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Learning breakdown in latecomer multinational enterprises

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Abstract Integrating the linkage, leverage, and learning (LLL) model with institutional economics, this paper develops a moderated mediation framework to examine the relationship between internationalization and the performance of multinational enterprises from latecomer economies (latecomer MNEs). In the framework, whether a latecomer MNE may succeed in learning and knowledge-led profit gains from internationalization is contingent on the development of market-oriented institutions in the country in which it is based. Latecomer MNEs based in countries with a high level of the development of market-oriented institutions are likely to succeed in learning to obtain knowledge-led profit gains from internationalization. Latecomer MNEs based in countries with a low level of the development of market-oriented institutions are likely to experience a breakdown in learning, and a failure in knowledge-led profit gains from internationalization. This paper provides robust evidence on the relationship between internationalization and the performance of latecomer MNEs conditional on the development of market-oriented institutions in their home countries, and discusses strategic implications for latecomer MNE managers.

Keywords Latecomer · Multinational enterprise · Learning · Institutions

Internationalization refers to the extent to which a firm engages in production and/or service activities across national borders to become a multinational enterprise (hereafter MNE). A most significant development in recent decades has been the rise of latecomer MNEs (i.e., MNEs based in latecomer economies which embarked on modern economic development late as compared to advanced triad economies).[1] Mathews (2002, 2006a,

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[1]Triad economies refer to economies in Northern America, economies in Western Europe, and the Japanese economy.

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2006b) proposed the linkage, leverage, and learning (LLL) model to account for the ascent of latecomer MNEs. The LLL model attributes the success of latecomer MNEs to their innovative catch-up strategy to link with incumbent MNEs, to leverage the linkage to access external resources, and to learn through repeated linkage and leverage. Despite criticisms, the LLL model has remained to date an influential explanation of the internationalization of latecomer MNEs, as evidenced by the publication of this Special Issue (Cuervo-Cazurra, 2012; Dunning, 2006; Guillén & García-Canal, 2009; Hoskisson, Wright, Filatotchev, & Peng 2013; Narula, 2006).

The LLL model is influential because it elucidates the success of latecomer MNEs from the resource-based view (RBV) in strategic management (Mathews, 2002, 2006a, 2006b), and sheds light on an international business phenomenon that conventional theories of international business are insufficient to explain (Dunning, 2006; Luo & Tung, 2007). In particular, the LLL model explains why some firms in latecomer economies have managed to successfully internationalize "without any of the advantages of the incumbent industry leaders…. without skills and knowledge… by leap-frogging to advanced technological levels" (Mathews, 2006a: 6). Luo and Tung (2007) later referred the LLL model as a springboard approach to internationalization in stark contrast to the incremental approach to internationalization explicated in conventional international business theories. Dunning (2006: 139–140) believed that the LLL model complements his eclectic paradigm, and improves the theory of internationalization of firms.

However, the LLL model does not take into account institutional variations across the economies in which latecomer MNEs are based (North, 1990, 1994, 2005). In fact, most cases that Mathews (2006a) cited to support the LLL model are latecomer MNEs from the newly industrialized dragon economies of Singapore, Hong Kong, Taiwan and South Korea which have been successful in establishing market-oriented institutions and are considered as graduating developing economies or advanced economies (IMF, 2011). In these dragon economies, market-oriented institutions protect property rights and fair competition, and provide incentives for firms to engage in entrepreneurial learning and innovation in internationalization to develop a long-lasting competitive advantage in the global marketplace (Narula, 2012; North, 2005; Xu & Meyer, 2013).

It is questionable to mix these latecomer MNEs from the newly industrialized dragon economies with latecomer MNEs from such emerging economies as China, India, Vietnam, Russia, Brazil, and Venezuela where market-oriented institutions have just emerged in an "institutional void" (Tarun & Palepu, 2010: 25). In these emerging economies, property rights and fair competition are not well protected, and government intervention leads to monopoly power to distort price signals in resource allocation (Hong, Wang, & Kafouros, 2015; Li, Cui, & Lu, 2014; Peng, 2003; Peng, Wang, & Jiang, 2008; Xia, Ma, Lu, & Yiu, 2014; Xu & Meyer, 2013). Narula (2012: 198) noted that the underdevelopment of market-oriented institutions provided "the opportunity to generate rents through pseudomonopolies," and "created cash rich domestic firms that later were able to expand abroad through M&A." These cash rich MNEs from emerging economies can leverage the monopoly power and government subsidies at home in competition with rivals in the overseas markets, and do not have much incentive to engage in entrepreneurial learning and innovation in the internationalization process (Narula, 2012; North, 1990, 1994, 2005).

The negligence of institutional variations is attributable to the competitive market assumption that underlies the RBV on which the LLL model is based. Peteraf and Barney (2003: 310) clearly noted that the RBV "does not consider other external environmental forces or the nature of interactions among multiple actors. Once again, it holds constant all of these other factors, assuming frictionless competition outside its own narrow realm." The competitive market assumption, though unrealistic in many latecomer economies, is built in the LLL model to explain MNEs based in these economies (Cuervo-Cazurra, Inkpen, Musacchio, & Ramaswamy, 2014; Hong et al., 2015; Li et al., 2014; Mathews, 2002, 2006a, 2006b; Meyer & Peng, 2016; Peng et al., 2008; Xia et al., 2014; Xu & Meyer, 2013).[2]

To address this problem, the present paper integrates the LLL model with institutional economics to develop a moderated mediation framework, and relates the performance of latecomer MNEs in pursuing the LLL strategy to the development of market-oriented institutions in their home countries. In the framework, as Mathews (2002, 2006a) suggested, linkage and leverage are an approach to internationalization taken by latecomer MNEs. Productivity (enhanced via learning) mediates the relationship between internationalization (via linkage and leverage) and financial performance (Mathews, 2002, 2006a). A positive mediation effect represents knowledge-led profit gains from internationalization, as the LLL model predicts. Conversely, a non-positive mediation effect represents a breakdown in learning and a failure in knowledge-led profit gains from internationalization. Whether internationalization can lead to learning and knowledge-led profit gains is contingent on, as institutional economics predicts, the development of market-oriented institutions in the country in which a latecomer MNE is based (North, 1990, 1994, 2005). A latecomer MNE based in a country with a high level of the development of market-oriented institutions is likely to succeed in learning to achieve knowledge-led profit gains from internationalization, whereas a latecomer MNE based in a country with a low level of the development of market-oriented institutions is likely to fail in this regard (North, 1990, 1994, 2005).

The contribution of this paper is twofold. First, this paper challenges the competitive market assumption that underlies the LLL model, and highlights the importance of institutional variations to the performance of latecomer MNEs (Meyer & Peng, 2016; Peng et al., 2008). This paper draws on institutional economics to develop a framework, and contends that the success or failure of a latecomer MNE in pursuing the LLL strategy is contingent on the development of market-oriented institutions in the country in which it is based (Mathews, 2002, 2006a; North, 1990, 1994, 2005). The framework reflects the reality of vast variations in the development of market-oriented institutions in the home countries in which latecomer MNEs are based, and provides a solid theoretical base for comparative analysis of internationalization and the performance of latecomer MNEs (Meyer & Peng, 2016; Narula, 2012; Peng et al., 2008; Xu & Meyer, 2013).

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[2] I would like to thank Professor John Mathews for a candid discussion with me at the Special Issue workshop at Macquarie University in December 11–12, 2015. In the discussion, we both agreed that the competitive market assumption is "built in" the LLL model.

