**ENTERPRENEURIAL LEAPFROGGING IN THE CONTEXT OF ISE**

***The Salience of Disruptive Innovation by Emerging Multinationals***

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**Abstract [94]**

We know little regarding the underlying contexts and mechanisms for disruptive innovation initiated by the entrepreneurial firms in the emerging economies. Further, there is limited knowledge about the contexts and mechanisms for global latecomers to catch up with and leapfrog global early-movers. The cross-fertilization between such two research streams provides a great opportunity to shed light on their link toward an interdisciplinary domain of *international strategic entrepreneurship* (ISE). This article will develop an integrative typology of global innovations as well as a dynamic model of entrepreneurial leapfrogging as the initial building blocks of ISE.

**Keywords:** *Entrepreneurial Leapfrogging; International Strategic Entrepreneurship; Disruptive Innovation; Emerging Economy; Distance-Asymmetry; Multinational Enterprise.*

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***The Salience of Disruptive Innovation by Emerging Multinationals***

The relatively recent research on the multinational enterprises from the emerging economies (EMNEs) has been growing rapidly (e.g., Luo and Tung, 2007; Mathews, 2002, 2006). This emerging research has been primarily focusing on the potential of EMNEs as the global latecomers to catch up with and even leapfrog the established MNEs from the developed economies (DMNE) as the global incumbents (e.g., Madhok and Keyhani, 2012), despite the pessimism rooted in the traditional MNE theories, including the Ownership-Location-Internalization (OLI) Model (Dunning, 1988, 1995, 2006) and the Internationalization Process (IP) Model (Johanson and Vahlne, 1977, 1990, 2009). However, the implicit assumption shared by both the advocates and the doubters is that EMNE tends to start from a disadvantaged position to rely primarily on low-cost imitation as their initial source of competitive advantage in contrast to DMNE (cf. Madhok and Keyhani, 2012; Ramamurti, 2012). Hence, one of the most challenging questions is *how to shift* from the disadvantaged position to an advantaged one. In other words, we know little about the underlying mechanisms for EMNEs to catch up with and even leapfrog DMNE, especially the core mechanism of innovation as a special form of entrepreneurship to underlie the trajectory of *accelerated learning* via both exploration and exploitation (see Li, 2010 for a review). To account for the mechanism of innovation for the further development of the learning-based view of internationalization, we need to understand the necessary and sufficient drivers underlying the trajectory of accelerated learning by EMNE in contrast to DMNE (cf. Hobday, 1995, 2005; Madhok and Keyhani, 2012). Here we have a unique opportunity to enrich the constructs of entrepreneurship, innovation and dynamic capability by applying them to the global context for both EMNE and DMNE as mature firms rather than new ventures.

Further, it seems that EMNE as the global latecomers may play an increasingly critical role in global competition by being the bottom-up disruptive challengers to DMNE as the global incumbents. The rise of emerging economies, coupled with the fact that the majority of the populations are at the *bottom of the pyramid* (BOP) as the lowest-end segment of the global market (Prahalad, 2009) so that they cannot afford the products and/or services designed for the established markets, has made the emerging economies the most fertile context for *disruptive innovation* or DI (Li, 2013; Ricart, Enright, Ghemawat, Hart and Khanna, 2004; Yu and Hang, 2010), also called *reverse innovation* (Govindarajan and Ramamurti, 2011; Govindarajan and Trimble, 2012), and *blowback innovation* (Hagel and Brown, 2005). This is especially salient for business model innovation in the emerging economies (Eyring, Johnson and Nair, 2011; *The* *Economist*, 2010). In this sense, the previously separated streams on DI (Christensen, 1997; Christensen and Raynor, 2003; Christensen, Anthony and Roth, 2004) and BOP (Karnani, 2007; London and Hart, 2011; Prahalad, 2009) can benefit from their cross-fertilization. In particular, DI in the emerging economies (where the majority of BOP resides) may serve as a possible mechanism to drive the trajectory of accelerated learning by EMNE. In other words, as a core driver for accelerated learning, DI at BOP has the potential to explain how EMNE catches up with and leapfrog DMNE. Hence, accelerated learning as a special form of entrepreneurship is particularly imperative to EMNE (Li, 2010; Madhok and Keyhani, 2012), but this issue has been neglected in the literatures on international entrepreneurship in particular (see Jones, Coviello and Tang, 2011; Keupp and Gassmann, 2009, for reviews) and entrepreneurship in general (see Ireland and Webb, 2007 for a review).

Despite the strategic centrality of DI to EMNE, it is surprising that this issue has never been explored in a systematic manner. The extant research on DI has been largely confined to the context at the top of the pyramid (TOP) (e.g., Christensen, 1997; Christensen and Raynor, 2003; Christensen et al., 2004). Further, limited attention has been devoted to the potential link between DI and EMNE as most studies focus on DI by DMNE (e.g., Eying et al., 2011; Hagel and Brown, 2005; Hart and Christensen, 2002; Immelt, Govindarajan and Trimble, 2009; see Govindarajan and Ramamurti, 2011; Li, 2013; Zeng and Williamson, 2007, for notable exceptions). However, it is imperative to study DI by EMNE so as to explain how EMNE catches up with and even leapfrogs DMNE. Further, DI by EMNE has the potential to cross-fertilize such diverse research streams as entrepreneurship, innovation, dynamic capability, and business model in the salient *conte*xt *of globalization*. We posit that DI by EMNE can serve as a shared “*big question*” in the domains of international business, strategy, and entrepreneurship with the potential to challenge the prevailing paradigm and also facilitate the needed paradigm shift toward an interdisciplinary approach to any complex phenomenon as holistic and dynamic. Hence, DI by EMNE provides a unique opportunity to explore a novel interdisciplinary domain of *international strategic entrepreneurship* (ISE) that lies at the nexus of the three disciplines of international business, strategy, and entrepreneurship.

The purpose of this theoretical article is to integrate the research streams on EMNE and DI toward a new dynamic model of *entrepreneurial leapfrogging* with a special focus on the mechanisms for EMNE to catch up with and even leapfrog DMNE. As the primary contribution of this article, the dynamic model further develops the learning-based view of internationalization by specifying the key mechanisms or drivers underlying the trajectory of accelerated learning toward an interdisciplinary domain of ISE. Specifically, we will first integrate the currently separated streams on EMNE and DI toward an integrative typology of global innovations to differentiate and integrate the major types of innovation and market context. Second, built upon the typology of global innovation, we will develop a dynamic model of entrepreneurial leapfrogging with a special focus on DI as an underlying mechanism for EMNE to both catch up with and leapfrog DMNE. Third, we discuss the imperative implications of the proposed dynamic model for the further research on ISE. The rest of this article is structured into three sections in line with the above three-step agenda, including the discussion of key implications and conclusion at the end.

**The Interrelationships between EMNE, DI, and Entrepreneurship**

**The Link between Contextual Distance and Competitive Asymmetry**

It is almost a given consensus that EMNE differs from DMNE because of their country-level *distances* or gaps in the economic, institutional, and social-cultural conditions between the emerging and developed economies (Cuervo-Cazurra, 2012; Ghemawat, 2001), which give rise to an inherent *asymmetry* in the competitive advantages between EMNE and DMNE as the liability of lateness, emergingness, or country-of-origin (Madhok and Keyhani, 2012; Ramachandran and Pant, 2010). Among the above distances, the economic gap can be argued to be the most imperative to the competitive asymmetry between EMNE and DMNE largely because the economic gap is the primary criterion to differentiate all emerging economies from all developed economies, with other criteria only as secondary even though also necessary. In other words, the economic distance between the emerging and developed economies delineates the disadvantages of EMNE and the advantages of DMNE as their competitive asymmetry.

