

## RESEARCH ARTICLE



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# Directionality matters: Board interlocks and firm internationalization

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## Abstract

**Research Summary:** This paper examines an understudied aspect of network relationships—that is, direction of relational ties. Tie direction is important since it can shape when and how firms can benefit from the international experience of other firms. We focus on a specific type of network relationship—that is, interlocking directorates, which provides a clinical context to study directionality. We show that, due to their higher familiarity, identification, and executive power, focal firm directors serving in other firms' boards (i.e., outgoing ties) are more beneficial for utilizing partners' international experience. However, outside directors sitting on the boards of focal firms (i.e., incoming ties) can bring more useful first-hand experience and facilitate international expansion once these ties get stronger. Theoretical and practical implications of these results are discussed.

**Managerial Summary:** As they grow internationally, firms need to manage risks and uncertainties of doing business abroad. In this regard, they can potentially benefit from the international experience of other firms in their network. We show how firms can realize these benefits by means of interlocking ties (i.e., shared board memberships). To that end, we examine the directionality of interlocking ties. Specifically, we argue that a firm's

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ability to utilize partners' experience for its own international expansion is greater when its directors sit on the boards of other firms (so-called outgoing ties) compared to when other firms' directors sit on its own board (so-called incoming ties). However, experience coming through incoming ties is more effective for a firm's international expansion once these ties get stronger.

#### KEYWORDS

degree of internationalization, experiential knowledge, indirect experience, interlocking directorates, tie direction, tie strength

## 1 | INTRODUCTION

Studies in international business literature have long been drawing attention to internationalizing firms' learning from other organizations (De Clercq, Sapienza, Yavuz, & Zhou, 2012; Oviatt & McDougall, 2005). One important way with which firms can exchange internationalization experience is by having the same individual[s] in their board of directors. Generally known as *interlocking directorates*, such relational ties have been considered an effective way for a focal firm to tap into the experience of other organizations (Carpenter & Westphal, 2001; Hillman & Dalziel, 2003). Despite wide interest in interlocking directorates in strategic management literature, only a handful of studies have examined their impact on firm internationalization so far (Ang, Benischke, & Hooi, 2018; Chen, Hsu, & Chang, 2016; Singh & Delios, 2017; Tuschke, Sanders, & Hernandez, 2014). This burgeoning body of research has either looked at the network position conferred by interlocking directorates (Peng, Au, & Wang, 2001; Singh & Delios, 2017) or the total number of external directorship ties held by focal firm board members (Chen et al., 2016) to evaluate the effect of interlocking tie strength on internationalization.

However, past international business studies have not effectively capitalized interlocking directorates unique property to reveal a fundamental characteristic of business relationships: *directionality*—that is, the path through which firms mobilize and/or exchange their resources to create the network relationship. As noted by Zhang et al. (2016) “directionality is a significant but inherent property of social ties, though usually ignored in undirected social networks due to its invisibility” (p. 3276). Tie direction is important since it designates different contexts of learning: whereas some ties make it possible for the focal firm to observe partners' strategic behavior in situ, others create the opportunity for the focal firm to get exposed to new ideas and suggestions in its own organizational context. With a notable exception (i.e., Tuschke et al., 2014), past research has so far overlooked the directionality aspect and examined internationalization of firms within undirected network structures. As a result, a well-structured theoretical explanation on different mechanisms and outcomes of knowledge accumulation via different tie directions is still missing in the literature.

The purpose of this paper is to address the lack of research on tie direction. Specifically, we will investigate whether and how firms can benefit from the experience of other firms and increase their degree of internationalization (DOI) by establishing direct interlocking ties through alternative directions. To compare relative efficacy of director interlocks formed in

different directions, we will focus on two types of ties: *incoming ties* (i.e., executive[s] of another firm sitting on the board of the focal firm) and *outgoing ties* (i.e., executive[s] of the focal firm sitting on the board of another firm). In so doing, we build on and extend the study by Tuschke et al. (2014) in two important ways. First, we pay systematic attention to heterogeneity in terms of network partners' degree of international experience. The extent of partners' experience (i.e., the extent of an extended knowledge base available in other firms) directly affects the degree to which incoming directors can contribute and outgoing directors can get access to useful knowledge. Thus, the level of partners' international experience is a key factor that determines focal firm's strategic decisions concerning the levels of internationalization. Second, we identify tie strength as a boundary condition for learning through interlocking directorates. Strength of ties determines the quality of relationships and extent of resource exchange among partners (see Granovetter, 1973; Gulati, 1995; Uzzi & Lancaster, 2003). It is therefore important to consider the combined effect of tie direction and strength considering that the former shapes the context of interaction between the focal firm and its network counterparts, whereas the latter determines the extent and depth of interaction and exchange between the two firms. This stands to reason that tie direction and strength would have joint effects on the degree to which the focal firm can use interlocking directorates to learn from their partners, lower inherent uncertainties associated with foreign expansion, make resource commitments abroad, and consequently increase their DOI.

We test our hypotheses using archival data on 1,364 Swedish firms. Our results reveal that, *ceteris paribus*, establishing outgoing ties is a more efficient way of tapping into the indirect experience of other firms than forming incoming ties. However, this pattern reverses as interlocking ties get stronger. Specifically, we found that strong incoming ties facilitate the use of indirect experience to a larger extent compared to strong outgoing ties. These findings suggest that, in the short-term, focal firms can increase the degree of their internationalization by benefitting from indirect experience of other firms by having their executives serve on these firms' boards. On the other hand, higher learning potential of incoming ties could be better realized as interlocking relationships get stronger and enable deeper interaction between the parties. Thus, increased tie strength would positively influence incoming directors' ability and motivation to use/implement their valuable first-hand experience at the focal firm. Overall, we provide theoretical and empirical insights regarding the importance of tie and partner heterogeneity, which would collectively shape conditions under which individuals can function as effective conduits for vicarious learning. Besides elucidating if and when internationalizing firms can benefit from indirect experience, our study thus responds to recent calls for a better understanding of individuals and their role in the internationalization literature (Ang et al., 2018; Coviello, Kano, & Liesch, 2017).

