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## Frequency of International Expansion through High Control Expansion Modes and Interlocked Directorships

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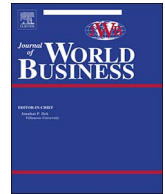
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## Frequency of international expansion through high control market expansion modes and interlocked directorships

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### ABSTRACT

This study investigates director interlock as a mechanism by which an MNC learns and adopts high control market expansion modes that other MNCs use. Using data on greenfields and acquisitions by S&P 500 firms in the period 2003–2010, we find a significant relationship between the use of high control market expansion modes by interlocked MNCs and the frequency of international expansion of a focal MNC through such modes in unrelated industries, with the relationship stronger for the depth of interlocked director experience. The findings contribute to the literatures around the frequency of international expansion and microfoundations of international strategy.

### Managerial relevance

The managerial relevance of this study is two-fold. First, the focus on the notion of frequency of international expansion more directly captures the degree to which the MNC engages simultaneously in multiple cross-border expansion moves, which indirectly explains how and why MNCs accrue important firm-specific capabilities across time, in this case through knowledge about high control market expansion moves made by other MNCs via director interlocks. MNCs would do well in recognizing this in recruitment, whether there is an inclination to adopt particular strategies or to have a balanced set of directors in terms of entry mode experience. Second, our study identifies the situations in which board interlocks matter more—board interlocks are particularly consequential in decision situations that are characterized by relatively higher levels of uncertainty (unrelated vs. related expansion). MNCs can mitigate the uncertainty in some contexts, in particular cross-border unrelated expansion, by accessing the interlocked experience of their directors.

### 1. Introduction

One of the key areas of academic enquiries within the global strategy literature relates to the study of multinational corporations' (MNCs) internationalization strategies. These studies document, among others, MNCs' internationalization patterns (Johanson and Vahlne,

1977, 2009), sequential entry processes (Chang, 1995), and foreign market entry mode decisions (Brouthers & Hennart, 2007). However, while these studies offer important insights, empirical research on MNC internationalization has mostly focused on the level of individual transactions and normally assumes MNCs adopt a natural sequence to international expansion. As such, prior research tends to neglect the reality that MNCs increasingly make multiple international expansion moves concurrently, regardless of distance. Further, while the stream of research that focuses on examining MNCs' degree of internationalization (e.g., Carpenter & Fredrickson, 2001; Reuber & Fischer, 1997; Sullivan, 1994) traces MNCs' portfolios of international expansion at single points in time, these studies do not seek to explain heterogeneity in MNCs' frequency of international expansion. This is problematic because some MNCs may choose to engage in multiple high control (higher equity ownership) foreign market entries in a given year while others choose to enter into only a few or even no high control market entries. Yet, over time the aggregate degree of internationalization of these MNCs can be similar. The impetus is therefore to develop theory describing the factors that entice some MNCs to engage in more intensive, and thus more complex, internationalization strategies than others.

More intensive and complex internationalization strategies most likely require relevant experience in order to succeed in competitive international markets (Brouthers, 2002; Brouthers, Brouthers, & Werner, 2003). While prior work (e.g., Johanson & Vahlne, 1977)

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implicitly suggests that experiential learning is the primary source of knowledge that enables MNCs to engage in more complex internationalization strategies, firms can also exploit the experience of other MNCs when expanding abroad (e.g., Ang, Benischke, & Doh, 2015; n, 2002, 2003; ; Lu, 2002; Yiu & Makino, 2002). In this regard, an important yet overlooked source of knowledge residing in other MNCs relates to the experience that a focal MNC's director gains when serving on the boards of other internationally active MNCs.

The literature on learning suggests that organizational learning normally starts with individuals (Simon, 1991). In line with this, recent work around the accumulation of organizational capabilities and routines raises the issue of their origins, as to how an organization's collective capabilities and routines come about, leading to the micro-foundations perspective in strategic management (Felin & Foss, 2005; Felin & Hesterly, 2007; Madsen, Mosakowski, & Zaheer, 2003). In essence, it is argued that knowledge can be effectively transferred across organizations through individuals (Argote & Ingram, 2000). The experience that interlocked directors acquire on other MNC boards can thus be internalized to become part of the aggregate knowledge stock of the focal MNC (Felin & Hesterly, 2007; Madsen, Mosakowski, & Zaheer, 2003). Such experience may be particularly valuable because interlocked directors will have first-hand experience of these MNCs' high level strategies, including the use of high control market expansion modes.

We draw on the emerging literature on the micro-foundations of international strategy (e.g., Chittoor, Aulakh, & Ray, 2018; Kunisch, Menz, & Cannella, 2018; Maitland and Sammartino, 2015a, 2015b; Nuruzzaman, Gaur, & Sambharya, 2017) to develop theory explaining heterogeneity in firm-level frequency of international expansion that focuses on the role of director interlocks as a source of experience that enables some MNCs to engage in more intensive and complex internationalization strategies than others. Specifically, we argue that a focal MNC with a larger number of directors that have gained experience with high control international expansion modes while serving on other MNCs' boards has a greater knowledge stock of these internationalization modes, and will subsequently engage in a greater frequency of international expansion through these modes. It is, however, likely that the degree to which firms will utilize the knowledge that is contributed by board members to the MNC's overall knowledge stock differs across contexts. Specifically, we argue that MNCs are more likely to activate directors' experience with high control international expansion modes in foreign market entries into unrelated industries.

We further differentiate two types of knowledge structures associated with board interlocks—breadth and depth of interlocked experiences. Breadth of interlocks refers to the *variety* of interlocking inputs through which knowledge is being accumulated, while depth of interlocks refers to the *concentration* of knowledge sources. Interlocked directors can potentially bring both breadth and depth of knowledge relating to internationalization decisions to the focal MNC. Nonetheless, the literature recognizes that the breadth and depth of experience command different outcomes depending on the situational characteristics (Gavetti, Levinthal, & Rivkin, 2005). Thus, the extent to which the breadth and depth of interlocked directors' knowledge will influence the frequency of international expansion of a focal MNC may differ, especially when considering market entries into unrelated vis-à-vis related industries.

We test our theoretical framework by examining the adoption of high control market entry modes, i.e. greenfields and acquisitions by S&P 500 firms in the period 2003–2010. Our study makes several contributions to the literature on MNC strategy. First, our study shows how MNCs' frequency of international expansion can be explained by the existence of director interlocks. In drawing attention to the fact that some MNCs use multiple high control expansion modes in a given year whereas other MNCs choose to utilize fewer such modes, our study also complements the broader literature on MNCs' internationalization strategies by studying the effect of directors' experience on MNC

strategy.

Second, we contribute to the emerging research on the micro-foundations of international strategy (e.g., Maitland and Sammartino, 2015a, 2015b). Research on the micro-foundations of international strategy suggests that it is the aggregation of individuals and their knowledge and experiences that create “the firm” (Barney & Felin, 2013; Felin & Foss, 2005; Felin, Foss, Heimeriks, & Madsen, 2012; Felin & Hesterly, 2007). While this view has gained traction within the international business community (Verbeke & Calma, 2017), extant research has paid limited attention to the experiences interlocked directors can contribute to the focal MNC's aggregate knowledge stock. Interlocked directors may be a particularly intriguing source of knowledge because they are internal to the both the focal MNC and the interlocked MNCs, meaning that their experiences are simultaneously part of the knowledge stock of multiple MNCs (Chen, Kor, Mahoney, & Tan, 2017; Kroll, Walters, & Wright, 2008). In adopting this approach, we also demonstrate the importance of considering how individuals' experiential learning that takes place outside the boundaries of the focal MNC contributes to the aggregate knowledge stock of the focal MNC.

