

**BOARD INTERLOCKS AND THE DIFFUSION OF STRATEGIC ACTIONS**

A Dissertation

by

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## **ABSTRACT**

Research on the diffusion of strategic actions through board interlocks has mainly focused on the dyad level, meaning the one-on-one relations between a focal firm and its interlocked firm. The structural embeddedness of a firm and the characteristics of the interlocking director on the diffusion of strategic actions have received little scholarly attention. Drawing from a social network perspective, I first examine how duration of an interlock can influence the diffusion of strategic actions. In this dissertation, I specifically focus on mergers and acquisitions (M&As) in emerging markets as the strategic action of interest.

Next, I turn to the theory of triads in structural sociology and examine the influence of a closed triad. I theorize that Simmelian ties formed in a closed triad facilitate diffusion. I then propose the influence of the number of cliques in which both the focal firm and its interlocked firm are embedded. I also theorize how a sending board's influence can increase the diffusion of M&As in emerging markets, whereas a receiving board's access to information can decrease the diffusion. Finally, I explore the influence of interlocking directors. I specifically focus on the influence of the interlocking director's position on either board (as a chair), tenure on the receiving board, and ownership in the focal firm.

I tested my hypotheses with public firms from 2001 to 2012 and limited the emerging markets to BRIC countries (Brazil, Russia, India, and China). I found evidence in support of five of my hypotheses. My results show that the duration of an interlock,

the number of cliques in which embedded by both firms, the sending board's influence, and whether an interlocking director is a chair on either board are positively associated with the focal firm's implementation of M&As in emerging markets following the interlocked firm; whereas the receiving board's access to information predicted the opposite direction. I then discuss the implications, opportunities for future research, and limitations of my dissertation. My main theoretical contributions are to extend social network theory and to provide a multi-level theory of board interlocks and the diffusion of strategic actions.

## **DEDICATION**

To my husband, Jason

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## **NOMENCLATURE**

BRIC	Brazil, Russia, India, and China
CEO	Chief Executive Officer
FDI	Foreign Direct Investment
IMF	International Monetary Fund
M&A	Mergers and Acquisitions
S&P	Standard and Poor's
TMT	Top Management Team
VIF	Variance Inflation Factor

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## CHAPTER I

### INTRODUCTION

A board interlock is a tie created by two firms sharing a common director, and it has been an important topic in organizational studies (Burt, 1980; Mizruchi, 1996). Interlocks are considered as unique channels for the flow of information, where interlocking directors serve as carriers of information from one firm to other interlocked firms. Interlocks are also considered as a credible and relatively low-cost source for firms to manage environmental uncertainty (Useem, 1984). They help firms gain access to diverse and unique information (Beckman & Haunschild, 2002; Haunschild & Beckman, 1998) and learn new corporate practices (Davis, 1991; Palmer, Jennings, & Zhou, 1993). They can also serve as a signal of a firm's quality (Certo, 2003; Kang, 2008). Further, studies found that board interlocks are positively associated with a firm's future performance (Horton, Millo, & Serafeim, 2012).

*Diffusion* is defined as the spread of a practice from one firm to another firm (Strang & Soule, 1998). A substantial body of the extant research on board interlocks has focused on the diffusion of strategic actions. *Strategic actions* are those that require a significant commitment and resources for firms. They are costly to implement, difficult to reverse, and involve very complex information (Smith, Grimm, Gannon, & Chen, 1991). Strategic actions are not those actions that are made for day-to-day operations. Those actions, also referred as tactical actions, require fewer resources and are easier to implement and reverse (Smith, Grimm, Gannon, & Chen, 1991). Examples of a strategic

action include implementing mergers and acquisitions (M&As), changing organizational structures, and establishing of subsidiaries in a foreign country.

Many scholars consider M&As in emerging markets a challenging strategic action and can often provide unique advantages for firms (Hoskisson, Short, & Yiu, 2011; Hitt, Tihanyi, Miller, & Connelly, 2006). An emerging market is defined as a lower-income country with a fast-growing economic development and a favorable government policy towards a free-market establishment (Hoskisson, Eden, Lau, & Wright, 2000). M&As in emerging markets offer firms great opportunities because emerging markets have a tremendous market potential (Gaur, Malhotra, & Zhu, 2013; Yen, Chou, & Andre, 2013; Zhou, Park, & Ungson, 2013).

According to the World Investment Report (UNCTAD, 2012), more than 50 percent of the global foreign direct investments (FDIs) went into emerging markets in 2011. This shows that emerging markets have become increasingly important; many scholars found that firms implementing M&As in emerging markets are likely to make positive returns (Chari, Chen, & Dominguez, 2009; Ramakrishnan, 2008; Sethi & Krishnakumar, 2013). Even though M&As in emerging markets are considered an important strategic action for a firm, few scholars have examined the antecedents for this strategic action (Sethi & Krishnakumar, 2013). In particular, very few studies have examined the role of board interlocks on the diffusion of M&As in emerging markets (see an exception in Connelly, Johnson, Tihanyi, & Ellstrand's 2011 study).

The diffusion of strategic actions, such as M&As in emerging markets, is a natural setting for studies because scholars have been interested in the influence of board

interlocks (Mizruchi, 1996). Most scholars argued that because a director could advise executives on important strategic actions, s/he could have an influence on the diffusion of strategic actions. Studies have shown board interlocks diffused strategic actions such as poison pills (Strang & Soule, 1998), acquisitions (Haunschild, 1993), and diversification (Chen, Dyball, & Wright, 2009).

In these prior studies, an important assumption regarding diffusion of strategic actions is that information is transferred from the interlocked firm to the focal firm via board interlocks. The information transferred is then assumed to turn into knowledge relevant to the subsequent implementation of the strategic actions (Shropshire, 2010). Thus, following the vast board interlock literature, I also assumed that the diffusion of strategic actions includes the transfer of information from the interlocked firm to the focal firm. The focal firm's receipt of information is then turned into knowledge relevant to the implementation of the focal firm's strategic actions. In this vein, how information turns into knowledge by the focal firm will be an interesting theoretical extension of my dissertation.

While prior scholars have examined the influence of board interlocks through different theoretical lenses, social network perspectives, in particular, have been applied to understand the diffusion through board interlocks (Mizruchi, 1996). The core hypothesis of this stream of research is that firms embedded in the director network can leverage social relations and in return, facilitate economic exchanges, resulting in better firm performance (Granovetter, 1985). In this view, interlocks serve as a mechanism for firms to connect with one another. Firms that are embedded in the director network can

reap the benefits of social capital that are not available to firms outside of the network.

Prior studies have significantly advanced our understanding of how board interlocks may facilitate the diffusion of strategic actions. The general consensus is that board interlocks *can* diffuse strategic actions, but they are *not* consistent predictors. This means that simply having an interlock between two firms does not always predict that a strategic action will diffuse from the interlocked firm to the focal firm. Hence, a research question remains as to when board interlocks facilitate diffusion. If we know a board interlock may facilitate diffusion but we do not know when, it gives us little assurance whether it matters (Mizruchi, 1996).

A review of the literature reveals that the inconsistent findings on the effect of board interlocks may be due to the following: first, prior studies mostly considered board ties as homogeneous ties; they often overlooked the heterogeneous attributes of the ties. In other words, the strength of a tie is usually unnoticed (Shropshire, 2010). For instance, a tie that has existed for many years between two firms is viewed the same way as a tie that has only been established for a few months. Assuming every tie to be homogeneous is essentially ignoring the heterogeneous nature of the channels in which complex information can transfer from one firm to another firm; this may account for one of the reasons why some studies did not find the influence of board interlocks on diffusion. Thus, tie strength is often missing in existing studies.

Second, extant studies have focused mainly on the direct relations between the focal firm and the interlocked firm. This means that most scholars have explored the one-on-one relations between a focal firm and its interlocked firm on the dyad level. A

firm's structural embeddedness and its influence on the diffusion of strategic actions have received little scholarly attention (Gulati & Westphal, 1999; Park, 2011). Structural embeddedness is defined as the extent to which a firm is connected, directly or indirectly, to other firms in a network. In contrast, relational embeddedness refers to the direct relations between two firms (a dyad). Structural embeddedness can also reveal other connections of a dyad's contacts because it includes indirect ties as well (Granovetter, 1992). Social network scholars have long called for using structural embeddedness as a foundation to understand a social phenomenon given that structural embeddedness can provide more contextual explanations (Jones, Hesterly, & Borgatti, 1997).

Finally, the characteristics of the interlocking director have been generally overlooked by diffusion studies (Shropshire, 2010). It is plausible that whether a strategic action may be diffused is dependent upon the carrier that transfers the information. Different interlocking directors may have different levels of influence depending on their characteristics. For instance, a chair of a board is more likely to have higher status than other board members. Thus, s/he is more likely to have more influence on the diffusion of the strategic action. To extend prior scholars' work, more research is needed to explore the influence of interlocking directors.

In this dissertation, I address the limitations in the current literature (e.g., the strength of a tie and the structural embeddedness of a firm) from a multi-level perspective on board interlocks and the diffusion of strategic actions, specifically, M&As in emerging markets. As previously mentioned, emerging markets have gained

increasing importance because they offer many opportunities for firms. They have a fast-growing economic development, and their governments also favor a free market system (Blitz, Pang, & Vliet, 2013; Du & Choi, 2010; Dunning & Lundan, 2008; Hoskisson et al., 2000). However, M&As in emerging markets can be more risky due to the high level of uncertainty in those markets compared to developed markets (Kiymaz, 2013).

Challenges such as underdeveloped markets and culture distance can hinder a firm from entering emerging markets (Ghemawat, 2001; Peng & Heath, 1996; Reus & Lamont, 2009). Many times, firms may have to commit a substantial amount of resources when implementing M&As in emerging markets. Through board interlocks, firms may be able to learn from the interlocked firms that have already implemented the strategic action and thus, reduce the risk that the focal firm may face when entering the emerging market (Connelly et al., 2011). In essence, board interlocks can be an important mechanism for information to flow from an interlocked firm to the focal firm.

From a social network perspective, strong ties are more likely to increase trust, exchange of information, and frequency of communications; thus they can enhance cohesion (Granovetter, 1985; Krackhardt, 1992; Simmel, 1950). All of which I argue can influence the diffusion of M&As in emerging markets. I propose that tie strength influences the likelihood of diffusion at the dyad level. Diffusion is more likely when ties are stronger. I examine tie strength in terms of the duration of an interlock. I then examine the structural level factors that influence diffusion. I draw on the theory of triads in structural sociology and examine the influence of a closed triad (Simmel, 1950). I theorize that M&As in emerging markets are more likely to diffuse through Simmelian

ties due to the social cohesion developed in a closed triad. Simmelian ties are strong ties formed among three parties that are connected with one another (and thus, they formed a closed triad). The focal firm is also more likely to perceive the information as legitimate when it is in a closed triad with the interlocked firm. I then investigate the influence of the number of cliques in which both the focal firm and the interlocked firm are embedded. Cliques are tightly connected subgroups in a network. Cliques have long been studied in social networks (Luce & Perry, 1949) and have been considered as one of the most important sub-structures of a network that go beyond a dyad or a triad (Wasserman & Faust, 1994). Research has shown that cliques can promote cohesion (Moody & White, 2003). Thus, I propose that firms in different cliques together are likely to interact with each other more frequently. Given that cliques can facilitate trust and cohesion, they can help the diffusion of M&As in emerging markets.

Next, I theorize how a sending board's influence and a receiving board's access to information can increase or decrease the diffusion of M&As in emerging markets. When a sending board has a higher influence, it is more likely to be viewed as a leader. Thus, the focal firm is more likely to follow. I specifically use Eigenvector centrality as the theoretical construct to capture the influence of the sending board. On the other hand, when a receiving board has more access to information, it is more likely to have received the information on M&As in emerging markets before the interlocked firm implemented them. Thus, a receiving board that has more access to information is less likely to follow the interlocked firm to implement M&As in emerging markets. The receiving board's access to information is captured by closeness centrality.

Finally, I explore the influence of interlocking directors. I specifically focus on the influence of the interlocking directors' position on either board (as a chair), tenure on the receiving board, and ownership in the focal firm. I argue that an interlocking director's position signals status and influence, and thus as a chair, the information s/he brings back to the focal firm will be more valued. A longer tenured interlocking director on the receiving board also indicates that the interlocking director may be trusted more by the focal firm. Similarly, an interlocking director that has high ownership of the focal firm may have more influence over the focal firm. I predict these characteristics will facilitate the diffusion of M&As in emerging markets. The theoretical perspective developed in this dissertation suggests that strategic actions are influenced by factors at different levels rather than being diffused through a simple dyad level.

My main theoretical contributions are as follows: first, my dissertation extends social network theory by identifying a tie's heterogeneous attributes. I go beyond the traditional recognition of strong and weak ties in existing literature and clearly identify the strength of a tie. In essence, my dissertation identifies strength of ties which is important in a board interlock network. Social network scholars have long called for the importance of identifying the strength of ties because they can more likely explain complex social phenomenon that are not easily explained by ties that are in simple categories (Borgatti, 2003). By identifying the strength of a tie, researchers can capture the complexity of the information transfer from the interlocked firm to the focal firm.

Second, my dissertation further contributes to social network theory by taking into account the complexity of the network and the outcome of interest. Social network

scholars have not reached a consensus on how different centrality constructs influence the intended outcome (Wasserman & Faust, 1994). There has been a frequent debate on whether different centrality constructs capture different important social phenomenon. Most prior studies have simply use the direct ties that a firm has as a way to capture a firm's centrality (degree centrality). By linking a sending board's influence to its Eigenvector centrality and a receiving board's access to information to its closeness centrality, I lay out the important linkage of contexts and a firm's central positions. Specifically, I answer prior scholars' call for social network scholars to consider the contexts when they build their theory on how diffusion occurs (Jones et al., 1997). Thus, I theoretically distinguish the various centrality constructs and empirically test their influence.

Third, in order to study a phenomenon involving individual and organizational levels, cross-level integrations of theory are important (Hitt, Beamish, Jackson, & Mathieu, 2007). In my dissertation, I provide a multi-level theory of board interlocks and the diffusion of strategic actions comprising ties created by interlocking directors, the structural positions of the focal firm and the interlocked firm, and the interlocking directors themselves. In this vein, I move beyond a simple dyad or triad level to consider the heterogeneity of the tie and the entire network. By examining different levels of factors, researchers can more fully model the diffusion of strategic actions.

Fourth, I contribute to the large body of literature on corporate governance, including board interlock research. I expand the knowledge on board interlocks from a social network perspective and move beyond the dominant agency theory. Agency

theory assumes that managers hold superior information relative to owners and focus on the asymmetry of information (Eisenhardt, 1989), but it offers limited explanation on how information may flow from one firm to another firm, resulting in a firm's implementation of important strategic actions, following another firm. By shifting the focus from the asymmetry of information that is held by the managers and the owners to the transfer of information carried by board interlocks, this provides additional understanding of the diffusion of strategic actions.

Further, I examine the influence of board interlocks from the dyad to the structural level that includes attributes of the interlocking director and the boards of the focal and the interlocked firm. Although some studies have investigated the influence of board interlocks from a triadic perspective (Mizruchi, 1992; Gulati and Westphal, 1999), they have not considered the strength of the ties and the larger structural level of the entire board interlock network. In particular, the theoretical perspectives developed from this dissertation suggest that board interlocks are most likely to diffuse strategic actions when tie strength is stronger and when the focal firm and interlocked firm are embedded in a closed triad and different cliques together. My dissertation also incorporates the characteristics of the interlocking director to show how they can influence diffusion. As a result, my dissertation develops a more structural and comprehensive perspective on interorganizational networks in the context of board interlocks. These theoretical perspectives may be applied in other interorganizational studies such as ties among executives (McDonald & Westphal, 2003).

Finally, I contribute to the literature on M&As in emerging markets. M&As in emerging markets can be a risky strategic action that has a potential reward to create value for a firm. I intend to identify what may influence a firm to implement M&As in emerging markets. Prior literature has mostly focused on the firm and industry characteristics and how they influence international expansion (Connelly et al., 2011). Through examining how board interlocks influence the implementation of M&As in emerging markets, my dissertation moves beyond the factors commonly (e.g. firm and industry characteristics) used by scholars to explain diffusion (Connelly et al., 2011; Jones et al., 1997). By identifying corporate governance mechanisms that facilitate M&As in emerging markets, we can help firms utilize their information channels more effectively (e.g., board interlocks).

In the following chapter, I review the literature on board interlocks and the diffusion of strategic actions. Specifically, I lay out M&As in emerging markets as a suitable context for this study. Next, I develop a framework on how social network perspectives and theory of triads influence the diffusion of strategic actions. From there, I present hypotheses for empirical tests and analyses. I then propose the effects of the characteristics of interlocking directors on diffusion. I define that a *focal firm* has a *receiving board*. The *interlocked firm* is a firm that has a *sending board*. The interlocked firm has to implement M&As in emerging markets before the focal firm so the strategic actions can potentially and possibly diffuse to the focal firm.

I tested my hypotheses with public firms listed in the Standard and Poor's (S&P) 1500, Fortune 1000, and Russell 3000 index between 2001 and 2012 and limited the

emerging markets to BRIC countries (Brazil, Russia, India, and China). The results showed support for five of my hypotheses. I found that the longer the duration of an interlock between the focal firm and the interlocked firm, the more likely the focal firm will also implement the strategic action following the interlocked firm. Next, I found the greater number of cliques in which both the focal firm and the interlocked firm are embedded, the more likely that the focal firm will also implement M&As in emerging markets following the interlocked firm. Further, I found the sending board's influence positively influences the diffusion of M&As in emerging markets whereas the receiving board's access to information negatively influences the diffusion. Finally, I found that when the interlocking director is also a chair on either the receiving board or the sending board, the diffusion of M&As in emerging markets is more likely.

Though I was able to show that M&As in emerging markets were likely to diffuse through the dyad and structural level, three of the hypotheses were not supported. I found that when the focal firm and the interlocked firm are embedded in a closed triad, it does not increase the likelihood of diffusion of M&As in emerging markets. Similarly, the interlocking director's ownership in the focal firm is not statistically related to the diffusion. Finally, I predicted the interlocking director's tenure is positively related with the diffusion. The result, however, was opposite of my prediction and was also statistically significant. The dissertation concludes with a discussion of the results, implications, and future research as well as limitations.

## **CHAPTER II**

### **LITERATURE REVIEW**

Board interlocks exist in many corporations and can facilitate the flow of information among the interlocked firms. Scholars have extensively examined the relations between board interlocks and the diffusion of strategic actions. In this chapter, I review the extant literature on the antecedents and outcome of board interlocks, and remaining research questions surfacing as a result of the scholarly work that has been completed. I then specifically focus on the diffusion of strategic actions.

#### **Board of Directors and Interlocks**

In the United States, all public corporations are required to have a board of directors. In some small or family firms, the board can be composed of its executives (e.g., the chief executive officers (CEO) and the top management team (TMT) members) or the family members; these individuals are referred to as inside directors. Outside directors are usually affiliated with entities outside of the firm. Most outside directors are executives of other firms. Both the New York Stock Exchange and NASDAQ require companies to have a majority of outside directors. According to the 2012 Spencer Stuart Board Index (Stuart, 2012), from 2002 to 2012, outside directors on the S&P 500 boards increased moderately from 79% to 84%. The CEO was the only inside director on 59% of the S&P 500 boards, and 23% of the boards had an outside chairman in 2012. In 2012, the top four governance topics that directors focused on were:

executive compensation, the board's role in corporate strategy, CEO succession, and director recruitment. The average size of boards remained roughly the same in 2012 compared to 2002 (10.7 vs. 10.9) with 86% of the boards having 12 or fewer directors. The report also showed that active CEOs were taking on fewer boards, meaning more companies were recruiting their directors from among other corporate executives. As a result, more directors were serving on multiple boards. In 2012, outside directors had an average of 2.1 outside corporate board affiliations. Specifically, 35% of outside directors sat on one board, 32% on two, 21% on three, and finally, 12% on four or more boards.

These statistics show the current board composition and the popularity of board interlocks. A board interlock is created when two firms share a common director (Burt, 1980; Mizruchi, 1996). Interlocks can be created by inside or outside directors. For example, a firm's inside director (e.g., the CEO) can serve on the board of another firm. Early studies indicated that interlocks were a result of corporate control, inter-corporate cohesion, and resource dependence (Mizruchi, 1980). Schoorman, Bazerman, and Atkin (1981) suggested that board interlocks were fairly common because they provided vertical coordination among suppliers and customers, expertise, and enhancement of the focal firm's reputation. In this chapter, it is important to review all extant literatures on board interlocks. I first review the antecedents of interlocks, and then I review the outcomes of interlocks.

### **The Antecedents of Interlocks from Different Perspectives**

There can be many different antecedents of board interlocks. I review the extant

literature and discuss these antecedents from different perspectives, including from a firm's perspective and from an interlocking director's perspective. I limit my review below to a firm's perspective and an interlocking director's perspective because most articles cover these two perspectives. This is a comprehensive literature review from 1979 to 2012.

### ***From a Firm's Perspective***

***Cooptation.*** One of the reasons for firms to form interlocks is to secure critical resources in order to minimize environmental uncertainty. Drawing on the classic study of the Tennessee Valley Authority (Selznick, 1949), Thompson and McEwen (1958) proposed that firms invited representatives from financial institutes onto their boards due to resource dependence (e.g., when a firm is heavily indebted to a bank). These are referred to as financial interlocks and have been discussed in many studies (Bunting, 1976; Galaskiewicz, Wasserman, Rauschenbach, Bielefeld, & Mullaney, 1985; Lang & Lockhart, 1990; Mizruchi & Stearns, 1988; Ornstein, 1984; Palmer, Friedland, & Singh, 1986). Research in this stream concluded that although financial interlocks exist, their impact on a firm's performance is inconclusive.