## 2 | HYPOTHESIS DEVELOPMENT

As a unique form of interorganizational relationships, interlocking directorates can effectively address resource constraints of focal firms by facilitating flow of communication between the firm and external parties, providing advice and guidance for executive decisions, and increasing firm's preferential access to critical resources (Zona, Gomez-Mejia, & Withers, 2018). Boards of directors could help firms overcome difficulties of internationalization by fostering knowledge accumulation from network relationship. They fulfill this role by providing both human capital (i.e., contributing to the strategic decision-making process with their knowledge, experience,

and skills) and relational capital (i.e., acting as a bridge to connect the firm with valuable networks). Guided by this reasoning, recent studies have examined how board interlocks could influence firm internationalization (e.g., Chen et al., 2016). For example, Tuschke et al. (2014) has shown that lack of first-hand knowledge on emerging market entries can be counterbalanced by establishing board ties with other firms that have experience in these markets. The effects of these ties are especially paramount if board interlocks involve executives who possess formal decision-making authority, rather than through independent board members. Focusing on the network position, Singh and Delios (2017) find that network centrality of the focal firm through board interlocks increases its likelihood of making new foreign investments. More recently, Ang et al. (2018) report that having interlocks to those companies with extensive experience with high control entry modes eventually increases focal firm's propensity to prefer high control entry modes. They further detect that this effect gets stronger when firms use foreign entries to diversify into unrelated industries.

Based on the above, we conclude that knowledge and indirect experience gained through board interlocks may indeed matter for firms' internationalization. Since vicarious learning and knowledge accumulation from network partnerships are well-documented phenomena in past conceptual and empirical studies (e.g., Carpenter & Westphal, 2001; Shropshire, 2010), we will not develop any formal hypothesis on the main effect of indirect experience on focal firm's DOI. We will rather examine it as a baseline condition in our estimated models. Instead, we are primarily interested in understanding the kind of interlocking ties that matter more for gaining useful and useable indirect experience during internationalization. In the next section, we develop our moderation hypotheses to answer this important question.

## 2.1 | The moderating role of tie direction

To examine tie directionality, we largely follow Tuschke et al. (2014) and differentiate between two types of interlocking ties: *ties*, that is, where executive(s) of another organization serve(s) on the board of the focal organization, and *outgoing ties*, which are formed when executive(s) of the focal organization serve(s) on the board of a network organization. Incoming and outgoing ties create different channels and mechanisms of knowledge flows between organizations (Brennecke & Rank, 2017). With incoming ties, the focal firm can benefit from the first-hand experience the interlocked director has gained in his/her company. According to Carpenter and Westphal (2001, p. 640), this process of "learning is particularly vivid because directors observe the decision-making process firsthand in their monitoring role, participate actively by giving advice to management, and then witness the consequences of those decisions." A further advantage of external knowledge coming through incoming ties is that, based on their expertise, outside directors can provide a more objective and novel perspective on key strategic issues. In this regard, McDonald, Westphal, and Graebner (2008, p. 1160) emphasize that "[outside] directors are likely to have a more extensive mental catalog of relevant 'examples'," which the focal firm might benefit from while taking strategic resource commitment decisions. Since incoming directors are removed from institutionalized routines and path-dependencies of the focal organization, they can offer a wider range of solutions for key strategic issues (McDonald, Khanna, & Westphal, 2008).

Outgoing ties, on the other hand, enable focal firm's sent executives to get directly exposed to the knowledge base of interlocked firms. When their executives sit on other firms' boards, focal firms can broaden their understanding of the business environment and different types of

strategies and routines (Shropshire, 2010). Besides increasing general awareness and knowledge of doing business abroad, outgoing ties can also be used with a more focused learning purpose. Thus, in line with the particular learning needs and goals of their company, executives of the focal firm who are involved in outgoing ties can target and acquire specific knowledge about interlocked companies' routines and strategies (Westphal, Seidel, & Stewart, 2001). In addition, outgoing ties can also help the focal firm to improve its indigenous human capital by developing the socio-cognitive skills of sent interlocks. As noted by Brennecke and Rank (2017, p. 106) "serving as outside directors, [sent interlocks] are exposed to a larger range of alternative viewpoints and strategic options, which is beneficial for their ability to identify and develop high-quality solutions and make strategic choices." Such competence gains and skill developments could, in turn, help these executives to make more informed and vigorous internationalization decisions on behalf of their companies. Furthermore, sent directors can closely observe the strategic behavior of other firms and the ways with which they deal with the inherent complexities and ambiguities of foreign expansion process. This way, outgoing directors can "learn the consequences of new strategic alternatives and approaches without exposing their own (source) firm to the direct costs of experimentation" (Geletkanycz & Boyd, 2011, p. 337). These observations construct reliable benchmarks, which focal firms could use to reduce inherent uncertainty surrounding internationalization decisions.

Although both incoming and outgoing ties have positive effects on the transfer of indirect experience to the focal firm, we also compare relative efficacy of these ties. Incoming ties can offer vivid and detailed knowledge about foreign markets and tacit skills required for internationalization. However, there are three main factors that could hinder the efficient utilization of high-quality information incoming directors can potentially provide. First, directors in incoming ties often lack *familiarity* with focal firm's organizational context. Hence, by default, they might not have a good grasp of the knowledge needs of focal firm nor might they have enough understanding of focal firm's ability to make use of indirect experiential knowledge of interlocked company (Rindova, 1999). Second, directors in incoming ties do not possess formal *executive power* at the focal company since they mostly serve with an advisory and/or monitoring capacity. For conceptual clarity, it is important to note that the present comparison of incoming and outgoing ties relates specifically to the formal decision-making power of involved directors. In outgoing ties, where the members of focal firm's top management team sit on the board of another firm and possess the hierarchical authority they can use to make use of the experience they gain while serving in other boards. On the other hand, directors in incoming ties are not directly involved in strategic decision-making process at the focal firm. This does not mean that non-executive board members do not have any influence over management. In fact, boards are often granted the authority to approve or veto managerial behavior through corporate bylaws (Pearce & Zahra, 1991). However, the formal sources of power for boards are often limited. Stiles (2001) points out this by emphasizing the power imbalances at the board level that stem from "the structural and relational dominance of the top management team in general, and the CEO in particular, compared to the position of the non-executive directors" (p. 630). Therefore, despite their high-level expertise, incoming directors might not always be able to exert formal influence on focal firm's decisions. Lastly, because of their default outsidership, incoming directors might not initially develop strong *identification* with the focal organization (Veltrop, Molleman, Hooghiemstra, & van Ees, 2018). Shropshire (2010) claims that organizational identification, that is, "the degree to which a member defines himself or herself by the same attributes that he or she believes defines the organization" (Dutton, Dukerich, & Harquail, 1994, p. 29), strongly influences individual directors' engagement in the boardroom. In line with this,