On the economic dimension, income level is a critical measure of the overall level of economic development (Cuervo-Cazurra, 2012; Ghemawat, 2001). In this respect, the emerging economies can be directly related to the more recent notion of the *bottom of the pyramid* (BOP) (London and Hart, 2011; Prahalad, 2009). If we follow the metaphor of pyramid, we can divide the world population into five key segments: the top first and second segments are the top of the pyramid (TOP); the third segment lies in the middle of the pyramid (MOP), while the fourth and fifth segments are BOP. This is the *global pyramid* where the notions of TOP, MOP, and BOP derive from. According to the *World Resources Institute*, the populations have an annual income below $3,000 belong to BOP. By this benchmark, BOP covers the majority of those populations in the emerging economies (e.g., about 80% in China and 98% in India). In this sense, Prahalad (2009: 7) refers to BOP as the “emerging consumer markets or just emerging markets”. Hence, the economic distance between the emerging and developed economies can be framed in terms of global pyramid. To be more specific, TOP resides primarily in the established economies; BOP resides largely in the emerging economies, while MOP resides in both the developed and emerging economies as the overlapped segment (i.e., the lowest market segment in the developed economies and the highest market segment in the emerging economies). To simplify the analysis, it is reasonable and beneficial to evoke the notion of mainstream market as the reference point. Hence, we can provide the working definitions of BOP, TOP and MOP below:

*Within the global pyramid, BOP refers to the mainstream market and the segment lower than the mainstream market in the emerging economies in contrast to the mainstream market and the segment higher than the mainstream market in the developed economies as TOP. However, the segment lower than the mainstream market in the developed economies as well as the segment higher than the mainstream market in the emerging economies jointly constitute MOP as the overlapped segment in the global pyramid*.

Connecting the global pyramid with the distinctive global strategies between EMNE and DMNE, it is reasonable to expect that TOP tends to be well-served, and often over-served, primarily by DMNE; in contrast, BOP tends to be ill-served, and often non-served, by DMNE, so it requires EMNE and non-MNE local firms; finally, MOP tends to under-served by both DMNE and EMNE as an open global battle ground. Despite the strategic imperative of moving down or up along the global pyramid, we know little about how DMNE will move down from TOP to BOP if possible, and how EMNE will move up from BOP to TOP if possible; we also know little about how DMNE and EMNE will compete at MOP. Hence, moving up and down within the global pyramid is a salient part of the business model for both DMNE and EMNEs with significant implications for their ends and means of innovation.

The direct links between the global pyramid and the global strategy of MNE in general and between BOP and EMNE in particular provide a great opportunity to study the evolutionary process of MNE in general and EMNE in particular, especially the challenging transformation from BOP to TOP by EMNE given the asymmetry in competitive advantage between EMNE and DMEN. The opportunity lies in the possible contributions by identifying the evolutionary pattern of EMNE so as to make up the *lost opportunities* to study the evolutionary processes of DMNE as “historical latecomers” (Ramamurti, 2012), such as the development of American, German and Japanese MNEs from the asymmetrical status of latecomers relative to those British and American MNEs respectively in the history. Further, the evolutionary pattern of EMNE is also expected to be unique to the extent that EMNE’s initial asymmetry is much larger than that confronting those DMNE as “historical latecomers” in their early stages in the past (Madhok and Keyhani, 2012; cf. Cuervo-Cazurra, 2012; Ghemawat, 2001). This is beyond the view that EMNE differs from DMNE simply because the two are at the different stages of evolution with the serious implication that EMNE will converge into DMNE over time (cf. Ramamurti, 2012). Also, the uniqueness of EMNE may be due to the changing context of globalization in a sharp contrast to the historical context without globalization (Cuervo-Cazurra, 2012; Ramamurti, 2012). In sum, the insight into the bottom-up trajectory of accelerated learning by EMNE from BOP to TOP has the potential to further develop the MNE theories.

It has been heatedly debated over the question if the extant MNE theories are sufficient to explain EMNE. While some challenge the extant MNE theories (e.g., Luo and Tung, 2007; Mathews, 2002; 2006; Madhok and Keyhani, 2012), others defend the extant MNE theories (e.g., Dunning, Kim and Park, 2008; Narula, 2006; Rugman, 2009); still others remain neutral (e.g.., Cuervo-Cazurra, 2012; Ramamurti, 2012). Despite the ongoing debate, an initial consensus is emerging that the extant MNE theories should have at least some extensions and modifications so as to sufficiently explain DMNE and EMNE in the complex and dynamic context of increasing globalization (see Li, 2010 for a review). In a general sense, there are two primary puzzles in the debate (Ramamruti, 2012): one related to the ownership advantage of EMNE, and the other related to their evolutionary process. To solve the first puzzle, the notion of ownership advantage may be extended beyond the traditional types of brand and technology to include such new types as access to cheap resources, efficient operation, superior value-price ratio, and also business model innovation (Cuervo-Cazurra, 2012; Hennart, 2012; Ramamurti, 2012). However, such extensions do not explain adequately why EMNE would engage in foreign direct investment (FDI) in the developed economies as the *bottom-up FDI* (Ramamurti, 2009), especially by the entry mode of merger and acquisition (M&A) as the *bottom-up M&A* (Madhok and Keyhani, 2012). The real puzzle is not concerned with if EMNE can have unique advantages (this debate is misplaced), but about the *raison d'etre* (i.e., both motive and capability) for the reverse FDI to either exploit the extant ownership advantages or explore new ones (Luo and Tung, 2007). In other words, it is in fact *ownership* *disadvantage* (rather than ownership advantage) that serves as the *raison d'etre* for the reverse FDI of EMNE. The asset-seeking motive is a good explanation, but we must identify the unique capability of EMNE to engage in the bottom-up FDI in contrast to the *raison d'etre* for DMNE’s normal FDI. A new theoretical perspective is required to specifically explain *how to leverage* the contextual distance and competitive asymmetry between EMNE and DMNE for the bottom-up FDI (e.g., the mode of bottom-up M&A). The key lies in the special form of entrepreneurship for EMNE with a unique motive and a unique capability for the bottom-up FDI (Li, 2010; Madhok and Keyhani, 2012; cf. Amsden, 2009; *The Economist*, 2010).

Related to the first puzzle, the second puzzle is concerned with the unique evolutionary process of EMNE. Some argue that EMNE is not really unique in this respect in the sense that EMNE is simply an infant MNE at the early stage of MNE evolution, so it will be different from DMNE who is already an adult or mature MNE (e.g., Ramamurti, 2012). Further, it is argued that, if the evolutionary process of EMNE is unique, it is largely due to the new context of globalization and EMNE’s special role in the global supply chain (e.g., Ramamurti, 2012). However, focusing on the exogenous or external factors, this view largely neglects the fact that not all firms in the emerging economies adopt the trajectory of accelerated learning with the bottom-up FDI, and not all of them adopt the aggressive entry mode of M&A (Li, 2003, 2007; Madhok and Keyhani, 2012). Hence, the *endogenous* factors, such as strategic motive, must be taken into consideration to explain the *raison d'etre* for the bottom-up FDI in general and the bottom-up M&A in particular. For instance, the *non-sequential* FDI by EMNE can be better explained by the benefits (rather than the risks) of the bottom-up FDI for accelerated learning beyond the attractiveness of high-income market in the developed economies (Luo and Tung, 2007; cf. Cuervo-Cazurra, 2011, 2012).

