

Network of Board of Directors in Mexican Corporations: A Social Network Analysis

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ABSTRACT

Purpose – The purpose of this research is to provide an account of board interlocks in relation to independent directors and their potential implications for corporate governance practices in an emerging economy.

Design/methodology/approach - Using Social Network Analysis, this research examines whether a pattern of interlocked directorates exists among the 126 publicly traded corporations in Mexico based on data from 1,516 inside and outside board members of the whole corporations traded in the Mexican Stock Market as of January 2011.

Findings - We found that in Mexico, independent board members have created a network structure of social relationships through board interlocks. The paper demonstrates that a few individuals are far more powerful than others due to the connections they hold with the network. We argue that this has severe consequences in maintaining the independence, transparency and accountability of corporate governance affairs to shareholders.

Research limitations/implications – It will be of great value to researchers and practitioners seeking to gain a better understanding of corporate governance frameworks in various settings. This finding has policy implications for the economic development programmes often prescribed by the multilateral agencies without considering the local context.

Originality/value – Drawing on Pierre Bourdieu's theory of social capital and applying social networking analysis, the paper reveals the interconnectedness of board members, especially independent directors. This helps unravel the most powerful actors in the corporate governance field in Mexico. Highlighting the concentration of power in a few individuals in this field is especially important given the weak capital markets, family ownership and lack of institutional investors in Mexico specifically and in emerging economies generally.

Key words: social network analysis, board interlocks, corporate governance, Pierre Bourdieu, social capital, Mexico

Paper type: Research paper

Introduction

This research concerns the structure of interlocked directorates and their potential implications for corporate governance practices in Mexico. Research on interlocked directorates has received attention from academics, policy makers and practitioners especially in the developed economies (Mintz and Schwartz, 1981; Mariolis *et al.*, 1982, Burt, 1983; Stokman *et al.*, 1985; Richardson, 1987; Gerlach, 1992; Pederson and Thomsen, 1997; Conyon and Muldoon, 2006). Nevertheless, recent economic crises have brought to the fore various corporate governance issues, especially the independence of independent directors in both developed and emerging economies (Heemskerk and Schnyder, 2008; Johnson and Ellstrand, 1996; Lim and Porpora, 1987; Peng *et al.*, 2001; Ong *et al.*, 2003; Silva *et al.*, 2006). The banking failures heavily question the corporate governance frameworks generally and the protection of shareholders more specifically (Wearing, 2005). In the case of emerging economies, board interlocks and the issues of independent directors are even more important in the context of a high concentration of ownership and the absence of institutional investors in the companies (La Porta *et al.*, 1999; La Porta, Lopez *et al.*, 2000; Dyck and Zingales, 2002; Berglof and Claessens, 2006; Uddin and Choudhury, 2008).

The Mexican situation is particularly useful for developing our understanding of networks of directors for many reasons. First, Mexico has recently undergone huge reforms of corporate governance and has assimilated the corporate governance model offered by OECD. In Mexico, the first step towards strengthening the corporate

governance system was made by the *Comisión Nacional Bancaria y de Valores* (CNBV) (Mexican National Banking and Securities Commission) with the issuance in 1999 of the Corporate Governance Code for Mexico and the New Stock Market Law passed in 2001. One of the main obligations imposed on public-listed corporations by the Mexican New Securities Law and the Corporate Governance Code for Mexico was the inclusion of independent board members on the board of directors (*Ley del Mercado de Valores*, LMV).

The background of the OECD's formula is that the previous governance model was inadequate to monitor and control company affairs in the best interests of shareholders, especially minority shareholders. Strengthening the corporate boards by using independent directors was seen as a panacea to the corporate governance problems. Given the reforms, it seemed to us an opportune moment to investigate the implications of these reforms on board structures in Mexican corporations.

In addition, board interlocks and networks of directors strongly influence the effectiveness and efficiency of corporate governance regulations. In order to understand the activities of boards of directors, it is becoming more important to understand the network position that the directors hold. The abilities of a board of directors and independent directors perhaps depend on the network of cognate companies to which the board is linked. These links can take many forms including flows of information, personnel or authority. In this paper, we focus on names of directors listed on annual reports and events and use these links to document the powerful actors in the network of directors and organizations.

Furthermore, for the reforms brought about by the OECD to be relatively successful, certain preconditions are required. Previous studies on corporate governance in the UK and the USA have identified a number of essential elements in governing corporations including well-developed capital markets, professional bodies, democratic institutions and a justice system free from political influence (Hopper et al., 2009; Tsamenyi & Uddin, 2008; Uddin & Choudhury, 2008). Studies focusing on the settings in the UK and the USA have indicated that these institutions are independent but inextricably linked with each other (Chua and Poullaos, 1993). Studies in emerging economies have often argued that institutions, such as professional bodies, stock exchanges and other associated institutions, are politically charged and family oriented (Uddin and Choudhury, 2008). Studies in Mexico and in Latin American countries have also argued that institutions in these countries show similar traits. The study of board interlocks and the identification of powerful actors in Mexico have the potential to raise interesting questions and issues.

Finally, a significant number of studies have been devoted to understanding the role of independent directors and their implications for interlocked board directorates (Fama and Jensen, 1983; Huse, 2005; Johnson, Daily and Ellstrand, 1996; Stiles and Taylor, 2001; Zattoni and Cuomo, 2010). Interlocked boards give rise to some powerful and influential actors in the field which may prevent the independent directors from playing a role to protect the interests of shareholders, especially minority shareholders, in the emerging economies context. Salas-Porrás (2006, 1997 and 1992) researched Mexican corporate elites and found that boards of directors have been spaces of economic, regional and political interests since the 19th century. Although the corporate board is a popular research agenda, few studies have focused on finding whether there is a pattern

of board interlocks in Mexico or identifying the most powerful and influential actors and the implications for the Mexican corporate governance field (Boyd, 1990). Most research on board interlocks is concerned about developed countries, with few studies in Malaysia, Thailand, Singapore, Chile and Mexico (Lim and Porpora, 1987; Peng *et al.*, 2001; Ong *et al.*, 2003; Silva *et al.*, 2006, Salas-Porras, 2006). This study aims to contribute to the literature on interlocked directorates in emerging economies.

This study poses two simple empirical questions: Does a pattern of board interlocks exist in Mexico? What positions do actors occupy in the network structure of board interlocks in Mexico? In order to gain an insight into the network structure of board interlocks in Mexico, social network analysis (SNA) was adopted to determine the social relationships linking board members and corporations. Previous accounting studies have adopted this analysis to demonstrate the network of accountants, standard setters and managers (Chapman, 1998; Richardson, 2009; Tichy, Tushman and Fombrun, 1979). This study demonstrates the network of boards of directors. It relates individuals with corporations and allows the production of spatial maps to visualise the network structure of board interlocks (Freeman, 2004). The basic concepts of the social network analysis will be presented later. The study also aims to answer the following theoretical questions: Why does the network occur? What are their implications for corporate governance practices especially the practices of boards? In order to provide further explanations, this study draws in particular on the Bourdieusian notion of social capital (Bourdieu, 1986; Bourdieu and Wacquant, 1992).