Westphal (1999) found that social ties between board members and the management team increase the former's propensity to offer advice and counsel to the latter. Consequently, when incoming directors' organizational identification is weak or absent, they may lack the necessary motivation and drive to act their best in the interests of the focal firm. On the other hand, executives involved in outgoing ties possess both familiarity with and executive power at the focal firm. As a result, new ideas and knowledge outgoing ties bring from the interlocked firms could be considered more applicable and useful. Furthermore, due to their stronger identification with their own organization, sent directors would put their best effort to benefit from their exposure to interlocked firms' knowledge repertoire and bring back these learning benefits to their own firm. Consequently, we develop the following comparative hypothesis:

**Hypothesis (H1).** *The effect of indirect international experience on the focal firm's degree of internationalization would be larger when the focal firm establishes outgoing ties as compared to incoming ties.*

## 2.2 | Joint moderation of tie strength and tie direction

Earlier, we noted that incoming ties' potential to bring in first-hand knowledge to focal firm may be hampered due to interlocking directors' lack of familiarity and identification with the focal firm. However, as the tie between two firms gets more mature and stronger, incoming ties would be less constrained by these two impediments. In other words, repeated and more intense interaction between incoming directors and the focal firm executives would help these external directors understand the focal firm's business context to a greater extent and more strongly identify with it (Veltrop et al., 2018). With increased familiarity, incoming directors can better discern the specific learning needs of the focal firm and bring in the necessary knowledge from their own company accordingly. Similarly, when there are multiple incoming directors from the same organization and/or if interlocking ties are established in a reciprocal way, mutual understanding between the two organizations would increase. This would, in turn, have a positive effect on the fit between the specific learning needs of the focal firm and knowledge/advice provided by incoming ties. Stronger identification of incoming directors with the focal organization would also improve the efficiency of knowledge transfer. This is in line with the remark by Shropshire (2010, p. 250) that "with stronger focal firm identification, an interlocking director is more likely to search for opportunities to inform and contribute to the focal firm." Thus, stronger ties would increase incoming directors' ability and willingness to contribute to focal firms' learning. Furthermore, over time, incoming directors tend to develop higher informal power at focal firms' boardroom (Golden & Zajac, 2001). In contrast to formal power derived from hierarchical structures ex ante, informal power takes time to take effect due to its subjective and the emergent nature. That is, informal norms, values, and beliefs manifest themselves as a result of repeated interactions over time (McEvily, Soda, & Tortoriello, 2014). This suggests that the potential informal power of incoming directors can be realized, and thereby compensate their relative lack of formal power, as interlocking ties get stronger. Increased informal power would, in turn, enable incoming directors to transfer their own experience and expertise more efficiently to the focal firm's boardroom and exert greater influence over the decisions.

Strength of ties also facilitates outgoing directors' endeavors to tap into the indirect international experience of other firms. As noted elsewhere, in outgoing ties, focal firm's executives can mostly observe experiential knowledge of other companies. This process of vicarious



learning is inevitably prone to imperfect and/or incomplete understanding of tacit knowledge created elsewhere. As ties get stronger (i.e., by sending out more directors to the same board or having the interlocking relationship for a longer time), outgoing directors can make better sense of interlocked company's organizational context and figure out if and how indirect experience could be used during their own organization's internationalization process. Strong outgoing and incoming ties also entail norms of reciprocity and increased trust (Granovetter, 1973; McEvily, Perrone, & Zaheer, 2003; Uzzi, 1997), which is especially relevant for sustaining willingness to share proprietary and confidential information about foreign markets.

Earlier, we argued that knowledge coming through incoming ties is inherently more valuable since it is based on the first-hand experience of incoming directors. Tuschke et al. (2014) make this point explicit by noting that "the first-hand information possessed by incoming experienced directors is likely to have a greater influence on the focal firm's decisions than the second-hand information provided by directors forming outgoing [ties]" (p. 401). While fully agreeing with their point, our reasoning slightly differs from and extends that of Tuschke et al. (2014). Specifically, we argue that the higher potential of knowledge provided by incoming ties could be realized to a much greater extent when these ties get stronger. That is, in order to overcome aforementioned problems related to lack of contextual familiarity, formal executive power, and organizational identification, incoming ties require high level and quality of interaction with incumbent board members of focal firms. Therefore, we expect that marginal learning benefits of strengthened ties will be higher for incoming ties than for outgoing ties. In more formal terms, we expect that:

**Hypothesis (H2).** *The effect of indirect international experience on the focal firm's degree of internationalization would be larger when the focal firm establishes strong incoming ties as compared to strong outgoing ties.*

### 3 | EMPIRICAL DESIGN AND DATA COLLECTION

#### 3.1 | Sample

International expansion patterns of Swedish firms have inspired seminal studies in internationalization research (e.g., Eriksson, Johanson, Majkgård, & Sharma, 2000; Johanson & Vahlne, 1977, 2009; Johanson & Wiedersheim-Paul, 1975). Following this tradition, our empirical context focuses on Swedish SMEs instead of large multinationals due to several reasons. First, because of their limited size, experience, and resources, SMEs depend more heavily on external knowledge and indirect experience available in their networks. This, in turn, makes the role of indirect experience more important for SMEs' internationalization. In addition to that, unlike large and established multinationals, SMEs go through a more active process of international growth. SMEs' low level of saturation in terms of international expansion thereby makes them a more relevant empirical ground for building/testing a theory on the antecedents of internationalization. Furthermore, SMEs do not have firmly grounded organizational routines that can guide their growth strategies. This suggests that individual members of the board of directors could play a more active role and exert more influence on these firms' internationalization decisions. In short, given the purposes of this study, there are good theoretical and empirical reasons to keep our empirical focus on SMEs.

We used two main sources to construct our database. First, data on board interlocks among Swedish companies were obtained from the Retriever database ([www.retriever-info.com](http://www.retriever-info.com)) which

contains corporate information of all registered limited liability firms in Sweden. Second, the data on overseas operations of publicly listed Swedish companies were taken from the Orbis database of the data provider Bureau van Dijk ([www.bvdinfo.com](http://www.bvdinfo.com)). By combining these two sets of data, we created a unique database that simultaneously encapsulates the board interlock structures of Swedish companies and their overseas operations.