Third, and more broadly, our study also offers an alternative conceptualization of director interlocks. Prior studies adopting a network perspective tend to conceptualize director interlocks simply as a conduit through which the experiences of two independent organizations flow (e.g., Haunschild & Miner, 1997). In contrast, we follow the micro-foundations approach and conceptualize director interlocks as a source of overlapping knowledge structures which may in turn be reflected in the same practices adopted by two independent organizations.

## 2. Theoretical background and hypotheses

Global strategy scholars are primarily interested in understanding the determinants and outcomes of MNCs' internationalization strategies. For instance, the internationalization process model (Johanson and Vahlne, 1977, 2009) explains the international expansion pattern of MNCs based on the interplay between experiential learning and psychic distance. Chang (1995) illustrates how MNCs tend to enter foreign markets in their core businesses to exploit their competitive advantage vis-à-vis domestic competitors before they expand into non-core businesses. A particularly prominent stream of research within the global strategy literature has focused on explaining foreign market entry mode decisions (for a review see Brouthers & Hennart, 2007). These studies have produced rich insights into the factors that affect MNCs' choice of entry modes, such as cultural distance (Kogut & Singh, 1988) and institutional distance (Ang et al., 2015), international experience (Erramilli, 1991), and an MNC's international strategy (Harzing, 2002).

Most of the empirical research on internationalization, however, has focused the analysis at the transaction level, i.e. at the market entry level, leading to limited work around MNCs' frequency of international expansion at the firm-level within a given year. This omission is somewhat surprising because the frequency of international expansion ultimately explains an MNC's level of internationalization and its accumulation of international capabilities. For example, as Anand, Mulotte and Ren (2016) demonstrate, MNCs may choose to accrue international experience by engaging in a relatively high number of high control market entries which they can subsequently exploit in the future. That is, the accumulation of international experience is not exogenous to the MNC, it is a deliberate choice reflected in the firm-level frequency of international expansion. Further, the frequency of international expansion in a given year will also determine the level of internationalization in subsequent years. Thus, the level of internationalization is also not exogenous to the MNC (Carpenter & Fredrickson, 2001; Reuber & Fischer, 1997; Sullivan, 1994) and the frequency of international expansion may be an important determinant

thereof. It is thus important to add to our understanding of the factors that may drive an MNC's firm-level internationalization strategy (using high control market expansion modes) as reflected in its frequency of international expansion. Here, we draw on the emerging literature on micro-foundations of international strategy to frame a series of hypotheses regarding the effect of director interlocks on MNCs' frequency of internationalization.

### 2.1. Micro-foundations perspective on MNC strategy

While an organization is often treated as a collective of knowledge to which individuals within the organization contribute (Kogut & Zander, 1992; Peltokorpi & Vaara, 2014), some knowledge-based research has suggested that knowledge creation and application is best studied at the individual level (Grant, 1996; Simon, 1991). Organizational learning can then come from learning of its members or through absorbing new members who have knowledge that the organization does not yet possess (Chen, Kor et al., 2017; Chen, Cui et al., 2017; Peltokorpi & Vaara, 2014; Simon, 1991). Learning of its members can be enhanced if the organization is better interconnected (Argote & Ingram, 2000), for example through franchises (Darr, Argote, & Eppel, 1995), chains (Baum & Ingram, 1998) and alliances (Powell, Koput, & Smith-Doerr, 1996). Research has also shown that recruiting relevant personnel can enable learning (Kraatz & Moore, 1992; Peltokorpi & Vaara, 2014).

Consistent with organizational knowledge literature, research around capabilities and routines generally assumes that these are generated at the organizational level (Nelson & Winter, 1982). More recent work has raised questions around how organizational capabilities and routines come about, i.e. where do they originate from (Felin & Foss, 2005; Felin & Hesterly, 2007; Madsen, Mosakowski, & Zaheer, 2003). There has been some support for the idea that bringing in capabilities that reside in individuals can alter an organization's overall set of capabilities (e.g., Song, Almeida, & Wu, 2003). These inquiries have led to the broad conclusion that a micro-foundation perspective to understanding organizations is imperative, thereby linking the black-box process between what resides in the individuals within an organization to the aggregate knowledge in the collective organization. In essence, it is argued that knowledge can be effectively transferred across organizations through individuals (Argote & Ingram, 2000). Thus, the emerging literature on the micro-foundations of international strategy emphasizes that MNCs are not "faceless entities" but are made up of individuals, each of whom contributes to the aggregate knowledge stock that in turn constitutes the "firm" (Chen, Kor et al., 2017; Chen, Cui et al., 2017; Sammartino, 2015a, 2015b;).

### 2.2. Director interlocks

Director interlock refers to a situation in which a person simultaneously serves as a director of a focal firm and another firm (Mizruchi, 1996). The literature offers two distinct views on the importance of director interlocks. One stream focuses on director interlocks as a source of strategic resources that enable a firm to manage resource interdependencies with the external environment (Pfeffer & Salancik, 1978). The other stream sees director interlocks as a special case of interfirm network ties that facilitate the flow of information between two independent firms (Shipilov, Greve, & Rowley, 2010; Westphal, Seidel, & Stewart, 2001). From this perspective, directors serving on the board of other firms are able to access relevant information about the technical efficacy and legitimacy of strategies used within particular contexts that would not have been otherwise available (Haunschild, 1993, 1994; Haunschild & Beckman, 1998; Westphal et al., 2001), thereby facilitating the diffusion of practices across firms. Indeed, director interlocks have been found to play an influential role in corporate acquisition decisions (Haunschild, 1993, 1994; Westphal et al., 2001) and market entry decisions (Haveman, 1993).

There is also some evidence documenting the role of directors in the internationalization process. For example, it has been shown that the international experience of directors influences the degree of internationalization (Carpenter, Pollock, & Leary, 2003; Purkayastha, Manolova, & Edelman, 2016), international market entry decisions (Tuschke, Sanders, & Hernandez, 2014), and choice of entry mode (Datta, Musteen, & Herrmann, 2009). However, with the notable exception of a recent study by Tuschke et al. (2014), these studies focus on experiential learning either through international work or study experience as the main sources of international experience, thereby neglecting other forms of international experience that directors can accrue, including serving on other MNCs' boards.

### 2.3. Board interlocks and frequency of internationalization

While prior research tends to conceptualize director interlocks as conduits through which the experiences of two independent organizations flow (e.g., Haunschild, 1993, 1994; Haveman, 1993; Shipilov et al., 2010; Westphal, Seidel, & Stewart, 2001), we conceptualize board interlocks as part of the firm's aggregate stock of knowledge (Chen, Kor et al., 2017; Chen, Cui et al., 2017). Building on the micro-foundations perspective (Felin & Foss, 2005; Felin & Hesterly, 2007; Felin et al., 2012), we argue that director interlocks extend the scope of knowledge which an MNC can tap for learning. Interlocked directors represent a special case whereby an individual resides in multiple organizations—allowing the constant flow of knowledge. Researchers have highlighted the role that directors play in providing oversight and counsel to a firm (Kroll, Walters, & Wright, 2008; Westphal, 1999), suggesting that directors do actively engage in strategic decision making. The addition of the knowledge stock that these interlocked directors bring to their linked MNCs includes all experiences that they gained while sitting on the boards of multiple organizations, including their experiences with high control market entry modes that the linked firms have carried out. Directors with exposure to other industries bring in opportunities to expand customer base (Bailey & Helfat, 2003), thinking outside the box that may bring new ideas (Beckman & Haunschild, 2002), and the ability to adjust business models and capabilities in a changing environment (Carpenter & Westphal, 2001). Therefore, MNCs with a greater number of board members that have gained experience with high control international expansion modes while serving on other MNCs' boards possess a greater *aggregate* stock of such knowledge. In turn, it is likely that greater aggregate knowledge of high control international expansion modes will enable these MNCs to develop the routines and capabilities needed to engage in such modes.

