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COMPLEXITIES OF SOCIAL CAPITAL IN BOARDS OF DIRECTORS

Iwona Sulinska

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Complexities of Social Capital in Boards of Directors

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PREFACE

This dissertation consists of five chapters, which explore complexities of social capital in boards of directors. The first chapter explains theoretical background, overarching research question, and the selected methodological approaches. The following three chapters empirically investigate different aspects of social capital in boards of directors. Although each of the empirical chapters addresses a specific research question, the chapters combined contribute to answering the overarching research questions stated in this dissertation. The first two empirical studies are single-authored (Chapter 2 and 3). The last empirical study is co-authored (Chapter 4). In light of the overarching research question, the final chapter summarizes and concludes the findings, discusses limitations, and directs avenues for future research. The empirical studies are listed below:

- Sulinska, I. “Board social capital and firm performance: nuances of the relationship.”
- Sulinska, I. “Social capital of board chair and its performance implications.”
- Sulinska, I. & Butler, B. “Dynamics of board social capital – multiple case studies from China.”

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ABSTRACT

The aim of the dissertation is to disentangle complexities of social capital in boards of directors through proposing new theoretical perspectives and methodological approaches. Although extant previous research has discussed various aspects of social capital and its association with numerous organizational outcomes, still the literature demonstrates evident shortcomings resulting from overlooking and oversimplifying its complexities. Therefore, to fill gaps in the literature, the dissertation addresses the following research question: *in the context of boards of directors, how can social capital be better understood through exploration of its complexities?*

The dissertation comprises three empirical studies that individually address the identified gaps in the literature and combined address the aforementioned research question. In this way, the dissertation demonstrates that social capital in boards of directors is more complex than it has been assumed in previous studies and its understanding requires a novel approach to conceptualization and empirical research. The first chapter explains the topic and motivation for the dissertation. The following chapter (Chapter 2) synthesizes the previous approaches to investigating board social capital and proposes a new theoretical and methodological approach. It particularly asserts that research on board social capital may be advanced through utilizing configurational perspective and method, what is then shown on an example of the relationship between board social capital and firm performance. Chapter 3 explores social capital of board chair, which has been overlooked in previous studies. It suggests that individual social capital of board chair is as important for organizational performance as social capital of CEO and directors. Therefore, performance effect derives from combined social capital of board chair, CEO, and directors. Further, the dissertation discusses dynamics of board social capital (Chapter 4) in the context of firm expansion. It emphasizes that evolution process of board social capital is driven by multidimensional changes occurring within internal and external networks of social relationships created by board members. Evolution paths are consequently proposed for diversity and strength of external network ties, and for internal network cohesion. In light of the overarching research question, the final chapter summarizes the findings.

SAMMENFATTNING

Formålet med afhandlingen er at udrede kompleksiteter af social kapital i bestyrelser ved at foreslå nye teoretiske perspektiver og metoder. Selvom eksisterende forskning har diskuteret forskellige aspekter af social kapital og dets association med talrige organisatoriske udfald, så viser litteraturen stadig tydelige mangler, hvilket er et resultat af, at kompleksiteterne af social kapital overses og overforsimples. For at udfylde manglerne i litteraturen adresserer afhandlingen derfor følgende forskningsspørgsmål: *Hvordan kan social kapital i en bestyrelseskontekst blive bedre forstået i forbindelse med bestyrelsen gennem udforskning af dens kompleksiteter?*

Afhandling består af tre empiriske studier, der individuelt adresserer de identificerede mangler i litteraturen og i kombination adresserer det førnævnte forskningsspørgsmål. Hermed viser afhandlingen at social kapital i bestyrelser er mere kompleks end antaget i tidligere studier, og at forståelsen af social kapital i bestyrelser kræver en ny tilgang til konceptualisering og empirisk forskning. Det første kapitel beskriver emnet samt motivationen for afhandlingen. Det følgende kapitel (Kapitel 2) syntetiserer de tidligere tilgange til undersøgelser af social kapital i bestyrelser og foreslår en ny teoretisk og metodologisk tilgang. Særligt påstår det, at forskning om social kapital i bestyrelser kan fremmes ved brugen af konfiguratorisk perspektiv og metode, hvilket efterfølgende vises ved et eksempel af forholdet mellem social kapital i bestyrelsen og firmaets præstation. Kapitel 3 udforsker bestyrelsesformandens grænse-spændende rolle, som er blevet overset i tidligere studier. Det indikerer at bestyrelsesformandens sociale kapital er lige så vigtig for organisatorisk præstation som den administrerende direktørs og bestyrelsesmedlemmers sociale kapital. En effekt på virksomhedens præstation skyldes derfor bestyrelsesformandens, den administrerende direktørs og bestyrelsesmedlemmernes samlede sociale kapital. Ydermere diskuterer afhandlingen dynamikker i bestyrelsens sociale kapital (Kapitel 4) i forbindelse med virksomhedseksponering. Den understreger at udviklingsprocessen af bestyrelsens sociale kapital er drevet af multidimensionelle ændringer i interne og eksterne netværk af sociale relationer skabt af bestyrelsesmedlemmer. Som følge deraf foreslås udviklingsveje, der kan styrke og skabe diversitet i eksterne netværksbånd samt skabe sammenhæng i interne netværk. I lyset af det overordnede forskningsspørgsmål sammenfattes resultaterne i det sidste kapitel.

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Chapter 1. Introduction

The question of how social ties of board members affect organizations has been extensively researched in corporate governance and management literature (Hillman, Withers, Collins, 2009; Zona, Gomez-Mejia, Withers, 2015). Knowing that social ties are linked to resource provision, scholars associate sociological aspects of connections with economic benefits (Bourdieu, 1986; Granovetter, 1973). For instance, social ties provide access to information, rare resources, legitimacy, and reputation (Pfeffer & Salancik, 1978). The literature consequently describes the phenomenon of resources embedded in networks of social ties as a form of capital, namely social capital that is conceptualized as the accumulated resources deriving from social connections of individuals or groups (Nahapiet & Ghoshal, 1998). In the context of boards of directors, social capital demonstrates the ability of board members to provide resources for an organization (Hillman & Dalziel, 2003). Importance of social capital is acknowledged in the literature, as the phenomenon has been linked to numerous organizational outcomes, such as board dynamics and director selection (Withers, Hillman, Cannella, 2012), formation of dominant groups within boards (Stevenson & Radin, 2009, 2014), CEO turnover and excessive returns (Cao, Maruping, Takeuchi, 2006; Sauerwald, Lin, Peng, 2014). Moreover, previous studies revealed that social capital is positively associated with firm competitiveness (Wu, 2008), high growth of new ventures (Florin, Lubatkin, Schulze, 2003), and firm performance (Barroso-Castro, del Mar Villegas-Periñan, Casillas-Bueno, 2016; Zona, Gomez-Mejia, Withers, 2015).

Despite the extant research demonstrating its importance, social capital is a multifaceted umbrella concept (Hirsch & Levin, 1999) without one strict definition. For this reason it is often perceived as an elastic term (Lappe & Du Bois, 1997), which constitutes a challenge for theoretical developments and empirical research. A generally accepted definition proposed by Nahapiet and Ghoshal (1998:243) states that social capital is “the sum of actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit”. The definition already suggests several sources of complexity of the construct. First, the complexity derives from a varying unit of analysis, for social capital may be a feature of an individual or a group. Hence, also in the context of boards of directors, one may investigate group-level or individual-level social capital. Previous research tends to polarize these two levels by focusing specifically on individuals, such as CEOs and directors, or on boards analyzed as groups (Daily & Johnson, 1997; Zona, Gomez-Mejia,

Withers, 2015). Though interdependency between social capital of CEO and the board has been recognized, for example through investigating dimension of CEO power together with effects of board social capital (Haynes & Hillman, 2010), still research in this area remains fragmented.

Second, the construct encompasses the sum of actual and potential resources deriving from social ties. However, the ties may be established to actors within or outside the organization, and thus may have different organizational implications. The literature indeed differentiates between internal and external social capital to highlight these differences (Kim & Cannella, 2008). Internal social capital derives from network ties formed within the organization to, for example, CEO, assistant general manager, board chairman or directors. Previous studies have demonstrated that internal social ties bond board members through building trust, understanding, and common norms (Adler & Kwon, 2002; Coleman, 1988). Moreover, owing to its bonding nature, internal social capital has a positive effect on group dynamics (Oh, Chung, Labianca, 2004; Oh, Labianca, Chung, 2006), increases propensity to collaborate, and improves board effectiveness (Harris & Helfat, 2007; Forbes & Milliken, 1999). External social capital originates in social ties to actors outside the organization, for example, governments, academic institutions and research centers, charities and business associations, and also other firms operating in the firm's environment. Establishment of external ties allows board members to span organizational boundaries (Aldrich & Herker, 1977) and acquire resources outside the firm. Through bridging the boundaries between the firm and its environment board members act as boundary spanners, whose external ties serve as conduits for resource flow (Mizruchi, 1996; Tushman & Scanlan, 1981). The resources transmitted through external social ties may take a form of, for example, knowledge and expertise, legitimacy, etc. (Pfeffer & Salancik, 1978). In the literature the bridging nature of external social capital has been acknowledged for positive impact on numerous organizational outcomes, such as firm performance (Barroso-Castro, del Mar Villegas-Periñan, Casillas-Bueno, 2016; Mizruchi, 1996; Zona, Gomez-Mejia, Withers, 2015), competitiveness (Nahapiet & Ghoshal, 1998; Wu, 2008), and organizational learning (Li et al., 2014).

Lastly, social capital can be perceived as an asset, which derives from internal and external social ties of board members. However, over the course of their careers board members may establish, re-establish, and dissolve their social ties. Moreover, over time some board members may leave the board, but also new board members may be appointed. Any changes to board composition will have an impact on board social capital. Board members may join or leave the board and, as a result, their social ties will enrich or reduce board social capital.

Therefore, it is worth noticing that social ties and social capital have also a dynamic dimension. Depending on the purpose of the analysis scholars may investigate social capital at a given point in time or explore its dynamics. The impact social capital exerts on organizations typically has been explored in a static perspective, which overshadowed its dynamic aspects (Adler & Kwon, 2002). Although previous studies largely contributed to the existing knowledge on social capital, understanding of the construct is still to some extent limited. This issue calls for further studies, because as Maurer and Ebers (2006) have observed "... to date we know very little about how organizations' social capital develops over time, about the factors and processes enabling and constraining its development, and about possible related performance implications" (Maurer & Ebers, 2006, p. 262).

The literature acknowledges that social capital is a multifaceted construct, which influences organizations in multiple ways. However, the construct is often oversimplified in empirical research, because the aforementioned complexities make the association between social capital and organizational outcomes challenging to unravel. This oversimplification pulls the research away from the quintessence of social capital and produces misleading results. Moreover, it overlooks the richness of the construct and underestimates its role in organizations. A careful consideration of how to unravel the construct's complexities and integrate into research would contribute to better understanding of social capital and its impact on organizational outcomes. Furthermore, complexity of any construct ought to motivate to search for alternative theoretical perspectives and methodological approaches, in order to advance the existing findings and show the way forward for future research. For this reason, this dissertation aims to provide novel insights into social capital, specifically in the context of boards of directors, through exploring and capitalizing on its complexities. The dissertation addresses the following overarching research question:

In the context of boards of directors, how can social capital be better understood through exploration of its complexities?

Social ties and social capital in the context of boards of directors

The literature traditionally assigns the following roles to boards of directors: monitoring, resource provision, and strategy role (Fama & Jensen, 1983; Pfeffer & Salancik, 1978). The monitoring role, anchored in the agency theory, encompasses a set of responsibilities related to management monitoring and control (Fama & Jensen, 1983; Jensen & Meckling, 1976). This

role aims to address potential conflicts of interests resulting from separation of ownership and control in organizations, also known as the agency problem. The resource provision role, explored by the resource dependence theory, concentrates on the resources transferred through social ties established by board members to actors in the firm's external environment (Pfeffer & Salancik, 1978). The potential resources may take a form of access to rare resources, information, network of connections, legitimacy, and reputation or even in a boarder perspective "anything that could be thought of as a strength or weakness of a given firm" (Wernerfelt, 1984:172). Through holding multiple board posts, memberships in professional associations, educational institutions, or in government, board members have the ability to build widespread networks of highly important social ties. Their individual networks mirror the accumulated professional experience and informal personal connections (Kor & Sundaramurthy, 2009), which are essential for performance of the strategy role. The strategy role involves board members in strategy formulation and implementation (Fama & Jensen, 1983). Board of directors can be therefore perceived as a decision-making group responsible for setting and controlling firm's strategic direction (Forbes & Milliken, 1999). The accumulated skills and knowledge of board members indeed contribute to performance of the strategy role. Nevertheless, the established social ties allow board members to use their peers in other firms or institutions as an advice network and, as a result, provide alternative perspectives on firm's strategy (Geletkanycz & Boyd, 2011; McDonald, Khanna, Westphal, 2008; McDonald & Westphal, 2010).

Already in early studies on boards of directors, scholars have noticed the importance of social ties for organizational outcomes and concluded that "organizations survive to the extent that they are effective. Their effectiveness derives from the management of demands, particularly the demands of interest groups upon which the organizations depend for resources and support" (Pfeffer & Salancik, 1978:2). Furthermore, it was emphasized that "board size and composition are not random or independent factors, but are, rather, rational organizational responses to the conditions of the external environment" (Pfeffer, 1972: 226). The early research has stressed that organizations are not self-contained units and do not function in a vacuum, but rather are embedded in a complex system of relationships with actors in their external environment. In order to advance the early findings, scholars were further trying to understand antecedents and consequence of social ties formed by board members. It resulted in emergence of new theoretical concepts, such as board interlocks and corporate elites (Davis, Yoo, Baker, 2003; Mizruchi, 1996; Mizruchi & Stearns, 1988), whose positive organizational implications

were exemplified, for example, by the association with firm performance (Dalton et al., 1998; Davis, 1996; Mizruchi & Stearns, 1994).

The extant research on the relationship between social ties of board members and organizational outcomes has also integrated the findings of sociologists, such as Boissevain (1974), Bourdieu (1986, 1993), Granovetter (1973), and Putnam (1995), whose work is highly influential and relevant for explaining the process of forming social relationships and its consequences for individuals, communities, and nations. The sociological perspective conceptualizes the resources deriving from social relationships as a type of capital, namely social capital. Initially the concept appeared in the context of communities and stressed the importance of strong, reciprocal relationships for building trust, engagement in collective action, and for community survival (Jacobs, 1965). Further research on social capital has stretched its applicability to a wide range of social phenomena. Nevertheless, it was invariably emphasized that networks of social relationships may transmit resources, and thus be associated with numerous outcomes. Nahapiet and Ghoshal (1998) summarized the previous work on social capital in an inclusive definition, which states that social capital is “the sum of actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit” (Nahapiet & Ghoshal; 1998:243).

According to the above-mentioned definition, social capital may be investigated at an individual level or a group level. Therefore, in the context of boards of directors, social capital may be a feature of a CEO, individual director as well as a feature of the entire board. Previous research exploring group-level social capital in boards, or simply board social capital, often has been narrowing down the focus to the effects of particular types of social ties, such as board interlocks, which occur when board members hold multiple board posts simultaneously (Mizruchi, 1996; Mizruchi & Stearns, 1988), political connections, and appointments of former politicians (Goldman, Rocholl, So, 2009; Hillman, 2005; Lester et al., 2008; Okhmatovskiy, 2010; Park & Luo, 2001). The literature recognizes the fact that board members may establish social ties to diverse actors in the firm’s environment, for example, to financial institutions, governmental organizations, charities, lobby groups, etc. However, empirical research in this area often delivers conflicting results. For instance, it is particularly pronounced in research on board interlocks, which is still producing mixed results, despite considerable effort to disentangle the association with firm performance (Hillman, Withers, Collins, 2009; Mizruchi, 1996; Westphal & Khanna, 2003; Zona, Gomez-Mejia, Withers, 2015). The reason for such dissonance in empirical evidences may be hidden in the complexity of board social capital,

which encompasses the resources deriving from social ties to actors inside and outside the firm. Diversity of external social ties reflects the heterogeneity amongst board members in terms of their functional background, occupation, and previous professional experience (Hillman, Cannella, Paetzold, 2000; Kor & Sundaramurthy, 2009). Moreover, through frequent interactions at work and also possibly after working hours, board members form internal social ties with peers in the organization. The internal ties may enhance propensity to collaborate, improve board dynamics and effectiveness as well as ease knowledge sharing amongst board members (Forbes & Milliken, 1999; Harris & Helfat, 2007). In order to properly reflect social ties and disentangle their relationship with organizational outcomes, empirical research ought to recognize that social ties of board members, both internal and external, form an integrated system of social connections. Therefore, social ties and their organizational effects are not isolated, but rather are elements of the system, which also accumulates the resources deriving from social ties. Moreover, in the system there is a possible interplay between the resources that makes them complementary or substitutable. Although it seems natural to study board social capital using a system perspective, since even its definition points out that it is “the sum of actual and potential resources (...)” (Nahapiet & Ghoshal; 1998:243), the literature lacks such comprehensive investigations. Moreover, complementarity and substitution, thus the interplay between the accumulated resources in the board, contribute to organizational outcomes, such as high firm performance. However, the existing research continues to adopt a simplistic approach to social capital and limit empirical analysis to the investigation of the effects of particular types of social ties.