We adopted the definition of Organization for Economic Co-operation and Development for SMEs, which are classified as those companies whose turnover should not exceed EUR 50 million and number of employees should be between 10 and 249 individuals. The number of Swedish firms included in the Orbis database is 97,178, of which 5,041 have at least one foreign subsidiary. This means that 5.19% of all Swedish firms covered in the database had engaged in internationalization. Using the database, we further identified 41,559 Swedish SMEs, of which 2,538 have at least one foreign subsidiary. This suggests that 6.11% of Swedish SMEs had international experience. Therefore, we can conclude that SMEs not only well represent overall population in terms of internationalization but also were slightly more active internationally compared to the entire firm population. We would like to reiterate that we could retrieve complete data for 1,364 Swedish SMEs with foreign subsidiaries, which is 53.74% of the population (2,538). Thus, the sample for this study consists of a cross-sectional observation of 1,364 Swedish SMEs with at least one foreign subsidiary.

In the year 2017, the average assets of selected SMEs amounted to EUR 29.8 million, sales amounted to EUR 14.2 million, the average number of domestic employees was 54. The average number of board members in selected SMEs was 4.65 directors. Collectively, these 1,364 SMEs own 6,083 subsidiaries in 101 countries of the World. Most popular countries of the subsidiaries are Norway, United States, Finland, Denmark, Germany, United Kingdom, China, Poland, the Netherlands, and France (in descending order). The total sales of subsidiaries amounted to EUR 228,298 million, and the average number of foreign employees was 158 per subsidiary.<sup>2</sup>

It is important to note that our database only includes domestic interlocking ties, which permits us to capture the nature of relational capital of focal companies only at their home country. While past studies predominantly focus on how SMEs' involvement in foreign business networks help these firms' internationalization, other scholars have emphasized that home-based relational capital is an important means with which firms can get access to knowledge resources, which would in turn shape the extent of their international involvement (Laursen, Masciarelli, & Prencipe, 2012; Manolova, Manev, & Gyoshev, 2010). This is especially the case for relatively young and small firms, which lack exposure to foreign business environment and need social and relational capital initially at their home turf as a springboard for internationalization (Boehe, 2013). Hence, we expect that the role of domestic networks is relevant for SMEs that aspire to be more active in international markets. In the words of Laursen et al. (2012, p. 784) "potential local social ties play an important role in facilitating firms' globalization efforts."

### 3.2 | Measurement of variables

*DOI* was operationalized by using three items: (a) foreign sales as percentage of total sales (FSTS); (b) foreign employees as percentage of total employees (FETE); and (c) foreign assets as percentage of total assets (FATA). Earlier studies have typically used the ratio of export sales as a general measure of SMEs' internationalization (Calabrò & Mussolino, 2013; Graves & Thomas, 2006; Lu & Beamish, 2001). This is understandable given that SMEs' extent and depth of involvement in foreign countries might not the same as those of more established multinationals.



However, the concept of internationalization goes beyond exports, and more comprehensive measures should be used to capture a richer picture of these firms' overseas operations and involvement. Consistent with Sullivan's (1994) and UNCTAD's views, our multidimensional measure for DOI captures different aspects firm's overseas activities (for a similar approach in the context of SME internationalization, see Adomako, Amankwah-Amoah, Tarba, & Khan, 2021; Alayo, Maseda, Iturralde, & Arzubia, 2019; Reuber & Fischer, 1997). Average values of FSTS, FETE, and FATA for our sample were 64%, 73%, and 68%, respectively. To construct a single measure for DOI, principal component analysis was used. All three indicators loaded on the same single component that accounted for 60.4% of the total variance. The standardized scores on the FSTS, FATA, and FETE were weighted by the factor score coefficients (0.71, 0.81, and 0.68 respectively) and summed. Cronbach's alpha for this composite variable was .78. The DOI of the focal firm was measured for the last available year (i.e.,  $t = 2017$ ). We used these three indicators for each firm to compute a standardized (i.e., mean = 0, SD = 1) index measure of DOI.

To operationalize *indirect experience*, we first identified those companies with which the focal SME has established one or more board interlocking tie. For each of these interlocked companies, we then calculated international experience by (a) the number of years since its first international operation was established and (b) the number of countries it is operating in by the year (i.e.,  $t - 1 = 2016$ ). Since number of years and number of countries have different scales, both indices were standardized (mean = 0, SD = 1) prior to collapsing them to create a unified firm-level indicator. Using principal component analysis, we observed that these two indices loaded on the same single component and explained 81.6% of the total variance. The factor score coefficients for the number of years since the first international operation and the number of countries were 0.78 and 0.84, respectively. We used the factor score coefficients to calculate weighted average value for indirect experience. Cronbach's alpha for this multi-item composite variable was .79.

Closely aligned with Granovetter's (1973) definition, our operationalization of *Tie Strength* consists of three indicators: (a) age of ties, measured by the number of years since the establishment of the interlocking tie between the focal and network firms,<sup>3</sup> (b) number of directors, measured by the number of common board members that form the tie between the focal and network firms, (c) reciprocity of ties, which was captured as a binary variable (0 for non-mutual ties and 1 for mutual ties). For comparability all three items were standardized (mean = 0, SD = 1) prior to combining them into a single composite. Using principal component analysis, we observed that these three indices loaded on the same single component and explained 78.2% of the total variance. The factor score coefficients for the age of ties, the number of directors, and the reciprocity of ties were 0.79, 0.84, and 0.73 respectively. Factor score coefficients were used to calculate weighted average value for indirect experience. Cronbach's alpha for this variable was .71.

*Tie direction* was captured by differentiating between different types of ties. For this, we followed the same approach with Tuschke et al (2013). *Incoming Ties* measure the ratio of outside directors to the total number of directors sitting at the board of the focal SME, and *Outgoing Ties* measure the ratio of sent directors to the total number of directors sitting at the board of the focal SME.

The majority of SMEs in our sample had interlocking relationships with more than one firm at a given time. Therefore, we had multiple values for dyadic tie characteristics (i.e., direction) for some of the firms in our sample. Considering that we are primarily interested in understanding how indirect experience available in a firm's network could influence its DOI, we had to take the necessary steps to align our level of analysis and level of our theory (Klein, Dansereau, & Hall, 1994).