In addition to financial interlocks, a firm can also interlock with other firms that control (or can provide) critical resources for the focal firm. Burt (1979) found that firms were more likely to interlock with firms in another industry in which the industry constrained their profits. He was also able to show that only firms that successfully interlocked with firms in the sectors on which they had dependency relationships could

obtain benefits from interlocks because the benefits were shown in their improved financial performance. Burt and his colleagues (Burt, Christman, & Kilburn, 1980) further confirmed that interlocks tended to exist when there were market constraints and tended to not occur in the absence of market constraints. Other studies also showed that resource dependence was an important factor in facilitating board interlocks (Ong, Wan, & Ong, 2003; Shrader, Hoffman, & Stearns, 1991).

***Monitoring.*** On the other hand, it is also possible that financial institutions send a representative onto a firm's board in order to monitor the firm. In this situation, a financial interlock is formed (e.g., a bank sends a representative to sit on the lending firm's board). Researchers have identified this type of corporate control in several studies (Eisenhardt, 1989; Mizruchi, 1982). For instance, Mizruchi and Stearns (1988) found that financial institutions are more likely to send more representatives to sit on the focal firm's board if the focal firm is experiencing declining solvency and profit rate. They also found that when the focal firm increases the demand for capital from the financial institute, this also increase the number of representatives sent from the financial institute to monitor the focal firm. In short, this stream of research suggests that financial institutions are more likely to form interlocks with firms that receive capital from them.

***Legitimacy.*** Some firms use their board of directors as a signal to the investors. When a firm appoints a director from a reputable corporation, it serves as a signal to investors about the quality of the firm. By associating itself with other firms that have the desired image, an interlocked firm can gain a spill-over effect on its image as well. In earlier work, scholars reported that boards were more likely to invite other high-status

CEOs to form interlocks (Galaskiewicz et al., 1985). Though not concerned specifically with board interlocks, current studies also confirmed that directors could serve as a signal of legitimacy (Certo, 2003; Higgins & Gulati, 2003).

***Individual Director's Capital.*** Finally, it is plausible that a firm appoints a director because of his/her skills, experiences, and expertise. This can be due to the individual director, not due to other firms with which the outside director is affiliated. For example, studies have shown that new directors were usually drawn from a relatively small pool of people (Stokman, Van der Knoop, & Wasseur, 1988), meaning that these directors were more likely chosen for their individual characteristics, rather than the boards on which they were currently serving. In recent work, researchers found that complex firms (firms with more complex operations in terms of scale and scope) were more likely to attract new directors with high status; firms with high-status current board members were also more likely to attract new directors who also had high status (Johnson, Schnatterly, Bolton, & Tuggle, 2011).

#### ***From an Interlocking Director's Perspective***

***Career Advancement.*** As interlocks are created by individuals, it is also possible that an individual joins multiple boards in order to advance his/her own career and extend his/her connections. Zajac (1988) found that individuals joined boards for several reasons including financial compensation, prestige, and contacts. According to the 2012 Spencer Stuart Board Index (Stuart, 2012), directors in large corporations were well-compensated, and they were more likely to secure another board appointment when their

current appointment ended. In summary, the more board appointments a person has (thus forming more interlocks), the more connections s/he has. These connections can become an interlocking director's social capital and may advance his/her career (Hillman, Withers, & Collins, 2009).

***Social Cohesion.*** Finally, an alternative explanation of the antecedent of board interlocks is based on the social ties among the executives (e.g., the upper echelon). Researchers suggest that interlocks are an important way to reinforce elite cohesion (Domhoff, 1975; Zeitlin, 1974). Useem (1984) referred to this as an inner circle in which members were executives who sat on each other's board and socialized in the same elite social clubs (e.g., belong to the same country club). Earlier studies showed that interlocks could be explained from an interorganizational and class perspective (Koenig & Gogel, 1981; Ornstein, 1984). This view is reconfirmed by studies that showed interlocks that were broken were usually not reconstituted between the same two firms (Palmer, 1983). Though the same evidence can show that directors are recruited for their skills and expertise, an in-depth look also shows that they are in an inner circle in which they socialize with one another.

It is important to note that the antecedents discussed above are in no way mutually exclusive. It is possible that a director is recruited because of his/her expertise, and also because of his/her affiliation with another firm. This can also happen when that director is in the same social groups with the focal firm's CEO. There are other factors that can motivate board interlocks that I did not review above. These factors include a firm's history (Marquis, 2003; Mizruchi, Stearns, & Marquis, 2006), spatial

considerations (Kono, Palmer, Friedland, & Zafonte, 1998), and environmental uncertainty (Beckman, Haunschild, & Phillips, 2004). I include these articles in Table A-1. Indeed, board interlocks reflect both interorganizational and interpersonal ties.

### **The Outcomes of Interlocks**

There are many potential reasons for forming a board interlock, but how does it affect organizational strategy and ultimately, organizational performance? As Mizruchi (1996; 280) put it, “If interlocks are to be worth studying, it is essential that they be shown to have consequences for the behavior of firms.” Researchers have been studying the behavioral consequences of board interlocks for many years. In general, researchers agreed that most times, interlocks served as a communication channel, rather than corporate control (Useem, 1984). This focus on communication channel reflects the nature of network embeddedness of the firms or the position of the firm related to other firms in the same network. For instance, a firm that has the largest number of board interlocks in the interlocking directorate network is usually the most central firm in the network. Network research mainly draws on the concepts of embeddedness and social exchange. Granovetter (1985) argued that economic behaviors were essentially socially embedded. Early scholars have used embeddedness to explain economic actions (Granovetter, 1985), and social exchange to explain how favors can be expected based on trust (Blau, 1968). In short, research concerned with interfirm networks suggest that organizational behaviors are influenced by the structure of the network and a firm’s position in the network (Ahuja, 2000; Azoulay, Repping, & Zuckerman, 2010;

Marsden, 1981; Podolny, 1993). After reviewing the extant literature, the consequences of board interlocks can be summarized as follows.

### ***Manage Environmental Uncertainty***

Interlocking directors can add value to the firm especially in times of environmental uncertainty. For example, financial interlocks have been used as a way to secure financial resources. Boyd (1990) found that firms facing higher environmental uncertainty performed better when they had more board interlocks. Hillman and her colleagues (Hillman, Zardkoohi, & Bierman, 1999) also found that firms interlocked with the government could reduce uncertainty because of the access to superior information channels and the communication exchanges resulting from their use.

### ***Gain Access to Diverse and Unique Information***

Because interlocking directors sit on two or more boards, they have access to private information from other firms that is not otherwise available to the public (Beckman & Haunschild, 2002; Haunschild & Beckman, 1998; Zahra & Pearce, 1989). Thus, information on new corporate practices or policies can be transferred by board interlocks and they can lead to the diffusion of strategic actions (Davis, 1991; Palmer et al., 1993).

### ***Signal the Quality of the Firm***

An interlocking directorate also signals a firm's quality by being affiliated with

another firm that has a good reputation (Certo, 2003; Higgins & Gulati, 2003; Kang, 2008). On the other hand, studies have also shown that “poor” reputations can be spilled over by interlocks as easily as can “good” reputations. For example, drawing on signalling and attribution theories, Kang (2008) found that firms interlocked with firms that were accused of financial reporting fraud were more likely to suffer reputational penalties.

### ***Influence on Firm Performance***

Different theories have been applied to explain the relationships between board interlocks and financial performance. Resource dependence theory has been the primary theory for the perspective that board interlocks are associated with better financial performance. The core thesis is that interlocks help organizations obtain needed resources and information as a foundation for improving their performance (Davis & Cobb, 2010; Pfeffer, 1983). In this vein, a board interlock is a measure of a firm’s ability to secure critical resources. For instance, Carpenter and Westphal (2001) showed that outside directors could contribute to the decision process if they were also on the boards of other firms in similar product markets and had similar corporate strategies. Board interlocks can also facilitate a firm’s borrowing (Mizruchi, 1996), alliance formation (Gulati & Westphal, 1999), and have been associated with effective capital acquisition (Stearns & Mizruchi, 1993).

Social network perspectives have been applied in studies on board interlocks. Some researchers suggest that firms that are embedded in the director network can

leverage social relations and in return, facilitate economic exchanges, resulting in better firm performance (Granovetter, 1985). In this view, interlocks serve as a mechanism for firms to connect with one another. Firms that are embedded in the director network can reap the benefits of social capital that are not available to firms outside of the network. Studies have found that board interlocks were positively associated with a firm's future performance (Horton et al., 2012). However, not all studies showed that board interlocks had a positive influence on firm performance. For instance, Fligstein and Brantley (1992) found that firms with fewer interlocks perform better than those with more interlocks. One plausible explanation is that firms in general will reduce their dependency by board interlocks when they are in troublesome environments (Burt, 1983). Mizuchi (1996) also cautioned that this may be an issue of a causal order of the number of interlocks and firm performance. In brief, scholars have yet reached a consensus on the influence of board interlocks on financial performance.

In summary, I provide a short review of published empirical articles on interlocks studies (see Table A-1). These articles are selected based on the relevance to the constructs I have reviewed; thus, they are ordered by antecedents and outcomes. These articles reveal several observations. First, at the firm level, most articles showed that cooptation was the antecedent for firms to form interlocks. Very few empirical papers focused on legitimacy, individual director's capital, and monitoring as the antecedents. Second, while most empirical papers focused on strategy diffusion and firm performance as outcomes, there were also a variety of outcomes that scholars examined. For instance, Palmer (1983) found that multiple ties between two firms were more likely to facilitate

coordination than a single tie. Summarizing from these articles, we know that scholars have been very interested in board interlocks and especially on the outcomes.

Further, I highlight the theories, the consistencies and the inconsistencies across studies in order to capture the richness and diversity shown by the results of the studies in Table A-1. At the firm level, the first antecedent to board interlocks reviewed in Table A-1 is cooptation. Resource dependence theory is the predominant theory used by scholars (Mizruchi & Stearns, 1988; Shrader et al., 1991; Stearns & Mizruchi, 1986; Ong et al., 2003). Other theories used included structural theory of corporate cooptation (Burt, 1979; Burt, Christman, & Kilburn, 1980), social networks (Burt, 1980), and theory of finance control (Mintz & Schwartz, 1981). In general, researchers agreed that focal firms use board interlocks to work with firms that the focal firms depend on. Thus, ties to critical resources predicted better financial performance. However, Galaskiewicz et al. (1985) found that firms do not form board interlocks for cooptation, but they use board interlocks to signal legitimacy of the firms. They found that firms are more likely to invite high-status executives on their board.

At the individual level, career advancement serves as an important antecedent to board interlocks as explained by social capital theory (Johnson et al., 2011) and social networks theory (Mizruchi, 1990). Researchers also show that social cohesion is an important motivation for board interlocks (Bohman, 2012; Koenig & Gogel, 1981; Ornstein, 1984; Yue, 2012). Different theories have been applied, including hegemony theory (Koenig & Gogel, 1981), organizational theories (Ornstein, 1984), contact theory (Yue, 2012), and social networks theory (Bohman, 2012). This stream of research agrees

that social cohesion is an important motivation for firms to form board interlocks. Furthermore, there are other factors that motivates board interlocks such as spatial consideration (Kono et al., 1998), imprinting theory (Marguis, 2003), history (Mizruchi, Stearns, & Marquis, 2006), and weak firm performance (Devos, Prevost, & Puthenpurackal, 2009). Researchers are able to show that other factors can motivate board interlocks.

For the outcomes of board interlocks, diffusion has been predominantly the outcome of interest. In this stream of research, scholars mainly applied institutional theory (Galaskiewicz & Wasserman, 1989; Okhmatovskiy & David, 2012; Sanders & Tuschke, 2007; Westphal, Seidel, & Stewart, 2001), social networks theory (Clawson & Neustadtl, 1989; Connelly et al., 2011; Davis, 1991; Davis & Greve, 1997; Galaskiewicz & Wasserman, 1989; Rao, Davis, & Ward, 2000), agency theory (Davis, 1991; Carpenter & Westphal, 2001), and resource dependence theory (Haunschild, 1993). Most studies show that when two firms are interlocked with each other, it is more likely that a strategic action will diffuse from the interlocked firm to the focal firm. However, some studies were able to show that it's not just simply the ties that diffuse strategic actions, but ties to certain firms (e.g. Connelly et al., 2011). Davis and Greve (1997) also showed that not all strategic actions diffuse through board interlocks. For instance, they found that poison pills diffused through board interlocks but golden parachutes diffused through geographic proximity.

Another outcome frequently studied by scholars is firm performance. Resource dependence theory is the dominant theory in this stream of research (Boyd, 1990; Harris,

Shimizu, 2004; Sakar & Sakar, 1009; Phan, Lee, & Lau, 2003; Richardson, 1987; Yeo, Pochet, & Alcouffe, 2003). Scholars have also applied organizational theories (Keister, 1998), upper echelons theory (Yeo, Pochet, & Alcouffe, 2003), agency theory (Haniffa & Hudaib, 2006), social networks theory (Cai & Sevilir, 2012), and social capital theory (Horton, Milloo, & Serafeim, 2012). Some scholars found that board interlocks are positively related to firm performance (Cai & Sevilir, 2012; Haniffa & Hudaib, 2006; Harris, Shimizu, 2004; Horton et al., 2012; Kiester, 1998; Phan et al., 2003; Pombo & Gutierrez, 2011; Yeo, Pochet, & Alcouffe, 2003 ), some found board interlocks are negatively related to firm performance (Fich & White, 2005), and yet some found there is no relationship between board interlocks and firm performance (Kiel & Nicholson, 2006). Further, Sakar and Sakar (2009) found that interlocks formed by outside directors enhance the focal firm's performance whereas interlocks formed by inside directors do not.

Finally, scholars are also interested in a variety of organizational outcomes from board interlocks. For instance, studies have examined how board interlocks influence similarity in political behaviors (Burriss, 2005; Mizruchi & Koenig, 1988), alliance formation (Gulati & Westphal, 1999; Rosenkopf & Schleicher, 2008), CEO compensation (Geletkanycz, Boyd, & Finkelstein, 2001), acquisitions (Beckman & Haunschild, 2002), strategic change (Haynes & Hillman, 2010), political unity (Dreiling & Darves, 2011), capabilities (Mahmood, Zhu, & Zajac, 2011), and choice of foreign capital market (Moore et al., 2012).

## **Criticisms of Board Interlocks**

Board interlocks, as expected, have been one of the most often used measures of interfirm networks. Researchers in general suggest that interlocks can influence a firm's strategies, structures, and performance. Research on board interlocks gained increasing attentions in the 1970s and 1980s and remains popular in the present day. Despite its prominence, earlier studies provided only mixed support for its influence, and the topic is not without criticisms (Mizruchi, 1996). The basic criticisms are three types. First, some researchers argued that board interlocks failed to predict firm behaviors. Second, critics argued that interlocks did not capture the complexity and richness of the interfirm relations. Finally, even if the above criteria were met, interlocks did not necessarily predict financial performance.

The first type of criticism is that interlocks failed to predict corporate behaviors (Stinchcombe, 1990; Zajac, 1988). Fligstein and Brantley (1992) found that financial interlocks did not predict corporate performance and claimed that researchers should not use interlocks to represent an inter-organizational network unless relevance could be theoretically specified. However, current studies as discussed previously showed that interlocks did sometimes predict the diffusion of strategic actions (see Table A-1), for instance, greenmail (Kosnik, 1987), golden parachutes (Wade, O'Reilly III, & Chandratat, 1990), multi-divisional form (Palmer et al., 1993), external financing (Mizruchi & Galaskiewicz, 1993), and corporate philanthropy (Galaskiewicz & Wasserman, 1989).

While many studies showed a significant relation between interlocks and predicted firm behaviors, some studies did not find such a relationship. Allison and Potts (1999) argued that interlocks involved two sub-processes: contact and choice. A diffusion of strategic actions involves the transfer of information from the interlocked firm to the focal firm, and then the choice of implementing the strategic action (or not) by the focal firm. Many studies failed to differentiate the sub-processes, treating both contact and choice as a homogeneous process. This thus explains why some strategic actions diffuse while others do not. We can reasonably assume that information transfers via interlocks but we cannot always assume that the focal firm will decide to implement the strategic action. Shropshire (2010) proposed that the reason board interlocks fail to predict the diffusion of strategic action is that scholars have mainly treated all interlocks as homogeneous. She theorized that the interlocking director's characteristics and the receiving board's receptivity can determine the likelihood of diffusion. However, there are no empirical studies that support the claims.

The second criticism is that interlocks did not capture the complexity and richness of interfirm networks (Davis & Powell, 1992; Hirsch, 1982). Many researchers used board interlock network as the only measure to represent interfirm networks, overlooking other networks such as strategic alliance, CEO friendships, and common membership in the social groups/clubs. Because there are many ways a firm can connect with other firms, researchers should be aware that other ties exist. For instance, Westphal and his colleagues (Westphal, Boivie, & Chng, 2006) explored how top executives use informal ties (friendship ties) to top executives in other firms to manage

uncertainty and resource dependency. They found that broken ties (ties that are disrupted because of different reasons such as top executive resignations) are more likely to be reconstituted again especially when there is high resource dependence.

Finally, the third criticism is that board interlocks failed to predict corporate financial performance. Many researchers propose that interlocks help firms secure resources and thus improve financial performance (Casciaro & Piskorski, 2005; Westphal et al., 2006). Based on resource dependence theory, a firm with more interlocks should have access to information otherwise not available to them. This is most likely to lead to a higher financial performance. Results have been inconsistent. Some found positive effects on financial performance (Pennings, 1980; Burt, 1983), while others found negative effects (Fligstein & Brantley, 1992). Mizruchi (1996) suggested that interlocks might be both a predictor and an outcome of firm performance; thus, the conflicting results were likely due to causal ordering.

Some scholars found interlocks to be associated with reduced financial performance (Fligstein & Brantley, 1992; Meeusen & Cuyvers, 1985). One argument was that costs were associated with directors serving on multiple boards, and they were referred as *busy directors* (Core, Holthausen, & Larcker, 1999). The view was that busy directors had limited time and attention for the boards they served (Li & Ang, 2000). Researchers found that firms having outside directors with multiple directorships tended to have weaker governance (Fich & Shivdasani, 2006). This view predicts that busy directors can have a negative influence on firm performance because busy directors cannot devote all their time and energy to help any single firm (Core et al., 1999;

Jiraporn, Singh, & Lee, 2009). Another argument was that an interlocking directorate embedded in the director network might become more committed to his/her elite network than to his/her boards (Burris, 1992). In this view, directors that were connected to different boards could be influenced by the norms and values of the network (Koenig & Gogel, 1981; Windolf & Beyer, 1996). This might lead to the tendency that the directors were more concerned with social cohesion than with their director duties.

While the last criticism cannot be answered unless there is a systematic analysis of prior studies (e.g., meta-analysis), my dissertation seeks to address the first two criticisms. I argue that board interlocks do transfer information from the interlocked firm to the focal firm. The information transferred is then converted into an understanding of the interlocked firm's strategic actions that leads to the knowledge used for the subsequent implementation of the strategic actions by the focal firm (Shropshire, 2010). Thus, the transfer of information via board interlocks results in the diffusion of strategic actions. However, central to my theory is that not every board interlock results in the diffusion of strategic actions. Certain types of board interlocks generate different outcomes. In essence, I argue that interlocks do transfer information and diffuse strategic actions under certain conditions. I also further incorporate other factors that capture the complexity of the network. I review interlocks and the diffusion of strategic actions below.

### **Board Interlocks and the Diffusion of Strategic Actions**

Davis and Greve (1997) argued that interlocks provided conduits for information

flow and spread of norms of corporate governance. They suggested that it only made sense when a director sat on another board would bring the experiences from another board back to the focal firm. In this regard, directors serve as carriers of information from other firms. They help legitimize practices more directly and faster than outside public information. For instance, in the 1990s, AT&T and IBM both completed hostile takeovers (AT&T acquired NCR and IBM acquired Lotus). At that time, AT&T's board was connected to 40 other corporations while IBM's board was connected to 20 other corporations. Davis and Greve (1997) discussed that other firms that had board interlocks with AT&T and IBM could hear important information regarding advantages, disadvantages, costs, and benefits for hostile takeovers. This was important information that could only be transferred from the firms that had implemented the strategic actions to the firms that were connected to them (Becker, 1970). To the extent of the information that the interlocking directors can share and not violating the confidentiality clause, the interlocking directors can help the focal firm understand the strategic action. In other words, the focal firm could then see takeovers in a more positive way. In this vein, the information also helped legitimize the practices that were initially controversial.

Scholars suggest that because director interlocks transfer knowledge about organizational practices (Davis, 1991), it explains why interlocked firms implement similar strategies (Haunschild, 1993; Westphal et al., 2001). When similar strategies are implemented by interlocked firms, this is generally viewed as diffusion. Strang and Soule (1998: 266) defined diffusion as “the spread of something within a social system.” As they explained, the key term is “spread,” and it indicates something (e.g., a practice)

flows from one to another. Diffusion also refers to contagion, embracing, and mimicry. I will now explain how board interlocks influence diffusion in the next chapter.

## CHAPTER III

### THEORY AND HYPOTHESES

When managers face an unfamiliar environment, they often have to make risky strategic decisions. Researchers have found that managers will observe other firms' actions, collect information from peers, and learn from other firms' successes and failures (Borgatti & Cross, 2003). There is a general agreement in the extant literature that managers frequently depend on their board interlock networks to collect information for strategic actions (Connelly et al., 2011). Board interlocks provide a mechanism for leaders of different firms to observe practices, exchange information, and receive first-hand information on the process and outcome of strategic actions (Gulati & Westphal, 1999). Thus, it is plausible that interlocking directors may influence the diffusion of strategic actions.