Previous research on individual-level social capital has been mainly focusing on social ties of CEOs and directors. It has been shown that individual social capital is linked to social similarity, status and CEO compensation (Belliveau, O'Reilly, Wade, 1996), director selection process (Kim & Cannella, 2008), CEO turnover and organization capabilities (Cao, Maruping, Takeuchi, 2006), and opportunity capture in new ventures (Li et al., 2014). Scholars additionally have investigated the effects of individual connections to nonbusiness actors, such as government (Fan, Wong, Zhang, 2007; Lester et al., 2008; Peng & Luo, 2000), community leaders (Acquaah, 2007), and prestigious universities (Bond, Glouharova, Harrigan, 2010). Moreover, it is evident in the literature that individual social capital may also derive from internal ties to actors within the organization, and thus reflect one's current or prior relationships with other board members (Stevenson & Radin, 2009, 2014). Internal ties of CEO and directors build trust, improve their cooperation, and enhance collaborative orientation of the board (Boyd,

Haynes, Zona, 2011; Harris & Helfat, 2007; Westphal, 1999). Social ties endow an individual with a specific type of power, namely prestige power that emerges from having connections to high profile individuals in the industry or important institutions in the firm's environment (Finkelstein, 1992). What is more, social connections to actors in the environment may have a resource provision function, thus in this way individuals, both CEOs and directors, with widespread external ties perform boundary spanning roles in organizations (McDonald, Khanna, Westphal, 2008; Pfeffer & Salancik, 1978). In the literature the resource provision and the trust-building functions of social ties are assigned to CEO and directors. Despite extensive research in this area, it has been overlooked that similar benefits may be provided by social ties of board chair. The role of board chair is usually discussed in the context of CEO duality. However, the role may extend beyond control and liaising. Board chair may hold multiple board posts, memberships in business associations, and furthermore have executive experience, as it is not uncommon for a former CEO to remain in a board of directors as a chairman (Quigley & Hambrick, 2012). Board chair acts as a liaison between CEO and the board; hence her/his internal social ties may ease teamwork and help the involved individuals to become a governing team. Therefore, similarly to CEOs and directors, individual social capital of board chair may be an important asset for an organization (Krause, Semadeni, Withers, 2016). Further investigation of board chair social capital would help to uncover the big picture of social dynamics within the board and with actors in the firm's environment. However, the literature remains divided between studies exploring social capital of CEOs and directors leaving the organizational effects of board chair social capital unexplored. A comprehensive approach to individual social ties has not been proposed yet, despite quite intuitive joint influence of social capital of board chair, CEO, and the board on organizational outcomes.

Social capital derives from social ties, which can be established, reestablished, and dissolved over time. Therefore, this construct can be investigated in a static and dynamic perspective. However, the existing research has been mainly focusing on antecedents and consequences of social ties, and thus leaving evolution of social capital unexplored (Ahuja, Soda, Zaheer, 2012; Maurer & Ebers, 2006). It is worth mentioning that longitudinal research on social ties and social networks faces numerous challenges, such as data availability or methodological constraints (Borgatti, Everett, Johnson, 2013). For this reason, and because of the limited theoretical developments, the existing knowledge on how social capital develops still needs considerable advancements. Although the concept of social capital has been often recalled in the literature on boards of directors, in this context it is particularly evident that its dynamics

remain overlooked. The literature lacks well-developed theories explaining evolution paths of social networks formed by board members. Evolution of networks occurs on multiple dimensions, as board members may establish social ties to actors within and outside organizations. The evolution process is driven by mechanisms and affects organizational outcomes, however, previous research has not discussed it thoroughly. For instance, studies on the growth of new ventures assert that social capital plays an important role in firm expansion (Prashantham & Dhanaraj, 2010). In addition, different social connections may be important at different stages of expansion (Coviello, 2006). However, in the literature on boards of directors, despite linking social ties to numerous organizational outcomes, scholars have overlooked the dynamic aspect of board social capital in the context of firm expansion. Although it is natural for social relationships to be established and to deteriorate over time, like also to be instrumentally employed to support particular organizational goals, the existing literature seems to underestimate their temporal value and dynamic influence on organizations.

Despite numerous studies investigating social capital in board of directors, it still remains a puzzle how its complexities can be better approached to disentangle the relationship with organizational outcomes. The literature lacks theoretical perspectives and methodological approaches suitable for integrating the multiple facets of social capital into empirical research. The brief review of the literature presented in this chapter identifies three issues that have been overlooked in the literature: 1) system of social ties in boards of directors and the interplay between the resources aggregated in the system 2) social capital of board chair 3) dynamic nature of board social capital. Motivated by the above-mentioned overarching research question, in this dissertation I aim to explore each of the identified issues separately in the following chapters, to build an inclusive picture of complexities of social capital in boards of directors.

Table 1. Empirical studies and their respective research focus

Chapter	Empirical study	Level of analysis	Research focus
Chapter 2	Sulinska, I. “Board social capital and firm performance: nuances of the relationship.”	Group level social capital	System of social ties and the interplay between the resources in the system
Chapter 3	Sulinska, I. “Social capital of board chair and its performance implications.”	Individual level social capital	Social capital of board chair
Chapter 4	Sulinska, I & Butler, B. “Dynamics of board social capital – multiple case studies from China.”	Group level social capital	Evolution patterns of board social capital in the context of firm expansion

Empirical context and data

The empirical studies presented in the following chapters of the dissertation are set in the context of publicly listed firms in China. China offers a unique advantage for research on social capital, due to a highly relationship oriented culture deriving from Confucianism. Influence of this philosophy is still pronounced nowadays to a very high extent. Networks of social ties, also known in the Chinese context as *guanxi*, have been identified as an essential factor driving social and economic activity (Child, 1996; Gold, Guthrie, Wank, 2002; Park & Luo, 2001). Nevertheless, the high dependence upon social ties is not only culturally determined, but also is a result of underdeveloped institutions in China. For decades China has been going through institutional transition, which begun with economic reforms introduced in the late 1970s by Deng Xiaoping, a progressive leader of the Communist Party. Although the initiated reforms have opened up the economy for foreign investors, allowed entrepreneurs to flourish, and contributed to often double-digit economic growth, still the state remains a powerful actor in the business environment (Naughton, 2007; Redding & Witt, 2007). It is particularly noticeable in a wide-spread state ownership of companies and banks in China. The state is a controlling shareholder in firms operating in strategic industries, for example, in aerospace, energy and water supply, oil and gas, and biotechnology. In fact, state-owned enterprises (SOEs) dominate strategic industries, while in non-strategic industries state-owned and private firms are both present (Boisot & Child, 1996; Bruton et al., 2015).

Since even nowadays the state exerts a considerable influence on the business environment in China, ties between business and politics are significant and have numerous consequences for companies and individuals. Their effect is visible as well in compositions of boards of directors, which often include politically-affiliated members. In state-owned enterprises presence of politicians in boards may result from, for example, their career progressions, but also from the efforts of the state to keep control over enterprises to ensure pursuit of business and political goals in the government's agenda (Breslin, 2016; Groves et al., 1994; Liang, Ren, Sun, 2015). Nevertheless, also private firms are seeking potential candidates with political connections, to address the environmental dependency deriving from the prevalent presence of the state in the business environment. Motivated by the potential direct or indirect support from the state, for example, in the form of favorable contracts and subsidies, private firms treat instrumentally appointments of politically affiliated individuals. Previous studies have demonstrated that actually performance effect of political ties is greater in private firms than in state-owned enterprises (Peng & Luo, 2000), and that political ties ease organizational

growth and learning (Li & Zhang, 2007; Li et al., 2008; Li et al., 2014). Moreover, recent research has shown that political ties continue to be of utmost importance in the context of China (Huang, 2008; Shi, Markóczy, Stan, 2014; Zhang, Tan, Wong, 2015). The importance of political connections, and social connections in general, is typical for transitioning economies, as it has been confirmed by empirical evidences from, for example, Thailand (Peng, Au, Wang, 2001), Indonesia (Leuz & Oberholzer-Gee, 2006), Taiwan and Hong Kong (Young et al., 2001; Au, Peng, Wang, 2000), and Russia (Batjargal, 2003; Okhmatovskiy, 2010).

The undertaken economic reforms in the late 1970s inevitably have affected, or actually introduced, corporate governance in China. Particularly the ownership reform, which aimed at privatization, or rather corporatization, of state-owned enterprises, and the Company Law of the People's Republic of China passed in December 1993, built a foundation for corporate governance system (Naughton, 2007; Naughton & Tsai, 2015). The Company Law has been subsequently amended several times and is continuously being aligned with market reforms. To implement practices known from the Western corporate governance models, in 2001 China Securities Regulatory Commission issued the 'Guidelines for Introducing Independent Directors to the Board of Directors of Listed Companies' and the 'Code of Corporate Governance for Listed Companies in China'. These documents provide guidelines for listed companies regarding, for example, appointments of independent directors and separation of CEO and chairman roles. Moreover, they specify threshold for board independence, which at the moment suggest that boards of listed companies should consist in 1/3 of independent directors. The present corporate governance system has many characteristics of the continental (control-based) system typical for Germany and Japan. Chinese firms have adopted a two-tier board structure (dual board), and thus oversight is performed by board of directors and supervisory board. Although the introduced regulations and practices move China's corporate governance system towards the standards of developed countries, still there are some skeptical standpoints doubting its effectiveness. For instance, Wei (2007) emphasizes insiders' control of decision-making and weak actual independence of boards. Similarly, supervisory boards have been found ineffective in performing their oversight functions (Tam, 2002; Wang, 2008).

The choice of the empirical setting could be considered as an opportunity to provide evidences from a non-Western context and advance the knowledge on corporate governance in emerging economies. However, this choice inevitability imposes some limitations on the conducted empirical studies. The limitations of each study are further discussed in respective chapters of the dissertation.

Exploring multiple aspects of social capital requires empirical data that comprehensively covers social ties of individuals and groups involved in management and oversight of organizations. As collection of data on social ties amongst highly reputable figures in business world may be a constraint, due to sensitivity and confidentiality of such information, the empirical studies were conducted using secondary data. According to disclosure requirements in China, board members of publicly listed firms are obliged to report simultaneously held positions in annual reports. Knowing the disclosure requirements, this data was obtained from China Stock Market and Accounting Research (CSMAR) database. The database provides financial and non-financial information disclosed in annual reports of listed firms. Moreover, it is an approved data source for research in Chinese context, which has been utilized in previous studies, such as Markóczy et al. (2013). The data from CSMAR database was utilized in all empirical studies included in this dissertation. Moreover, in one empirical study (Chapter 4) the data was supplemented with information from various external sources, to build as detailed as possible case studies of the analyzed firms. The details of data selection and samples for each study are presented in the respective chapters.

Research methods

The presented literature review demonstrates how complex is the construct of social capital and that existing research produces contrasting results. This may result from methodological limitations of previous research. A vast majority of empirical studies exploring social capital in boards of directors adopts econometric methods, such as regression analysis, and investigates linear relationships between the selected variables (e.g. Bond, Glouharova, Harrigan, 2010; Martin, Gözübüyük, Becerra, 2015). The available methodological advancements, for example, inclusion of mediating and moderating variables or interactions (e.g. Barroso-Castro, Villegas-Periñan, Casillas-Bueno, 2016; Chen, 2014; Forbes & Milliken, 1999) help to conduct a more insightful board research. However, because of the selected econometric methods, previous studies could have answered only specific types of research questions, which were based on the assumption of linear causal relationships. Econometric methods assume that one particular model is relevant for all observations in the sample, thus scholars are not able to explore multiple explanations of the investigated phenomenon. Moreover, in the selected model interactions of usually only two variables can be included, since interactions of multiple variables are challenging to interpret. Therefore, although previous studies have significantly contributed to building knowledge on social capital, still

were not free from limitations imposed by the selected methods. This dissertation aims to complement the existing findings by adopting an alternative approach to conceptualization and empirical investigation of social capital in boards of directors. It acknowledges the contribution of previous studies and other methodological approaches, yet it aims to challenge the prevalent assumption of linear causal relationship between social capital and organizational outcomes. Motivated by the identified complexities of social capital, the dissertation asserts that the construct is more complex than has been assumed in previous studies. Moreover, social capital can be better understood by adopting configurational logics and method, namely fuzzy-set Qualitative Comparative Analysis (fsQCA) (Ragin, 2006, 2008). In addition, because of limited theoretical developments regarding dynamics of social capital, conducting case study analysis may provide new insights and advance the existing findings. The main advantage of adopting fsQCA method is the ability to investigate complementarities and substitutions between the analyzed causal conditions (variables). It is a novel approach to analyzing social capital, since previous studies have been focusing on the effects of particular types of social ties, such as political ties (e.g. Goldman, Rocholl, So, 2009, Okhmatovskiy, 2010), social capital of particular individuals, such as CEOs (e.g. Davis, Yoo, Baker, 2003; Geletkanycz & Boyd, 2011) or outside directors (e.g. Kor & Sundaramurthy, 2009), or the entire board (e.g. Hillman & Dalziel, 2003). In contrast to other methods, fsQCA provides insights into nuances of the complex causal relationship between social capital and organizational outcomes by identifying alternative causal configurations leading to the same outcome. In this way the method not only advances the existing studies, but also shows directions for future research aimed at solving the puzzle of how social capital affects organizations. Although QCA is still a novel method in corporate governance and strategic management, it is being increasingly applied in empirical studies (Bell et al., 2013; Garcia-Castro, Aguilera, Ariño, 2013; Misangyi & Acharya, 2014). Moreover, the interest in the method is growing rapidly and scholars are being encouraged to explore complex causal relationships underlying organizational phenomena (Misangyi et al., 2017).

The dissertation includes three empirical studies presented in the respective chapters. The studies in Chapter 2 and Chapter 3 apply fsQCA methodology, while Chapter 4 presents multiple case studies of the selected firms. The choices of methodologies were theoretically driven to match with the identified research problems. Given the novelty of adopting fsQCA in corporate governance research, the section below outlines the main concepts and assumptions of the method together with details of data preparation. The empirical studies presented in Chapter

2 and Chapter 3 additionally include more elaborated method sections to make the reader familiar with the method. The details of the conducted multiple case study analysis are presented in the method section in Chapter 4.

Main concepts of fsQCA

Set-theoretic methods, such as fuzzy-set Qualitative Comparative Analysis (fsQCA), use sets and investigate set relations, in contrast to other research methods in social science. The literature defines a set as “a mental representation of an empirical property” (Mahoney, 2010:2). While scholars use different forms of variables in conventional econometric techniques, each variable in set-theoretic methods has to be present in a form of a set. Individual observations are treated as separate cases, which are given membership scores in the selected sets “according to whether or the extent to which they are in possession of the represented property” (Mahoney, 2010:2). Therefore, the data used for fsQCA consists of set membership scores, which reflect difference in kind and difference in degree amongst cases. The investigated relationships between social phenomena are further modeled in terms of set relations. Set relations can be understood as necessary and sufficient conditions for a given outcome to occur. Necessary causal conditions are inevitably linked to occurrence of an outcome. Hence, whenever an outcome is observed, the given condition is also observed. Sufficient conditions are also linked to an outcome, but there can be other conditions that create alternative paths to the same outcome. In other words, whenever the given condition is observed, an outcome is also observed. The results obtained using Boolean algebra (Ragin, 2006, 2008) identify conditions or combinations of conditions linked to a given outcome, and thus demonstrate the complex causal relationship between the investigated phenomena.

