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# SOCIAL CAPITAL OF DIRECTORS AND CORPORATE GOVERNANCE: A SOCIAL NETWORK ANALYSIS

Zihan Niu<sup>\*</sup> and Christopher Chen<sup>\*\*</sup>

## ABSTRACT

*This Article examines how a director's social capital might affect his or her behavior, the board's performance, and corporate governance, as well as the potential normative implications of the director's social network. We argue that the quality of board performance could be improved where the social network closure within the board is high and there are many non-redundant contacts beyond the board. Network closure can improve trust and collaboration within a board, while external contacts may benefit a company with more diverse sources of information. Moreover, different network positioning leads to the inequality of social capital for directors. With more social capital, a director is more likely to be powerful and influential on the other directors on the board. Regarding the fulfillment of their monitory function, we suggest that independent directors would be unlikely to compromise their monitory liability when they have more social capital on the board than the managerial directors. We demonstrate our theory with an analysis of corporate boards of companies listed in Hong Kong. Although it is not easy to incorporate social network analysis into legislation or corporate governance code, our theory may further the understanding of the function and effectiveness of different board structures and provide some insights into the future selection of directors by a company within an existing legal framework.*

## I. INTRODUCTION

This Article examines how a director's social network (and thereby their social capital) might affect his or her behavior and how it might affect the quality of the board's performance. The social network structure constituted by social ties in a corporate board provides social capital to directors. We suggest that board performance could be higher where the social network closure within the board is high and where there are many non-redundant connections beyond the board, and further that the social capital of independent directors should contribute to their board performance more than the social capital of executive directors does. An examination of the social capital of directors should provide policymakers, regulators, and members of nominating committees with an additional

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regulatory tool to evaluate board performance and the nomination of directors.

Since the rise of modern firms, the agency problem has been an issue for all corporate stakeholders, because of various degrees of separation of ownership from control.<sup>1</sup> Numerous regimes developed to address the agency problem and to improve the corporate governance of a firm. For example, it is common to emphasize the role of the board of directors, which is expected to make strategic decisions, approve major transactions, and supervise the management and operation of the firm. The 2015 version of the Principles of Corporate Governance published by the Organization for Economic Cooperation and Development (OECD) states, “[t]he corporate governance framework should ensure the strategic guidance of the company, the effective monitoring of management by the board, and the board’s accountability to the company and the shareholders.”<sup>2</sup> Therefore, the board is expected to be competent, diverse, and responsible, and to offer balanced views.<sup>3</sup> As the OECD notes, “[t]he board is chiefly responsible for monitoring managerial performance and achieving an adequate return for shareholders, while preventing conflicts of interest and balancing competing demands on the corporation,” and also has the duty “to oversee the risk management system and systems designed to ensure that the corporation obeys applicable laws . . . .”<sup>4</sup> Other important functions of the board include overseeing the internal control systems covering financial reporting and the use of corporate assets, and guarding against abusive related-party transactions.<sup>5</sup> For the board of directors to “effectively fulfill their responsibilities they must be able to exercise objective and independent judgment.”<sup>6</sup>

Numerous legal instruments (including mandatory laws, voluntary codes, and self-regulations) have been developed, adopted, or transplanted to enhance corporate governance standards.<sup>7</sup> Among other requirements,<sup>8</sup>

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1. See generally Eugene F. Fama & Michael C. Jensen, *Separation of Ownership and Control*, 26 J.L. & ECON. 301 (1983).

2. ORG. ECON. CO-OPERATION & DEV., G20/OECD PRINCIPLES OF CORPORATE GOVERNANCE 51 (2015).

3. See *id.* at 47–50, 60.

4. *Id.* at 45.

5. *Id.* at 49. These functions are often assigned to the internal auditor, who should maintain direct access to the board. It is important that other corporate officers, such as the general counsel, maintain similar reporting responsibilities to those of the internal auditor. *Id.*

6. *Id.*

7. See generally Cally Jordan, *Cadbury Twenty Years On*, 58 VILL. L. REV. 1 (2013) (discussing the impact of the Cadbury Report in the United Kingdom in 1992 and the wide spread adoption of corporate governance in the world since then); Donald C. Clarke, *The Independent Director in Chinese Corporate Governance*, 31 DEL. J. CORP. L. 125 (2006) (discussing independent directors in China and initiatives in other Asian countries).

8. It is also common to establish board committees for specific matters. In particular, the audit committee serves an important supervisory function and is responsible for verifying a company’s financial accounts, liaising with internal and external auditors, and sometimes

the instruments mandate that a certain proportion of directors must be independent from at least the management and/or major shareholders.<sup>9</sup> This ensures that the board has different voices from corporate management or the controller, enhances the diversity of views, and improves the quality of decision-making. A higher number of independent members on the board should also increase the quality of supervision and reduce the chance of collusion.

In the United States, the 2002 Sarbanes-Oxley Act (Sarbanes-Oxley)<sup>10</sup> requires all audit committee members to be independent.<sup>11</sup> To be independent, a director must not “accept any consulting, advisory, or other compensatory fee from the issuer; or [is not] an affiliated person of the issuer or any subsidiary thereof.”<sup>12</sup> Also, New York Stock Exchange (NYSE) rules require that a board must consist of a majority of independent directors.<sup>13</sup>

The influence of Sarbanes-Oxley has spread beyond the United States. In Asia, enhancing board independence and requiring independent directors are considered extremely important practices.<sup>14</sup> In the two largest

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approving related party transactions. In addition, many countries also require the establishment of a remuneration committee and a nominating committee. The former is in charge of the remuneration of board members and key management personnel to ensure that financial incentives and compensation are adequate in relation to their performance, while the latter handles the nomination of new board members and reviews the independence of independent directors. It is also commonly required that those committees be comprised of a majority of independent directors. This feature ties board committees to board independence. Some countries also advocate for the separation of the roles of the chairman whose function is to facilitate the discussion and communication of opinions at board meetings and the chief executive officer (CEO) that is in charge of the daily operation and management of the firm's business. *See, e.g.,* UK CODE OF CORPORATE GOVERNANCE A.2.1; SINGAPORE CODE OF CORPORATE GOVERNANCE 2012 Principle 3 and Guideline 3.1; HONG KONG CODE OF CORPORATE GOVERNANCE PRACTICES A.2.1. Some countries, especially those in the civil law family in East Asia (e.g., China, Japan, or Taiwan), have taken extra measures to transplant fiduciary duties into company law. *See, e.g.,* Hideki Kanda & Curtis J. Milhaupt, *Re-examining Legal Transplants: The Director's Fiduciary Duty in Japanese Corporate Law*, 51 AM. J. COMP. L. 887 (2003) (examining the transplant of fiduciary duties in Japan); Andrew Jen-Guang Lin, *Common Law Influences in Private Law - Taiwan's Experiences Related to Corporate Law*, 4 NAT'L TAIWAN U. L. REV. 107 (2009) (discussing the introduction of common law principles, including fiduciary duties, in Taiwan). Determining whether these policies actually enhance firm value or reduce wrongdoings requires vigorous research.

9. *See generally* Dan W. Puchniak & Luh Luh Lan, *Independent Directors in Singapore: Puzzling Compliance Requiring Explanation* (NUS – Centre for Law & Bus. Working Paper No. 15/03, Feb. 5, 2017), [https://papers.ssrn.com/sol3/papers2.cfm?abstract\\_id=2604067](https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2604067) (reflecting on Singapore's definition of independent directors after examining the definition from a total of 245 corporate governance codes in eighty seven jurisdictions). This study has shown that there is a wide-spread adoption of independent directors from rich to poor countries. *See generally id.*

10. *See generally* Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley Act), Pub. L. No. 107-204, 116 Stat. 745 (codified in scattered sections of 11, 15, 18, and 28 U.S.C.).

11. *See* Sarbanes-Oxley Act, § 301(m)(3)(A), 15 U.S.C. § 78j-1(m)(3)(A) (2012).

12. *See id.* § 301(m)(3)(B).

13. NYSE, INC., LISTED COMPANY MANUAL § 303A.01 (2009).

14. *See* Yu-hsin Lin, *Do Social Ties Matter in Corporate Governance? The Missing Factor in Chinese Corporate Governance Reform*, 5 GEO. MASON J. INT'L COM. L. 39, 40–41 (2013).

international financial centers in the Asia Pacific region, regulators have adopted a voluntary code of corporate governance similar to the United Kingdom's Cadbury Code.<sup>15</sup> For example, Hong Kong's 2012 Code of Corporate Governance Practices recommends listed companies to "appoint independent non-executive directors representing at least one-third of the board."<sup>16</sup> Singapore's Code on Corporate Governance provides that "[t]here should be a strong and independent element on the Board . . . with independent directors comprising at least one-third of the Board."<sup>17</sup> Other civil law jurisdictions in the region also picked up the idea to varying degrees, including economic powerhouses such as China, Japan, South Korea, and Taiwan.<sup>18</sup>

However, as directors are human beings rather than machines, it is natural to ask whether they behave in the way the legal instruments expect them to, particularly as the success of corporate governance regimes depends on directors' competence and behavior.<sup>19</sup> Their behavior is partly attributable to their own personality and characteristics, which cannot be measured quantitatively. This Article suggests that the social connections of directors create an inequality of social capital among them. While personal attributes and strategies may have an important effect on benefits

15. See ADRIAN CADBURY, REPORT OF THE COMMITTEE OF THE FINANCIAL ASPECTS OF CORPORATE GOVERNANCE 12 (1992), [http://www.icaew.com/~media/corporate/files/library/subjects/corporate\\_governance/financial\\_aspects\\_of\\_corporate\\_governance.ashx](http://www.icaew.com/~media/corporate/files/library/subjects/corporate_governance/financial_aspects_of_corporate_governance.ashx). For its impact, see generally Jordan, *supra* note 7.