The paper is divided into several sections. A brief literature review on board interlocks and the independence of directors both in Anglo-American countries and in less

developed countries is presented in the first section. Detailed accounts of SNA are provided in the following section. This is followed by a section on empirics, focusing on the board interlocks, relationships, networks and powerful actors. This discussion, along with the concluding sections, provides an account of why networks occur and how they perpetuate the current status of board impotency and corporate governance affairs in Mexico.

Previous Studies

Studies on board interlocks go back a century or more (Jeidels, 1905; Hilferding, 1910; Brandeis, 1914; National Resources Committee, 1939). According to Mizruchi and Bunting (1981), the causes and consequences of board interlocks have been a source of debate since the Pujo Committee identified interlocks as a problem of corporate concentration in the early 20th century. Also, Brandeis (1914) used interlocks as indicators of control, as did the National Resources Committee (1939) and Perlo (1957). Davis (1996) observed that board representation has been recognised as a corporate practice for intercorporate collusion or cooptation (Pfeffer and Salanick, 1978), for bank control over corporate decision making (Kotz, 1978), and for the aggregation and advancement of the collective interests of the corporate elite through which powerful interests are present in corporations (Useem, 1984).

One of the advantages of research on board interlocks is that interlocks are easily identifiable in publicly available information from highly reliable sources, such as corporate annual reports. However, critics of research into board interlocks have argued that the availability of information has meant that board interlocks are largely irrelevant

and that research on the interlock network represents the dominance of method over substance (Stinchcombe, 1990, cited by Davis, 1996:154). For example, one way of measuring influence in networks of corporations is to total each firm's number of interlocks; those firms with the highest number of interlocks would be the most influential in the network (Mizruchi and Bunting, 1981:476). Despite that, board interlocks are relevant because, through them, it is possible to trace the social embeddedness of corporate governance (Davis, 1986). Through their experiences on other boards, interlocking directors provide a conduit for social influences that create an informational and normative context - "an embeddedness" - for board decisions (Granovetter, 1985, cited by Davis, 1986:154). Another characteristic of board interlocks is that they are created by both inside and outside directors. Mizruchi *et al.* (1993) observed that a firm's inside directors, especially its leading officers, often sit on the boards of other firms. However, most interlocks are created by a firm's outside directors. Hence, any board member who is affiliated with another company creates an interlock between the two corporations.

Allen (1974) found that inter-organizational elite cooptation, in the form of interlocking corporate directorates, is viewed as a cooperative strategy between economic organizations for reducing sources of uncertainty in their environments. Boards of directors participate in the strategic decision-making process, support top management in defining the strategic context of the firm, and provide external legitimacy and networking (Stiles and Taylor, 2001).

Mizruchi (1996:272) observed that, in the United States, in most small, family-owned firms, the board is likely to consist of the firm's president, some relatives and/or

managers, and perhaps the firm's attorney and a few trusted friends. However, in a large firm, the typical board consists of a range of inside and outside directors, where inside directors are those whose primary affiliation is with the firm and usually include the firm's CEO and other top officers. Retired and stockholding family members are also included in this group.

Previous studies have recognized board representation as a corporate practice for inter-corporate collusion or cooptation (Pfeffer and Salanick, 1978), for bank control over corporate decision making (Kotz, 1978), and for the aggregation and advancement of the collective interests of the corporate elite through which powerful interests are present in corporations (Useem, 1984). Some studies have argued that board interlocks are interlocks that serve as a means of communication, interdependence and political and ideological coordination for the capitalist class (Mariolis and Jones, 1982; Ornstein, 1984). The probability that interlocked companies will be audited by the same public accounting firm as the focal company is partially explained by the ties between those clients' companies that are created by interlocking directorates (Davidson, Stening and Tai, 1984). That is possible because directors who sit on many boards do so in the company of other directors who also sit on many boards (Conyon and Muldoon, 2006). Galaskiewicz *et al.* (1985) found that where the CEO was also a member of the social elite, members of this elite were most likely to be represented on local boards and tended to choose one another to sit on their own boards. That has significant implications because companies get information on their respective markets through their other directors (Galaskiewicz *et al.*, 1985). Non-executive directors may contribute to board control and service tasks with varying degrees of effectiveness (Lorsch and MacIver, 1989).

In Latin America, some shareholders of Latin American corporations have significant control rights, and typically, it is the controlling shareholders who run business groups, not professional managers with little equity ownership (Santiago and Brown, 2009). This means that Latin American corporate governance mechanisms differ from those in developed countries: a) it seems that boards of directors in Latin America are under the influence of controlling shareholders and do not perform their legitimate fiduciary duty to safeguard minority shareholders' interests; b) the ownership structure is concentrated in the hands of the controlling family or families; and c) formal institutional protection is often lacking, corrupted, or not enforced (Santiago and Brown, 2009). The degree of directors' independence affects the potential for the expropriation of minority shareholders' rights because the monitoring duties of independent directors may not play an important role in increasing the number of opportunities for expropriation by majority shareholders (Santiago and Brown, 2009).

In Mexico, the law provides the basic rules for minority shareholders' rights, but the lack of specific regulations gives rise to the possibility of majority shareholders taking advantage of that situation and benefiting from minority shareholders (Babatz Torres, 1997). Also, in Mexico, legal stock market reforms do not imply a better protection of investors (Chong and Lopez de Silanes, 2007). Santiago and Brown (2009) observed that in Latin America, the conflict is between majority and minority shareholders, because the former benefit from the expropriation of minority shareholders' rights through nepotism and political corruption. That conflict is due to a) the corporate governance structure of public-listed companies that shield majority shareholders from takeovers and monitoring activities, and b) a legal system that does not protect minority

shareholders because of the lack of enforcement (Gomes, 2000). Under these circumstances, majority shareholders do whatever they can to keep control of the corporation, by occupying top management positions, sitting on the board of directors, limiting the trade in shares, and creating business conglomerates (Santiago and Brown, 2009a). These issues, predictably, have led to serious debate about the severe consequences of board interlocks for minority shareholders, especially in concentrated shareholding companies. Despite this, not many studies have focused on exploring the implications of board interlocks in emerging economies or developed economies where families rule the companies. This paper investigates board interlock patterns in Mexican companies and their implications for board practices.