In set-theoretic methods, and thus in fsQCA, a typical model of a causal relationship would use a notation system typical for Boolean algebra, which is used to perform set operations. The notation system includes the following logical operators: “AND” for conjunction/multiplication “OR” for disjunction/addition, “NOT” for complement/negation, and an inclusion sign “->” (if –then relation). To explain how results of fsQCA should be interpreted, let’s discuss the empirical analysis presented in Chapter 2. The study in Chapter 2 investigates the relationship between different types of social ties formed by board members and firm performance. The following types of social ties are selected as variables (sets): ties to business group (strong ties to business group), business ties (strong business ties), political ties (existing political ties), nonbusiness ties (strong nonbusiness ties), internal social capital

(extensive internal social capital), state ownership, and firm performance (high firm performance) as an outcome set. The aim of the analysis was to identify which combinations of social ties are associated with high firm performance and firm underperformance, which social ties are complementary and which are substitutes. The results (see Table 3 on p. 49) demonstrate that, for example, a combinations of state ownership, extensive internal social capital, and strong nonbusiness ties is leading to high performance, but also a combination of extensive internal social capital, strong nonbusiness ties, and existing political ties, and a combination of political ties and absence of state ownership. In each combination causal conditions are linked using the logical operator “AND”, which indicates conjunction of conditions, while the combinations are linked with the logical operator “OR”, which indicates addition. Therefore, the above-mentioned combinations could be noted as the following solution: state ownership AND extensive internal social capital AND strong nonbusiness ties OR extensive internal social capital AND strong nonbusiness ties AND existing political ties OR political ties AND NOT state ownership -> high firm performance. The solution demonstrates that three alternative, equally effective combinations, in which causal conditions work in conjunction, are inducing high firm performance.

Considering configurational nature of the method, it is important to clarify the rationale for applying fsQCA. There should be a plausible theoretical expectation that the phenomenon under study may be better understood in terms of set relations and complex causality. Fuzzy-set Qualitative Comparative Analysis (fsQCA) is particularly relevant if configurations of conditions are expected to influence a given outcome. The method is also applicable, if it is expected that multiple combinations of causal conditions can cause the same outcome. In principle, fsQCA allows for analyzing conjunctural causation and equifinality. The notion of conjunctural causation assumes that the mechanisms linking causal conditions and outcome are conjunctural. Therefore, the causal conditions are not analyzed in isolation, like in variance-based methods, but in configurations. By applying fsQCA, not only it is possible to identify one configuration of causal conditions, but also to identify alternative configurations leading to the same outcome. The method allows for equifinality of solutions explaining a given outcome. It is in stark contrast to causal homogeneity typical for econometric methods, which explain the outcome using the same variable(s) across all observations. Moreover, moving beyond linear relationships, fsQCA presumes that “variables found to be causally related in one configuration may be unrelated or even inversely related in another” (Meyer, Tsui, & Hinings, 1993: 1178).

These assumptions consequently allow for exploration of complex causality and nonlinear relationships.

In empirical analysis fsQCA utilizes measures of consistency and coverage as parameters of fit for further assessment of results. The consistency measure captures correspondence of the identified combinations with empirical data. The coverage measure reflects relevance of the identified combinations for outcome explanation. Measures of consistency and coverage are calculated according to the following formulas:

$$Consistency = \frac{\sum_{i=1}^I \min[x_i, y_i]}{\sum_{i=1}^I x_i}$$

$$Coverage = \frac{\sum_{i=1}^I \min[x_i, y_i]}{\sum_{i=1}^I y_i}$$

where x_i is a set membership score in a condition X and y_i is a set membership score in an outcome Y .

Data preparation for fsQCA

As set-theoretic methods explore set relations, the variables (causal conditions) chosen for investigation of a causal relationship have to be transformed into sets. Loosely interpreted as the boundaries of inclusion and exclusion, sets reflect qualitative and quantitative difference amongst the analyzed observations (cases). Depending on the intended differentiation of qualities, variables can be transformed (calibrated) into crisp sets or fuzzy sets. Similarly to binary variables, crisp sets use dichotomized thresholds defining membership (1) and non-membership (0) in a set. Therefore, crisp sets demonstrate a qualitative difference and make clear distinctions between cases representing a given empirical property. Fuzzy sets, however, allow for partial set membership, thus membership scores range from 0 to 1. To calibrate a variable as a fuzzy-set, three qualitative anchors (thresholds) have to be specified: full membership (1), non-membership (0), and a point of maximum ambiguity (0.5). In this way fuzzy sets draw out qualitative and quantitative differences amongst cases. Calibration process of fuzzy or crisp sets may seem subjective. Hence, it is important to use extensive knowledge about the analyzed phenomenon to justify the chosen qualitative anchors (Schneider & Wagemann, 2012). The literature provides standards of good practices (e.g. Schneider & Wagemann, 2010) for calibration processes that help to ensure that the calibrated sets are closely linked to theoretical concepts. The empirical studies included in this dissertation use direct method of calibration as recommended in Ragin (2008; 2006) and Fiss (2011). It is a commonly

applied method of calibration, which transforms data into fuzzy-sets using log odds. In practice calibration process is software-based and may be performed using R (Thiem & Dusa, 2013).

The empirical information accumulated in the calibrated sets is further inserted into a truth table. Even though truth table resembles a standard data matrix, it contains causal conditions and outcome organized in columns, while each row represents a statement of sufficiency. Number of truth table rows is determined by the number of 2^k logically possible combinations of conditions, where k is the number of conditions. For this reason, truth tables should not be mistaken with data matrixes. Each case is assigned to a specific truth table row, based on its set membership scores. By definition, a case can be assigned only to one truth table row. Furthermore, consistency with the statement of sufficiency represented by each row is verified by checking case membership in an outcome set. Truth table analysis aims to identify which sufficient conditions or combinations of conditions are linked to an outcome. Results are obtained through logical minimization of truth table. This procedure is based on Boolean algebra and can be performed using the Quine-McCluskey's algorithm (Schneider & Wagemann, 2012).

Dissertation outline

Chapter 2 ("Board social capital and firm performance: nuances of the relationship") addresses the puzzle of how board social capital affects firm performance, given that studies exploring this problem often produce mixed results. The chapter outlines shortcomings of the literature and asserts that social ties of board members ought to be perceived as elements of an integrated system of social connections. It is subsequently argued that, in order to unravel the relationship between board social capital and firm performance, the interplay between the types of resources deriving from internal and external social ties of board members have to be taken into account. Consequently, it is proposed that complementarity and substitution between the resources contributes to high firm performance. The empirical results provide original insights into the combinations of social ties inducing high firm performance and underperformance. Moreover, the chapter demonstrates how a novel methodology, such as fuzzy-set Qualitative Comparative Analysis (fsQCA), may advance corporate governance research.

Chapter 3 ("Social capital of board chair and its performance implications") challenges the traditional perspective on the role of board chair in organization. Building on the literature discussing individual social capital of CEO and directors, this chapter asserts that board chair, apart from performing control and liaising functions, may also holds a prestigious position in

corporate world and be essential for enhancing internal dynamic in the board. Consequently, it is argued that board chair, similarly to CEO and directors, may have wide-spread social ties to actors within and outside the firm. However, to thoroughly investigate the performance effects of board chair social capital, social capital of CEO and the board should not be overlooked. Therefore, the chapter proposes complementarities and substitutions between internal and external social capital of board chair, CEO, and the board. The empirical findings present novel insights into social capital in boards of directors with particular emphasis on social capital board chair. The chapter, in addition, demonstrates advantages of fuzzy-set Qualitative Comparative Analysis (fsQCA) in investigating complex organizational phenomena.

Chapter 4 (“Dynamics of board social capital – multiple case studies from China”) unravels the evolution process of board social capital in the context of firm expansion. The chapter puts emphasis on complexity of the process, and the construct itself, by thoroughly investigating evolution paths of internal and external networks formed by board members using multiple case study analysis. The case studies of Chinese firms included in the chapter demonstrate how social ties may evolve over time and simultaneously to firm expansion. In light of the obtained results, it is proposed that as firms move from an initial to a later stage of expansion, diversity of external network ties follows an inverted U-shape pattern. Strength of external network ties changes in a similar manner through initial strengthening of weak ties and weakening of strong ties, and subsequent strengthening of strong ties and dissolution of weak ties. Nonetheless, cohesion of internal network amongst board members increases consistently throughout different stages of expansion.

While each chapter individually addresses a specific research problem, the dissertation in a broader perspective seeks to explore complexities of social capital in board of directors and their organizational effects. The final chapter (Chapter 5) discusses and concludes the findings with reference to the overarching research question.

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Chapter 2: Board Social Capital and Firm Performance: Nuances of the Relationship¹

Abstract: Despite considerable scholarly attention to the social connections of board members, empirical studies of the effects of board social capital on organizational outcomes, such as performance, often produce contrasting results. This study aims to address this conundrum. Building on extant literature, this study argues that the social ties of board members ought to be considered as elements of an integrated system of social connections. Consequently, it is argued that understanding the effects of board social capital on organizational outcomes requires explicit consideration of the interplay between the type of resources board members derive from social ties to actors inside and outside the organization. Subsequently, it is proposed that complementarity and substitution effects between the resources individual board members bring to the board will contribute to high firm performance. The empirical results, based on a study of the board social capital of listed firms in China, support these arguments and provide new and counterintuitive insights into the combinations of social ties leading to high firm performance and underperformance. These results contribute to extant research on board social capital by advancing a configurational perspective on the link between the social ties of board members and firm performance. In addition, this study shows how alternative methods, such as fuzzy-set Qualitative Comparative Analysis (fsQCA), may advance extant research on the behavioral aspects of boards of directors and contribute to exploration of complex causal relationships typical for organizational phenomena.

¹ An earlier version of this paper was presented at the 34th Annual Conference of the Strategic Management Society (September, 2014)

INTRODUCTION

Board social capital is gaining popularity as a new perspective on how social ties of board members affect organizations (Haynes & Hillman, 2010; Johnson, Schnatterly, Hill, 2013; Stevenson & Radin, 2009, 2014; Withers, Hillman, Cannella, 2012). Defined as the resources available to the board of directors through its social networks (Hillman and Dalziel, 2003), board social capital has the potential to shed new light on the latent mechanism of influence behind social connections and further uncover the ‘human side’ of boards and corporate governance (Huse, 2007, Osterloh, Frey, Frost, 2001; Gabrielsson & Huse, 2004). Social ties to actors in the external environment bridge organizational boundaries and serve as conduits for resource flow enabling organizations to gain competitive advantage, legitimacy, and to address environmental dependencies (Pfeffer & Salancik, 1978, Useem, 1984). Internal social ties bond board members, as they build trust, enhance exchange of information, and facilitate cooperation within the boardroom (Hansen, Podolny, Pfeffer, 2001; Harris & Helfat, 2007). Social capital of boards has been argued to influence numerous organizational outcomes and processes, such as board dynamics (Stevenson & Radin, 2009; Westphal, 1999), selection of directors (Kim & Cannella, 2008; Withers, Hillman, Cannella, 2012), or firm competitiveness (Nahapiet & Ghoshal, 1998; Wu, 2008). The importance of social capital is generally acknowledged in the literature, thus scholars have been attempting to understand its association with firm performance (Dalton et al., 1998; Kaczmarek, Kimino, Pye, 2014; Martin, Gözübüyük, Becerra, 2015).

Prior research on social capital in boards of directors has addressed effects of particular types of social ties, such as the effects of board interlocks (Davis, 1996; Mizruchi, 1996; Mizruchi, & Stearns, 1994; Zona, Gomez-Mejia, Withers, 2015), or the appointments of politicians (Goldman, Rocholl, So, 2009; Hillman, 2005; Lester et al., 2008, Okhmatovskiy, 2010). Still, the empirical findings oftentimes lack clear conclusions. For instance, research on board interlocks has demonstrated mixed results regarding the effect on firm performance (Mizruchi, 1996; Westphal & Khanna, 2003). In addition, recent empirical evidence has shown that the effect of board interlocks on performance may depend on a variety of factors, including power imbalance, firm’s relative resources, CEO ownership, and ownership concentration (Zona, Gomez-Mejia, Withers, 2015). These findings emphasize that the mechanism of influence, which social capital exerts on organizations, is highly complex. Nevertheless, the existing theories either focus on one type of ties or aggregate all ties into one construct without

noticing the nuances of how these ties actually work together to induce a particular outcome. This quite simplistic approach reduces understanding of the impact social ties have on organizations and their performance.

Motivated by the shortcomings of the literature, this study seeks to enhance understanding of board social capital as a theoretical construct, its relationship with firm performance, and also investigates possible association with firm underperformance. The study builds on the definition proposed by Nahapiet and Ghoshal (1998) and conceptualizes board social capital as the sum of actual and potential resources deriving from social ties of board members. It particularly asserts that in order to understand how organizations capitalize on social ties, it is useful to recognize that board social capital arises from a system of social connections in which the deriving resources may compliment and substitute each other. Therefore, on one hand, the study applies a holistic approach to social ties of board members through combining them into a unified system. On the other hand, it proposes a possible interplay, namely complementarity and substitution, between the resources deriving from external and internal ties of board members that contribute to high firm performance. The empirical investigation of the proposed relationships is carried out using fuzzy-set Qualitative Comparative Analysis (fsQCA) (Ragin, 2006, 2008). This methodological approach, although still novel in corporate governance and management studies, is highly suitable for uncovering multiple combinations of causal conditions leading to the same outcome. The fsQCA methodology has recently been applied to study effects of combinations in variety of fields, such as international business (Schneider, Schulze-Bentrop, Paunescu, 2010), social networks studies (Cárdenas, 2012; Raab et al., 2013), and strategic management (Fainshmidt, Smith, Judge, 2016). The study is set in a highly relationship oriented empirical context of listed firms in China.

The study contributes to the literature in several ways. First, it highlights the complexity of board social capital that is often overlooked in the existing literature. It particularly asserts that the construct of board social capital can be better understood if conceptualized as an integrated system of social ties formed by board members to actors inside and outside the organization. Second, it reveals nuances of the interplay between the resources deriving from external and internal social ties combined into the system. The study proposes that there is a possible complementarity between the resources that enhance their effect on firm performance. Moreover, the obtained empirical evidence demonstrates that social ties cannot be discussed only in quantitative categories, such as the more social ties the better the outcome will be, since even absence of social ties may, in combination with other conditions, lead to high firm

performance. The study also proposes substitution between the resources deriving from social ties and empirically investigates alternative explanations of high firm performance and underperformance. Third, the focus on board social capital and social ties of board members contributes also to the literature exploring behavioral aspects of boards of directors and corporate governance (Huse, 2007; Osterloh, Frey, Frost, 2001). Lastly, the study offers also a methodological contribution by demonstrating how unconventional methods, such as fuzzy-set Qualitative Comparative Analysis (fsQCA), can advance the existing research, unravel complex causal relationships typical for social science, and bring empirical research closer to practice.

The study is structured as follows. The theoretical background for the study is presented in the next section and followed by development of theoretical propositions regarding the relationships between the resources deriving from social ties of board members and firm performance. Then the selected methodological approach is introduced and applied to empirical data. The result section reports the outcome of the analysis and presents the identified causal combinations of conditions leading to high performance and underperformance. Discussion of results and limitations conclude the study.

THEORETICAL BACKGROUND

Board social capital is a relatively new concept in the literature and offers a novel perspective on analyzing boards' role performance, including also the ability to perform these roles (Hillman & Dalziel, 2003). The concept has its roots in sociology and emphasizes the importance of resources embedded in social ties (Boissevain, 1974; Bourdieu, 1986, 1993; Granovetter, 1973; Putnam, 1995). Already in the early studies on resource dependence theory, scholars perceived social connections of board members, and resources embedded in these connections, as an integrated mechanism shaping interactions between firms and their environment (Mizruchi, 1996; Pfeffer, 1972; Pfeffer & Salancik, 1978). As social capital can be defined as "the sum of actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit" (Nahapiet & Ghoshal, 1998: 243), organizations can gain a competitive advantage and positively influence performance by utilizing social networks (Richardson, 1987; Zaheer, Gulati, Nohria, 2000; Zaheer & McEvily, 1999; Zona, Gomez-Mejia, Withers, 2015). This definition compiles previous theoretical developments regarding social capital (Bourdieu, 1986, 1993; Putnam, 1995). However, it is worth mentioning that social capital is an umbrella concept (Hirsch & Levin, 1999), often perceived as an elastic term (Lappe & Du Bois, 1997) without one strict

definition. The concept of board social capital emphasizes that boards of directors, apart from a strict control nature, have also a social dimension or the 'human side'. Boards of directors are governing bodies and decision-making groups, which indeed comprise individuals (Huse, 2007, Osterloh, Frey, Frost, 2001; Gabrielsson & Huse, 2004). Prior research has recognized the importance of behavioral aspects of boards by investigating internal board dynamics, conflict resolution, negotiations, decision making process, and also motivation and identification with the organization (Huse, 1998; Osterloh, Frey, Frost, 2001; Pye & Pettigrew, 2005). In turn, the concept of board social capital highlights the fact that board members are able to establish social ties with other actors that may provide resources, which are significant for organizational outcomes.