In fact, although previous research has long recognized that internationalization strategies are complex (e.g., Ang et al., 2015; Brouthers, 2002; Brouthers et al., 2003; Guillén, 2002, 2003) and MNCs therefore need to possess relevant knowledge and experience in order to succeed in the international arena (e.g., Guillén, 2003; Padmanabhan & Cho, 1999), possessing relevant knowledge and experience may be particularly important in the context of simultaneously orchestrating multiple foreign market entries. Managing multiple foreign entries at the same time, for example, will require deep knowledge about the optimal number of entries to pursue at the same time, how to time these entries, and where to enter simultaneously. While this knowledge most likely differs from the knowledge required to carry out individual market entries (Laamanen & Keil, 2008), MNCs with a greater number of board members with experience in carrying out high control market entries obtained while serving on other MNCs' boards are nonetheless most likely to have developed a better understanding of how to manage more intensive internationalization strategies.

Specifically, more experienced MNCs are generally more likely to benefit from learning effects. These MNCs are in a better position to draw the appropriate inferences from their accumulated knowledge stock because they can better distinguish between valuable and invaluable knowledge (Zollo & Singh, 2004), allowing them to develop



more refined routines and capabilities that can subsequently be deployed in similar situations (Haleblian & Finkelstein, 1999; Laamanen & Keil, 2008: 665). These MNCs may also have better routines and capabilities to deal with the risks and complexities associated with high control foreign market entries (Herrmann & Datta, 2002), which will be particularly important when managing multiple market entries at the same time. Moreover, the experience contributed by interlocked directors may also be particularly valuable in the context of our study because it facilitates the identification of new opportunities in foreign markets (Clark, Li, & Shepherd, 2017; Manolova, Manev, & Gyoshev, 2010; Nuruzzaman et al., 2017), in particular for what type of situations high control expansion modes should or should not be used. Therefore, given these more refined routines and capabilities resulting from their greater knowledge of high control entry modes associated with board interlocks, these MNCs will most likely be able to engage in more high control foreign market entries at the same time, thereby increasing their overall frequency of internationalization.

In sum, we have argued that board interlocks can increase an MNC's aggregate stock of knowledge about high control foreign market expansion modes. In turn, these firms most likely have developed the routines and capabilities necessary to digest a larger number of high control foreign market entries at the same time (Laamanen & Keil, 2008) as well as being more aware of such opportunities in foreign markets. These arguments therefore suggest that interlocked directorships with MNCs that have high control expansion mode experience have a positive effect on the focal MNC's frequency of international expansion through high control expansion modes.

**Hypothesis 1.** *Interlocked directorships with firms that have high control expansion mode experience has a positive effect on the focal MNC's frequency of international expansion through these modes.*

#### 2.4. Frequency of international expansion, director interlocks, and relatedness

As noted above, MNCs with a greater aggregate stock of knowledge about high control foreign expansion modes as a function of a greater number of directors that have gained such experience while serving on other MNCs' boards in general will have developed certain routines and capabilities that can be deployed in similar situations. While these routines and capabilities are generally expected to enable MNCs to digest a greater number of high control foreign market entries at the same time, we believe that the degree to which the experience contributed through board interlocks is activated differs across contexts. Specifically, we argue that this experience is more likely to be utilized in foreign market entries into unrelated industries.

Foreign market expansion moves in unrelated industries are generally accompanied by a higher level of complexity due to the lack of relevant knowledge and experience in these unrelated business activities (Bowen & Wiersema, 2005). When expanding into unrelated industries, an MNC often has to build the internal and external infrastructure needed to support the new business unit as it cannot rely on established means of production and distribution channels (Pennings, Barkema, & Douma, 1994). In contrast, when expanding into related industries, MNCs can often draw on existing internal and external infrastructure to support the new business unit (Pennings et al., 1994). Moreover, engaging in unrelated business activities increases operational complexity because managers need to simultaneously pursue multiple dominant logics (Prahalad & Bettis, 1986).

Given that foreign market entries into unrelated industries are generally more complex, absorbing foreign market entries into unrelated industries is therefore likely to be more time-consuming than absorbing entries into related industries. The likelihood that the routines and capabilities developed as a result of the interlocked directorships with MNCs that have high control expansion mode experience will be activated is therefore likely to be stronger for foreign market

entries into unrelated than related industries. That is, the benefits of utilizing the experience contributed through board interlocks are more salient in foreign market entries into unrelated industries than related industries. For example, these routines and capabilities reduce the time required for absorbing each high control foreign market entry to a greater extent when expanding into an unrelated than into a related industry. This is because, according to the Clayton Antitrust Act, U.S. directors cannot serve simultaneously on the boards of two firms operating in the same industry (GWCLC, 2017). Therefore, interlocked directors that have gained high control entry mode experience while serving on another MNC's board will have most likely done so in a different industry context and their knowledge is therefore particularly beneficial when developing routines and capabilities to mitigate the complexity of entries into unrelated industries (Beckman & Haunschild, 2002). Therefore, these interlocked directorships have a relatively greater effect on reducing the time needed to absorb foreign market entries into unrelated than into related industries. These arguments suggest that the degree to which the experience contributed to the focal MNC's aggregate stock of knowledge by interlocked directorships with firms that have high control expansion mode experience is utilized is most likely stronger in foreign market entries into unrelated industries than into related industries.

In sum, we propose that while the more refined routines and capabilities of MNCs with a greater number of interlocked board members with high control entry mode experience are beneficial for both entries into related and unrelated industries, board interlocks will have a stronger marginal effect on the MNC's ability to absorb foreign market entries into unrelated industries than related industries. Therefore, the extent to which these routines and capabilities are utilized is stronger in foreign market entries into unrelated industries than related industries.

**Hypothesis 2.** *The positive relationship between interlocked directorships with firms that have high control expansion mode experience and the focal MNC's frequency of international expansion through high control expansion modes is stronger in foreign market entries into unrelated industries vis-à-vis into related industries.*

#### 2.5. Frequency of international expansion, relatedness, and breadth and depth of interlocks

It is also important to consider that the nature of director interlocked experience is also likely to affect how the MNC's internal aggregate knowledge stock is structured. We suggest that director interlocks can broadly be categorized into the breadth and depth of interlocked experience. Interlocked directors bring both breadth and depth of relevant experience to the focal MNC. For example, MNC A has five directors each having a single exposure to greenfields in other interlocked MNCs, while MNC B only has a single director with exposure to five greenfields through the interlocked MNCs. Clearly, MNC A would have more breadth of experience about greenfields as the knowledge through the five directors can be heterogeneous, given their interlocked MNCs are likely to have different exposure to greenfields due to different interlocked MNC, industry and country contexts. MNC B, on the other hand, would have more depth of experience as repeated exposure to greenfields by a particular interlocked director cumulates in deep knowledge about various aspects of greenfields, albeit residing within an individual. That is, breadth of interlocks refers to the *variety*, and depth of interlocks refers to the *concentration* of interlocked experience that is being accessed and internalized in the focal MNC.