As previously mentioned in the Introduction chapter, an important assumption regarding diffusion of strategic actions is that information is transferred from the interlocked firm to the focal firm and will then turn into knowledge relevant to the subsequent implementation of the strategic actions (Shropshire, 2010). In this dissertation, I examine the diffusion of strategic actions. *Strategic actions* are those that require a significant commitment and resources for firms. They are costly to implement, difficult to reverse, and involve very complex information (Smith, Grimm, Gannon, & Chen, 1991). They include actions such as acquisitions and strategic alliances (Miller &

Chen, 1994). Thus, I make a case for M&As in emerging markets as the focus of the strategic actions in this dissertation.

A board interlock may be instrumental in the diffusion of strategic actions especially when strategic actions are complex and risky. An M&A in an emerging market is an example of a strategic action that involves a great amount of uncertainty. It is an important strategic action that can be highly rewarding but very risky (Sanders & Carpenter, 1998). Yet, few studies have examined the influence of board interlocks on M&As in emerging markets. One exception is Connelly et al.'s (2011) study on expansion into China. They found ties to firms that have successfully expanded into China increases the likelihood of the focal firm's expansion into China while ties to firms that have unsuccessfully expanded into China decreases the likelihood of adoption. Because M&As in emerging markets involve highly complex strategies, it is very likely that managers will turn to their interlocked firms for information. In essence, complex strategic actions such as M&As in emerging markets are not a result of an isolated decision, but rather, they are most likely as a result of managers seeking information from other firms in the network (Connelly et al., 2011).

Building on prior work, I seek to explain the diffusion of M&As in emerging markets from a more fine-grained and multi-level perspective. Based on the social network perspective, I first propose that the strength of a tie at the dyad level influences diffusion. I then incorporate theories from structural sociology to show how a closed triad and the number of cliques influence the diffusion of M&As in emerging markets. A closed triad is formed when three firms are interlocked with one another, and a clique is

a tightly connected subgroup in a board interlock network. I further propose that a sending board's influence (as captured by Eigenvector centrality) and a receiving board's access to information (as captured by closeness centrality) can increase or decrease diffusion. I make a clear distinction among different centrality constructs based on their theoretical differences. Finally, I propose how the characteristics of the interlocking directors can influence the diffusion of M&As in emerging markets. Throughout this dissertation, I denote the focal firm as having a receiving board, meaning the strategic action is being diffused to. The interlocked firm that diffuses M&As in emerging markets is referred to as having a sending board (e.g., diffusing the strategic action to the focal firm).

### **The Case of M&As in Emerging Markets**

Many scholars consider diversification a challenging corporate-level strategy; as such, it remains one of the most influential and debated research topics (Bergh, 2001; Gomez-Mejia, Makri, & Kintana, 2010; Wan, Hoskisson, Short, & Yiu, 2011). M&As in emerging markets is a form of international diversification with the potential to provide unique advantages to firms (Hitt et al., 2006). As previously defined, an emerging market is a lower-income country with a fast-growing economic development and a favorable government policy towards a free-market establishment (Hoskisson et al., 2000). Emerging markets offer firms tremendous market potential and cheaper labor costs. They are different from other developing markets because their governments also favor moving toward economic liberalization; this gives firms an added incentive to

expand into those markets. Although emerging markets offer new business opportunities, they also come with costs. Due to natural market imperfections in the emerging markets, firms face challenges such as an underdeveloped market structure (Peng & Heath, 1996), high cultural distances (Ghemawat, 2001; Reus & Lamont, 2009), weak corporate governance (Khanna & Palepu, 2000), a lack of public infrastructure, inconsistent government policies, and corruption (Dunning & Lundan, 2008).

Even though there are costs in doing business in emerging markets, they are becoming more attractive for firms in developed markets. According to the World Investment Report (UNCTAD, 2012), emerging markets accounted for more than half of the global foreign direct investments (FDIs) in 2011. This is likely due to the saturation of the developed markets and the growing opportunities provided by the emerging markets. Although emerging markets are becoming increasingly important, very few scholars have focused on M&As in emerging markets. For those scholars who have studied M&As in emerging markets, they have in general examined the relationship between M&As in emerging markets and firm performance.

Some studies found that M&As in emerging markets negatively influenced a firm's financial performance. Using firms in India as their sample, Mantravadi and Reddy (2008) found that only firms in the banking and finance industry reported marginal positive profits after implementing M&As; firms in most industries (e.g., textile and chemicals) reported negative impacts. Kumar (2009) also found M&As had a negative influence on a firm's performance in emerging markets. However, most studies

found M&As in emerging markets positively influence a firm's performance. Collin (1990) investigated the return on investments in domestic, developed, and emerging markets. He found that international diversification provided a potential gain, but the gain was greater for emerging markets. Pawaskar (2001) studied 36 acquiring firms from 1992 to 1995 and found that their M&As in India performed better than the industry average. Ramakrishnan's (2008) also found that firms that have implemented M&As in India performed better, and his study was based on a sample of 87 M&As from 1996 to 2002. Other scholars found that M&As in emerging markets increased the target firm's return on assets by 16% five years after the M&A (Chari et al., 2009). Finally, Chari, Ouimet, and Tesar (2010) found that firms from developed markets reported a significant positive return after they implemented M&As in emerging markets.

As shown in existing research, most scholars found that firms implementing M&As in emerging markets in general can earn positive returns. However, very few scholars investigated the antecedents of this strategic action (Sethi & Krishnakumar, 2013). In particular, little research has focused specifically on the role of board interlocks in the decision to implement M&As in emerging markets (see an exception in Connelly et al.'s paper, 2011). It is surprising, given that one of the primary responsibilities for board of directors is to advise strategic actions such as M&As (Westphal et al., 2001). Because many scholars have shown that M&As in emerging markets are more likely to positively influence a firm's performance, it becomes an interesting question as to what factors influence a firm to implement M&As in emerging markets. As previously reviewed, scholars have shown that board interlocks *can*

influence the diffusion of strategic actions but *do not* always predict diffusion. I see an opportunity to combine the two questions and answer the following: first, when do board interlocks matter? Second, do board interlocks facilitate the diffusion of M&As in emerging markets?

### **Board Interlocks and the Diffusion of M&As in Emerging Markets**

Early studies on board interlocks have been dominated by resource dependence theorists (Borgatti & Foster, 2003). These scholars viewed board interlocks as a way for firms to secure and manage their resources (Pfeffer & Salancik, 1978; Pfeffer, 1972) and maintain control and power (Palmer, 1983; Pennings, 1980; Useem, 1979). However, in recent years, researchers have shifted their focus to the information perspective of the function of board interlocks. They view interlocks as ways for firms to share information about effective practices and as paths through which strategic actions are diffused. These studies showed that interlocks helped diffuse strategic actions such as poison pills (Davis, 1991), M&As (Haunschild, 1993), and joint ventures (Gulati & Westphal, 1999). In this newly-developing stream, social network perspectives are frequently used to understand the influence of board interlocks (Davis, 1991; Mizruchi, 1996).

While there are many social network studies on board interlocks, I take a multi-level approach in examining the influence of board interlocks on the diffusion of M&As in emerging markets. I investigate the influence of dyad and structural level of interlocks on diffusion and then discuss the influence of interlocking directors.

## **Dyad Level**

Studies on board interlocks have in general focused on the dyad level. The underlying assumption is that interlocking directors are one of the primary channels for firms to connect with other firms, gaining critical information and improving responsiveness. In essence, board interlocks are ties through which information can flow. The flow of information is likely to play a key role in the process of the diffusion of M&As in emerging markets. Studies show that board interlocks help firms attenuate resource constraints and overcome environmental uncertainty (Casciaro & Piskorski, 2005; Westphal et al., 2006).

## ***Duration of an Interlock***

Useem (1984) suggested that board interlocks could provide valuable information for executives to manage environmental uncertainty and to make their own strategic decisions. Other scholars also agreed that interlocking directors could transfer first-hand knowledge (Lorsch & MacIver, 1989). Thus, when an interlocked firm implements M&As in an emerging market, the focal firm is likely to be among one of the first informed. Several studies, however, showed contradictory results as to whether the information transferred facilitates diffusion (Mizruchi, 1996). Some studies found interlocks predicted strategy diffusion (Davis, 1991; Haunschild, 1993), while others did not (Golden & Zajac, 2001; Westphal & Stern, 2007). These inconsistent findings are likely due to the assumptions that most studies made. Most studies assumed that board interlocks are homogeneous ties (e.g., a tie is “a tie”) (Shropshire, 2010). Studies on

social networks have long distinguished strong and weak ties (Granovetter, 1973; Krackhardt, 1992), but studies on board interlocks have not distinguished different types of board interlocks. As previously reviewed, M&As in emerging markets can be risky. There are many uncertainties associated with emerging markets due to their market imperfection. The information transferred through a board interlock is likely to be valued more if it is through a strong tie. Thus, the diffusion of M&As in emerging markets may be influenced by the strength of (or lack thereof) board interlocks.

Therefore, based on theories of strong and weak ties (Granovetter, 1973; Krackhardt, 1992), I propose that tie strength influences the diffusion of M&As in emerging markets. Specifically, it is the duration of a board interlock. In sociology, many scholars use duration as a common measurement of the strength of a friendship tie, but duration has not been widely used in organizational studies (Borgatti, 2003). My argument is based on the following: first, at the organizational level, when firms share a common director for a long time, they are more likely to build trust and reinforce cohesion. Because of the uncertain nature of the emerging market, the focal firm is not going to trust or value any information source. When a tie is a strong tie, the focal firm is more likely to trust the information source. It minimizes the perceived risks associated with M&As in emerging markets. Many scholars have identified the influence of trust and cohesion on the diffusion of innovation (Beckman & Haunschild, 2002; Davis, 1991; Westphal et al., 2001). At the individual level, for managers, a director that has served as an interlocking director for ten years is more likely to be trusted than a director that has only served for ten months. Of course, this goes both ways. A director that is

more trustworthy and perceived as capable of his/her role is more likely to be kept on both boards for a longer time than a director that is perceived otherwise. Based on either argument, duration of interlocks is likely to reflect the degree and likelihood of how much a focal firm perceives the reliability of the interlocking director's information from the interlocked firm.

Second, because M&As in emerging markets involve managers making decisions in an environment that may not be familiar to the managers, board interlocks may facilitate communication and transfer of information between the focal firm and the interlocked firm. However, the frequency of communication between the focal firm and the interlocked firm is likely to be influenced by how long the interlock has existed. For instance, when two firms have established a tie through a board interlock for many years, the focal firm is more likely to communicate with the interlocked firm more frequently. After the interlocked firm has implemented M&As in emerging markets, the focal firm can communicate with the interlocked firm on the costs and the benefits of this strategic action. A tie that has existed for a longer period of time is likely to facilitate the communication and thus, the focal firm is more likely to see the value in M&As in emerging markets. In this vein, M&As in emerging markets are more likely to diffuse through a board interlock if the information is exchanged more frequently.

*Hypothesis 1 (H<sub>1</sub>): The longer the duration of an interlock between the focal firm and the interlocked firm, the greater the likelihood that the focal firm will also*

*implement M&As in emerging markets following the interlocked firm that has already implemented the strategic action.*

In short, I argue that a longer duration of an interlock enables trust and cohesion between two firms. The focal firm is more likely to perceive the information on M&As in emerging markets as reliable and more likely to communicate with the interlocked firm more frequently. This dyad-level characteristic reflects the degree of tie strength (e.g., a longer duration means the tie is stronger) that helps diffuse M&As in emerging markets. I then turn to the factors on the structural level that influence diffusion.

### **Structural Level**

Network research mainly draws on the concepts of embeddedness and social exchange. Research on interfirm networks suggests that organizational behaviors are influenced by the structure of the network and a firm's position in the network (Ahuja, 2000; Azoulay et al., 2010; Marsden, 1981). A board interlock network is a natural setting for firms to exchange information and learn from each other. Information on M&As in emerging markets is potentially valuable because it is not as widely available as information on M&As in developed markets. As previously mentioned, extant studies have mainly focused on the relational embeddedness between a dyad. I have proposed that tie strength (in terms of relational embeddedness) facilitates the diffusion of M&As in emerging markets and will discuss the structural embeddedness below.

### *Closed Triad*

Going beyond the influence of a direct tie, the importance of third parties was first discussed by Simmel (1950). He argued that social exchanges involving three parties (triads) were fundamentally different from those involving two parties. It is not simply due to a higher number of participants (three vs. two), but rather, the interactions and dynamics among them (Krackhardt, 1999). Thus, studies in structural sociology not only recognize direct ties (dyad), but also consider indirect third-party ties (triads) (Burt & Knez, 1995; Gulati & Westphal, 1999). A closed triad is formed when three firms are connected with one another. This happens when Firm A is interlocked with Firm B, Firm B is interlocked with Firm C, and Firm C is interlocked with Firm A (see Figure A-1). A dyadic tie embedded in a triadic relation (i.e., a tie that is embedded in a closed triad) is also referred to as a Simmelian tie (Krackhardt, 1999), and Simmelian ties have been extensively studied in structural sociology (Heider, 1958; Kilduff & Krackhardt, 2008; Simmel, 1950).

Krackhardt (1999) argued that the primary dynamics and transformation happened when actors moved from dyads to triads rather than from triads to a larger group. He showed that individuals in a closed triad were more likely to build support and establish trust. In essence, Simmelian ties formed in a closed triad can enhance social cohesion. Applying the theory of triads to organizational level, it is plausible that Simmelian ties can facilitate the diffusion of M&As in emerging markets.

After the interlocked firm implements M&As in emerging markets, the focal firm that is in a closed triad with the interlocked firm is more likely to follow the strategic

action for the following reasons: first, when the focal firm is in a closed triad with the interlocked firm that has implemented M&As in emerging markets, the focal firm is more likely to receive direct information from the interlocked firm, and the information is likely to be reinforced again from the third firm that is also in the closed triad. Thus, the focal firm is likely to receive the information twice, once directly from the source, and once from an indirect source.

Because M&As in emerging markets involve complex information and is costly to implement and reverse, a focal firm will be more likely to value the information more when it is transferred repeatedly from its interlocked firms. Second, because the information is transferred from two direct interlocked firms, it is more likely to be perceived as more accurate and legitimate. Legitimacy is an important factor for diffusion in a network (Human & Provan, 2000). A focal firm is only going to value the information if it is perceived as legitimate. This is especially critical when the focal firm is making a risky decision to implement M&As in emerging markets. Because information is not widely available in those markets, the information that is received from the interlock firms in a closed triad will be perceived as more legitimate and accurate. From there, the focal firm is more likely to consider M&As in emerging markets because of its interlocked firm, hence facilitating diffusion.

*Hypothesis 2 (H<sub>2</sub>): When the focal firm and the interlocked firm are both embedded in a closed triad, the focal firm is more likely to implement M&As in*

*emerging markets following its interlocked firm that has already implemented the strategic action.*

### ***Number of Cliques***

Scholars suggest that board interlocks transfer knowledge about organizational practices (Davis, 1991). This may explain why interlocked firms implement similar strategic actions (Haunschild, 1993; Westphal et al., 2001). The amount of information on M&As in emerging markets transferred from one firm to another firm is likely to vary dependent upon the level of structural embeddedness. Because the amount can vary, the likelihood of diffusion can vary as well. I have proposed that when firms are in a closed triad, the diffusion of M&As in emerging markets is more likely to occur.

Taking it a step further, it is also often that both firms are in different cliques together. Cliques have long been studied in social networks (Luce & Perry, 1949). It is originally referred to as a subgroup that has at least three or more actors in which every actor is connected with one another (see Wasserman & Faust, 1994; I have also provided a more detailed discussion in Appendix B). A clique goes beyond a simple dyad or a triad and has been considered as an important sub-structure in a network (Wasserman & Faust, 1994). Scholars have found that cliques denote connectedness and reachability, which means, firms that are in a clique are more connected with one another and are also easier to reach one another. Thus, cliques can promote cohesion and influence (Moody & White, 2003). Cliques are sometimes used to signal the strength of ties between two firms (Hanneman & Riddle, 2005).

The effect of subgroups is an important aspect of network structure (Rowley, Greve, Rao, Baum, & Shipilov, 2005). For instance, if a focal firm and the interlocked firm are both in multiple cliques together, we may expect that they are more likely to have interactions with each other. Thus, when the interlocked firm implements M&As in emerging markets, the focal firm is more likely to hear about the information and interact with the interlocked firm. A clique goes beyond a simple dyad and triad. Coleman's (1988) seminal work on social capital described how network closure can create cohesion and thus promote trust and social norms. In essence, a clique is also more likely to facilitate expectations, obligations among members, and information sharing within the network. Studies have found that cohesion promotes the longevity of alliances and joint ventures (Gulati & Gargiulo, 1999).

In a board interlock network, the focal firm and the interlocked firm usually have only one direct tie (sharing one common director), but they can be in multiple cliques together. The number of cliques is likely to influence the diffusion of M&As in emerging markets for at least two reasons. First, when two firms are in multiple cliques together, this often suggests the firms have a higher frequency of communication with each other. Think of this as two people in different subgroups together; they are more likely to see each other and talk to each other. When an interlocked firm implements M&As in an emerging market, the information is more likely to be transferred to other interlocked firms. When the focal firm is in multiple cliques with the interlocked firm, the focal firm is more likely to receive the information through the interlock. Being in multiple cliques together also shows that information is likely to be transferred more

accurately, if not repeatedly to the focal firm. Because M&As in emerging markets are complex strategic actions that can generate a potential reward for the firm, more communication gives the focal firm more opportunities to learn from the interlocked firm, and hence, it facilitates the diffusion of M&As in emerging markets

Second, when a focal firm and the interlocked firm are both embedded in different cliques together, they are more likely to build trust and cohesion (Coleman, 1988). This is a similar idea as to what a closed triad can facilitate, but it goes beyond a triad. Although it is possible that a focal firm may trust the interlocked firm less when the focal firm knows more about the interlocked firm, research in general has shown that people develop more trust when they know someone more (Granovetter, 1973; Wasserman & Faust, 1994). Thus, this is likely to apply for firms as well. As noted previously, because M&As in emerging markets require undertaking major risks with uncertainty, the focal firm is not going to implement M&As in emerging markets without considering the information source. Because cliques are likely to facilitate information sharing and trust between the focal firm and the interlocked firm, the focal firm is more likely to adopt the interlocked firm's strategic action to implement M&As in emerging markets.

*Hypothesis 3 (H<sub>3</sub>): The greater the number of cliques embedded between the focal firm and the interlocked firm, the greater the likelihood that the focal firm will also implement M&As in emerging markets following the interlocked firm that has already implemented the strategic action.*

### *Sending Board's Influence*

Many scholars recognize the importance of centrality, which is defined as the position of an actor in a network that is involved with many ties (Wasserman & Faust, 1994). Centrality has been linked to several important organizational outcomes because of the following reasons: first, a more central board has more access to resources because it is well-connected to other boards. Second, a more central board is more likely to receive new information before other peripheral boards. Third, centrality is usually associated with higher status and power, which is an important factor in predicting the ability to influence strategy (Finkelstein, 1992).

When a sending board occupies a network position that is more central, it means that the sending board is well-connected and carries more status and power (Kliduff & Brass, 2010). Thus, a receiving board is more likely to consider the information coming from a more central board. In this vein, centrality indicates influence. Although research has shown that most firms implementing M&As in emerging markets have generated positive profits, there are still many risks associated with emerging markets. Problems such as cultural distance and an underdeveloped market system can hinder firms from going into emerging markets. However, when the sending board occupies a position of influence, the focal firm is more likely to follow the interlocked firm's actions for the following reasons: first, when the sending board is more central, it is perceived to have more access to resources. Thus, when the interlocked firm decides to implement M&As in emerging markets, it is perceived that it has utilized its resources to make this decision. It is assumed that a more central interlocked firm will always try to make the

best decision given its access to resources. In this vein, the focal firm is more likely to view M&As in emerging markets as a potential opportunity for firms to improve performance because it has been implemented by the interlocked firm that occupies a more central position in the network.

Second, because a more central sending board is usually associated with higher status, this usually comes with power and influence (Wasserman & Faust, 1994). Thus, the interlocked firm is most likely to be viewed as leaders. Extant literature has shown that firms are likely to follow the leaders into a new market (Haveman, 1993). Given that a more central firm is more likely to be viewed as a leader of the network, its decision to implement M&As in emerging markets will likely be followed. In other words, when the interlocked firm decides to implement M&As in emerging markets, the focal firm is most likely to perceive the leader's action as positive and thus follow the leader.

However, it is important to distinguish the central position of influence of the sending board from the general definition of centrality (e.g., degree centrality that takes account of the number of direct ties that the focal firm has). There are four frequently cited centrality constructs in the literature: degree centrality, betweenness centrality, closeness centrality, and Eigenvector centrality (see a more detailed discussion in Appendix C). Degree centrality is defined as above (e.g., Firm A has five direct interlocked firms). Betweenness centrality captures how many times other firms have to go through the focal firm in order to reach other firms (e.g., in order for information to flow through the shortest path, five firms has to go through Firm B). Closeness centrality captures the shortest distance to all other firms in the network (e.g., if Firm C has a

closeness centrality of 1, it means that it can reach other firms within one step in the network). Finally, Eigenvector centrality takes other interlocked firms' centralities into consideration (e.g., connecting to a more central firm gives Firm D more weight than connecting to a less central firm).

Here, a sending board's influence is captured by Eigenvector centrality. Early scholars have shown through experiments and simulation studies that not all centrality constructs can capture the influence (Bonacich, 1987; Bonacich, 2007; Cook, Emerson, Gillmore, & Yamagishi, 1983). For instance, a board interlock with Google (that has many board interlocks with other more central firms) should be weighted more than a board interlock with a firm with a less central position. Thus, connecting to more central firms has more value than connecting to less central firms. In this vein, Eigenvector centrality indicates the influence from the sending board. A sending board that has a high Eigenvector centrality is likely to facilitate the diffusion of M&As in emerging markets. The receiving board is more likely to be influenced by the information provided by the sending board that is perceived to be the leader of the network.