Second, the study applies the framework to the experience of major latecomer MNEs in recent years, and finds robust evidence on the relationship between internationalization and the performance of latecomer MNEs conditional on the development of market-oriented institutions in their home countries. In particular, the findings indicate a breakdown in learning and a failure in knowledge-led profit gains from internationalization in latecomer MNEs based in countries with a low level of the development of market-oriented institutions. Based on the findings, the paper provides advice to managers of latecomer MNEs on how to engage in internationalization to enhance performance against the institutional constraints they face at home.

Theoretical development

Prediction of the LLL model

The LLL model is based on, as Mathews (2002, 2006a, 2006b) noted, the RBV in the strategic management literature. According to the LLL model, incumbent MNEs from advanced economies start with rich resources available at home, and internationalize in order to exploit these resources beyond national borders. In contrast, latecomer MNEs start with few resources at home, and have to take advantage of the inter-firm webs created by globalization to acquire the resources they need through internationalization. In the LLL model, resources primarily refer to knowledge-based assets or intangible assets (Mathews, 2002, 2006a, 2006b). In search for knowledge-based assets, resource-meagre latecomer MNEs have to establish *linkage* with resource-rich incumbent MNEs by serving as component suppliers or technology buyers. They then *leverage* the linkage to access the external knowledge they need through international joint venture, merger, and acquisition. In the process of repeated linkage and leverage, they engage in *learning* to enhance their knowledge base (Mathews, 2002, 2006a).

In the LLL model, linkage and leverage are referred to as the peculiar approach to internationalization latecomer MNEs take to access external knowledge. Mathews (2002: 476; 2006a: 22) clearly noted that the "outward-oriented, resource-seeking internationalization via linkage and leverage is an approach to internationalization that is eminently suited to the needs of latecomers and new-comers which initially lack resources." Learning is positioned as the outcome of repeated linkage and leverage, and is expected to improve productivity in cross-border operations or, as Mathews (2006a: 20) noted, to help a firm "perform such operations more efficiently." According to the RBV on which the LLL model is based, productivity improvement through learning is the base for long-lasting profitability (Peteraf & Barney, 2003). The LLL model thus suggests that internationalization (via linkage and leverage) can enhance productivity (via learning) and thereby profitability in latecomer MNEs.

I draw on the LLL model to develop a mediation framework in which, as indicated by the solid A and B lines in Fig. 1, productivity (enhanced via learning) serves as a mediator between internationalization (via linkage and leverage) and profitability. The LLL model predicts a positive mediation effect, that is, a positive effect of internationalization (via linkage and leverage) on profitability through the
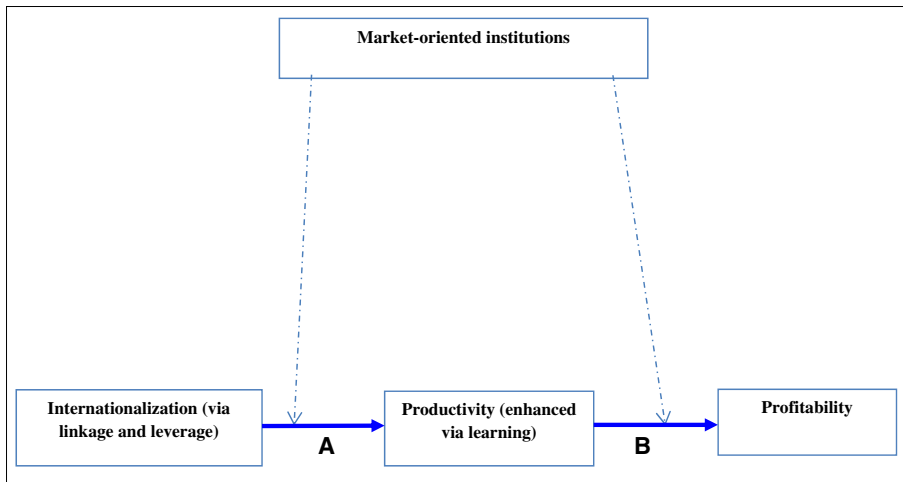
Note: In the mediation framework, productivity (enhanced via learning) mediates the relationship between internationalization (via linkage and leverage) and profitability as indicated by the AB path. A positive mediation effect represents knowledge-led profit gains from internationalization as the LLL model predicts. The mediation effect is, as institutional economics predicts, conditional on the development of market-oriented institutions in the country in which a latecomer MNE is based.

Fig. 1 Moderated mediation model of internationalization and performance in latecomer MNEs

mediation of productivity (enhanced via learning).[3] The positive mediation effect indicates the success of latecomer MNEs in learning and knowledge-led profit gains from internationalization. I follow the prediction of the LLL model to propose Hypothesis 1.

Hypothesis 1 The mediation effect, that is, the effect of internationalization on profitability through the mediation of productivity, is positive in latecomer MNEs.

Contribution of institutional economics

The prediction of the LLL model about a positive mediation effect is grounded on the competitive market assumption or, in the words of Peteraf and Barney (2003: 310), the "frictionless competition" assumption that underlies the RBV on which the LLL model is based. If market is competitive, a latecomer MNE is under pressure to engage in learning to improve productivity and, through it, long-lasting profit gains from internationalization to keep rivals at bay and is therefore, as Mathews (2002: 478) noted, "an instrument of learning." The competitive market assumption is, however, unrealistic in the context of many latecomer economies where market-oriented institutions are underdeveloped due to the "curse to the latecomer" (Sacks, Woo, & Yang, 2000: 10).

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[3] In order to have a focused discussion on the mediation effect, this study will not examine the direct effect of internationalization on profitability. For those who are interested in the direct effect, please refer to Contractor, Kundu, and Hsu (2003), Lu and Beamish (2004), Thomas and Eden (2004), Contractor, Kumar, and Kundu (2007), Contractor (2007, 2012), and Lu, Liu, Wright, and Filatotchev (2014). I would like to thank Professor Anoop Madhok of York University and Professor Ravi Ramamurti of Northeastern Univeristy for making this suggestion at the Special Issue workshop held in Macquarie University in December 11–12, 2015.

The curse to the latecomer is a concept proposed by some economists to describe a phenomenon in the development process of latecomer economies. Latecomer economies can imitate advanced economies in institutions and/or technology. Institutional imitation inevitably meets resistance from powerful interest groups, particularly those who benefit from government monopoly powers. Therefore, some latecomer economies choose to import updated technology from advanced economies, and delay the difficult-to-implement institutional transformation which would inevitably deprive powerholders of monopoly benefits. They may achieve rapid economic growth through technology imitation in the short run, but lack the institutional infrastructure that underlies learning, technology advance, and sustained economic prosperity. Sacks et al. (2000: 10) noted that this approach "generates short-term benefit at high long-term cost." Due to the curse to the latecomer, market-oriented institutions have not been established in these latecomer economies. This institutional aspect, which was neglected in the LLL model, needs to be taken into account in theoretical modeling. I draw on institutional economics to fill this gap.

Douglass North (1990: 3), who won the Nobel Prize for his contribution to institutional economics, noted that institutions "are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction." Institutional economics is particularly interested in the institutions which constrain the economic development of a country and the behavior and performance of firms based in the country. These institutional constraints include a wide range of dimensions, but market-oriented institutions are the most important of all (North, 1990, 1994, 2005). North devoted his entire academic career to investigating why a handful of Western countries and firms in these countries embarked on modern development driven by scientific and technological discovery in recent centuries whereas many other countries and firms in these countries failed to do so. The difference in the development of market-oriented institutions is the key to the puzzle. Western countries have gone through an institutional "movement from personal to impersonal exchange," and have established market-oriented institutions conducive to learning and knowledge augmentation (North, 2005: 84). Most other countries are still in the institutional transition from personal exchange based on networks and powers toward impersonal exchange based on market efficiency, and are struggling to establish market-oriented institutions (North, 1990, 1994, 2005). North's explanation implies that latecomer MNEs are likely to be based in countries with significant variations in the transition toward market-oriented institutions. While some latecomer economies have made impressive progress in the institutional transition, many others still have an "institutional void" to fill (Tarun & Palepu, 2010: 25; also see Peng, 2003; Sun, Peng, Lee, & Tan 2015; Young, Tsai, Wang, Liu, & Ahlstrom, 2014). In this study, therefore, I consider the development of market-oriented institutions as a key factor that influences the behavior and performance of latecomer MNEs.