16. See HONG KONG EXCHANGES & CLEARINGS, LTD., PRINCIPLES OF GOOD GOVERNANCE, CODE PROVISION AND RECOMMENDED BEST PRACTICES, app. 14, A.3–A.4, 6.

17. CODE OF CORPORATE GOVERNANCE 2012, Principle 2, Guideline 2.1 (Sing.).

18. See Lin, *supra* note 14, at 40.

19. The independent director regime has been subject to vigorous academic researches on its effectiveness and function. For an example, see generally Ran Duchin, John G. Matsusaka & Oguzhan Ozbas, *When Are Outside Directors Effective?*, 96 J. FIN. ECON. 195 (2010); Christopher S. Armstrong, John E. Core & Wayne R. Guay, *Do Independent Directors Cause Improvements In Firm Transparency?*, 113 J. FIN. ECON. 383 (2014); Jay Dahya & John J. McConnell, *Board Composition, Corporate Performance, and The Cadbury Committee Recommendation*, 42 J. FIN. & QUANTITATIVE ANALYSIS 535 (2007); Sanjai Bhagat & Brian Bolton, *Corporate Governance and Firm Performance*, 14 J. CORP. FIN. 257 (2008); Jay Dahya, Orlin Dimitrov & John J. McConnell, *Does Board Independence Matter In Companies With a Controlling Shareholder?*, 21 J. APPLIED CORP. FIN. 67 (2009); Bernard Black & Brian Cheffins, *Outside Director Liability Across Countries*, 84 TEX. L. REV. 1385 (2006); Sanjai Bhagat & Bernard Black, *The Uncertain Relationship Between Board Composition and Firm Performance*, 54 BUS. LAW. 921 (1999); Urska Velikonja, *The Political Economy of Board Independence*, 92 N.C. L. REV. 855 (2014); Christopher Chen, *Solving the Puzzle of Corporate Governance of State-Owned Enterprises: The Path of The Temasek Model in Singapore and Lessons for China*, 36 NW. J. INT'L L. & BUS. 303 (2016); Erica Beecher-Monas, *Marrying Diversity and Independence In The Boardroom: Just How Far Have You Come, Baby?*, 86 OR. L. REV. 373 (2007); Yu-hsin Lin, *Overseeing Controlling Shareholders: Do Independent Directors Constrain Tunneling in Taiwan?*, 12 SAN DIEGO INT'L L.J. 363 (2011); Donald C. Clarke, *The Independent Director In Chinese Corporate Governance*, 31 DEL. J. CORP. L. 125 (2006); Roberta S. Kamel, *Is The Independent Director Model Broken?*, 37 SEATTLE U. L. REV. 775 (2014).

acquisition in a community, the structural position of an individual in a social network can impose the most severe constraints on a director.<sup>20</sup>

Social capital empowers directors, and different kinds and strengths of social networks and social capital may offer different kinds of chemistry in board meetings, thereby affecting the quality of corporate governance and corporate decision-making. Based on the existing literature, we suggest that the structures of network closure and structural holes can provide social capital to actors. Thus, a board with both structures would likely improve its firm's performance. These structures may enhance the possibility of a director having sufficient knowledge, expertise, and external information to benefit a company's management, and may improve the quality of cooperation in the boardroom. Therefore, these structures might help corporate decision-making, at least at the board level.

Moreover, within a board of directors, social ties between directors may cause an inequality of social capital among them. We suggest that the differentiation of empowerment may help to undermine the negative effect of social ties between managerial and independent directors. An independent director may not be truly independent if he or she has a substantial social connection (e.g., being members of the same private club) with the managing director, even though he or she otherwise meets the definition of "independence" (or such independence as is recognized by the nominating committee). However, an independent director with more social capital may be less likely than one with less social capital to relinquish his or her supervisory power because of the social tie between him or her and the managerial director. The reason may be that, the more social capital an independent director has, the less likely they are to rely on the ties with managerial directors to maintain their position on the board. To prevent the potential compromise of the supervisory function of independent directors, it may be reasonable to expect independent directors to have more social capital than managerial directors. Although it is not easy to incorporate social network analysis into legislation or corporate governance code, our theory may help to illuminate the functions and effectiveness of different board structures and to provide some insights into the selection of directors by a company.

From this angle, we identify a gap in the current body of research on the design of corporate governance regimes: how do social networks affect the behavior of directors on the board? This has led us to develop a study on the social networks of directors and their effects on corporate governance. In this Article, we describe directors' social connections as their social capital and examine the potential effect of social capital on a director's behavior and the qualities of corporate governance.

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20. See Daniel Brass, *Being in the Right Place: A Structural Analysis of Individual Influence in an Organization*, 29 ADMIN. SCI. Q. 518, 518 (1984).

On the basis of social capital theories, this Article answers the following question: in which situation would the social network structure be most likely to improve board performance? The answer to this question may have implications for the effectiveness of current corporate governance regimes. In addition to theoretical analysis, we conduct case studies of a family-controlled company and a Chinese state-owned company listed in Hong Kong to illustrate the inequality of social capital. The case studies also explain the potential influence of the unequal social capital on board collaboration and the functions of different types of directors. Different types of relationships in combination with the nature of a firm (e.g., a state-owned enterprise or family-controlled firm) may create different interactions and chemistry.

The Article is organized as follows. Part II briefly reviews the existing literature on social networks, social capital, and corporate governance, and suggests an optimal structure of an effective board. Part III discusses the normative implications of social networks for corporate governance, illustrates two examples of real boards in Hong Kong's list market, and discusses the potential implications of the data on the basis of social capital theory. Part IV concludes.

## II. SOCIAL NETWORKS, SOCIAL CAPITAL, AND CORPORATE GOVERNANCE

In this section, we examine how the social network of a director can affect his or her performance and behavior in several dimensions. First, we briefly review the general literature on social networks and the meaning of social capital in theory. Second, we explore the relationship between social networks, social capital, and board performance. Third, we further discuss the effects of social capital inequality on directors' roles and functions.

### A. MEANING AND POWER OF SOCIAL CAPITAL

Social capital lends itself to multiple definitions. Bourdieu and Wacquant define social capital as "the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition."<sup>21</sup> Coleman defined social capital functionally as "a variety of entities with two elements in common: they all consist of some aspect of social structure, and they facilitate certain actions of actors . . . within the structure."<sup>22</sup> According to Putnam, "social capital refers to connections among individuals—social networks and the norms of

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21. PIERRE BOURDIEU & LOIC WACQUANT, *AN INVITATION TO REFLEXIVE SOCIOLOGY* 119 (Univ. of Chi. Press 1992).

22. James S. Coleman, *Social Capital in The Creation of Human Capital*, 94 AM. J. SOC. 95, 98 (1988).

reciprocity and trustworthiness that arise from them.”<sup>23</sup> From an individual perspective, Lin defines social capital as “investment in social relations with expected returns in the marketplace.”<sup>24</sup>

One common element in all the definitions is that social capital entails advantages that individual or collective actors have because of their location in the social network structure.<sup>25</sup> People who do better are somehow better connected.<sup>26</sup> In other words, we can measure a person’s social capital by measuring their connections with others and their location in the network. While we accept that some forms of social capital may be intangible, modern network analysis allows us to conduct a more quantitative analysis of a person’s social capital based on their social network and connections, which may come from kinship, marriage, previous employment or professional relationships, multiple directorships, and educational history.

In this Article, we investigate the social capital in the social network structure of corporate boards—that is, a structure assembled by social ties between directors. Social ties in this Article include employment, education, and professional and social activities. Employment ties arise when two directors have overlapping present or prior employment in any firm, excluding the firm for which we measure social ties.<sup>27</sup> An educational tie requires two directors to have graduated from the same institution.<sup>28</sup> Professional activity ties mean that two directors share a present or past membership in a professional association. Finally, social activity ties occur when individuals share a present or past membership in a charity or other non-profit organization.<sup>29</sup> The social capital of directors is determined by their position in the social structure, which is determined by the social ties above.

In theory, social capital can bring information, power, and solidarity advantages to the actors in the network.<sup>30</sup> First, social capital may provide actors with “access to broader sources of information and [improve]

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23. ROBERT D. PUTNAM, *BOWLING ALONE: THE COLLAPSE AND REVIVAL OF AMERICAN COMMUNITY* 19 (2000).

24. NAN LIN, *SOCIAL CAPITAL: A THEORY OF SOCIAL STRUCTURE AND ACTION* 19 (2001).

25. See generally Ronald S. Burt, *The Network Structure of Social Capital*, in 22 *RESEARCH IN ORGANIZATIONAL BEHAVIOR* 345, 347 (2000).

26. *Id.*

27. See Liesbeth Bruynseels & Eddy Cardinaels, *The Audit Committee: Management Watchdog or Personal Friend of the CEO?*, 89 *ACCT. REV.* 113, 119 (2014); see also Cesare Fracassi & Geo Tate, *External Networking and Internal Firm Governance*, 67 *J. FIN.* 153, 158–59 (2010).

28. See Lauren Cohen, Andrea Frazzini & Christopher Malloy, *The Small World of Investing: Board Connections and Mutual Fund Returns*, 116 *J. POL. ECON.* 951, 952 (2008).