*Hypothesis 4 (H<sub>4</sub>): The greater the influence of the sending board of the interlocked firm, the greater the likelihood that the focal firm will also implement M&As in emerging markets following the interlocked firm that has already implemented the strategic action.*

### ***Receiving Board's Access to Information***

Board centrality reflects the connectedness and the position of the board in the interfirm network. A more central position shows that a board has many connections and indicates not only higher status and power, but also more access to private information. As discussed previously, there are different centrality constructs, each representing different underlying theoretical assumptions. Because the sending board is not the only source of information about M&As in emerging markets, it is possible that the higher number of other sources (e.g., other interlocks) that a receiving board has, the lower the influence of the sending board of the interlocked firm. When the receiving board has more access to information in the network, it is more likely to have gained critical information on M&As in emerging markets from other firms. This is consistent with the idea of information substitution (Haunschild & Beckman, 1998).

In order for the receiving board to obtain information, it should be close to other firms in the network. Thus, a firm that has the shortest path to other firms indicates that the firm has access to the most available amount of information in the network. Closeness centrality represents the shortest path to other firms in the network (Wasserman & Faust, 1994). When the interlocked firm implements M&As in emerging markets, the focal firm that has more access to information is less likely to follow the strategic action for the following reasons: first, although interlocks often provide inside information for the focal firm, a receiving board is only likely to value and be influenced by a source if the information is unique and critical. When a receiving board has alternate channels of the information (e.g., other interlocks), the influence of any

individual sending board is diminished. For instance, a focal firm that has a receiving board with high access to information is likely to have learned about M&As in emerging markets before its interlocked firm implements M&As in emerging markets. In other words, having high access to information gives the focal firm an advantage in receiving critical information before most of the other firms. Thus, the interlocked firm is not likely to have an influence on the focal firm because the focal firm can gather information from other interlocked firms. In this vein, the diffusion of the M&As in emerging markets from the interlocked firm to the focal firm is diminished.

Second, because a receiving board has more access to multiple sources of information, it is more likely to search for a satisfactory answer (Haunschild & Beckman, 1998). This is called satisficing, meaning that the focal firm will continue to search its available sources until a satisfactory answer is found. Thus, a receiving board that has high access to information is less likely to be influenced by any individual source. When the interlocked firm implements M&As in emerging markets, the focal firm that has high access to information will likely search for more information regarding this strategic action. Thus, it is less likely to simply follow the interlocked firm. In short, the impact of information on M&As in emerging markets obtained from the sending board should be diminished in the presence of other sources. In this vein, the sending board's influence is not as strong for a receiving board that has high access to information. In short, the receiving board's access to information is captured by closeness centrality, measuring the shortest distance to all other firms in the network. I present my argument below:

*Hypothesis 5 (H<sub>5</sub>): The greater the access to information of the receiving board of the focal firm, the lower the likelihood that the focal firm will also implement M&As in emerging markets following the interlocked firm that has already implemented the strategic action.*

I have proposed how dyad and structural level factors can influence the diffusion of M&As in emerging markets. I now turn to the effects of interlocking directors.

### **Interlocking Directors**

An interlocking director serves as an important channel for information flow as previously discussed. Shropshire (2010) is one of the first scholars to discuss individual interlocking directors and theorized their effects on diffusion. She proposed factors such as interlocking directors' organizational identification, access to CEO, and breadth of experiences increased the likelihood of diffusion, whereas ingratiation behaviors decreased it. Building on prior scholars' work, I hypothesize that other characteristics of the interlocking directors facilitate diffusion. I explain as follows.

#### ***Chair on either Board***

The position of an interlocking director is likely to be an important factor in determining whether s/he can influence a firm's action, especially in the case of M&As in emerging markets, given that it is a strategic action that involves a great amount of risk. Finkelstein (1992) described four types of managerial power: structural, ownership,

expert, and prestige. A chair position results in structural power as well as a position of status. Research has shown that when directors hold important positions on the board, it can also increase a director's reputation (Deutsch & Ross, 2003; Yermack, 2004).

Hence, a chair is more likely to have an important influence on deciding whether the focal firm will follow the interlocked firm to implement M&As in emerging markets.

I base my arguments on the following: as a chair of a sending board, s/he carries prestige and prominence. They both matter to the diffusion of M&As in emerging markets. First, information from a board interlock helps the focal firm mitigate uncertainty about emerging markets. Because emerging markets are fast-growing markets and the government policy may not be consistent or stable, a firm has to rely on other sources for information. In particular, an interlocking director can transfer valuable information from the interlocked firm that has implemented M&As in emerging markets to the focal firm. When the source is from the chair of the sending board, the focal firm is more likely to view the source as legitimate. The information from the interlocking director, who is also the chair of the sending board, carries authority from the interlocked firm. Given that M&As in emerging markets are difficult to implement and reverse, a legitimate source from an authority figure is more likely to help the focal firm make a decision on whether to implement M&As in emerging markets. Second, a chair is also viewed as highly responsible for the interlocked firm's strategies. Naturally, the focal firm is more likely to value the information on M&As in emerging markets from a chair who is responsible for the strategic action in the interlocked firm.

The prominence of an interlocking director on the receiving board is also an important factor in determining diffusion. When the interlocking director is also the chair of the receiving board, it is also more likely to facilitate the diffusion of the M&As in emerging markets. As previously discussed, a chair occupies a position of status and power, and thus, a chair of the receiving board carries more status and power on his/her board as well. When s/he brings information on M&As in emerging markets back to his/her own board, other directors are more likely to value the information because it is from the chair of the receiving board. Also, a chair of a receiving board is more likely to be knowledgeable about the firm's strengths and weaknesses. S/he is likely to be able to apply his/her knowledge of the focal firm when s/he brings back information on M&As in emerging markets. Thus, a chair of the receiving board is more likely to convince other board members and the focal firm that M&As in emerging markets can be beneficial to the firm.

In summary, because M&As in emerging markets are not a strategic action that can be easily implemented due to the potential risks, a chair of either board will serve as a more legitimate carrier of information that can deliver more authority over the information from the interlocked firm to the focal firm.

*Hypothesis 6 (H<sub>6</sub>): When the interlocking director is a chair on either board, the focal firm is more likely to implement M&As in emerging markets following its interlocked firm that has already implemented the strategic action.*

### ***Director's Tenure on Receiving Board***

It is important to distinguish the difference between a director's tenure on the receiving board from the duration of an interlock on the dyad level. Director's tenure refers to the interlocking director's length of service on the receiving board, whereas duration of an interlock refers to the length of the tie between two firms. For instance, a director can work for the focal firm for ten years but only serve as an interlocking director between the focal firm and the interlocked firm for two years. There are several reasons why an interlocking director that has served a longer period of time on the receiving board is more likely to help the diffusion of M&As in emerging markets. First, when an interlocking director's tenure is longer on the receiving board, it is more likely that other board members trust him/her more. S/he has had longer time to interact with other board members and knows the board's social norms and group dynamics. Because M&As in emerging markets require a firm to commit a great amount of resources within a market structure that is not as open or established as a developed market, other board members will more likely trust the interlocking director that has been with the firm for a long time.

Second, when the interlocking director has a long tenure with the focal firm, it is more likely that the executives will trust him/her more. Executives are the ones that will be held responsible for the firm's profits and losses. When they see their interlocked firm implement M&As in emerging markets, they will not simply follow the strategic action. They are likely to investigate the information transferred from the interlocking director. When the director has been with the firm for a long time, the executives are more likely

to value the information. In fact, research has shown that a longer-tenured director is likely to be more influential as length of service is also one of the sources of power and position (Finkelstein, 1992).

Third, when the tenure of the interlocking director is long, s/he is likely to accumulate more firm-specific knowledge about the focal firm; this in turn increases his/her ability to influence strategy. Because M&As in emerging markets are complex strategies, a longer tenured interlocking director on the receiving board is more likely to know how the information can be applied in his/her own firm and see the value of going into emerging markets. Thus, the likelihood of diffusion is increased. Finally, social network theory suggests that the length of an individual within an organization contributes to the legitimacy of the information transferred. Thus, a longer-tenured director's opinions may carry more legitimacy and influence. A legitimate source of information is crucial because M&As in emerging markets are not a strategic action that can be easily reversed. Hence, the focal firm is more likely to value an interlocking director's information when it is deemed legitimate. This can suggest that the diffusion of M&As in emerging markets is more likely when the interlocking director has been on the receiving board for a longer period of time.

*Hypothesis 7 (H7): The longer the tenure of the interlocking director on the receiving board of the focal firm, the greater the likelihood that the focal firm will also implement M&As in emerging markets following the interlocked firm that has already implemented the strategic action.*

### ***Director's Ownership in Focal Firm***

So far, I have discussed the effects of an interlocking director's position on either board and his/her tenure on the receiving board. Other than the influence of being a chair or being long tenured, other governance mechanisms can influence the diffusion of M&As in emerging markets as well. Researchers have suggested that there can be potential conflicts of interests between agents and owners if the agents do not have an ownership interest in the firm (Berle & Means, 1932). Other scholars further proposed that the likelihood of the executives to maximize shareholders' wealth is dependent upon the amount of equity ownership they have with the firm (Eisenhardt, 1989; Walking & Long, 1984). This view has been confirmed by empirical research that showed when executives increased their ownership of the firm they were less likely to make decisions that would decrease the value of the firm (Dalton & Rechner, 1989). Although directors represent the shareholders, the same principle applies to them. Board of directors can be thought as the agents of the shareholders. Thus, this creates a similar agent-owner problem as described by agency theory. Some board reformers have called for directors to hold ownership of the firm and be compensated partially by firm equity (Jensen, 1993). They argued that directors that own some equity of the firm will act more based upon shareholders' interests. Empirical research has shown support for this argument. For instance, Hoskisson et al. (2002) showed that directors behaved more like shareholders (e.g., promoting long-term firm growth) when they had higher ownership.

An emerging market has a growing economic development, and this offers a firm a chance to grow in the long term. An interlocking director who has a higher ownership

is more likely to behave like a firm's owner who would prefer growth in the long term. Because the interlocking director has learned about the M&As in emerging markets from the interlocked firm, s/he also has more experiences in how to implement this strategic action. Although M&As in emerging markets are risky, experience gained by the interlocking director from the interlocked firm, that has implemented the strategic action, will aid in her/his efforts to guide the focal firm. S/he can facilitate the process by avoiding mistakes the interlocked firm made in the emerging markets and following strategies that were successfully implemented.

In addition, when a director owns shares of the firm, s/he has more authority to influence strategy (Kang, 2008; Kosnik, 1990). When the interlocked firm is engaged in M&As in emerging markets, it is more likely that the interlocking director has previously reviewed the strategic action. When the director returns to his/her own board, he/she can transfer the knowledge and experiences gained from observing the interlocked firm. The higher ownership the director has in the focal firm, the more likely other directors and executives of the focal firm will value his/her information. For instance, a director that has a high percentage of ownership of the firm is likely to be influential in determining a firm's strategy. Given that emerging markets present a great amount of uncertainties and an underdeveloped market structure, an interlocking director that has more ownership of the firm is likely to convince the focal firm that M&As in those markets can possibly bring long term growth for the firm. In short, an interlocking director with higher ownership will have higher influence, and this contributes to the diffusion process of M&As in emerging markets.

*Hypothesis 8 (H<sub>8</sub>): The greater the ownership of the interlocking director in the focal firm, the greater the likelihood that the focal firm will also implement M&As in emerging markets following the interlocked firm that has already implemented the strategic action.*

I show my empirical model in Figure A-2.

## CHAPTER IV

### METHODS

#### Research Context

To test the influence of board interlocks on the diffusion of strategic actions, I chose a strategy that involves considerable risks and uncertainty: M&As in emerging markets. As previously defined, an emerging market is a lower-income country with fast-growing economic development and a favorable government policy towards a free-market establishment (Hoskisson et al., 2000). Emerging markets have gained increasing importance in the world trade arena because they provide many business opportunities (Boisot & Child, 1996; Garten, 1996; Khanna & Palepu, 1997; Lamin, 2013; Wang, Hong, Kafouros, & Wright, 2012). In short, emerging markets offer firms tremendous market potential because their markets are growing at an increasing speed.

Though emerging markets offer attractive business opportunities, doing businesses in emerging markets also comes with costs not typically associated with doing businesses in developed markets. Due to natural market imperfections in emerging markets, firms face challenges such as an underdeveloped market structure (Pen & Heath, 1996), increasing cultural distances (Ghemawat, 2001; Reus & Lamont, 2009), inconsistent government policies, corruptions, and many others (Dunning & Lundan, 2008). In other words, in addition to liabilities of foreignness (Zaheer, 1995), the cost of doing business abroad is potentially higher for firms in emerging markets compared to those in more developed markets (Hymer, 1976). For instance, cultural distance has been

discussed as a factor that influences a firm's strategy and performance when conducting business abroad (Kogut & Singh, 1988). Cultural distance is the degree of dissimilarity in terms of cultures between the host and home countries. A high cultural distance means that the host country's culture is very different from the home country's culture. This can mean many things are different, for instance, language, business customs, and expectations in society. Researchers have shown that when the cultural distance is high, a multinational firm's performance may suffer (Luo & Peng, 1999).

On the other hand, scholars have been very interested in M&As; however, very few studies are focused on M&As in emerging markets (Sethi & Krishnakumar, 2013). Because expansion into emerging markets involves considerable risks, I expect information transferred through board interlocks to become more important. It is likely that firms would seek information from their board interlock network to help reduce uncertainty on M&As in emerging markets. Prior research also confirmed that firms were more likely to expand into China when they were interlocked with firms that had successfully expanded into China (Connelly et al., 2011).

Because there are many emerging markets in the world, I limit my sample to emerging markets in Brazil, Russia, India, and China. They are commonly referred to as the BRIC countries (Yiu, Lau, Bruton, 2007). The term BRIC was first coined by Jim O'Neil, the global economist at Goldman Sachs (Hult, 2009). He argued that emerging markets of the BRIC countries will become extremely important in the coming decades. According to the 2013 International Monetary Fund World Economic Outlook, the BRIC countries accounts for about 40 percent of the world's population, and they are

among the fastest economic growth in the world. Hult (2009) argued that BRIC countries are similar in terms of economic growth; they also have similar strengths and weaknesses. Their common strengths include a wealth of natural resources, diversified economy, and a growing population. Their common weaknesses include a lack of social structure, a higher level of corruption, and an increasing income gap between the rich and the poor. In addition, Mobarek and Fiorante (2014) showed that BRIC countries share similarly weak market efficiency compared to other developed countries. Extant research also confirms that BRIC countries are gaining importance in the world economy and the studies on BRIC countries are much needed (Muller, 2011; Sauvart, 2005). Given that the BRIC countries are extremely important in the world economy and their similarity in terms of market structure and market development, they are suitable subjects in my study.

## **Sample**

The sample for this dissertation was drawn from firms in the S&P 1500, Fortune 500 and 1000 Index, and Russell 1000 and 3000 Index from 2001 to 2012. It is important to know that my sample period includes two recessions in 2001 and from 2008-2009 (Bartram & Bodnar, 2009), and there has been evidence that M&As can be affected by a recession (Aguar & Gopinath, 2005). Gaughan (2011) found that the recession of 2008 decreased most firms' number of M&A activities. Because the recessions influenced most of the firms in my sample, the overall level of M&A activities should increase or decrease as a whole. Further, because my sample covers

from 2001 to 2012, this longer period should minimize the influence of the recessions on my analyses of how board interlocks influence the diffusion of M&As in emerging markets.

I used Thomson One database to collect data on all completed M&As that were undertaken by the firms in my sample from 2001 to 2012. The initial search gave me a total of 5,456 M&As, and they included deal-level information (e.g. target country and M&A size). I coded whether the M&As occurred in one of the BRIC countries. Table A-2 shows the number of M&As in or not in BRIC countries each year. I then added the total number of M&As for a focal firm for each year. Next, I matched the focal firm's M&A activities with COMPUSTAT North America for firm-level information.

The director data was drawn from Corporate Library. The director data includes variables specific to each individual directors (e.g., name, tenure, committee memberships, independence classification, number of other boards, shares owned, etc.). I transformed a two-mode (firm-by-director) matrix to a one-mode (firm-by-firm) matrix for each year, 2001-2012. Next, I transformed the firm-by-firm matrix to a vector of firm-to-firm dyad relations. I then matched the director data with the first merged data with M&As and firm-level information. Due to missing data, my final data include 5,976 dyad firm-to-firm observations from 2001-2012. There are on average 314 firms for each year.

## **Measures**

### ***Dependent Variable***

The dependent variable is the rate of occurrence from one firm to another. In my study, the occurrence of interest is M&As in one (or more) of the BRIC countries. In order to use event history analysis, the dependent variable consists of two variables. The first is an integer variable measuring the year. The second is a dummy variable showing whether the focal firm has implemented M&As in BRIC countries one year after the interlocked firm has implemented them. It is coded 1 if the focal firm has implemented them and 0 otherwise. I excluded M&As that were incomplete or were repurchases. Repurchases occurs when a firm buys back its own shares. Because my dissertation focuses on diffusion, repurchases are not a result of diffusion and thus should not be included.

### ***Independent Variables***

I calculated board interlock measures for each firm using UCINET 6.458 (Borgatti, Everett, & Freeman, 2002). I constructed an undirected two-mode (firm-by-director) network of board interlocks each year. I then transformed the two-mode matrix into a one-mode (firm-by-firm) matrix for each year. A tie exists when two firms share a common director. Following prior studies, all the variables are lagged by one year (Beckman et al., 2004; Carpenter & Westphal, 2001; Westphal & Zajac, 1997).

***Duration of an Interlock.*** It is measured by the length of the tie. In the case of two firms sharing more than one director, I used the tie with the longest length. For

instance, if two firms share two common directors, the time for the director that has served the longest period as the interlocking director between the focal firm and the interlocked firm was used. The duration is in years. It is lagged by 1 year.

***Closed Triad.*** It is a dichotomized variable: when the focal firm and the interlocked firm are in a closed triad, it is coded as 1 and 0 otherwise. It is lagged by 1 year.

***Number of Cliques.*** It is measured by the number of cliques two firms are both in. I define a clique as the maximal subgroups in which the distance between the focal firm and the interlocked firm ( $i, j$ ) is no greater than two steps. I calculated cliques using 2-clans approach using UCINET. Thus:  $d(i, j) \leq 2$ . It is lagged by 1 year.

***Sending Board's Influence.*** It is operationalized by Eigenvector centrality. It was obtained from UCINET and a normalized measure. (See Appendix C for specific definitions). It is lagged by 1 year.

***Receiving Board's Access to Information.*** It is by closeness centrality. It was also obtained from UCINET and a normalized measure. (See Appendix C for specific definitions). It is lagged by 1 year.

***Chair on Either Board.*** It is a dichotomized variable: an interlocking director who is also a chair in either focal firm or interlocked firm is coded as 1 and 0 otherwise. It is lagged by 1 year.

***Director Tenure on Receiving Board.*** It is measured as the length of time an interlocking director has served on the receiving board. It is measured in year. It is lagged by 1 year.

***Director Ownership in Focal Firm.*** It is the percentage of the ownership the interlocking director has over the focal firm. It is lagged by 1 year.

### ***Control Variables***

Research has shown that larger firms are more likely to increase their M&As in foreign countries (Tallman & Li, 1996). This can be explained by the fact that larger firms have more resources and are able to use them to operate in foreign markets. Thus, I controlled for firm size; it is measured as the natural logarithm of the total number of employees (*Size*). Prior studies have also shown that performance may influence M&A activities for international firms (Dunning & Lundan, 2008). Similar to larger firms, better performing firms may have more resources to cover the costs associated with M&As in emerging markets. Therefore, I controlled for firm performance using return on sales, *ROS*. Firms may also increase their M&As in emerging markets in order to balance their problems in domestic markets (Doukas & Travlos, 1988). Because when a firm has a higher leverage, the firm has to use more of its resources to cover debt. This may reduce a firm's ability to implement M&As in emerging markets. Thus, I included *Firm Leverage*, measured as debt divided by sales, as a control variable.

Past experiences in the BRIC countries are likely to influence a focal firm's subsequent M&As in the BRIC countries. Thus, I controlled for *Past BRIC*, captured by whether the focal firm has implemented M&As in one (or more) of the BRIC countries in the past 5 years. It is a binary variable; 1 is yes, and 0 otherwise. It is also possible that a firm's overall level of international diversification can influence its tendency to

implement M&As in BRIC countries. Thus, I controlled for *Total M&As*, as measured by the total number of M&A activities by the focal firm in the given year.

Studies have shown that board size is positively related to firm performance (Dalton, Daily, Johnson, & Ellstrand, 1999). This is most likely due to the diverse expertise and information it brings as a board becomes larger. Also, a larger board means that it is more likely to have at least one member that specializes or has experiences in international diversification. Thus, I controlled for *Receiving Board Size*, measured by the number of directors on the receiving board. Average industry experience may also influence M&As in emerging markets because each industry has a different propensity towards M&As in emerging markets. I controlled for mean occurrence of M&As in BRIC countries for firms in the same two-digit SIC (*Industry M&As*). Finally, I included *M&A Size* (Beckman & Haunschild, 2002) as the natural log of the value of the M&A in millions of US dollars. All above control variables are lagged by 1 year (Beckman et al., 2004; Carpenter & Westphal, 2001; Westphal & Zajac, 1997). All variables are summarized in Table A-3.