The literature tends to differentiate between two types of social capital: internal and external (Kim & Cannella, 2008; Sauerwald, Lin, Peng, 2016; Tian, Halebian, Rajagopalan, 2011). External social capital derives from network ties to actors outside the firm, such as financial institutions, governments, clients, buyers and suppliers etc. Resource dependence theorists emphasize access to resources, information, experience, legitimacy, and reputation as the major advantages arising from ties to external environment (Drees & Heugens, 2013; Pfeffer & Salancik, 1978). Moreover, owing to external ties directors may be able to influence stakeholders through lobbying or associations to reshape the environment and respond to unfavorable market conditions (Carpenter & Westphal, 2001; Finkelstein & Hambrick, 1996; Hillman, Cannella, Paetzold, 2000). Internal social capital derives from network ties to actors within the firm, including other directors, CEO, or senior executives. Cohesiveness of such network enhances group trust and group effectiveness (Coleman, 1988, 1990; Oh, Chung, Labianca, 2004). Internal social capital can ease communication and cooperation inside the boardroom, and at the same time, have a positive effect on board effectiveness in terms of teamwork, role performance, decision making (Forbes & Milliken, 1999; Harris & Helfat, 2007; Stevenson & Radin, 2014), and additionally, facilitate exchange of knowledge and information (Hansen, Podolny, Pfeffer, 2001; Krause, Semadeni, Withers, 2016).

Board social capital derives from combined individual social networks of board members (Hillman & Dalziel, 2003; Nahapiet & Ghoshal, 1998). In other words, it arises from the whole system of social ties to actors inside and outside the organization. Potentially each social tie to business or nonbusiness actors, such as governments, associations, academic institutions, etc., like also social ties amongst board members may provide resources that enhance firm performance (Kim & Cannella, 2008; Pfeffer & Salancik, 1978). Board members over the

course of their careers may establish connections with numerous actors through, for example, working together in the same firms, having memberships in business or charity associations, or even lecturing at the same academic institutions. Previous studies have shown that multiple board post of board members, a circumstance often described in the literature as ‘board interlocks’, can have a positive effect on firm performance (Mizruch, 1996; Mizruchi & Stearns, 1988; Zona, Gomez-Mejia, Withers, 2015). Moreover, board interlocks support dissemination of corporate governance practices (Shipilov, Greve, Rowley, 2010). Board interlocks with firms affiliated within the same business group may facilitate access to intragroup equity financing, such as opening up possibilities for engagement in joint investment projects (Mahmood & Mitchell, 2004). Corporate directors are members of corporate elite (Davis, Yoo, Baker, 2003) and their affiliations with prestigious clubs or alumni networks of elite universities create another layer of networking (Bond, Glouharova, Harrigan, 2010; Useem, 1984). Membership in elite associations is a source of power and prestige (Carpenter & Westphal, 2001), and can function as an advice network for executives (McDonald & Westphal, 2010). Moreover, it is not completely uncommon for board members to combine business and political careers. Therefore, some of them may be active also on the political scene or be connected to political actors through, for example, offering consultancy to the government. The extant literature on significance of political ties has demonstrated a positive effect of politically connected directors or appointments of former politicians on firm performance (Bond, Glouharova, Harrigan, 2010; Goldman, Rocholl, So, 2009; Lester et al., 2008; You & Du, 2012), and particularly in the case of industry deregulation and the related environmental changes (Hillman, Cannella, Paetzold, 2000). Moreover, the positive effect on performance is more pronounced in firms operating in regulated industries, because of stronger interdependencies between business and government (Hillman, 2005). The important role of politically connected board members has been also stressed in the context of emerging countries, as underdeveloped market institutions lead to strong dependency on governments (Acquaah, 2007; Okhmatovskiy, 2010; Peng & Luo, 2000).

The system of social ties, which underlies board social capital, accumulates the resources deriving from individual social ties of board members. Each of the resources, which could take a form of, for example, expertise, information, legitimacy, trust and understanding, etc. (Harris & Helfat, 2007; Pfeffer & Salancik, 1978) may have an individual value and be associated with a particular outcome or a benefit. For instance, directors holding multiple board post may provide greater industry knowledge through their business connections and contribute to strategy development of the firm (Fich, 2005; Kor & Sundaramurthy, 2009; Ruigrok, Peck, Keller,

2006). However, in the board of directors individual networks of social ties and the associated network resources are integrated into one system. Therefore, organizational implications of the resources, and thus also their effect on firm performance, depend on the available resource pool in the system. This is also highlighted in the definition of social capital (Nahapiet & Ghoshal, 1998), which describes the sum of resources embedded in social relationships of individuals or social units. Looking from the system perspective, there is a possible interplay between the resources and their associated outcomes. To illustrate this mechanism, consider board appointments of politically connected individuals. The individuals with political ties assist firms to deal with external dependencies through establishing connections with powerful actors in the environment, lobbying the government, and in this way may have positive effect on firm performance (Hillman, 2005; Lester et al., 2008; Selznick, 1949, You & Du, 2012). However, effectiveness of the obtained political ties also depends on the already existing system of social ties within the board. For instance, effective utilization of the political ties may be enhanced by internal social ties amongst board members that help to build trust and eases cooperation inside the boardroom (Harris & Helfat, 2007; Oh, Chung, Labianca, 2004). Then, the positive effect of political ties is leveraged, and the resources deriving from these ties are utilized effectively, owing to cooperative orientation of the board. Therefore, the resources available through political and internal social ties complement each other in leading to high firm performance. This shows that the resources available through social ties of board members can be combined in such a way to enhance their effect on firm performance. For this reason, it may be argued that:

Proposition 1: The complementarity between the resources deriving from external and internal social ties of board members contributes to high firm performance.

The concept of board social capital encourages the system approach to social ties of board members. A social tie embedded in the system may transmit a resource or multiple resources. For instance, board interlocks may provide legitimacy and alternative perspectives on firm's strategy based on experiences and knowledge of board members and executives serving in other firms (McDonald & Westphal, 2010; Mizruch, 1996; Mizruchi & Stearns, 1988; Pfeffer & Salancik, 1978). However, boards of directors comprise members with diverse profiles, demographic characteristics, and professional experience (Dalton et al., 1998, Johnson, Schnatterly, Hill, 2013; Kim & Cannella, 2008; Withers, Hillman, Cannella, 2012). Although

board members may indeed establish numerous connections with actors in firm's environment, while serving in multiple boards, being active in non-profit organizations or academic institutions, it is not obligatory. Board members may as well pay less attention to professional networking, career development, and relationships with colleagues, thus have small networks of social ties or even none. Therefore, boards may include members with very resourceful connections as well as members, who do not have connections that potentially bring value to the firm. This affects the pool of resources available through social ties of board members and the potential abundance of board social capital.

The system of social ties may accumulate numerous types of resources. However, depending on the types of social connections and the actors embedded in the networks of board members, some resources may be lacking in the system, and thus in the board. Board members may, for example, interact only amongst themselves or with individuals similar to them, thus keep their social circle closed and do not network with professionals, who have dissimilar background, different industry experience, etc. Then it is likely that their networks will accumulate similar resources and even make some of these resources redundant (Burt, 1992). However, although business knowledge and experience may overlap between the board members, their close relationships with others also generate trust, ease exchange of information, and facilitate teamwork (Coleman, 1988; Oh, Chung, Labianca, 2004). Even though the board may lack unique business insights from other firms, it still can capitalize on the close internal relationships amongst board members. As firm performance is closely linked to availability and effective utilization of organizational resources (Barney, 1991, 2001; Wernerfelt, 1984), effective cooperation of board members may result in development of strategies and solutions that lead to high firm performance. This shows that the presence of ties to similar actors and close relationships amongst board members do not have to negatively affect the board and firm performance, as the abundance of internal social capital ease role performance of the board. Therefore, boards of directors do not have to accumulate all possible resources through social ties of their members or only appoint members with widespread social connections to get access to unique resources. As it has been shown in the literature, particularly external social connections formed by board members mirror environmental dependencies that organizations are facing (Pfeffer & Salancik, 1978). Hence, over the years and also through new board appointments, boards of directors can accumulate firm-specific pools of resources that correspond to the systems of social ties typical for each board and its members. Nevertheless, the absent resources in the firm-specific resource pools may be compensated for by the already

accumulated resources. This possible substitution between the resources enables boards to perform their roles and has positive performance implications. Therefore, it is proposed that:

Proposition 2: The resources accumulated in external and internal social ties of board members compensate for the absence of resources in the board and contribute to high firm performance.

RESEARCH METHOD

Qualitative Comparative Analysis

This study proposes a multifaceted relationship between the resources deriving from external and internal social connections of board members, thus board social capital, and firm performance. Empirical examination of this relationship requires application of a methodology, which is able to identify the multiple combinations of social connections that are associated with high firm performance and also, to get a comprehensive view the relationship, uncover those associated with underperformance. Analyzing such a complex relationship is a methodological challenge for conventional econometric techniques, which are more suitable for investigating linear relationships (Ragin, 2008). Although econometric methods can partially address nonlinear relationships through estimations of interaction effects, interpretation of interactions of more than two conditions is problematic and makes these methods less suited to the task of exploring complementarities and substitutions between causal conditions. Therefore, taking the theoretical expectations into account, I utilized a set-theoretic method - fuzzy-set Qualitative Comparative Analysis (fsQCA) (Ragin, 2008), which is more suitable for analysis of multiple combinations and contingencies. This methodology allows for empirical exploration of complex causal relationships, namely identification of alternative configurations of causal conditions leading to the same outcome. In this way fsQCA provides more nuanced insights that add to the results obtained in previous studies, which utilized more traditional methodological approaches implying linear relationships. The advantages of the method have been acknowledged across multiple disciplines, including international business (Schneider, Schulze-Bentrop, Paunescu, 2010), corporate governance (Bell et al., 2013; Garcia-Castro, Aguilera, Ariño, 2013) and strategic management (Fainshmidt, Smith, Judge, 2016).

Fundamentals of fsQCA assume that the phenomenon under investigation is characterized by complex causality, namely there are strong theoretical premises regarding conjunctural causation, equifinality, and causal asymmetry. Conjunctural causation implies that configurations of causal conditions, rather than individual conditions, lead to a given outcome.

Equifinality contends that there are possible alternatives amongst these configurations, thus different configurations of causal conditions can lead to the same outcome. Additionally, presence and absence of an outcome can have different explanations, thus the causal relationship is asymmetric. These fundamentals make set-theoretic methods a suitable methodology for theoretical exploration and theory building. Instead of implying linear relationships and singular causation, the set-theoretic methods permit nonlinear relationships and explore complex causation. A thorough explanation of this methodological approach is presented in Ragin (2008) and Fiss (2007, 2011).

Data and sample description

Data from publicly listed firms in China were utilized for the purpose of this study. The empirical context was chosen deliberately for the following reasons. First, China is often recalled as an example of a highly relationship oriented culture, which originates from the Confucian philosophy and emphasizes the importance of social networks (*guanxi*) to a higher extent than in other countries (Chen, Chen, Huang, 2013; Park & Luo, 2001; Xin & Pearce, 1996; Yang, 1994). Second, social relationships in this context not only influence the dynamic of society, but also economic activity and interorganizational relationships (Estrin & Prevezer, 2011; Hitt, Lee, Yucel, 2002). The widespread influence of social networking resulted in the creation of informal mechanisms governing the business environment in China. For example, firms use *guanxi* to overcome resource dependencies or institutional disadvantages resulting from institutional transition (Park & Luo, 2001; Xin & Pearce, 1996). Therefore, this empirical context offers a unique opportunity to explore the concept of board social capital and study its influence on firm performance.

Application of fsQCA requires extensive knowledge regarding the analyzed cases (Schneider & Wagemann, 2012). Therefore, a mid-N size sample of publicly listed firms operating in Transportation Equipment Manufacturing sector in 2009 was extracted from the China Stock Market and Accounting Research (CSMAR) database. The database comprises data from annual reports and is an acknowledged source for research on Chinese firms, which has been utilized also in previous studies (e.g. Markóczy et al., 2013). According to the information in CSMAR, there were 97 publicly listed firms operating in the selected sector in 2009. The obtained data on affiliations of board members were subsequently categorized and coded to reflect different types of network ties, which directors had in their individual networks. During the coding process, the data was verified with other external sources to obtain as close as

possible approximation of social networks and collect additional information about the listed firms. However, limited sources of information and data that was hard to verify affected the size of the sample. Moreover, the fsQCA procedure may impose a limitation regarding a number of conditions that can be included in the analysis, because of limited diversity. To address these issues and increase comparability of cases, several sources of variation in firm performance were controlled for in the sampling process. Hence, 43 firms with similar characteristics were chosen for fsQCA analysis. All firms were publicly listed and operating in the same industry sector. Additionally, outliers in terms of firm size (total assets) were removed from the sample. In addition, the choice of a non-strategic sector, Transportation Equipment Manufacturing, enabled comparisons between state-owned enterprises (SOEs) and privately-owned enterprises (POEs) as both types of firms operate in the sector, unlike in strategic industries, which are dominated by state-owned enterprises. Although a significant number of firms in the sample was located in Beijing and Shanghai, the sample included also firms from other industrialized areas of China, such as provinces Jiangsu, Zhejiang, Hubei, Shaanxi, and Sichuan. The data for directors' affiliations, which was used as a proxy for network ties, was for the year 2009. I applied a 2-year and 4-year lag for the outcome set (firm performance - ROA), as effects of board social capital on firm performance might not be observable shortly after new board appointments or decisions made in a given year. Therefore, observing firm performance over several years from 2009 offers a better perspective on the relationships.

Causal conditions and set calibration

The fsQCA methodology requires presentation of the selected causal conditions (variables) in a form of sets. The data has to be transformed in a way, which reflects chosen theoretical concepts, shows difference in kind and difference in degree amongst cases. Therefore, qualitative anchors (thresholds), ranging from 0 to 1, for set membership (1), non-membership (0), and a crossover point of maximum ambiguity (0.5) have to be specified for each set. In the subsequent calibration process, membership scores in each set are assigned to the analyzed cases (observations). In this study, direct method of calibration was utilized, as described in Ragin (2008; 2006) and Fiss (2011), which transforms data into fuzzy-sets using log odds. Data calibration, similar to fsQCA analysis, was conducted using R software (Thiem & Dusa, 2013).

Drawing upon previous research on social capital and social networks of boards (e.g. Hillman, Cannella, Paetzold, 2000); six causal conditions were selected for fsQCA analysis and

transformed into sets to reflect external and internal social capital: *ties to business group*, *business ties*, *political ties*, *nonbusiness ties*, *internal social capital*, and *state ownership*, which served as a dummy variable. The conditions operationalizing network ties intended to reflect strength of particular types of ties. Similarly to previous studies, strength of ties was measured as a ratio of a given type of ties to all network ties (Borgatti, Everett, Johnson, 2013; Haynes & Hillman, 2010). Firm performance was operationalized using return on assets (ROA). In the following description of measures, names of the sets are assigned in brackets to names of the selected causal conditions. Thresholds for set calibration are presented in Table 1.

Ties to business group (strong ties to business group) were operationalized as a proportion of network ties that connect the firm to its controlling shareholders. The ties were established by board members holding positions in boards of directors of the shareholding companies. Distinction of this type of ties was particularly important in the empirical context of this study, in which the majority of firms operate as business groups (Carney, 2008; Keister, 2000). The measure reflects firms' embeddedness within business groups. The corresponding set labeled as 'strong ties to business group' was designed to capture high embeddedness of firms within business groups. It was conceptualized as a predominant presence of directors affiliated with the business group in the board of the focal firm. Hence, firms in which more than 57% (90th percentile) of external affiliations of board members were within the same business group were considered to have strong ties to business group, and thus to be fully in the set. Firms with less than 28% (50th percentile) were placed out of the set. The 75th percentile (41%) of the sample was selected as a crossover point.

Business ties (strong business ties) were measured as a proportion of network ties of board members to other firms (board interlocks), excluding shareholding companies. In this example, a network tie was created when a board member of the focal firm had, at the same time, a position on a board of another firm. The set meant to capture firms with extensive network ties to other firms. Therefore, if 70% (90th percentile) of external affiliations of board members in the focal firms were interlocks to other firms, then the firms were considered to have strong business ties and full membership in the set. Firms with less than 40% of business ties (50th percentile) were considered to be out of the set. The 75th percentile (60%) of the sample was selected as a crossover point.

