that *all* FOEs including EMNEs must possess some FSA to overcome the liabilities of foreignness. At the same time, we acknowledge that the nature of the FSAs may differ between FOEs from emerging and developed countries (Cuervo-Cazurra & Genc, 2008; Ramamurti, 2009; Bhaumik, Driffield & Zhou, 2016). While MNEs from developed countries may rely on more traditional sources of competitive advantage related to the ownership of internalized intangible assets, EMNEs may possess advantages related to their networking skills and ability to navigate through more difficult institutional environments (Erdener & Shapiro, 2005; Cuervo-Cazurra & Genc, 2008). This argument is stronger because knowledge-seeking motives for FDI in the set of countries considered in this study are for the most part unlikely.

It then follows that the internalization process should protect these advantages. Given that weak institutions and market failures characterize the countries we study, internalization theory would suggest that FOEs will transfer their FSAs abroad through majority ownership (Dunning, 1988; Rugman & Verbeke, 1990; Gatignon & Anderson, 1988; Makino & Neupert, 2000).[5] We support this reasoning with property rights theory, which suggests that when a firm possesses distinct assets that are internationally transferable, it should exercise greater control over those assets since control provides the firm with

[4] Rather, emerging market multinationals (EMNEs) are often argued to be motivated by other factors such as strategic asset seeking (Meyer, 2015) or learning (Mathews, 2006).

[5] Majority control does not rule out some level of local minority ownership to assist in navigating institutional voids (Meyer, Estrin, Bhaumik & Peng, 2009).

safeguards that can protect their assets from misappropriation (Grossman & Hart, 1986; Driffield, Mickiewicz & Temouri, 2016) and facilitates the operation of internal capital markets (Gugler, Peev & Segalla, 2013). Similarly, with the diffusion of ownership and control, the firm may experience high agency costs that dissipate its ownership advantage and negatively impact its performance (Boardman, Shapiro & Vining, 1997; Douma, George & Kabir, 2006). There is limited direct evidence on the relative performance of FOEs in emerging markets, but the available evidence does point to a positive performance effects of FOEs in India (Douma, George & Kabir, 2006) and of privatization to FOEs in transition economies (Estrin, Hanousek, Kocenda & Svejnar, 2009). Based on these arguments, we expect that majority-owned FOEs will benefit from the internal transfer of valuable intangible assets from their parents, and this will, in turn, provide them with performance advantages in emerging markets.

Hence, we argue:

Hypothesis 3: Firms with majority foreign ownership will display superior levels of economic performance compared with other domestically owned firms operating in the host economy market.

Interaction of foreign ownership and institutional configurations

If FOEs possess performance advantages, do they vary across institutional systems? Many scholars argue that foreign firms are more likely to succeed when they can match their FSAs with the host country-specific locational advantages (CSAs), which include resources, market size, and institutions (Rugman & Verbeke, 1990; Driffield et al, 2016). Thus, it is the interaction between the FSAs of the firm and CSAs of the host country that drives the performance of an FOE in any particular country. Hennart (2009) refers to the "bundling" of firm-specific and complementary country-specific advantages. This explanation is likely to be of particular relevance in emerging markets, where MNEs need to combine their proprietary assets with local country assets which are often very specific, such as access to gatekeepers or knowledge of local networks (Shi, Sun, Pinkham & Peng, 2014). There is, in fact, already

some evidence that the performance of foreign-owned subsidiaries depends on the institutional characteristics of the host country (Gugler, Mueller, Peev & Segalla, 2013).

While FSAs are unique to a firm, CSAs are usually seen as public goods freely available to all market participants within a country (Dunning & Lundan, 2008a, p. 96). Hennart (2009, 2012) questions this assumption and suggests that the market for acquiring local complementary assets is imperfect so that some institutional structures are more likely to facilitate firms' access to CSAs than others. Regarding the previous discussion, this would imply that some institutional *systems* can more effectively generate complementarities for foreign firms and assuming that countries in specific institutional configurations share these qualities, then there will be systematic variation in the relationship between institutional configurations and FOE performance. Thus, we expect some emerging market institutional configurations to present particularly strong challenges to FOEs, while others provide a more fruitful context supporting firm performance.

We, therefore, argue that the ownership advantage of (majority owned) FOEs is moderated by the institutional configuration of the country in which they operate; that is, FOEs operating in different institutional configurations will display differentiated levels of economic performance. Hence, we hypothesise that:

Hypothesis 4: The performance benefits of majority foreign-owned firms are moderated by the institutional configuration in which the host country belongs.

DATA AND METHODS

We use the World Bank Enterprise Survey (WBES) database for our empirical analysis (http://data.worldbank.org/data-catalog/enterprise-surveys). This is a cross-section time-series panel of enterprise data collected by surveys of over 120,000 firms in more than 130 countries across Asia, Latin America, Eastern and Central Europe, and Africa between 2006 and 2016 (World Bank, 2011). The

sampling is stratified and random with replacement, constructed to be representative of the country-level with respect to firm size, business sector, and geographic region and undertaken in waves at different dates over the period, with some countries having only one wave (e.g. Brazil and India), most having two and a few having three (e.g. Bulgaria and the DR Congo). WBES data have been used widely in economics and development economic studies (see, e.g. Harrison, Lin, & Xu, 2014; Mitton, 2016; World Bank, 2018, Chapter 2) and are now beginning to be used in IB research (Jensen, Li & Rahman, 2010; Cuervo-Cazurra, 2016).

FJAS created their VIS typology of institutional systems for understudied economies to incorporate numerous emerging markets including many within the World Bank dataset. They rely on a panel of experts to identify seven distinct national institutional systems that categorize governance arrangement for 68 understudied countries. The full list, which also encompasses the two developed economy VOC categories, is contained in their Appendix A1 and is reproduced as Table 1 below. Of the 68 countries in VIS, the WBES dataset covers 57. Table 2 lists them and shows how they fit into the seven VIS configurations of understudied economies, as well as providing information about the number of firms in each country sample. Our maximum sample contains over 86,000 firms, but the deletion of some firms described below results in a sample of some 55,000 firms. Since there are no observations for any countries in configuration 4 (centralized tribe) in the WBER sample, this configuration cannot be used in the tests of our hypotheses.[6]

-Tables 1 & 2: about here-

Dependent Variables

We employ two different measures of firm-level performance. The first is labor productivity, a measure of firm-specific advantage (Zaheer, 1995; Caves, 1996), defined in the WBES as real sales per worker.