29. See Bruynseels & Cardinaels, *supra* note 27, at 119.

30. See Paul S. Adler & Seok-Woo Kwon, *Social Capital: Prospects for a New Concept*, 27 *ACAD. MGMT. REV.* 17, 29 (2002).



information's quality, relevance, and timeliness."<sup>31</sup> Coleman mentions two examples to illustrate these benefits:

A person who is not greatly interested in current events but who is interested in being informed about important developments can save the time of reading a newspaper by depending on a spouse or friends who pay attention to such matters. A social scientist who is interested in being up-to-date on research in related fields can make use of everyday interactions with colleagues to do so, but only in a university in which most colleagues keep up-to-date.<sup>32</sup>

Many studies have shown that people are able to obtain information about job opportunities and innovation through network ties.<sup>33</sup>

Social capital also allows actors to hold some power in a network and enables them to influence or control others. Power can be viewed as the opposite of dependence. People in central network positions are able to control relevant resources, thereby increasing other people's dependence on them and decreasing their dependence on others. Such people are in a position to acquire power.<sup>34</sup> For example, consider an actor X who holds the only path between two otherwise unconnected actors Y and Z. In this network, X can be seen as holding the highest social capital because X has the advantage of the dependency of Y and Z.<sup>35</sup> In addition, the non-redundant resources that X can access from both Y and Z decrease his or her dependence on other actors in the network.

The third benefit of social capital is solidarity. Strong social norms and beliefs, which are associated with a high degree of social network closure, encourage compliance with local rules and customs and reduce the need for formal controls. The solidarity benefits of closure and trust would enable the network to lower monitoring costs, increase commitment,<sup>36</sup> and transmit richer and more sensitive information.<sup>37</sup> Even if the actor does not use their social capital resources intentionally, their social capital still has substantial symbolic utility. Letting others know about one's social capital may be sufficient to promote one's social standing, because such information imputes the potential power of the actor.<sup>38</sup>

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31. *See id.*

32. Coleman, *supra* note 22, at 104.

33. *See generally* Ed. A. W. Boxman, Paul M. De Graaf & Hendrik D. Flap, *The Impact of Social and Human Capital on the Income Attainment of Dutch Managers*, 13 SOC. NETWORKS 51 (1991); *see also* Ronald S. Burt, *Social Contagion and Innovation: Cohesion Versus Structural Equivalence*, 92 AM. J. SOC. 1287 (1987).

34. *See generally* D. J. Brass & M. E. Burkhardt, *Potential Power and Power Use: An Investigation of Structure and Behavior*, 36 ACAD. MGMT. J. 441 (1993).

35. *Id.* at 446.

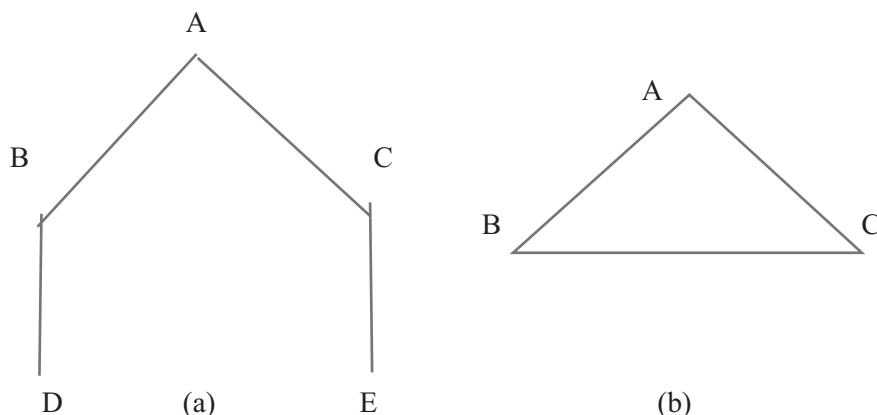
36. *See generally* William G. Ouchi, *Markets, Bureaucracies, and Clans*, 25 ADMIN. SCI. Q. 129 (1980).

37. *See generally* D. Krackhardt & J. R. Hanson, *Informal Networks: The Company Behind the Chart*, HARV. BUS. REV., Jul.-Aug. 1993, at 104.

38. LIN, *supra* note 24, at 44.

Previous research has demonstrated two types of social structures—network closure and structural holes—which provide social capital to the actor. A network with closure means that all actors in the network are connected with each other (Fig. 1).

**Figure 1: Network without (a) and with (b) closure<sup>39</sup>**



Coleman examines three benefits of social networks with closure. First, social relations create obligations, expectations, and trustworthiness within the network. If X does something for Y and trusts Y to reciprocate in the future, this establishes an expectation in X and an obligation on the part of Y. This obligation can be conceived as a credit slip held by X for future performance by Y.<sup>40</sup> In a structure in which “people are always doing things for each other,”<sup>41</sup> there are large numbers of these credit slips, often on both sides of a relationship. Second, social capital can be used to obtain information inherent in social relations. Information can also be better maintained within a closure group. Third, closure leads to a set of effective sanctions that can monitor and guide behavior. Coleman uses Figure 1 to illustrate why:

In an open structure like that of figure 1a, actor A, having relations with actors B and C, can carry out actions that impose negative externalities on B or C or both. Since they have no relations with one another, but with others instead (D and E), they cannot combine forces to sanction A in order to constrain the actions. Unless either B or C alone is sufficiently harmed and sufficiently powerful vis-à-vis A to sanction alone, A’s actions can continue unabated. In a structure with closure, like that of figure 1b, B

<sup>39</sup> See Coleman, *supra* note 22, at 106.

<sup>40</sup> See *id.* at 102.

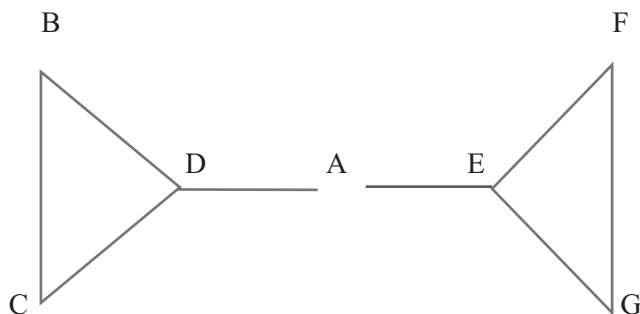
<sup>41</sup> See *id.*

and *C* can combine to provide a collective sanction, or either can reward the other for sanctioning *A*.<sup>42</sup>

Thus, in a social network with closure it is less risky for individual actors to trust each other in the group. The network of relations is an important factor in generating trust, in establishing expectations, and in creating and enforcing norms.<sup>43</sup>

Structural hole theory gives concrete meaning to social capital. This theory describes how social capital is a function of brokerage opportunities in a network (Fig. 2)<sup>44</sup>. In Figure 2, below, actor *A* is in the position of the structural hole because he bridges the two subgroups consisting of actors *B*, *C*, and *D* and *E*, *F*, and *G*. Without *A*, the two subgroups may not connect with each other. The existence of a structural hole does not mean that group *BCD* and group *EFG* are unaware of one another; it simply means that they may be focused on their own businesses and may lack the time to become involved in the activities of the other group.<sup>45</sup>

**Figure 2: Network with a Structural Hole (A)**



A structural hole provides a relationship of non-redundancy between two contacts.<sup>46</sup> “The hole is a buffer, like an insulator in an electric circuit.”<sup>47</sup> Through the hole between them, the two contacts provide network benefits that are in some degree additive rather than overlapping.<sup>48</sup> The structural-hole argument defines social capital in terms of the

42. *Id.* at 105–06.

43. See generally Mark S. Granovetter, *The Strength of Weak Ties*, 78 AM. J. SOC. 1360, 1360–80 (1973).

44. This figure is made by the authors in accordance with Burt’s definition of structural hole.

45. Ronald S. Burt, *Contingent Value of Social Capital*, 42 ADMIN. SCI. Q. 339, 341 (1997) [hereinafter Burt, *Value of Social Capital*].

46. See Burt, *supra* note 25, at 353.

47. *Id.*

48. See *id.*

information and control advantages of being the broker in relationships between people otherwise disconnected in the social structure. First, structural holes may broker non-redundant additive sources of information.<sup>49</sup> “A structural hole indicates that the people on either side of the hole circulate in the different flow of information.”<sup>50</sup> The non-redundant information may make the actor at the structural hole become an opinion leader, because he or she could spread new ideas and solutions to the group.

Second, there is also a control advantage. The broker actor has the opportunity to control the form of the projects that bring together people from opposite sides of the structural hole.<sup>51</sup> Without the broker actor, the disconnected groups or actors would not be able to contact each other. This gives the broker actor disproportionate influence in whose interests are served when the contacts come together. Moreover, they can broker communication while displaying different beliefs and identities to each contact.<sup>52</sup> The sociological theories describe a situation in which a person derives control benefits from brokering the connection between others via the structural hole as *tertius gaudens*.<sup>53</sup> On the basis of the benefits of information and control, Burt addresses the power benefits that accrue to actors who bridge disconnected groups. Since these actors have a say in whose interests are served by the bridge, they can negotiate terms that are favorable to these interests and thus become powerful actors.<sup>54</sup>

## B. SOCIAL NETWORK STRUCTURE AND BOARD PERFORMANCE

Burt argues that group performance could be highest where network closure within the group is high and there are many non-redundant contacts beyond the group (the Maximum Performance Model).<sup>55</sup> Closure can improve communication and coordination within the group, while in spanning structural holes beyond the group, the group network can reach a diverse set of perspectives, skills, or resources.<sup>56</sup> Burt also discusses three models in which a group's performance is undermined by its network structure. First, the group's performance may be undermined when the external contacts beyond the group are redundant (the Cohesive Model). In this model, although the group benefits from communication, it contains only one perspective, skill, or resource. Second, in a disintegrated group with no connection between the group members (the Disintegrated Model),

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49. *See id.*

50. Ronald S. Burt, *The Gender of Social Capital*, 10 RATIONALITY & SOC'Y 5, 9 (1998) [hereinafter Burt, *Gender of Social Capital*].