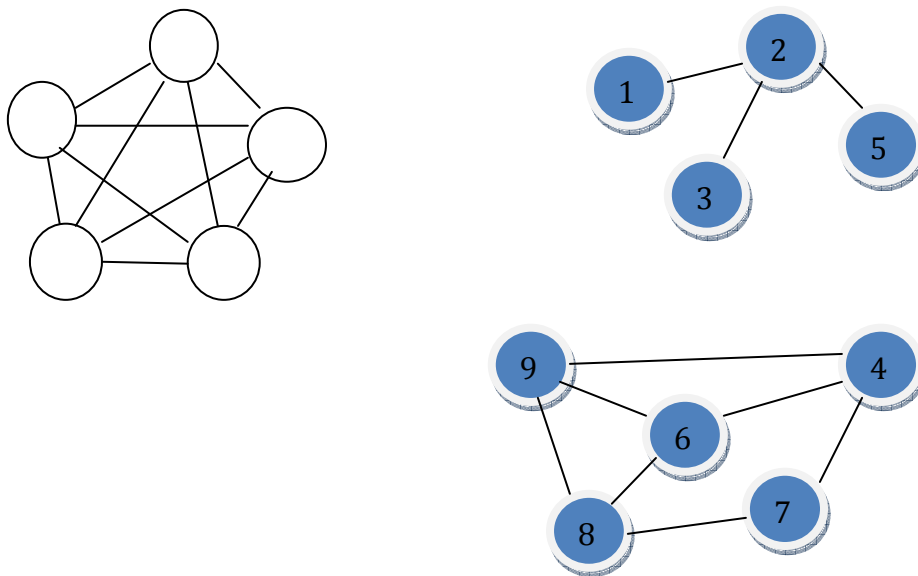
Research method: the application of social network analysis

The main components of any social network are actors and relations, while their joint combination constitutes a social network. There are a number of ways social networks can be measured and understood (**Tichy, Tushman and Fombrun, 1979, Borgatti and Foster, 2003, Wang *et al.*, 2009**). In this study, we calculated a Two-Mode Network with board members and corporations, where board members constituted the first mode and corporations represent the second mode. And common board members link corporations.

A graph is made up of *nodes* and lines connecting the nodes. In this study corporations and board members are nodes and connections between them are *edges*. To understand social network analysis we need to analyse the structural relation of board members and corporations.

In the following example from Conyon and Muldoon (2006: 1325), we visualise the net of connections among nodes.

Figure 1. Two simple graphs. The one on the left is complete while the one on the right has two connected components (Conyon and Muldoon, 2006:1325)



In Figure 1 above, on the right side, the nodes numbered 1 and 2 are adjacent, while those numbered 5 and 3 are not.. The *connected* component is associated with a node, which is the part of the graph consisting of the node itself and all those nodes that can be reached by paths running along the edges of the graph. So, in Figure 1, the graph on the left has a single connected component, while the one on the right (in blue with the numbered nodes) has two connected components: one associated with nodes 1, 2, 3 and 5 and another associated with nodes 4,6,7,8, and 9. For the purpose of this study, our interest is on those components associated with a node. That is, board members associated to a corporation.

Another important concept of graph theory is *degree*, which is the number of edges connected to a node. In Figure 1, on the left side, all the nodes have degree 5. This metric is relevant for the purpose of this study as explain below. Since, we want to measure the number of board members connected to a corporation.

Knove and Yang (2008:62) observed that a primary use of graph theory in social network analysis is to identify the important or prominent actors at both the individual and group levels of analysis. Centrality and prestige concepts and measures seek to quantify graph theoretic ideas about an actor's prominence within a complete network by summarising the structural relations among all nodes. In the following sections, the features of affiliation networks and the measures of centrality are explained.

In SNA a two-mode network is also known as *affiliation network* representing the association between two or more sets of nodes where each set is a different social entity (Wang *et al.*, 2009:12). That is, one set of nodes represents board members while the other set of nodes represents corporations, with ties representing directors sitting on company boards. And the number of entities within the network is the mode of the network. We calculated a Two-Mode Network with board members and corporations. These micro-level data are useful to infer the presence of social structure at the macro level.

One of the main purposes in of social network analysis of board interlocks is to search for the most influential, important and powerful members within the network. In helping to attain this objective, centrality is an important conceptual tool for analysing

power in social networks. Also, the notion of group centrality provides a measure of social capital for an embedded group and individual social capital is easily thought of in terms of centrality (Brass and Burkhardt, 1992). There are different positional measures that reflect the location of actors in a network. The focus is on the centrality of the board member or the bringing location of the board member in the network. In this study, we calculated two measures of centrality; degree centrality and eigenvalues that we explain below (Wasserman and Faust, 1994),

Centrality and Power

The concept of centrality has been operationalised and measured in a variety of ways. In this study we use Freeman's approach with two measures of centrality: degree centrality and eigenvalues, because if somebody want to diffuse something as quickly or thoroughly as possible through a network of board members at which board member should we begin (Borgatti and Everett (1997) and Freeman (1979). Those are measures of degree centrality for two-mode networks calculated by UCINET, a social network analysis program developed by Steve Borgatti, Martin Everett and Lin Freeman. As Knove and Yang (2008:2) observed, "UCINET with its continually updated versions is probably the most popular and extensively used software package, providing comprehensive solutions and implementation of many network methods".

In this study, we visualize the two-mode data in a bipartite graph and this is relevant for board interlocks research, because the participation of two board members in the same corporation indicates the existence or potential for some form of social bond between them (Everett and Borgatti, 2005). An alternative measure of centrality is Bonacich

approach, but: “Bonacich (1991) looked at two-mode centrality, but his methods were not direct extensions of the traditional measures. Because the bipartite graph is simply a graph, we can apply the traditional centrality measures directly to this graph” (Everett and Borgatti, 2005:63). Hence, in this study, we rely on the work of Borgatti and Everett (1997) and Freeman (1979) and their approach to measure centrality and power in a network graph with two measures: degree centrality and eigenvalues.

Degree centrality

In a two-mode network, the degree centrality for a board member is the number of corporations he sits on a board. The maximum degree for a board member is the total number of corporations (Everett and Borgatti, 2005). For Freeman (1979), the degree centrality of a network is calculated by counting the number of adjacent links to or from a board member. It is based solely on direct connections. This measure is appropriate for capturing power-enhancing behaviours that occur via direct interaction, such as ingratiation and reciprocation (Brass and Burkhardt, 1992). In this study, degree centrality accounts for the number of corporations for which a board member sits on the board.

Eigenvalue

Another measure of centrality calculated with UCINET is eigenvalue centrality, which is an indicator of popularity, it is the node or board member with the highest connections to other nodes or board members who at the same time are connected to other highly connected board members. In other words, eigenvalue indicate who are the

board members with the highest social capital in terms of the possession of durable network of more or less institutionalised relationships of mutual acquaintance and recognition (Bourdieu, 1986).