**The Link between DI and Entrepreneurship**

The above two puzzles share one root, which is the *raison d'etre* for the bottom-up FDI for accelerated learning (Li, 2010). To explain this *raison d'etre*, it is imperative to evoke the notion of entrepreneurship in the context of EMNE’s accelerated learning as the hallmark of their evolutionary process (Madhok and Keyhani, 2012). We call this unique form of entrepreneurship for accelerated catch-up and leapfrogging *entrepreneurial leapfrogging*. Given the contextual distance and competitive asymmetry between EMNE and DMNE, this special form of entrepreneurship for EMNE differs from the focus of international entrepreneurship on the “born-global” firms who never suffer from such constraints (Autio, George and Alexy, 2011; Jones and Coviello, 2005). Further, as the core driver behind EMNE’s accelerated learning (Li, 2010; Madhok and Keyhani, 2012), entrepreneurial leapfrogging can be framed as a special form of ownership advantage for EMNE. We may also call this “comparative ownership advantage,” analogous to the construct of comparative advantage in the trade theory. Further, entrepreneurial leapfrogging is related to DI at BOP as the most effective mechanism for EMNE to catch up and leapfrog with both unique motive and unique capability. With DI at BOP, entrepreneurial leapfrogging has the potential to transform the contextual distance and the derived competitive asymmetry between EMNE and DMNE from liability or disadvantage into asset or advantage. Further, entrepreneurial leapfrogging can be greatly facilitated by the balance between exploration and exploitation as a duality in the framework of organizational learning (Levinthal and March, 1993; March, 1991) as well as the balance between “sensing” and “seizing” as another duality in the view of dynamic capability (Teece, 2007). The above two dualities are consistent with the perspective of strategic entrepreneurship with a duality of “opportunity-seeking” (similar to exploration or “sensing”) and “advantage-seeking” (similar to exploitation or “seizing”). In a general sense, *duality* refers to the contrary yet complementary opposites-in-unity that partially affirm and partially negate each other, in contrast to dualism that separates the opposites as mutually exclusive without the possibility of any balanced co-existence as partially complementary (Li, 2008, 2012a).

*Strategic entrepreneurship* refers to an integrative balance between opportunity-seeking and advantage-seeking (Ireland, Hitt and Sirmon, 2003; Hitt, Ireland, Sirmon and Trahms, 2011). In general, new ventures tend to be stronger in opportunity-seeking, exploration and sensing, but weaker in advantage-seeking, exploitation, and seizing; in contrast, mature firms are often the other way around. Given the increasing globalization, strategic entrepreneurship must have an international dimension, but that dimension is conspicuously lacking (Hitt et al., 2011). The research on international entrepreneurship lacks the strategy and entrepreneurship dimensions (Keupp and Gassmann, 2009; Zahra and George, 2002). These gaps reveal the great opportunity to develop a novel interdisciplinary domain of ISE across the three distinctive disciplines of entrepreneurship, strategy, and international business. *ISE* refers to the exploration-exploitation balance in sensing and seizing a novel business model by MNE because of the sufficiently salient contextual distance and competitive asymmetry, especially in the key contexts of both bottom-up FDI by EMNE in the developed economics and top-down FDI by DMNE in the emerging economies. Framed from the perspective of ISE, the contextual distance and competitive asymmetry between EMNE and DMNE will shape the motives and capabilities of EMNE and DMNE as two interrelated dimensions in both between-group and within-group patterns (Li, 2010; cf. Amsden, 2009; Madhok and Keyhani, 2012). In the *between-group* pattern, EMNE, as the global latecomer, is expected to be more entrepreneurial than DMNE as the global incumbent (Amsden, 2009; Madhok and Keyhani, 2012), similar to the distinction between new ventures and mature firms (Autio, Sapienza and Almeida, 2000; McDougall and Oviatt, 2000).

However, not all EMNEs and DMNEs are the same due to the within-group differences. It is also reasonable to expect that EMNE’s liability of lateness tends to enhance the motive of *more ambitious* EMNE to explore via the bottom-up FDI rather than the motive to exploit, but the opposite can be true for less ambitious EMNE. This liability tends to enhance the capability of *more agile* EMNE to explore via the bottom-up FDI, but the opposite can be true for less agile EMNE. In contrast, DMNE’s asset of strong establishment tends to restrict the motive of *more established* DMNE to explore via the top-down FDI rather than the motive to exploit, but the opposite can be true for less established DMNE (e.g., the small and medium-sized DMNE or SME-DMNE). This asset tends to restrict the capability of more rigid DMNE to explore via the top-down FDI, but the opposite can be true for less rigid DMNE (e.g., SME-DMNE). This perspective for DMNE with the top-down FDI as a special form of ISE is counterintuitive due to the taken-for-granted assumption that the top-down FDI by DMNE does not require ISE. We challenge this assumption by arguing that the typical contextual distances between the emerging and established economies are so large that distinctive business models are required for the two contexts, thus in real need of ISE for DMNE to develop a novel business model for the emerging markets. In this sense, not all cross-border entries or ventures will qualify as entrepreneurship (cf. Schweizer, Vahlne and Johanson, 2010), and not all innovative, proactive, and risk-taking activities will qualify as entrepreneurial in its full sense (cf. McDougall and Oviatt, 2000; Oviatt and McDougall, 2005). We posit that discovering the available opportunities is only a weak form of entrepreneurship (also agency, exploration, dynamic capability, innovation and value proposition), while creating non-existent opportunities is a strong form of entrepreneurship and also other related factors (cf. Alvarez and Barney, 2010; Miller, 2007; Shane and Venkataraman, 2000). In this sense, both bottom-up and top-down FDIs qualify as entrepreneurial in the full sense as they contain the duality of strong and weak forms of entrepreneurship. This duality has the unique potential to open the black boxes of entrepreneurship-related concepts by distinguishing their strong and weak forms. In other words, opportunity creation under the condition of uncertainty (as the unknowable) can be a strong form of entrepreneurship, while opportunity discovery under the condition of risk (as the known probability) can be a weak form of entrepreneurship (cf. Alvarez and Barney, 2010; Miller, 2007).

Further, the motive and capability of ISE are inherently interrelated. For instance, the enhanced motive for the bottom-up FDI by more ambitious EMNE can make themselves more agile for a special asset of accelerated learning for entrepreneurial leapfrogging, which can be achieved by leveraging the asymmetrical yet complementary resources between EMNE and DMNE (Awate, Larsen and Mudambi, 2012; Li, 2007, 2010). Such a leverage can be most effectively facilitated via the special entry mode of bottom-up M&A with a set of unique features for a novel model of post-M&A integration, including the slow post-M&A integration, high post-M&A autonomy, long-term M&A goals, and new post-M&A business model, in contrast to the traditional M&A model by DMNE (Kale, Singh and Raman, 2009; Knoerich, 2010; Kumar, 2009; Madhok and Keyhani, 2012). In sum, the motive and capability of ISE constitute a core duality with different implications for EMNE and DMNE as two groups, but the central theme of ISE is similar to both EMNE and DMEN in terms of exploration-exploitation balance as a special form of entrepreneurship in the special context of FDI, with the bottom-up FDI by EMEN as entrepreneurial leapfrogging and the top-down FDI by DMNE as entrepreneurial renewal. It is worth noting that the exploration-exploitation balance is not symmetrical; rather, such a balance is primarily asymmetrical with exploration as the dominant force (Li, 2012b). In other words, entrepreneurship is associated with much more exploration than exploitation in their balance, as compared to the case of non-entrepreneurship with more exploitation than exploration in their balance; also, the strong form of entrepreneurship is associated with much more exploration in the balance than that in the weak form of entrepreneurship. In sum, exploration delineates entrepreneurship to a large extent.

Directly tied to exploration, ISE is deeply rooted in innovation in general and DI in particular (Ireland et al., 2003; Li, 2010; *The Economist*, 2010). To integrate ISE with DI, we must clarify the conceptual confusion about DI. As a recent literature review pointed out (Yu and Hang, 2010: 435), “the scattered and conflicting nature of the literature on disruptive innovation in the last decade may pose a state of ambiguity for future research.” We posit that the debates over the nature and process of DI are rooted in the conceptual confusions and ambiguities in a few areas (cf. Christensen and Raynor, 2003; Danneels, 2004; Govindarajan and Kopalle, 2006; Markides, 2006; Schmidt and Druehl, 2008; Tellis, 2006). However, we can solve the problems by reframing DI as a new form of entrepreneurship for the bottom-up leapfrogging.