Accordingly, we aggregated our moderating variables to the firm-level by using mean scores of tie characteristics for each SME. We shall acknowledge that simple mean-based aggregation is but one type of composition model, and there are alternative processes for handling cross-level emergence (see Chan, 1998). For the sake of simplicity, we preferred additive model and averaged lower-level scores (i.e., dyad-level values) to represent the value of the higher-level construct (i.e., nature of SME's interlocking relationships). Since firms need to manage the overall balance between different advantages accrued by different network relationships, our approach with aggregate tie characteristics is likely to provide a more accurate representation of how and what SMEs intend to gain from the portfolio of their interlocking relationships.

### 3.3 | Control variables

We employed several control variables suggested by previous studies that might affect the growth strategies firms pursue. *Firm size* was measured as the logarithm of the total number of employees worldwide (Erramilli & Rao, 1997). *Firm age* was measured as the number of years that had elapsed since the SME was established. *R&D intensity* was measured by an SME's R&D expenditure divided by sales (e.g., applied by Belderbos, 2003). Each SME's R&D intensity was then adjusted for industry by subtracting the industry median R&D intensity from the focal SME's R&D intensity. We used industry-adjusted R&D intensity in order to remove any industry-specific effects from the SMEs' R&D investments. Past research has shown that CEO characteristics play a more central role in the strategic direction and internationalization behavior of SMEs (e.g., Herrmann & Datta, 2002; Hsu, Chen, & Cheng, 2013; Jaw & Lin, 2009). Based on this, we included *CEO age* and *CEO tenure* as two control variables that might influence the extent to which focal firms undertake risks and resource commitments in their internationalization strategies. Past research has also shown that the pace and DOI depend on the financial and organization slack available (Alessandri, Cerrato, & Eddleston, 2018; Chang & Rhee, 2011). Correspondingly, we included *current ratio* to capture resource slack.

We also controlled for congenital learning as a source of knowledge alternative to direct and indirect firm-level experience (cf., Bruneel, Yli-Renko, & Clarysse, 2010; Fletcher & Harris, 2012). For this purpose, we measured *Aggregate Experience of focal SMEs'* top management team by looking at the career trajectory of each individual executive of SME. We identify all firms s/he had been involved as a board member or executive prior to joining SME. For each of these identified firms, we calculated international experience by (a) the number of years since its first international operation was established and (b) the number of countries it is operating until 2016 or until the year when a focal firm top management team member quits his/her position at that firm. For comparability both items were standardized (mean = 0, SD = 1) prior to the collapsing into one indicator. Cronbach's alpha for this variable was .81.

## 4 | DATA ANALYSIS AND RESULTS

To make our estimations, we used OLS technique with two-way, as well as the three-way interaction effects. We also incorporate *industry fixed effects* to account for heterogeneity across industries, where industry is defined using the two-digit SIC code industry classifications (obtained from Bureau van Dijk database). Because the actual effects of indirect experience on DOI may not materialize immediately, we thoroughly investigated reverse causality and

endogeneity issues. To that end, we closely followed the recent editorial guidelines specified by Meyer, van Witteloostuijn, and Beugelsdijk (2017), who identify lagged explanatory variables as one of the best-known technical solutions to the endogeneity problem. Accordingly, we measured dependent variable (degree of internationalization) at the last available year ( $t = 2017$ ) and all the remaining variables measured with a 1-year lag ( $t - 1 = 2016$ ). To take further precaution against potential endogeneity problem, we followed the guidelines by Papies, Ebbes, and Van Heerde (2017) and ran additional estimations where we included the dependent variable measured at  $t = 2017$  and all the remaining variables measured with a 2-year lag ( $t - 2 = 2015$ ).

Descriptive statistics are presented in Table 1. Following the suggestion of Aiken and West (1991), we centered all variables prior to analysis. Table 1 further reveals that pairwise correlations are moderate. We examined variance inflation factor values in order to control for potential multicollinearity concerns and find that the maximum value was 1.603, lower than the commonly accepted threshold for multicollinearity (Hair, Anderson, Tatham, & Black, 1998). Therefore, we conclude that multicollinearity is not an issue in our data (Neter, Wasserman, & Kutner, 1990).

Table 2 provides the results of our main analyses. Model 1 is our baseline wherein we only enter control variables along with the main effect of Indirect Experience. Concerning our control variables, across all models, we find that SMEs' age and size had significant and positive effect on their DOI. This is consistent with results reported in earlier internationalization studies (e.g., Bilkey & Tesar, 1977) and the idea that younger and smaller firms could be less likely to invest abroad due to their lower odds of survival in the competitive environment of foreign markets. Our baseline model shows that indirect experience has a significant and positive effect ( $\beta = .253, p < .000$ ) on the focal firm's DOI. Model 2 in Table 2 further reveals that the three factors; tie strength, incoming- and outgoing ties all have positive significant effects on the focal firm's DOI. Next, we developed Models 3–4 to compare the two-way and the three-way interaction effects we predicted in our hypotheses.

Our results reveal that the link between indirect experience and DOI is positively moderated by the proportion of incoming ties (Model 3,  $\beta = .142, p < .000$ ) and outgoing ties (Model 3,  $\beta = .161, p < .000$ ). However, in our full Model 4, we find that outgoing ties still had positive moderation effect on the DOI (Model 4,  $0.137, p < .002$ ) whereas incoming ties did not (Model 4,  $\beta = .082, p < .094$ ). To test our Hypothesis (H1), we conducted a Wald test based on the marginal effect sizes of two-way interaction terms (i.e., [Indirect Experience\*Incoming Ties] and [Indirect Experience\*Outgoing Ties]). Our test rejects the null hypothesis that the magnitudes of the two types of ties were equal ( $p < .000$ ). In other words, our Wald test results revealed that outgoing ties had a significantly stronger moderation effect than incoming ties. This is consistent with and lending support for Hypothesis (H1).

In Model 4, we include both two-way and three-way interaction effects. We found that tie strength further boosts the moderation effect of incoming and outgoing ties given that both of the three-way interaction terms were positive and significant. To test Hypothesis (H2), we conducted a Wald test based on the marginal effect sizes of three-way interaction terms. Our results rejected the null hypothesis for equality for the magnitude of effect sizes ( $p < .000$ ) and suggest that strong incoming ties had a significantly stronger moderating effect than strong outgoing ties. Thus, our findings are consistent with Hypothesis (H2).