[6] In addition, WBES has no data on Hong Kong and Singapore and are not covered in the emergent LME configuration 5, and for the same reason South Korea and Taiwan are not covered in configuration 7.

The second is exports (percentage of sales exported), a measure of the firm's ability to compete in the global economy (He, Brouthers & Filatotchev, 2013). Variable definitions and sources for all dependent and independent variables are reported in Table 3.

-Table 3: about here-

Independent Variables

We use dummy variables to allocate each of the 57 countries in the sample to the appropriate one of the six available VIS configurations presented in Table 1. In our regressions, we always use as our point of reference configuration 5, emergent liberal market economies (ELMEs); this represents for our sample of understudied economies the institutional system closest to the traditional Anglo-Saxon governance model. We thus have 5 dummy variables corresponding to the FJAS national institutional systems or configurations, henceforth denoted *configs*. We analyse foreign ownership in terms of majority ownership and so load it as a dummy variable taking the value unity when foreigners own more than 50% of the equity in the firm.

Control Variables

To avoid omitted variable bias, we need to control for a large number of other factors likely to influence firm performance, (see e.g. Hansen and Wernerfelt, 1989; Bhaumik, Driffield & Zhou, 2016). The most important of these for cross country studies is the level of national economic development (Meyer, Estrin, Bhaumik & Peng, 2009), which we measure as GDP per capita, measured in logs to address potential non-linearity in the impact of GDP per capita. We noted above that many FOEs in our sample are themselves from other emerging markets so their firm specific advantages may not be adequately captured by either productivity or exports (Cuervo-Cazurra & Genc, 2008; Ramamurti, 2012). To control for this, we use country-level data on the source of FDI, namely the percentage of the FDI stock derived

from developed economies, measured in logs[7]. In addition to controlling for possible differences in performance between FOEs from developing and developed countries, this variable may also control for the possibility that FOEs from developed countries provide greater spillover benefits. For these reasons, we expect firm performance to be higher the greater the percentage of FDI to a host economy from developed economies. We also employ a variety of firm-level controls for company performance, all entered in logs. In particular, we follow the literature in including a measure of firm size; larger firms are typically associated with higher levels of productivity and exports (Hall & Weiss, 1967; Bonaccorsi, 1992). The second control stressed by the literature is the age of the firm, with older firms normally associated with better performance (Moen, 1999).

In understudied economies, where institutions are less developed than in advanced market economies, some hybrid or mixed ownership structures may be more beneficial for firm performance (Khanna & Palepu, 1999). Bringing together diverse groups of owners (private, state, foreign) with access to different resources may provide distinctive channels for accessing and assembling the kinds of resources required for effective performance. Accordingly, following Chen, Li, Shapiro & Zhang (2014), we introduce a control for ownership hybridity which measures the degree to which ownership is diversified by type of owner (foreign, state, private domestic). Ownership Hybridity is defined in Table 3 and is expected to have a positive effect on firm performance. Finally, we control for industry and year fixed effects.

Our base sample uses a sub-sample of the (relevant part of) the WBES dataset in which small firms (fewer than 10 workers), and state-owned firms (the state owns more than 50% of the firm's equity) are excluded because these increase the heterogeneity of the sample without increasing variation relevant to our hypotheses. In robustness tests, we re-estimate both the productivity and export equations on samples which include state-owned and small firms respectively (denoted the full WBES sample). In the

[7] We are not able to identify the home economy of FOEs in our dataset.

former case, we also control for state ownership through a dummy variable in the regressions, as well as (separately) for state-owned firms which are also foreign-owned.

RESULTS

Descriptive Statistics

We report descriptive statistics in Table 4 and correlation coefficients in Table 5. Our sample of firms in understudied countries primarily comprise small/medium sized domestic private firms; in Table 4, we note an average firm size of around 110 workers and a firm age of 18 years. Only 5.4% of firms are state-owned, and only 5.6% are (majority) foreign owned, while the share of exports in revenues is typically small, 7.5%. On average, around one-third of FDI derives from other emerging and developing countries. Table 5 reveals that the correlation coefficients between the independent variables are almost all rather small, mostly well below 0.3, suggesting that multicollinearity is not a serious issue in our data. One exception is the positive correlation between FDI stock from developed economies and GDP per capita. However, in unreported regressions we find that omission of the former does not influence the results concerning the hypotheses, so we include both variables in our reported regressions.

-Tables 4 & 5 about here-

Hypothesis Testing

Given the fact that our data are not collected as a panel structure, we treat them as cross-sectional regardless of the date of sampling within one country. To test our hypotheses, we run regressions on the base sample (excluding state-owned and small firms) for each of the two dependent variables, productivity, and exports. We estimate five models. In the first, we include only the control variables; for model 2 we add the five configuration dummy variables (configs 1, 2, 3, 6, and 7) and for model 3 we include only the control variables and the ownership variables. Model 4, which is the basis for testing hypotheses 1, 2 and 3, includes all five configurations (config) dummies and ownership variables as well as the control variables. Finally, in model 5, which we use to test hypotheses 4 (as well as to provide

additional support for hypotheses 1 and 2), we add to the independent variables in model 4 the five interaction terms between the configuration dummies and the foreign ownership variable.

The test for hypothesis 1 is whether there are significant differences in the value of the five coefficients on the configuration dummies *within* each of the export and productivity equations in model 4. We first test whether the configs are different from the omitted category, configuration 5, by observing whether the coefficient on each configuration is statistically different from zero. We then test the null hypothesis, namely whether they are different from each other, by constraining the coefficients to equality using a nested F-test. We test hypothesis 2 by using model 4 for the productivity and export equations respectively, and performing a pairwise comparison of the productivity versus the export equation coefficients for each configuration; that is, we compare configuration coefficients pairwise, *across* the productivity and export equations.