The first major cause for the extant conceptual confusion is the inclusion of both the low-end segment of the mainstream market and the non-consumption “new-market” segment below the mainstream market to be initially served by DI (Christensen and Raynor, 2003). This blend creates a conceptual confusion or ambiguity over if DI is for the marginal customers in the non-mainstream market or for both the marginal customers and the typical customers in the low-end segment of mainstream market. It is no longer confusing if we remove the low-end segment of mainstream market so as to focus on the marginal customers below the mainstream market. In other words, DI is reserved only for the *non-mainstream market*. The primary criterion is the non-consumption of the mainstream products and services provided by the global incumbents (cf. Schmidt and Druehl, 2008). Applying this criterion to the global pyramid, we can argue that the non-mainstream market in the global pyramid contains the “mainstream market” in the emerging economies as the primary non-mainstream market at BOP, and the non-mainstream market in the developed economies as the secondary non-mainstream market at MOP, both of which are distinctive from the mainstream market in the developed economies at TOP. Hence, the global non-mainstream consumers require novel value propositions with high value/price ratios, as in the case of DI. The above reframing has removed the conceptual confusion over which market segment DI should initially serve. It is clear that DI starts at the non-mainstream market and then moves up to the mainstream market in a bottom-up trajectory in the global pyramid. This reframing of DI connects it directly with BOP as its primary target (MOP as the secondary).

The second major cause for the extant conceptual confusion is the later proposed notion of *high-end* DI in terms of radically novel value and higher price (e.g., Carr, 2005; Govindarajan and Kopalle, 2006; Markides, 2006; Utterback and Acee, 2005). Such a view equates DI with radical innovation (RI) by explicitly assuming RI as having both superior value and higher price. However, we take issue with the notion of high-end DI as well as the assumption of RI with both superior value and higher price due to several reasons. First, high-end DI is incompatible with the original notion of DI with inferior value and lower price (Christensen, 1997; Christensen and Raynor, 2003; Christensen et al., 2004). The central theme of DI is the gradual challenge from the latecomers to the incumbents in a bottom-up trajectory (Li, 2013; Schmidt and Druehl, 2008). Even those who argue for high-end DI admit that the original notion of DI is a bottom-up form (e.g., Carr, 2005; Utterback and Acee, 2005). Second, it is the lower price and the resulted lower profit margin that causes the neglect of DI by most incumbents. In other words, an innovation will be more likely to be disruptive when it emerges from the low-end market in a bottom up process rather than the high-end RI in a top-down process. The higher profit margin and the defection from the mainstream market tend to sound a big alarm to the incumbents who would react more forcefully than they would do in the case of low-end DI. For instance, in the case of digital camera (Gilbert and Bower, 2002; Lucas and Goh, 2009), the top management team at Kodak reacted decisively in its swift response to the threat of digital technology. Though Kodak finally lost the war, it is not due to the lack of motive to fight, but due to the lack of capability to fight largely due to the incompatibility between the old and new paradigms. We refer to the lack of capability to shift between two paradigms as *paradigm conflict* (cf. Dosi, 1982; Kuhn, 1962) to gauge the potential of disruptiveness beyond the general architectural innovation and business model innovation (cf. Godoe, 2000; Henderson and Clark, 1990; Markides and Oyon, 2010). Third, related to the above point, the distinction between the lack of motive and the lack of capability can distinguish the effect of low-end bottom-up innovation (largely due to the lack of motive to react by incumbent) from the effect of high-end top-down innovation (largely due to the lack of capability to react by incumbent). Hence, we can easily reframe “*creative destruction*” (Schumpeter, 1942) into two forms: top-down and bottom-up destructions (cf. Carr, 2005; Govindarajan and Kopalle, 2006; Markides, 2006; Utterback and Acee, 2005). We take DI as the form of bottom-up destruction, including both bottom-up RI and incremental innovation (II), in contrast to both top-down RI and II. This implies that we can build a general typology of global innovations on two dimensions: the market-based top-down and bottom-up innovations, and the technology-based RI and II. In sum, we anchor DI as a bottom-up innovation and apply it to the context of BOP for ISE by framing entrepreneurial motive and entrepreneurial capability as a duality with both contrary distinctions and complementary links.

The third major root cause of the extant conceptual confusion is the lack of compelling rationale to explain why and how DI works without the ex ante criteria to measure the potential of disruptiveness. We posit that the essenceof DI is its *bottom-up* *novel value proposition* as the core of business model innovation. We define *business model* as business strategy delineated by resource configuration as well as task coordination as the means for the ends of strategic intent and strategic thrust (Li, 2003, 2007; Teece, 2007; see Zott, Amit and Massa, 2011 for a review). In the context of DI, business model innovation reflects a bottom-up trajectory with the initial sub-standard (for inferior performance at lower price) and emerging future standard (for new or even enhanced features) as two *embodiments* of the novel value proposition to partially replace the extant mainstream standard. Hence, we treat “sub-standard” and “future standard” as the *two defining features* of DI for the theme of bottom-up novel value proposition (cf. Christensen et al., 2004; Schmidt and Druehl, 2008). In particular, the notion of “future standard” bears two critical implications. Though evaluated as lower in quality by the extant mainstream standard, DI could be higher in quality if judged by the emerging future standard. Further, as the bottom-up novel value proposition cannot prevail initially, it must start with the lower price. While the initial sub-standard and emerging future standard are the two drivers for the success of global latecomers, the lack of motive and capability for paradigm shift as *inertia* are the two drivers for the failure of global incumbents (cf. Barnett and Pontikes, 2008; Rumelt, 1995). In this sense, EMNEs as the global latecomers, and DMNEs as the global incumbents, are largely affected by DI at BOP in two distinctive patterns as two different groups of MNE.

Built upon the theme of bottom-up novel value proposition, we can propose three ex ante criteria in terms of three questions: (1) Is there an actual or potential new feature (e.g., small size of PC for personal use)? (2) Is the new feature potentially imperative so that it can emerge as a new future standard (e.g., portability of PC)? (3) Is the new standard so incompatible with the old standard that the two will be in paradigm conflict (e.g., the conflict between the core business models for chemical and digital photography)? If only the first answer is positive, the potential impact of DI is the smallest; if the answers to all three questions are positive, the potential impact is the largest; if the first two answers are positive, the potential impact is moderate. Now we can integrate DI with entrepreneurial leapfrogging with the shared theme of a bottom-up trajectory:

*DI is a business model innovation involving product/service and/or process innovations to initially target the global non-mainstream market (in reference to TOP as the global mainstream market) via the initial sub-standard and the emerging future standard to embody a bottom-up novel value proposition.*

**An Integrative Typology of Global Innovation**

By applying the dimensions of top-down and bottom-up innovations as well as the radical and incremental innovations, we can develop an integrative typology of global innovations. Specifically, we can differentiate the DI with new features from the DI with enhanced features. Though the DI at BOP is partly *imitative*, it is partly innovative with a bottom-up novel value proposition for the unique context at BOP (cf. Kim, 1997; Wu, Ma and Shi, 2010), especially the *reverse* or *blowback innovation* as the new-feature DI at BOP (Govindarajan and Ramamurti, 2011; Govindarajan and Trimble, 2012; Hagel and Brown, 2005; Immelt et al., 2009). The new-feature DI at BOP initially targets the market at BOP, but later expands into the mainstream market at TOP. The new-feature DI can be either initiated by the global incumbents (e.g., GE for portable ultrasound scanner) or by the local entrepreneurs (e.g., Acer for netbook computer). The enhanced-feature DI at BOP, often an imitative (yet adapted) version of TOP’s innovation at a sharply lower price (e.g., the so-called “shanzhai” or “bandit” versions of mobile phone in China, *The Economist*, 2010), also has a novel value proposition, often in the form of low-cost process innovation in production or delivery (e.g., BYD’s labor-intensive or low-automation process for making batteries and cars). Hence, the DI at BOP is different from the DI at MOP not only due to the customers at the different *income levels* on the demand side (cf. Adner, 2002), but also due to the production and delivery processes at the different *cost levels* on the supply side (cf. Li, 2007, 2010). The above differences on both demand and supply sides can be captured by the two defining qualities (i.e., initial sub-standard and emerging future standard) to embody the theme of DI with a bottom-up novel value proposition.