To ease the interpretation of these results, we followed procedures suggested by Meyer et al. (2017) and plotted both three-way interaction terms in Figure 1. The interaction lines in Figure 1 show the marginal effect of indirect experience on the DOI for the full range of

TABLE 1 Descriptive statistics and correlation matrix

No.	Variables	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12
1	Degree of Internationalization	0	1	-2.391	2.287												
2	Indirect Experience	0	1	-2.163	2.707	0.014											
3	Tie Strength	0	1	-2.639	1.868	0.139***	0.184***										
4	Incoming Ties	0.174	0.557	0	0.455	0.084**	0.203***	0.184***									
5	Outgoing Ties	0.144	0.473	0	0.392	0.064*	0.107***	0.193***	0.155***								
6	SME Size	136.270	247.138	11	249	0.179***	0.091***	0.177***	0.185***	0.132***							
7	SME Age	25.731	47.228	4	53	0.204***	0.083**	0.148***	0.095***	0.117***	0.114***						
8	R&D Intensity	2.031	6.106	0.337	21.183	0.012	0.023	0.163***	-0.041	-0.007	0.008	0.007					
9	Aggregate Experience of SME TMT	0	1	-2.739	2.584	0.103***	0.151***	0.074**	-0.087**	0.003	0.118***	0.097***	0.149***				
10	CEO Age	52.842	11.231	24	83	-0.032	0.015	0.041	-0.036	0.013	0.078**	0.024	-0.044	0.007			
11	CEO Tenure	7.459	6.886	0	36	0.028	0.021	0.037	0.025	0.017	0.102***	0.073**	0.008	0.005	0.268***		
12	Current Ratio	5.960	21.677	0	63.213	0.015	0.003	0.007	0.019	0.002	0.011	0.093***	-0.024	0.008	0.004	0.008	
13	ROA for 5 years	7.215	20.251	-73.448	83.274	0.171***	0.153***	0.094***	0.042	0.073**	0.157***	0.163***	0.061*	0.130***	0.007	0.021	0.002

Note: The number of observations is 1,364. Degree of Internationalization is measured at the last available year ( $t = 2017$ ) and all the remaining variables measured with a 1-year lag ( $t - 1 = 2016$ ).

\* $p < .05$ .

\*\* $p < .01$ .

\*\*\* $p < .001$ .

**TABLE 2** Results of the analyses of the impact of tie direction and strength on firms' degree of internationalization

Variables	Model 1	Model 2	Model 3	Model 4
<i>Indirect Experience (IE)</i>	0.253 (0.060) [.000]	0.241 (0.057) [.000]	0.267 (0.063) [.000]	0.257 (0.061) [.000]
<i>Tie Strength</i>		0.177 (0.042) [.000]	0.159 (0.037) [.000]	0.136 (0.032) [.000]
<i>Incoming Ties</i>		0.152 (0.036) [.000]	0.145 (0.034) [.000]	0.137 (0.032) [.000]
<i>Outgoing Ties</i>		0.143 (0.034) [.000]	0.144 (0.034) [.000]	0.134 (0.045) [.003]
<i>Tie Strength × IE</i>			0.139 (0.033) [.000]	0.098 (0.045) [.031]
<i>Incoming Ties × IE</i>			0.142 (0.033) [.000]	0.082 (0.049) [.094]
<i>Outgoing Ties × IE</i>			0.161 (0.038) [.000]	0.137 (0.044) [.002]
<i>Tie Strength × Incoming Ties × IE</i>				0.204 (0.055) [.000]
<i>Tie Strength × Outgoing Ties × IE</i>				0.165 (0.045) [.000]
<i>SME Size</i>	0.185 (0.049) [.000]	0.183 (0.049) [.000]	0.179 (0.048) [.000]	0.182 (0.049) [.000]
<i>SME Age</i>	0.113 (0.036) [.002]	0.115 (0.039) [.003]	0.108 (0.035) [.002]	0.116 (0.037) [.002]
<i>R&amp;D Intensity</i>	0.101 (0.044) [.023]	0.096 (0.042) [.028]	0.093 (0.046) [.043]	0.086 (0.044) [.050]
<i>Aggregate Experience of Focal SME TMT</i>	0.077 (0.056) [.173]	0.072 (0.054) [.184]	0.060 (0.052) [.259]	0.055 (0.057) [.345]
<i>CEO Age</i>	0.034 (0.048) [.495]	0.035 (0.050) [.492]	0.034 (0.048) [.498]	0.034 (0.048) [.497]
<i>CEO Tenure</i>	0.003 (0.004)	0.003 (0.005)	0.003 (0.004)	0.003 (0.004)

TABLE 2 (Continued)

Variables	Model 1	Model 2	Model 3	Model 4
	[.553]	[.545]	[.543]	[.542]
<i>Current Ratio</i>	0.062 (0.050) [.216]	0.063 (0.050) [.211]	0.063 (0.050) [.212]	0.062 (0.050) [.214]
<i>ROA for 5 years</i>	0.062 (0.054) [.258]	0.061 (0.054) [.263]	0.062 (0.054) [.257]	0.060 (0.053) [.263]
Adjusted R-square	0.211	0.237	0.274	0.339
F-statistics	14.571 [.000]	14.382 [.000]	15.753 [.000]	15.881 [.000]

Note: The number of observations is 1,364. Standard errors in parentheses and *p*-values in brackets. Industry fixed effects were included in each model.

possible scores of the moderator variable tie strength separately for incoming and outgoing ties. Figure 1 shows that, when interlocking ties are weak, outgoing ties play a more important role than incoming ties for the relationship between indirect experience and the DOI. However, with the growing tie strength, incoming ties begin to play a more important role in the relationship between indirect experience and the DOI compared to outgoing ties.

## 5 | ROBUSTNESS TESTS

To validate our findings, we ran several robustness tests.<sup>4</sup> First, we sought to address the potential for reverse causality given that the DOI may also influence the interlocking and networking behavior of SMEs. To control for this, we ran additional estimations where we included the dependent variable measured at the last available year ( $t = 2017$ ) and all the remaining variables measured with a two-year lag ( $t - 2 = 2015$ ). The results show similarity with our main results obtained by using 1-year lag. Next, we checked for potential omitted variables bias. A large percentage of samples were based in Stockholm (22.8% or 311 SMEs). This colocation might lead to types of interaction among these firms we did not account for in our theory and models. To deal with this issue, we followed a jackknife procedure by running tests with a sub-sample of the original sample without firms from Stockholm (1,053 SMEs). The results suggest that omitted variables are not likely to be behind our evidence.