A greater number of directors that have interlocked knowledge of high control expansion modes adds to both common and heterogeneous knowledge stock about such expansion modes in the focal MNC. The common knowledge allows a common understanding of the feasibility of this option for a specific market expansion as well as various associated opportunities that can be explored with this option (Huber, 1991; Miller & Chen, 1996), at lower search costs. This facilitates

consensus-building in the focal MNC, resulting in a greater likelihood that these firms utilize multiple high control expansion modes simultaneously or within a short period of time. At the same time, the heterogeneous knowledge stock derived from the interlocked experience allows more options to be considered when making choices (March, 1991) and potentially more variations to be explored through combinations of the differences in experience (Fleming & Sorenson, 2001).

The depth of interlocked experience, on the other hand, centers on the role of knowledge (Eggers, 2012). In terms of knowledge structure, depth of knowledge suggests more centralized knowledge surrounding high control expansion modes, building up capabilities and absorptive capacity that allows better performance from adopting this strategic option (Kogut & Zander, 1992; Minbaeva, Pederson, Bjoerkman, Fey, & Park, 2014). Exposure in using the same knowledge around high control expansion modes reduces risks and increases reliability in execution (Levinthal & March, 1981). The familiarity also aids the process of assessing options, leading to more efficient ways to engage with such modes (Eisenhardt & Tabrizi, 1995). Deepened knowledge also boosts the MNC's ability to identify valuable knowledge elements and potentially combine these elements in significant ways (Katila & Ahuja, 2002).

Although we expect that both breadth and depth of interlocked experience increase the focal MNC's overall aggregate knowledge about high control expansion modes and therefore positively influence an MNC's frequency of international expansion, we argue that the positive moderating effect of foreign market entries into unrelated industries is stronger for depth of interlocked directorships than breadth of interlocked directorships.

Both breadth and depth of experience have been found to lead to better performance (Chiang & Hung, 2010; Gavetti et al., 2005; Perkins, 2014). Nonetheless, given the different avenues that these provide, the literature recognizes that breadth and depth of experience command different impacts under different conditions. For example, Gavetti et al. (2005) find that there are marginal returns to depth of experience while breadth of experience will sustain performance further. This suggests that experience that contributes to the MNC's aggregate stock of knowledge is more deeply entrenched with depth of interlocked experience. Therefore, given the added complexity in unrelated transactions, we believe that the depth of interlocked experience will be particularly influential as the focal MNC has limited knowledge around unrelated industries.

We recognize that breadth of interlocked experience allows more flexibility to adapt to unfamiliar environments. But having breadth of interlocked experience does not provide a strong impetus to increase the frequency of international expansion in unrelated industries as the diversity of learning from having breadth does not constitute deep knowledge. In fact, breadth can also mean that there is inadequate deep understanding of the complexity of high control expansion modes, leading to the need to have an averaging procedure for organizing routines which may not be optimal (Abell, Felin, & Foss, 2008). Indeed, managing the variety of interlocked experience and trying to link this experience can result in high marginal costs (Leiponen & Helfat, 2010) and combining the experience can be difficult (Fleming & Sorenson, 2001). It also raises doubts about whether the experience is relevant (Rhee, Kim, & Han, 2006). Further, because of the breadth of interlocked experience and the limited attention and time that decision makers have (March & Olsen, 1976), very often each of these experiences will receive less notice and attention. On the other hand, having depth in interlocked experience allows various routines to be created. Deeper knowledge is also known to be easier to transfer within and across organizations (Argote & Ingram, 2000). Hence, while the extent of the frequency of international expansion on interlocked experience is greater in unrelated industries relative to related industries, this difference is likely to be larger for depth of interlocked experience than for breadth of interlocked experience.

**Hypothesis 3.** *The positive moderating effect of foreign market entries into unrelated industries is stronger for depth of interlocked directorships than breadth of interlocked directorships.*

### 3. Data and methodology

#### 3.1. Sample and data

Our sample consists of foreign market entries by S&P 500 firms in the period 2003–2010. The number of new directors added to S&P 500 boards peaked in 2004 with a total of 443 new independent directors. And while the new additions fell each year, they were still at 291 in 2011. Meanwhile, the percentage of independent directors on S&P 500 boards increased from 79% in 2002 to 84% in 2012. Further, the average S&P 500 CEO sat on 0.6 outside boards in 2012, half the 1.2 average of 2002. In fact, 54% of S&P 500 CEOs did not sit on any outside boards, compared with 48% in 2007. Active CEOs, chairs, presidents and COOs only represented 24% of new directors in 2011, down from 47% in 2001. Given this information, a decent level of director interlocks is expected. As there was no prior study on the statistics of director interlocks, we started with a sample of 50 firms to gauge if director interlocks were present before we proceeded to work on the whole S&P 500 group.

Following previous research (e.g., Erramilli & Rao, 1993), we classify greenfield investments and acquisitions as high control foreign market expansion modes. As noted previously, we focus on high control expansion modes given that these moves are the most consequential for the MNC (Brouthers & Hennart, 2007). Detailed information on acquisitions was obtained from the SDC Platinum while information on greenfield activities was collected via the fDi Markets database. The fDi Markets database is provided by the Financial Times and tracks cross-border greenfield investments. Although fDi Markets is a relatively new database (launched in 2003), it has already been widely used by government agencies and academic institutions. For instance, the United Nations Conference on Trade and Development (UNCTAD) relies on data provided by fDi Markets when analyzing global FDI flows (these are reported in the annual World Investment Reports). More recently, there have also been academic studies that use fDi Markets to collect data on greenfield investments (e.g., Chen, Cui, Li, & Rolfe, 2017; Witte, Burger, Ianchovichina, & Pennings, 2017). Director data were mainly obtained from the *Risk Metrics* database. In instances where we could not locate all relevant data in Risk Metrics, we manually cross-checked annual reports and firm websites. Firm-level data was collected from both the *Compustat* and *Mergent Online* databases. After excluding firm-year observations with missing data, our sample involves 1481 firm-year observations involving 358 MNCs and 6930 high control market entries.

In order to determine if there are fixed effects in our sample, we performed the Hausman specification test to see if our data fits better using the fixed-effect models. Our result is shown to be significant ( $\chi^2 = 525.36$ ,  $p < 0.001$ ), suggesting that fixed-effect models are better for our data. As a result of using the fixed-effect models, we excluded those firms that only appear once in the sample and also those cases where there is no variation in firm behaviours having HCEMs, related HCEMs or unrelated HCEMs. In either of these scenarios, the fixed-effects cannot be determined. This reduces our initial sample of 1481 observations from 358 firms to 1018 observations from 181 firms for testing fixed-effect models. There are 406 related and 673 unrelated acquisitions, and 1469 related and 970 unrelated greenfield investments, totaling 3518 high control market entries.