By taking the mainstream market at TOP as the reference, and by taking the reframed constructs of DI and BOP as the core components, we can propose an integrative typology of global innovations (see Table 1). This typology integrates the dimension of bottom-up and top-down innovations with the dimension of radical and incremental innovations. The dimension concerning bottom-up and top-down innovations focuses on the domain of market, while the dimension concerning radical and incremental innovations focuses on the domain of technology; together, these two dimensions delineate four ideal-types of global innovation. The standards of quality and price in the mainstream market at TOP are used as the benchmarks to compare the qualities and prices of global innovations across TOP and BOP. Finally, besides the above “spatial” content of DI, this typology implies a *dynamic process* of DI in terms of a general trajectory involving all four cells as recursive in pattern. In sum, this typology sheds light on the natures, rationales and criteria of global innovations according to the market dimensions of top-down and bottom-up innovations as well as the technology dimension of radical and incremental innovations.

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Insert Table 1 about here

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**Toward A Dynamic Model of Entrepreneurial Leapfrogging**

**DI at BOP as Salient to EMNE for ISE**

As suggested in Table 1, the potentially path-breaking contribution of DI at BOP is that it can serve as the underlying mechanism for EMNE to effectively engage in entrepreneurial leapfrogging in a bottom-up trajectory. In other words, DI by EMNE can serve as a strategic means to catch up with and leapfrog DMNE. It is helpful to differentiate the two types of players to engage in DI at BOP, i.e., DMNE and EMNE. Given the potentially stronger motive and capability on the part of EMNE to engage in ISE at BOP as compared with DMNE, we expect that EMNE is more effective in engaging in DI at BOP than DMNE (Amsden, 2009; Madhok and Keyhani, 2012). Further, it is highly helpful to differentiate the two forms of DI at BOP, i.e., the enhanced-feature DI and the new-feature DI. We take the enhanced-feature DI as the *weak form* of DI given its much smaller disruptive impact because it relies more on low-cost process innovations than on high-value product/service innovations. In contrast, we take the new-market DI as the *strong form* given its larger disruptive impact because it relies more on high-value product/service innovations than low-cost process innovations. However, both forms of DI are necessary for EMNE to catch up and leapfrog, so they represent two basic forms of ISE, i.e., strong and weak. Further, the size or degree of potential disruptive impact as the criterion to classify the strong and weak forms of DI as well as the strong and weak form of ISE can be measured by the *degree of novelty in value proposition*. In this sense, we can take the issues of agency, exploration, dynamic capability, innovation, and value proposition, both strong and weak forms, in the context globalization as the core building blocks of ISE.

DI by EMNE can provide the most compelling rationales and criteria to explain why and how DI at BOP and DI at TOP function distinctively. The rationales and criteria derive from the distinctions between not only in the income levels of their respective targeted customers, but also in the unique content of their respective business models. The distinctions are directly related to business-model innovation rather than technological innovation. This is primarily because of the contextual distance and competitive asymmetry between EMNE and DMEN. Specifically, DI by EMNE must be *adaptive to the indigenous contexts* at BOP, including the unique economic and cultural contexts. It is the need to adapt to the indigenous context at BOP that drives the indigenous demand for DI by EMNE so as to create an indigenous value proposition. Hence, instead of regarding DI by EMNE as “imitative”, we can treat it as “indigenous”, which refers to the adaptation of product/service and process to the unique local context. Hence, the root rationale and criterion for DI by EMNE to be uniquely compelling for explaining why and how DI functions lie in the indigenous context of DI by EMNE (Li, 2010). For instance, the potentially disruptive impact of DI by EMNE tends to be much larger than DI by DMNE because the local context at BOP is more fertile for DI and more salient for EMNE, including such contextual factors at home as the large and fast-growing market at BOP, unique market demand, and strong state support (Mu and Lee, 2005; *The Economist*, 2010; Wu et al., 2010; Xie and Wu, 2003; Yu, 2007). This is similar to the past experiences of the former latecomers from the newly industrialized economies, especially those firms from South Korea and Taiwan (Cho, Kim and Rhee, 1998; Kim, 1997; Lee and Lim, 2001; Li, 1994, 2003; Sohn, Chang and Song, 2009). Imitation or copycat has been a viable strategic option historically for all latecoming countries and firms (see Shenkar, 2010).

**DI as the Core Mechanism for Entrepreneurial Leapfrogging**

The specific characters of DI by EMNE can be captured on the five basic dimensions of “spatial” content of MNE evolution, including ultimate intent, external context, internal profile, strategic choice, and market effect (Li, 2003). First, DI by EMNE will depend on the ambitious strategic intent as the long-term goal of EMNE. Without such an ambition, DI will not even occur due to the lack of motive. EMNE is good at DI at BOP because it is more eager and also under the greater pressure to innovate in a disruptive pattern. Second, DI by EMNE will depend on the internal profile of EMNE, including the lack of resources, which tends to put the greater pressure on EMNE to engage in DI. In this sense, the greater lack of resources can result in the higher likelihood of DI by EMNE. For instance, the serious lack of natural resources in both Japan and South Korea forced them to rely mostly on human resources by promoting education and teamwork (Cho et al., 1998; Sohn et al., 2009). However, the lack of core resources will hurt the capability of EMNE to engage in high-quality DI. In other words, too much or too little resource is negative for DI by EMNE, so a moderate level is the best. Third, DI by EMNE will also depend on the unique local context of EMNE, including the large size, fast growth, and diverse demand in the local market as well as cheap labor supply, and state policy incentive, as in the case of China (Li, 2007; Xie and Wu, 2003). Hence, the large size, fast growth, and diverse demands of the local market can provide a unique chance for DI through trial and error. Cheap labor supply, including the low-skilled and high-skilled labor, provides the strongest base for low cost. State policy incentives provide a new motive for DI. Further, DI by EMNE will depend on the global context, including global supply chain, modularization, and open innovation, all of which make it easier and faster for EMNE to benefit from diverse global networks. To a large extent, the external context can influence both motive and capability of EMNE to engage in DI at BOP. In sum, the above three contextual factors provide the initiating conditions for DI by EMNE at BOP. Hence, we develop three propositions concerning both motive and capability of EMNE to effectively engage in DI at BOP:

*Proposition 1: The more ambitious ultimate intent of EMNE as the special motive to effectively engage in entrepreneurial leapfrogging will be associated with the higher frequency and higher quality of DI by EMNE at BOP, especially in the form of business model innovation.*

*Proposition 2: The more conducive internal profile (e.g., latecomer status, aggressive culture, and a moderate level of resource) of EMNE as the special capability to effectively engage in entrepreneurial leapfrogging will be associated with the higher frequency and higher quality of DI by EMNE at BOP, especially in the form of business model innovation.*

*Proposition 3: The more conducive external context (e.g., large, fast growing and diverse home market; lack of advanced technology and capital; cheap labor at home; strong state support at home; mature industry status, and global outsourcing network) for EMNE (related to both the motive and capability) to effectively engage in entrepreneurial leapfrogging will be associated with the higher frequency and higher quality of DI by EMNE at BOP, especially in the form of business model innovation.*

In addition to the above “spatial” factors, there are also temporal factors for DI by EMNE. In particular, the temporal factors reflect the accelerated trajectory of entrepreneurial leapfrogging. For instance, DI by EMNE often involves a sequential process from the reverse engineering to technology licensing (often as a key part of OEM contract manufacturing) and also from internal R&D to R&D alliance (Li, 2010). This learning trajectory requires a unique R&D model emphasizing both imitative innovation and alliance innovation. Hence, it is reasonable for EMNE to engage in business model innovation with three core features: (1) it will target BOP before MOP and TOP; (2) it will customize products/services according to the unique indigenous context at BOP with the higher value-price ratios, and (3) it will focus on the low-cost process system by taking full advantage of cheap labor (“*people power*”), especially in the functional areas of R&D and marketing as well as by innovatively combining extant technologies. In particular, DI at BOP can take the full advantage of “convenience” in design as new-feature innovation with the values of compactness and portability (e.g., GE portable ultrasound scanner and Acer’s netbook computer). The notion of *convenience* is critical to DI at BOP in the sense it is the third core product feature in addition to the features of functionality, reliability, and cost in the product evolution model called the “*Buying Hierarchy*” (Christensen, 1997: 217). This model posits that customers tend to make their buying decisions by following a normal trajectory from functionality to reliability, and then to convenience and finally to cost. However, we posit that, given its bottom-up nature, DI in general and DI by EMNE in particular will most likely start from the initial feature of cost (enhanced-feature) to that of convenience (new-feature DI) before moving up to the core features of functionality and reliability, in contrast to the normal trajectory at TOP to start from functionality and reliability to convenience and cost. Based upon the above discussion, we develop two new propositions concerning the stages and mechanisms of DI by EMNE:

*Proposition 4: EMNE tends to follow a bottom-up trajectory from DI at BOP to DI at MOP, and finally to RI and II at TOP.*

*Proposition 5: DI by EMNE tends to follow a bottom-up trajectory from the enhanced feature of low cost to the new feature of high-convenience, and then to the enhanced-feature of reliability and the new-feature of functionality.*

**A Dynamic Model of Entrepreneurial Leapfrogging**

The above views concerning the interrelationships between EMNE, DI, and entrepreneurship provides a great opportunity to integrate such views into a novel model of entrepreneurial leapfrogging. Specifically, we can enrich the learning-based view of internationalization (Li, 2010) by incorporating the notion of DI by EMNE as a special form of international strategic entrepreneurship, i.e., a bottom-up leapfrogging. In this dynamic model of entrepreneurial leapfrogging, DI by EMNE will serve as the underlying mechanism to connect the initiating condition (i.e., contextual distance and competitive asymmetry) with others such as the derived condition (i.e., learning motive and learning capability), learning trajectory (i.e., exploration and exploitation in various balances), and learning outcome (i.e., performance in entrepreneurial leapfrogging). See Figure 1 for details.

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Insert Figure 1 about here

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As argued earlier, the major distinctions between DMNE and EMNE derive primarily from the country-level contextual distances in the economic, institutional, and social-cultural conditions between the emerging and developed economies (Cuervo-Cazurra, 2012; Ghemawat, 2001). Such distances give rise to the firm-level competitive asymmetry between DMNE and EMNE as two distinctive groups of MNE in the global competition (Li, 2007; Madhok and Keyhani, 2012). Primarily due to the contextual distances (as two distinctive external contexts) and competitive asymmetries (as two distinctive internal profiles), DMNE and EMNE tend to have distinctive motives and capabilities to engage in cross-border learning in terms of exploration-exploitation balance in their international activities. In general, EMNE tends to be more motivated by the need to explore new strategic assets, but less enabled due to the lack of capability to explore new strategic resources. However, the lack of capability can be remedied by the mode of strategic alliance for bilateral learning. In contrast, DMNE tends to be less motivated by the need to explore new strategic assets, but more enabled by the presence of strong capability to explore new strategic resources. Due to the strong capability, DMNE tends to prefer unilateral learning.

Based upon the transaction value perspective in contrast to the transaction cost economics (Li, 1998), the learning-based view of internationalization posits that the motive dimension of exploratory-exploitative learning as well as the capability dimension of unilateral-bilateral learning jointly delineate a typology of four specific learning trajectories: (1) unilateral exploration; (2) unilateral exploitation; (3) bilateral exploration, and (4) bilateral exploitation (Li, 2010). To enrich the learning-based view, DI by EMNE can serve as the underlying mechanism to initiate and implement the four specific learning trajectories. In particular, DI by EMNE motivates and enables entrepreneurial leapfrogging via the four learning trajectories in two specific patterns. The first pattern is characterized by the strong form of DI with exploration as the dominant force in the exploration-exploitation balance, while the second pattern is characterized by the weak form of DI with exploitation as the dominant force in the exploration-exploitation balance. As argued in the typology of global innovations, the strong form of DI is related to the bottom-up radical innovation, while the weak form of DI is related to the bottom-up incremental innovation. Further, related to the different motives and capabilities of learning, the two different forms of DI differ with two distinctive motives and capabilities. The strong form of DI is associated with the strong motive and alliance-based capability to engage in aggressive entrepreneurial leapfrogging, while the weak form of DI is associated with the weak motive and weak capability to engage in conservative entrepreneurial leapfrogging. Hence, DI by EMNE can serve as the underlying mechanism to mediate between the conditions, including the initial condition (contextual distance) and the derived condition (motive and capability) and the behaviors, including the learning trajectory (exploration-exploitation balance) and the learning outcome (entrepreneurial leapfrogging). Based upon the above discussion, we can develop four more propositions concerning the dynamic model of entrepreneurial leapfrogging via DI by EMNE from BOP to MOP and finally to TOP:

*Proposition 6: The larger contextual distance and competitive asymmetry between EMNE and DMNE tend to result in the stronger motive and stronger alliance-based capability of EMNE.*

*Proposition 7: The stronger motive and stronger alliance-based capability of EMNE tend to result in the stronger form of DI by EMNE.*

*Proposition 8: The stronger form of DI by EMNE tends to result in the greater dominance of exploration in the exploration-exploitation balance in EMNE.*

*Proposition 9: The greater dominance of exploration by EMNE tends to result in the greater success in entrepreneurial leapfrogging by EMNE.*

**DISCUSSION AND CONCLUSION**

**Theoretical Contributions and Implications for ISE**

DI at BOP bears unique salient implications for both EMNE and DMNE. The future landscape of global competition can be dramatically reshaped by DI at BOP. It is increasingly clear that DI at BOP has the greatest potential to make the world “flatter” (Friedman, 2007) and also more sustainable (London and Hart, 2011; Samli, 2008). This exploratory study has made three key contributions in two domains. First, this article makes a contribution to the literatures on EMNE and DI by cross-fertilizing and integrating the two research streams so as to enrich the learning-based view of internationalization with the identification of DI at BOP as a primary mechanism for EMNE to engage in entrepreneurial leapfrogging. Second, this article makes a key contribution to the literatures on international business, strategy, and entrepreneurship by cross-fertilizing and integrating the three disciplines so as to develop a new interdisciplinary domain of ISE with the identification of the strong and weak forms of its core components, such as entrepreneurship, agency, exploration, dynamic capability, innovation and value proposition in the unique contexts of bottom-up FDI and top-down FDI. Third, the above two primary contributions also make a third derived contribution concerning the broad implications of the Eastern perspective to the overall research on management dominated by the Western perspective.

The first contribution of this article in terms of cross-fertilizing and integrating DI at BOP and EMNE for DI by EMNE bears two critical implications for future research. First, DI by EMNE has the potential to settle the debates over the nature and process of DI as well as the feature and salience of BOP by clarifying their conceptual ambiguities and confusions. This can be done because DI is more likely to occur at BOP than at TOP primarily due to the indigenous requirements for special value propositions to be embodied by sub-standard and future standard as the two defining qualities of DI. For instance, because of the significance of China being the largest, fastest-growing, and most diverse emerging economy, the DI in the indigenous context of China is salient to both local entrepreneurs and global incumbents in China. Second, related to the first point, DI by EMNE has the potential to enrich the research on EMNE with the insights into the contextual distances and competitive asymmetries between EMNE and DMNE as well as their distinctive strategic options, including the holistic contents of ultimate intent, external context, internal profile, strategic choice, and market effect in a dynamic process of accelerated learning for entrepreneurial leapfrogging (Li, 2010). Further, the research on DI by EMNE can shed light on the historical pattern in which the Japanese firms (e.g., Toyota and Sony) caught up with the Western incumbents as well as those firms from newly industrializing economies in East Asia (e.g., South Korea and Taiwan) have caught up with the Japanese firms. This has been the central theme of catch-up and leapfrogging in East Asia, which can be developed into a dynamic model of entrepreneurial leapfrogging for EMNE if history is a good guide (Freeman and Soete, 1997; Hart and Christensen, 2002). Hence, the dynamic model of entrepreneurial leapfrogging is an extension of the learning-based view of internationalization (Li, 2010) by identifying DI at BOP as the underlying mechanism for EMNE to engage in entrepreneurial leapfrogging as the core content of accelerated learning as the unique trajectory in the evolutionary process.