The focus on market-oriented institutions was supported by recent research. An increasing number of management scholars acknowledged that the lack of market-oriented institutions characterizes many latecomer economies, especially the so-called emerging economies (Cuervo-Cazurra, 2012; Meyer & Peng, 2016; Narula, 2012; Peng et al., 2008; Ramamurti & Singh, 2009; Xia et al., 2014). Scholars noted that latecomer MNEs from emerging economies enjoy government support in internationalization to a varying degree in the form of reduced taxes, low interest rate loans, and outright

financial subsidies (Cardoza & Fornes, 2011; Globerman & Shapiro, 2009; Lu, Liu, Wright, & Filatotchev, 2014; Yang, Jiang, Kang, & Ke, 2009). The government is not only a rule-maker but also a game-player, directly owning firms that expand overseas (Li et al., 2014; Peng, 2003, 2012; Xia et al., 2014). These state-owned MNEs display distinctive patterns of resource dependency, behavior, and performance (Cuervo-Cazurra et al., 2014; Hong et al., 2015; Xia et al., 2014). MNEs owned by the central government tend to have more obligations to serve national strategic prerogatives and a high level of monopolistic behavior than MNEs owned by local governments (Li et al., 2014). The level of institutional open access (i.e., the advancement in formal rules that enables market forces to access opportunity via competition) affects the internationalization of firms in emerging economies (Meyer & Peng, 2016; Sun et al., 2015).

In a concise summary of extant discussion on the home institutional context of MNEs based in emerging economies, Xu and Meyer (2013: 1323) noted:

> Main challenges arise from the fact that the contexts of emerging-market economies vary from those of developed economies on a number of dimensions, typically including the following: 1. Markets are less efficient due to less transparency, more extensive information asymmetries, and higher monitoring and enforcement costs. 2. Governments and government-related entities are not only setting the rules, but are active players in the economy, for example, through state-owned or state-controlled firms. 3. Network-based behaviours are common, in part as a consequence of the less efficient markets, but arguably also due to social traditions, and they influence how firms interact with each other. 4. Risk and uncertainty are high due to high volatility of key economic, political, and institutional variables.

All the four dimensions are related to the underdevelopment of market-oriented institutions. The focus on market-oriented institutions is consistent with the purpose of this paper: to improve the LLL model which, based on the competitive market assumption, neglects variations in the development of market-oriented institutions between latecomer economies.[4]

Moderating role of market-oriented institutions

I integrate institutional economics with the LLL model to introduce the development of market-oriented institutions in a latecomer MNE's home country into the mediation model to moderate, as indicated by the dotted lines in Fig. 1, the mediation effect. The role of market-oriented institutions in moderating the mediation effect is likely comprised of two components. First, market-oriented institutions may moderate the relationship between internationalization and productivity as indicated by the interaction between the dotted line and the solid A line. That is, market-oriented institutions influence the extent to which internationalization leads to productivity improvement through learning. Second, market-oriented institutions may moderate the relationship between productivity

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[4] I would like to thank the Editors and an anonymous reviewer for advice on this point.

and profitability as indicated by the interaction between the dotted line and the solid B line. That is, market-oriented institutions influence the extent to which productivity improvement through learning is transformed into profit gains. [5] Institutional economics helps explain how both the extent to which internation-alization leads to productivity improvement through learning and the extent to which productivity improvement through learning is transformed into profit gains are conditional on the development of market-oriented institutions in the home country in which a latecomer MNE is based.

In agreement with the LLL model and the RBV on which the LLL model is based, North (1994: 362) believed that learning to augment knowledge is the predictable outcome of "competition among organizations." This is because competition reflects "ubiquitous scarcity," and "induces organizations to engage in learning" to improve efficiency by which scarce resources are utilized in order to survive (North, 1994: 362). According to institutional economics, managers make rational decisions in the light of the institutional constraints they face (North, 1990, 1994, 2005). As rational agents, managers of MNEs based in countries with a high level of the development of market-oriented institutions tend to consider efficiency in resource utilization to be the key to success in competition, and make the rational choice to engage in entrepreneurial learning and innovation to enhance productivity (Dacin, Goodstein, & Scott, 2002; McMillan, 2007; North, 1994; Scott, 2008; Teece, 2014; Williamson, 1985).

Meanwhile, superior profitability based on productivity improvement through learn-ing constitutes a sustainable competitive advantage over rivals and a long-lasting source of future growth in a competitive environment (North, 1990, 1994; Peteraf & Barney, 2003; Teece, 2014). As rational agents, managers of latecomer MNEs based in countries with a high level of the development of market-oriented institutions are keen to transform the outcome of productivity improvement through learning into long-lasting profit gains so that they can reinvest the profit gains back into entrepreneurial learning and innovation to further enhance productivity (North, 1990, 1994, 2005; Teece, 2014). In this way, they can maintain a virtual cycle to keep rivals at bay for long (Dacin et al., 2002; McMillan, 2007; North, 1990, 1994, 2005; Peteraf & Barney, 2003; Scott, 2008; Teece, 2014; Williamson, 1985). Hence, latecomer MNEs based in countries with a high level of the development of market-oriented institutions are likely to succeed not only in learning to enhance productivity but also in transforming the outcome of productivity improvement through learning into profit gains.

Disagreeing with the LLL model, the RBV on which the LLL model is based, and other theories that hold competition constant across societies, however, North (1994: 362) contended that "the degree of competition can and does vary" across societies, and that the deviation from competitive markets may prevail in some nations where government intervention generates monopoly rents to distort price signals in the marketplace. In countries where market-oriented institutions are underdeveloped, home-born MNEs can enjoy government support, and earn monopolistic rents from internationalization (Narula, 2012). The rent may come from different sources, includ-ing monopolistic access to the home market, government subsidies, cheap loans from the state banks, and other "complementary local resources" (Hennart, 2012: 172; see

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[5] I would like to thank an anonymous reviewer for making this point.

also Li et al., 2014; Narula, 2012; Peng, 2012; Tian, 2016). As rational agents, managers of MNEs based in countries with a low level of the development of market-oriented institutions make the rational choice to focus on seeking monopolistic rents, and have limited incentives to engage in learning. North (1994: 362) noted that "the greater the degree of monopoly power, the lower is the incentive to learn." Accordingly, latecomer MNEs based in countries with a low level of the development of market-oriented institutions are likely to fail in learning to enhance productivity.

Moreover, even though some latecomer MNEs based in countries with a low level of the development of market-oriented institutions may manage to achieve limited success in internationalization to enhance productivity through learning, they have little incentive and room to transform the outcome from productivity improvement through learning into sustainable profit gains (Tian, 2016). Induced by monopoly rents, managers of these latecomer MNEs make the rational choice to spend the revenues from productivity improvement through learning, if there are any, on rent-seeking activities, such as various entertaining, gift-giving, and outright bribery aimed at government officials who hold the power to allocate scarce resources (Cai, Fang, & Xu, 2011; Chen, Liu, & Su, 2013; Tian, 2016). Such activities are found in firms in many emerging economies, including China, India, Russia, Brazil, Vietnam, and Indonesia (Banerjee, 1997; Bardhan, 1997; Huntington, 1968; Kaufmann & Wei, 1999; Leff, 1964; Lui, 1985; Myrdal, 1968; Tian & Lo, 2009; Tian & Slocum, 2016). It was estimated, for instance, that Chinese firms spent approximately 3% of their sales revenues on entertaining, gift-giving, and outright bribery (Cai et al., 2011). Much of the entertaining, gift-giving, and outright bribery were aimed at bank officials to ease access to the loans these firms needed for business expansion (Chen et al., 2013). Accordingly, latecomer MNEs based in countries with a low level of the development of market-oriented institutions are unlikely to succeed not only in learning to enhance productivity but also in transforming the outcome from productivity improvement through learning into long-lasting profit gains.