The test of hypothesis 3 depends on the sign and significance of the coefficient on the foreign-owned dummy in model 4; we argue that this will be positive and statistically significant. Finally, we base the test of hypothesis 4 on model 5. For each performance equation, we test whether the coefficients on the interactive ownership-configuration terms are statistically significantly different from each other. Once again, we first test whether they are each different from configuration 5, via the significance of the coefficient on each ownership-configuration interaction. We go on to test whether all the other ownership-configuration interaction coefficients in model 5 are different from one another by constraining the coefficients to equality.[8]

Results for the base specification

We report our results using the base specification sample in Table 6. The control variables alone in model 1 provide an explanation of around 16% of the heterogeneity of productivity in our sample and 14% of

[8] As a robustness test, we also used Model 5 to test hypotheses 1 and 2, but this does not change the results discussed below.

exports. The explained variance increases to about 22% and 17% respectively once we add the configuration and ownership dummies and their interactions in model 5.

-Table 6: about here-

As outlined above, we use the results in models 4 and 5 to test our hypotheses. Commencing with hypothesis 1 (non-equifinality), we note that all five configuration dummies in both the productivity and export equations are statistically significantly different from the omitted category at the 99% level, which provides strong support for the hypothesis. Furthermore, we find in Table 7 (Panel A) that the coefficients on all the configuration dummies are statistically significantly different from each other at the 10% level except for the pairs of coefficients on configs 1 and 6 and on configs 2 and 3 in the productivity equation. Thus, we find evidence in support of hypothesis 1; by ranking the configurations in terms of contribution to firm performance[9]. In Panel B of Table 7, we produce the ranking of configuration impact on performance, accounting for differences in statistical significance, and note that the ranking differs depending on whether we measure performance by productivity or exports.

-Table 7: about here-

We test hypothesis 2 (Tversky) by comparing the configuration coefficients in model 4 in the productivity equation with those in the export equation. We report the tests results based on a chi-squared test Table 8, where we see that the coefficients are significantly different from each other in every configuration, except config 2. This result explains the different rankings of configuration reported in Table 7, Panel C, and thus these tests provide strong support for hypothesis 2.

-Table 8: about here-

We test Hypothesis 3 through the sign and significance of the coefficient on the FOE dummy in the productivity and export equations in Model 4, Table 6. We note that both are positive and statistically

[9] It should be noted that while we chose to test the hypothesis using model 4, the coefficients and standard errors on the configuration do not alter greatly between models 2, 4 and 5, underlining the robustness of this result.

significant in model 4) for both equations, which provides strong support for hypothesis 3[10]. We test Hypothesis 4 by comparing the coefficients on the interactive ownership-configuration terms in model 5 within each equation, and we report the results in Table 9. Panel A, reports the regression coefficients that we test. Here, we test for significant differences using the nested-F test and find significant differences between the coefficients in both equations. Thus, in the productivity equation, all five interactive ownership-configuration terms are significantly different from the omitted interaction term (FOE*configuration 5) at the 99% level. Furthermore, Table 9, Panel A shows that the coefficients on all the interactive ownership-configuration terms are statistically significantly different from each other except for the pairs of coefficients FOE*config1/FOE*config6 and FOE*config3/ FOE*config6. The same applies to the export equation except that the coefficient on FOE*config2 is negative and significant at the 95% rather than at the 99% level. Thus, we establish that this interactive term is significantly different from all the other interactive ownership-configuration terms without reference to the formal tests in Table 9. As suggested by Kingsley, Noordewier & Bergh (2017), we test the marginal effects of foreign ownership on productivity and exports in each configuration, reported in Table 9, Panels B, and these are also statistically significant.[11] Thus, we find strong evidence in support of H4.

-Table 9 about here-

Finally, turning to the control variables these largely conform to our expectations. In most models, productivity is positively related to firm age and size. However, it is interesting that we find that older firms export significantly less. The share of the FDI stock from developed economies raises both productivity and exports, while both are negatively associated with GDP per capita. Finally, ownership

[10] The simple estimated coefficient on FOE is estimated to be negative in model 5 of the productivity equation, but the full effect has to be calculated by taking into account the interactive effect with each of the configurations. Thus, in fact, foreign ownership only has a negative effect on productivity in the omitted configuration which is Emergent LMEs.

[11] As noted above, the omitted category in all models is configuration 5, ELME. Thus, our marginal tests reported in Table 9 Panel B on the interactive ownership-configuration in model 5 also treat omitted FOE* Con 5 as the reference category. We have graphed the marginal effects across configurations but these provide no additional information and to save space are not provided. They are available upon request.

hybridity – the inverse of the concentration of ownership by ownership type, acts to reduce productivity but interestingly to increase exports.

Robustness Tests

We consider in unreported regressions [12] the results from the two broader samples. We first included small firms (< 10 workers), increasing the sample by around 30% on average, and more in fragmented and family-led configurations. The second sample included SOEs and increased the sample by 10%, more so in the state-led and hierarchically coordinated configurations. We re-estimated models 4 and 5 on these samples, and in both cases continued to find strong support for all four hypotheses.

DISCUSSION

In this paper, we first advance the literature on national institutional systems both empirically and theoretically, by focusing on the impact of these systems on the performance of firms from emerging and developing economies. At the same time, we contribute to the IB literature by exploring the performance of foreign-owned firms and the interaction between configuration-specific and their firm-specific advantages in a sample of understudied countries. We begin by discussing the implications of the relationship between national systems of institutions and host country firm-level performance for the literature on institutional and governance systems, before considering the impact on foreign-owned firms.

National institutional systems and firm-level performance

We first contribute to this literature by testing and validating FJAS's (2016) comprehensive taxonomy of institutional systems and demonstrate that the configurations provide an independent and statistically significant explanation of the variation in firm performance across countries. Thus, we show that these configurations matter in explanations of firm performance and thereby contribute to this line of research by addressing the comments that scholars have given more attention to the task of critiquing institutional typologies than to testing the frameworks (Peck & Zhang, 2013). Furthermore, FJAS's

[12] Available from the authors on request.

varieties of institutional systems perspective introduce for understudied countries two new elements that are conspicuously absent from the VOC perspective and which are likely to influence firm performance: a more prominent role for the state and ownership structure notably in the form of concentrated and family ownership.