Further related to the first contribution of this article is the potential leverage between the home and host contexts by both EMNE and DMEN, especially their strategic alliance as the best strategic option. For instance, EMNE can benefit from the direct competition and R&D spillover of DMNE at the home market of EMNE, which provides the great opportunity for EMNE to learn at home initially, and later venture abroad via the initially acquired absorptive capacity to learn more in an accelerated trajectory (Li, 2003, 2007, 2010). Such a trajectory of accelerated learning can be further framed as a duality of path-skipping exploitation of acquired capabilities and path-creating exploration of novel capabilities, which is related to the duality of centrifugal (global and slippery) and centripetal (local and sticky) forces (Dunning, 2002; also see Song and Shin, 2008). From this perspective, the core pattern of global R&D activities has two parallel trends: (1) the top-down process from the established economies, DMNE, and headquarters to the emerging economies, EMNE, and subsidiaries, and (2) the bottom-up process in the reverse direction with DI at BOP (Govindarajan and Ramamurti, 2011; Govindarajan and Trimble, 2012; Hegal and Brown, 2005; Immelt et al., 2009; Li, 2013). In the bottom-up process, DI at BOP is the core mechanism for EMNE to catch up and leapfrog DMNE.

The first contribution of this article provides the foundation for the second contribution to the development of a novel interdisciplinary domain of ISE at the nexus of international business, strategy, and entrepreneurship (cf. Hitt et al., 2011; Keupp and Gassmann, 2009). The second contribution bears two salient implications for the future research on ISE. First, the research on ISE should focus more on EMNE as a special form of international entrepreneurship in contrast to the traditional narrow focus on the “born-global” new ventures. EMNE is a special type of player that has been largely neglected in the research on international entrepreneurship and strategic entrepreneurship (see Hitt et al., 2011; Keupp and Gassmann, 2009, for reviews). Given the rapid emergence of EMNE in the global competition, it is necessary to understand EMNE as a new critical phenomenon for ISE (Li, 2007; Luo and Tung, 2007). Further, given the uniqueness of EMNE as a special form of entrepreneurship, it is highly imperative to study them as a core issue for ISE (Li, 2010; Madhok and Keyhani, 2012). This echoes the recent calls to broaden the focus of international entrepreneurship research from only new ventures to both new and mature firms. EMEN falls squarely in the middle of this broadened focus due to EMNE’s unique status as both a latecomer and mature firm (in contrast to both an incumbent and newcomer), thus uniquely positioned as the most worthy target of research. Also, DI by EMNE, as related to the bottom-up FDI, is uniquely positioned as one of the most worthy research topics given its status as a unique novel form of global innovation.

Second, the research on ISE should pay attention to the salient distinctions between the strong and weak forms of entrepreneurship and the other related concepts (e.g., agency, exploration, dynamic capability, innovation, and value proposition) in the context of globalization as the core components of ISE. In particular, DI by both EMNE and DMNE provides the litmus test for the strong and weak forms of entrepreneurship by highlighting the salience of novel business model with novel value proposition for both bottom-up (by EMNE) and the top-down (by DMNE) processes given the salient contextual distances and competitive asymmetries between EMNE and DMNE. Further, DI by both EMNE and DMNE can shed light on the debate over if entrepreneurship is about the discovery or the creation of market opportunities (cf. Alvarez and Barney, 2010; Miller, 2007; Shane and Venkataraman, 2000). It also raises the question if all cross-border ventures will automatically quality as entrepreneurial (cf. Oviatt and McDougall, 2005). We argue that only those cross-border ventures that require a business model innovation will qualify as entrepreneurial. In other words, the exploration of innovative business model is the litmus test for entrepreneurship. Hence, DI by both EMNE (via the bottom-up FDI) and DMNE (via the top-down FDI) can expand the recent definition that “international entrepreneurship is the discovery, enactment, evaluation, and exploitation of opportunities across national borders” (Oviatt and McDougall, 2005: 540) by explicitly adding the notion of opportunity creation to the typical notion of entrepreneurship as opportunity discovery and recognition (e.g., Shane and Venkataraman, 2000). It is worth noting that DI by both EMNE and DMNE highlights the central theme of entrepreneurship as a duality of exploration-exploitation balance, which is shared by the research streams on international entrepreneurship and strategic entrepreneurship (see Hitt et al., 2011; Oviatt and McDougall, 2005). Consistent with the learning-based view of internationalization (Li, 2010) built upon the framework of exploration-exploitation balance (March, 1991), the above theoretical expansions seem to suggest the readiness for an integration of multiple disciplines toward a novel interdisciplinary domain of ISE to be built upon the framework of exploration-exploitation balance. For instance, the second-home strategy by both EMNE (with the bottom-up FDI) and DMNE (with the top-down FDI) can serve as the primary form of ISE.

Third, the duality of exploration-exploitation balance suggests the salient necessity of framing opposite views as a duality of opposites-in-unity (Li, 1998, 2010). In that sense, DI by EMNE is not only a worthy topic for its own sake but also an effective facilitator for the required paradigm shift from a fragmented, static and dualism paradigm to a holistic, dynamic and duality paradigm (Li, 2008, 2012a, 2012b). In this respect, the frame of duality is extremely valuable with the potential to shed light on how to open the black boxes of entrepreneurship-related constructs, including the strong and weak forms of contextual status (e.g., realism for discovery and constructivism for creation; complexity and simplicity; uncertainty and risk; open-ended or close-ended; ambiguity and clarity; tacit and explicit; dynamic and static; radical and incremental; agency and institution; global and local; host and home; emerging and established economies, among others) as well as the strong and weak forms of cognitive capability (e.g., motive and capability; creation and discovery; exploration and exploitation; sensing and seizing; inertia and alert; rigid and agile; the higher-order dynamic capability and the lower-order substantive capability; emotional and rational; heuristic and algorithm; serendipity and experiment; System 1 and System 2 processing; open-minded and close-minded; metaphor and construct; playful and focus, improvising and planned; intuitive imagination and intuitive routine; holistic and analytic, among others), all of which are dualities as the opposites-in-unity rather than dualisms as the mutually exclusive opposites (cf. Alvarez and Barney, 2010; March, 1982; Miller, 2007; Mitchell et al., 2007; Morin, 2008; Zahra, Sapienza and Davidson, 2006). This reflects the salient distinction between the Eastern frame of cognition in favor of duality and the Western frame of cognition in favor of dualism (Cheah, 1990; Li, 2008, 2012b), thus reflecting the need for the West to meet the East (Chen and Miller, 2010; Li, 1998, 2008, 2012a, 2012b).

**Practical Implications**

For practical implications, the issue of DI by EMNE is perfect for scholars to reconnect with practitioners. Specifically, DI by EMNE is relevant for both local entrepreneurs (EMNE) and DMNE. While DI at BOP is a great opportunity for local entrepreneurs (EMNE) to catch up and leapfrog global incumbents (DMEN), it is a major threat to global incumbents. However, these two groups can also complement each other as alliance partners to share the key benefits of DI at BOP. In other words, the two groups reflect a duality of competition and cooperation.

First, local entrepreneurs at BOP can take advantage of DI at BOP as a major challenge to global incumbents at BOP initially and then at TOP later. These local entrepreneurs can use both enhanced-feature and new-feature DI for the mainstream market in the emerging economies as BOP, which will be the most effective if the market is ignored by global incumbents. Local entrepreneurs often grow first at home, but they can adopt a bottom-up trajectory of accelerated learning to catch up and leapfrog global incumbents from BOP to TOP. It seems that local firms tend to have an upper hand in alleviating the poverty at BOP as compared to global incumbents largely due to the *inherent advantage* of having the best value-price ratios for products/services as required for survival at BOP. However, local latecomers also have their own disadvantages, especially the lack of resources other than low-skilled labor and potential market. The existence of both the advantages and disadvantages of local latecomers suggests the need for framing any complex issue as a duality for the holistic and dynamic balances between the opposite forces (Li, 2008, 2012a).