I thus draw on institutional economics to predict that the performance of latecomer MNEs in internationalization may vary with the level of the development of market-oriented institutions in the countries in which they are based (Meyer & Peng, 2016;- North, 1990, 1994, 2005; Peng et al., 2008). Latecomer MNEs based in countries with a high level of the development of market-oriented institutions are likely to succeed in learning to enhance productivity and, through it, knowledge-led profit gains from internationalization as the LLL model predicts (Luo & Tung, 2007; Mathews, 2002, 2006a, 2006b; Peteraf & Barny, 2003). Latecomer MNEs based in countries with a low level of the development of market-oriented institutions are likely to fail in learning to enhance productivity and, through it, knowledge-led profit gains from internationalization (North, 1990, 1994, 2005). The mediation effect proposed in the LLL model is contingent on the level of the development of market-oriented institutions in the countries in which latecomer MNEs are based. I propose Hypothesis 2.

Hypothesis 2 The mediation effect, that is, the effect of internationalization on profitability through the mediation of productivity, is more likely to be positive in latecomer MNEs based in countries with a high level of the development of market-oriented institutions than latecomer MNEs based in countries with a low level of the development of market-oriented institutions.

Method

Sample

The annual World Investment Report, published by the United Nations' Conference on Trade and Development (hereafter UNCTAD), included statistical data of top 100 non-financial MNEs from latecomer economies ranked by foreign assets.[6] I used the data from 1996 to 2011 to construct the sample. The dataset contained the value of total sales revenues and the value of sales revenues from foreign markets, the number of total employees and the number of employees in foreign affiliates, and the value of total assets and the value of assets in foreign affiliates.

However, the dataset did not include the information of profit, equity, R&D expenditure, advertisement expenditure, and firm age which are needed in the empirical test. I collected the data of profit, equity, R&D expenditure, advertisement expenditure, and firm age from various sources, including the Fortune Global 500 company dataset, the EU Industrial R&D Investment Report, and individual MNEs' annual report. I cross-checked these sources using Compustat and Capital IQ to correct any inconsistency due to differences in accounting systems.[7] I deflated the value of profit, the value of equity, the value of R&D expenditure, the value of advertisement, the value of total sales revenues, the value of sales revenues from foreign market, the value of total assets and the value of assets in foreign affiliates using the 2000 constant price indexes compiled by UNCTAD.

The latecomer MNEs were from 32 economies and 19 industries classified by the UNCTAD. The sample covered a period of 15 years, and included a different composition of latecomer MNEs each year. Some latecomer MNEs appeared in the sample multiple times over this period, whereas other appeared only once or twice in the period. This was therefore an unbalanced panel dataset. After deleting cases with missing information, I obtained a dataset with 116 firms, and 838 valid firm-year observations from 26 economies over the period from 1996 to 2011. The country distribution of these firms is presented in Table 1. I took two approaches to addressing possible dynamic changes over time associated with firms which appeared multiple times over years in an unbalanced panel dataset. The first was to use the lagged value of the independent variable, and the second was to break the sample into two subsamples covering two different periods of time. These approaches were employed in the robustness test.[8]

Variables

Profitability was measured by the return on assets ratio (ROA). I industry-centred ROA according to the industry classification provided by the UNCTAD so that the variable referred to a firm's profitability relative to rivals in an industry. To minimize possible

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[6] The number of MNEs from latecomer economies varied from year to year. The report included 50 MNEs in 1996, 75 MNEs from 1997 to 2002, 60 MNEs in 2003, 109 MNEs in 2004, and 100 MNEs from 2005 onwards.

[7] I thank an anonymous reviewer for making this point.

[8] I would like to thank an anonymous reviewer for making this point.

Table 1 Country of origin of latecomer MNEs in the sample

Country of origin	Number of firms	Percentage
Argentina	2	1.72
Brazil	4	3.45
Chile	1	.86
China	9	7.76
Croatia	2	1.72
Czech Republic	1	.86
Egypt	1	.86
Hong Kong	19	16.38
Hungary	2	1.72
India	7	6.03
Korea (South)	6	5.17
Kuwait	3	2.59
Malaysia	4	3.45
Mexico	4	3.45
Philippines	1	.86
Poland	1	.86
Qatar	1	.86
Russia	9	7.76
Singapore	9	7.76
Slovenia	3	2.59
South Africa	8	6.9
Taiwan	13	11.21
Thailand	1	.86
Turkey	2	1.72
United Arab Emirates	2	1.72
Venezuela	1	.86
Total	116	100

biases, I combined the UNCTAD data with the Fortune Global 500 company data to construct the industry-level profitability measure in industry-centring the variable. Alternative measures of profitability included the return on sales ratio (ROS) and the return on investment ratio (ROI), and they were used in robustness tests.

Productivity was proxied by total factor productivity proposed by Robert Solow (1956, 1957)—a Laureate of Nobel Prize in economics. Total factor productivity was a measure of the productivity of all inputs, including labor and capital. As such, it reflected input orchestration know-how enhanced via learning in the entire value chain. Total factor productivity was not directly observable but can be estimated using a production function. Procedures for calculating total factor productivity are illustrated in Appendix 1. Here total factor productivity had a global dimension as it was calculated using foreign assets, employment and sales revenues in addition to domestic assets, employment and sales revenues. It thus served as a good proxy for productivity enhanced via learning in internationalization. To control for industry-specific influence,

I industry-centred the variable according to the industry classification provided by the UNCTAD so that it represented a MNE's productivity enhanced via learning relative to rivals in an industry. To minimize possible biases, I combined the UNCTAD data with the Fortune Global 500 company data to construct the industry-level productivity measure in industry-centring the variable.

Internationalization was proxied by the transnationality index provided by the UNCTAD. This index was an average of three ratios: foreign assets to total assets, foreign employment to total employment, and foreign sales revenues to total sales revenues. I industry-centred the transnationality index according to the industry classification provided by the UNCTAD.

Development of market-oriented institutions was proxied by the Economic Freedom of the World (EFW) index compiled by the Fraser Institute from 1996 to 2011.[9] The index ran from zero to 1. The higher the score, the greater was economic freedom, and the more competitive were markets. Components of the index were selected on four criteria: (1) personal choice; (2) voluntary exchange coordinated by markets; (3) freedom to enter and complete in markets; and (4) protection of persons and their property from aggression by others (Fraser Institute, 2013). The Economic Freedom Index compiled by the Heritage Foundation was an alternative measure, and was used in robustness tests.