Secondly, our results shed light on the kinds of institutional arrangements that will support better enterprise performance. With its depiction of path-dependent institutional change (Hall & Thelan, 2009), the comparative capitalism literature has emphasized institutional continuity and the persistence of variety in capitalist structures (Jackson & Deeg, 2008). This characterization may be appropriate in the context of mature institutional settings, but less so in understudied countries which comprise a wide array of transitional, socialist, and authoritarian regimes. A firm-centered approach, such as ours, can inform debates about the evolution of institutional systems, and in particular "incremental institutional adjustments, and potential hybridization" (Jackson & Deeg, 2008: 542) that may emerge over time.

Our ranking results shed some preliminary and admittedly tentative light on these debates, suggesting a range of distinctive trajectories of institutional change and firm performance. For example, our evidence points to two relatively high-performing configurations: emergent LMEs (config 2) in which firms rank first in productivity but 5th in exports, and collaborative agglomerations (config 6) in which firms ranked joint second in productivity and first in exports. We characterize the developmental trajectories of both configurations in dynamic terms where relatively strong-states are proactive in building complementarities to address institutional contradictions and seeking to develop a coherent market-based institutional framework. In these settings, where markets and other selection mechanisms are intensified, and domestic firms are incentivized to adapt and improve their practices, high levels of performance can be achieved (Sinkovics et al., 2014). Indeed, FJAS's characterization of these configurations (emergent LME, collaborative agglomerations) suggests convergence on the LME and CME varieties of capitalism, respectively. In the latter, a group of former socialist states with proximity

to, and growing economic integration with North European CME economies suggests a proces of national institutional isomorphism.

However, these are not the only relatively effective configurations in VIS. Based on their firm performance rankings, we identify two intermediate configurations: state-led systems (config 1, joint second on productivity and third in exporting), and hierarchically coordinated (config 7, second in exporting but equal fourth in productivity). FJAS characterize both as having a strong state, which plays a prominent role in resource allocation and in shaping the economic ordering of society. Concentrated and family ownership are also characteristic of both. However, strong states retain what Evans' (1989) describes as embedded autonomy, and avoid dependence upon powerful oligarchs or family elites. Similarly, while the state mediates incentives and resources, concentrated owners and family businesses possess the autonomy to pursue economic competitiveness that promotes their productivity and economic performance. The prominent role of the state and high exporting is suggestive of a government policy choice favoring export-oriented development, a well-trodden path for late-industrializing states (Amsden, 1991). Importantly, neither appear to be converging on either the CME or LME varieties of capitalism. Instead, these variants may represent an alternative, hybridized form of state capitalism. This heterogenous group of countries may be depicted as autocratic and illiberal regimes pursuing liberal trade policies (Hankla & Kuthy, 2013). Many of the countries in these configurations are relatively stable single-party states with long time horizons and incentives to adopt open trade policies that improve long-term economic performance. The implication is that state leadership of the economy becomes a permanent feature of these economic systems.

A third category is also evident in the rankings, one that is consistent with those scholars who identify economic systems characterized by institutional inertia, and even outright failure (Schneider 2009; Wood & Frynas, 2006). These institutional settings may have become permanently settled into their foundations with the preservation of institutional contradictions and non-complementarity. Our results

identify two underperforming configurations with these characteristics: fragmented and fragile states (config 2) with lagging performance on both exports and productivity, and family led systems (config 3) also weak on productivity and exports. Fragmented and fragile states are economic systems with weak states that lack the capacities to furnish resources or otherwise close institutional voids. As borne out in our results, firms are very unlikely to achieve international levels of competitiveness in these economic systems. FJAS describe the diverse economies located in North Africa, central Asia, and Latin America comprising the family led systems in neutral terms. They suggest that 'wealthy and dominant families take center stage in ownership, resource allocation and management' and 'wealthy families drive the economic agenda'(2016:10). However, Fogel (2006) depicts many of these states as oligarchic, where dominant families become entrenched and protect their interests, which can be achieved by frustrating pro-market policy initiatives and block entry from new rivals (Schneider, 2009). In these economic systems, the selection environment is relatively weak, and firms have few incentives to improve their competitiveness.

Thus, measuring institutional configurations regarding firm-level performance suggests evidence of both institutional convergence and persistence as well as pointing to the possibility of hybridized forms of state capitalism, which hold the promise of improved levels of firm-level and macroeconomic performance. In this sense, our findings address the question of institutional equifinality among emerging market and transitional economies and confirm our hypothesis that firms in different institutional configurations will operate at different levels of economic performance.

Although our findings therefore strongly support our hypothesis that there is non-equifinality between these novel VIS configurations, the exact rankings depend on the performance measure chosen. We explore this phenomenon more formally through what we refer to as the *Tversky effect*, where we find evidence supporting our hypothesis that the firm-level performance effects of institutional configurations differ according to the performance measure chosen. An important implication is that the attractiveness of

a country may be evaluated differently by a potential investor if the investment is part of an export platform to feed a global supply chain rather than an investment in capacity to meet local market demand. There are also relevant research ramifications, especially for researchers who are interested in the performance attributes of institutional systems. Our arguments show that the choice of performance measure to evaluate the comparative efficiency of different institutional systems may determine the conclusions reached. Finally, there are implications for the generation of comparative institutional data. In practice, panels of experts or polls of informed individuals derive many indicators of institutional systems (including the FJAS indicators). The implication of our finding is therefore that these expert ratings may be subject to unobservable judgement bias when presented with different scenarios. Comparative institutional research makes extensive use of institutional quality measures applying expert rating methodologies; examples include the World Bank Ease of Doing Business Rankings, International Country Risk Guide, and Freedom House. In the light of our findings, these measures need be selected carefully and interpreted cautiously.

Institutional configurations and foreign ownership

Our second contribution is to the IB literature. We build our analysis on the OLI framework and the argument that for developing and emerging economies as well as developed ones, FOE success abroad depends on both the ability to create and transfer ownership advantages and on the ability of the firm to match its FSA to the location advantages of the host market.