51. *See* Burt, *Value of Social Capital*, *supra* note 45, at 342.

52. *See* Burt, *supra* note 25, at 354.

53. *See* Burt, *Gender of Social Capital*, *supra* note 50, at 10.

54. *See* RONALD S. BURT, *STRUCTURAL HOLES: THE SOCIAL STRUCTURE OF COMPETITION* 30–34 (Harvard Univ. Press, 1st ed., 1992).

55. *See* Burt, *supra* note 25, at 393.

56. *See id.*

the diverse perspectives, skills, or resources may cause communication barriers within the group, which can also undermine its performance quality. Third, minimum performance may occur in a group without any internal or external connection (the Minimum Performance Model).<sup>57</sup>

On the basis of Burt's theory, we may assume that, generally, an effective board might be a dense network of connected people in which each director is rich in disconnected individual connections with non-redundant perspectives, skills, and resources.<sup>58</sup> In addition, completely forbidden social ties in the boardroom may not be desirable, because an unconnected group may undermine the willingness for cooperation and communication, and may foster divisiveness in the boardroom, which can harm the efficiency of the board's decision-making.<sup>59</sup>

However, the differences between managerial directors and independent directors may make the performance structure of the corporate board more complicated than that of a normal group. Research has demonstrated that social ties in the boardroom may encourage board involvement in administering a firm and lead to an increase in board effectiveness.<sup>60</sup> The social ties between the managerial members (e.g., the CEO) and independent directors can foster board collaboration<sup>61</sup> and increase the level of information sharing.<sup>62</sup> However, the main function of independent directors is also to supervise management and to offer objective and differing views regarding corporate affairs. The supervisory and monitory functions of an independent director require that they should not only provide diverse information to the board, but also remain uninfluenced by the managerial directors, such as the CEO.

A closer connection with the management director or controlling shareholder means that an independent director may be more inclined to side with them. This is particularly a problem for independent directors, who are supposed to be "dissenting peers" and "rival authorities" to the board.<sup>63</sup> The social relationship between independent directors and managerial directors, whether they are friends, former colleagues, or former schoolmates, may compromise the monitory utility of a high proportion of independent directors on the board.<sup>64</sup>

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57. *Id.* at 394–95.

58. *Id.*

59. See John F. Olson & Michael T. Adams, *Composing a Balanced and Effective Board To Meet New Governance Mandates*, 59 BUS. LAW. 421, 446–47 (2004).

60. See generally James D. Westphal, *Collaboration in The Boardroom: Behavioral and Performance Consequences of CEO- Board Social Ties*, 42 ACAD. MGMT. J. 7 (1999).

61. See generally *id.*

62. See generally Renee B. Adams & Daniel Ferreira, *A Theory of Friendly Boards*, 62 J. FIN. 217 (2007).

63. See Randall Morck, *Behavioral Finance in Corporate Governance: Economics and Ethics of The Devil's Advocate*, 12 J. MGMT. GOVERNANCE 179, 180 (2008).

64. See generally Bruynseels & Cardinaels, *supra* note 27, at 113; see also Byoung Hyoun Hwang & Seoyoung Kim, *It Pays to Have Friends*, 93 J. FIN. ECON. 138 (2009) (finding that

The arguments about the advantages and disadvantages of the social connections between independent directors and managerial directors highlight the ambiguity of whether including socially connected independent directors is desirable. On the basis of social capital theory, we argue that the effect of social ties on an independent director relates to the inequality of social capital between him or her and the managerial directors.

### C. INEQUALITY OF SOCIAL CAPITAL AND FUNCTIONS OF DIRECTORS

An individual's social capital may come from his or her position in the network. The theory of social capital assumes that within a structure, the accessibility and mobilization of the social resources of different individual actors are differently distributed. Structural and positional variation in a social network affects the opportunities of individual actors to construct and maintain social capital.<sup>65</sup> The location of certain actors relative to others in the network indicates the relative advantages in access to social capital.<sup>66</sup>

The advantaged or disadvantaged structural positions lead to inequality of social capital. On the basis of closure and structural holes, it may be reasonable to say that in a social network, the individual actor holding the highest level of social capital is the one with the most connections to others or the one who occupies a structural hole. The inequality of social capital distributed in a social structure may motivate the actors to strategically create and maintain connections with those who have more social capital than them. Through social network ties, an actor is able to transfer benefits among actors in the network. Moreover, an actor's contacts' resources can be sources of capital for the actor as well; these resources are potentially available to the actor via social exchange.<sup>67</sup>

In a board setting, the variations in the network positions of different directors represent the different levels of social capital they hold. The inequality of the social capital of directors may influence their decision-making. Directors with more social capital can increase other directors'

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firms "whose boards are conventionally and socially independent award a significantly lower level of compensation, exhibit stronger pay-performance sensitivity, and exhibit stronger turnover-performance sensitivity than firms whose boards are only conventionally independent"); Gopal V. Krishnan et al., *CFO/CEO-Board Social Ties, Sarbanes-Oxley, and Earnings Management*, 25 ACCT. HORIZONS 537, 537-38 (2011) (finding that CFO/CEO-board social ties are positively related to earnings management by the firm and provide evidence that the efficacy of the formal (regulatory) definition of an independent director may be undermined by social ties); see generally Mark S. Beasley et al., *The Audit Committee Oversight Process*, 26 CONTEMP. ACCT. RES. 65 (2009) (suggesting that although many companies want audit committees that offer extensive monitoring, some audit committees serve only a ceremonial role). Bruynseel and Cardinaels find that firms with friendship ties are more likely to subsequently amend initially clean reports because of weak internal controls. Bruynseels & Cardinaels, *supra* note 27, at 113.

65. See LIN, *supra* note 24, at 34.

66. See Burt, *Value of Social Capital*, *supra* note 45, at 340-42.

67. See Adler & Kwon, *supra* note 30, at 25-26.

dependence on them and decrease others' willingness to lose contact with them. If, on a board, the managerial director holds a better position in the network than the independent director, it may be reasonable to assume that the independent director would be unlikely to risk dissenting with the managerial director. Going against a central managerial director who is socially connected with nearly every other director on the board would place enormous social pressure on the independent director. In addition, because of their strategic locations (i.e., structural holes) and positions (i.e., authority or supervisory capacities), these social ties may carry valued resources to the independent directors and allow them to exercise greater power in their decision-making.<sup>68</sup>

Directors are unlikely to risk their social relationships with those who hold high social capital. Therefore, the monitory function of the independent director may be compromised when executive directors hold the central position in a closure network and/or occupy the structural hole. Independent directors may not want to risk their relationship with managerial directors who are more powerful by questioning or arguing with them, but if the independent director holds a higher level of social capital than the managerial director, the independent director may be less likely to be influenced by the social ties between them and the managerial directors.

In conclusion, on the basis of Burt's group performance theory and the function of independent directors, it may be reasonable to assume that an effectively performing board could be an internal closure group with external diverse connections, with the independent director holding a higher level of social capital than the managerial directors.

#### D. MEASURING SOCIAL CAPITAL INEQUALITY

The inequality of social capital among each director on a board can be measured by their "closeness centrality" and "betweenness centrality" in the network. Centrality is the extent to which a person is in the center of a network. Central people have more influence in the network<sup>69</sup> and central positions have often been equated with opinion leadership or popularity.<sup>70</sup>

Closeness centrality represents the director's social capital in a closure network. A director is closeness central when they sit at short distances from many other directors.<sup>71</sup> Closeness measures are based on the ideas of efficiency and independence.<sup>72</sup> Because of their closeness to others in the

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68. See generally LIN, *supra* note 24, at 29.

69. KATE EHRLICH & INGA CARBONI, *INSIDE SOCIAL NETWORK ANALYSIS*, IBM TECH. REP. 7 (2005), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.372.1960&rep=rep1&type=pdf>.

70. Thomas W. Valente et al., *How Correlated Are Network Centrality Measures?*, 28 CONNECTIONS 16, 17 (2008).

71. JOHN SCOTT, *SOCIAL NETWORK ANALYSIS* 86 (3rd ed., 2003).

72. Noah E. Friedkin, *Theoretical Foundations for Centrality*, 96 AM. J. SOC. 1478, 1490 (1991).

network, directors “high on closeness measures are able to efficiently transmit information and have independence, in the sense that they do not need to seek information from more peripheral directors.”<sup>73</sup> They have greater access to information and can communicate their opinions to others more efficiently. Research shows they are also more likely than peripheral directors to use the communication channels.<sup>74</sup>

Both betweenness centrality and the clustering coefficient represent whether the director is at a structural hole or is a bridge between two groups of directors. Betweenness centrality measures the extent to which a particular director lies between the various other directors on the graph.<sup>75</sup> Directors with a higher betweenness centrality are included in many of the shortest paths between other directors. Directors high on betweenness centrality thus have the potential to influence others near them in a network,<sup>76</sup> seemingly through both direct and indirect pathways. A director with high betweenness centrality can potentially influence the spread of information throughout the network by facilitating, hindering, or even altering the communication between others.<sup>77</sup> Such a director has a vital role in enabling the directors between him or her to communicate with each other. In some extreme cases, if a high betweenness centrality director were removed from the network, some directors would lose their connection with the rest of the group. Thus, when a director has a high score on betweenness centrality, he or she is likely to occupy a structural hole.<sup>78</sup>

The clustering coefficient measures the network closure of a director, namely, whether each director’s connections are connected to one another. More specifically, it is the number of edges connecting a director’s neighbors divided by the total number of possible edges between those neighbors.<sup>79</sup> The higher the clustering coefficient of a director, the more closure of the cliques he or she is in. A high clustering coefficient means that directors “tend to form tightly connected, localized cliques with their immediate neighbors.”<sup>80</sup> The clustering coefficient also indicates the betweenness of an individual in their ego-network.<sup>81</sup> It may be reasonable to

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73. Thomas W. Valente et al., *supra* note 70, at 18.