## **Analysis**

As previously mentioned my sample is composed as firm-to-firm dyad relations, and this allows for examination of board interlock networks rather than focusing on an individual firm (Connelly et al., 2011; Valente, 2005). I first used social network analysis to capture network measures. My analytical methodology was event history analysis with the firm-to-firm dyad relations as the level of analysis. Event history

analysis is a suitable methodology to study occurrence/exit of an event, and it is not biased by right-censoring (Box-Steffensmeier & Jones, 2004). When the interlocked firm implemented M&As in the BRIC countries during the observation period, the focal firm that is interlocked to it is included in the sample. When the focal firm also implemented M&As in one (or more) of the BRIC countries, it exited the sample. However, it is possible that the focal firm may not implement M&As by the end of observation period (2011). This is a right-censoring bias but I can avoid this problem using event history analysis.

I used Cox proportional hazard model:

$$h_i(t) = h_0(t) \exp\left[\sum_k b_k X_{ik}(t)\right]$$

The Cox proportional hazard model is more robust than other models (e.g., exponential models) because it does not restrict the form of the relationship between the dependent and independent variables. For each year, when the focal firm also implemented M&As in one (or more) of the BRIC countries following the interlocked firm, it was coded 1. If the focal firm did not implement M&As in one (or more) of the BRIC countries, it was coded 0. Coding this way, the event history analysis read 0 as a censored observation. When the event occurred (coded as 1), the focal firm was dropped from the dataset. I used STATA 12.1 to run the analysis.

## CHAPTER V

### RESULTS

Table A-4 represents descriptive statistics and intercorrelations. I used OLS models to calculate variance inflation factor (VIF) scores because it is more conservative for this type of diagnostic test (Hitt, Bierman, Uhlenbruck, & Shimizu, 2006). The results suggest that multicollinearity does not present any problem given that all the VIF scores were below 4.0. *Receiving Board's Access to Information* has the highest VIF (3.87), followed by *Director Tenure on Receiving Board* (3.21) and *Duration of an Interlock* (2.99). The rest variables have VIFs ranged from 1.02 to 2.61. The average VIF is 1.81 (see Table A-5).

#### Event History Analysis

I used continuous-time event history analysis with covariates that vary with time (Yamaguchi, 1991). Given that event history analysis models the rate of occurrence of a particular event during the observation period, it is suitable to model diffusion (Valente, 2005). In particular, many scholars have used Cox model event history analysis to study the diffusion of organizational behaviors (e.g., Connelly et al., 2011; Yu & Cannella, 2007). Table A-6 presents the results from the Cox Model event history analysis. Model 1 includes only the control variables (*Size, ROS, Leverage, Past BRIC, Total M&As, Receiving Board Size, Industry M&As, and M&A Size*). Model 2 includes the control variables and my predictors (*Duration of an Interlock, Closed Triad, Number of Cliques,*

*Sending Board's Influence, Receiving Board's Access to Information, Chair on either Board, Director Tenure on Receiving Board, and Director Ownership in Focal Firm).*

Model 1 included all of the control variables (*Size, ROS, Leverage, Past BRIC, Total M&As, Receiving Board Size, Industry M&As, and M&As Size*). The log likelihood is -3018.8931 and the Wald chi-square is 462.58 (with degree of freedom equals to 8) and statistically significant at  $p < 0.001$ . Model 2 include all of the control variables and predictors (*Duration of an Interlock, Closed Triad, Number of Cliques, Sending Board's Influence, Receiving Board's Access to Information, Chair on Either Board, Director Tenure on Receiving Board, and Director Ownership in Focal Firm*). Including of the predictors improved the model, resulting the log likelihood of -2893.3819 and the Wald chi-square of 900.84 (with degree of freedom equals to 16) and statistically significant at  $p < 0.001$ . It is a significant improvement over Model 1 with only the control variables.

### **Hypothesis Test Results**

***Control Variables: Size, ROS, Leverage, Past BRIC, Total M&As, Receiving Board Size, Industry M&As, and M&A Size***

The analyses show that the focal firm's past M&A experiences in the BRIC countries, total number of M&As and mean occurrence of M&As in the BRIC countries in the industry are positively related with the focal firm's implementation of M&As in emerging markets following the interlocked firm. The results are statistically significant across both models. The size of the receiving board and the size of M&A are negatively associated with the implementation of M&As in emerging markets for the focal firm;

they are statistically significant across both models. Firm size is positively related with the implementation of M&As in emerging markets but is statistically nonsignificant ( $p > .10$ ) in both models. Firm performance (ROS) is negatively associated with M&As in emerging markets but is only statistically and marginally significant in the first model. Finally, firm leverage is positively related with M&As in emerging markets but it is not statistically significant in either model. I discuss the main results below.

### ***Hypothesis 1: Duration of an Interlock (Dyad Level)***

In Hypothesis 1, I proposed that the longer the duration of the interlock between the focal firm and the interlocked firm, the greater the likelihood that the focal firm will also implement M&As in emerging markets following the interlocked firm. The duration of an interlock ranges from 0 (newly formed interlock) to 33 years in my sample. I proposed that the duration of an interlock reflects the strength of the tie. After the analysis, the result shows that the odds ratio is 1.09, which is statistically significant at  $p < 0.001$ . This means that for one additional year of the duration of the interlock, the focal firm is 9 percent more likely to implement M&As in emerging markets following its interlocked firm. Thus, these results provide support for Hypothesis 1.

### ***Hypothesis 2: Closed Triad (Structural Level)***

In Hypothesis 2, I predicted that when the focal firm and the interlocked firm are both embedded in a closed triad, the focal firm is more likely to implement M&As in emerging markets following the interlocked firm. I argued that because Simmelian ties

(ties that are formed in a closed triad) promote cohesion, the focal firm is more likely to be influenced by its interlocked firm in a closed triad. The odds ratio is 1.01 and is not statistically significant at  $p > 0.10$ , meaning that when the focal firm and the interlocked firm are both in a closed triad, the focal firm is 1 percent more likely to implement M&As in emerging markets following its interlocked firm but the result is statistically nonsignificant. Thus, Hypothesis 2 does not receive support from these results.

***Hypothesis 3: Number of Cliques (Structural Level)***

Hypothesis 3 predicted that the number of cliques in which the focal firm and the interlocked firm are embedded will facilitate the diffusion of the M&As in emerging markets. I proposed that cliques (as tightly connected subgroups) also promote cohesion and encourage frequent communications. In my sample, the number of cliques embedded by the focal firm and the interlocked firm ranges from 0 to 30, with an average of 4.52 cliques. The odds ratio is 1.30, which is statistically significant at  $p < 0.01$ . This means that for one additional clique in which both firms are embedded, the focal firm is 30 percent more likely to implement M&As in emerging markets following its interlocked firm. Thus, Hypothesis 3 receives support from these results.

***Hypothesis 4: Sending Board's Influence (Structural Level)***

Hypothesis 4 predicted that a sending board's influence (as captured by Eigenvector centrality) increases the focal firm's likelihood of implementation of M&As in emerging markets following its interlocked firm. I proposed that when a sending

board has a higher influence, it is more likely to be seen as a leader. When the interlocked firm implements M&As in emerging markets, it will be more likely to be viewed as a leader's strategic action. And thus, the focal firm is more likely to see M&As in emerging markets as a legitimate and beneficial strategic action. The odds ratio is 1.02 and is statistically significant at  $p < 0.05$ . This indicates that for one additional unit of a sending board's influence, the focal firm is 2 percent more likely to implement M&As in emerging markets following its interlocked firm. Thus, these results support Hypothesis 4.

***Hypothesis 5: Receiving Board's Access to Information (Structural Level)***

In Hypothesis 5, I predicted that a receiving board's access to information is negatively associated with a focal firm's M&As in emerging markets. I proposed that when a receiving board has greater access to information, it is more likely to have received information on M&As in emerging markets from its other interlocked firms. It is also more likely it has enhanced access to resources. When the interlocked firm implements M&As in emerging markets, the focal firm is less likely to implement the strategic action if its receiving board has high access to information. The odds ratio is 0.91 and statistically significant at  $p < 0.001$ . This means for one additional unit increase of a receiving board's access to information, the focal firm is 9 percent less likely to implement M&As in emerging markets following its interlocked firm. Thus, Hypothesis 5 receives support.

***Hypothesis 6: Chair on either Board (Interlocking Director)***

Hypothesis 6 predicted that when the interlocking director is a chair on either board, s/he is more likely to have higher status. Thus, when the interlocking director transfer the information of M&As in emerging markets from the interlocked firm, the focal firm is more likely to value the information and as a result, implement this strategic action as well. The odds ratio is 1.23, which is statistically significant at  $p < 0.05$ . This means when the interlocking director is also the chair on either the receiving board or the sending board, the focal firm is 23 percent more likely to implement M&As in emerging markets following its interlocked firm. Thus, the results support Hypothesis 6.

***Hypothesis 7: Director Tenure on Receiving Board (Interlocking Director)***

Hypothesis 7 predicted that the interlocking director's tenure is positively associated with a focal firm's M&As in emerging markets following its interlocked firm. I distinguished an interlocking director's tenure from the duration of the interlock. An interlocking director's tenure is the years of service s/he had as a member of the board of directors for the focal firm. In my sample, it ranges from 0 (newly hired for the year of observation) to 40 years. I proposed that the longer a director has served for his/her firm, the more likely the focal firm will trust the director. A director with a long tenure also means that s/he is likely to know the focal firm well. Thus, the information on M&As in emerging markets s/he brings to the focal firm is more likely to be applied. The odds ratio is 0.97 and is statistically significant at  $p < 0.05$ . The results mean that for one additional year of service by the interlocking director on the receiving board, the focal

firm is 3 percent less likely to implement M&As in emerging markets following its interlocked firm. This is opposite of my prediction (I will discuss the results in the next chapter). Thus, these results do not support Hypothesis 7.

***Hypothesis 8: Director Ownership in Focal Firm (Interlocking Director)***

Finally, Hypothesis 8 predicted that when the interlocking director has higher ownership of the firm, it is more likely that s/he will act in manners that are in shareholders' best interests. As a result, a director with a higher ownership of the focal firm will more likely desire long-term growth for the firm. Investing in emerging markets is more likely to provide such opportunities because these markets have a high potential for growth. In my sample, the interlocking director's ownership percentage ranges from 0 (no ownership) to 32.95 percent. However, the odds ratio is 0.98 and is statistically nonsignificant at  $p > 0.10$ . As a result, Hypothesis 8 receives no support.

**Post Hoc Analyses**

The design of my study focuses heavily on theoretical assumptions. For instance, Simmelian ties formed in closed triad is assumed to enhance cohesion and promote diffusion of M&As in emerging markets. Thus, a dichotomized measure (whether the focal firm and the interlocked firm are in a closed triad or not) was used in my analysis. Two of my hypotheses were nonsignificant. Hypothesis 2 predicts that when both the focal firm and the interlocked firm are in a closed triad together, it is more likely that the focal firm will implement M&As in emerging markets following its interlocked firm.

The result was statistically nonsignificant and the odds ratio is 1.01. Hypothesis 8 predicts that when the interlocking director has a higher ownership in the focal firm, s/he is more likely to have more influence and thus, the focal firm is more likely to implement M&As in emerging markets following the interlocked firm. The result was also statistically nonsignificant and the odds ratio is 0.98.

In order to test the relationships, I conducted more post hoc analyses. First, I used the number of Simmelian ties between two firms instead of whether they are in a closed triad together. Simmel (1950) argued that a closed triad can promote cohesion and enhance social norms. For firms, it is very possible that it is the number of closed triads (thus equal to number of Simmelian ties) in which both firms are embedded that has more influence than simply being in a closed triad. Because of this possible alternative explanation, I used the number of Simmelian ties to capture the influence of closed triads instead of a binary variable that captures the influence of a closed triad.

Second, it is possible that the relationship between director ownership and M&As in emerging markets is a curvilinear one. In my research, I proposed that the higher the ownership that an interlocking director has in the focal firm, the more influence s/he may have on the focal firm. It is possible that the relationship can be nonlinear. Although I argue that the higher the ownership, the greater the influence, the influence can reach a peak point where the influence is no longer linear. Curvilinear relationships have been studied in the international business field. For instance, studies have shown that international diversification is curvilinearly related to firms that have moderated product diversifications (Hitt, Hoskisson, & Kim, 1997). Given that it is

possible that the percentage of the ownership and the diffusion of M&As in emerging markets can be a curvilinear relationship, I squared the percentage of ownership to represent a director's ownership in the focal firm. The rest variables stayed the same, and they are then used in Model 3.

Furthermore, the curvilinear relationship may also exist for the number of Simmelian ties used to capture Closed Triad. It is possible that the number of Simmelian ties can facilitate diffusion of M&As in emerging markets but its influence will reach a peak at some point. Because this is also a possible alternate explanation, I squared the number of Simmelian ties to capture Closed Triad in Model 4.

Again, I used OLS models to calculate VIF scores. The results suggest that multicollinearity does not present any problem as all the VIF scores were below 4.0 in Model 3. In Model 4, *Closed Triad (Number of Simmelian Ties)* and the squared term of *Closed Triad* have high VIFs, which are 8.82 and 7.65 respectively. On the other hand, *Receiving Board's Access to Information* has the highest VIF (3.85), followed by *Director Tenure on Receiving Board* (3.21) in Model 3. The average VIF is 1.95 in Model 3 and 2.81 in Model 4 (see Table A-7 and A-8).

I used Cox model event history analysis as my prior analyses. The results are presented in Model 3 and Model 4 (See Table A-9). Model 3 and Model 4 did not show a significant improvement of model fit. In Model 3, the log likelihood is -2892.6206 and the Wald chi-square is 906.56 (with degree of freedom equals to 17) and statistically significant at  $p < 0.001$ . In Model 4, the log likelihood is -2892.1131 and the Wald chi-square is 922.37 (with degree of freedom equals to 18) and statistically significant at

$p < 0.001$ . Compared with Model 2, the log likelihood and Wald chi-square in Model 3 and 4 did not show a significant model improvement.

For the control variables, they remain largely unchanged in Model 3 and Model 4. For the predictors that are unchanged, *Duration of an Interlock*, *Sending Board's Influence*, *Receiving Board's Access to Information*, *Chair on either Board*, and *Director's Tenure on Receiving Board* remain largely unchanged. Their odds ratios in Model 3 and Model 4 are very similar to those in Model 2 and are statistically significant at similar probability. The number of cliques in which both firms are embedded in, however, was statistically significant in Model 2, but became only marginally significant in Model 3 and nonsignificant in Model 4. Its odds ratios are 1.30 in Model 2 and 3. In Model 4, it became 1.04 and statistically nonsignificant.

In Model 3, I used the number of Simmelian ties to capture *Closed Triad*, and the odds ratio is 1.01 and statistically nonsignificant at  $p > 0.10$ . I squared the percentage of ownership to capture *Director Ownership in Focal Firm* and the odds ratio is 0.97 in the first level and 1.00 for the squared term. The first level is statistically and marginally significant at  $p < 0.10$ . The squared term is statistically nonsignificant at  $p > 0.10$ . Thus, Model 3 shows that the results remain consistent with Model 1 and Model 2 as originally hypothesized.

In Model 4, I squared the number of Simmelian ties to capture *Closed Triad*, and the odds ratio is also 1.31 in the first level and 0.94 for the squared term. They are both statistically nonsignificant at  $p > 0.10$ . Thus, the results in Model 4 does not show support for a curvilinear effect between *Closed Triad* and diffusion of M&As in emerging

markets. Taking together, after modifying the variables, *Closed Triad* and *Director Ownership in Focal Firm* in Model 3 and 4, the results remained largely unchanged and do not support for a curvilinear effect.

### **Sensitivity Tests**

My analysis has followed prior studies to lag variables by one year (Beckman et al., 2004; Carpenter & Westphal, 2001; Westphal & Zajac, 1997) because one year is a suitable time frame for the information to transfer from the interlocked firm to the focal firm and for the focal firm to also implement M&As in emerging markets following the interlocked firm. Given that it is possible that it can take 2 or 3 years for the focal firm to implement M&As in emerging markets, I also conducted sensitivity tests on how many years the predictors are lagged. In Model 5, I lagged all predictors by 2 years; in Model 6, I lagged all predictors by 3 years. The results are in Table A-10.

In Model 5, in which all variables are lagged by two years, the focal firm's *Leverage* became statistically significant (at  $p < 0.05$ ), and the odds ratio is 1.15. However, *Past BRIC* and *Total M&As* became statistically nonsignificant in Model 5 (but they were statistically significant in Model 1 and 2). The focal firm's *Size* and *ROS* remain unchanged in Model 5 compared with Model 1. For the predictors, *Duration of an Interlock*, *Sending Board's Influence*, and *Receiving Board's Access to Information* remain consistent with Model 2. They are all statistically significant and predict the same direction as in Model 2. However, numbers of cliques in which both firms are

embedded, whether the interlocking director is a chair, and a director's tenure on the receiving board are no longer statistically significant in Model 5.

In Model 6, all variables are lagged by 3 years. A focal firm's *Past BRIC Experiences*, *Receiving Board Size*, *Industry M&As*, and *M&A Size* remain consistent with Model 1 and 2. However, size of the firm became statistically significant and a firm's leverage became statistically and marginally significant in Model 6. *Total M&As* was statistically significant in Model 1 and 2 but became statistically nonsignificant in Model 6. In terms of predictors, only *Duration of an Interlock* and the *Sending Board's Influence* remain statistically significant and predict a positive relation. *Closed Triad*, *Number of Cliques*, *Receiving Board's Access to Information*, *Chair on Either Board*, *Director's Tenure on Receiving Board*, and *Director's Ownership in Focal Firm* are all statistically nonsignificant. Further, both Model 5 and 6 did not show model improvement. The Wald chi-squares are 175.42 in Model 5 and 347.91 in Model 6 compared to 900.84 in Model 2.

Taken together, the sensitivity tests showed that one-year lag gives the most robust results. We can see that even with a two-year or three-year lag, some hypotheses are still supported. This shows that the information transferred may be utilized later for the focal firm. In short, the sensitivity tests confirmed that a one-year lag on the variables give the most robust results and reconfirmed what prior scholars have done (Beckman et al., 2004; Carpenter & Westphal, 2001; Westphal & Zajac, 1997).

In summary, the results provided support for five of my hypotheses. They show that at the dyad level, the longer the duration of an interlock, the more likely that the

focal firm will implement M&As in emerging markets following the interlocked firm. At the structural level, the greater number of cliques in which both firms are embedded and the greater the sending board's influence, the more likely that the focal firm will implement M&As in emerging markets following the interlocked firm. On the other hand, the greater the receiving board's access to information, the less likely that the diffusion will occur. Finally, when the interlocking director is also a chair on either the sending board or the receiving board, it is more likely that the focal firm will implement M&As in emerging markets following the interlocked firm. I discuss the results, implications, future research, and address the limitations in the next chapter.

## CHAPTER VI

### DISCUSSION AND CONCLUSION

#### Discussion

Though most studies have shown that board interlocks are meaningful mechanisms, rather than random activities, the amount and type of the effects of board interlocks remains in question (Hallock, 1997; Mizruchi, 1996). Most scholars agree that board interlocks *can* diffuse strategic actions, but they are *not* consistent predictors. The inconsistent findings may be because the extant research has generally ignored the heterogeneity of the board interlocks (Shropshire, 2010) and the structure of the networks (Connelly et al., 2011).

In this dissertation research, I seek to show the following. First, I intended to show that a tie is not just a tie, but that its strength matters. Second, I aimed to show that board interlocks should be addressed at the structural level as well. Finally, I wanted to show that an interlocking director's characteristics influence diffusion. I chose M&As in emerging markets as the strategic action of interest because a firm has to take considerable risks when it implements M&As in emerging markets compared to those in more developed markets (Chari et al., 2010; Dunning & Lundan, 2008; Hoskisson et al., 2000). Thus, the information transferred from a board interlock from the interlocked firm to the focal firm is more likely to have an influence on diffusion. In addition, M&As in emerging markets is an important topic that has been understudied (Grigorieva & Petrunina, 2013; Sethi & Krishnakumar, 2013). As discussed throughout the

dissertation, emerging markets hold market potential for firms. Research has shown that firms investing in emerging markets have an opportunity to improve their financial performance (Collin, 1990; Pawaskar, 2001; Ramakrishnan, 2008).

Prior studies on emerging markets focused on the factors that prevented firms from entering, such as a weak market structure (Peng & Heath, 1996), a high cultural distance (Ghemawat, 2001), weak corporate governance (Khanna & Palepu, 2000), and inconsistent government policies (Dunning & Lundan, 2008). These factors are obstacles for firms to enter an emerging market. Because there are costs and benefits to implement M&As in emerging markets, one may ask why some firms do and some don't take these actions. Naturally, the question is what influences firms to enter emerging markets. As reviewed previously, very little research has focused on the role of board interlocks in the decision to implement M&As in emerging markets. Connelly et al.'s (2011) study was one of the first studies to examine how ties to different interlocked firms influence the adoption of expansion into China. They found that ties to firms that have successfully expanded into China facilitate diffusion whereas ties to firms that have unsuccessfully expanded into China suppress diffusion. Their study, however, focused on only the direct relations at the dyad level. Given that the importance of the different level factors in the board interlock network, a study on how board interlocks facilitate diffusion of M&As in emerging markets is very much needed.

The primary objective of this dissertation is to explore when board interlocks influence diffusion of strategic actions. In the context of my dissertation research, I investigate when a focal firm is more likely to implement M&As in emerging markets

following the interlocked firm. In summary, I theorized from a multi-level perspective at the dyad and structural level of the network. I also predicted that the characteristics of the interlocking director influence the diffusion of M&As in emerging markets. I applied social network theory and theories from structural sociology to argue for the diffusion. Although not all hypotheses were supported by the results of analyses, I was able to show that the diffusion of a strategic action can be influenced by the strength of the tie, the number of cliques in which both firms are embedded, the structural position of the sending board, the structural position of the receiving board, and whether the interlocking director is a chair on either the sending board or the receiving board.