Thus, our third hypothesis was that FOEs translated their FSAs into performance advantages when locating in understudied countries, a hypothesis confirmed for both productivity and exports (Table 6, Model 4). It is important to establish theoretically and empirically that FOEs in understudied countries characterized by challenging institutional circumstances nevertheless do on average enjoy a performance premium associated with their FSAs transferred abroad, especially as a basis for a more fine-grained analysis of the effects of national institutional systems on firm performance. Moreover, given that some

one-third of FDI in our sample countries originates from emerging economies, our results suggest that FSAs as a basis for internationalization are not unique to MNEs from developed countries. Future research should focus on achieving a better understanding of these FSAs giving particular attention to the non-traditional advantages of emerging market multinationals that previous studies have identified (Cuervo-Cazurra & Genc, 2008; Ramamurti, 2009; Bhaumik, Driffield & Zhou, 2016).[13] We interpret our results as providing support for a traditional OLI approach to understanding the nature of the MNE operating in developing economies, with the *caveat* that O advantages might be different for EMNEs.

The analysis around hypothesis 3 also contributes to the literature on comparative corporate governance by showing that governance and ownership are important in explaining firm performance. In this regard, we follow Aguilera and Crespi-Cladera (2016) who call for increased attention to ownership structure and its relationship to economic performance in different economies. Specifically, our data on performance and ownership responds to their call for future research that uses firm-specific microdata on ownership structures to better understand the cross-national diversity in performance outcomes. Because our dataset applies a standard survey methodology across countries, we can make reliable estimates of ownership and performance attributes of firms located in very different institutional settings.

We go on in Hypothesis 4 to explore whether these performance advantages of FOEs vary by configuration. Our analysis extends Hennart's (2009; 2012) argument that access to country-specific advantages is not free, and will vary by host country and so the performance of foreign firms is contingent on their ability to choose locations that best match their FSAs. If configurations do indeed share important institutional similarities, then this argument leads one also to expect configuration-specific advantages, and hence that the performance of FOEs will be configuration specific. Our results provide support for the argument. Put differently; our results indicate that locational (L) advantages cannot be considered as solely country-specific because groups of countries share certain institutional

[13] Our data do not allow us to identify at the firm-level the home country of the foreign investor.

characteristics that distinguish them from others and impact firm performance. Thus, the notion of country-specific advantage must be extended to include configuration-specific advantages. Among other things, this way of thinking also provides opportunities to re-examine the issue of locational and entry mode choice from a configuration perspective, and suggests that the widespread use of institutional-distance measures between countries as a determinant should be reconsidered to take into account the institutional distance between configurations of countries.

By suggesting that some institutional systems are better able to support FDI, our fourth hypothesis complements insights from hypothesis one and two, because it results in a ranking of institutional configurations that depends on the performance measure chosen (Table 9, Panels B). However, it also extends the analysis by suggesting a mechanism through which configurations differ, and it introduces a possible link between firm governance and systems governance that researchers have not yet studied. Both offer opportunities for future research.

As a starting point, future research could focus on spillovers from FOEs to the host economy (Meyer & Sinani, 2009). If foreign ownership performance effects are sensitive to the particular configuration in which a country is located, then domestic performance effects may also be further enhanced by spillovers from foreign-owned firms (Witt & Jackson, 2016; World Bank, 2018). Our results are suggestive in this regard. For example, considering productivity, we note that the performance of majority-owned FOEs is highest in config 2, the fragmented economies of Sub-Saharan Africa, and lowest in config 5, emergent LMEs; the opposite of the rankings found in the estimates without foreign ownership interactive effects (Table 9, Panel B). This result suggests the possibility that spillover benefits are lower in Sub-Saharan Africa, in turn suggesting a mechanism explaining the poor productivity performance of that configuration.

At the same time, our results also suggest that the export performance of majority-owned FOEs is strongest in the state-led, collaborative agglomeration, and hierarchically-coordinated configurations

(Table 9, Panel B), the same ranking as was found in the estimates without the foreign ownership interactive terms (Table 7, Panel B). These results suggest possible links between institutional governance at the configuration level, namely the degree of state involvement in export-driven industrial policy, and the relative performance of firms by ownership type. The prominent role of the state in these institutional systems suggests that state involvement can be particularly advantageous for FOEs. We have emphasised the potential for both direct effects on FOE performance and the strong possibility for indirect ones because national institutional systems may influence spillovers. The possibility leads us to suggest that the institutional theory of the supply side of the economy that examines how institutions shape the supply of inputs such as skills and capital collectively available to firms (Jackson and Deeg, 2008) might be extended to encompass configurations. Thus, the MNE might be considered part of the supply-side in understudied countries notably concerning productivity-enhancing skills and practices.

We conclude by acknowledging some limitations of this study and providing some further guidance for future research. Our study faces limitations at both the theoretical and empirical levels. Commencing with theory, we have followed the literature in basing our classification of institutional systems upon taxonomies, which derive their classificatory distinctions from empirically observed clusters of characteristics, rather than from an underlying conceptualization as would be the basis for a typology. Given that understudied economies are typically evolving rapidly and are often subject to significant institutional changes, sometimes related to revolution, civil war or major economic and social development (Collier, 2007), our taxonomies may provide an unstable basis for long-term analysis. Furthermore, we have chosen to base our study on the VIS classification, with our contribution primarily focused towards exploring the complex inter-relationships among institutional systems, enterprise governance system, and firm performance. While our research has provided some evidence of the validity of the VIS taxonomy in explaining firm performance in understudied economies, future researchers may wish to revisit the taxonomy itself to explore whether cluster analysis based on a richer characterization

of institutions can provide an equally valid but more fine-grained specification of institutional systems in understudied economies. Also, we have not addressed the question of institutional dynamics and institutional change, which can affect firm performance (Kafouros & Aliyev, 2016) and firm ownership (Driffield, Mickiewicz & Temouri, 2016), and in turn change configuration identity and impact.