I included several *control variables*. Apart from market-oriented institutions, countries may differ in many other dimensions of formal and informal institutions which may affect learning and financial performance. These dimensions are obviously too many to be controlled for individually. Following the varieties of capitalism perspective, I constructed three dummy variables for latecomer MNEs from three country groups, respectively. Countries within each group have been identified in the literature to share some common institutional features. The three country groups included (1) Latin American economies, (2) Eastern and Southern Asia economies, and (3) transition economies in East Europe (Carney, Gedajlovic, & Yang, 2009; Nolke & Vliegenthart, 2009; Schneider, 2009). Economies which are not included in the three groups were denoted zero. The dummy approach helped control for exogenous country of origin effects (Buckley & Casson, 2009). Change in foreign exchange rate may affect firm performance (Lu & Beamish, 2004). I constructed a variable to control for the influence of foreign exchange rate using the logarithm of exchange rate between the US dollar and a country's currency in each year over the period. Industrial affiliation of a firm may affect learning and performance (Xia et al., 2014). I constructed industry dummy variables to control for the industry-specific effect.[10]

At the firm level, large firms tend to act differently from small firms in financial performance (Kirca et al., 2011). I controlled for the effect of firm size using the logarithm of sales revenues of a firm. Financial slack may influence both learning and profitability. I followed Bourgeois (1981) and Chang and Rhee (2011) to operationalize financial slack using the reversed leverage ratio, that is, the ratio of equity to liability. R&D intensity may influence learning and performance (Cohen

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[9] I wold like to thank an anonymous reviewer for making this suggestion.
[10] I would like to thank the Editors of the Special Issue for advice to control for these variables.

& Levinthal, 1989). I controlled for R&D intensity using the ratio of R&D expenditure to total sales revenues (Lu & Beamish, 2004; Xia et al., 2014). Advertisement may influence firm performance (Lu & Beamish, 2004). I controlled for advertising intensity using the ratio of advertising expenditures to total sales revenues (Lu & Beamish, 2004). Product diversification may influence productivity and profitability (Hoskisson & Hitt, 1990; Lu & Beamish, 2004). I controlled for product diversification using a reversed Herfindahl index in the form of $1 - \sum_{i=1}^{n} Pi^2$ where Pi was the proportion of a firm's sales in industry i at the four-digital Standard Industrial Classification (SIC) level. Finally, firm age may influence learning and performance (Xia et al., 2014). I constructed a firm age variable using the logarithm of the firms' founding year subtracted from the observation year.[11] These control variables were included in all regressions.

Estimation strategy

Mediation analysis falls into a category of structural equation modeling in which several equations are estimated simultaneously to produce the mediation effect. I employed the bootstrapping approach to mediation analysis based on resampling the data 1000 times to produce not only a point estimate of the mediation effect but also the standard errors and confidence intervals that were unbiased even if the error terms violated normal distribution. The bootstrapping approach is currently the most reliable approach to mediation test (Preacher, Rucker, & Hayes, 2007). The empirical model included not only firm level variables but also a country-level variable, and could be estimated using hierarchical linear modeling technics. There was not, however, enough number of firm-level observations in most emerging latecomer MNEs to support this approach. The mediation analysis software 'Process' was employed (Hayes, 2013). All estimates were corrected for heteroskedasticity using White's heteroskedasticity-consistent standard errors.

Before running the mediation analysis, I followed Sirmon and Hitt (2009) to use 2SLS to address the problem of endogeneity. In particular, internationalization was likely to be endogenous. In regressions with profitability being the dependent variable, internationalization may be a result of improvement in profitability. Similarly, in regressions with productivity being the dependent variable, internationalization may be a result of improvement in productivity. I therefore needed to find an instrument which should not be related to the dependent variable predicted in the second stage, but should be related to the endogenous variables predicted in the first stage. The foreign input intensity ratio met these criteria. The ratio was the average of the ratio of foreign assets to foreign sales revenues and the ratio of foreign employment to foreign sales revenues. The intuitive argument was that some variations in internationalization were due to the financial capacity to acquire input resources overseas, which should also show up in the foreign input intensity ratio (Bascle, 2008; Hamilton & Nickerson, 2003; Murray, 2006). The instrumental variable was included in the first-stage regression, but not in the second-stage regression. The descriptive statistics and correlation matrix of major variables are presented in Table 2.

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[11] I would like to thank the Editors of the Special Issue for suggesting to control for some of these variables.

Table 2 Basic statistics of major variables [a, b]

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Firm Size	7.93	1.24										
2. Profitability	.058	.07	.07									
3. Internationalization	.45	.21	-.12*	-.05								
4. Productivity	.54	.63	.37*	.16*	-.18							
5. Market-oriented institutions	7.47	1.14	.15*	-.18	.42*	.08						
6. Financial slack	2.49	35.33	.030	.07*	-.026	.06*	-.01					
7. Exchange rate	1.66	1.81	.02	.06	.12	.01	.12	.04				
8. Advertising intensity	.018	.004	.05	-.07	.11	.06	.01	.04	-.07			
9. R&D intensity	.035	.42	.032	.08*	-.027	.04	.07*	.12	-.04	.16		
10. Product diversification	.621	.61	.12*	-.08	.05	.14*	.02*	.08	-.04	.02	.05	
11. Firm age	2.58	1.06	.24	-.08	.14	-.18	.21	.09	.03	.31	.01*	.08

[a] The mean values are not industry-centred

[b] * <.05

Results

The hypotheses were tested following standard procedures of moderated mediation analyses. I needed to exclude the possibility that the relationship between internationalization and financial performance was nonlinear as suggested in some studies (Contractor, 2007, 2012; Contractor, Kumar, & Kundu, 2007; Contractor, Kundu, & Hsu, 2003; Lu & Beamish, 2004; Thomas & Eden, 2004). A squared term of internationalization was introduced. The coefficient of the squared term was negative but statistically insignificant, indicating that the possibility of nonlinearity was rejected. I therefore removed the squared term from mediation analyses.

Hypothesis test

The results of the estimated mediation effect in the hypothesis test are reported in Table 3, and the results of regression analyses in the hypothesis test are reported in Table 4. Hypothesis 1 states that the mediation effect is positive in latecomer MNEs. As shown in Model 1 of Table 3, the mediation effect was positive but statistically insignificant. The result rejected Hypothesis 1, suggesting that internationalization did not result in, as the LLL model predicted, learning and knowledge-led profit gains in latecomer MNEs. The results did not come as a surprise since the LLL model neglected variations in the development of market-oriented institutions between the countries in which latecomer MNEs were based.

Hypothesis 2 states that the mediation effect is more likely to be positive in latecomer MNEs based in countries with a high level of the development of market-oriented institutions than latecomer MNEs based in countries with a low level of the development of market-oriented institutions. As shown in Model 2 of Table 2, the mediation effect was statistically indifferent from zero when the development of market-oriented institutions was at a low level and an average level, but turned positive and statistically significant when the development of market-oriented institutions was at a high level (θ = .0149; LCI = .0151; UCI = .0230). The result supported Hypothesis 2,

Table 3 Mediation effect in hypothesis test [a]

Model	Market-oriented institutions	Mediation Effect (θ)		
		θ [b]	95% LCI [c]	95% UCI [d]
Model 1		.0022	−.0020	.0068
Model 2	Low (6.3301)	−.0038	−.0100	.0035
	Mean (7.4694)	.0050	−.0006	.0103
	High (8.6105)	.0149♯	.0051	.0230

[a] The mediation effect was calculated on the regression coefficients presented in Table 4 as explained in Appendix 2

[b] ♯ indicates statistical significance at the 95% confidence interval

[c] LCI indicates lower confidence interval

[d] UCI indicates upper confidence interval

Table 4 Regression result in hypothesis test [a,b,c]