Second, some global incumbents (e.g., GE) realize not only the threats from, but also the opportunities in, DI at BOP, so they can protect themselves from, and take advantage of, such DI. DI at BOP can be taken globally, thus reversing the typical trend from TOP to BOP, thus known as the reverse or blowback innovation (Immelt et al., 2009). However, special challenges do exist for global incumbents. Global incumbents face major challenges because their past experience at home has not prepared them to meet the aggressive value-price ratios typically required at BOP. Further, global incumbents are not sensitive to the unique demands at BOP given the resource constraints there in contrast to the situation at TOP. In other words, global incumbents have the *inherent disadvantage* in DI at BOP. However, global incumbents also have some advantages, including technological, brand, and financial resources. Again, the existence of the advantages and disadvantages of global incumbents reveals the need for taking complex issues as dualities.

Third, given the distinctive advantages and disadvantage of local latecomers as well as global incumbents, there are many opportunities for the two groups to become strategic partners in their joint pursuit of DI at BOP (Li, 2013). It is a special duality for local latecomers and global incumbents to emphasize competition and cooperation as equally imperative, rather than either/or dualism. However, such a duality should never be taken as a symmetrical balance between two opposites. A true duality balance is asymmetrical with one opposite as the dominant to be balanced by the other opposite as the subordinate in a curvilinear pattern (as an inverted U-shaped curve) (Li, 2012b). In other words, the subordinate opposite can balance the dominant opposite as complementary for synergy up to a point as the threshold beyond which the positive complement turns into a negative conflict (e.g., Song and Shin, 2008). Specifically, the local latecomers (EMNE) tend to engage in the stronger form of ISE with the bottom-up FDI (i.e., the stronger forms of entrepreneurship, exploration, dynamic capability, and agency with a greater emphasis on creating new opportunities), while the global incumbents (DMNE) tend to engage in the weaker form of ISE with the top-down FDI (a greater emphasis on discovering existent opportunities). Nevertheless, both groups qualify as entrepreneurial as they pass the litmus test of having a novel business model with either a bottom-up or top-down novel value proposition.

**Conclusion**

It is the most exciting time to study DI at BOP, especially by EMNE, because the issue has the greatest potential to make salient contributions to the literatures on DI, BOP and EMNE toward a novel interdisciplinary domain of ISE at the nexus of international business, strategy and entrepreneurship. Around the theme of DI by EMNE at BOP, we have developed a typology of global innovations and a dynamic model of entrepreneurial leapfrogging with the potential to develop a novel interdisciplinary domain of ISE with the cross-fertilization and integration of three disciplines interrelated via the issue of DI by EMNE. In particular, as a special form of entrepreneurship, DI by EMNE is the underlying mechanism for entrepreneurial leapfrogging in a bottom-up trajectory of accelerated learning. Almost as a mirror image, the top-down FDI and DI by DMNE at BOP are also entrepreneurial in nature. Both the bottom-up FDI by EMNE and the top-down FDI by DMNE are consistent with the emerging trend of building the second-home market abroad due to the large contextual distances between the emerging and developed economies. The above notions can serve as the building blocks of ISE. With its great potential to cross-fertilize and integrate various research streams for ISE, DI by EMEN deserves more attention. Future research should take advantage of the great opportunity for such a cross-fertilization and integration between the three disciplines tied to ISE. Further, DI by EMNE also has the potential to enrich and integrate dynamic capability and business model into the domain of ISE.

It is worth repeating that the duality of learning in the framework of exploration-exploitation balance can serve as the anchor for the interdisciplinary integration toward a shared body of knowledge concerning ISE. In particular, the duality of exploration-exploitation balance can shed special light on the Eastern and the Western frames of cognition as a special duality. For instance, the strong form of exploration as the creation of non-existent opportunities seems consistent with the orthodox Eastern philosophy of wisdom, while the weak form of exploration as the discovery of existent opportunities seems consistent with the orthodox Western philosophy of knowledge (see Li, 2012b for a review; cf. Cheah, 1990; Miller, 2007). In the spirit of “West-meets-East” (Chen and Miller, 2010, 2011), both the Eastern and the Western philosophies are required for cross-fertilizing not only economically (e.g., the top-down FDI by DMEN and the bottom-up FDI by EMNE) but also culturally (e.g., the Eastern philosophy of wisdom and the Western philosophy of knowledge) as a duality toward a geocentric balance (Li, 2012a, 2012b). The challenge is not about how to distinguish and separate the opposite elements as a dualism so as to prioritize them as superior or inferior; rather, the real challenge is about how to integrate the opposite elements as a duality with them as partially conflicting for tradeoff and partially complementary for synergy.

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**TABLE 1**

**An Integrative Typology of Global Innovations**

|  |  |  |
| --- | --- | --- |
| ***The Mainstream Market***  ***At TOP as the Reference***  *(high, mid and low ends)* | **Radical Innovation**  (Initially larger gaps in quality with new features for  major market expansions) | **Incremental Innovation**  (Initially smaller gaps in quality  with enhanced features for  minor market expansions) |
| **Traditional Direction:**  **Top-down Innovation**  (Initially higher price:  For the global mainstream market at TOP) | ***Top-down Radical***  **Radical-Sustaining at TOP**  (e.g., mobile phone; HDTV)  **Radical-Destructive at TOP**  (e.g., iPod; digital camera; Toyota JIT; Dell model) | ***Top-down Incremental***  **Enhanced-Feature (value) at TOP**  (e.g., high-end CPU; high-end car) |
| **Emerging Direction:**  **Bottom-up Innovation**  (Initially lower price:  For the global non-mainstream market at BOP and MOP, especially BOP) | ***Bottom-up Radical* (strong DI)**  **New-Feature at MOP**  (e.g., PC; e-Bay)  **New-Feature at BOP**  (e.g., GE portable ultrasound; Acer netbook computer as  strong *DI by EMNEs*) | ***Bottom-up Incremental* (weak DI)**  **Enhanced-Feature (cost) at MOP**  (e.g., Hyundai car; Wal-Mart)  **Enhanced-Feature (cost) at BOP**  (e.g., BYD production process and adaptive “shanzhai” in China as weak *DI by EMNEs*) |

**Notes:**

1. An innovation is an application of technology to a new product/service and process for a novel value proposition. Value proposition is the core of *business model*, which entails product/service or process innovations.

2. This typology contains four *ideal-typical* innovations on the dimensions of technology-based “radical-incremental innovation” and market-based “top-down-bottom-up innovation” as two continuums. All are *relative* in nature with the inevitable overlaps.

3. Creative destruction can derive from two dimensions: (1) the market directions of top-down and bottom-up innovations, and (2) the technology styles of radical and incremental innovations.

4. The “top-down radical” type is a *strong* and *immediate* RI with initially higher quantity and quality of new features, while the “bottom-up radical” type is a *weak* and *long-term* RI with initially lower quantity and quality of new features.

5. The nature, rationale, and criterion of DI, as the bottom-up destruction, derive from a bottom-up novel value proposition embodied by sub-standard and future standard as two defining qualities of DI.

6. Since DI is a bottom-up process from sub-standard to new standard, BOP is the better context for DI relative to MOP. DI is more likely to occur at BOP than MOP due to the indigenous need for a bottom-up novel value proposition. *DI by EMNE* refers to the DI engaged by local entrepreneur/EMNE at BOP.

7. The typical trajectory for local entrepreneurs and EMNE is from “bottom-up incremental” to “bottom-up radical”, and finally from “bottom-up” to “top-down”, while the typical trajectory for DMNE as the global incumbents is from “top-down” to “bottom-up” as their reactions to DI by EMNE.

**FIGURE 1**

**A Dynamic Model of Entrepreneurial Leapfrogging**

**Performance in Entrepreneurial**

**Leapfrogging**

**E-E Balance with**

**E2\*\* as Dominant**

**E-E Balance with**

**E1\* as Dominant**

**Strong**

**DI**

**Weak**

**DI**

**Motive for Entrepre-**

**neurial Leapfrogging**

**Capability for Entrepre-**

**neurial Leapfrogging**

**Competitive**

**Asymmetry**

**Contextual**

**Distance**

**Notes:**

\* E1 refers to exploration.

\*\* E2 refers to exploitation