To differentiate between firms and boards that had political connections, a binary variable for **political ties (existing political ties)** was included in the study. The variable, and the corresponding crisp set, assigned the value of 1 for full membership to firms that had at least

one political connection created by a board member, and 0 for non-membership if political connections were not detected. This set included various types of political connections, since the connections may be created in multiple ways. Political ties may be created through board appointments of politicians, who work in ministries, central or local governments. In this was a direct link between a firm and government is formed. However, especially in the context of China, where the dominant Communist Party has a complex and wide-spread structure, politically connected individuals are also commonly employed in state-owned enterprises. These individuals serve as members of Party Committees, which are leadership structures of the Party formed in state-owned enterprises. Knowing that reporting of political connections is a sensitive issue and that the actual presence of this type of ties may be underrepresented in the data, using a binary variable was an optimal solution to address this problem. It allowed a clear split between firms, which do and do not have politically connected members in their boards. Moreover, in the case of political connections, the more does not have to mean the better, since even one political connection may be already of great importance for the firm.

In a similar approach to Hillman, Cannella, and Paetzold (2000) network ties to actors in external environment, who were representing stakeholders or conducting nonbusiness activity, were classified as **nonbusiness ties (strong nonbusiness ties)**. This condition was operationalized as a proportion of network ties to nonbusiness actors, namely educational institutions, charities, domestic and international associations. Although this set could potentially include also ties to the government, because of the nonbusiness nature of this actor, for clarity of conclusions, all forms of political connections were classified in the set 'existing political ties'. To capture high extensiveness of networking with nonbusiness actors, full membership of a firm in the set was considered only if more than 29% (90th percentile) of affiliations of board members were with these types of actors. Less than 13% (50th percentile) of nonbusiness affiliations was a threshold for non-membership in the set. The 75th percentile (22%) of the sample was selected as a crossover point.

Internal social capital (extensive internal social capital) was captured by network density amongst board members (Borgatti, Jones, Everett, 1998; Kim, 2005; Oh, Labianca, Chung, 2006). In this case, network density is a proportion of the actual number of ties amongst board members to the number of possible ties. The measure was calculated based on the transformation of two-mode network data into one-mode data (Borgatti, Everett, Johnson, 2013). Data transformation allowed for capturing the extent to which board members of one board shared positions in firms or nonbusiness institutions with other members. Therefore, the

transformed network data included only social ties, which were created amongst board members of one firm through working or being members of the same organizations. The corresponding set intended to capture cases with a high extent of internal networking amongst board members, thus with extensive internal social capital. Therefore, the threshold for full membership in the set was chosen to be at a density level of 0.428, which was the 90th percentile of the sample. Firms with network density amongst board members lower than 0.140 (50th percentile) were out of the set. The 75th percentile (0.290) of the sample was selected as a crossover point.

The condition for **state ownership** was employed as a binary variable for differentiation between state-owned enterprises (SOEs), namely the enterprises in which the state was a controlling shareholder, and privately-owned enterprises (POEs). This condition was calibrated as a crisp set, thus only the qualitative anchor for full membership (1) and non-membership (0) had to be specified. This condition is particularly important for the empirical context of this study, considering the widespread activity of SOEs in China's economy and still prevalent ownership of companies by local and central government (Chan, 2009; Groves et al., 1994; Naughton & Tsai, 2015). The inclusion of ownership condition allowed for capturing contingency of board social capital and differentiation between causal configurations affecting performance of SOEs and POEs.

Firm performance (high firm performance) was operationalized by return on assets (ROA), which is a commonly utilized measure in previous studies (Jackling & Johl, 2009; Kusewitt, 1985; Morgan, Vorhies, Mason, 2009). The calibration of this condition required proper qualitative assessment of ROA. For this purpose, data from five leading firms in the sector was collected and compared to set a benchmark for other companies. The impact of strategic decisions made at the board level might not be captured immediately after the decision was made. Thus, it is worth observing firm performance over several time periods. In order to avoid biases and to include effects of long term strategic decisions that could affect ROA over time, the average ROA was observed over two and four years after the year of 2009. The differentiation of time periods allowed not only for a robustness check of results, but additionally, for conclusions regarding short-term and long-term performance. The set was constructed to include all firms that were performing better than the sample average. Hence, the threshold for full set membership was set at the midpoint between the sample average and the benchmark from the leading firms, namely at 0.07 for the average ROA over 2 years and 0.06 for the average ROA over 4 years. Firms that reported a ROA lower than the sample average were out of the set. The sample average ROA indicated a crossover point.

Table 1. Causal conditions, sets and calibration thresholds

Condition	Set	Thresholds for calibration
State ownership	State ownership	1 - In 0 - Out
Ties to business group	Strong ties to business group	90 th Percentile- In 75 th Percentile – Crossover 50 th Percentiles – Out
Business ties	Strong business ties	90 th Percentile- In 75 th Percentile – Crossover 50 th Percentiles – Out
Political ties	Existing political ties	1 - In 0 - Out
Nonbusiness ties	Strong nonbusiness ties	90 th Percentile- In 75 th Percentile – Crossover 50 th Percentiles – Out
Internal social capital	Extensive internal social capital	90 th Percentile- In 75 th Percentile – Crossover 50 th Percentile – Out
State ownership	State ownership	1 - In 0 - Out
Firm performance:	High firm performance:	0.07 – In
Short-term performance (2-year ROA)	High short-term performance	0.05 - Crossover 0.04 - Out
Long-term performance (4-year ROA)	High long-term performance	0.06- In 0.04- Crossover 0.03- Out

N=43

Analytical procedure

The fsQCA analytical procedure starts with analysis of necessity, which aims to identify necessary causal conditions for an outcome to occur (Ragin, 2008; Schneider & Wagemann, 2012). Necessary causal conditions are inevitably linked to occurrence of an outcome. Regardless of whether conditions are calibrated as crisp sets or fuzzy sets, the conditions are considered necessary for the outcome if their consistency scores are equal or higher than 0.9 (Ragin, 2006).

In the next step, the fsQCA procedure identifies sufficient conditions for an outcome. The statement of sufficiency indicates that a given condition leads to an outcome, but there can be other conditions that create alternative paths to the same outcome. The literature recommends applying Quine-McCluskey’s algorithm for analysis of sufficiency to minimize a truth table, which contains assigned set membership scores. Also, the literature suggests thresholds for parameters, in order to make claims of sufficiency. Particularly, the sufficiency consistency

score is recommended to be set at 0.8 and the frequency threshold at 1 (Ragin, 2006; Ragin, 2008; Rihoux & Ragin, 2009). These recommendations were applied in this study.

The output of sufficiency analysis includes three types of solutions, namely combinations of causal conditions leading to an outcome: complex solution, intermediate solution, and the most parsimonious solution. The solutions differ based on utilized simplifying assumptions regarding the expected relationships between the presence or absence of causal conditions and an outcome. The complex solution does not apply any simplifying assumptions. The intermediate solution allows for inclusion of simplifying assumptions, which are consistent with theoretical expectations (so called ‘easy counterfactuals’). The most parsimonious solution is the least complex, yet utilizes simplifying assumptions to the highest extent and allows inclusion of all logical reminders regardless of theoretical expectations. It is important to note that reduced complexity of solutions derives from the inclusion of simplifying assumptions that have to be carefully selected and theoretically justified. While intermediate solution includes theoretically driven ‘easy counterfactuals’, the most parsimonious solution includes ‘difficult counterfactuals’ and is the most concise expression produced through logical minimization. The QCA literature recommends interpretation of intermediate solution (Ragin, 2008) and comparison with the most parsimonious solution to identify core and complementary conditions. The core conditions occur in intermediate and the most parsimonious solution. The complementary conditions occur in intermediate solution, but not in the most parsimonious solution.

For assessment of results fsQCA, similarly to other analytical techniques, utilizes parameters of fit, which in this case are measures of consistency and coverage that are computed according to the following formulas:

$$Consistency = \frac{\sum_{i=1}^I \min[x_i, y_i]}{\sum_{i=1}^I x_i}$$

$$Coverage = \frac{\sum_{i=1}^I \min[x_i, y_i]}{\sum_{i=1}^I y_i}$$

where x_i is a set membership score in a condition X and y_i is a set membership score in an outcome Y.

The consistency measure, which ranges from 0 to 1, can be loosely interpreted as a numerical expression of the extent to which a statement of sufficiency is consistent with empirical information at hand. The coverage measure expresses numerically empirical importance of a combination of conditions or a solution for explaining occurrence of an outcome. The measure

of coverage can be calculated for combinations of conditions and for the whole solution term, thus there are three types of this measure: row coverage, unique coverage, and solution coverage. The row coverage shows the importance of a given combination of conditions, namely a single path, in explaining an outcome. The unique coverage shows the degree in which an outcome is uniquely explained by a given path. The solution coverage shows the importance of all paths; taking together all sufficient combinations of conditions, in order to explain an outcome.

Though fuzzy-set Qualitative Comparative Analysis (fsQCA) allows for exploration of complex causal relationships underlying board social capital and other organizational phenomena, the analysis is typically cross-sectional and static. The literature indeed recognizes this issue and emphasizes insufficient developments of the method to analyze time effects (Schneider & Wagemann, 2012). Recently an advancement of the method was proposed by Garcia-Castro and Ariño (2016), who integrated QCA with panel data analysis and developed relevant measures that capture consistency and coverage over time. Although this methodological advancement enables inclusion of time dimension into QCA analysis, its application to this study was problematic, because of limited data availability. The study utilized secondary data, which was carefully verified and coded to demonstrate variety of network ties formed by board members. However, construction of a longitudinal dataset when it comes to network ties is a considerable challenge for social network research (Borgatti, Everett, Johnson, 2013). Even though CSMAR database provided the best available data on networks of board members of publicly listed firms in China in 2009, insufficient reporting or disclosure of such information in previous years limited the possible time frame of the analysis. For this reason, yet being aware of the implied limitations, the study applied a cross-sectional approach. However, separate QCA analyses were performed to investigate the relationships between board social capital and short-term and long-term performance. In this way the study to some extent addressed the limitations of cross-sectional analysis and offered a partial solution, which is recognized in the literature (Schneider & Wagemann, 2010, 2012).

RESULTS

Configurations of network ties leading to high firm performance

Following the fsQCA analytical procedure, firstly analysis of necessity was performed. A summary of the results is presented in Table 2. The analysis was conducted for all conditions and for negations of these conditions. The results demonstrated that neither individual conditions, nor negations of these conditions, met the criteria for necessity.

Table 2. Analysis of necessity

	Consistency	Coverage	Relevance of Necessity
Strong ties to business group	0.226	0.366	0.819
Strong business ties	0.211	0.326	0.800
Existing political ties	0.864	0.485	0.400
Strong nonbusiness ties	0.440	0.653	0.880
Extensive internal social capital	0.372	0.549	0.848
State ownership	0.640	0.359	0.349
Negations of conditions			
Not strong ties to business group	0.837	0.471	0.397
Not strong business ties	0.874	0.501	0.426
Not existing political ties	0.136	0.222	0.789
Not strong nonbusiness ties	0.628	0.365	0.381
Not extensive internal social capital	0.856	0.446	0.308
Not state ownership	0.360	0.588	0.876

Subsequently, I performed analysis of sufficiency to identify configurations of network ties inducing high performance. At this stage I have applied directional expectations based on the literature on social connections of board members and their positive associations with firm performance (Harris & Helfat, 2007; Lester et al., 2008; Mahmood & Mitchell, 2004; Mizruch, 1996; Mizruchi & Stearns, 1988; Tian, Haleblian, Rajagopalan, 2011; Zona, Gomez-Mejia, Withers, 2015). The utilized directional expectations assumed that the presence of all conditions except state-ownership (absence of state-ownership) was leading to high firm performance. The assumption regarding the relationship between state-ownership and firm performance was driven by the evidences from previous studies exploring state-owned enterprises in China and the related market reforms (Lardy, 1993; Naughton, 2007; Naughton & Tsai, 2015). Although China's economy has been successively transitioning towards the market economy model, still state-owned enterprises remain under control of the government and do not recognize profit maximization and stakeholder value as priority, because of soft budget constraints, widespread practice of politically connected promotions, and incentive systems not directly linked to actual performance (Li & Xia, 2008; Peng & Luo, 2000; Redding, 1990; Redding & Witt, 2007).

The results of analysis of sufficiency are presented in Table 3. For reporting of results, I employed notation from Ragin and Fiss (2008). In the reported solutions large circles indicate core causal conditions, namely the conditions that occur in the most parsimonious and the intermediate solutions. Small circles indicate complementary causal conditions, namely the conditions that occur only in the intermediate solution. Additionally, full circles indicate presence of a condition, while crossed out circles indicate its absence. Blank spaces indicate irrelevant conditions. For interpretation of results, it is important to mention that absence may not imply complete absence of a given condition. For example, if results show absence of “strong ties to business group”, it should be interpreted as absence of strong ties or not strong ties rather than as complete absence of ties to business group.

Table 3. Configurations of causal cognitions leading to high firm performance

Conditions	High short-term performance Solutions			High long-term performance Solutions		
	A1	A2	A3	B1	B2	B3
Strong ties to business group						⊗
Strong business ties					●	⊗
Existing political ties		●	●	●		●
Strong nonbusiness ties	●	●				
Extensive intemal social capital	●	●			⊗	
State ownership	●		⊗	⊗	⊗	⊗
Consistency	0.877	0.886	0.949	0.959	1.000	0.976
Row coverage	0.143	0.156	0.264	0.223	0.054	0.173
Unique coverage	0.143	0.133	0.242	0.197	0.047	0.166
Number of firms	3	3	5	5	2	4
% of the sample	6.97%	6.97%	11.63%	11.63%	4.65%	9.30%
Solution consistency	0.921			0.964		
Solution coverage	0.398			0.251		

● - core causal condition present; ⊗ - core causal condition absent; ● - complementary causal condition present; ⊗ - complementary causal condition absent, blank spaces indicate conditions that can be absent or present, but are not relevant for configurations.

The results presented in Table 3 show sufficient configurations of causal conditions inducing high short-term (2-year ROA) and high long-term performance (4-year ROA). Three configurations were identified for short-term performance: solutions A1, A2, and A3. The solution term encompassing the alternative paths leading to high short-term performance covered 0.398 of fuzzy set membership in the outcome set, with consistency of 0.921. The configurations B1, B2, and B3 were found sufficient for high long-term performance. The solution term covered 0.251 of set membership in the outcome set, with consistency of 0.964.

The analysis of sufficient configurations for high short-term performance (2-year ROA) revealed three alternative paths. Solution A1 suggests that boards of state-owned enterprises, which comprise of members with strong ties to nonbusiness actors in external environment, and which have a high extent of internal social capital amongst members, represent a sufficient combination of network ties leading to high short-term performance. Similarly to solution A1, solution A2 asserts that presence of strong nonbusiness ties and political ties combined with extensive internal social capital amongst board members is sufficient for high short-term performance. The importance of political ties, particularly in boards of private firms, is emphasized in solution A3. The solution demonstrates that in private firms presence of these ties induces high short-term performance.

The results for high long-term performance revealed three alternative configurations. Solution B1 illustrates the same pattern as solution A3, namely that in private firms presence of political ties induces high performance. Therefore, the results show that in private firms political ties of board members are relevant for high short-term and long-term performance. Solution B2 presents an alternative causal path leading to high long-term performance of private firms. It suggests that presence of strong business ties to other firms and absence of extensive internal social capital leads to high long-term performance. Another alternative causal path is presented by solution B3. The solution, similarly to solution B1, emphasizes the relationship between presence of political ties in the boards of private firms and high long-term performance. However, in solution B3 political ties occur in combination with absence of strong business ties and absence of ties to business group.

Configurations of network ties leading to firm underperformance

The majority of traditional methodological approaches, like regression analysis, assume symmetry of the investigated relationships. However, reversed configurations of causal conditions that are sufficient for high firm performance may not explain underperformance. The

fsQCA methodology allows for exploration of asymmetric causal relationships. In order to explore this angle, this study proceeds with analysis of combinations of causal conditions leading to firm underperformance. The results are presented in Table 4.

Table 4. Configurations of causal cognitions leading to firm underperformance

Conditions	Short-term underperformance				Long-term underperformance		
	Solutions				Solutions		
	C1	C2	C3	C4	D1	D2	D3
Strong ties to business group	●		⊗	⊗	●	⊗	⊗
Strong business ties	⊗	⊗		●	⊗	●	
Existing political ties	●	⊗	⊗		●	⊗	⊗
Strong nonbusiness ties	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Extensive intemal social capital				⊗		⊗	⊗
State ownership	●	⊗	⊗	●	●	●	●
Consistency	0.929	1.000	0.938	0.916	0.943	0.870	0.826
Row coverage	0.136	0.086	0.084	0.254	0.161	0.111	0.115
Unique coverage	0.129	0.051	0.049	0.248	0.161	0.111	0.115
Number of firms	3	1	2	7	3	3	3
% of the sample	6.97%	2.32%	4.65%	16.28%	6.97%	6.97%	6.97%
Solution consistency	0.930				0.912		
Solution coverage	0.518				0.279		

● - core causal condition present; ⊗ - core causal condition absent; ● - complementary causal condition present; ⊗ - complementary causal condition absent, blank spaces indicate conditions that can be absent or present, but are not relevant for configurations.