Variables	Model 1		Model 2	
	1	2	3	4
	Productivity	Profitability	Productivity	Profitability
Intercept	−.046*	.005*	.26	.001
	(.022)	(.002)	(.16)	(.012)
Firm size	.21**	−.002	.25**	−.003
	(.02)	(.003)	(.03)	(.003)
Financial slack	.006*	.002*	.007*	.001*
	(.003)	(.001)	(.004)	(.000)
Exchange rate	−.23	−.14	−.24	−.15
	(.21)	(.11)	(.25)	(.14)
Advertising intensity	.07	−.35*	.06	−.32*
	(.06)	(.17)	(.05)	(.13)
R&D intensity	.12	−.23	.13	−.25
	(.07)	(.14)	(.08)	(.18)
Product diversification	.01	−.04*	.01	−.03*
	(.01)	(.02)	(.02)	(.014)
Firm age	−.11*	−.04*	−.11*	−.05*
	(.06)	(.02)	(.06)	(.024)
Internationalization	.123	−.015	−2.53**	.16*
	(.098)	(.011)	(.69)	(.08)
Productivity		.018**		.014
		(.003)		(.03)
Market-oriented institution			−.045*	.001
			(.022)	(.02)
Market-oriented institution × Internationalization			.37**	−.022*
			(.09)	(.010)
Market-oriented institution × Productivity				.001
				(.003)
Adjusted R^2	.40	.28	.41	.29

[a] [†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

[b] The regression coefficients presented in the Table were the basis on which the mediation effect presented in Table 3 was calculated as explained in Appendix 2

[c] All regressions included industry dummies and country group dummies. The coefficients of these dummy variables are not reported to save space

indicating that internationalization resulted in learning and knowledge-led profit gains in latecomer MNEs based in countries with a high level of the development of market-oriented institutions, but failed to do so in latecomer MNEs based in countries with an average or a low level of the development of market-oriented institutions. The results were consistent with the prediction of institutional economics, and the arguments developed in this paper.

Robustness test

I took several approaches to testing the robustness of the results. To begin with, it might be argued that time is needed for internationalization to lead to the benefits of learning, and for productivity to influence profitability. To address this concern, I used the one-year lag of internationalization and one-year lag of productivity, and reran the moderated mediation analysis.[12] The results of the estimated mediation effect are reported in row 1 of Table 5, and the results of regression analyses are reported in column 1 of Table 6. As shown in row 1 of Table 5, the mediation effect in Model 2, which was positive and statistically significant only when the development of market-oriented institutions was at a high level in the non-lagged sample, turned positive and statistically significant when the development of market-oriented institutions was at both an average level (θ = .0139; LCI = .0052; UCI = .0179) and a high level (θ = .0254; LCI = .0111; UCI = .0327). When the development of market-oriented institutions was at a high level, moreover, the mediation effect was much stronger than that in the non-lagged sample. The results seemed to indicate a possible time lag in the positive impact of internationalization on profitability through productivity.

Moreover, it might be argued that the mediation effect may change over time along with the development of market-oriented institutions in latecomer MNEs' home countries.[13] Specifically, the positive mediation effect is expected to become stronger along with the development of market-oriented institutions in latecomer MNEs' home countries over time. To address this concern, I broke the sample into two subsamples. One subsample covered the period from 1996 to 2005, and the other covered the period from 2006 to 2011. I reran mediation Models 1 and 2 for the two subsamples, respectively. The results of the estimated mediation effect are reported in rows 2 and 3 of Table 5, and the results of regression analyses are reported in columns 2 and 3 of Table 6.

In the 1996–2005 subsample, as shown in row 2 of Table 5, the mediation effect in Model 2 was positive and statistically significant only when the development of market-oriented institutions was at a high level (θ = .0069; LCI = .0041; UCI = .0293), as found in the whole sample. In the 2006–2011 subsample, by contrast, the mediation effect in Model 2 remained statistically indifferent from zero when the development of market-oriented institutions was at a low level, but turned positive and statistically significant when the development of market-oriented institutions was at both an average level (θ = .0153; LCI = .0064; UCI = .0218) and a high level (θ = .0299; LCI = .0125; UCI = .0416). The results suggested that along with the development of market-oriented institutions at home over time, the opportunity for latecomer MNEs to enhance learning and knowledge-led profit gains from internationalization increased.

Finally, I used ROS and ROI as alternative measures of profitability. I used the Economic Freedom Index compiled by the Heritage Foundation as an alternative measure of the development of market-oriented institutions in latecomer MNEs' home

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[12] I would like to thank an anonymous reviewer for making this point. One year lag, rather than multiple year lags, was used due to data constraints. Some emerging latecomer MNEs appeared on the list for less than three years. If multiple year lags were used, these latecomer MNEs would have to be removed from the sample, causing a loss of important information.

[13] I would like to thank an anonymous reviewer for making this point.

Table 5 Mediation effect in robustness test [a]

Model	Market-oriented institution	Mediation Effect (θ)		
		θ [b]	95% LCI [c]	95% UCI [d]
Sample 1 (lagged value)				
Model 1		.0033	−.0008	.0082
Model 2	Low (6.3327)	.0009	−.0046	.0097
	Mean (7.4728)	.0107#	.0052	.0179
	High (8.6128)	.0215#	.0111	.0327
Sample 2 (1996–2005)				
Model 1		−.0001	−.0063	.0060
Model 2	Low (6.1999)	−.0027	−.0285	.0100
	Mean (7.4306)	.0030	−.0029	.0175
	High (8.6612)	.0105#	.0041	.0283
Sample 3 (2006–2011)				
Model 1		.0046	−.0006	.0117
Model 2	Low (6.3920)	.0028	−.0040	.0120
	Mean (7.4921)	.0153#	.0064	.0218
	High (8.5922)	.0299#	.0125	.0416

[a] The mediation effect was calculated on the regression coefficients presented in Table 6 as explained in Appendix 2

[b] # indicates statistical significance at the 95% confidence interval

[c] LCI indicates lower confidence interval

[d] UCI indicates upper confidence interval

countries. The results remained virtually unchanged. Interested readers may ask the author for the results of mediation analyses in these robustness tests.

Control variable

Evidence in the study supported a positive relationship between firm size and productivity, but indicated no significant relationship between firm size and profitability. The results seemed to indicate that as a latecomer MNE grew in size, productivity was enhanced, but the added coordination costs might offset the financial benefits. The coefficient of financial slack was positive and statistically significant in most regressions. The findings indicated that financial slack was likely to enhance both profitability and productivity. This was consistent with studies on the effect of financial slack on innovation and profitability (Bourgeois, 1981; Chang & Rhee, 2011). The coefficient of foreign exchange rate was statistically insignificant from zero in all regressions. This may be because MNEs operated in multiple countries so that the impact of foreign exchange rate was neutralized. The coefficient of product diversification was negative and statistically significant in regressions with profitability being the dependent variable, but statistically indifferent from zero in regressions with productivity being the dependent variable. The results were consistent with prior studies, indicating a

Table 6 Regression result in robustness test [a,b,c]