Table 1 presents some statistics relating to the extent of HCEMs, and the total, breadth and depth of interlocked experience by firms with different attributes. The table suggests that older firms, firms with better past performance, and firms with a larger board size tend to have greater HCEMs, related HCEMs and unrelated HCEMs. Total, breadth

**Table 1**  
Attributes of firms, board interlocked experience and high control expansion modes.

Firm and board attributes	# of obs.	Total HCEM		Related HCEM		Unrelated HCEM		Total interlocks		Breadth of interlocks		Depth of interlocks	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
<b>Firm age</b>													
Low	564	5.74	7.64	3.47	6.10	2.27	3.63	25.23	31.22	22.76	28.96	2.70	1.97
High	454	6.12	8.38	3.64	5.16	2.48	5.38	42.28	45.55	39.13	43.23	3.70	2.35
<b>Firm past performance</b>													
Low	503	5.58	8.10	3.37	5.64	2.21	3.93	31.03	36.11	28.46	34.16	3.17	2.18
High	515	6.23	7.85	3.71	5.76	2.52	4.98	34.59	41.94	31.62	39.39	3.13	2.22
<b>Board size</b>													
Low	617	5.03	6.43	3.11	4.88	1.93	3.83	25.32	32.98	23.15	31.02	2.51	1.82
High	401	7.26	9.74	4.22	6.72	3.04	5.29	44.39	44.82	40.69	42.38	4.11	2.38
<b>Board independence</b>													
Low	352	6.67	8.66	4.10	6.60	2.57	4.04	30.76	39.13	28.39	36.95	2.95	2.22
High	666	5.51	7.56	3.25	5.14	2.26	4.72	33.92	39.21	30.95	36.90	3.25	2.18
<b>CEO Duality</b>													
Low	391	6.51	8.48	4.25	7.11	2.26	3.50	27.95	36.55	25.60	34.37	2.84	2.14
High	627	5.54	7.63	3.10	4.56	2.44	5.02	35.87	40.48	32.85	38.19	3.33	2.22
<b>Inside director stock options</b>													
Low	389	6.63	9.43	4.24	6.99	2.39	5.03	32.72	39.90	29.89	37.32	2.90	2.06
High	629	5.47	6.90	3.11	4.68	2.36	4.13	32.90	38.77	30.17	36.70	3.30	2.27
<b>CEO-director</b>													
Low	478	5.23	6.56	3.63	5.48	1.60	2.76	23.45	30.04	21.38	27.96	2.38	1.65
High	540	6.51	9.00	3.47	5.89	3.04	5.51	41.14	44.18	37.75	41.88	3.82	2.40

and depth of interlocked experience also tend to be higher for firms with more board interdependence, CEO duality, insider director stock options, and CEO-directors. These firms, however, tend to conduct fewer total HCEMs, related HCEMs and unrelated HCEMs.

### 3.2. Operationalization of variables

#### 3.2.1. Frequency of international expansion

Consistent with our theoretical framework, our dependent variable captures the frequency of international expansion. We measure our dependent variable as the total number count of cross-border greenfield investments and foreign acquisition activities undertaken by the focal firm in a given year.

#### 3.2.2. Interlocked directorships with firms that have high control ownership mode experience

The majority of studies examining board networks have focused on the role of director interlocks held by board members of the focal firm. For instance, proxies for director interlock ties include the absolute number of board interlocks (O'Sullivan, 2000) or the intensity of interlocks calculated as the average number of external ties per director (Filatotchev & Toms, 2003). In contrast, we focus on director interlocks with firms that have prior foreign market high control expansion mode experience, as this approach is more consistent with the theoretical premise of our study. That is, we focus on those director interlocks that link the focal MNC to another MNC that possesses relevant market entry experience. Data was first collected on all director interlocks relating to a focal MNC each year. We then checked each director interlock for whether the tied-to MNC(s) had previously engaged with high control foreign market expansion modes. The total number of interlocked high control market expansion modes give gives us the *total HCEM (high control expansion mode)*. This approach is similar to measures of experience used in other studies (e.g., Carpenter & Westphal, 2001; Ensley, Pearson, & Amason, 2002; Westphal & Fredrickson, 2001). Some directors do not have interlocked directorships, while others may have interlocked directorships but none of those are related to any high control foreign market expansion modes. We calculated *depth of HCEM interlocks* by the sum of the proportion of interlocks by each director that involves HCEM experience to his/her total directorships. We then weighted this figure by the total number of interlocked HCEM experience for each director to give us the *breadth of HCEM interlocks*.

#### 3.2.3. Relatedness

Consistent with previous research (Barkema & Vermeulen, 1998; Brouthers & Brouthers, 2000), we consider business activities as related if they share the same two-digit SIC codes, and unrelated if otherwise. SIC codes were available in SDC Platinum for acquisition data. However, fDi Markets only provides business sector level details but not SIC codes. Therefore, we manually assigned SIC codes to the closest corresponding business sector match for SIC codes based on the business sector data available in fDi markets.

#### 3.2.4. Control variables

We include various variables that may also explain the MNC's frequency of international expansion through high control foreign market expansion modes. *Firm age* has been viewed as an important source of organizational inertia and may therefore negatively affect new foreign market entry (Guillén, 2002). *Firm age* was measured as the difference between the current year of observation and the firm's year of incorporation. High performing firms may also be more likely to expand more rapidly given their access to a larger pool of resources (Barkema & Vermeulen, 1998; Herrmann & Datta, 2002). *Firm past performance* was measured as the average return on assets for three years prior to the year of observation. We also control for various types of international experience. First, we include a measure that captures *firm prior HCEM experience*. This is measured as the total number of high control foreign market expansion modes (foreign acquisitions and greenfields) undertaken by the firm within a three-year period prior to the focal year. Second, we also control for *firm LCEM experience* (low control expansion mode experience) measured as the number of foreign alliances undertaken by the firm within a three-year period prior to the focal year.

We further control for board-related characteristics given the theoretical focus of our study. *Board size* was measured as the total number of directors on the board. Board size may influence the size and complexity of the companies on which directors serve (Dalton, Daily, Johnson, & Ellstrand, 1999; Pearce & Zahra, 1992). *Board independence* can potentially indicate the degree to which management is able to influence the board and vice versa (Ellstrand, Tihanyi, & Johnson, 2002). This variable is measured using the ratio of outside directors to the total number of board members. We control for *CEO duality* by including a dummy variable coded 1 if the focal MNC CEO concurrently held the position of board chair, and 0 if otherwise. Following previous studies (Deutsch, 2007), we also control for *inside director stock options*

**Table 2**  
Descriptive statistics and correlations (N = 1018).

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Total HCEM															
(2) Related HCEM	0.83														
(3) Unrelated HCEM	0.72	0.21													
(4) Total HCEM interlocks	0.35	0.28	0.27												
(5) Breadth of HCEM interlocks	0.33	0.26	0.26	0.99											
(6) Depth of HCEM interlocks	0.29	0.17	0.30	0.73	0.72										
(7) Firm age	0.03	0.01	0.04	0.22	0.23	0.23									
(8) Firm past performance	0.04	0.04	0.02	0.07	0.08	0.02	0.10								
(9) Firm prior HCEM experience	0.81	0.65	0.61	0.38	0.37	0.32	0.03	0.04							
(10) Firm LCEM experience	0.51	0.40	0.40	0.32	0.30	0.22	0.01	0.01	0.50						
(11) Board size	0.21	0.17	0.16	0.32	0.30	0.45	0.13	-0.10	0.23	0.10					
(12) Board independence	-0.03	-0.04	-0.01	0.13	0.13	0.19	0.08	-0.09	-0.00	-0.04	0.14				
(13) CEO duality	-0.06	-0.10	0.02	0.10	0.10	0.11	0.17	0.03	-0.07	-0.02	0.02	0.22			
(14) Inside director stock options	-0.06	-0.08	-0.01	-0.01	-0.00	0.07	0.06	-0.05	-0.11	-0.08	0.11	-0.09	0.02		
(15) CEO-director	0.24	0.12	0.27	0.30	0.29	0.46	0.29	-0.01	0.24	0.16	0.25	0.17	0.11	0.09	
Mean	5.91	3.54	2.37	32.83	30.06	3.15	59.44	0.07	10.25	1.05	11.07	0.86	0.62	0.43	0.80
S.D.	7.97	5.70	4.94	39.19	36.92	2.20	42.81	0.07	14.75	1.97	2.12	0.07	0.49	0.27	0.97
Min	0	0	0	0	0	0	2	-0.74	0	0	6	0.55	0	0	0
Max	62	49	58	283	275	14.33	226	0.46	118	23	19	1	1	1	6