First, I showed that the duration of an interlock increases the likelihood of the implementation of M&As in emerging markets. This shows that a tie is not just a tie, but the strength of the tie matters. Most prior literature has treated all ties to be equal, and my analyses showed that when two firms are interlocked for a longer period of time, M&As in emerging markets are more likely to diffuse from the interlocked firm to the focal firm. I found that for every additional year increase in the duration of the interlock, the focal firm is 9 percent more likely to implement M&As in emerging markets following its interlocked firm.

Second, I showed that the number of cliques in which both the focal firm and its interlock firm are embedded increases the likelihood of the implementation of M&As in emerging markets. I found that for each additional clique that both the focal firm and the interlocked firm are embedded in, the focal firm is 30 percent more likely to implement M&As in emerging markets following its interlocked firm. This demonstrates that when

two firms are overlapped in different subgroups, it is more likely for information to flow from the interlocked firm to the focal firm. This finding is consistent with prior studies that showed cliques can promote cohesion and communication.

Third, I found that the sending board's influence has a positive relation with the diffusion of M&As in emerging markets. I found that with an increase in 1 unit of a sending board's influence, the focal firm is 2 percent more likely to also implement M&As in emerging markets following the interlocked firm. The effect size of 2 percent is relatively small compared to other findings but it still shows that when a sending board carries more influence, it is more likely to be viewed as a leader. Thus, when the interlocked firm implements M&As in emerging markets, the focal firm is more likely to follow this strategic action.

Fourth, I found that a receiving board's access to information is negatively related to the diffusion of M&As in emerging markets. I found that a unit increase in a sending board's access to information reduces the likelihood of diffusion by 9 percent. The results demonstrate that when a receiving board has a greater access to information, it is more likely to have received information on M&As in emerging markets before the information is transferred from the interlocked firm. Thus, the influence on the focal firm from the interlocked firm is diminished. In other words, the information transferred by the interlocking director from the interlocked firm is most likely to be valued when there is no other information available.

Finally, I also found that when an interlocking director is a chair on either the sending or the receiving board, the likelihood of diffusion of M&As in emerging

markets increases. When the interlocking director is a chair on either board, the focal firm is 23 percent more likely to implement M&As in emerging markets following the interlocked firm. This confirms my hypothesis that when an interlocking director is a chair of a board, s/he carries more prestige and authority. Thus, the focal firm is more likely to value the information s/he brings back from the interlocked firm.

On the other hand, my results showed that being in a closed triad does not increase the likelihood of the implementation of M&As in emerging markets following the interlocked firm. The odds ratio is 1.01 and statistically nonsignificant. In my post hoc analyses, I replaced the binary variable (indicating whether both firms are in a closed triad) with a count variable (capturing how many closed triads in which both firms are embedded) and a squared term of the count variable of the number of closed triads (capturing whether there is a curvilinear effect of the number of closed triads). The odds ratios were 1.31 and 0.94 respectively, in which both were statistically nonsignificant at  $p > 0.10$ .

One possible explanation for the non-finding of the closed triad hypothesis could be because being in a closed triad with the interlocked firm is not enough for the information to be transferred frequently to the focal firm. Because the number of cliques is shown to positively increase the likelihood of implementation following the interlocked firm, this may indicate that cliques are more important in the case of the diffusion of strategic actions. Simply put, my results may suggest the influence of cliques is greater than the influence of a closed triad. Also, it is possible that the outcome of my choice (M&As in BRIC countries) may not be a suitable outcome to test the

closed triad hypothesis. I will further discuss this non-finding in Implications for Theory and Practice.

Furthermore, prior scholars suggested that researchers should examine the importance of interlocking directors (Shropshire, 2010) and I investigated the characteristics of the interlocking directors. I found that an interlocking director's tenure is actually negatively related with the likelihood of the focal firm implementing M&As in emerging markets following the interlocked firm. The odds ratio is 0.97 and it is statistically significant. This means that for one additional year that the interlocking director serves on the receiving board, the focal firm is 3 percent less likely to implement M&As in emerging markets following the interlocked firm. This result is opposite of my prediction.

One possible explanation may be because of the knowledge of the interlocking director on the focal firm. When an interlocking director has a longer tenure on the receiving board, s/he is more likely to generate knowledge specifically about the focal firm. When the interlocking director learns about the M&As in emerging markets in the interlocked firm, s/he may be less likely to be convinced that it is a strategic action worth following simply because the interlocked firm is doing it. Thus, when the interlocking director transfers the information back to the focal firm, s/he may be able to identify the real costs and benefits with other board members and the TMT of the focal firm regarding implementing M&As in emerging markets. In other words, an interlocking director that has been on the receiving board for a longer period of time may be less likely to want to blindly follow the interlocked firm's strategic action. In this vein, the

information s/he brings back from the interlocked firm to the focal firm is more likely to be assessed carefully specifically for the focal firm.

Another alternative explanation of the negative relations between an interlocking director's tenure and the diffusion of M&As in emerging markets could be that the longer that the director has served on the receiving board, the less likely other board members and executives trust him/her. It could be that because other board members and executives have known the director for a long period of time so they are less likely to believe in any information the director brings in. On the other hand, it is also possible that the longer the director has served on the receiving board, the less active the director becomes. It could be because the interlocking director has served on the board for a long period of time, s/he becomes less involved with the process of making decisions for strategic actions. This could be explained by agency theory that the managers hold information and will make decisions regardless of whether they benefit the owners or not. In this case, a long tenured director may not be as active and involved as a shorter tenured director in monitoring and advising executives.

Finally, my results did not support that an interlocking director's ownership is positively related with the diffusion of M&As in emerging markets. The odds ratio is 0.98 and statistically nonsignificant. Because my original model cannot capture curvilinear effect, I conducted more post hoc analyses by squaring the percentage of the ownership of the interlocking director. The odds ratios are 0.97 in the first level and 1.02 for the squared term, in which are still statistically nonsignificant. Thus, the results of

interlocking director's ownership in the focal firm do not support that it is positively related with the diffusion of M&As in emerging markets.

One possible explanation for the nonsignificant findings of the influence of the interlocking director's ownership in the focal firm on the diffusion of M&As in emerging markets could be due to my assumptions of the benefits of M&As in emerging markets. Although emerging markets are growing markets that can provide great market potentials for firms (Chari et al., 2010; Hoskisson et al., 2000), not every firm will benefit from the market potential. As discussed throughout this dissertation, investing in emerging markets can be more risky for firms than investing in more developed markets due to factors such as underdeveloped market structure (Pen & Heath, 1996), higher culture distance (Reus & Lamont, 2009), and weak corporate governance (Khanna & Palepu, 2000). Thus, an interlocking director that has a high ownership in the focal firm *may or may not* view M&As in emerging markets as an attractive or unattractive strategic action. In this vein, an interlocking director's ownership in the focal firm may not have an influence on the diffusion of the M&As in emerging markets due to their assessment of the strategic actions that the interlocking director may have towards M&As in emerging markets.

In summary, although three of my eight hypotheses were not supported, I was able to show that the strength of a tie, the number of cliques in which both firms are embedded, the structural positions of the sending board and the receiving board, and whether a director is a chair on either board influence the diffusion of M&As in emerging markets. I was not able to show that being in a closed triad by the focal firm

and the interlocked firm, the interlocking director's tenure on the receiving board, and the interlocking director's ownership in the focal firm increase the likelihood of a focal firm's implementation of M&As in emerging markets following its interlocked firm. However, I also provided alternative explanations above. I address the implications, opportunities for future research, and limitations of my dissertation below. I believe future studies can benefit from my dissertation research.

### **Implications for Theory and Practice**

My dissertation has several implications for theory. First, I was able to show that tie strength is important to explain complex social phenomenon that are previously unexplained. Previous scholars on board interlock studies have in general overlooked the heterogeneity of a tie and thus this may account for the inconclusive influence of board interlocks (Shropshire, 2010). In my dissertation, I was able to show that the strength of a tie, as represented by the duration of an interlock at the dyad level, can enrich our understanding of how diffusion of strategic actions can occur in the board interlock network. Social network scholars have long called for the importance of the strength of a tie (Borgatti, 2003; Wasserman & Faust, 1994). Thus, the results from my study has an important theoretical implication for future board interlock studies to include the strength of a tie that can better explain the influence of board interlocks.

Second, my research shows the important influence of subgroups, namely cliques. It further shows the importance of examining the structural embeddedness of a firm in the board interlock network. The theoretical implication is that diffusion does not

occur in any situation; it suggests that researchers should examine the network structure and identify structural level factors that can influence a specific organizational outcome of interest. In my dissertation, I was interested in M&As in emerging markets. Because it is a strategic action that requires managers taking relatively more risks than M&As in developed markets, cliques became an important factor to facilitate diffusion given that they can promote cohesion and frequency of communications within the subgroups. Thus, it is also possible that some organizational outcomes do not require both firms to be embedded in different cliques together in order for diffusion to occur. The implication from my results is that more complex strategic actions are harder to diffuse, and subgroups can facilitate the process. In other words, embedding in different cliques together can facilitate information transfer and allow the focal firm the opportunity to utilize the information, thus resulting in diffusion.

Third, my dissertation shows that it is important for researchers to distinguish different centrality constructs. My review of literature confirms that scholars have generally not considered the influence of other centrality constructs. In general, existing literature has examined the influence of degree centrality, taking account only direct ties and overlooking indirect ties (Bohman, 2012). I was able to show that Eigenvector centrality can represent a sending board's influence and closeness centrality can represent a receiving board's access to information because they consider all firms in the network, thus including the indirect ties. This shows that not all centralities are created equal. I believe that it is an important theoretical implication for future researchers when

they try to study the diffusion of strategic actions. Researchers can examine their research context and apply a centrality construct that best represents the context.

Fourth, the lack of support for the influence of a closed triad has several important theoretical implications for future research. The original theory of a closed triad (Simmel, 1950) focuses on the interactions between three individuals. The ties formed in a closed triad, Simmelian ties, have been shown to increase interactions and social cohesions among people (Krackhardt, 1999). In the context of my dissertation, it is firms that are the subjects of study. The effect on the individual level may not have been realized on the organizational level. Thus, when the focal firm and the interlocked firm are both embedded in a closed triad, this may not be sufficient enough for information to flow frequently and repeatedly. On the other hand, the number of cliques is positively related to the diffusion of M&As in emerging markets. Cliques are tightly connected subgroups that are more likely to promote group norms and thus enhance cohesion; they have been well documented in the organizational setting (Moody & White, 2003). In this vein, the results from my dissertation research show that cliques are more likely to facilitate diffusion than being in a closed triad at the organizational level.

It is also possible that the theory of triad does not apply in the context of the diffusion of M&As in emerging markets, specifically, BRIC countries. Given that I limited my sample firms to firms implementing M&As in one or more of the BRIC countries, the closed triad hypothesis may not be valid in this case. Further, the nonsignificant relation between a closed triad and the diffusion of M&As in emerging

markets may be further explored by the idea of network transitivity (Uzzi & Gillespie, 2002). Network transitivity indicates that a firm can gain resources from its tie to another firm that is connected with an independent third party but the three do not need to be in a closed triad. Thus, the diffusion of M&As in emerging markets may occur when three firms are not in a closed triad. Rather, when the focal firm and the interlocked firm are connected to a common third party, the information on M&As in emerging markets may be transferred from the interlocked firm to the focal firm.

Finally, although researchers have examined the influence of board interlocks on diffusion, few studies have examined it through a multi-level perspective. Limiting the study of diffusion through board interlocks to one single level may be the reason why many prior studies cannot find the influence of board interlocks on diffusion. Given that prior studies have had mixed results on the influence of board interlocks on diffusion, it is understandable that critics questioned whether board interlocks matter (Mizruchi, 1996). In this dissertation, I offered cross-level integrations of theory to explain how M&As in emerging markets can be diffused through variance of board interlocks. This shows that researchers should not depend on using a single level of theory; an organizational phenomenon should be examined through different levels, including individual, dyad, and structural levels. In the management field, many studies still rely on a single level of analysis (Brass, Galaskiewicz, Greve, & Tsai, 2004). Although three of my hypotheses were not supported, the rest of the hypotheses did support the notion of a multi-level perspective.

Next, the results of my dissertation have several implications for practice. According to research, most directors are hired based on their skills and experiences (Kim & Cannella, 2008). My dissertation shows that an interlocking director's ties can transfer information from the interlocked firm to the focal firm. Social network perspectives suggest that firms that are embedded in the board interlock network can leverage social relations and reap the benefits of social capital that are not available to firms outside of the network. Thus, when a firm hires a director that has ties to other firms that are engaging in important strategic actions (such as M&As in emerging markets), the focal firm can possibly learn from the experiences of the interlocked firm through the interlocking director. Hence, a firm should not only value a director's skills and experiences, but also his/her ties to other firms.

It is true that some firms might have already considered the importance of the interlocking director's ties but my results show that most firms should revisit their criteria of evaluating their directors. The nominating committee of a firm should carefully review the composition of their boards. When electing a new director, candidates should be reviewed based on their ability and association with other firms. Further, there has been a trend to limit the number of a director's outside directorships. A firm may show shareholders a more holistic view of the benefits of an interlocking director by documenting the interlocking director's ties with other firms in the annual letter to shareholders. A firm can show the shareholders how the firm uses information gained from board interlocks with other firms to benefit shareholders.

Similarly, given that interlocking director can serve as a channel for information to flow from the interlocked firm to the focal firm, this means that a focal firm can proactively seek information from its interlocked firms. Of course, some information is not to be shared through interlocking directors due to trade secrets, but other information may be shared. For instance, the interlocked firm that has implemented M&As in one of the BRIC countries may share with the focal firm what the market is like there. The interlocked firm can explain the general environment in the specific country and help the focal firm understand the challenges the interlocked firm face and the opportunities in the market. The focal firm can also proactively seek for more information on how an M&A can be best implemented in the country. This type of information is not firm specific, but requires the focal firm to learn from the interlocked firm's first-hand experience. Further, this also implies that if a firm wants to move into a new market, it can hire a director that has the experience or has access to information regarding the new market. The implication for practice is that firms can actively seek directors that can offer information the firms need.

My dissertation shows that certain board interlocks facilitate the diffusion of M&As in emerging markets. I highlight that the longer duration of the tie and when the interlocking director is a chair on either board will increase the likelihood of the focal firm's implementation of M&As in emerging markets following the interlocked firm. This shows how the focal firm can be influenced by these factors. Thus, when executives are considering implementing a complex strategic action following its interlocked firms, it may be beneficial for the executives to consider the duration of the tie and the position

of the interlocking directors. The executives should try to make the best decision based on a realistic assessment of costs and benefits of implementing a specific strategic action. Knowing that certain ties can influence the decision can make the executives more aware of the situation and have a better understanding of the strategic action.

Finally, my dissertation also has an important implication for the government in emerging markets. I was able to show that board interlocks can facilitate the diffusion of M&As in emerging markets. Given that the diffusion can occur through board interlocks, a positive experience of a foreign firm that has implemented M&As in the emerging market can possibly bring many other firms to implement M&As in that particular emerging market as well. In other words, if board interlocks can diffuse M&As in emerging markets, a firm that is being merged or acquired should serve as a good example; this can attract more future investments from abroad. Given that the governments in emerging markets want to encourage FDIs in their respective countries (Dunning & Lundan, 2008; Zhou et al., 2013), they can facilitate more positive experiences to promote M&As in their countries. I believe this is an important implication for the governments in emerging markets because the governments can attract more investments from abroad. In summary, M&As in emerging markets can be extremely important strategic actions for firms and for the host governments to attract FDIs. My dissertation offers several implications for implementing M&AS in emerging markets.

## **Future Research**

I believe my dissertation provides a foundation for several areas for future research. While I mainly focused on the social network perspective, other theories may be applicable, especially in understanding the lack of support for some of my hypotheses. Resource dependence theory indicates that the complexity of the environment will influence the value of interlocking directors (Boyd, 1990). For instance, Carpenter and Westphal (2001) found that a director's outside board experience can influence the director's contribution to a firm's strategic action. In other words, interlocking directors that are on other boards and can provide relevant strategic knowledge are more likely to be more involved in the focal firm's strategic decision making processes. In this vein, it is likely that if the interlocked firm can provide relevant knowledge for the focal firm, the interlocking director can utilize the information and increase the likelihood of diffusion.

Further, it is also possible that when an interlocking director can provide relevant information regarding the strategic action, the focal firm is more likely to commit a more substantial amount of resources in M&As. For instance, when relevant strategic knowledge is provided by the interlocking director from the interlocked firm, the focal firm is more likely to engage in higher percentage of the M&As. Thus, future research can consider the characteristics of the interlocked firm and the relevance of the interlocked firm's strategy compared with the focal firm's strategy.

Similarly, organizational learning theory suggests that organizations make decisions based on past experiences (Fiol & Lyles, 1985). Past experiences of the focal

firm with the interlocked firm may have an influence on the likelihood of diffusion of strategic actions from the interlocked firm to the focal firm. For instance, if the focal firm has followed a strategic action from the interlocked firm and it improved the focal firm's performance, the focal firm may be more likely to follow the interlocked firm again when the interlocked firm implements M&As in the emerging markets. On the other hand, if the focal firm has followed the interlocked firm's strategic action and it did not improve the focal firm's performance, the focal firm may be less inclined to implement M&As in emerging markets following the interlocked firm. In this vein, past experiences with the interlocked firm may influence the likelihood of diffusion of M&As in emerging markets. Applying organizational learning theory may provide future research more contextual understanding of what influences the diffusion of strategic actions.

To address the lack of support for the hypotheses related to the individual interlocking directors' tenure on the receiving board and ownership in the focal firm, future studies may examine the question from a social identity perspective (Ashforth & Mael, 1989). Social identity theory suggests that social identity is a perception that an individual has about him/herself within a group, and this perception leads to activities that match with the identity. Applying social identity theory, scholars may examine the social identity of the interlocking directors. It may be that when the interlocking director is more identified with the interlocked firm that has implemented M&As in emerging markets, the strategic action is more likely to be diffused to the focal firm.

Future research can also examine different type of organizational ties and their influence on diffusion of strategic actions. While my dissertation captures the board interlock ties, there are other different type of organizational ties, for instance, common industry membership, parent-subsidary, strategic alliances, and friendship ties between executives of two firms. Though research has shown that interlocks reflect meaningful social ties, the board interlock network does not reflect all ties that a firm has (Borgatti & Foster, 2003).

In my dissertation, I was able to theorize and empirically test when board interlocks facilitate diffusion of M&As in emerging markets. My results support that a longer duration of a tie, a greater number of overlapping cliques, a greater sending board's influence, and when the interlocking director is also a chair on either board increase the likelihood of diffusion of M&As in emerging markets, whereas when a receiving board has more access to information decreases the likelihood. Future studies can examine other types of organizational ties to study the diffusion of strategic actions. For instance, scholars can study how informal ties of executives in a TMT between two firms influence the diffusion of strategic actions. Westphal and his colleagues have extensively studied how a CEO's friendship ties influence a firm's strategy (McDonald & Westphal, 2003; Westphal, 1999; Westphal et al., 2006). Future studies can build on prior studies and explore whether a TMT's informal friendship ties influence the diffusion of strategic actions. Further, it will be an interesting research question to examine whether board interlocks or executives' informal friendship ties have more influence on diffusion.

Next, some scholars have proposed that interlocking directors may also spread unethical practices (Shipilov, Greve, & Rowley, 2010). I have shown support that a board interlock can influence the diffusion of M&As in emerging markets. One interesting question would be whether board interlocks are also good predictors of collusive behaviors. Social network theory indicates cohesion fosters similarity (Rice & Aydin, 1991); thus, it is possible that unethical practices can diffuse through board interlocks. For instance, does board interlock network promote collusive behaviors? Scholars have been interested in what factors facilitate collusive behaviors (Hao & Qi, 2011; Wang, Zhou, & Guan, 2011), and board interlocks may enhance the understanding of how collusive behaviors occur. It may be possible that some firms in a clique are engaged in collusive behaviors and their financial performance improves as a result of the collusive behaviors. Other firms that have board interlocks with the firms may learn collusive behaviors through the interlocking directors. The information transferred through the interlocking directors may be justified on the basis of improving a firm's performance. As a result, it can be possible that collusive behaviors can be adopted by other interlocked firms.

Having said this, it is also possible that collusive behaviors will be restrained when a firm is interlocked with other firms that are not engaged in these collusive behaviors. In the example above, the firm that is engaged in collusive behaviors may be sanctioned by other firms in the clique. Because a clique is a tightly connected subgroup in the network, expectations of conforming to social norms are often developed (Wasserman & Faust, 1994). Thus, a firm that deviates from the social norm may be

sanctioned. In this vein, the firm engaged in collusive behaviors may eventually adjust its unethical practices to be more ethical and acceptable to other interlocked firms in the clique. In short, future studies will benefit from examining whether unethical practices can be diffused or restrained through board interlocks.

Given that most interlock studies focused on the diffusion of implementing a specific strategic action (e.g., expansion into China), an interesting future study would be to examine whether board interlocks facilitate the withdrawal of a strategic action. Divestment is an example of the withdrawal of a strategic action. Divestments require a firm making decisions to eliminate its existing investment (e.g. closing a subsidiary in a foreign country). Divestments can be very costly because of the initial investment and the complex logistics that a firm has to follow (Chung, Lee, Beamish, Southam, & Nam, 2013). In this situation, board interlocks may play a role in terms of facilitating the diffusion of divestments. For instance, scholars can investigate whether board interlocks influence divestment in emerging markets. Does the focal firm divest its investment in the emerging markets following its interlocked firm's divestment? When does a board interlock influence a divestment? In my dissertation, I have shown different level of factors can influence diffusion. It will be an interesting future study for scholars to examine whether similar types of board interlocks facilitate divestments.