The eigenvalue identifies the centre of cohesive groups, and helps us to identify those board members with the smallest farness from others in terms of the overall structure of the social network. Highest scores indicate that board members are more central to the main pattern of distances among all of the board members; lower values indicate that board members are more peripheral.

Sample and data collection

The data used in the study consisted of 1,516 inside and outside board members of the population of 126 Mexican corporations that traded in the Mexican Stock Market as of January 2011. The population included 19 natural resources, 27 industrials, 18 services and goods of non-basic consumption, 24 frequent consumption products, 5 health, 21 financial services, and 12 telecommunications.

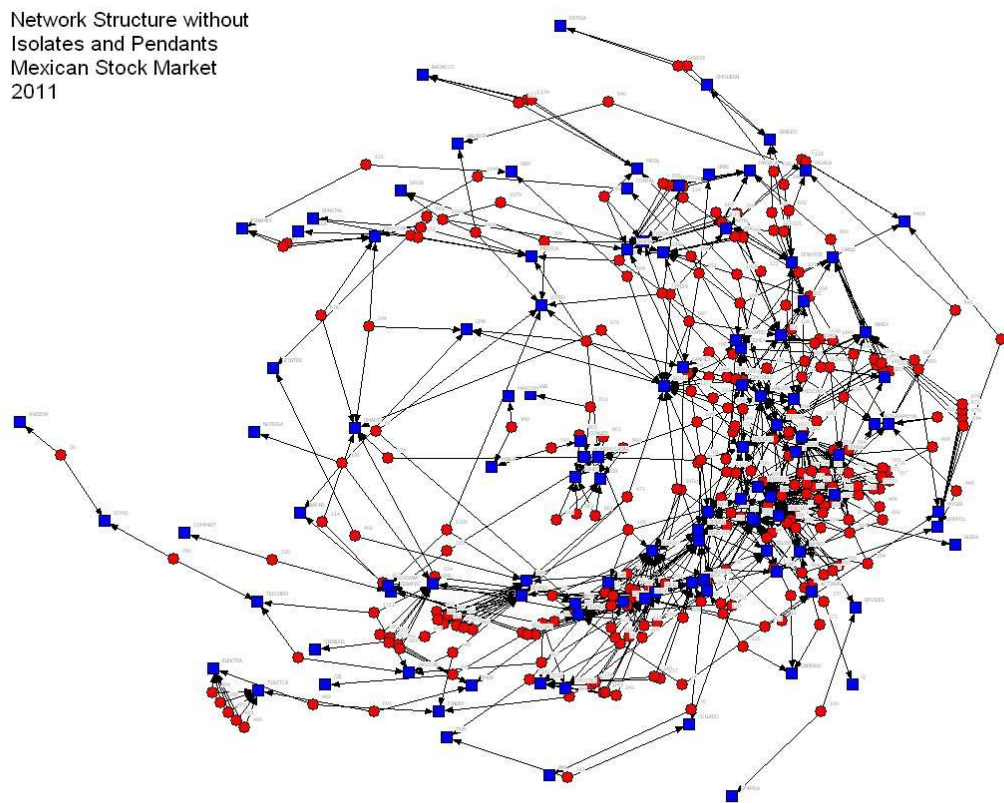
The sources of data were the corporate annual reports published on the web page of the Mexican Stock Exchange Directory in January 2011. The information provided in the corporate reports includes the names of the board members; these are classified as main, substitute, patrimonial, related and independent. In some cases, the annual report also includes biographical information of board members. In the following section, we calculate the centrality, power and prestige of board interlocks in Mexico.

Results and Analysis

Power is a fundamental property of social structures, and the location of a board member within the network directly shows his or her access to information. This is relevant if board members are seen as conduits of information between corporations (Everard and Henry, 2002). In the social network approach, power is inherently relational, and from the analysis of a network, it is possible to observe that an actor is embedded in a relational network. So, one of the primary uses of SNA is the identification of the most important actors in a social network (Wasserman and Faust, 1994). An actor's location in a social network determines his prominence and importance in the network. In this study we use two measures of centrality for a single dichotomous relation: degree centrality and eigenvalues. These measures of centrality were calculated with UCINET 6 for the entire population of board members and corporations in the Mexican Stock Market as of January 2011.

In order to visualize the network structure of companies sharing two or more board members, a technique called *spring embedding* was applied. The rationale is that board members who are connected by lines are drawn closely together whereas unconnected board members are pushed apart. The *spring embedded* technique treats the lines of the networks as springs with a particular elasticity and strength. The procedure searches for a situation in which the system of springs is in a stable situation (De Nooy, 2003). The result is a graphical representation of the linkages between board members and corporations. Visualization of the network is drawn with Netdraw software included in UCINET 6 as shown in figure 2 below.

Figure 2: Graph showing the network structure of board interlocks



Source: Data from annual corporate reports (drawn using UCINET).