Variables	Lagged Sample				1996–2005 Sample				2006–2011 Sample			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	1	2	3	4	5	6	7	8	9	10	11	12
	Productivity	Profitability	Productivity	Profitability	Productivity	Profitability	Productivity	Profitability	Productivity	Profitability	Productivity	Profitability
Intercept	−.0129	.004	.11	.009	.004	.002	.35	.014	−.005	.004	−.03	.007
	(.023)	(.003)	(.15)	(.019)	(.039)	(.006)	(.26)	(.04)	(.026)	(.003)	(.18)	(.019)
Firm size	.19**	−.003	.20**	−.002	.12**	−.001	.11**	−.002	.24**	−.005	.23**	−.004
	(.04)	(.004)	(.05)	(.002)	(.04)	(.001)	(.04)	(.002)	(.06)	(.004)	(.05)	(.005)
Financial slack	.009**	.004*	.008**	.004*	.003**	.002*	.005**	.004*	.009**	.004*	.008**	.005*
	(.004)	(.002)	(.004)	(.002)	(.001)	(.001)	(.002)	(.002)	(.004)	(.002)	(.003)	(.003)
Exchange rate	−.32	−.18	−.33	−.19	−.14	−.08	−.15	−.09	−.21	−.08	−.23	−.09
	(.28)	(.15)	(.22)	(.13)	(.13)	(.06)	(.12)	(.07)	(.18)	(.07)	(.19)	(.09)
Advertising intensity	.04	−.33*	.03	−.34*	.04	−.28*	.07	−.27*	.09	−.41*	.08	−.39*
	(.03)	(.12)	(.03)	(.18)	(.05)	(.12)	(.06)	(.13)	(.08)	(.22)	(.06)	(.21)
R&D intensity	.14	−.18	.15	−.19	.09	−.15	.07	−.16	.18	−.25	.19	−.23
	(.09)	(.11)	(.11)	(.14)	(.06)	(.10)	(.05)	(.12)	(.11)	(.18)	(.12)	(.15)
Product diversification	.02	−.08*	.03	−.09*	.03	−.02*	.05	−.03**	.04	−.07**	.05	−.06*
	(.03)	(.04)	(.03)	(.044)	(.02)	(.01)	(.04)	(.01)	(.05)	(.03)	(.04)	(.03)
Firm age	−.14*	−.06*	−.14*	−.06*	−.17*	−.06*	−.15*	−.07*	−.15*	−.05*	−.16*	−.04*
	(.08)	(.03)	(.08)	(.03)	(.08)	(.03)	(.07)	(.04)	(.08)	(.03)	(.08)	(.02)
Internationalization	.175	−.016	−2.49**	.157*	−.006	−.053*	−1.91	.15	.23*	−.001	−2.81**	.16**
	(.099)	(.010)	(.61)	(.08)	(.16)	(.024)	(1.21)	(.09)	(.12)	(.009)	(.71)	(.08)
Productivity		.019**		.0139		.013		.03		.02**		.009

Table 6 (continued)

Variables	Lagged Sample				1996–2005 Sample				2006–2011 Sample			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	Productivity	Profitability	Productivity	Profitability	Productivity	Profitability	Productivity	Profitability	Productivity	Profitability	Productivity	Profitability
	1	2	3	4	5	6	7	8	9	10	11	12
		(.004)		(.026)		(.008)		(.06)		(.004)		(.026)
Market-oriented institution		−.000	.003	−.000			−.045	−.001			.025	−.000
		(.001)	(.19)	(.001)			(.34)	(.005)			(.33)	(.003)
Market-oriented institution × Internationalization			.40**	−.023*			.28	−.026			.46**	−.021**
			(.08)	(.003)			(.15)	(.007)			(.06)	(.010)
Internationalization		.001		.001				.002				.002
		(.003)		(.011)				(.007)				(.003)
Market-oriented institution × Productivity				(.003)				(.007)				(.003)
Adjusted R^2	.46	.33	.47	.34	.35	.28	.36	.29	.45	.32	.46	.32

[a] † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

[b] The regression coefficients presented in the Table were the basis on which the mediation effect presented in Table 5 was calculated as explained in Appendix 2

[c] All regressions included industry dummies and country group dummies. The coefficients of these dummy variables are not reported to save space

diversification discount (Su & Tsang, 2015). Similarly, the coefficient of advertising intensity was negative and statistically significant in regressions with profitability being the dependent variable, but statistically indifferent from zero in regressions with productivity being the dependent variable. The results were consistent with prior studies, indicating a cost-augmenting effect of advertising (Lu & Beamish, 2004; Su & Tsang, 2015). The coefficient of R&D intensity was statistically indifferent from zero in all regressions, indicating that R&D generated a positive effect on neither productivity nor profitability. The results seemed to indicate the inefficiency in R&D spending in latecomer MNEs. The coefficient of firm age was negative and statistically significant in all regressions. The results were consistent with prior studies, indicating that older latecomer MNEs were likely to be constrained by past traditions (Xia et al., 2014). Although these control variables were not the focus of the study, interested readers may investigate how these variables affect productivity and profitability in greater detail in future research.

Discussion

Theoretical contribution

The rise of latecomer MNEs poses a challenge to conventional theories of international business. Effort has been made to develop new theoretical models to explain latecomer MNEs. In particular, Mathews (2002, 2006a, 2006b) argued that latecomer MNEs can catch up with incumbent MNEs through the innovative strategy of linkage, leverage and learning in the era of accelerated globalization. The LLL model predicts that internationalization via linkage and leverage leads to learning, improved productivity, and thereby knowledge-led profit gains. However, the model is based on the competitive market assumption, failing to take into account institutional variations across the home countries in which latecomer MNEs are based.

The competitive market assumption is unrealistic in the context of latecomer economies (Meyer & Peng, 2016; Peng et al., 2008). Recent studies have consistently revealed that the lack of competitive markets and the prevalence of government intervention feature many latecomer economies including China, India, Russia and Brazil (Cuervo-Cazurra et al., 2014; Hong et al., 2015; Li et al., 2014; Meyer & Peng, 2016; Peng, 2012; Peng et al., 2008; Sun et al., 2015; Xia et al., 2014; Young et al., 2014). This institutional context constitutes constraints to the behavior and performance of MNEs based in these countries, and therefore needs to be taken into consideration in theoretical modeling (Peng, 2012; Ramamurti & Singh, 2009; Xia et al., 2014). Insufficient effort has been made to develop models to theoretically explain how the differentials in the development of market-oriented institutions in home countries may lead to variations in the internationalization and performance in latecomer MNEs.

To fill this research gap, the study integrates the LLL model with institutional economics to propose a moderated mediation framework. The framework relates the differentials in the internationalization-performance relationship between latecomer MNEs to variations in the development of market-oriented institutions between their home countries, and points to a possible learning breakdown in

latecomer MNEs based in countries with underdeveloped market-oriented institutions. According to the framework, whether internationalization results in learning and knowledge-led profit gains depends on the development of market-oriented institutions in the countries in which latecomer MNEs are based. Latecomer MNEs based in countries with a high level of the development of market-oriented institutions are likely to succeed in learning and knowledge-led profit gains from internationalization. Latecomer MNEs based in countries with a low level of the development of market-oriented institutions are likely to fail in learning and knowledge-led profit gains from internationalization. This is a significant contribution the study makes to the literature of latecomer MNEs.

Managerial implication

Internationalization via linkage and leverage is, according to the LLL model, vital for resource-meagre latecomer MNEs to access external knowledge, to "succeed in this interlinked global economy," and to catch up with incumbent MNEs (Mathews, 2006a: 9). Learning is needed to complete the catch-up process, but is assumed to come automatically through "repeated applications of linkage and leverage" because a latecomer MNE is viewed as "an instrument of learning" in a competitive market environment (Mathews, 2002: 478). Taking learning as the key to the success of latecomer MNEs in catch-up with incumbent MNEs, in contrast, the present study maintains that learning does not come automatically from repeated applications of linkage and leverage because a latecomer MNE is not necessarily an instrument of learning in an environment in which the underdevelopment of market-oriented institutions discourages entrepreneurship and innovation. A breakdown in learning is likely to occur in latecomer MNEs based in emerging economies with an "institutional void" (Tarun & Palepu, 2010: 25).

The study provides robust evidence that latecomer MNEs based in countries with a high level of the development of market-oriented institutions are likely to succeed in learning and knowledge-led profit gains in internationalization, whereas latecomer MNEs based in countries with a low level of the development of market-oriented institutions are likely to fail in this regard. Latecomer MNEs from countries with a high level of the development of market-oriented institutions should continue to take advantage of the favorable institutional environment at home to enhance learning and knowledge-led profit gains from internationalization. Latecomer MNEs from countries with a low level of the development of market-oriented institutions need to actively work with the national government, local communities, and international organizations to develop market-oriented institutions at home in order to create an institutional environment that is conducive to learning and innovation. Otherwise, they are unlikely to succeed in learning to catch up with incumbent MNEs in knowledge-led profit gains from internationalization.