The results show alternative combinations of network ties amongst underperforming firms in short-term (2-year ROA) and long-term (4-year ROA). The solution term for short-term underperformance covered 0.518 of set membership in the outcome set, with consistency of 0.930. The solution term included four alternative configurations of causal conditions: C1, C2, C3, and C4. The results explaining underperformance in the long-term had solution coverage of 0.279, with consistency of 0.912. The results for long-term underperformance revealed three alternative causal paths: D1, D2 and D3.

The results show that in state-owned enterprises (SOEs) extensive board interlocks with firms within the same business group and presence of political ties combined with absence of interlocks with other firms and absence of strong nonbusiness ties induce short-term

underperformance (solution C1). Solution C4 presents an alternative causal path leading to short-term underperformance of SOEs. The solution combines presence of strong business ties with absence of ties to business group, nonbusiness ties and lack of extensive internal social capital amongst board members. Solutions C2 and C3 explain short-term underperformance of private firms. The causal configuration included in solution C2 associates absence of business, political, and nonbusiness ties with short-term underperformance of private firms. Alternatively, this outcome may be caused by absence of ties to business group combined with lack of political and nonbusiness ties (solution C3).

The analysis of sufficient configurations inducing long-term underperformance revealed three alternative solutions. Solution D1 demonstrates the same pattern as solution C1 and confirms that presence of strong to business group and political actors combined with absence of business and nonbusiness ties is associated with short-term and long-term underperformance of state-owned enterprises. Solution D2 presents an alternative causal path, which links presence of strong business ties, absence of ties to business group, political and nonbusiness actors, and lack of internal social capital amongst board members with long-term underperformance of SOEs. Similarly to solution D2, solution D3 is relevant only for SOEs and associates absence of internal social capital and ties to business group, political and nonbusiness actors with long-term underperformance.

Robustness check

In set-theoretic methods, robustness check ought to verify if results hold under alternative calibration of conditions and different consistency thresholds (Schneider & Wageman, 2012). Firstly, the analysis was rerun, as advised in the literature, with at least two alternative consistency levels (Schneider & Wageman, 2012). Secondly, alternative calibration strategies were employed. Additionally, the analysis was rerun with return on equity (ROE) as an alternative performance measure.

While in the initial analysis the consistency level was set at 0.8, in the robustness check, the level was lowered to 0.75, which is a lower-bound level of consistency acceptable in the literature (Fiss, 2011). The results were subsequently checked also with consistency set at 0.85. The increase in the level of consistency (0.85) caused changes in the solution paths and the parameters of fit, because less truth table rows were used in truth table minimization. The new solutions were in subset relation to the corresponding solutions obtained with consistency threshold at 0.8. When the consistency threshold was decreased to 0.75, the results were less

consistent, showed higher coverage, and were in superset relation to the solution terms obtained in analyses with higher consistency levels. Hence, the results are robust, since no substantial changes have occurred after changing thresholds for consistency.

The initial calibration intended to capture a very high extent of networking activities performed by board members. Hence, the thresholds for set memberships were set relatively high (90th percentile) in order to grasp fairly extreme examples of networking. Deployment of alternative calibration strategies required keeping this principle in mind, while changing the thresholds for set membership, non-membership, and the crossover point. Specifically, two alternative strategies were applied to verify robustness of results. In the first strategy, the qualitative anchors were lowered by 10 percentile points. In the second strategy, the qualitative anchors were increased only by 5 percentile points, as the anchors for full membership were initially set at very high levels (90th percentile). The alternative calibration strategies were thoroughly designed to ensure that the new sets operationalize the same theoretical concepts investigated in the initial analysis. In both cases, results did not change substantially and demonstrated similar patterns regarding the analyzed relationships. Moreover, rerunning these models with different consistency thresholds (0.75 and 0.85) showed that solutions were in subset-superset relations, and thus confirmed robustness of results. The alternative calibration strategies were employed only to the causal conditions, which were initially calibrated using a percentile scale. As calibration of the outcome sets was conducted using strong qualitative assessment, which averted biased perception of the sets, it had not been changed for the robustness check. However, the analysis was rerun with return on equity (ROE) as an alternative outcome set. The results demonstrated similar logic of networking as identified for ROA. Although utilization of an alternative performance measure affected coverage (lower solution coverage), the results were not substantially different, thus robustness was confirmed.

Post QCA analysis – illustration of findings

While the analysis of sufficiency has identified causal configurations of network ties amongst high performing and underperforming firms, in this section the results are taken a step further to uncover more nuances of boards and social networks. It is also recommended in the literature to ‘go back to cases’ and link the obtained causal configurations with empirical examples (Ragin, 2008). Therefore, this post QCA analysis illustrates empirical examples of firms and their boards, which were forming the identified combinations of network ties contributing to high performance or underperformance. The detailed analysis of cases performed

at this stage revealed that the results were driven by shared patterns of forming network ties by board members and ownership types. The characteristics of the typical firms for each causal configuration are presented in Table 5.

Solution A1 presents a causal path relevant for state-owned enterprises (SOEs). Amongst SOEs typical for this solution there were also MNEs, which in this study were conceptualized as firms that own foreign subsidiaries. The causal configuration presented in the solution emphasizes the importance of non-business ties and extensive internal social capital for high short-term performance. The detailed analysis of networking patterns has shown that in these firms, inside directors held external positions in firms affiliated within the same business groups. It could have become a foundation for internal social capital within the board. Such activity also outside the board could have enhanced trust and information sharing. However, CEOs of these firms typically did not hold any external affiliations. On the contrary, the independent directors were not connected to this group. They were connecting the firm to nonbusiness actors, such as universities (e.g. Nantong University, Shanghai Jiao Tong University), research institutes (e.g. Tongji University China Scientific & Technological Management Research Institute), and professional associations (e.g. Shanghai Federation of Industry and Commerce, Shanghai Association of Automobile). These single nonbusiness ties have increased heterogeneity of network ties and diversity of potential resources. Therefore, these firms demonstrated a balanced combination of network ties in which connections to the business group created by inside directors were complemented by ties of independent directors to nonbusiness actors.

Similarly to solution A1, **solution A2** is also relevant for SOEs and MNEs. The combinations of causal conditions presented in solution A1 and A2 are alike, yet solution A2 includes also presence of political ties. The political ties were usually formed by inside board members, including vice board chairmen and board chairmen, who were holding positions of Secretaries of Party Committees and in this way were included in the leadership structures of the Communist Party in state-owned enterprises linked to the same business group as the focal firms. Moreover, it was not unusual for CEOs to also hold such position in other business group affiliates and in this way form political connections. Apart from holding political ties, inside directors typically held directorships in firms affiliated with the same business group. These homogenous external affiliations may have had a positive impact on social relationships amongst the inside directors and in turn induce accumulation of board internal social capital. In the typical firms independent director were usually connecting the focal firms to diverse

nonbusiness actors, such as Washington State China Relations Council, China National Heavy Truck Technology Centre, or Changchun Institute of Taxation and China Chief Accountant Association. However, some of the independent directors had also political connection through being involved in political advisory, for example by working for Shanghai Municipal Chinese People's Political Consultative Conference (CPPCC). Therefore, the typical firms could have potentially benefited from political connections of inside and independent directors.

Solution A3 and **solution B1** demonstrate a causal path leading to high short-term (A3) and long-term (B1) performance of private firms (POEs). In the group of typical firms that represented this causal configuration there were also MNEs. The solutions suggest that presence of political ties in networks of private firms is associated with high performance in short term and long term. In the typical firms political ties were usually formed by independent directors, who held positions of Secretaries of Party Leadership Groups and Committees or consultants to the local governments, such as Guangzhou People's Government or employees of Ministry of Finance. It was less likely for inside directors to have political ties, although such ties were identified in one firm in which an inside director was also a Secretary of Party Committee in a state-owned enterprise. Although the solution does not reflect other aspects of the networks created by the board members of the typical firms, a detailed analysis of network data revealed the following common patterns. Inside directors in these firms, CEOs, and board chairmen usually held external position in firms affiliated with the same business group as the focal firms, but also in nonaffiliated firms and nonbusiness actors, such as Society of Automotive Engineering of China, Wuhan University of Technology, China Association of Automobile Manufacturers, China Township Enterprise Association, etc. Hence, the external networks of insiders were encompassing diverse actors in firms' environment. Although the independent directors were typically linking the firms to political actors, they also held directorship positions in other firms. Business ties of the independent directors also included ties to financial institutions, for example, China Pacific Insurance (Group) Co., Ltd. and Bank of Beijing. Moreover, the independent directors were also connected to nonbusiness actors, such as Renmin University of China and Fudan University Financial Futures Research Institute. Hence, both inside and independent directors of the typical firms were connected to actors with diverse profiles.

Table 5. Overview of board and firm characteristics typical for the firms representing the causal configurations

Solution	Average board size		Average number of external network ties		Political ties	External social capital		Internal social capital		Ownership type	
	Average board size	Average number of external network ties	Inside directors	Independent directors		Average external network size	Average internal network density	Average external network size	Average internal network density		
High performing firms											
A1	21	14	4	Yes	18	0.37	20	0.30	25	0.18	SOE
A2	20	13	7	Yes	20	0.30	25	0.18	25	0.18	SOE
A3	18	17	8	Yes	25	0.18	31	0.17	23	0.15	POE
B1	18	17	8	Yes	25	0.18	31	0.17	23	0.15	POE
B2	16	26	5	Yes / No*	31	0.17	23	0.15	23	0.15	POE
B3	18	14	9	Yes	23	0.15	23	0.15	23	0.15	POE
Underperforming firms											
C1	23	12	4	Yes	16	0.23	12	0.52	31	0.25	SOE
C2	12	5	7	No	12	0.52	31	0.25	24	0.14	SOE
C3	12	27	4	No	31	0.25	24	0.14	24	0.14	SOE
C4	20	18	6	Yes / No*	24	0.14	24	0.14	24	0.14	SOE
D1	23	12	4	Yes	16	0.23	12	0.52	31	0.25	SOE
D2	21	24	7	No	31	0.14	22	0.10	22	0.10	SOE
D3	20	17	5	No	22	0.10	22	0.10	22	0.10	SOE

* Yes / No means that amongst firms representing a particular pattern (solution) a given characteristic was present and absent

Solution B2 associates high long-term performance of private firms (POEs) with presence of strong business ties and absence of extensive internal social capital. In the typical firms CEOs and board chairmen held external board posts in firms directly affiliated with the same business group, but also in not affiliated firms. That was the case also for inside directors, who through numerous external directorships in other firms, not necessarily affiliated with the business group, created wide networks of business ties. Similarly to inside directors, independent directors also held board posts in other firms, yet not as commonly as the inside directors, and also single affiliations with nonbusiness actors, such as Shanghai University of Finance and Economics. Typically in these firms both inside and independent directors rarely held positions in the same firms, with exception of firms affiliated with the same business group. This diversity of external affiliations was also reflected in absence of extensive board internal social capital.

Solution B3 presents a similar pattern to solution B1 and A3, namely it emphasized that presence of political ties of board members may be associated with high performance of private firms (POEs). This particular configuration combines presence of political ties with absence of strong business ties and ties to business group. The external networks of firms typical for this causal configuration had similar characteristics to firms demonstrating patterns B1 and A3. Particularly political connections of independent directors were a distinct characteristic of these firms. The independent directors formed these ties through holding positions of Secretaries of Party Leadership Groups in state-owned enterprises. Although the solution suggests that political ties combined with absence of business ties and ties to business group induce high long-term performance, it does not mean that board members did not hold any external affiliation. Some of inside and independent directors held external board post in other firms. Inside directors, apart from posts in firms affiliated with the same business groups as the focal firms, held directorships in other nonaffiliated firms and also positions in universities, such as Tongji University and Jilin University.

Solution C1 and **D1** demonstrate a possible causal path explaining underperformance of state-owned enterprises (SOEs) in short term (C1) and long term (D1). The causal path includes presence of strong ties to business group. Indeed in the typical firms inside directors, and sometimes CEOs and board chairmen, held board post in the business groups, which the focal firms were affiliated with. Moreover, external connections of inside directors were also connecting the typical firms to political actors, as some of them were involved in Party Committees in other SOEs. The strong ties of inside directors to the business groups and political actors have formed foundations of external networks of the typical firms. In these firms

independent directors held only single external affiliations usually in other firms, including also firms operating in financial services sector, for example China Galaxy Securities Co., Ltd., Western Securities Co., Ltd. and in universities, such as Northwestern Polytechnical University School of Management, Xi'an Jiaotong University School of Economics & Finance, and Shanghai University of Finance and Economics.

Solution C2 presents an alternative causal path leading to short-term underperformance. However, this path is only relevant for private firms (POEs). Although the causal configuration associates underperformance with lack of business, nonbusiness and political ties, it should not be interpreted that the typical firm for this configuration did not have any external ties. In fact CEO, who also served as board chairman, was affiliated with the same business group as the focal firm. Similar connections were also established by inside directors, though only few. Also the external networks of independent directors were not widespread and encompassed few connections to other firms that were established through board directorships.

Similarly to solution C2, **solution C3** shows an alternative causal path leading to underperformance of private firms (POEs) and associates this outcome with absence of political and nonbusiness ties. However, in solution C3 these conditions occur in combination with absence of strong ties to business group. In fact the external networks of the typical firms included numerous network ties of few inside directors and board chairmen. Although these individuals held board posts in various firms, only few of them were actually in firms affiliated with the same business groups as the focal firms. Independent directors in these firms rarely had any external affiliations, and if they had these were single board posts in other firms or academic positions at, for example, Shanghai University of Finance and Economics. Therefore, the firms' external networks were emerging from individual networks of few inside directors and board chairmen, who were actively performing various roles in boards of other firms.

Solution C4 is relevant only for state-owned enterprises (SOEs). Amongst typical firms that demonstrated such networking pattern there were also MNEs. The solution associates a combination of strong business ties and absence of ties to business group, nonbusiness actors and internal social capital with short-term underperformance of SOEs. In the typical firms representing this networking pattern inside directors, as well as CEOs and board chairmen, held numerous positions in firms not affiliated with the same business groups as the focal firms. Moreover, connections to the business groups rarely occurred in the networks and usually took form of single ties formed through holding directorships by few inside directors or board chairmen. These ties, however, were not dominant in the networks, yet sometimes were also

combined with political ties, since inside directors could also simultaneously performed the roles of Secretaries of the Party Committees in other SOEs. Nevertheless, the external networks of the typical firms were dominated by diverse business ties of inside directors. Independent directors in these firms rarely held any external connections. Most often only few of them actually had single external affixations with other firms, which operated in financial sector (e.g. Penghua Fund Management Co., Ltd. and Minsheng Investment Management Co., Ltd.) and with universities, such as Tongji University.

Solution D2 presents a possible causal path leading to long-term underperformance of SOEs. This causal path is also relevant for MNEs. The solution associates presence of strong business ties and simultaneous absence of internal social capital, ties to business group, political and nonbusiness actors with long-term underperformance. The firms typical for this configuration had wide-spread external networks, which were created by inside directors. In these particular firms inside directors held multiple simultaneous board posts in other firms, which were not necessarily affiliated with the same business groups as the focal firms. The external networks of inside directors included, for example, firms operating in financial services (e.g. Beiche Investment Leasing Co., Ltd; Shandong JianBang Investment Management Co., Ltd) or other firms in the automobile industry (e.g. Jialing –Honda Engine Co., Ltd; Jialing Motor America Co., Ltd.; Beijing Huade Neoplan Bus Co., Ltd.) In fact majority of the board posts held by the inside directors were in nonaffiliated firms. The key actors in the typical firms, namely CEOs, board chairmen, assistant general managers, also held numerous board posts in other firms and the number of their external positions often made them the most connected individuals in the boards. Independent directors, in contrast to inside directors, either held single external affiliations or did not have any at all. Although numerous external affiliations were characteristic for inside directors, usually the directors were not affiliated with the same firms. Hence, their affiliations created disperse external networks and did not build up internal social capital inside the boardrooms.

Solution D3 shows an alternative causal path explaining long-term underperformance of SOEs and is also relevant for MNEs. The causal path suggests that absence of ties to business group, political and nonbusiness actors combined with absence of extensive internal social capital leads to underperformance. However, this does not suggest that board members in the typical firms did not hold any external affiliations. In fact, the collected network data demonstrated that some of inside directors held few external affiliations and sometimes CEOs or board chairmen held the biggest number of external positions, though still few, in firms that

were not a part of the same business group as the focal firms. In the case of CEOs and board chairman connections to the business group were quite rare, as in the case of inside and independent directors, who usually held positions in nonaffiliated firms or did not have any external affiliations. Similarly to the firms representing solution D2, independent directors held external positions infrequently. Those board members, who actually had external board post, usually did not hold directorships in the same firms as their colleagues from the focal firms, thus this activity did not contribute to internal social capital accumulation.