Finally, another area for future study can be to explore whether firms hire directors that are on other firms' board specifically to enter an emerging market's informal economy. Research has shown that most economic activities occurred in emerging markets are in the form of informal economy (Webb, Tihanyi, Ireland, &

Sirmon, 2009). As a result, my dissertation only captures a small percentage of the economic activities in emerging markets. Given that emerging markets are important markets for firms, future studies can explore whether interlocking directors facilitate firms to enter the informal economy in the emerging markets. Several future research questions can be explored. For instance, do board interlocks facilitate a firm to enter an informal economy in an emerging market? Or, do certain firms specifically hire directors that are on other firms' board that have entered an informal economy in an emerging market? Questions such as these can be a fruitful area for future research. In summary, I believe that there are still many exciting areas that a researcher can explore.

### **Limitations**

This dissertation has several limitations. First, many scholars cautioned the potential problem of endogeneity. I made an assumption that an interlocking director is hired first before s/he transfers the information s/he learns from the interlocked firm to the focal firm. Thus, I did not distinguish whether the directors were hired because of their specific skills and experiences, or the focal firm gained information transferred from the interlocking director. It is very possible that firms do not hire directors at random, and they hire the interlocking directors specifically for their knowledge and experiences in M&As in emerging markets. In other words, the focal firm may strategically hire directors from certain outside firms that have had the experience with M&As in emerging markets (Qi, 2010). However, I rely on the theoretical assumptions from the social network perspective that information can flow through ties and strategic

actions can then be learned and diffused (Borgatti, 2003). In addition, the directors in my sample have an average tenure of 6.52 years and I did not observe many new additions and exits of interlocking directors. This shows that firms do not constantly hire new directors every year in order to learn how to implement a new strategic action. Also, I have controlled my analyses to lag my predictors. This means that board interlocks have to occur before a focal firm implements M&As in emerging markets. Thus, I have designed my study to the best I can to address the question of endogeneity.

Second, there can be potential problems with my sample. My sample is from 2001 to 2012, and it is very likely that the focal firm has implemented M&As in emerging markets prior to 2001. This is a problem of left censoring. Because I do not have board interlock data before 2001, I cannot address this problem fully. Although right censoring (firms implementing M&As in emerging markets after the sample period) can be addressed by Cox event history analysis model (Allison, 1984), left censoring presents a potential problem for researchers given that an event can occur before the observation starts. However, I have included a focal firm's past M&As in the BRIC countries as a control variable. Five of my predictors are still positive and statistically significant with the focal firm's past M&As in the BRIC countries as a control variable.

A third limitation is my sample firms. My sample is limited to public firms in the S&P 1500, Fortune 1000, and Russell 3000. As a result, I am limited to the understanding of the board interlocks among these firms only. It is possible that these firms can have board interlocks with firms outside of my sample firms. If the focal firm

follows another interlocked firm to implement M&As in emerging markets and the interlocked firm is not in my sample, it is not captured in my analysis. Fourth, another limitation is the number of observations in my sample. In this dissertation, I define M&As in emerging markets as M&As in the BRIC countries in order to control for country effects. Ideally, my dissertation should limit to one industry in one country. However, I do not have enough observations to conduct such analysis. Having said this, by including Brazil, Russia, India, and China as my sample emerging markets, it indicates that my results apply for these four countries. On the other hand, my results are also limited to the BRIC countries and may or may not be generalizable to other emerging markets.

Further, it is possible that a focal firm's executives may have had prior experiences in emerging markets. For instance, a CEO may have studied in an emerging market, for example, Brazil, as a high school exchange student before. His/her experience of studying in that specific emerging market is likely to influence the firm's decision to implement M&As there. Thus, the decision to implement M&As in emerging markets can be influenced by the executives' prior experiences in emerging markets. Extant research has shown that TMT's international assignment experience can help a firm's international expansion (Sambharya, 1996). Tihanyi and his colleagues also found that TMT's international experience is positively related to a firm's international diversification (Tihanyi, Ellstrand, Daily, & Dalton, 2000). Hence, an executive's international experience is likely to influence the implementation of M&As in emerging markets. Further, it is worth noting that an executive's international experience is not

limited to work experiences, but can include studying experiences or family reasons (e.g., an executive may have relatives in one of the emerging markets). My dissertation did not capture the executives' prior experiences in emerging markets. This can be done by surveys for future studies.

Finally, I have limited my outcome to M&As in emerging markets. By doing so, I exclude other activities such as wholly owned subsidiaries or exporting. Furthermore, given that a large number of activities in emerging markets are in the informal economy (Webb et al., 2009), my dissertation only captures a small percentage of the activities in emerging markets. It is possible that a focal firm can follow the interlocked firm into the emerging markets, but the focal firm may not necessarily implement M&As. The focal firm can engage in activities in the informal economy, or can establish a subsidiary in the emerging market. Thus, my dissertation did not capture all possible outcomes. Future studies can benefit from examining all possible activities.

In conclusion, although my dissertation has several limitations, I believe it still makes important contributions to the management field. I was able to show that the duration of a tie, the number of overlapping cliques, the structural positions of the sending board and the receiving board, and the interlocking director's position as a chair influence the diffusion of M&As in emerging markets. These findings suggest that board interlocks do matter, but yet there is still much to be explored for future studies on board interlocks and the diffusion of strategic actions.

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**APPENDIX A**

**TABLE A-1**

**SELECTIVE EMPIRICAL RESEARCH ON BOARD INTERLOCKS**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Burt (1979)	<i>SN</i>	Firm Level: Cooptation	Firm performance	Structural theory of corporate cooptation	Firms are more likely to interlock with firms in another industry that constrains their profits. Interlocks do not necessarily lead to profits. Only firms that are successfully interlocked with those sectors that they depend on can obtain the benefits.
Burt (1980)	<i>ASQ</i>	Firm Level: Cooptation		Social networks	Cooptive corporate actor network is composed of ownership, direct interlocking with other firms, and indirect interlocking with other firms through financial institutions. These 3 types of relations are complementary and are used as cooptive devices.
Burt, Christman, & Kilburn (1980)	<i>ASR</i>	Firm Level: Cooptation		Structural theory of corporate cooptation	Interlocks tend to exist when there are market constraints and tend to not to occur when market constraints are absent.
Mintz & Schwartz (1981)	<i>ASR</i>	Firm Level: Cooptation		Theory of finance control	As predicted by the managerialism theory, modern corporations are dominated by interconnected commercial banks and insurance companies.

**TABLE A-1**

**CONTINUED**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Stearns & Mizruchi (1986)	<i>ASQ</i>	Firm Level: Cooptation		RDT	The likelihood of direct reconstitution is more likely as a result of the sending firm exercising power over the receiving firm, while reconstitution with another firm in the same industry (functional reconstitution) is likely to reflect the absence of such power.
Mizruchi & Stearns (1988)	<i>ASQ</i>	Firm Level: Cooptation (financial interlocks)		RDT	Declining solvency, profit rate, and increased demand for capital are positively associated with the number of representatives from financial institutions added to a firm's board (financial directors).
Shrader, Hoffman, & Stearns (1991)	<i>JMI</i>	Firm Level: Cooptation (ties to resources)		RDT	Strategic relations are important predictors of interorganizational centrality.
Ong, Wan, & Ong (2003)	<i>CGIR</i>	Firm Level: Cooptation (ties to resources)		RDT and bank control theory	They examined factors associated with board interlocks.

**TABLE A-1**  
**CONTINUED**

Study	Journal	Antecedents to Interlocks	Outcomes from Interlocks	Theories	Key findings
Galaskiewicz, Wasserman, Rauschenbach, Bielefeld, & Mullaney (1985)	<i>SF</i>	Firm Level: Legitimacy and director expertise		Organizati- onal theories	Did not find support for cooptation but find that firms are more likely to invite high-status CEOs on their board.
Johnson, Schnatterly, Bolton, & Tuggle (2011)	<i>JMS</i>	Individual level: Career advancement		Social capital and RDT	Firms with a greater scale and scope of operations and those firms that have more high status current board members are more likely to attract new directors with high social capital.
Mizruchi (1990a)	<i>ST</i>	Individual level: Career advancement	Others (similarity of behaviors)	Social networks	Board interlocks are associated but moderately with similarity in political behavior. Ties to the same financial institutions have a stronger effect.
Koenig & Gogel (1981)	<i>AJES</i>	Individual level: Social Cohesion		Hegemony theory	Being part of a corporate establishment has a significant effect on corporate conduct.
Ornstein (1984)	<i>ASQ</i>	Individual level: Social Cohesion		Organizati- onal theories	Board interlocks can be explained by interorganizational and class perspectives.

**TABLE A-1**

**CONTINUED**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Yue (2012)	<i>OS</i>	Individual level: Social Cohesion		Contact theory	Fads and fashions have a strong influence on the formation but not the dissolution of networks.
Bohman (2012)	<i>SN</i>	Individual level: Social Cohesion		Social networks	Results show that there is high association of owner network and BOD network.
Zajac & Westphal (1996)	<i>ASQ</i>	Others (boards seek directors from other similar boards)		Agency theory and interorganizational theory	CEO-board's variation in power relationships contributed to a separation of the director network.
Kono, Palmer, Friedland, & Zafonte (1998)	<i>AJS</i>	Others (spatial Consideration)		Various	Interlocks are spatial phenomena because local and nonlocal interlocks have different correlates.
Marquis (2003)	<i>ASQ</i>	Others (imprinting theory)		Imprinting theory	Information flows through director networks may be geographically contingent.

**TABLE A-1**

**CONTINUED**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Beckman, Haunschild, & Phillips (2004)	<i>OS</i>	Others (environment - uncertainty experienced by the firm)		Behavioral decision theory	Interlocks networks are influenced by the type of uncertainty experienced by firms.
Mizruchi, Stearns, & Marquis (2006)	<i>ASR</i>	Others (history)	Strategy diffusion	Institutional theory and social networks	Interlocks influence corporate financing, but this embeddedness is historically contingent.
Devos, Prevost, & Puthenpurackal (2009)	<i>FM</i>	Others (weak performance)	Firm performance	N/A	Interlocks are shown to be indicators of weak governance and decrease firm performance. Underperforming firms are more likely to have interlocking directors.
Clawson & Neustadt (1989)	<i>AJS</i>		Strategy diffusion (political strategy)	Organizational theories	Number of board interlocks influences a firm's political contributions: the higher the number, the higher the contribution.

**TABLE A-1**  
**CONTINUED**

Study	Journal	Antecedents to Interlocks	Outcomes from Interlocks	Theories	Key findings
Galaskiewicz & Wasserman (1989)	<i>ASQ</i>		Strategy diffusion (mimic behaviors)	Institutional theory and social networks	A firm is more likely to give money to non-profits when their manager/director sits on the non-profit's board.
Davis (1991)	<i>ASQ</i>		Strategy diffusion (spread of poison pills)	Agency theory and interorganizational theory	Ownership structure and firm-level factors influence the spread of poison pills.
Haunschild (1993)	<i>ASQ</i>		Strategy diffusion	RDT, financial theories and agency theory	Firms imitated from other interlocked firms on acquisition activities.
Davis & Greve (1997)	<i>AJS</i>		Strategy diffusion	Social Networks	Poison pills are diffused through board interlocks and golden parachutes are diffused through geographic proximity.

**TABLE A-1**

**CONTINUED**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Rao, Davis, & Ward (2000)	<i>ASQ</i>		Strategy diffusion	Social networks and social identity theory	Ties to in-group members decreased identity-discrepant cues and defections; ties to out-group members increased identity-discrepant cues and defection.
Carpenter & Westphal (2001)	<i>AMJ</i>		Strategy diffusion	Agency theory	Directors with relevant strategic knowledge and experience increase their involvement and monitoring on the board.
Westphal, Seidel, & Stewart (2001)	<i>ASQ</i>		Strategy diffusion	Institutional theory-mimetic	Firms that are interlocked with other firms are likely to imitate their business strategy, acquisition activities, and compensation policy.
Sanders & Tuschke (2007)	<i>AMJ</i>		Strategy diffusion	Institutional theory	Board interlocks influence diffusion of institutional contested practices.
Connelly, Johnson, Tihanyi, Ellstrand (2011)	<i>OS</i>		Strategy diffusion	Social networks	Board ties to successful adopters increase adoption of expansion into China while ties to unsuccessful adopters decreases adoption.

**TABLE A-1**  
**CONTINUED**

Study	Journal	Antecedents to Interlocks	Outcomes from Interlocks	Theories	Key findings
Okhmatovskiy & David (2012)	<i>OS</i>		Strategy diffusion	Institutional theory	Firms are more likely to adopt an internal corporate governance code when they are interlocked with firms that have implemented an internal corporate governance code.
Kang (2008)	<i>AMJ</i>		Spread of reputation	Signaling and attribution theories	Firms are more likely to experience reputational penalties when they are interlocked with firms accused of financial reporting fraud.
Richardson (1987)	<i>ASQ</i>		Firm performance	RDT and organizational theories	Broken ties that are replaced by a similar new tie are related to corporate profitability.
Boyd (1990)	<i>SMJ</i>		Firm performance	RDT	In an environment of uncertainty, a smaller board with large number of interlocks performs the best.
Keister (1998)	<i>AJS</i>		Firm performance	Interorganizational theory	Board interlocks improved the financial performance and productivity.
Phan, Lee, & Lau (2003)	<i>JMI</i>		Firm performance	RDT	Interlocks are positively associated with firm performance.

**TABLE A-1****CONTINUED**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Yeo, Pochet, & Alcouffe (2003)	<i>JMG</i>		Firm performance	Resource dependence theory and upper echelons theory	CEOs of larger firms hold more reciprocal CEO interlocks and there is a positive relationship between those interlocks and firm performance.
Harris & Shimizu (2004)	<i>JMS</i>		Firm performance (acquisition performance)	RDT	Directors that serve on many boards can bring knowledge and enhance acquisition performance.
Fich & White (2005)	<i>JCF</i>		Firm performance	N/A	Reciprocal CEO interlocks benefits the CEOs but not the shareholders.
Haniffa & Hudaib (2006)	<i>JBFA</i>		Firm performance	Agency theory	Found a significant relationship between board interlocks and market performance
Kiel & Nicholson (2006)	<i>CGIR</i>		Firm performance	N/A	Multiple directorships and firm financial performance have no relationship.

**TABLE A-1****CONTINUED**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Sarkar & Sarkar (2009)	<i>PBFJ</i>		Firm performance	RDT and others	Interlocks formed by outside directors are positively related to firm performance whereas those formed by inside directors are negatively related to firm performance.
Pombo & Gutierrez (2011)	<i>JEB</i>		Firm performance	N/A	Degree of interlocks is positively associated with firm performance.
Cai & Sevilir (2012)	<i>JFE</i>		Firm performance	Social networks	Direct board interlocks give acquirers lower takeover premiums while indirect interlocks give acquirers greater value creation.
Horton, Millo, & Serafeim (2012)	<i>JBFA</i>		Firm performance	Social capital theory	Interlocks are positively associated with a firm's future performance and compensation.
Palmer (1983)	<i>ASQ</i>		Others (formal coordination)	Organizational theories	Multiple-interlock ties are more likely to facilitate formal coordination than single-interlock ties.

**TABLE A-1**

**CONTINUED**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Mizruchi & Koenig (1986)	<i>ASR</i>		Others	Organizational theory	Direct inter-industry interlocks are negatively related to political consensus.
Mizruchi & Koenig (1988)	<i>SSR</i>		Others (political behaviors)	Social networks	Board interlocks are positively associated with similarity in political behaviors.
Mizruchi (1989)	<i>AJS</i>		Others	Organizational theory	Common relations with financial institutions are positively associated with the similarity of political behavior.
Mizruchi (1990a)	<i>SF</i>		Others (political opposition)	Social networks	Different factors, such as Common stockholdings, decrease the likelihood of political opposition.
Mizruchi (1990b)	<i>SF2</i>		Others	Organizational theory	Different factors, such as the presence of board interlocks with the same financial institutions, are associated with similarity of ideological contributions, party contributions, or both.
Palmer, Barber, Zhou, & Soysal (1995)	<i>ASR</i>		Others (being acquired)	RDT and social networks	Firms run by managers and directors in more central positions were less subject to hostile takeover.

**TABLE A-1**

**CONTINUED**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Westphal & Zajac (1997)	<i>ASQ</i>		Others (board control)	Social exchange theory	Defections from the inner circles are diffused through interlocks.
Haunschild & Beckman (1998)	<i>ASQ</i>		Others (information)	RDT	Different factors influence diffusion.
Gulati and Westphal (1999)	<i>ASQ</i>		Others (alliance formation)	Social networks and agency theory	Third-party network ties influence direct interlock ties.
Geletkanycz, Boyd, & Finkelstein (2001)	<i>SMJ</i>		Others (CEO compensation)	RDT and social networks	A firm's level of diversification can influence the rewards to CEO's external directorate networks.
Beckman & Haunschild (2002)	<i>ASQ</i>		Others (acquisitions)	Upper-echelons theory	Firms tied to other firms with heterogeneous experiences benefits more than those tied to others with homogeneous experience.

**TABLE A-1**  
**CONTINUED**

Study	Journal	Antecedents to Interlocks	Outcomes from Interlocks	Theories	Key findings
Burris (2005)	<i>AJS</i>		Others (similarity in political behaviors)	Pluralist theory and class cohesion theory	Similarity of political behavior can be predicted by the ties formed via common membership on boards.
Ruigrok, Peck, & Keller (2006)	<i>JMS</i>		Others (board involvement)	Agency theory and social networks	Board involvement in strategic decision making is generally lower where boards have many interlocks and same-industry interlocks.
Rosenkopf, & Schleicher (2008)	<i>MDE</i>		Others (Alliance formation)	RDT	Interlocks facilitate alliance formation.
Haynes & Hillman (2010)	<i>SMJ</i>		Others (strategic change)	RDT	Board interlocks influence strategic change.
Valenti & Horner (2010)	<i>JABE</i>		Others (monitoring)	Social networks	Did not support the proposition that board centrality predicts governance effectiveness.

**TABLE A-1**

**CONTINUED**

<b>Study</b>	<b>Journal</b>	<b>Antecedents to Interlocks</b>	<b>Outcomes from Interlocks</b>	<b>Theories</b>	<b>Key findings</b>
Dreiling & Darves (2011)	<i>AJS</i>		Others (political unity)	Social networks	Board interlocks are positively associated with corporate political similarity.
Mahmood, Zhu, & Zajac (2011)	<i>SMJ</i>		Others (capabilities)	Social networks	A firm's multiplex network ties are an important source of capability acquisition.
Moore, Bell, Filatotchev & Rasheed (2012)	<i>SMJ</i>		Others (foreign capital market choice)	Institutional theory	Internal governance characteristics and external network characteristics are predictors of foreign capital market choice.