On the empirical side, we have benefitted from the World Bank's vast data collection exercise at the enterprise level on understudied economies. However, the WBES dataset also imposes some limitations. Most importantly, though there are a few countries surveyed three times, the bulk of the dataset comprises either single year observations or observations from only two waves. This has made it impossible to use empirical methods that distinguish between firm-level, country-level, and configuration effects. Future work may, therefore, need to seek either panel data for understudied economies or focus primarily on the countries with three waves to explore these distinctions. Furthermore, the data do have certain limitations, with respect to performance and ownership measures, and future research should investigate ways to improve these measures. Our analysis would, in particular, be improved by using a measure of total factor productivity and by being able to identify the country of origin of foreign-owned firms. Moreover, while our results point to the effective transfer of FSAs, even in an environment where transaction costs are high, as the explanation for the superior performance of majority-owned FOEs, we cannot in this study identify the nature of the FSAs, nor distinguish those possessed by EMNEs from other foreign investors. At the same time, while we identify clear configuration-specific effects on the performance of FOEs, these differ by performance measure, and we have not at this stage been able to identify the exact reasons. These are important limitations of our analysis.

CONCLUSIONS

In summary, we propose and find evidence for the argument that national institutional systems provide an additional and significant explanation of the firm performance in understudied countries. We do not observe equifinality in that some configurations are more supportive of positive firm performance

than others. Moreover, the degree to which configurations impact firm performance depends on the performance measure chosen; we use two key measures – productivity and exporting. Thus, we find configurations to be important, but their effects to be context dependent. Finally, we provide evidence that one mechanism contributing to the heterogeneous impact of configurations on firm performance is that some configurations are better able to support the FSAs of foreign-owned firms. Our analysis indicates that the traditional focus on the interaction of firm and country effects as joint determinants of FOE performance may have to be augmented to include configuration-specific advantages.

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Table 1: FJAS (2016) VIS Configurations in 68 Understudied Countries

Table A1
Summary of classification scheme.

Market-based (LME)*	Collaborative (CME)*	State-Led	Fragmented with Fragile State	Family-Led	Centralized Tribe	Emergent LME	Collaborative Agglomerations	Hierarchically Coordinated
Australia	Austria	Argentina	Angola	Algeria	Bahrain	Botswana	Czech Republic	Bulgaria
Canada	Belgium	Bangladesh	Cameroon	Azerbaijan	Iran	Chile	Estonia	Georgia
Ireland	Denmark	Belarus	D.R. Congo	Brazil	Kuwait	Hong Kong	Hungary	Jordan
New Zealand	Finland	China	Egypt	Colombia	Qatar	Israel	Latvia	Kazakhstan
Switzerland	France**	India	Ethiopia	Mexico	Saudi Arabia	Namibia	Lithuania	Korea (South)
UK	Germany	Indonesia	Ghana	Morocco	UAE	Singapore	Poland	Lebanon
USA	Italy**	Malaysia	Kenya	Nigeria		South Africa	Slovak Republic	Romania
	Japan	Mongolia	Rwanda	Peru			Slovenia	Taiwan
	Netherlands	Pakistan	Senegal	Tunisia				Turkey
	Norway	Philippines	Sudan	Yemen				Ukraine
	Portugal**	Russia	Tanzania					
	Spain**	Sri Lanka	Uganda					
	Sweden	Thailand						
		Venezuela						
		Vietnam						

* These economies have been classified by Hall and Soskice (2001) and subsequent literature. The LME group corresponds to the compartmentalized system in Whitley's NBS, and the CME encompasses various subtypes of collaborative systems included in NBS such as collaborative, highly coordinated, and coordinated industrial district.
** These economies are often classified as unique subtypes of collaborative systems where there is more state dominance and, in some cases, relatively liberal labor relations (Schneider, 2013; Hall & Thelen, 2009; Grosvold & Brammer, 2011).

Table 2: World Bank Enterprise Survey Sample Countries within the VIS Configuration Structure and Number of Firms in each Country

Config1		Config2		Config3		Config5		Config6		Config7	
State-led		Fragmented/ fragile state		Family led		Emergent LME		Collaborative Agglomerations		Hierarchically coordinated	
Country	Freq.	Country	Freq.	Country	Freq.	Country	Freq.	Country	Freq.	Country	Freq.
Argentina	2,117	Angola	785	Azerbaijan	770	Botswana	610	Czech Republic	504	Bulgaria	1,596
Bangladesh	2,946	Cameroon	363	Brazil	1,802	Chile	2,050	Estonia	546	Georgia	733
Belarus	633	DR Congo	1,228	Colombia	1,942	Israel	483	Hungary	601	Jordan	573
China	2,700	Egypt	2,897	Mexico	2,960	Namibia	909	Latvia	607	Kazakhstan	1,144
India	9,281	Ethiopia	1,492	Morocco	407	South Africa	937	Lithuania	546	Lebanon	561
Indonesia	2,764	Ghana	1,214	Nigeria	4,567			Poland	997	Romania	1,081
Malaysia	1,000	Kenya	1,438	Peru	1,632			Slovak	543	Turkey	2,496
Mongolia	722	Rwanda	453	Tunisia	592			Slovenia	546	Ukraine	1,853
Pakistan	2,182	Senegal	1,107	Yemen	830						
Philippines	2,661	Sudan	662								
Russia	5,224	Tanzania	1,232								
Sri Lanka	610	Uganda	1,325								
Thailand	1,000										
Venezuela	820										
Vietnam	2,049										
Total	36,709	Total	14,196	Total	15,502	Total	4,989	Total	4,890	Total	10,037

Table 3: Definitions and Sources of Variables

Variable	Definition	Source
Productivity (Log)	Labor productivity is real sales (using GDP deflators) divided by full-time permanent workers	WEBS
Export (% of total sales that are exported directly)	Sales exported directly as percentage of total sales.	WEBS
Firm Age(Log)	Year firm began operation to year of survey conducted	WEBS
Firm Size (Log)	Log of number of permanent workers	WEBS
% of FDI stock from Developed Economies (Log)	Percentage of FDI from developed countries to source economy	UNCTAD's Bilateral FDI Statistics
GDP per Capita (Log)	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. The variable is loaded in logs.	World Bank World Development Indicators
Ownership Hybridity	$1/\sum i[(\frac{Cummulative\ ownership\ of\ type\ i\ blockholder}{Total\ ownership\ by\ all\ blockholders})^2]$ Where *i* can be state foreign or domestic non-state	
FOE majority owned (Dummy)	Firms with foreign owner hold more than 50% of ownership	Calculated from WEBS variables
SOE majority owned (Dummy)	Firms with state hold more than 50% of ownership	
FOE SOE JV (Dummy)	Firms with foreign and state Joint Venture	