DISCUSSION AND CONCLUSION

The existing research on board social capital tends to concentrate on particular types of social ties, such as board interlocks (Davis, 1996; Shipilov, Greve, Rowley, 2010; Martin, Gözübüyük, Becerra, 2015), political connections (Hillman, Cannella, Paetzold, 2000; Lester et al., 2008; You & Du, 2012), or informal ties amongst board members (Stevenson & Radin, 2009; 2014). This quite simplistic approach, however, ignores the fact that social ties of board members established to actors inside and outside the organization form an integrated system. Knowing this shortcoming of the literature, this study recognizes that social connections of board members ought to be analyzed from a system perspective. Moreover, it goes further into exploring nuances and performance implications of the interplay between social ties integrated into the system. Consequently, the relationship between internal and external social ties of board members and firm performance is conceptualized and empirically investigated in terms of complementarities and substitutions between the resources driving from social ties.

Based on the empirical findings, complementarity exists, and leads to high short-term performance of state-owned enterprises, between strong nonbusiness ties and internal ties amongst board members. This result demonstrates positive consequences of bonding and facilitating role of internal social capital in decision making and group effectiveness (Coleman, 1988, 1990; Oh, Chung, Labianca, 2004). The presence of strong nonbusiness ties in this combination highlights the fact that, as already shown in previous research (Hillman, Cannella, Paetzold, 2000), appointment of directors, who are active in a boarder community and bring ideas from nonbusiness actors in the firm's environment, such as universities, business associations, economic forums, etc. may have positive impact on firm performance. The identified alternative solution adds presence of political ties in the board to this combination. This alternative solution demonstrates the pattern typical for emerging and transitioning

economies in which the state still holds significant stakes in firms and may have a significant impact on their performance (Douma, George, Kabir, 2006; Li & Xia, 2008; Tian & Estrin, 2008; Tran, Nonneman, Jorissen, 2014; Zeitun, & Gang Tian, 2007). Moreover, direct or indirect support from the state in the form of, for example, governmental subsidies, protection from fierce market competition, or other favorable regulations make politicians and politically connected individuals attractive candidates for board directorships in state-owned and private firms (Estrin & Prevezer, 2011, Park & Luo, 2001; Peng & Luo, 2000; You & Du, 2012). The case of private firms has been confirmed also by the results of this study that clearly demonstrates association of the presence of political ties in boards of private firms with high short-term and long-term performance. In the case of private firms, high long-term performance is not only associated with the presence of political ties, but also with simultaneous absence of strong business ties and ties to business group. It suggests that in some cases absence of extensive external social capital may actually induce high firm performance. This counterintuitive finding may be explained by the previous evidences, which assert that although board members, who hold multiple board posts, act as boundary spanners and bridge boundaries between firms and environment, they may also be affected by downsides of extensive external social capital. While being overwhelmed by their responsibilities in other firms, directors may not dedicate enough attention to strategy development and management control in the focal firm, and consequently have negative impact on firm performance (Ferris, Jagannathan, Pritchard, 2003; Ruigrok, Peck, Keller, 2006). Therefore, the results show that board members without accumulating obligations may contribute better to firm performance and that absence of strong network ties, which conventionally could have been associated with underperformance, actually induces high long-term performance. Nevertheless, the results acknowledge the potential of bridging external social ties to business actors and their function as conduits for resource flow (Peng, 2004; Pfeffer & Salancik, 1978) that positively affect firm performance, yet in combination with absence of extensive internal social capital. Again, the results have demonstrated that absence of social capital may have positive performance implications. In this study internal social capital amongst board members derives from common external affiliations in other firms, also those within the same business group. Such interactions outside the boardroom of the focal firm may bond board members and build trust amongst them. However, recalling the arguments from the faultline theory, it is likely that members of a team split into subgroups based on their common attributes (Lau & Murnighan, 1998). Moreover, the members of the subgroups tend to show higher level of agreement than the overall level of the entire team

(Lau & Murnighan, 2005; Tuggle, Schnatterly, Johnson, 2010). Hence, dominant groups may emerge within the board, negatively affect decision making processes, and in turn, deteriorate firm performance (Harris & Helfat, 2007; Stevenson & Radin, 2009).

The results explaining underperformance of firms in short and long term, in the case of private firms, have confirmed the conventional assumption that absence of external social capital may negatively affect performance. As argued by resource dependence theorists: “board size and composition are not random or independent factors, but are, rather, rational organizational responses to the conditions of the external environment” (Pfeffer, 1972: 226). Hence, boards that lack external social capital lower their capacity to bridge organizational boundaries and address environmental dependencies (Pfeffer & Salancik, 1978). Moreover, the results also emphasize absence of political ties, which in the case of private firms operating in emerging markets often have greater impact on performance than in state-owned firms (Li & Zhang, 2007; Peng & Luo, 2000). While underperformance of state-owned firms can also be explained by absence of social capital, both internal and external, what may indicate that board members of these firms had small professional networks and lacked cooperative orientation, yet it can be also caused by domination of particular types of social ties in the board. If board members hold simultaneously numerous board posts in other firms, thus form strong business ties, and at the same time the board lacks other types of ties, including internal ties amongst board members, then such orchestration of social ties leads to underperformance. This evidence confirms the arguments regarding negative influence of ‘busy boards’ on firm performance (Ferris, Jagannathan, Pritchard, 2003; Ruigrok, Peck, Keller, 2006). Moreover, this argument was also echoed in the context of firm bankruptcy, in which multiple board interlocks were more likely to occur in firms ending up in bankruptcy than in non-bankrupt firms (De Maere, Jorissen, Uhlaner, 2014). Furthermore, the results have shown that a combination of strong ties to business group and political ties, in absence of other types of social ties, is associated with short-term and long-term underperformance of state-owned firms. Hence, the results confirm negative consequences of mixing political interest with business activity of state-owned firms, namely when political goals overshadow operational efficiency and profit maximization (Li & Xia, 2008; Tian & Estrin, 2008; Redding, 1990). The results also highlight negative effect of state-ownership on firm performance. The condition representing state-ownership has been found sufficient in five out of seven causal configurations inducing firm underperformance and only in one out of six configurations leading to high performance. This finding reflects a common pattern in emerging economies, where private firms have stronger incentive to manage

their earnings and implement profit-maximizing strategies than state-owned firms, which capitalize on state support, through for example subsidies, and legitimacy of the state (Naughton, 2007; Naughton & Tsai, 2015; Tran, Nonneman, Jorissen, 2014). Moreover, political influence on internal promotions and lack of performance-based incentive system demotivate employees and harm organizational efficiency, which in turn negatively affects firm performance (Gabriele, 2010; Li & Zhang, 2007; Ralston et al., 2006).

This study contributes to the literature in several ways. First, it demonstrates that board social capital is a more complex phenomenon than has been assumed in previous studies and can be better understood by adopting a holistic approach to social ties of board members that form an integrated system. In this way it adds on top of the existing studies that predominantly have been focusing on the effects of particular types of social ties, such as ties to political actors in the context of developed (Goldman, Rocholl, So, 2009; Hillman, 2005; Lester et al., 2008) and developing economies (Li & Zhang, 2007; Okhmatovskiy, 2010; Park & Luo, 2001), and board interlocks (Mizruchi, 1996; Mizruchi & Stearns, 1994; Zona, Gomez-Mejia, Withers, 2015). The study emphasizes that in order to understand how board social capital affects organizations and their performance scholars ought to recognize that it derives from the system of social ties that board members may establish with numerous types of actors, such as firms affiliated with the same business group and other firms in the environment, like also to political and nonbusiness actors, for example, universities or professional associations.

Second, the study uncovers the overlooked nuances of the interplay between the resources deriving from external and internal social ties. It particularly argues that the resources may be orchestrated in such a way to enhance their effect on performance, thus to complement each other. Therefore, it encourages conceptualizing and analyzing social ties of board members in terms of causal combinations. The empirical evidences show that, in the case of social ties, the more does not mean the better outcome, as also absence of social ties may be a part of a causal combination leading to high firm performance. Moreover, the study proposes and empirically investigates substitutions between the resources deriving from social ties of board members. In this way it reveals the possible alternative causal combinations leading to high performance. The notions of complementarities and substitutions may be also applied to explanation of firm underperformance, and consequently contribute to better understanding of the relationship between board social capital and firm performance.

Third, the study thoroughly discusses social relationships of board members with actors inside and outside the organization. It argues that board members are in fact individuals, who

over the course of their careers may establish numerous social ties to diverse actors. In this way the study highlights the ‘human side’ of boards (Huse, 2007, Osterloh, Frey, Frost, 2001) that is often overlooked in corporate governance research. The study, therefore, brings the behavioral aspects of boards and governance again into light, by emphasizing social relationships of board members and their impact on firm performance.

Finally, the use of fuzzy-set Qualitative Comparative Analysis (fsQCA) in this study illustrates that different methodologies can enhance understanding of supposedly well-known notions in corporate governance. FsQCA brings novelty into modeling in corporate governance research, as it enables empirical investigation of complex causal relationships and complements research focused on linear causality. The mechanisms of complementarity and substitution often appear in corporate governance, as in the example of governance practices (Garcia-Castro, Aguilera, Ariño, 2013). Hence, set-theoretic methods hopefully bring corporate governance research closer to practice and help to develop more applicable recommendations.

While this study provides several contributions of the literature, it still has some limitations. First, this study is based on secondary data, and thus reflects board social capital only to some extent. However, obtaining primary data on social ties of directors and executives is a considerable challenge for researchers. Therefore, the utilized database, which is an acknowledged source of data for research on Chinese listed firms (e.g. Markóczy et al., 2013), was considered to provide the best available approximation of social ties of board members. Replication of the study using survey data could enrich the results through a more nuanced calibration of internal and external social capital, which could not have been captured within the scope of this study.

Second, while investigating the relationship between social capital and firm performance, I employed return on assets (ROA) as a suitable measure of performance. It is a commonly applied measure (Mizruchi, 1996; Zona, Gomez-Mejia, Withers, 2015), which enables comparability of results with previous studies. Moreover, an alternative performance measure, return on equity (ROE), was additionally applied to verify robustness of results. However, the study recognizes limitations of using accounting measures of performance and that firm performance is a multidimensional concept. Therefore, for future research it is recommended to adopt measures that capture multiple aspects of performance, such as stock-based Tobin’s Q. Moreover, board social capital is a rich concept that influences organizations in multiple ways. Future studies could provide new insights into configurations of network ties leading to other organizational outcomes or processes, such as director selection or firm strategic orientation.

Third, the applied method (fsQCA) imposes few limitations on the study, although it indeed enables exploration of overlooked nuances of the relationship between board social capital and firm performance. Because of specificities of the method only a limited number of causal conditions may be taken into consideration in empirical analysis. This is the case also in this study, which has investigated only conditions approximating social ties of board members and ownerships type in relation to firm performance. The sampling process, which eliminated outliers for the sample and increased comparability of the cases, has partially addressed this issue. Moreover, the performed post-QCA analysis added more detailed insights to the primary results. Nevertheless, the performed analysis does not control for all possible sources of variable in firm performance. In addition, it has to be kept in mind that fsQCA is sensitive to set calibration and specification of thresholds for consistency. This study includes several positive robustness checks, thus robustness of results has been confirmed. Another limitation derives from the static nature of the method. FsQCA, similarly to other set-theoretic methods, is typically applied to cross-sectional data and still it is problematic to include time effects into analysis. To address this limitation, the study includes separate analyses explaining short-term and long-term outcomes – firm performance. Conducting separate analyses in order to, at least some extent, explain complex causal relationship over time is recognized in the literature as a partial solution to the problem (Schneider & Wagemann, 2012). However, future research could apply a novel approach proposed by Garcia-Castro and Ariño (2016), who have combined QCA with panel data econometrics. Their approach offers measures of consistency and coverage that are applicable to panel data, and thus advances longitudinal QCA research. It is worth mentioning that corporate governance and management scholars are paying more and more attention to methodological developments of set-theoretic methods and acknowledge the advancement proposed by Garcia-Castro and Ariño (2016) to harness the analytical power of QCA (Misangyi et al., 2017).

Lastly, the study provides evidences from an emerging economy, what can be considered as an advantage. Still, the choice of the empirical context imposes also limitations on generalizability of the results. The result may be generalized to other emerging economies, which are going through institutional transition and where the state is still a powerful actor in the business environment. Moreover, also in other emerging economies the underdeveloped market institutions are the reason for greater reliance on social ties than on contracts and regulations governing economic activity. It is in a stark contrast to developed economies, where firms respect and trust the rule of law and, therefore, do not use social ties in economic activity

to the same extent as firms in emerging economies (Naughton & Tsai, 2015; Redding & Witt, 2007). Moreover, the results are only generalizable to sectors with similar characteristics to those analyzed in this study, namely to the sectors, which are not dominated by state-owned firms and which are considered as non-strategic. Having in mind the empirical evidences of this study, and the revealed importance of political ties for firm performance, future studies could elaborate on this issue also in the context of developed economies. There are numerous evidences in the literature showing that political connections are also important in this context (Goldman, Rocholl, So, 2009; Hillman, 2005; Lester et al., 2008) and a thorough investigation of this issue could further uncover the link between business and politics. Regardless of the limitations, this study hopefully opens a discussion on how board social capital has hitherto been researched and how the existing research can be advanced through adopting new perspectives, such as complementarities and substitutions between resources, and new methodological developments, such as fsQCA.

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Chapter 3: Social Capital of Board Chair and its Performance

Implications

Abstract: This study challenges the traditional view on the role of board chair by emphasizing its social dimension. Board chair, similarly to CEO and directors, may have wide-spread social connections within and outside the firm. Therefore, the study proposes analyzing performance implications of complementarities and substitutions between external and internal social capital of board chair, CEO, and the board. The empirical findings confirm the rationale for analyzing this complex causal relationship as alternative configurations of conditions. Apart from advancing research on board chair and social capital in board of directors, the study contributes to uncovering behavioral aspects of governance by emphasizing the role of social relationships within and outside the boardroom. Moreover, the study shows how application of Qualitative Comparative Analysis (QCA) may advance the existing research and tackle causal complexity underlying social capital phenomenon.

INTRODUCTION

Corporate governance scholars have put considerable attention to uncovering the human side of boards of directors (Huse, 2007; Pye & Pettigrew, 2005; Van Ees, Gabrielson, Huse, 2009). For this reason, board research started focusing on social capital of CEO and directors. Existing research in this domain has been particularly concentrating on causes and consequences of social connections of CEO and directors, and their potential performance implications (Daily & Johnson, 1997; Davis, Yoo, Baker, 2003). Because of multidimensionality of this problem, even nowadays individual social capital of key actors in boards of directors is a recurrent topic in corporate governance and management studies (Geletkanycz & Boyd, 2011; Martin, Gözübüyük, Becerra, 2015). Despite the growing body of literature regarding social capital in boards of directors, previous studies have overlooked social capital of board chair. Only recently this topic appeared in research agenda (Krause, Semadeni, Withers, 2016; Krause, 2017). Ignoring the role of board chair social capital results in an incomplete picture of social relationships within the boardroom and omits an important individual, who as a member of corporate elite may hold resourceful social connections to actors in firm's environment. Building on the latest empirical evidences and the extant literature on CEO and board social capital (Geletkanycz & Boyd, 2011; Haynes & Hillman, 2010; Hillman & Dalziel, 2003; Westphal, 1999; Zajac, & Westphal, 1996), this study aims to address the shortcoming of the literature and explore social capital of board chair with its possible performance implications.

The literature traditionally discusses the role of board chair in the context of CEO duality. Separation of CEO and board chair positions is a mean to limit CEO power in the boardroom and to enhance internal control (Boyd, 1995; Eisenhardt, 1989; Fama & Jensen, 1983). However, the role of board chair does not have to be limited to control function. Board chair is a liaison between CEO and directors, and is involved in complex relationships within the boardroom. Board chair through her/his social relationships with CEO and directors may influence board effectiveness. Moreover, through her/his social relationships with external actors, board chair may provide valuable resources and span firm's boundaries. Furthermore, internal and external social relationships of board chair potentially have an impact on firm performance. Despite this quite intuitive extension of board chair's role, scholars have only recently acknowledged it and its performance implications (Krause, Semadeni, Withers, 2016). However, firm performance does not solely depend of social capital of board chair. Boards of directors engage a number of individuals, who come with different industry background, can have wide-spread professional networks, or even get to know each other over the course of their

careers while working in other firms. Therefore, boards of directors encompass complex sets of social relationships amongst their members, including CEO and board chair, as well as their relationships with other firms, governments, business associations, etc.