74. See Noah E. Friedkin, *Structural Bases of Interpersonal Influence in Groups: A Longitudinal Case Study*, 58 AM. SOC. REV. 861, 864 (1993).

75. See Friedkin, *supra* note 72, at 1491.

76. See Linton C. Freeman, *Centrality in Social Networks Conceptual Clarification*, 1 SOC. NETWORKS 215, 221 (1979).

77. See generally *id.*

78. Martin Everett & Stephen P. Borgatti, *Ego Network Betweenness*, 27 SOC. NETWORK 31, 32–33 (2005).

79. See Gerald F. Davis, Mina Yoo & Wayne E. Baker, *The Small World of the American Corporate Elite, 1982-2001*, 1 STRATEGIC ORG. 301, 316 (2003).

80. Christo Wilson et al., *User Interactions in Social Networks and Their Implications*, PROC. 4TH {ACM} EUR. CONF. ON COMPUT. SYS. 205, 209 (2009).

81. Terrill L. Frantz, *A Social Network View of Post-Merger Integration*, in ADVANCES IN MERGERS AND ACQUISITIONS 161, 168 (Cary L. Cooper & Sydney Finkelstein eds., 2012).



assume that a director with a higher score on betweenness centrality but a lower score on the clustering coefficient sits between various other directors in the network, but the directors that connect with them directly are not connected with each other.

### III. NORMATIVE IMPLICATIONS OF SOCIAL CAPITAL AND CASE STUDIES

On the basis of our theory in Part II, we now further explore the normative connotations of social capital and social network structures for policymakers, legislators, and practitioners. We will additionally use two case studies—a family-owned company and a state-owned enterprise—to illustrate our points.

#### A. WHAT ARE THE NORMATIVE IMPLICATIONS OF SOCIAL CAPITAL?

What does the above discussion mean for legislators, regulators, and practitioners? As suggested above, different degrees of social capital may influence a director's behavior on the board, and differing corporate board network structures may affect board performance. However, this Article suggests that it is not feasible to legislate social capital by requiring directors to have a certain degree of connections or to be centrality figures in a network, or requiring a corporate board to hold a certain structure. Social capital on an individual or aggregate level is a dynamic concept; the connections are relative and comparative but not absolute, and it is therefore unsuited to be assigned fixed figures. It is also challenging to describe connections in precise legal language. Thus, it is difficult to create certainties even if we agree that social capital could have some normative values.

The idea of social capital may offer the market various tools for selecting directors, predicting the performance of a corporate board, and supervising listed companies. In other words, our social capital theory might complement existing corporate governance regimes. For example, the real value of independent directors comes from their external experiences and ties, and from their ability to speak up and dissent when they have suspicions.<sup>82</sup> However, if corporate controllers desire a friendly but powerless independent director, an independent director might not be truly independent.

Moreover, the independent director regime uses a director's independence as a proxy for a person's ability to supervise and speak up.

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82. See generally Amy J. Hillman & Thomas Dalziel, *Boards of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspectives*, 28 ACAD. MGMT. REV. 383 (2003).

While the legal definitions of board independency may vary by country,<sup>83</sup> such definitions too often focus on the director's lack of financial ties or business connections to the company, its management, and/or its substantial shareholders.<sup>84</sup> No definition of independence has yet been offered that precludes an independent director from being a social friend of or joining the same clubs, associations, or charities as managerial directors.<sup>85</sup> While there could be considerable transaction costs to define and identify such connections, the existence of these social relationships might undermine a person's willingness to speak up in board meetings because of his or her friendships or other personal concerns.

With modern technology, computing power, and big data, corporations and market analytics now have better resources and power to analyze the dynamic function of social capital with different board structures in the digital era.<sup>86</sup> Examining social capital is useful in a number of ways. First, on the corporate level, analysis of the social capital of a director and the structure of a board may help the nominating committee to determine the suitability of a candidate. In many countries, the nomination of a director has to be vetted by the nomination committee, which examines the director's background and independence (for independent directors).<sup>87</sup> In addition to hard benchmarks such as kinship, education records, or work experience, social capital may offer the nomination committee more insight as an additional tool to consider, examine, and predict future performance and chemistry in an existing board structure. For example, between two independent director candidates who otherwise have the same credentials, the nomination committee may prefer the candidate with more external social connections to improve the power structure of the board.

Second, social capital may offer an additional tool to the market to predict the value of a firm. However, we agree that it is impossible to comprehensively list all board members' social connections and that it is probably infeasible to require directors and companies to disclose all their social connections. Forcing directors to disclose social connections might lead to unprocessed and unstructured data that might be prone to biases and errors. From commercial databases, at least, institutional or active investors would have more tools with which to analyze board structure and directors'

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83. See generally Puchniak & Lan, *supra* note 9.

84. Lin, *supra* note 14, at 54. "Nevertheless, the definition of independent under SOX and listing agents' rules do not exclude personal relationships or social ties." *Id.*

85. Victor Brudney, *The Independent Director: Heavenly City or Potemkin Village?*, 95 HARV. L. REV. 597, 598–99 (1982).

86. There are now more datasets available over the Internet for researchers and merchants to analyze social networks of different scales from various sources, including market giants such as Facebook, Twitter, or Amazon. For example, Stanford University hosts a webpage containing links to many large network datasets. See, e.g., Jure Leskovek, *Stanford Network Analysis Project*, STANFORD UNIV., <https://snap.stanford.edu/data/index.html> (last visited Mar. 3, 2017).

87. See NYSE, INC., LISTED COMPANY MANUAL § 303A.04(b)(i) (2009).

social capital, in order to further evaluate a firm's corporate governance standards before making an investment decision or participating in a shareholders' meeting. This might shift the market to push companies toward better corporate governance.

Third, an analysis of social capital may allow regulators or stock exchanges to better perform their market surveillance function with more precise data on the board of directors of a company. This is in line with the recent regulatory technology (RegTech) movement to apply information technology and regulatory power.<sup>88</sup> In other words, with more quantitative data about a board's formation and directors' social ties, market regulators may be in a better position to evaluate what can be expected from a board and even the possibility of corporate scandals. For example, if most of the directors on a firm's board have social ties with the controlling shareholder, such a board may lack independence (even if the firm meets the corporate governance requirements on paper) and may not be able to effectively monitor management performance and examine related-party transactions.

## B. CASE STUDIES

### 1. Case Selection and Data Collection

To illustrate our theory, we conduct case studies of two companies listed in Hong Kong. Hong Kong is a typical example of the adoption of the Anglo-American corporate governance model. The Stock Exchange of Hong Kong's (SEHK) 1993 listing rules required a minimum of two independent non-executive directors; the Code of Corporate Governance Practice of 2005 recommended that one-third of the board should be independent.<sup>89</sup> As of 2013, the SEHK rules, which are mandatory, now require at least one-third of the board to be independent,<sup>90</sup> the majority of the audit committee members to be independent non-executive directors, and the audit committee to be chaired by an independent non-executive director. The new regulations have changed the internal management and supervisory structure of Hong Kong listed companies. From 2006 to 2012, between 84% and 100% of Hong Kong listed companies had a board of at least one-third independent directors.<sup>91</sup>

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88. In general, regulatory technology (RegTech) means the application of technology to regulatory activities. Lawrence G. Baxter, *Adaptive Financial Regulation and RegTech: A Concept Article on Realistic Protection for Victims of Bank Failures*, 66 DUKE L.J. 567, 598 (2016).

89. CODE OF CORPORATE GOVERNANCE § 2.1 (2005).

90. HONG KONG EXCHS. & CLEARING LTD., MAIN BOARD LISTING RULES: RULES GOVERNING THE LISTING OF SECURITIES ON THE STOCK EXCHANGE OF HONG KONG LIMITED ch. 3, Rule 3.10A.

91. HONG KONG EXCHS. & CLEARINGS LTD., ANALYSIS OF CORPORATE GOVERNANCE PRACTICES DISCLOSURE IN 2006 ANNUAL REPORTS 18 (2008); *see also* HONG KONG EXCHS. &

However, increasing the proportion of independent directors might not actually bring “dissenting peers” into Hong Kong listed companies. Although the directors are independent from the company in the regulatory sense, they might still be connected with inside directors on the board, especially with the CEO or chairman. For example, an independent director and an inside director may serve together on the board of another company, or they may have worked together in the past, studied at the same university, joined the same social or business club, or worked for the same charity.

In addition, “friendly” boards may be more common in the Hong Kong market than in Western markets such as the United States and United Kingdom. Previous research shows that the Hong Kong market seems more acceptable to collectivist management culture than Western markets.<sup>92</sup> Collectivist management culture might make Hong Kong companies more likely to include connected independent directors on the board. Under a collectivist culture, “boundaries between in-groups and out-groups are stable, relatively impermeable, and important.”<sup>93</sup> Therefore, it may be reasonable to assume that the inside directors in Hong Kong companies want people who are socially connected with them as independent directors.

This Article uses two boards as examples to introduce the social connections among board directors and the potential influences of inequality in social capital on board performance. The first firm studied is a family-controlled property development company, Cheung Kong Holdings (CKH). CKH was incorporated in Hong Kong in the early 1970s. The founder has chaired the company since it was incorporated and his son has been its managing director since the late 1990s, when he replaced his father in that position. In 2011, CKH reported having nearly 110 subsidiaries, associated entities, and jointly controlled entities. As of the end of 2014, CKH had eight executive directors, six non-executive directors, and seven independent non-executive directors on its board. The proportion of independent directors is in line with Hong Kong regulations.