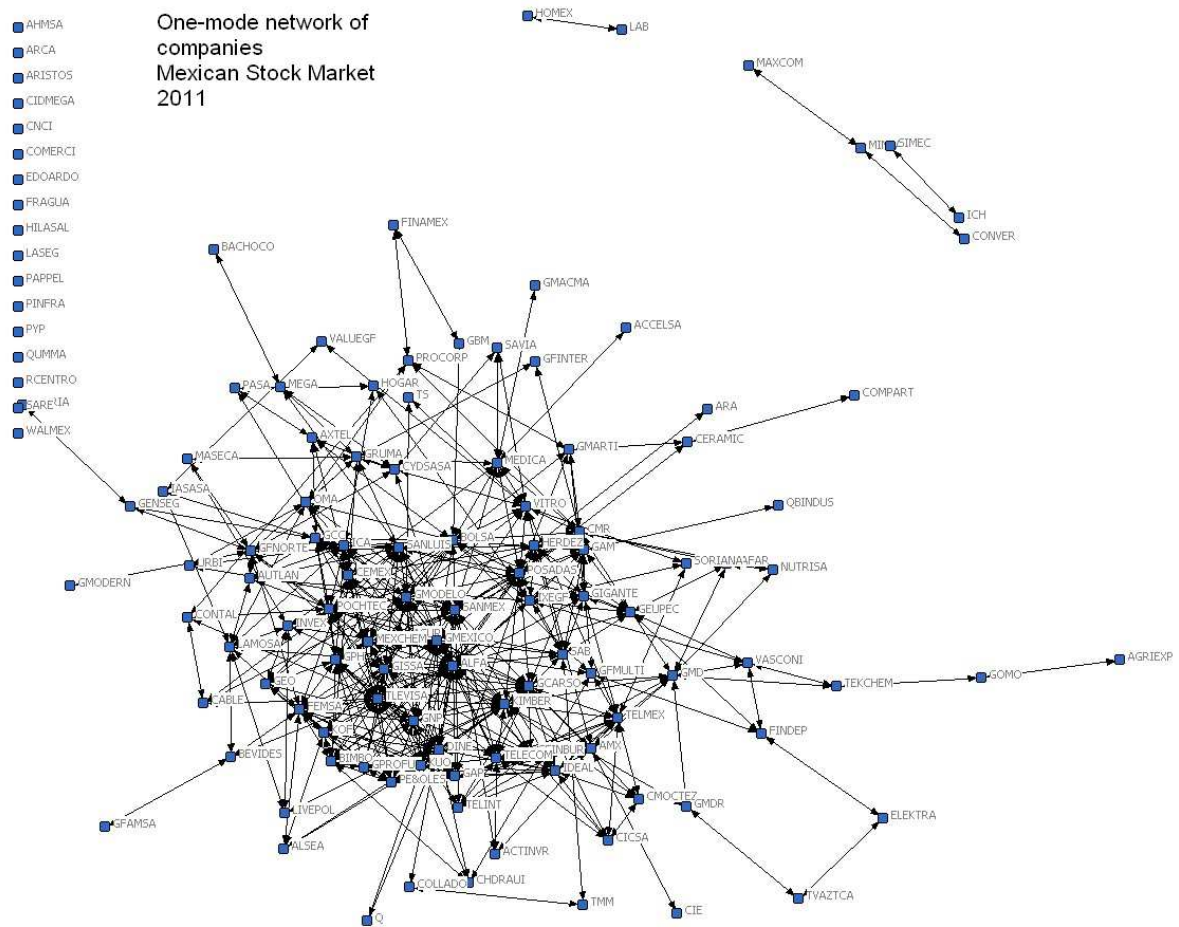
In Figure 2 above, red bullets represent board members and blue squares represent companies, lines represent ties between board members and corporations. We can observe that in the Mexican Stock Market independent board members have created a network structure of social relationships through board interlocks. The concentration of board interlocks in a global network and this has severe consequences in maintaining the independence, transparency and accountability of corporate governance affairs to shareholders.

This section has shown the interconnection among two or more board members and corporations. In the following section, we look at the interconnection among corporations.

Companies: one-mode network

Another way to visualize the implications of board interlocks in Mexico is by analysing how corporations are directly linked. We transform the two-mode network (board members and corporations) into a one-mode network for only corporations. This one-mode network contains a direct line between any two companies and, if they share two or more board members, this line has a value (multiplicity) of two or more (De Nooy, 2003). We calculated a one-mode network for the companies to find out the relational structure between corporations. In Figure 3 below, we can see the interconnection among corporations in the Mexican Stock Market.

Figure 3: One-mode network showing the structural relations among companies.



Source: Data from annual corporate reports (drawn using UCINET).

In figure 3 above, we can see a strong linkage among corporations throughout board membership. In the left hand side we observe those companies with no connection with other companies in the network. Those are isolated companies with no relationship through board interlocks. From a total of 126 corporations in the Mexican Stock Market, only 17 corporations do not share a board member. That shows a strong structural relationship among companies created by the linkages of board members in publicly traded corporations in Mexico.

In the following section, we look at the location of actors in the network structure of board interlocks in Mexico. The actors' level of centrality is calculated using Freeman's measures of centrality: degree centrality and eigenvalues.

Actors' location in the social network

The board of directors is a determinant for corporate governance as it represents the primary decision-making body. Boards of directors are interlinked with each other by a shared director. This is an important characteristic, because the network represents the connections among directors or companies and the opportunity for face-to-face interaction. Board members are the actors who, via co-membership on boards, interact and communicate with one another.

A matrix table was constructed with the 1,516 board members and 126 companies traded on the Mexican Stock Exchange. The two-mode data were transformed into one-mode data to carry out the analysis of Freeman's measure of centrality. Freeman's output ranks the actors from a higher to a lower level of centrality. The results from the top 15 board members are shown in Table 1 below.

Table 1. Degree Centrality of Board Members with Freeman's approach

Degree centrality	NAME	COMPANY	CATEGORY	SEATS
230	FERNANDO RUIZ SAHAGUN	GCC	INDEPENDENT	10
169	ALBERTO BAILLERES GONZALEZ	DINE	INDEPENDENT	8

142	FERNANDO SENDEROS MESTRE	DINE	CHAIRMAN	7
139	CLAUDIO X GONZALEZ LAPORTE	ALFA	INDEPENDENT	8
119	VALENTIN DIEZ MORADO	ALFA	INDEPENDENT	7
118	JOAQUIN VARGAS GUAJARDO	CMR	CHAIRMAN	6
117	ARTURO FERNANDEZ PEREZ	BIMBO	BOARD MEMBER	5
116	TOMAS LOZANO MOLINA	GEO	INDEPENDENT	5
115	EMILIO CARRILLO GAMBOA	GMEXICO	INDEPENDENT	6
111	ENRIQUE CASTILLO SANCHEZ MEJORADA	ALFA	INDEPENDENT	7
104	JOSE ANTONIO FERNANDEZ CARBAJAL	BIMBO	BOARD MEMBER	5
103	RAUL OBREGON DEL CORRAL	BIMBO	BOARD MEMBER	4
101	JOSE LUIS SIMON GRANADOS	GNP	INDEPENDENT	4
101	CARLOS OROZCO IBARRA	GNP	RELATED	4
101	JUAN BORDES AZNAR	GNP	RELATED	4

Source: Data from annual corporate reports (ranks calculated with UCINET).

In Table 1, we note the (interpersonal) network of boardroom contacts among the top fifteen board members in the Mexican Stock Market. The actor with the highest number of sits is Mr. Fernando Ruiz Sahagun, who sits on ten boards of directors. Mr. Fernando Ruiz is a Public Accountant and has sat on the board of GCC as an independent board member since 2006. He works as a consultant in the firm Chavez, Ruiz, Zamarripa and Cia, S.C., a consulting firm. He is a member of the College of Public Accountants of Mexico and has studied the subject of fiscal studies at the Universidad Anahuac and the Universidad Panamericana. He is also a member of the

board of directors of the following companies: Kimberly Clark, Modelo Group, Mexichem, San Luis Corporation, Grupo Mexico, Empresas ICA, Grupo Financiero SANTANDER, Grupo POCHTECA, Fresnillo, the Mexican Stock Market, Arcelor Mittal Lazaro Cardenas, and INDEVAL. He is chairman of the Fiscal Committee of the Mexican Coordinated Council, and he represents the Mexican Council of Businessmen in the Secretary of Fiscal and Public Credit of Mexico.