$|r| > 0.0522$ – $p < 0.10$ ;  $|r| > 0.0615$ – $p < 0.05$ ;  $|r| > 0.0806$ – $p < 0.01$ ;  $|r| > 0.1035$ – $p < 0.001$ .

which was measured as the percentage of an MNC's total annual stock options that is offered to executives who are also directors of the MNC. Lastly, we include the variable *CEO-Director*. It is likely that the expertise and experience of outside directors with active CEO appointments are viewed as a more credible source of information than those outside directors without such an appointment (Tuschke et al., 2014) as CEOs are likely to be the closest to strategy processes. This variable is measured by the number of directors that hold active CEO appointments in other firms.

### 3.3. Analysis

As the dependent variable is the number of count of high control foreign expansion modes adopted by a focal MNC, we used count-based regression models for our analysis. As there is no over-dispersion of the number of zeros in our dependent variable, the Poisson regression model was deemed appropriate for this purpose. Table 2 presents the descriptive statistics and correlations of the variables used in the analysis. Our variance inflation factor (VIF) test shows no multicollinearity issue.

Our sample selection also suggests the possibility that interlocked directors may self-select into certain boards. This may indeed be problematic because an alternative explanation for the hierarchy of director interlock influence may be that these effects are driven by selection rather than imitation. Such an alternative explanation may be particularly feasible in cases in which the focal MNC has greater latitude in selecting directors to their boards, for instance if the firm purposively selects directors with ties to HCEM experienced firms in order to increase its aggregate knowledge stock with this experience.

In order to address this, we followed the approach by Tuschke et al. (2014) and implemented a two-stage treatment regression model. In the first stage, we estimated the hazard (inverse Mills ratio) of having HCEM interlocks. Since treatment regressions requires the endogenous variable to be binary, we created a dummy outcome variable that equals one if the firm had at least one board interlocked around HCEM, and zero if otherwise. In the second stage, we included the inverse Mills ratio in the estimation of the effect on the adoption of HCEM.

Assuming that certain attributes of the MNC's headquarter city would at least partially explain the MNC's ability to attract interlocked directors but are unrelated to the likelihood to engage in high control entry modes, we included two instruments in the first stage (although only one instrument would be needed, Shaver, 1998): (1) the

population of the headquarter city, and (2) whether the headquarter city had a NFL, NBA, or MFL team. The first stage estimation is reported at the bottom of the regression results.

## 4. Results

Table 3 presents the results of the hypotheses testing. Model 1 shows the baseline model while Model 2 presents the result of the testing of Hypothesis 1. In Model 2, *total HCEM interlocks* is found to have a positive but insignificant impact on the MNC's frequency of international expansion through high control foreign expansion modes ( $b = 0.001$ ,  $p = 0.256$ ;  $-2\Delta \text{ Log Likelihood} = 4.8$ ,  $p < 0.10$ ). The marginal effect of *breadth of HCEM interlocks* on frequency of international expansion is 0.001 ( $p > 0.10$ ) with all other variables at their means, confirming this result. Hypothesis 1 is thus not supported.

Models 3–6 in Table 3 show the findings for Hypothesis 2. Models 3 and 5 show the baseline models for the cases of the tests on related and unrelated HCEM respectively. In Model 4, *total HCEM interlocks* is found to have a negative insignificant effect on the frequency of international expansion ( $b = -0.001$ ,  $p = 0.189$ ;  $-2\Delta \text{ Log Likelihood} = 2.0$ ,  $p > 0.10$ ). The marginal effect is  $-0.001$  ( $p > 0.10$ ), with all other variables at their means. In Model 6, *total HCEM interlocks* is found to have a positive significant effect on the frequency of international expansion ( $b = 0.004$ ,  $p = 0.000$ ;  $-2\Delta \text{ Log Likelihood} = 26.0$ ,  $p < 0.001$ ). The marginal effect is 0.004 ( $p < 0.001$ ), with all other variables at their means. To test Hypothesis 2, we need to compare the difference between the coefficients of *total HCEM interlocks* between Model 6 (unrelated industries) and Model 4 (related industries). The difference (unrelated minus related) is found to be positive significant ( $d = 0.0050$ ,  $z = 140.09$ , 99%CI [0.0049, 0.0051],  $p < 0.001$ ). Therefore, Hypothesis 2 that proposes that the positive relationship between interlocked directorships with firms that have high control expansion mode experience and frequency of international expansion is stronger in foreign market entries into unrelated industries is supported.

Models 7–10 in Table 3 present the results for Hypothesis 3. Model 7 and Model 8 show that both *breadth of HCEM interlocks* ( $b = -0.001$ ,  $p = 0.234$ ;  $-2\Delta \text{ Log Likelihood} = 3.6$ ,  $p > 0.10$ ) and *depth of HCEM interlocks* ( $b = -0.017$ ,  $p = 0.259$ ;  $-2\Delta \text{ Log Likelihood} = 1.4$ ,  $p > 0.10$ ) do not affect frequency of international expansion in related industries. Model 9 and Model 10, on the other hand suggest that both *breadth of HCEM interlocks* ( $b = 0.004$ ,  $p = 0.000$ ;  $-2\Delta \text{ Log$