Table 4: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Labor Productivity(Log)	13.60	2.79	-3.40	29.00
Export (% of total sales that are exported directly)	7.548	22.06	0	100
Firm Age	17.72	14.91	0	210
Firm Size	112.5	514.9	0	37772
% of FDI stock from Developed Economies	64.73	24.01	0	99
GDP per Capita	5597.76	5338.56	246.803	36281.2
Ownership Hybridity	1.0497	0.2261	1	4
FOE majority owned (Dummy)	0.0558	0.2296	0	1
SOE majority owned (Dummy)	0.0054	0.073	0	1
FOE SOE JV (Dummy)	0.0003	0.0183	0	1

Table 5: Correlation Coefficients

	Variable	1	2	3	4	5	6	7	8
1	Labor Productivity (Log)	1							
2	Export	-0.0031	1						
3	Firm Age (Log)	0.0268*	0.0608*	1					
4	Firm Size (Log)	0.0419*	0.2969*	0.2712*	1				
5	GDP per Capita (Log)	-0.1895*	0.0133*	0.0668*	0.0574*	1			
6	% of FDI stock (Log)	-0.0887*	0.0262*	0.0755*	0.0011	0.4052*	1		
7	Ownership Hybridity	0.0011	0.1021*	0.0427*	0.1202*	0.0176*	-0.0175*	1	
8	FOE majority owned	0.0545*	0.1838*	-0.0088	0.1670*	0.0079	0.0108*	0.1089*	1
9	SOE majority owned	0.0313*	-0.0028	0.0390*	0.0750*	0.0087	-0.0369*	0.1377*	-0.0178*
10	Con1 (State led)	0.2104*	0.0291*	0.0602*	0.1444*	-0.1114*	-0.1294*	-0.0334*	-0.0588*
11	Con2 (Fragmented)	0.0378*	-0.0686*	-0.1073*	-0.1277*	-0.4950*	-0.2545*	0.0064	0.0484*
12	Con3 (Family led)	-0.1171*	-0.0346*	0.0309*	-0.0559*	0.0759*	0.1233*	0.0526*	-0.0278*
13	Con5 (LME)	0.0655*	-0.0235*	0.0332*	0.0032	0.2196*	0.0474*	-0.0067	0.0654*
14	Con6 (Collaborative)	-0.0878*	0.0558*	0.0198*	-0.0225*	0.3516*	0.1787*	-0.0032	0.0461*
15	Con7 (Hierarchically)	-0.2235*	0.0524*	-0.0445*	0.005	0.2398*	0.1671*	-0.0108*	-0.0129*

	Variable	8	9	10	11	12	13	14	15
8	FOE majority owned	1							
9	SOE majority owned	-0.0178*	1						
10	Con1 (State led)	-0.0588*	0.0288*	1					
11	Con2 (Fragmented)	0.0484*	-0.0090*	-0.3816*	1				
12	Con3 (Family led)	-0.0278*	-0.0116*	-0.4024*	-0.2076*	1			
13	Con5 (LME)	0.0654*	-0.0141*	-0.2130*	-0.1099*	-0.1159*	1		
14	Con6 (Collaborative)	0.0461*	-0.0015	-0.2108*	-0.1087*	-0.1146*	-0.0607*	1	
15	Con7 (Hierarchically)	-0.0129*	-0.0088*	-0.3120*	-0.1609*	-0.1697*	-0.0898*	-0.0889*	1

*p <0.01

Table 6: Regression Results; Base Sample Excludes Small and State Firms

Variable	Labor Productivity(Log) as Dependent Variable					Export as Dependent Variable				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Firm Age (Log)	0.0494***	-0.0095	0.0588***	-0.0024	-0.0054	-0.889***	-0.909***	-0.558***	-0.602***	-0.534***
	(0.0151)	(0.0147)	(0.0152)	(0.0147)	(0.0147)	(0.1285)	(0.1285)	(0.1273)	(0.1273)	(0.127)
Firm Size (Log)	0.0600***	0.0397***	0.0498***	0.0302***	0.0308***	5.4289***	5.378***	4.8621***	4.789***	4.7424***
	(0.0092)	(0.0089)	(0.0094)	(0.009)	(0.009)	(0.0784)	(0.0782)	(0.0791)	(0.0788)	(0.0786)
% of FDI stock	0.3067***	0.4882***	0.3053***	0.4819***	0.4876***	0.5939**	0.6621**	0.5557**	0.4739*	0.5695*
	(0.0254)	(0.0256)	(0.0254)	(0.0256)	(0.0256)	(0.2149)	(0.2228)	(0.2125)	(0.2203)	(0.2197)
GDP per Capita	-0.8510***	-1.162***	-0.848***	-1.153***	-1.154***	0.11	-1.762***	0.2021	-1.566***	-1.829***
	(0.0152)	(0.0215)	(0.0152)	(0.0215)	(0.0215)	(0.1281)	(0.1846)	(0.1267)	(0.1826)	(0.1826)
Con1		-2.234***		-2.209***	-2.398***		1.7866***		2.757***	1.1257*
(State led)		(0.0622)		(0.0623)	(0.0648)		(0.5497)		(0.544)	(0.5658)
Con2		-3.139***		-3.127***	-3.379***		-3.347***		-3.384***	-3.447***
(Fragmented)		(0.0703)		(0.0703)	(0.0729)		(0.6204)		(0.6134)	(0.6358)
Con3		-3.108***		-3.082***	-3.253***		0.1095		0.9798*	-0.0176
(Family led)		(0.0558)		(0.0558)	(0.0587)		(0.4959)		(0.4909)	(0.5154)
Con6		-2.111***		-2.119***	-2.310***		11.671***		11.33***	10.305***
(Collaborative)		(0.071)		(0.071)	(0.075)		(0.6213)		(0.6144)	(0.6464)
Con7		-2.999***		-2.993***	-3.136***		3.6029***		4.172***	2.9316***
(Hierarchically)		(0.063)		(0.0631)	(0.0657)		(0.5526)		(0.5467)	(0.5684)
FOE majority			0.4196***	0.3350***	-1.117***			13.702***	13.699**	6.6658***
			(0.045)	(0.0436)	(0.1359)			(0.3807)	(0.3803)	(0.1964)
Ownership			-0.261***	-0.1293*	-0.1317*			4.2128***	4.7218***	4.7354***
Hybridity			(0.0603)	(0.0583)	(0.0583)			(0.5153)	(0.5131)	(0.5121)
FOE* Con1					1.6183***					13.9***
					(0.1535)					(1.3525)
FOE* Con2					2.1372***					-4.16**
					(0.1659)					(1.4441)
FOE* Con3					1.3612***					5.5532***
					(0.1722)					(1.5224)
FOE* Con6					1.5787***					9.7559***
					(0.1906)					(1.6572)
FOE* Con7					0.9731***					12.911***
					(0.1902)					(1.6466)
Constant	18.962***	25.251***	21.074**	26.029**	25.896***	-11.19***	3.6492	-11.03***	1.3804	-1.7196
	(0.1924)	(0.2669)	(0.2071)	(0.2758)	(0.2623)	(1.6814)	(2.3271)	(1.666)	(2.2493)	(2.2529)
Industry Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	52990	52990	52966	52966	52966	58923	58923	58894	58894	58894
F	365.440	454.670	345.71	431.66	383.65	339.05	311.07	372.82	343.11	311.47
Adj R-squared	0.162	0.220	0.1634	0.2215	0.2242	0.1384	0.1480	0.1592	0.1690	0.1741