Mr. Alberto Bailleres Gonzalez sits on eight boards of directors. He holds a bachelor in economics. He is an independent board member at DINE. He is also member of the board of directors of the following companies: Grupo KUO, Industrias Penoles, Grupo Nacional Provincial, GNP Pensiones, Profuturo, Valores Mexicanos, Casa de Bolsa, Grupo Palacio de Hierro, FEMSA, Grupo Televisa and Grupo BBVA. He chairs the governing body of the Mexican Autonomous Institute of Technology (ITAM).

Mr. Fernando Senderos Mestre sits on 7 boards. He is 61 years old. He holds a bachelor in business administration. He is chairman of Grupo Kuo and Dine, S.A.. He is board member of Industrias Peñoles, Grupo Carso, S.A., Kimberly Clark, Grupo Televisa, Grupo Desc, GNP, Grupo Carso and of the Mexican Council of Business Men.

Mr. Claudio X Gonzales Laporte sits on 8 boards. He is 77 years old. He holds a bachelor in chemical engineering. He is chairman of Kimberly-Clark de Mexico, he sits on the board of General Electric Company, Fondo Mexico, Grupo Carso, Alfa, Grupo Televisa, Grupo Mexico and Grupo Financiero Inbursa.

Mr. Valentin Diez Morodo sits on 7 boards. He is 72 years old, He holds a bachelor in business administration. He is independent board member in Kimberly-Clark de Mexico, Grupo financier Banamex, Grupo Kuo, Alfa, Grupo Dine, Grupo Mexico, Bodegas Vega Sicilia, Acciones y Valores de Mexico, Zara Mexico, Grupo Aeromexico, Citigroup, Inc, OHL Mexico, Telefonica Mexico and Instituto de Empresa, Madrid.

Mr. Joaquin Vargas Guajardo. He has been chairman of CMR for 38 years. He is board member of Mexican Stock Exchange, Santader, Grupo Vitro, Grupo Posadas, Medica Sur, El Universal, Costamex and Universidad Panamericana.

Mr. Arturo Fernandez Perez is Chancellor of the Mexican Autonomous Institute of Technology (ITAM), and independent board member of Bimbo, Credito Afianzador, Fomento Economico Mexicano, Fresnillo, Grupo Financiero BBVA Bancomer, Grupo Financiero Provincial, Grupo Palacio de Hierro, Industrias Peñoles, Valores Mexicanos.

Mr. Tomas Lozano Molina. He holds a degree in Law and was public notary. He is lecturer at the Escuela Libre de Derecho. He is independent board member at Industrias Peñoles, Grupo Palacio de Hierro, Grupo Nacional Provincial, Grupo Profuturo, profuturo GNP, Profuturo GNP Pensiones, Valores Mexicanos Casa de Bolsa and Corporacion GEO.

This section has shown the actors with the highest level of centrality, that is, the actors sitting in many boards. In Table 2 below, we look at the most influential board members in the network structure of board interlocks in Mexico. The most influential board members are ranked from the highest to the lowest according to Freeman's measure.

According to Santiago and Brown (2009), in a typical large Latin American firm, the CEO usually is part of the controlling family; therefore, his/her influence over the board of directors may hamper the board's independence. Nonetheless, directors are often well-known businesspeople that serve on more than one board of directors, usually from the same business group, and their multiple directorships help to establish the necessary links that enable companies to survive in the less-developed market that surrounds Latin American business (Santiago and Brown, 2009). Consequently, as observed in Table 1, since many of the firms in Mexico are connected directly or indirectly through business groups and family relationships, there is an unlimited pool of individuals that may serve as board members in multiple corporations.

Table 2. Eigenvalue centrality - Freeman's approach

NAME	EIGENVALUE
ALBERTO BAILLERES GONZALEZ	0.252
ARTURO FERNANDEZ PEREZ	0.224
TOMAS LOZANO MOLINA	0.219
CARLOS OROZCO IBARRA	0.215
JUAN BORDES AZNAR	0.215
RAFAEL ALONSO MAC GREGOR ANCIOLA	0.215
ALEJANDRO BAILLERES GUAL	0.215
EDUARDO SILVA PYLYPCIOW	0.215
JOSE OCTAVIO FIGUEROA GARCIA	0.215
JOSE LUIS SIMON GRANADOS	0.215
RAUL OBREGON DEL CORRAL	0.189
RAUL BAILLERES GUAL	0.18
CLAUDIO SALOMON DAVIDSON	0.18
DOLORES MARTIN CARTMEL	0.18
ALEJANDRO PAREDES HUERTA	0.18

Source: Data from annual corporate reports (eigenvalues calculated with UCINET)

In table 2 above, eigenvalues provided a different picture of the position of board members in the network structure of board interlocks in Mexico. Table 2 above shows the fifteen most central actors in terms of the overall structure of the network. And shows those board members with the highest scores indicating who are the most central to the pattern of distances among all board members in the global structure of the network. This has consequences in maintaining the independence, transparency and accountability of corporate governance affairs to shareholders.

The board member with the highest eigenvalue (0.252) and hence the most central board member in the overall structure of board interlocks in Mexico is Mr. Alberto Bailleres Gonzalez. He is in a structural position from which he can reach those with the smallest farness from others in the global structure of the network. He is the board member that is better connected to many board members that at the same time are well connected to other board members. He is in a very good position within the network to transmit information and to influence other board members in the network structure.

Mr. Alberto Bailleres Gonzalez sits on eight boards of directors. He holds a bachelor in economics. He is an independent board member at DINE. He is also member of the board of directors of the following companies: Grupo KUO, Industrias Penoles, Grupo Nacional Provincial, GNP Pensiones, Profuturo, Valores Mexicanos, Casa de Bolsa, Grupo Palacio de Hierro, FEMSA, Grupo Televisa and Grupo BBVA. He chairs the governing body of the Mexican Autonomous Institute of Technology (ITAM). He is followed by Mr. Arturo Fernandez Perez and Mr. Tomas Lozano Molina.

The second highest eigenvalue is for Mr. Arturo Fernandez Perez. He is chancellor of the Mexican Autonomous Institute of Technology (ITAM). He is board member of Bimbo, Credito Afianzador, Fomento Economico Mexicano, Fresnillo, Grupo Financiero BBVA Bancomer, Grupo Financiero Provincial, Grupo Palacio de Hierro, Industrias Peñoles and Valores Mexicanos.