Institutional transformation is a slow and incremental process, however (North, 1990, 1994, 2005). Market-oriented institutions have developed, though gradually, in emerging economies, and have provided and will continue to provide opportunities for latecomer MNEs based in these economies to enhance learning and transform learning outcome into sustainable profit gains. It is crucial for these latecomer MNEs to identify and seize these opportunities generated in the institutional transition process. As

market-oriented institutions evolve at home, they need to make incremental effort to turn themselves into an instrument of learning, to enhance productivity in cross-border operations, and to secure knowledge-led profit gains from internationalization.

Limitation and direction for future research

Empirical findings of the study are based on statistical likelihood analysis and, as such, cannot be extended to argue that no latecomer MNEs based in emerging economies have succeeded in learning and knowledge-led profit gains from internationalization. Latecomer MNEs based in the same home country with the same institutional environment are likely to differ significantly in performance due to firm-specific or industry-specific factors. The present study does not examine these factors due to data constraints. To address this limitation, future research may look into such firm-specific factors as the specific kind of linkage a latecomer MNE establishes with incumbent MNEs, the specific kind of resources a latecomer MNE accesses and leverages, and the specific approach a latecomer MNE takes to learning and knowledge augmentation in the internationalization process. Meanwhile, future research may take into account such industry-specific factors as the extent to which an industry is under government control, the extent to which an industry is attractive to foreign investments, and the extent to which an industry is technology-intensive, labour-intensive or capital-intensive.

Similarly, the study does not examine the impact of institutions of host countries on the performance of latecomer MNEs in internationalization. The performance of a latecomer MNE in internationalization is likely to be influenced by, for instance, the extent to which the latecomer MNE operates in host countries where market-oriented institutions have been established. In theory, it is likely that differences in the development of market-oriented institutions between latecomer MNEs' host countries may result in variations in performance between latecomer MNEs. In practice, it is very difficult to estimate the host country impact because data on latecomer MNEs' investments, employees, sales, and profits in individual host countries are rarely available. Future research may move in this direction to examine the host country impact when data become available.

Furthermore, there might be biases related to sample selection. Due to data constraints, the sample in the study includes large latecomer MNEs only. Although the treatment is justifiable on the ground that these giant latecomer MNEs are most successful in internationalization and therefore the best cases for testing whether or not internationalization has led to learning, improved productivity, and knowledge-led profit gains, it is questionable whether the results of the study are representative of small and medium-sized latecomer MNEs. It would be useful to see whether the findings of the study remain unchanged when the sample selection biases are addressed. Future research may move in this direction.

Conclusion

Internationalization via linkage and leverage does not necessarily lead a latecomer MNE to success in learning, improved productivity, and knowledge-led profit gains. A

breakdown in learning is likely to occur in latecomer MNEs based in countries with a low level of the development of market-oriented institutions, resulting in a failure in catch-up with incumbent MNEs in knowledge-led profit gains from internationalization. Latecomer MNEs from countries with an "institutional void" need to actively engage in the development of market-oriented institutions at home, and make continuous effort to become an instrument of learning in tandem with the progress in the institutional transformation at home.

Appendix 1 Calculation of total factor productivity

Total factor productivity was calculated on the basis of a production function as expressed in Eq. A1.

$$G_{it} = P_{it}S_{it}{}^{\beta 1}A_{it}{}^{\beta 2} \tag{A1}$$

where $_i$ represents firm and $_t$ represents year. G represents the value of total sales revenues, S represents the number of total staff, and A represents the value of total assets. $\beta 1$ and β_2 represent marginal productivity of workforce and assets, respectively. Both are constants determined by available technology. P represents total factor productivity (Solow, 1956, 1957).

Taking the natural logarithm of Eq. A1 produced Eq. A2:

$$LgG_{it} = a + \beta_1 LgS_{it} + \beta_2 LgA_{it} + \epsilon_{it} \tag{A2}$$

The constant a and the error term ϵ_{it} represent total factor productivity (P_{it}), which was calculated using Eq. A3

$$P_{it} = LgG_{it} - \beta_1 LgS_{it} - \beta_2 LgA_{it} \tag{A3}$$

I followed Sirmon and Hitt (2009) and used 2SLS to address the problem of endogeneity. In particular, an increase in assets may be a result of an increase in sale revenue. The instrumental variables used in the 2SLS should not be related to the performance variable predicted in the second stage, but should be related to the endogenous variable predicted in the first stage. I found the leverage ratio meeting these criteria. The intuitive argument is that some variation in assets is due to the funds available to a firm, which should show up in the leverage ratio. The instrumental variable was included in the first-stage regression, but was not included in the second-stage regression.

Appendix 2
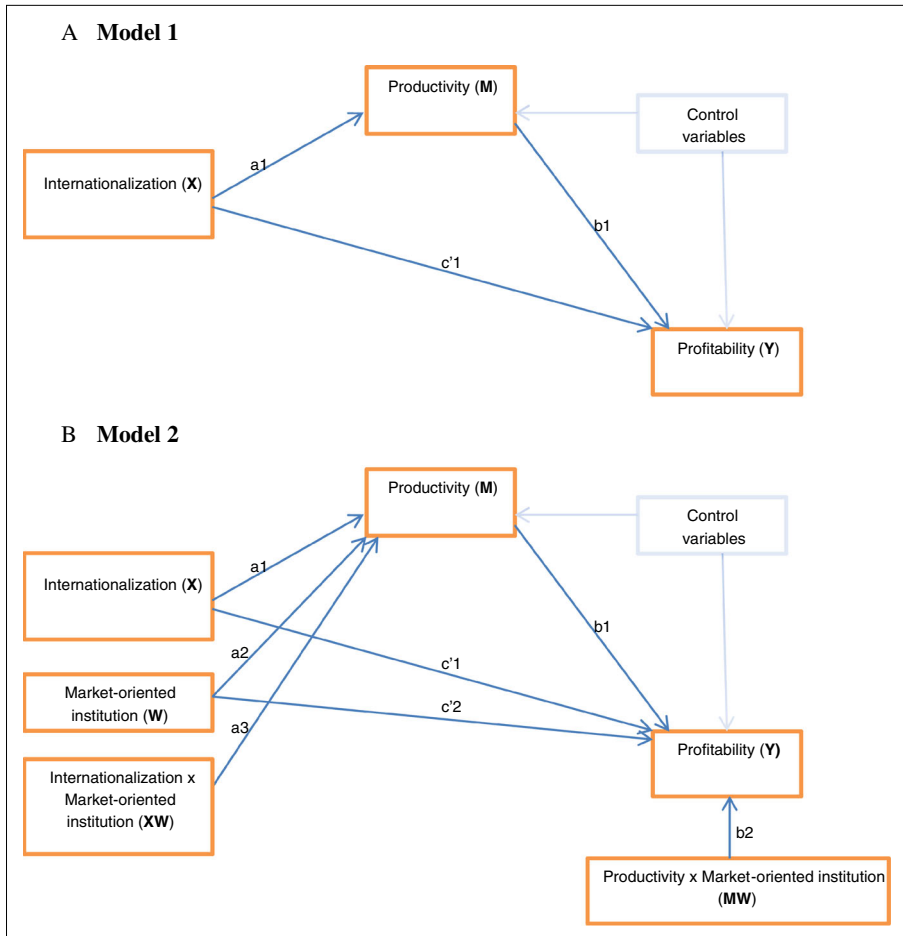
Notes: The mediation effect in model 1 = $a1b1$. The mediation effect in model 2 = $(a1 + a3W)(b1 + b2W)$.
Source: Hayes (2013).

Fig. 2 Statistical model for mediation tests

References

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