The second firm studied is China Mobile Limited (China Mobile), a state-owned telecommunications company that is directly controlled by the

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CLEARINGS LTD., ANALYSIS OF CORPORATE GOVERNANCE PRACTICES DISCLOSURE IN 2012 ANNUAL REPORTS (2013).

92. Geert Hofstede, *Cultural Dimensions in Management and Planning*, 1 ASIA PAC. J. MGMT. 81, 83–85 (1984). Hofstede defines the collectivist culture dimension as “a preference for a tightly knit social framework in which individuals can expect their relatives, clan, or other in-group to look after them in exchange for unquestioning loyalty.” *Id.* at 83. He tests the individualism-collectivism scale using employees from forty countries. The subjects from all three Chinese societies (Taiwan, Singapore, and Hong Kong) had high scores on collectivism. In contrast, the United States, United Kingdom, and Australian subjects had much higher scores on individualism. *Id.* at 85.

93. Daphna Oyserman, Heather M. Coon & Markus Kimmelmeier, *Rethinking Individualism and Collectivism: Evaluation of Theoretical Assumptions and Meta-Analyses.*, 128 PSYCHOL. BULL. 3, 5 (2002).

government of the People's Republic of China. It is also a public company listed on the NYSE and the SEHK. At the end of 2014, China Mobile had six executive directors and four independent non-executive directors on its board. This proportion is also in line with the regulations.

CKH and China Mobile are chosen for two reasons. First, family-controlled companies and state-owned Chinese companies are the two most common types of enterprises listed in Hong Kong. Second, because both CKH and China Mobile are large companies in terms of market capitalization, it is less difficult for them to bear the costs of finding and hiring directors who are both legally and socially independent from the company. This minimizes the objective impossibility (i.e., financial difficulty) of the company to have non-connected independent directors on the board and makes CKH and China Mobile good examples for investigating companies' subjective choices.

We obtained background information on the employment information, education history, and other non-corporate activities of all the directors who were on the boards of CKH and China Mobile at the 2014 fiscal year-end from BoardEx.<sup>94</sup> With regard to employment information, BoardEx reports all past and present positions held, including the names of the organizations and job titles. It also provides information on current and previous board positions held and the roles that individuals assumed on each board (e.g., independent director, financial expert, or board committee member). BoardEx also includes information on the educational background of each individual, including institutions attended, degrees earned, dates of graduation, and an individual's membership in professional and non-professional associations and government positions. This information helps us to create networks of directors in CKH and China Mobile that exclude their relationships with colleagues within these two companies.

We use an open source software tool, NodeXL, to visualize the social networks of board directors in the above two companies. NodeXL was "designed especially to facilitate learning the concepts and methods of social network analysis with visualization as a key component."<sup>95</sup> It can also show graph metrics to provide quantitative measures that characterize various aspects of a graph.<sup>96</sup> The graph metrics include "overall metrics"

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94. The "BoardEx database contains biographical information on most board members and senior executives around the world. Approximately 25% of the individuals are currently serving on boards of companies and 75% are either board members or part of the C-Suite. These individuals are associated with over 800,000 global organizations." See *BoardEx Data*, BOARDEx, <http://corp.boardex.com/data/> (last visited Mar. 3, 2017). BoardEx database has currently been used by finance and accounting researchers to investigate the effect director network. See, e.g., Joseph Engelberg, Pengjie Gao & Christopher A. Parsons, *Friends With Money*, 103 J. FIN. ECON. 169, 172 (2012); see also Bruynseels & Cardinaels, *supra* note 27, at 119.

95. Derek Hansen, Ben Shneiderman & Marc Smith, *Analyzing Social Media Networks: Learning by Doing with NodeXL*, 28 COMPUTING 1, 8 (2009).

96. *Id.* at 22.

and “vertex metrics.” Overall metrics summarize some of the key properties of the entire network, such as connected component, density, and geodesic distance. Vertex metrics specifically describe the social capital each node experiences in the network, in measures such as degree, closeness and betweenness centrality, and the clustering coefficient.<sup>97</sup>

## **2. The Case of Cheung Kong Holdings: An Example of a Family-Controlled Firm**

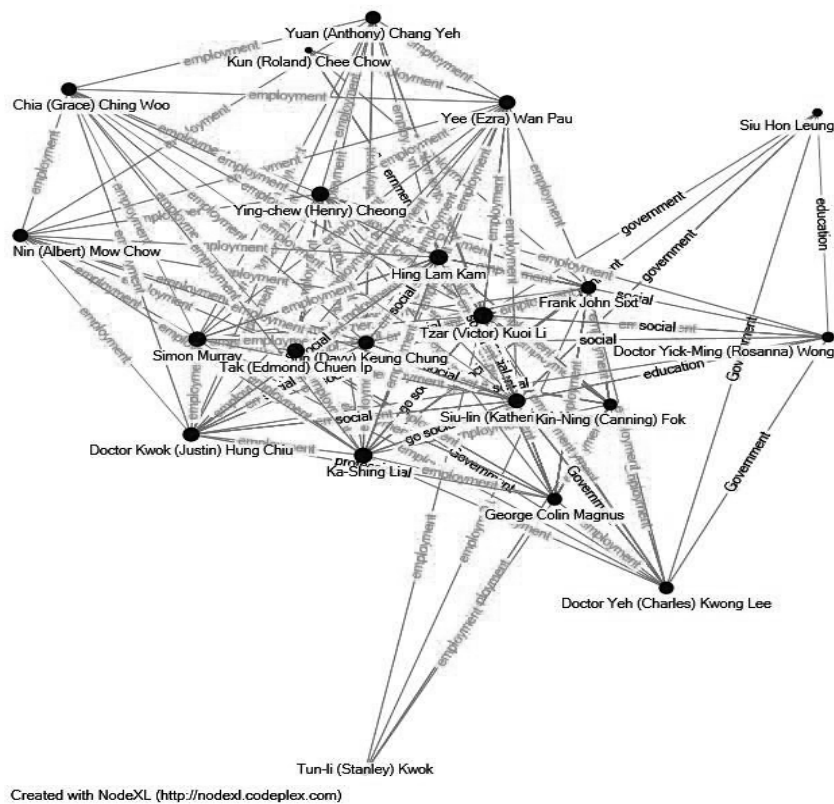
Graph 1 shows the board structure of CKH in 2014, which represents a closure network. Based on the social network of the CKH directors, we can see whether the managerial directors, especially the chairman and CEO, hold higher closeness centrality in the network, and then we interpret the potential influence of the social capital inequality on board performance.

We created director-by-director networks based on the disclosure of each director’s employment (other than at CKH), educational background, and membership in other professional and social associations and in government.

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97. *Id.* at 24–25.

Graph 1: Visualization of the CKH Network



In Graph 1, each node represents a director. The different sizes of the nodes indicate the degrees of the various directors, where the degrees represent the number of other nodes to which a node is adjacent. The data report two types of degrees of director: the degree on the board and the degree with other corporate elites in the overall database. The edges between the two nodes represent the social ties between two directors. We label the social ties on the basis of employment (i.e., shared current or past employment or directorships at firms other than CKH), past education (i.e., graduating from the same university), and shared membership in professional associations, government, or other nonprofessional activities, including shared memberships in nonprofit institutions, such as charities or other social associations. The width of the edges indicates the number of ties between two directors. Graph 1 shows that all directors on the CKH board hold either professional or social connections with other directors, even excluding their relationships with colleagues at CKH. Table 1 shows the proportions of the different types of ties among the directors.

**Table 1: Types of Ties – CKH**

Type of Tie	Proportion	Number
<b>Employment (other than CKH)</b>	84.3%	431
<b>Professional Association</b>	0.3%	2
<b>Nonprofessional Activity</b>	8.2%	42
<b>Government</b>	5.1%	26
<b>Education</b>	2.1%	10

Graph 1 also shows that the network structure has high closure: each director connects with at least three other directors and none of them is isolated. The network closure is also demonstrated by the overall metrics (Table 2), which show that the network includes only one connected component without specific subgroups. Network closure can also be measured by graph density, which describes the general level of linkage among the nodes in the graph. Graph density is defined as the number of unduplicated ties in the network divided by the total possible number of unduplicated ties.<sup>98</sup> The measure of density can vary from 0 to 1. When the density is close to 1, the graph is “complete,” in that the number of ties is the same as the possible number of ties. As seen in Table 2, the density is 0.61, which means that the actual unduplicated ties are not substantially fewer than the possible number of ties.

Network closure can also be measured by geodesic distance, which captures how far away a given director is to all the other directors in the network.<sup>99</sup> The data show that the maximum geodesic distance is 2 (1.3 on average). This means that regardless of their CKH relationships, any director in this group can easily get in touch with any other one in a maximum of two steps of connection.

**Table 2: Overall Metrics – CKH**

Overall Metric	Values
<b>Connected Components</b>	1
<b>Maximum Geodesic</b>	2

98. See generally Valente et al., *supra* note 70, at 5.

99. Roy C. Barnes, *Structural Redundancy and Multiplicity Within Networks of US Corporate Directors*, 43 CRITICAL SOC. 37, 53 (2017).



<b>Distance (Diameter)</b>	
<b>Average Geodesic Distance</b>	1.319728
<b>Graph Density</b>	0.614285714

Table 3 shows the vertex metrics of each director on the board. It shows the type of directors on the board of CKH—executive directors, non-independent non-executive directors, and independent non-executive directors. It also demonstrates the inequality of social capital between directors through the vertex metrics of each director, which include degrees in market (i.e., the overall connections of each director in the entire BoardEx database), degrees on the board (i.e., the unduplicated social connections of directors on the CKH board), closeness and betweenness centrality, and the clustering coefficient.