The third highest eigenvalue is for Mr. Tomas Lozano Molina. He holds a Law degree. He is public notary and lecturer at the Escuela Libre de Derecho. He is board member of Industrias Peñoles, Grupo Palacio de Hierro, Grupo Nacional Provincial, Grupo Profuturo, Profuturo GNP, profuturo GNP Pensiones, Valores Mexicanos Casa de Bolsa, Medica Integral and Corporacion GEO.

The fourth highest eigenvalue is for Mr. Carlos Orozco Ibarra. He holds a degree in Public Accountancy. He is corporate director of Tecnica Administrativa Bal, and board member of Industrias Peñoles, Grupo Palacio de Hierro, Grupo Profuturo, Grupo Profuturo GNP, Profuturo GNP Pensiones, Valores Mexicanos Casa de Bolsa, Credito Afianzador, Compañia Mexicana de Garantias, Medica Integral GNP, Tane, Albacor and Bal Holdings.

Discussions, conclusions and future research

A full account of the corporate governance practices in Mexico is beyond the scope of this paper. This paper provides insights into one aspect of this complex subject by focusing on the structure of relationships between directors. The literature on SNA has demonstrated the important effect that network structures can have on the performance

of the network and the outcomes for the individuals that comprise the network (Richardson, 2009, p.586). By applying SNA, this paper identifies the connections between Mexican corporations and actors. In this study, we investigated the patterns of board interlocks in Mexico. Using the measures of SNA developed by Freeman (1979), we found the most powerful and influential actors in the network structure of board members in Mexico. We also found that in Mexico, independent board members have created a network structure of social relationships through board interlocks. For example, in Figures 2 and 3, we can visualise the network structure of those companies sharing two or more board members. Also, we calculated the network of connections each board member can effectively mobilise. Table 1 shows the name of the board member and the size of the network of connections he/she can mobilise. For example, in Table 1, we note the (interpersonal) network of boardroom contacts among the top 15 board members in the Mexican Stock Market. Additionally, Table 2 describes eigenvalues of SNA calculated with UCINET, and board members are arranged from the highest to the lowest degree level of “connections”. That is the case of Mr. Alberto Bailleres Gonzalez, who has the highest degree value of 0.252; hence, he is a board member occupying a central position in the network and therefore, he is more powerful. Mr. Alberto Bailleres Gonzalez is followed by Mr. Arturo Fernandez Peres with an eigenvalue of 0.224 and Mr. Tomas Lozano Molina with a score of 0.219. All those board members occupy a central position in the network and are able to transmit information and to influence other board members.

This paper has drawn on the notion of social capital advanced by Bourdieu and has mobilized previous accounting studies in order to provide further explanations of networks. Social capital is defined by Bourdieu as

the aggregate of the actual or potential resources which are linked to the possession of durable network of more or less institutionalised relationships of mutual acquaintance and recognition - or in other words, to membership in a group - which provides each of its members with the backing of the collectively-owned capital, a 'credential' which entitles them to credit, in the various senses of the world. These relationships may exist only in the practical state, in material and/or symbolic exchanges which help to maintain them (Bourdieu, 1986, pp.248-249).

This is similar to the case of Mexico. The networking structure of board interlocks in Mexico shows a relational practice of board members and the social capital created by board interlocks. It is by sharing different boards of directors that social capital is created. In other words, the ensemble of connections, contacts, relations, friendships and obligations give him the power to act in relation to the quality and quantity of their relations, and of the relationships with other board members and businessmen.

That network of relationships is "the product of investment strategies" which the independent board member has obtained, individually or collectively, with the objective of establishing or reproducing social relationships "that are directly usable in the short or long term" (Bourdieu, 1986: 249). As Portes (1998) argued, social networks are not a natural given; on the contrary, they must be constructed through investing in strategies oriented to the institutionalisation of the relations of groups as a function of other benefits. Bourdieu pointed out that individuals' interaction reinforces mutual recognition and acknowledgment as members of a network or group (Lin, 1999). Those investment strategies in socio connections are created to perpetuate the governing elite in Mexican corporations. In Mexico, board members have created a network structure

of social relationships through board interlocks. That can be observed in Figures 2 and 3 above. Figure 3 shows the network structure of companies that share two or more board members; that is a better representation of *social capital* created by board interlocks. As Bourdieu (1986: 249) stated, “The volume of the social capital possessed by a given agent thus depends on the size of the network of connections he can effectively mobilise and on the volume of the capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected”. Hence, “capital is seen as a social asset by virtue of actor’s connections and access to resources in the network or group of which they are members” (Lin, 2001:19).

In order to determine the *social capital* possessed by board members, we calculated the *network of connections* each board member can effectively mobilise. Table 1 shows the name of the board member and the size of the network of connections he/she can mobilise. Further, there is a brief description of the volume of capital (*economic, cultural, and symbolic*) possessed in its own right by the first two board members of the table. For example, in Table 1, we show the interpersonal network of boardroom contacts among the top 15 board members in the Mexican Stock Market. The actor with the highest rank of centrality is Mr Fernando Ruiz Sahagun, who sits on ten boards of directors. Also, Mr. Alberto Bailleres Gonzalez sits on eight boards of directors.

Table 1 describes the metrics of SNA calculated with UCINET. Board members are arranged from the highest to the lowest degree level of “connections”. According to Bourdieu, the existence of a network of connections is not a natural given, or even a social given, constituted once and for all by an initial act of institution... It is the product of an endless effort at institution, of which institution rites – often wrongly described as

rites of passage - mark the essential moments and which is necessary in order to produce and reproduce lasting, useful relationships that can secure material or symbolic profits” (Bourdieu, 1986 p.249). Hence, the networking structure of board interlocks in Mexico is a product of a continuous series of exchanges between board members in which recognition is endlessly affirmed and reaffirmed. As Bourdieu (1986: 251) pointed out, “Every group has its more or less institutionalised forms of delegation which enable it to concentrate the totality of the *social capital*, which is the basis of the existence of the group”. So, the process of articulation and the concentration and distribution of links between board members show the positions of the main actors who are interlocked. And of the mechanisms that influence the structuration of the network in Mexico: first, the generational succession in particular groups and second, the reorganization of corporate groups as a consequence of economic reforms, in particular the privatization of state-owned enterprises (Santiago-Porras, 2006).