Table 7: Test of Equality of coefficients on Configurations in Model 4
Panel A. Within equation pairwise T-test

Labor Productivity as Dependent Variable					
	Con1	Con2	Con3	Con6	Con7
Con1					
Con2	492.94***				
Con3	516.97***	0.84			
Con6	1.9	180.84***	229.94***		
Con7	233.28***	5.07*	3.01	199.53***	
Export as Dependent Variable					
	Con1	Con2	Con3	Con6	Con7
Con1					
Con2	296.02***				
Con3	28.35***	105.27***			
Con6	240.63***	535.68***	366.7***		
Con7	10.88**	225.73***	54.04***	191.82***	

*p< 0.05, ** p <0.01, *** p < 0.001

Table 7: Panel B: Rankings

Configuration	Ranking (Labor Productivity)	Ranking (Exports)
Con1 (State led)	Equal 2nd	3rd
Con2 (Fragmented)	Equal 4th	6th
Con3 (Family led)	Equal 4th	4th
Con5 (LME)	1st	5th
Con6 (Collaborative)	Equal 2nd	1st
Con7 (Hierarchically)	Equal 4th	2nd

Note:

1. Table 7 provides additional results for non-equifinality hypothesis (H1) in model 4.

2. Panel A presents pairwise T-test in Model 4 on five configurations dummies. The number denotes F-ratio as the difference between two configuration dummies in the same model. The asterisks ***, ** and, * denote statistical significance at 1%, 5%, and 10% levels, respectively.

3. Panel B depicts configuration impacts on two performance outcomes by ranking the coefficients of each configuration dummy with the omitted Con5 (LME) at a value of zero.

Table 8: Comparing Regression Coefficients between Labor Productivity and Export (H2)

Configuration	Chi2	P value	Rank
Con1 (State led)	109.17	0.0000	3rd
Con2 (Fragmented)	0.22	0.6398	5th
Con3 (Family led)	95.69	0.0000	4th
Con6 (Collaborative)	442.77	0.0000	1st
Con7 (Hierarchically)	177.95	0.0000	2nd

Note:

1. Table 8 provides primary results for the Tversky hypothesis (H2) in model 4.

2. Post-estimation test compares the coefficient of each configuration across models on two performance outcomes, respectively. Chi2 with statistical P-value denotes significant difference between coefficients across the two models. Ranking of Chi2 indicates the variance of difference also diverse among five configurations.

Table 9: Tests of Equality of Coefficients on FOE*configuration Interactions in Model 5

Panel A. Within equation pairwise T-test (H4)

Labor Productivity as Dependent Variable					
	FOE * Con1	FOE * Con2	FOE * Con3	FOE * Con6	FOE * Con7
FOE * Con1					
FOE * Con2	18.74***				
FOE * Con3	4.04*	29.4***			
FOE * Con6	0.07	11.5***	1.62		
FOE * Con7	18.19***	50.28***	5.19*	10.29**	
Export as Dependent Variable					
	FOE * Con1	FOE * Con2	FOE * Con3	FOE * Con6	FOE * Con7
FOE * Con1					
FOE * Con2	305.74***				
FOE * Con3	54.04***	60.59***			
FOE * Con6	10.01**	97.62***	7.99**		
FOE * Con7	0.58	149.78***	24.89***	3.83	

*p< 0.05, ** p <0.01, *** p < 0.001

Table 9: Panel B. Marginal Effects of FOE (Model 5 Interaction)

Labor Productivity				Export			
	Marginal Effect	P value|	Rank		Marginal Effect	P value|	Rank
FOE * Con1	0.501	0.000	2nd	FOE * Con1	20.566	0.000	1st
FOE * Con2	1.020	0.000	1st	FOE * Con2	2.506	0.002	5th
FOE * Con3	0.244	0.023	4th	FOE * Con3	12.219	0.000	4th
FOE * Con6	0.461	0.001	3rd	FOE * Con6	16.422	0.000	3rd
FOE * Con7	-0.145	0.279	5th	FOE * Con7	19.576	0.000	2nd

*p< 0.05, ** p <0.01, *** p < 0.001

Note:

1. Table 9 provides primary result for moderation hypothesis (H4) in model 5.

2. Panel A presents pairwise T-test in Model 5 on five interactive ownership-configuration terms. The number denotes F-ratio as the difference between two interaction terms in the same equation. The asterisks ***, ** and, * denote statistical significance at 1%, 5%, and 10% levels, respectively.

3. Panel B depicts marginal effects of five interaction terms vary on two performance outcomes, respectively. The ranking is based on coefficients of interaction terms.