**Table 3**  
Panel fixed-effect Poisson regression on high control expansion modes.

	Hypothesis 1		Hypothesis 2				Hypothesis 3			
	DV: Total HCEM		DV: Related HCEM		DV: Unrelated HCEM		DV: Related HCEM		DV: Unrelated HCEM	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Firm age	0.022 (0.008) <i>0.008</i>	0.021 (0.008) <i>0.011</i>	0.050 (0.011) <i>0.000</i>	0.050 (0.011) <i>0.000</i>	-0.021 (0.013) <i>0.103</i>	-0.031 (0.013) <i>0.020</i>	0.050 (0.011) <i>0.000</i>	0.050 (0.012) <i>0.000</i>	-0.030 (0.013) <i>0.026</i>	-0.025 (0.013) <i>0.060</i>
Firm past performance	1.393 (0.422) <i>0.001</i>	1.364 (0.424) <i>0.001</i>	1.768 (0.539) <i>0.001</i>	1.849 (0.543) <i>0.001</i>	0.855 (0.691) <i>0.216</i>	0.665 (0.690) <i>0.335</i>	1.856 (0.544) <i>0.001</i>	1.787 (0.539) <i>0.001</i>	0.624 (0.693) <i>0.368</i>	0.831 (0.692) <i>0.230</i>
Firm prior HCEM experience	-0.001 (0.001) <i>0.429</i>	-0.001 (0.001) <i>0.388</i>	-0.003 (0.002) <i>0.137</i>	-0.002 (0.002) <i>0.150</i>	0.002 (0.002) <i>0.428</i>	0.001 (0.002) <i>0.746</i>	-0.003 (0.002) <i>0.143</i>	-0.003 (0.002) <i>0.134</i>	0.001 (0.002) <i>0.678</i>	0.002 (0.002) <i>0.385</i>
Firm LCEM experience	0.034 (0.007) <i>0.000</i>	0.032 (0.007) <i>0.000</i>	0.031 (0.009) <i>0.000</i>	0.036 (0.009) <i>0.000</i>	0.041 (0.011) <i>0.000</i>	0.033 (0.011) <i>0.002</i>	0.034 (0.009) <i>0.000</i>	0.031 (0.009) <i>0.000</i>	0.036 (0.011) <i>0.001</i>	0.041 (0.011) <i>0.000</i>
Board size	0.009 (0.013) <i>0.514</i>	0.005 (0.013) <i>0.696</i>	0.029 (0.017) <i>0.090</i>	0.032 (0.017) <i>0.063</i>	-0.024 (0.021) <i>0.255</i>	-0.041 (0.021) <i>0.056</i>	0.032 (0.017) <i>0.065</i>	0.034 (0.018) <i>0.054</i>	-0.040 (0.021) <i>0.062</i>	-0.037 (0.022) <i>0.091</i>
Board independence	0.150 (0.343) <i>0.661</i>	0.168 (0.343) <i>0.625</i>	0.150 (0.439) <i>0.733</i>	0.172 (0.439) <i>0.696</i>	0.029 (0.560) <i>0.959</i>	0.055 (0.561) <i>0.921</i>	0.186 (0.440) <i>0.673</i>	0.180 (0.440) <i>0.682</i>	0.024 (0.561) <i>0.967</i>	0.028 (0.562) <i>0.961</i>
CEO duality	0.055 (0.042) <i>0.192</i>	0.056 (0.042) <i>0.178</i>	0.147 (0.055) <i>0.007</i>	0.147 (0.055) <i>0.008</i>	-0.079 (0.065) <i>0.220</i>	-0.084 (0.065) <i>0.193</i>	0.146 (0.055) <i>0.008</i>	0.147 (0.055) <i>0.007</i>	-0.081 (0.065) <i>0.209</i>	-0.080 (0.065) <i>0.215</i>
Inside director stock options	0.214 (0.066) <i>0.001</i>	0.217 (0.067) <i>0.001</i>	0.197 (0.087) <i>0.023</i>	0.180 (0.088) <i>0.040</i>	0.247 (0.100) <i>0.014</i>	0.307 (0.102) <i>0.003</i>	0.184 (0.088) <i>0.036</i>	0.209 (0.088) <i>0.018</i>	0.287 (0.102) <i>0.005</i>	0.206 (0.101) <i>0.042</i>
CEO-director	-0.026 (0.020) <i>0.186</i>	-0.028 (0.020) <i>0.166</i>	-0.040 (0.025) <i>0.117</i>	-0.036 (0.025) <i>0.160</i>	-0.012 (0.032) <i>0.704</i>	-0.019 (0.032) <i>0.558</i>	-0.036 (0.026) <i>0.158</i>	-0.032 (0.026) <i>0.224</i>	-0.018 (0.033) <i>0.570</i>	-0.022 (0.033) <i>0.497</i>
Inverse Mills ratio		0.800 (0.445) <i>0.073</i>		-0.623 (1.468) <i>0.671</i>		2.343 (1.116) <i>0.036</i>	-0.627 (1.468) <i>0.669</i>	-0.674 (1.472) <i>0.647</i>	2.340 (1.116) <i>0.036</i>	2.263 (1.112) <i>0.042</i>
Total HCEM interlocks		0.001 (0.001) <i>0.256</i>		-0.001 (0.001) <i>0.189</i>		0.004 (0.001) <i>0.000</i>				
Breadth of HCEM interlocks							-0.001 (0.001) <i>0.234</i>		0.004 (0.001) <i>0.000</i>	
Depth of HCEM interlocks								-0.017 (0.015) <i>0.259</i>		0.032 (0.019) <i>0.088</i>
Wald $\chi^2$	50.16***	54.35***	55.69***	57.56***	33.48***	58.04***	57.25***	57.21***	54.20***	40.30***
Log Likelihood	-1845.1	-1842.7	-1463.3	-1462.3	-1169.2	-1156.2	-1461.5	-1462.6	-1158.2	-1165.1
df	9	11	9	11	9	11	11	11	11	11
$\Delta -2$ Log Likelihood		4.8†		2.0		26.0***	3.6	1.4	22.0***	8.2*
Number of observations	1018	1018	1018	1018	1018	1018	1018	1018	1018	1018
Number of firms	181	181	181	181	181	181	181	181	181	181
<b>First stage estimation (DV = probability of having director interlocked high control expansion modes)</b>										
Population of HQ city		-0.339 (0.341) <i>0.320</i>		0.188 (0.249) <i>0.449</i>		-0.119 (0.249) <i>0.631</i>				
NHL/NFL/NBA team in HQ city		1.038 (0.600) <i>0.084</i>		-0.489 (0.421) <i>0.245</i>		0.566 (0.425) <i>0.183</i>				
Wald $\chi^2$		3.39		1.43		2.71				

Two-tailed tests. †  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . Standard errors are in parentheses and  $p$ -values are in italics.

Likelihood = 22.0,  $p < 0.001$ ) and *depth of HCEM interlocks* ( $b = 0.032$ ,  $p = 0.088$ ;  $-2\Delta$  Log Likelihood = 8.2,  $p < 0.01$ ) have a positive significant impact on frequency of international expansion in unrelated industries. The marginal effect of *breadth of HCEM interlocks* is 0.004 ( $p < 0.001$ ) while that of *depth of HCEM interlocks* is 0.032 ( $p < 0.10$ ), with all other variables at their means.

In order to test Hypothesis 3, we first compare the difference between the coefficients of *breadth of HCEM interlocks* between Model 7 (related industries) and Model 9 (unrelated industries) and then for *depth of HCEM interlocks* Model 8 (related industries) and Model 10 (unrelated industries). The difference (unrelated minus related) for

both the *breadth of HCEM interlocks* ( $d = 0.0049$ ,  $z = 125.62$ , 99%CI [0.0048, 0.0050],  $p < 0.001$ ) and *depth of HCEM interlocks* ( $d = 0.0488$ ,  $z = 64.92$ , 99%CI [0.0469, 0.0507],  $p < 0.001$ ) are highly significant. We then test the difference between depth minus breadth ( $d = 0.0439$ ,  $z = 1900$ , 99%CI [0.0438, 0.0440],  $p < 0.001$ ). It is evident that the difference in *depth of HCEM interlocks* is significantly larger than the difference in *breadth of HCEM interlocks*, supporting Hypothesis 3.

#### 4.1. Robustness tests

As mentioned previously, because the Hausman test suggests the use of fixed-effect models, we had to exclude cases in which MNCs only appear once in our sample and also those that do not have any variation in their behaviours in HCEMs, related HCEMs or unrelated HCEMs. We also show that this has led to a loss of 363 firm-year observations covering 177 MNCs. To ensure that we are not losing important information due to this loss of samples, we also conducted random-effects panel Poisson regression models for robustness tests. The results from the panel random-effect Poisson models are stronger than those using panel fixed-effect Poisson models, but not very dissimilar for cases where related HCEM and unrelated HCEM are used as dependent variables. Therefore, the use of panel fixed effect models is fairly robust. We also conducted sensitivity analysis with the use of fixed-effects panel negative binomial regression and the results are similar. In our models, we have tested the effects of breadth of HCEM interlocks and depth of HCEM interlocks separately due to their high correlations. We also conducted the analyses that included both at the same time in our regression models. The new results are not significantly different from those results presented in Table 2 when they are separately tested, with the main exception that the significant positive effect of depth of HCEM interlocks in the case of unrelated HCEM becomes not significant. Due to this, we decided not to include these results in the paper as the separate tests represent more conservative tests without the interference of statistical correlations.