Third, we changed our empirical strategy and estimated separate models for first time internationalizes and already internationalized firms. The existing internationalization literature suggests that the case of later international expansion moves can substantially differ from first-time internationalization, as previous knowledge and experience should make subsequent entries faster than the initial entry (Surdu, Mellahi, Glaister, & Nardella, 2018). To address this issue, we run the robustness test by estimating the model separately for firms that make their first internationalization move (i.e., at time  $[t - 1 = 2016]$  DOI of the firm is zero) and already internationalized firms. The results show no significant difference between SMEs that internationalize for the first time and already internationalized SMEs.

Finally, we checked if the learning effect is more likely to happen in unfamiliar markets. For example, board interlocks might have a stronger effect for Swedish firms entering similar markets



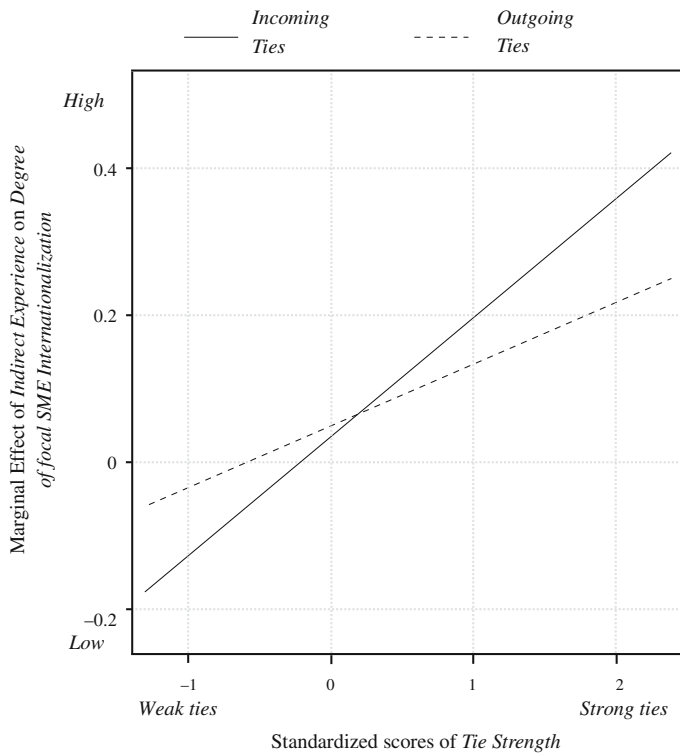


FIGURE 1 Three-way interaction effects

(e.g., Norway) than when they expand into less familiar markets (e.g., Japan). We therefore run an additional test by decomposing the dependent variable: DOI into culturally closer markets vs. DOI into culturally distant markets. To perform that, we used Hofstede, Hofstede, and Minkov's (2005) cultural scores to compute the cultural distance between all relevant home and host country dyads using the Kogut and Singh (1988) index. Based on these cultural distance scores, we then rank-ordered countries, and calculated each SME's level of involvement in markets that are ranked at the top and bottom quadrants of this list. Next, we repeated the analysis using DOI into culturally closer markets and DOI into culturally distant markets as dependent variables. Although the overall pattern of our results is quite similar across these models, we also detect a key difference. In particular, we find that tie strength plays a more important role in benefitting from indirect experience when the focal SME internationalizes into unfamiliar markets. Granted that entry into unfamiliar markets is less certain and, thereby, requires more detailed understanding of potential risks and uncertainties, this finding seems to be in line with previously noted contention that tie strength is especially crucial for the transfer of complex and tacit knowledge (Dhanaraj, Lyles, Steensma, & Tihanyi, 2004; Hansen, 1999).

## 6 | DISCUSSION AND CONCLUDING REMARKS

In this paper, we have carefully examined the under-studied role of a specific type of network tie (i.e., interlocking directorates) in firms' internationalization. Based on this, we contribute to

extant literature in several ways. First, our focus on interlocking directorates provides a novel context where experiential knowledge transfers between firms through top-level individual executives rather than organization-wide arrangements (e.g., alliances, firm-level network ties). Even though firms' accumulation of indirect experience remains an organizational-level phenomenon, this process runs through individuals in the case of interlocking ties. This aspect brings interlocking directorates closer to the fundamental idea that organizational learning starts with individuals (Simon, 1991)<sup>5</sup> and the more contemporary postulates put forth by micro-foundations movement (Felin, Foss, & Ployhart, 2015). The need for paying due attention to micro-foundations of firm's international evolution and growth has been recently acknowledged by Coviello et al. (2017) who note that "to understand the firm's internationalization behavior, we must understand the individual driving the firm" (p. 1155). By focusing on the role of interlocking directorates as a source of experiential knowledge on foreign markets, we subscribe to the notion that "it is the aggregation of individuals and their knowledge and experiences that create "the firm" (Ang et al., 2018, p. 494). Here, we argue that these individuals function not only as repositories of knowledge but also as conduits of new knowledge acquisition. In other words, interlocking board members serve as a unique means for obtaining experiential knowledge about foreign markets, which would in turn determine organizational learning and the DOI at the firm level. Furthermore, we extend the limited received research on the role of interlocking directorates on foreign expansion by going beyond the question of whether indirect experience matters for firm internationalization. To that end, we not only examine if a given firm is a part of an interfirm network connection but also *how* it is connected to other firms via interlocking directorates. Put differently, we identify which ties matter most by taking heterogeneity of board interlocking mechanisms into consideration.