**Table 3: Vertex Metrics of Directors on the Board – CKH**

Directors	Type of Director	Degree in Market	Degree on Board	Betweenness Centrality	Closeness Centrality	Clustering Coefficient
<b>Ka-Shing Li (Chairman)</b>	ED	541	17	7.532143	0.043478	0.713235
<b>Tzar (Victor) Kuoi Li (CEO)</b>	ED	2160	20	27.47619	0.05	0.573684
<b>Kun (Roland) Chee Chow</b>	NED	342	3	0	0.027027	1
<b>Chia (Grace) Ching Woo</b>	ED	183	12	0	0.035714	1
<b>Siu Hon Leung</b>	NED	406	5	0.125	0.028571	0.9
<b>Sun (Davy) Keung Chung</b>	ED	571	13	1.077381	0.037037	0.910256
<b>Doctor Kwok (Justin) Hung Chiu</b>	ED	764	14	2.09881	0.038462	0.846154

<b>George Colin Magnus</b>	NED	495	11	2.492857	0.034483	0.8
<b>Doctor Yeh (Charles) Kwong Lee</b>	NED	826	11	3.203571	0.034483	0.727273
<b>Tak (Edmond) Chuen Ip</b>	ED	546	16	3.74881	0.041667	0.783333
<b>Yee (Ezra) Wan Pau</b>	ED	204	14	5.488095	0.038462	0.813187
<b>Hing Lam Kam</b>	ED	870	17	5.52619	0.043478	0.735294
<b>Frank John Sixt</b>	NED	742	12	6.177381	0.035714	0.69697
<b>Tun-li (Stanley) Kwok (IND)</b>	IND	367	4	0	0.027778	1
<b>Nin (Albert) Mow Chow</b>	IND	183	12	0	0.035714	1
<b>Yuan (Anthony) Chang Yeh</b>	IND	218	12	0	0.035714	1
<b>Doctor Yick-Ming (Rosanna) Wong</b>	IND	1014	8	1.317857	0.03125	0.75
<b>Kin-Ning (Canning) Fok</b>	IND	1660	10	1.6	0.033333	0.844444
<b>Simon Murray</b>	IND	1592	16	3.74881	0.041667	0.783333
<b>Ying-chew (Henry) Cheong</b>	IND	800	16	4.515476	0.041667	0.758333
<b>Siu-lin (Katherine) Hung</b>	IND	1020	15	4.871429	0.04	0.771429

<b>Mean (total)</b>		738.285 7	12.285 71	3.857143	0.036938	0.828901
<b>Mean (Non- independent director)</b>		665.384 6	12.692 31	4.995879	0.037583	0.807645
<b>Mean (Independe nt director)</b>		856.75	11.625	2.006697	0.03589	0.863442

\* ED: Executive director

NED: Non-independent non-executive director

IND: Independent non-executive director

The data show that all the directors also have external ties with other people in the market. Because the number of each director's external connections varies, it may be reasonable to assume that the external connections of each director may not overlap extensively and will thus bring non-redundant contacts to the board. Therefore, the CKH board network structure is in line with Burt's Maximum Performance Model. The mean of the degree in the market of independent directors (856.75) is much higher than that of other directors (665.38), which indicates that the independent directors are likely to be able to fulfill their information function.

Victor Li, the CEO, and Ka-shing Li, the Chairman, hold the highest degrees on the board and in the overall dataset, and the highest scores of closeness centrality and betweenness centrality. Ka-shing Li is the founder of CKH and the Chairman of the board. Victor Li, his son, is the CEO and deputy chairman of the board. On the basis of social capital theories, Victor Li should be the most influential actor in this group of directors.

In sum, from the board structure of Cheung Kong Holdings in 2014, we find that all directors had social ties in addition to being members of the board of the same company. Their social ties were on average very close, as supported by the high graph density of the network and the small geodesic distance. In addition, the high number of directors' external connections enables the network structure of the board to maximize its performance. Also, the founder's family member (CEO) holds the most central position in the network.

The board of CKH is a high closure group in which every director is connected such that no one can escape the notice of others.<sup>100</sup> Network closure affects access to information.<sup>101</sup> If a director wants information, they can obtain it from an acquaintance connected with them rather than

100. Burt, *supra* note 25, at 351.

101. *Id.*

searching for it on their own. In addition, network closure facilitates sanctions that make it less risky for directors on the board to trust one another.<sup>102</sup> The commonly existing connections in the network make a director's wrongful behavior quickly become public to the board as a whole, and the connected directors can combine to collectively sanction the wrongdoer. This makes the directors more careful about the image they display to the group, which increases the confidence with which each can trust the others to cooperate.

Effective communication and coordination between directors would improve the efficiency of the board's operational process. The appropriate organization of an effective business network can reduce knowledge-sharing expenses by more than 50%.<sup>103</sup> In addition, the trust between directors can reduce the cost of negotiation. Since every director trusts the others, each might believe that one of the others would not make a wrong decision and then abscond, leaving the other with a loss. This lower risk may simplify the negotiation process when making decisions.<sup>104</sup>

However, this board network also shows a "center-periphery pattern."<sup>105</sup> This pattern consists of "(1) a subset of relatively central prestigious actors who are connected by direct or short indirect channels, and (2) a subset of peripheral actors who are more directly connected to the central actors than to other peripheral actors."<sup>106</sup> In such a social organization, an actor is more influenced by a centrally located actor than by a peripheral actor.<sup>107</sup> The central director in the network is Victor Li, the CEO and son of the company's founder, who holds the highest closeness centrality in the network. Victor's structural centrality contributes to his social power on the board. The network's closure better enables Victor and the founding family of the company to influence the board's decision-making. Victor's opinion may be more influential to the other directors because he more readily can acquire information resources and can easily communicate his opinions to the other directors. First, Victor can effectively collect information from the entire board because he holds the shortest distances to the other directors and no one can block him from obtaining information from any of the directors. Second, as a central director, Victor is likely to have more numerous or shorter communication

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102. *Id.*

103. See TATIANA BOUZDINE & MARINA BOURAKOVA-LORGNIER, *THE ROLE OF SOCIAL CAPITAL WITHIN BUSINESS NETWORKS: ANALYSIS OF STRUCTURAL AND RELATIONAL ARGUMENTS* (2004).

104. See generally Jeffrey H. Dyer & Wujin Chu, *The Role of Trustworthiness in Reducing Transaction Costs and Improving Performance: Empirical Evidence from the United States, Japan, and Korea*, 14 *ORG. SCI.* 57 (2003).

105. Friedkin, *supra* note 74, at 864.

106. *Id.*

107. *Id.*

channels with which to convey his opinion to other directors, and he may be more active in utilizing these channels.

Third, the closure network makes Victor's opinion trustworthy to the other directors. Because Victor directly connects to all the other directors, he may have mutual friends with many of the directors on the board. For example, because Victor connects to both Stanley and Albert, if Stanley and Albert also connect, then Victor has a mutual friend with each of them. The existence of mutual friends makes Victor easier to trust.<sup>108</sup> The other directors might assume that if Victor cheats them, news of his cheating behavior would reach them quickly once a "mutual friend" discovered it. It would be reasonable for them to believe that Victor would not risk his reputation by cheating. Therefore, the other directors, including the independent directors, may not be willing to challenge Victor's opinion.

The board structure of CKH reflects a finding of previous research. Leung et al. show that family firms prefer non-independent corporate boards to avoid any threat to their authority and any potential interference in their decision-making processes. However, a non-independent board may not necessarily undermine firm performance. Family managers or family-related managers in such firms have the incentive to make decisions in the best interests of the family.<sup>109</sup>

In sum, the CKH board's closure may reduce the cost of communication and improve cooperation between the directors. The center-periphery pattern makes the CEO the highest social power within the network. He can influence the decision-making of the other directors, including the independent directors. The power of the central director may make other directors, including the independent directors, more likely to trust his decisions and less likely to adopt an adversarial stance by challenging him. Therefore, the monitoring function of board independence may be undermined. However, because family managers have the incentive to benefit the company, a non-independent board might not significantly harm firm performance.

What does this data mean for regulators and market participants? The example of Cheung Kong Holdings shows that this family-owned business tends to appoint people from a close and connected circle to positions on its board, including independent directors. This does not deviate from the general impression that family-owned businesses tend to hire friendly or connected persons as directors. However, on this basis, regulators and market participants should draw comparisons with other companies and financial data to make further inferences.

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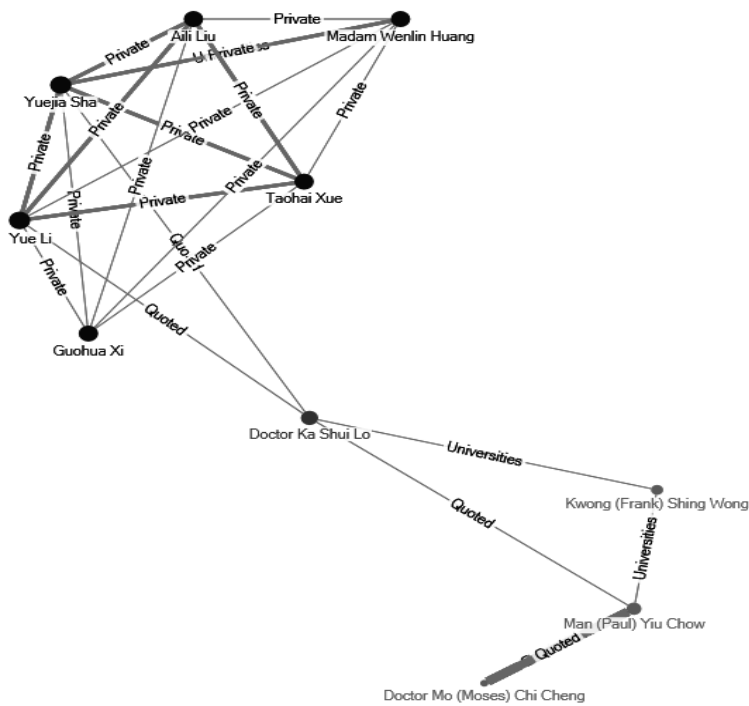
108. Mark Granovetter, *Economic Action and Social Structure: The Problem of Embeddedness*, 91 AM. J. SOC. 481, 491-93 (1985).