Drawing on Bourdieu’s notion of social capital (1986), it is possible to observe how Mexican corporations have created a durable network of institutionalized relationships where board members are part of a selected group in the practical sense and pursue material and symbolic exchanges. Board members in Mexican corporations serve as a means of communication and control for both the individual corporations and the majority shareholders of Mexican corporations through the network of connections they have created and the social capital (economic, cultural or symbolic) each board member possesses. That raises the question of whether the traditional monitoring role of outside directors is present and efficient in Mexico and if the mere inclusion of an outside director into a small board may improve the minority shareholders’ situation, because the incentives that make outside directors work on behalf of minority shareholders, such

as the market for corporate control or compensation, are lacking in Latin America. Santiago and Brown (2009) observed that in Mexico, as in most Latin American countries, it is the misalignment of interests between majority and minority shareholders is the root of agency problems, not the divergence between the goals and objectives of management and owner. Also, corporate governance mechanisms to alleviate agency problems are inefficient or non-existent while the weak legal environment enhances the potential for agency problems, especially the expropriation of minority shareholders' rights (Santiago and Brown, 2009). Between years 2005 to 2012 several cases of corporate governance practices in Mexican public listed corporations show the arbitrariness of majority shareholders and how independent board members and internal governance systems of those Mexican listed corporations appear to have non-existent or to have failed.

The first case was in 2005 when TV AZTECA's chairman and controlling shareholder Ricardo Salinas Pliego with fraudulent scheme to conceal Salinas \$109 million windfall through related party transactions. TVAZTECA, a Mexican listed corporation, is the second largest broadcasting company in Mexico. According to the USA SEC, complaint, Salinas and others caused TV AZTECA or AZTECA HOLDING to file periodic reports that did not disclose Salinas' involvement in related party transactions between Unefon, a subsidiary of TV AZTECA, and a private entity secretly co-owned by Salinas, called CODISCO. Those related party transactions caused a \$ 109 windfall damaging minority shareholders and investors (SEC, 2005).

The second case and others were in 2008 when supermarket operator COMERCIAL MEXICANA defaulted on payments to creditors in October, 2008. And Tortilla maker

GRUMA, Grupo Industrial Saltillo GISSA, VITRO, CEMEX, ALFA, BACHOCO and MASECA revealed steep losses in currency derivatives. The case of COMERCIAL MEXICANA, Mexico's third largest retailer of food and other items, faced the possibility of bankruptcy in 2008 after speculating on foreign currency, which exposed the company to US\$1.9 billion of debt. The case of COMERCIAL MEXICANA, as Jordan and Ahmad (2011) point out shows the perils of trying to make money on financial instruments instead of focussing on core businesses. This is a case that shows risk exposure, lack of control, ineffective audit committee and independent board members. As the chairman of the Mexican Banking and Securities Commission points out: "we have detected at least eight where we could infer there were problems with disclosure" (Reuters, 2008).

The third case that raised corporate governance issues was in 2012, when Walt-Mart in Mexico's internal governing systems, auditors and board of directors were put into question in its handling of the Mexican bribery case as David Barstow from the New York Times succinctly reported this case on April 21, 2012: "For a substantial period before 2005, the CEO of Walt-Mart in Mexico and his chief lieutenants, including the Mexican general counsel and chief auditor, knowingly orchestrated bribes of Mexican officials to obtain building permits, zoning variances and environmental clearances, and also falsified records to hide these payments" (New York Times, 2012).

The cases described above show a lack of transparency, control and misalignment of interest between controlling shareholders and minority shareholders. Also, those cases show that in Mexican corporations independent board members perform a symbolic ritual as Bourdieu (1991:126) observes: "the legitimate representative is an object

of guaranteed belief, certified as correct. He lives up in reality to his appearance, he really is what everyone believes him to be because his reality-whether priest, teacher or minister- is based not on his personal conviction or pretension...but rather on the collective belief, guaranteed by the institution and made concrete through qualifications like stripes, uniforms and other attributes”.

In the literature review above, board interlocks are seen as conduits of information flows and social influences (Useem, 1984, Granovetter, 1985, Davis, 1996, Mizruchi, 1996). In Mexico independent board members by participating in board meetings and sitting in different boards are performing ritual practices that do not contribute to the effective monitoring of company's affairs. In other words, the creation of a network of board interlocks in Mexican listed corporations aims to institutionalize a particular corporate governance practice, that is, of independent board member who perform a social ritual tending to consecrate or legitimate an arbitrary boundary with the aim to produce and reproduce lasting, useful relationships that can secure material or symbolic profits (Bourdieu, 1986, 1991).

This study contributes to the literature that investigates interlocked directorates in the Mexican Stock Market. This study also represents a contribution to the study of powerful and influential actors in the network structure of interlocked directorates in Mexico. The SNA of interlocked directorates in this paper has great potential to contribute to the corporate governance research. They are described below.

First, the results suggest that the interlocked directorates and positions of powerful and influential actors have the potential to render corporate governance reforms ineffective. It would be reasonable to assume that strong capital markets and the presence of

institutional investors protect minority interests better even in strongly interlocked directorates. Without strong capital markets and institutional investors, a network of directors may prevent independent directors from acting independently. Further research needs to be conducted to explore these issues.

Second, it would be useful to examine cross-cultural differences in networks of directors. It has also been suggested (LaPorta, Lopez-de-Silanes, Shleifer, & Vishny, 1997, 1998) that corporate governance regulations and implementations vary across countries with different legal systems. One aspect of these differences may be the way in which domestic regulatory regimes are shaped by colonial regimes historically. French colonies would have different regimes from the Spanish colonial countries. Also, countries' linkages with translational bodies should be considered. For example, Mexican corporate governance reforms are influenced by OECD. More generally, the approach used here could be replicated in other countries. In addition, the view of social capital as resources embedded in networks may be helpful in understanding why minority shareholders' interests are infringed more in some areas than in others (Uddin and Chowdhury, 2008).

Third, the network mapped in this paper is based on directors' links. While these are important, other types of network linkages are also important, and the relative effects of different kinds of links on outcomes should be explored, for example, political networks of big corporations, regulatory networks, family networks, and various other informal networks. All these have an influence on protecting shareholders' interests and the overall transparency and accountability of company affairs. As previous studies have indicated, we need to understand better the role of family networks with political

affiliations in corporate governance failures especially in emerging economies (Uddin and Choudhury, 2008). Unfortunately, these areas, though important, remain under-investigated and under-theorised.

Finally, board interlocks and networks are not static, and a longitudinal analysis would provide evidence of the network dynamics that affect board activities and the role of independent directors in company affairs. As Gilbert *et al.* (2011:83) observed, Social networks can exhibit temporal dynamics in a number of ways. The instances in the data may appear and disappear over time whereby different time windows may exhibit different characteristics. For example, a person might change his affiliation with a business organization by joining a different business enterprise and developing new social ties within this new environment. This approach could also be combined with a deep focus on key players to track their paths within the network. As we have revealed, several high-profile individuals have important positions in some big corporations. It would be interesting to find out how they reached the key positions in the network. This would, perhaps, unravel the workings of wider corporate governance issues, such as reforms. We wish to claim that this study perhaps provides the foundations for the deeper understanding of the cosy relationship of directors, family networks and their influence on corporate governance practices in Mexico and elsewhere.

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