#### 5. Discussion and conclusions

The objective of this study has been to develop a theoretical framework explaining firm-level frequency of international expansion through high control entry modes. To do so, we have drawn on the micro-foundations of international strategy (e.g., Maitland & Sammartino, 2015a; Maitland & Sammartino, 2015b) to examine the role of director interlocks as a source of high control expansion mode experience that in turn facilitate the development of routines and capabilities needed to engage in more intensive internationalization strategies than others. Our results provide general support for our hypotheses, demonstrating that board interlocks explain firm-level heterogeneity in frequency of international expansion through high control expansion modes in unrelated industries and that this effect is stronger for depth of interlocked directorships than breadth of interlocked directorships. The finding that both types of interlocking experience have effects on the MNC's intensity of international expansion through high control expansion modes in unrelated industries is consistent with the literature around the effects of breadth and depth of experience on firm performance (Chiang & Hung, 2010; Gavetti et al., 2005; Perkins, 2014).

Our study has important implications for research. First, the results of this study draw attention to an underexplored dependent variable in international business research: the frequency of international expansion through high control expansion modes. While some related constructs such as speed of internationalization exist (e.g., Acedo & Jones, 2007; Garcia-Garcia, Garcia-Canal, & Guillén, 2017; Oviatt & McDougall, 2005), these studies focus on explaining changes in the MNC's internationalization over time rather than examining the decisions that underlie these changes. In contrast, the notion of frequency of international expansion more directly captures the degree to which the MNC simultaneously engages in multiple cross-border expansion moves. This is important because we know little about how MNCs accrue important firm-specific capabilities such as international experience over time (Anand et al., 2016) and, more specifically, heterogeneity among MNCs regarding the development of these firm-specific capabilities. As such, our study suggests that MNCs that can indirectly access knowledge about high control market expansion moves made by other MNCs through director interlocks will more quickly accrue

international experience as reflected in a greater frequency of internationalization. Similarly, these MNCs may also more quickly internationalize or establish a foreign subsidiary network given their greater frequency of international expansion through high control market expansion moves.

Second, our study complements the emerging research on the micro-foundations of international strategy (e.g., Maitland & Sammartino, 2015a; Maitland & Sammartino, 2015b) by theorizing about the effect of board interlocks on firm-specific routines and capabilities that can be deployed in international markets. Specifically, while extant research on the micro-foundations of international strategy focuses on the notion that it is the aggregation of individuals and their knowledge and experiences that create “the firm” (Felin & Foss, 2005; Felin, Foss, Heimeriks, & Madsen, 2012; Felin & Hesterly, 2007), limited attention has been paid to knowledge that is internal to the focal MNC as well to other MNCs. Our study therefore draws attention to the possibility that certain knowledge can simultaneously become part of the knowledge stock of multiple MNCs, meaning that experiential learning that takes place within the boundaries of other MNCs can become part of the focal MNC through board interlocks. By doing so, we also advance an alternative conceptualization of board interlocks that focuses on these interlocks as a source of overlapping knowledge structures rather than as conduits through which the experiences of two independent organizations flow.

Interestingly, we did not find empirical support for the direct effects of interlocked experience on frequency of international expansion through high control expansion modes in our sample. While this finding is surprising, it may reflect that although knowledge exists within the firm it is not always utilized. That is, while the knowledge contributed by directors adds to the firm's aggregate knowledge stock, not all of this knowledge will be activated equally across all decision-situations. That is, there may be situations in which the knowledge is not activated (Foss & Lindenberg, 2013). In fact, when interpreting the lack of main effect together with our moderating hypothesis, it appears that the MNCs in our sample activate the knowledge that exists in boardroom only in certain situations, namely those that are more complex and uncertain. This would also explain our non-finding for the effect of breadth and depth of interlocked experience on frequency of international expansion through high control expansion modes in related industries. That is, the pattern of these results may reflect the extent to which learning occurs through director interlocks. As mentioned earlier, the interlocked experiences of the directors in our sample do not include related industry experiences. As such, it is plausible that while routines and capabilities around the use of high control expansion modes can be generated broadly, they may be deemed less relevant when it comes to expansion into related industries and this knowledge is therefore not activated. Further, an MNC is likely to have a greater understanding of related industries which means a higher level of certainty about how to engage. In such cases, using interlocked experience as a way to reduce uncertainty may not be necessary, again explaining why knowledge that exists in the boardroom is not activated in these situations.

While our study offers important insights into the antecedents of MNCs' frequency of international expansion through high control foreign market expansion modes, this study has several limitations that offer additional opportunities for scholars to build on our work. First, our theory focuses on explaining the frequency of high control foreign market expansion moves in a given year without considering the magnitude of these investments. In the context of our study, the focus on explaining the number of high control foreign market expansion moves is sensible given that engaging in a larger number of high control expansion modes (as opposed to just one with large capital) entails the need to have capabilities of another nature. In particular, the ability to manage multiple high control expansion modes would require the capabilities to deal with such modes. On the other hand, in a large investment case using high control expansion modes, it is not necessarily the high control expansion mode capability that is of concern

but rather the capability to manage a larger-type investment. Therefore, we believe that our linkage from the high control expansion mode interlocks to the use (frequency) of high control expansion mode is still appropriate in the context of our study. Future research, however, may explore other types of internationalization strategies, for example weighing our frequency variable by size and mode of investments. Similarly, there is also an opportunity to examine the antecedents of net expansion by focusing on the difference of additional high control foreign market expansions and potential divestitures or subsidiary closures, i.e. it is possible that some MNCs balance additional high control foreign market expansions and divestitures or subsidiary closures over time. We therefore believe that studying the interplay between high control foreign market expansions and divestitures or subsidiary closures over time is a promising avenue for future research.

Second, while there is no reason to believe that our results are country-specific, we encourage researchers to validate our findings in other national contexts. It would be insightful to test whether our predictions also hold in countries that impose board structures on listed firms, most notably the two-tier system that is used in countries such as Germany or the Netherlands. Third, an extension of our study would be to examine how the adoption of high control foreign market expansion modes (or any other imitation of strategy) are affected by directors who hold CEO appointments who have actual exposure to these expansion modes. While our study has controlled for the number of CEO-directors, our data does not have information on the split between the interlocked experience of those who are CEOs and those who are not. Future research with detailed data can capture this difference to provide an even more micro-level test of the imitation process. Relatedly, given our research design – which is consistent with related work adopting a micro-foundations perspective (Chen, Kor et al., 2017; Chen, Cui et al., 2017) – we are unable to directly observe the process whereby the aggregate experience of directors results in firm-level outcomes. Lastly, we also believe that there is promise in future research examining the performance implications of different types of intensity of internationalization strategies. While the knowledge gained by directors when serving on other firms' boards may be beneficial, there is also the possibility that this knowledge leads to “capability traps” that may result in strategic inertia, meaning that these capabilities may limit the MNC's strategic flexibility or, in more extreme cases, result in a misalignment between the MNC's intensity of internationalization strategy and its environment.

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