<sup>1</sup> Journal abbreviations: *AJES*: American Journal of Economics and Sociology; *AJS*: American Journal of Sociology; *AMJ*: Academy of Management Journal; *AMR*: Academy of Management Review; *ASQ*: Administrative Science Quarterly; *ASR*: American Sociological Review; *CGIR*: Corporate Governance: An International Review; *FM*: Financial Management; *JABE*: Journal of Applied Business and Economics; *JBFA*: Journal of Business Finance & Accounting; *JCF*: Journal of Corporate Finance; *JEB*: Journal of Economics and Business; *JFE*: Journal of Financial Economics; *JMG*: Journal of Management and Governance; *JMI*: Journal of Management Issues; *JMS*: Journal of Management Studies; *JOM*: Journal of Management; *MDE*: Managerial and Decision Economics; *OS*: Organization Science; *PBFJ*: Pacific-Basin Finance Journal; *SF*: Social Forces; *SF2*: Sociological Forum; *SMJ*: Strategic Management Journal; *SN*: Social Networks; *SSR*: Social Science Research; *ST*: Sociological Theory;

**TABLE A-2****NUMBER OF M&AS IN BRIC COUNTRIES EACH YEAR**

<b>Year</b>	<b>Not in BRIC</b>	<b>In BRIC</b>	<b>Total</b>
2001	1,937	65	2,002
2002	1,777	40	1,817
2003	1,756	70	1,826
2004	1,984	89	2,073
2005	2,193	94	2,287
2006	2,348	117	2,465
2007	2,465	136	2,601
2008	2,162	151	2,313
2009	1,344	82	1,426
2010	1,799	91	1,890
2011	1,925	124	2,049
2012	1,929	96	2,025
<b>Total</b>	4,025	1,431	5,456

**TABLE A-3**

**SUMMARY OF VARIABLES**

<b>Variable</b>	<b>Definitions</b>	<b>Data Source</b>
<i>Dependent Variable</i>		
Rate of occurrence from one firm to another	Two variables: the first is an integer variable measuring the year. The second is a dummy variable showing whether the focal firm has implemented M&As in one or more BRIC countries one year after the interlocked firm has implemented them. 1 is year and 0 is no. I excluded M&As that were incomplete or were repurchases.	Thompson One
<i>Independent Variables</i>		
Duration of an interlock	Length of the interlock in years. In the case of more than one interlock, I took the longest duration.	Corporate Library
Closed triad	Dummy=1 if both firms are in a closed triad, 0 otherwise.	Corporate Library
Number of cliques	The number of cliques that both firms are in, measured by 2-clan.	Corporate Library
Sending board's influence	Measured by normalized Eigenvector centrality.	Corporate Library
Receiving board's access to information	Measured by normalized closeness centrality.	Corporate Library
Chair on either board	Dummy=1 if an interlocking director is also a chair in either firms, 0 otherwise.	Corporate Library
Director tenure on receiving board	Length of time an interlocking director has served on the receiving board, measured in years.	Corporate Library
Director ownership in focal firm	Percentage of ownership the interlocking director has over the firm.	Corporate Library

**TABLE A-3**  
**CONTINUED**

<b>Variable</b>	<b>Definitions</b>	<b>Data Source</b>
<i>Control Variables</i>		
Size	Natural logarithm of total employees.	COMPUSTAT
ROS	Firm performance using return on sales.	COMPUSTAT
Leverage	Debt divided by sales.	COMPUSTAT
Past BRIC	Dummy=1 if the focal firm has implemented M&As in one (or more) of the BRIC countries in the past 5 year.	Thompson One
Total M&As	Number of M&As in a given year for the focal firm.	Thompson One
Receiving board size	Number of board members the receiving board has.	Corporate Library
Industry M&As	Mean occurrence of M&As in one (or more) of the BRIC countries for firms in the same two-digit SIC.	COMPUSTAT & Thompson One
M&A Size	Natural log of the value of the M&A in million US dollars.	Thompson One

**TABLE A-4**  
**DESCRIPTIVE STATISTICS AND INTERCORRELATIONS**

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1. Rate of occurrence	0.10	0.31																	
2. Size	2.86	1.57	0.08																
3. ROS	0.07	0.30	0.00	-0.01															
4. Leverage	0.20	0.80	0.11	0.14	-0.10														
5. Past BRIC	0.10	0.30	0.34	0.22	0.03	0.17													
6. Total M&As	2.26	1.81	0.06	0.08	0.05	0.08	0.12												
7. Receiving board size	10.82	2.40	0.02	0.46	0.01	0.19	0.15	0.00											
8. Industry M&As	0.09	0.08	0.19	0.09	0.00	0.10	0.08	-0.02	0.07										
9. M&A size	3.43	1.57	-0.22	-0.16	0.02	-0.06	0.04	0.07	-0.08	-0.25									
10. Duration of an interlock	4.85	4.83	0.04	-0.04	0.00	0.01	-0.03	0.01	-0.02	0.03	-0.09								
11. Closed triad	0.65	0.48	0.16	0.32	0.01	0.05	0.04	-0.01	0.21	0.21	-0.32	0.05							
12. Number of cliques	4.52	4.25	0.01	0.10	0.00	0.04	0.04	0.01	0.11	-0.04	0.02	0.02	0.26						
13. Sending board's influence	5.92	5.99	0.13	0.33	0.00	0.08	0.06	0.01	0.21	0.14	-0.26	0.06	0.23	0.20					
14. Receiving board's access to information	9.61	10.39	-0.24	-0.03	0.04	0.04	0.17	0.09	0.05	-0.31	0.76	-0.12	-0.34	0.11	-0.20				
15. Chair on either board	0.19	0.39	0.07	0.10	-0.03	0.02	0.01	-0.03	0.06	0.11	-0.20	0.05	0.10	-0.06	0.09	-0.23			
16. Director tenure on receiving board	6.52	6.39	0.05	-0.02	0.00	-0.01	-0.06	-0.01	0.02	0.10	-0.23	0.21	0.11	0.01	0.10	-0.29	0.16		
17. Director ownership in focal firm	6.21	10.09	-0.17	-0.23	0.01	-0.01	0.01	-0.01	-0.12	-0.21	0.55	0.12	-0.28	0.04	-0.20	0.33	-0.07	-0.01	

<sup>1</sup> N=5,976

<sup>2</sup> Correlations >|.03| are significant at p <.05

**TABLE A-5**  
**VIF FOR MODEL 2**

<b>Variable</b>	<b>VIF</b>	<b>1/VIF</b>
Receiving board's access to information	3.87	0.258583
Director tenure on receiving board	3.21	0.311780
Duration of an interlock	2.99	0.334380
M&A size	2.61	0.382738
Director ownership in focal firm	2.01	0.496364
Closed triad	1.99	0.502849
Sending board's influence	1.74	0.573806
Size	1.52	0.658436
Receiving board size	1.35	0.740539
Industry M&As	1.16	0.863248
Number of cliques	1.14	0.873416
Past BRIC	1.14	0.873482
Chair on either board	1.11	0.897546
Leverage	1.10	0.908044
Total M&As	1.04	0.960165
ROS	1.02	0.982655
<b>Mean VIF</b>	<b>1.81</b>	

**TABLE A-6**

**COX MODEL EVENT HISTORY ANALYSIS**

**DEPENDENT VARIABLE: DIFFUSION OF M&AS IN THE BRIC COUNTRIES**

**COEFFICIENTS ARE ODDS RATIOS**

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>
<i>Controls</i>		
<b>Size</b>	1.03	0.95
<b>ROS</b>	0.89 <sup>†</sup>	0.96
<b>Leverage</b>	1.03	1.06
<b>Past BRIC</b>	1.39 <sup>***</sup>	1.54 <sup>***</sup>
<b>Total M&amp;As</b>	1.16 <sup>***</sup>	1.25 <sup>***</sup>
<b>Receiving board size</b>	0.90 <sup>***</sup>	0.95 <sup>*</sup>
<b>Industry M&amp;As</b>	1.11 <sup>***</sup>	1.05 <sup>**</sup>
<b>M&amp;A size</b>	0.96 <sup>***</sup>	0.97 <sup>***</sup>
<i>Predictors</i>		
<b>Duration of an interlock</b>		1.09 <sup>***</sup>
<b>Closed triad</b>		1.01
<b>Number of cliques</b>		1.30 <sup>**</sup>
<b>Sending board's influence</b>		1.02 <sup>*</sup>
<b>Receiving board's access to information</b>		0.91 <sup>***</sup>
<b>Chair on either board</b>		1.23 <sup>*</sup>
<b>Director tenure on receiving board</b>		0.97 <sup>*</sup>
<b>Director ownership in focal firm</b>		0.98
<b>Log Likelihood</b>	-3018.8931	-2893.3819
<b>Chi-Square</b>	462.58 <sup>***</sup>	900.84 <sup>***</sup>

<sup>1</sup> All variables are lagged by one year

<sup>2</sup> † p<.10; \* p<.05; \*\* p<.01; \*\*\* p<.001

**TABLE A-7**  
**VIF FOR MODEL 3**

<b>Variable</b>	<b>VIF</b>	<b>1/VIF</b>
Receiving board's access to information	3.85	0.260030
Director tenure on receiving board	3.21	0.311511
Director ownership in focal firm	3.12	0.320880
Duration of an interlock	2.99	0.334266
M&A size	2.62	0.381627
Closed triad (number of Simmelian ties)	2.40	0.416865
Number of cliques	2.13	0.468926
Director ownership in focal firm (squared)	2.03	0.491467
Size	1.49	0.670065
Sending board's influence	1.35	0.741020
Receiving board size	1.35	0.741836
Industry M&As	1.15	0.869704
Past BRIC	1.15	0.873254
Chair on either board	1.11	0.897074
Leverage	1.10	0.907729
Total M&As	1.04	0.959914
ROS	1.02	0.982766
<b>Mean VIF</b>	<b>1.95</b>	

**TABLE A-8**  
**VIF FOR MODEL 4**

<b>Variable</b>	<b>VIF</b>	<b>1/VIF</b>
Closed triad (number of Simmelian ties)	8.82	0.113379
Closed triad (number of Simmelian ties, squared)	7.65	0.130719
Number of cliques	5.53	0.180868
Receiving board's access to information	3.85	0.259731
Director tenure on receiving board	3.21	0.311051
Director ownership in focal firm	3.12	0.320837
Duration of an interlock	2.99	0.334094
M&A size	2.62	0.381532
Director ownership in focal firm (squared)	2.03	0.491465
Size	1.49	0.670065
Sending board's influence	1.35	0.739442
Receiving board size	1.35	0.741740
Industry M&As	1.15	0.869518
Past BRIC	1.15	0.873202
Chair on either board	1.12	0.895723
Leverage	1.10	0.907538
Total M&As	1.04	0.958596
ROS	1.02	0.982700
<b>Mean VIF</b>	<b>2.81</b>	

**TABLE A-9**

**POST HOC ANALYSES: COX MODEL EVENT HISTORY ANALYSIS**  
**DEPENDENT VARIABLE: DIFFUSION OF M&AS IN THE BRIC COUNTRIES**  
**COEFFICIENTS ARE ODDS RATIOS**

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<i>Controls</i>				
<b>Size</b>	1.03	0.95	0.95	0.95
<b>ROS</b>	0.89 <sup>†</sup>	0.96	0.96	0.96
<b>Leverage</b>	1.03	1.06	1.06	1.06
<b>Past BRIC</b>	1.39***	1.54***	1.54***	1.54***
<b>Total M&amp;As</b>	1.16***	1.25***	1.25***	1.25***
<b>Receiving board size</b>	0.90***	0.95*	0.95*	0.95*
<b>Industry M&amp;As</b>	1.11***	1.05**	1.05**	1.05**
<b>M&amp;A size</b>	0.96***	0.97***	0.97***	0.97***
<i>Predictors</i>				
<b>Duration of an interlock</b>		1.09***	1.09***	1.09***
<b>Closed triad<sup>a</sup></b>		1.01	1.01	1.31
<b>Closed triad (Squared)<sup>b</sup></b>				0.94
<b>Number of cliques</b>		1.30**	1.30 <sup>†</sup>	1.04
<b>Sending board's influence</b>		1.02*	1.02**	1.02**
<b>Receiving board's access to information</b>		0.91***	0.91***	0.91***
<b>Chair on either board</b>		1.23*	1.23*	1.24**
<b>Director tenure on receiving board</b>		0.97*	0.97*	0.97*
<b>Director ownership in focal firm</b>		0.98	0.97 <sup>†</sup>	0.97 <sup>†</sup>
<b>Director ownership in focal firm (Squared)</b>			1.00	1.00
<b>Log Likelihood</b>	-3018.8931	-2893.3819	-2892.6206	-2892.1131
<b>Wald Chi-Square</b>	462.58***	900.84***	906.56***	922.37***

<sup>1</sup> All variables are lagged by one year

<sup>2</sup> <sup>†</sup> p<.10; \* p<.05; \*\* p<.01; \*\*\* p<.001

<sup>a</sup> In model 3 and 4, Closed Triad is the number of Simmelian ties

<sup>b</sup> In Model 4, Closed Triad (Squared) is a squared term of the number of Simmelian ties

**TABLE A-10**

**SENSITIVITY TESTS: COX MODEL EVENT HISTORY ANALYSIS**

**DEPENDENT VARIABLE: DIFFUSION OF M&AS IN THE BRIC COUNTRIES**

**COEFFICIENTS ARE ODDS RATIOS**

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 5<sup>a</sup></b>	<b>Model 6<sup>b</sup></b>
<i>Controls</i>				
<b>Size</b>	1.03	0.95	1.09	1.18*
<b>ROS</b>	0.89 <sup>†</sup>	0.96	1.09	0.63
<b>Leverage</b>	1.03	1.06	1.15*	1.17 <sup>†</sup>
<b>Past BRIC</b>	1.39***	1.54***	1.03	1.16**
<b>Total M&amp;As</b>	1.16***	1.25***	0.89	0.90
<b>Receiving board size</b>	0.90***	0.95*	0.90**	0.86**
<b>Industry M&amp;As</b>	1.11***	1.05**	1.07**	1.08**
<b>M&amp;A size</b>	0.96***	0.97***	0.77***	0.92***
<i>Predictors</i>				
<b>Duration of an interlock</b>		1.09***	1.12***	1.16***
<b>Closed triad</b>		1.01	1.03	1.03
<b>Number of cliques</b>		1.30**	1.04	1.27
<b>Sending board's influence</b>		1.02*	1.18***	1.16***
<b>Receiving board's access to information</b>		0.91***	0.84***	0.23
<b>Chair on either board</b>		1.23*	1.09	1.47
<b>Director tenure on receiving board</b>		0.97*	0.97	0.96
<b>Director ownership in focal firm</b>		0.98	1.02	1.03
<b>Log Likelihood</b>	-3018.8931	-2893.3819	-1160.5400	-665.2448
<b>Wald Chi-Square</b>	462.58***	900.84***	175.42***	347.91***

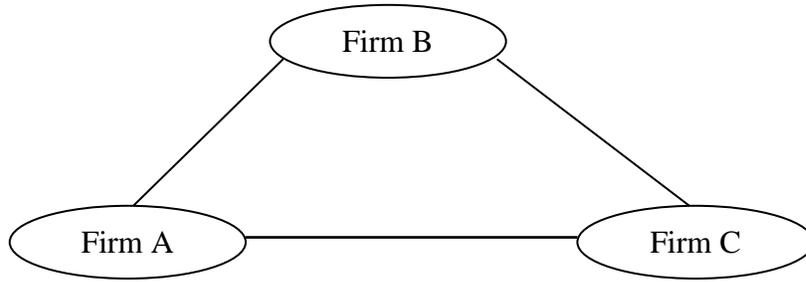
<sup>1</sup> All variables are lagged by one year except Model 5 and 6

<sup>2</sup> <sup>†</sup> p<.10; \* p<.05; \*\* p<.01; \*\*\* p<.001

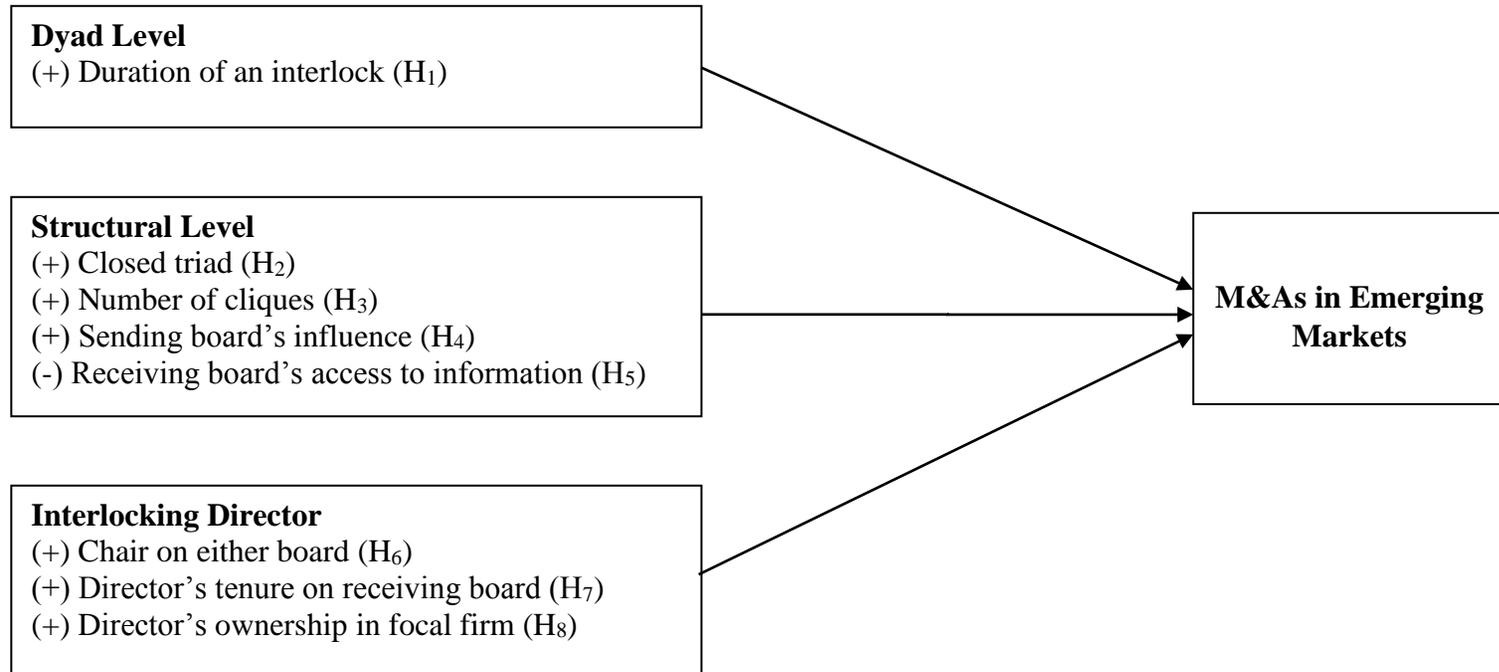
<sup>a</sup> In model 5, all variables are lagged by 2 years

<sup>b</sup> In Model 6, all variables are lagged by 3 years

**FIGURE A-1**  
**A CLOSED TRIAD**



**FIGURE A-2**  
**EMPIRICAL MODEL**

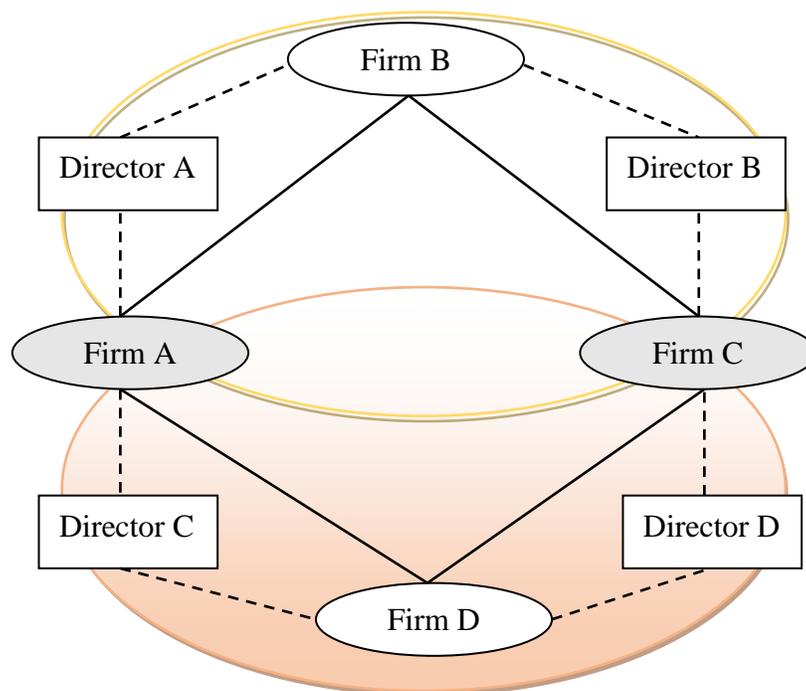


## APPENDIX B

### A DESCRIPTION OF CLIQUES

It is important to note that though a traditional definition of a clique is a maximal fully-connected subgraph (everyone is connected to everyone), social network researchers have applied a more relaxing and general definition (Wasserman & Faust, 1994). Thus, following the current development in social network theory, I define a clique as an N-clique, meaning that actors are within the reach of N steps (e.g., N interlocking directors). An example of two 2-cliques is illustrated in the figure below:

#### AN EXAMPLE OF TWO 2-CLIQUES



- Represents a tie between a firm and a director
- Represents a tie between two firms

In the figure above, Firm A and Firm C are connected through a common director (Director A). In this example, Firm C is the focal firm and Firm A is the interlocked firm. Firm A is also connected with Firm B through Director A, and then Firm B is connected with Firm C through Director B. As a result, Firm A and Firm C are in a 2-clique. On the other hand, they are also in another 2-clique with Firm D. In this example, we can say that Firm A and Firm C are in two 2-cliques together. Based on a top-down approach from prior studies (Chan & Liebowitz, 2006; Wellman, 1983), I examined the board interlock network as a whole and identify the sub-structures that are more dense and commonly in the network. From there, cliques were identified. This approach allows researchers to operate at a network level and focus on the constraints of the network (Hanneman & Riddle, 2005).

## **APPENDIX C**

### **FOUR MOST COMMONLY USED CENTRALITY CONSTRUCTS**

There are different constructs of centrality in social network analysis. Depending on the underlying assumption (e.g., what do scholars consider to be important or central), different constructs yield different results. For instance, if a researcher is only concerned about the direct ties, then degree centrality is a good measure to capture centrality. However, if a researcher is concerned about all ties in a network, then degree centrality may not necessarily reflect the position because it does not take into consideration other indirect ties. There are four commonly used centrality measures in social network analysis: degree, betweenness, closeness, and eigenvector centrality (Wasserman & Faust, 1994). I will briefly explain the differences below:

#### **Degree Centrality**

Degree centrality is the most widely used centrality measure (Wasserman & Faust, 1994) and is defined as the number of direct ties an actor has. For instance, if Firm A is interlocked with 5 other firms, then Firm A has a degree centrality of 5. In degree centrality, the ties that the other 5 firms have are of no concern to Firm A in degree centrality. It is simply a count of the ties an actor has.

#### **Betweenness Centrality**

Betweenness centrality measures the number of times an actor serves as a bridge

between two actors along the shortest path. It mainly reflects an assumption of controlling the flow of communications/ information (Freeman, 1977). An actor with high betweenness centrality serves as a bridge that can potentially reap the benefits of being the “go between” person. It can be thought of being a broker (Burt, 1995). In essence, an actor with high betweenness centrality is especially useful in economic transactions because they hold the keys to information and are able to control the flow for their own benefit.

### **Closeness Centrality**

Closeness centrality measures the sum of distance to all other actors. Because it is the sum, a high number in closeness centrality actually denotes a less central actor, and thus, the raw number really means “farness” (Borgatti, 2005). In other words, the more central an actor is, the lower number its sum of total distance to all other actor. It can be regarded as the likelihood of an actor to receive information from all other actors in the network. For instance, if an actor has a low raw number of closeness centrality, it means that information can reach this actor relatively fast because it is close to all other actors in the network.

### **Eigenvector Centrality**

Eigenvector centrality is commonly referred to measure the influence of an actor (Bonacich, 1972). It assigns scores to each actor relative to its position. In other words, a tie to a well-connected actor weighs more than a tie to a less-connected actor. It is

fundamentally different than other centrality measures because the assumption is that every tie is different. Thus, a tie is *not* just a tie; it depends on who an actor is tie to.