Second, we contribute to the literature by investigating the joint effects of tie direction and tie strength in firms' internationalization. This primarily emanates from the unique property of interlocking directorates to disclose directionality of network ties. Past studies have been mostly looking at undirected business networks where the focus is mostly on whether and how strongly two nodes (i.e., firms) are connected (e.g., Peng et al., 2001; Singh & Delios, 2017). Yet, directionality is also one of the inherent properties of social ties, though usually invisible in other kinds of network relationships. Based on this, we theoretically argue that the direction of ties would shape the type/mechanisms of learning between focal and interlocked companies. In particular, we theorize that incoming ties enable focal firms to benefit from the external experience and tacit knowledge by hosting outside directors in their own board, whereas outgoing ties allow sent directors to closely observe and witness the strategic decision-making processes in other firms. Accordingly, we claim that interorganizational learning is not a unitary concept. Thus, firm can learn from their network partners through alternative mechanisms. Our empirical results lend support for this contention and reveal that incoming and outgoing ties moderate the utilization of indirect experience to varying extents. In particular, we find that, unless tie strength is accounted for, outgoing ties intensify positive effect of indirect experience to a greater extent than incoming ties (see regression results as well as the intercepts of the two lines shown in Figure 1). Once we add tie strength to the equation, however, we find that potential benefits of incoming ties are realized to a larger extent compared to that of outgoing ties. This was graphically shown in Figure 1 as well, where the plotted line for incoming ties has higher slope than outgoing ties. In this regard, we partly agree with Tuschke et al. (2013) that incoming ties could yield greater learning benefits, high level of expertise, and credibility of the directors. However, our results show that this claim is qualified by the strength of the ties. Specifically, first-hand information benefits associated with incoming ties could be realized to a

greater extent when interlocking relationships are stronger (in terms of i.e., duration, number of directors, and mutuality of interlocking ties). As noted elsewhere, this contention is in line with the premise that the transfer of tacit knowledge requires deeper interaction between actors.

Altogether, our results stress the need for taking both partner and tie heterogeneity into consideration. Put differently, we not only show that interlocking directorates matter but also demonstrate which interlocking ties could have stronger effect on international growth than others do. A key strategic implication of this finding is that it can inform boards and firms concerning the type of ties that could be most important and useful while taking key decisions during internationalization. Selecting interlocked firm managers is a strategic issue for firms that have deliberate interest in expanding into foreign markets. On the surface, it might appear that SMEs expand rapidly without gradual and direct experience accumulation on the operational level. Yet, our study shows that there may be a mechanism of incremental indirect experience generation (by means of interlocking ties) at the top-management level, which precede commitment decisions into new foreign markets. This experience may be stored and evaluated in “board offices” some time before executing into expansion decisions. Another important managerial implication of our findings relates to the timing of tie formation. We show that, to more efficiently benefit from indirect experience in a dyadic context, establishing outgoing directorates is more conducive when relationships are less deep, while establishing incoming directorate relationships is more instrumental (over time) when relationships get stronger.

In conclusion, we encourage future studies to address several limitations of our paper. To begin with, although the Swedish SMEs included in our sample were quite active internationally, our findings may not be equally valid for large MNCs with high level of direct international experience. Because of our SME focus, we also did not detect high variation for the indicators (i.e., number of common directors and reciprocity) we used to measure tie strength. Therefore, future research should extend our inquiry by studying firms of different sizes and countries of origin. Moreover, our theoretical model does not make any normative predictions concerning the performance implications of use or non-use of indirect experience in the process of internationalization. Yet, past research has shown that vicarious learning might also lead to spurious learning and mislead firms (Denrell, 2003). This could be addressed by studying whether utilizing indirect experience could create positive or negative consequences for the performance of overseas operations (Vermeulen & Barkema, 2002). Second, because we used secondary data in this study, we were not able to exactly capture how indirect experience of interlocked firms transforms into actual learning and shapes the overseas resource commitment decisions of focal SMEs. As a result, we assumed that getting exposed to the knowledge base of network partners would lead to some kind of learning at the focal SME. Cognizant of this limitation, we encourage future studies to conduct empirical analysis of exact learning mechanisms and episodes via interlocking directorates. This could ideally be done through in-depth case studies, in which the establishment, evolution, and learning outcomes of each dyadic relationship could be studied with a longitudinal design. A related limitation of our present investigation is that we developed and tested a rather static model. Even though we acknowledge that internationalization is inherently a dynamic process, our framework does not systematically incorporate any time-dependent considerations. We suggest that future research could address this by adopting a more fine-tuned design and investigating how establishment of each dyadic tie has a marginal effect on focal firms' DOI. Moreover, an implicit assumption in our paper is that the effect of interlocking ties on firms' international involvement is linear and positive. However, high levels of domestic social capital may create over-embeddedness and constraints for wider international involvement (cf., Laursen et al., 2012). Therefore, we invite future studies to consider the

possibility of curvilinear (i.e., inverted U-shape) relationship between relational capital and DOI, as well as the role of international interlocking ties formed between focal and foreign firms. Lastly, given its non-experimental design, our study could not deliver a definitive test of causality between interlocking directorates and DOI. Although we tried to alleviate possible concerns over endogeneity and reverse causality by using alternative time lags between our predictor and outcome variables, future research can provide additional insights by using longitudinal datasets.

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## ENDNOTES

- <sup>1</sup> Needless to say, network partnerships can come in a wide variety of forms and arrangements such as buyer–supplier agreements, trade unions, joint ventures, multi-party alliances, etc. However, within the scope of this paper, the phrase “network partnerships” pertains to the specific case of interfirm relationships established via interlocking directorates. Related to this, throughout the rest of this paper, we use the terms “network partner” and “interlocked company/firm” interchangeably to refer to those organizations with which the focal firm has at least one interlocking directorate tie.
- <sup>2</sup> A more detailed description of firms included in our sample, as well as their comparison to the general population of Swedish firms with respect to key proxies (e.g., age, number of employees, sales, assets, board size, total number of subsidiaries, domicile of main office, etc.) are available from authors upon request.
- <sup>3</sup> We would like to note that our measure for the age of ties is based on the length/duration of ties between two firms, and not based on ties specific to individual directors. We believe that this is a more relevant approach for our analysis since we are interested in board of directors as the conduits of experience flow from interlocked firm to the focal SME. Using director-specific ties’ age would have discarded all the information related to the connection between two firms prior to the replacement of one director with another.
- <sup>4</sup> Details of all additional analyses conducted for robustness checks are available from the authors upon request.
- <sup>5</sup> To avoid possible confusion regarding the level of analysis, we would like to emphasize that we hereby see both the outcome (i.e., degree of internationalization) and its antecedents (i.e., accumulated indirect experience) as organizational-level factors. However, in line with the micro-foundations perspective, our theoretical and empirical approach is oriented towards individual-level factors (e.g., characteristics of interlocking ties formed by directors) and their *collective* impact on organizational-level outcomes.

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