109. See Sidney Leung, Grant Richardson & Bikki Jaggi, *Corporate Board and Board Committee Independence, Firm Performance, and Family Ownership Concentration: An Analysis Based on Hong Kong Firms*, 10 J. CONTEMP. ACCT. ECON. 16, 19 (2014).

3. The Case of China Mobile Limited: An Example of a State-Owned Company

The social structure of the China Mobile board is analyzed in the same way as that of CKH.

Graph 2: Visualization of the China Mobile Network



Created with NodeXL (<http://nodexl.codeplex.com>)

Graph 2 shows that the board of China Mobile has a structural hole. Unlike CKH, which has five types of ties, the board of China Mobile only includes employment, education, and government ties.

Table 4: Type of Ties – China Mobile

Type of Tie	Proportion	Number
Employment	83.9%	40
Government	3.2%	2
Education	12.9%	8

Table 5 shows the overall graph metrics of the network. Compared with the network structure of the CKH directors, although the overall metrics show that the social network includes one connected component, it is obvious that the component includes two subgroups linked by one bridging director. This means that the “bridge” director is able to control the information flow between the two groups of directors. The table also shows that the density is 0.47 for China Mobile, which is less than that for CKH (0.61). The maximum geodesic distance is 4 (on average 1.74), which is much higher than that of CKH (2 maximum). The overall metrics show that, although all the directors on the board of China Mobile are connected, the network structure is looser than that of CKH.

**Table 5: Overall Metrics – China Mobile**

Overall Metric	Values
Connected Components	1
Maximum Geodesic Distance (Diameter)	4
Average Geodesic Distance	1.74
Graph Density	0.466666667

Table 6 shows the types of China Mobile directors and the vertex metrics of each director on the board, which represents the unequal distribution of social capital in the social network.

**Table 6: Vertex Metrics of Directors on the Board – China Mobile**

Director	Type of Director	Degree in Market	Degree on Board	Betweenness Centrality	Closeness Centrality	Clustering Coefficient
Yue Li (CEO)	ED	55	6	8	0.076923	0.733333
Yuejia Sha (Chairman)	ED	167	6	8	0.076923	0.733333
Aili Liu	ED	48	5	0	0.058824	1
Guohua Xi	ED	26	5	0	0.058824	1
Madam Wenlin Huang	ED	467	5	0	0.058824	1

<b>Taohai Xue</b>	ED	40	5	0	0.058824	1
<b>Doctor Ka Shui Lo</b>	IND	1096	4	18	0.071429	0.333333
<b>Kwong (Frank) Shing Wong</b>	IND	1077	2	0	0.05	1
<b>Man (Paul) Yiu Chow</b>	IND	1329	3	8	0.052632	0.333333
<b>Doctor Mo (Moses) Chi Cheng</b>	IND	968	1	0	0.037037	0
<b>Mean (total)</b>		527.3	4.2	4.2	0.060024	0.713333
<b>Mean (Non-independent director)</b>		133.8333	5.333333	2.666667	0.064857	0.911111
<b>Mean (IND)</b>		1117.5	2.5	6.5	0.052775	0.416667

\*ED: Executive Director

IND: Independent non-executive director

Similar to CKH, the directors of China Mobile also connect externally with non-board persons in the market. Thus, the board's network structure is also in line with Burt's Maximum Performance Model. Moreover, the mean of the degree in the market of independent directors (1117.5) is also much higher than that of managerial directors (133.83). It may be reasonable to assume, therefore, that the board depends highly on the independent directors to bring in non-redundant contacts and information.

Among all the directors, Yue Li, the CEO, and Yuejia Sha, the Chairman, hold the highest scores of degree and closeness centrality. However, the highest score of betweenness centrality is held by independent director Dr. Ka Shui Lo, who also holds a low score of clustering efficiency in the network. Therefore, he is located at a structural hole.



As a bridge, Dr. Ka Shui Lo may be less likely to be influenced by the managerial directors' decisions, because he has more information advantages and power on the board than the other directors. First, Dr. Ka Shui Lo's bridge connection to the subgroups of both managerial directors and independent directors gives him an advantage with respect to information access. He reaches a higher volume of information with less redundancy because of the diversity of his contacts across the whole board. For the directors on both sides of him, Dr. Ka Shui Lo is more likely to be a candidate discussed for inclusion in new opportunities. These benefits would increase other directors' desire to maintain their connections with Dr. Ka Shui Lo.<sup>110</sup> Moreover, his location at a structural hole allows Dr. Ka Shui Lo to control information diffusion. He controls the projects that bring together directors from opposite sides of him.<sup>111</sup> He would be able to choose what information should be passed to the other side and what should not. This control of information and communication may give him more power on the board.

The social ties between managerial directors and Dr. Ka Shui Lo would improve the collaboration between the two diverse groups. First, the independent directors, who also are the audit committee members, are much closer with each other than with the managerial directors, and the broker is also an independent director. This structure may allow the audit committee to make its own group decisions without being influenced by managerial directors. To obtain more information from the audit committee, the managerial director group would have to respect Dr. Ka Shui Lo as a broker. Second, the social ties between the CEO, the broker, and the audit committee member could make it easier for them to trust each other, which would improve the level of information exchange and board collaboration.

Compared with the case of CKH, the independent director on the board of China Mobile may function better from the perspective of monitoring. The board of China Mobile has an obvious structural hole. The managerial directors and independent directors comprise two subgroups on the board. The CEO is the central director who connects with most of the other directors. However, an independent director is at the structural hole, which connects the subgroups of the managerial directors and independent directors. This structural advantage enables this independent director to enjoy more social capital and to be more powerful on the board, because he controls the passage of information between the two subgroups. Therefore, he may be less likely to compromise his monitoring liability subject to the power of the managerial director. The social tie between him and the managerial directors may be more likely to facilitate information exchange

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110. Burt, *supra* note 25, at 354.

111. *Id.*

and board collaboration and less likely to undermine the independent directors' ability to monitor.

The data also show that the independent directors hold much higher external connections outside the board than the managerial directors. These information advantages would make the managerial directors respect their opinions during board meetings and could make the independent directors' decisions less likely to be affected by the managerial directors.

In conclusion, being located at a structural hole creates two advantages for the independent director Dr. Ka Shui Lo. First, he can access non-redundant sources of information. Second, he can control the contacts between the directors on both sides of him. These advantages may make the other directors, including the managerial directors, respect him and pay attention to the information transmitted through him. In addition, the separation of managerial and independent directors and the high number of the independent directors' external connections may make the independent directors more likely to make their own group decisions without being influenced by the managerial directors.

Other than the boards of CHK and China Mobile, which fall under the Maximum Performance Model, we also find firms in the SEHK that fit the Disintegrated Model. In these firms, the directors on the board hold external connections but are not socially connected according to this Article's definition of social ties. Therefore, although the board members can benefit from the external networks of the directors, especially the independent directors, the low closure within the groups may undermine the communication and coordination in the boardroom, which may further undermine the quality of board performance. Although they can be seen as very independent boards, the performance quality of these boards might not be good. Boards that fit the Cohesive Model and the Minimum Performance Model may not be easy to find. Boards on which no director has any external connections are uncommon, and it is difficult to find companies in which the external connections of all the directors are also connected with each other.

#### **IV. CONCLUSION**

The new exchange regulations require firms to increase the representation of independent directors on their boards. On the basis of the social capital theories, this Article investigates how directors' social capital might affect the directors' behavior, the quality of board performance, and corporate governance, and the potential normative implications of directors' social networks. This Article argues that the network structure of a corporate board may influence the performance of the board. The quality of board performance could be improved when the social network closure within the board is high and there exist many non-redundant contacts beyond the board. Network closure can improve the trust and collaboration

within a board, while external contacts may benefit a company with more diverse sources of information.

Moreover, different network positions can lead to inequality in the social capital of directors. With more social capital, a director is more likely to be powerful and to have influence over the other directors on the board. On the basis of closure network theory and structural hole theory, we further suggest that independent directors would be unlikely to compromise their monitory liability when they have more social capital on the board than the managerial directors. When the managerial director holds more social capital than the independent directors, the independent directors will be less likely to challenge the decisions of the managerial director.

We demonstrate our theory with an analysis of the corporate boards of companies listed in Hong Kong. In CKH, the closure of the network makes the decisions of the managerial director (CEO), who has a high level of closeness centrality, more visible and trustworthy to the others on the board. The social ties between the managerial director and the independent directors may compromise the monitory efficiency of the independent directors as a result of the inequality of social capital. In China Mobile, however, the independent director, who is located at a structural hole, controls access to non-redundant sources of information and contact between the directors on both sides of him. The other directors will thus show more respect to him and pay attention to his opinions. The social ties between him and the other directors may help to decrease divisiveness in the boardroom and facilitate collaboration and information sharing between the managerial and independent directors.

Although it is not easy to incorporate social network analysis into legislation or corporate governance code, the findings in this Article may help further examination of the function and effectiveness of different board structures and provide some insights into the selection of directors by companies within an existing legal framework.