Taking into account embeddedness of board chair in internal relationships within the boardroom and her/his external relationships, this study explores how social capital of board chair may induce high firm performance and if it can also cause firm underperformance. Since boards of directors comprise complex sets of internal and external relationships, firm performance is affected by combinations of relationships rather than by a single relationship. Therefore, performance implications of board chair social capital ought to be investigated in configurations with internal and external social capital of CEO and the board. Knowing that the key actors in the board of directors may have extant professional networks outside the firm (Hillman & Dalziel, 2003; McDonald, Khanna, Westphal, 2008), complementarity and substitution are proposed between external social capital of board chair, CEO, and the board. Internal social relationships between CEO and the board, like also amongst directors, may build trust and facilitate collaboration (Harris & Helfat, 2007; Westphal, 1999). Board chair owing to internal relationships within the boardroom may perform the role of a liaison more effectively and consequently increase board effectiveness. Therefore, this study proposes complementarity and substitution between internal social capital of board chair, CEO, and the board. To empirically investigate combinations of external and internal social capital of board chair, CEO, and the board; and their possible performance implications, I applied fuzzy-set Qualitative Comparative Analysis (fsQCA) (Ragin, 2006, 2008). The method is particularly relevant for empirical exploration of combinations of factors leading to a given outcome, and thus for studying complex causal relationships. This methodological approach is still new in the literature. However, it is becoming more recognized and has been recently applied in strategic management studies (Garcia-Castro & Francoeur, 2016; Greckhamer, 2016), corporate governance (Garcia-Castro, Aguilera, Ariño, 2013, Misangyi & Acharya, 2014), and international business (Pajunen, 2008; Schneider, Schulze-Bentrop, Paunescu, 2010).

This study offers the following contributions to the literature. First, the study advances research on board chair through challenging the predominant perspective in this field and focusing on social dimension of boards of directors. It argues that apart from the traditionally assigned control function (Boyd, 1995; Fama & Jensen, 1983), board chair may perform a boundary-spanning role and improve collaboration within the boardroom. The study consequently enhances understanding of firms that split the roles of CEO and board chair.

Second, the study proposes analyzing performance implications of social capital of board chair, CEO, and the board in terms of complementarities and substitutions. This approach is subsequently supported by the empirical findings that reveal the existing complex causal relationships between internal and external social capital of board chair, CEO, and the board with firm performance and underperformance. Third, the study adds also to research on behavioral aspects of governance and boards of directors (Huse, 2007; Van Ees, Gabrielsson, Huse, 2009), as it puts emphasis on performance implications of social relationship of board chair, CEO, and directors. Lastly, the study offers a methodological contribution by demonstrating how complex causal relationships can be empirically investigated using fuzzy-set Qualitative Comparative Analysis (fsQCA). Moreover, it presents advantages of configurational methodologies and opens area for future advancements in corporate governance studies.

The paper is structured as follows. The next section provides theoretical background for the study with emphasis on the concepts of external and internal social capital of board chair, CEO, and the board. Further, propositions regarding their association with firm performance are developed. Next, fsQCA method is described and applied to the studied relationship. Discussion of empirical findings and research limitations conclude the study.

THEORETICAL BACKGROUND

Traditional corporate governance research has been applying an economic approach to studying boards of directors (Jensen & Meckling, 1976; Fama & Jensen, 1983). Although this approach shed light on formal control mechanism aimed at protecting shareholders from opportunistic managers, it has not gone deep into the actual board behavior and often produced ambiguous results. This shortcoming triggered development of new directions in board research that were focusing on behavioral aspects of boards of directors (Daily, Dalton, Cannella, 2003; Osterloh, Frey, Frost, 2001; Gabrielsson & Huse, 2004). Since then corporate governance scholars have been looking into boards trying to understand their behavior, decision making process, arising conflicts, bargaining, but also cooperation amongst board members (Huse, 1998; Pye & Pettigrew, 2005). The recognition of the human side of corporate governance and boards as decision-making groups of individuals (Huse, 2007) has reoriented board research to studying abilities of board members to actually perform their control and strategy roles. For this reason, numerous scholars started exploring professional background and qualifications of board members, thus exploring the role of their human capital (Carpenter, Sanders, Gregersen, 2001; Kor & Sundaramurthy, 2009; Tian, Haleblian, Rajagopalan, 2011). Individuals appointed to

board of directors have various backgrounds and employment history, thus may provide expertise and knowledge deriving from their current and previous appointments (Carpenter & Westphal, 2001). On top of that, the current and previous appointments, together with other affiliations of board members, constitute a pool of connections and resources deriving from these connections, such as expertise, access to resources, legitimacy, reputation etc. that potentially benefit the firm and support decision-making in the boardroom (Pfeffer & Salancik, 1978). This demonstrates a social dimension of boards, their interactions with stakeholders and actors in firm's environment, and also potential resource provision through social ties of board members.

The social dimension of boards is embraced by the concept of board social capital, which is defined as actual and potential resources accumulated within board's network of social relationships (Hillman & Dalziel, 2003; Nahapiet & Ghoshal, 1998). Board members can establish social connections to actors within and outside the firm. For this reason, scholars tend to differentiate between internal and external social capital (Kim & Cannella, 2008; Tian, Haleblian, Rajagopalan, 2011). External social capital derives from social ties to actors outside the firm that are created through holding multiple board posts, memberships in non-business organizations, professional associations, political activity, etc. In this way directors through social ties formed to external actors cross boundaries between the firm and its external environment. This perspective expands the role of directors to boundary-spanning activities, which may help firms to gain competitive advantage (Nahapiet & Ghoshal, 1998; Wu, 2008), capture opportunities (Li et al., 2014), and positively influence firm performance (Barroso-Castro, del Mar Villegas-Periñan, Casillas-Bueno, 2015).

The literature conceptualizes social capital of CEO in a similar manner. The high status of executive position makes CEO a member of corporate elite (Davis, Yoo, Baker, 2003; Jensen & Zajac, 2004; Useem, 1979). It allows CEO to establish connection to important actors in politics or in industry. In this way CEO gets an alternative perspective on strategy and organizational practices that may consequently increase firm performance (McDonald, Khanna, Westphal, 2008; McDonald & Westphal, 2003; 2010). External social capital constitutes also a dimension of CEO power, namely a prestige power that derives from social ties to high profile actors. Social ties of CEO can extend beyond peers to alumni groups of prestigious universities, professional associations and forums (Finkelstein, 1992). Moreover, CEOs are desirable candidates for directorships nominees (Fich, 2005). Therefore, such opportunities provide CEO with a wide access to other companies, information, and potentially resourceful connections.

Previous research has devoted considerable attention to external social capital of directors and CEO. However, it failed to recognize the potential resources deriving from external social capital of board chair. Conventionally the role of board chair has been seen as liaising between CEO and the board, organizing board work and meetings. In some cases, the role may be offered to a stepping down CEO or a former CEO (Quigley & Hambrick, 2012). Similarly to CEO, board chair holds an important position within organization, but also can be active outside through holding multiple board posts, memberships in business associations, lobby groups, etc. Serving on multiple boards of directors exposes the chair to different functional areas and professional contacts with actors outside the firm. Consequently, board of directors may perceive the chair as a resource and her/his social connection as important assets for the firm (Krause, Semadeni, Withers, 2016). In addition, board chair may become a source of advice and expertise to CEO. In this case, collaborative orientation of board chair would add to positive performance implications (Krause, Semadeni, Withers, 2016; Krause, 2017). In stark contrast to the traditional perspective on the role of board chair, which has been associated with control and eliminating CEO duality, the role may go beyond the conventional functions. Therefore, similarly to CEO and corporate directors, board chair may also perform a boundary-spanning role in the firm.

Board chair over the course of career may hold multiple positions, develop potentially resourceful connections, and thus accumulate external social capital in her/his network of social relationships. External social capital of board chair can benefit the firm and have potentially positive effect on its performance. However, the board chair does not function in a vacuum and is not exclusively affecting organizational outcomes. Firm performance is affected also by social capital of other actors, since board chair is a member of the group responsible for strategic decision making, management, and oversight of the firm. Therefore, the performance effect of board chair external social capital ought to be perceived from a perspective, which takes into account social capital of other actors in the board. Typically board chair, CEO, and directors are highly qualified individuals with relevant professional experience. Over the years the board chair, as well as CEO and directors, may accumulate substantial resources in their social networks through interacting with professionals and executives in other firms. As members of the corporate elite they may use their external connections to seek advice of other executives, in order to overcome organizational challenges (Kor & Sundaramurthy, 2009; McDonald & Westphal, 2010). Their professional career path may, for example, lead the board chair, CEO, or a director to engage in political activity or a lobby group. Moreover, accepting board posts in

another firm may enhance industry knowledge of these individuals (Hillman, Cannella, Paetzold, 2000). Therefore, the knowledge, expertise, and other resources deriving from social connections established through current and previous professional experience of the board chair, CEO, and directors may be complementary and lead to better decision making, thus potentially increase firm performance. It is consequently proposed that:

Proposition 1: Complementarities between the resources deriving from the external social capital of the board chair, CEO, and the board will contribute to high firm performance.

Alternatively, as resources deriving from social connections to external actors, and thus external social capital, can be accumulated over time and through diverse professional experiences (Kor & Sundaramurthy, 2009), it is possible that the board chair, CEO, or directors may actually lack external social capital, because they have not developed it over the course of their careers. Board of directors is a pool of resources to which each actor can contribute by bringing the resources deriving from her/his individual network of social connections. If some actors in the board lack external social capital, the resources deriving from social connections of other actors may still effectively support strategic decision making and oversight of the firm. Therefore, external social capital of one individual, either the board chair, CEO, or a director, may be compensated or substituted for by the external social capital of another individual. The value of the resource deriving from external social connections is subjective and not necessarily linked to the function or the position of the individual, who is bringing them to the board. For this reason, substitution between the resources of the board chair, CEO, and directors is possible, and because of the potential contribution of the resources to decision-making process, it may also lead to high firm performance. Considering this feature of external social capital of the key actors in the boardroom, it is proposed that:

Proposition 2: The resources deriving from the external social capital of the board chair, CEO, or the board may compensate for the absence of external social capital of the other actors in the boardroom and contribute to high firm performance.

Apart from forming connections to external actors, board chair, CEO, and directors may establish social relationships within the firm. These internal relationships constitute a foundation

for internal social capital of individuals, such as board chair and CEO, but also for a group, namely the entire board of directors. Therefore, internal board social capital captures resources available through social ties created within a firm, including also connections to other board members and CEO. Repeated social interactions of board members strengthen their internal social relationships and in consequence accumulate resources, such as trust, common norms and beliefs, and understanding amongst the members (Coleman, 1988). These resources lower coordination and transaction cost (Pfeffer, 1983; Williamson, 1975), increase propensity of board members to collaborate and improve board effectiveness (Forbes & Milliken, 1999). Internal social capital has also been recognized for facilitating teamwork (Harris & Helfat, 2007). Moreover, internal social relationships make directors more willing to share knowledge and information with others, and consequently may increase effectiveness of decision-making process (Coleman, 1988, 1990; Oh, Chung, Labianca, 2004; Oh, Labianca, Chung, 2006).

Internal social capital of CEO, especially in the case when it derives from social ties to board members, is full of nuances and seems to be characterized by a recurring tradeoff between control and collaboration (Boyd, Haynes, Zona, 2011). Social connections between CEO and board members are polarized in the literature by distinction of two divergent board models: independent and collaborative (Westphal, 1999). The independent model builds on the arguments from the agency theory that separation of management and control functions supports effective monitoring of managerial opportunism and prevents potential entrenchments (Fama & Jensen, 1983; Jensen & Meckling, 1976). Hence, CEO should not hold social ties with board members, in order to ensure objectivity and effectiveness of internal control mechanism. In contrast to this perspective, the collaborative board model advocates for cooperation between CEO and the board (Westphal, 1999). Therefore, presence of social ties between CEO and the board may help to build trust and facilitate cooperation in the boardroom (Ashford & Northcraft, 1992). Moreover, social connections may increase propensity of CEO to seek advice amongst board members and increase overall board effectiveness through better communication and willingness to share knowledge (Oh, Chung, Labianca, 2004; Oh, Labianca, Chung, 2006; Roberts & O'reilly, 1974).

While serving as a liaison between CEO and directors, the board chair is exposed to the relationships between and amongst these actors. It does not mean, however, that board chair is not involved in these relationships. Moreover, the board chair may actually have lasting social relationships with CEO and directors that could have been established in the past, since these individuals likely hold simultaneous positions in other firms (Geletkanycz, & Boyd, 2011;

Martin, Gözübüyük, Becerra, 2015; Quigley & Hambrick, 2012). The existing literature has overlooked the presence of internal social relationships of board chair and their organizational implications. Presumably presence of internal social relationships may encourage board chair to take a collaborative approach to governance. Following Sundaramurthy and Lewis (2003), taking a collaborative approach to governance means that “directors and executives seek to become a cohesive ‘governing team’ ” (Sundaramurthy & Lewis, 2003:400). In such case, the board chair may seek to become an approachable source of guidance and support, apart from liaising between CEO and directors (Krause, 2017). In fact, the board chair in performing her/his role does not have to compromise between collaboration and control of CEO, but focus on constructive inputs and effective teamwork.

Previous research has shown that social ties between CEO and directors build trust, increase propensity to seek reciprocal advice and consequently may have positive performance implications (Westphal, 1999). Also, social ties amongst directors have been associated with greater knowledge sharing and collaboration (Harris & Helfat, 2007). Therefore, the presence of social ties between the board chair, CEO and directors may additionally enhance trust between them and facilitate teamwork. The intertwined internal relationships in the boardroom that carry such resources as trust, empathy, mutual understanding and obligations, etc. consequently may improve internal dynamics and have a positive impact on working relationships. This demonstrates the possible complementarity between the resources transmitted through internal relationships of the key actors in the board. The conjugated positive impact of the resources on board effectiveness, as the accumulated trust make board members more willing to cooperate, share knowledge with others, and seek guidance, also suggests their association with high firm performance. Therefore, it is proposed that:

Proposition 3: Complementarities between the resources deriving from the trust-building internal relationships that shape the internal social capital of the board chair, CEO, and the board will contribute to high firm performance.

Taking an alternative perspective on internal social relationships, it can be argued that boards of directors are groups of different individuals, who may, but not necessarily, demonstrate abilities for cooperation. Although boards do not comprise randomly selected members, still cooperation with some members may be easier than with others. Moreover, changes to board composition may bring new people, who have to fit into the established group.

Therefore, sometimes boards may experience low levels of trusts, communication problems, and even difficulties in making decisions that result from shortage of internal social capital. Trust, common norms and beliefs that derive from social relationships amongst group members have a positive effect on group performance (Coleman, 1988). However, boards of directors are groups of professionals, who first of all establish professional relationships with each other. Nevertheless, on top of the professional relationships governing board's affairs, cooperation in the boardroom may be improved by trust-building internal relationships. The presence of CEO-board relationships or relationships amongst directors, because both are positively associated with teamwork, may contribute to building up consensus seeking abilities in the boardroom. Moreover, because of the positive effect on board effectiveness, trust and collaborative orientation deriving either from the internal relationships between CEO and the board or from the relationships amongst directors may be associated with high firm performance. The constellation of internal relationships, however, also includes board chair, who acts as a liaison between CEO and the board, and in this way is constantly involved in board's affairs and affected by internal relationships amongst board members. The board chair acts as a bridge between the two powerful actors, who make crucial decision for the firm. If these actors lack communication or understanding, it is the responsibility of board chair to step in, negotiate, and ease teamwork. Therefore, internal social capital of board chair may as well serve as a substitute for CEO-board relationships or relationships amongst directors. Consequently, it may improve board effectiveness and have positive performance implications. Taking into account the abovementioned properties of internal social capital, it is proposed that:

Proposition 4: The resources deriving from the internal social capital of the board chair, CEO, or the board may compensate for the absence of trust-building internal relationships amongst board members and contribute to high firm performance.

RESEARCH METHOD

The posed research question regarding performance implications of the possible complementarities and substitutions between social capital of board chair, CEO, and the board has motivated the choice of methodology. The analyzed problem implies consideration of multiple configurations of interdependent factors, thus the methodology ought to build on configurational logics. Therefore, fuzzy-set Qualitative Comparative Analysis (fsQCA) was chosen as a research method. The literature sees major advantages of the method in the ability to

capture causal complexity, namely conjunctural causation, equifinality, and causal asymmetry (Ragin, 2008; Schneider & Wagemann, 2012). Conjunctural causation assumes that conjunctions of causal conditions are leading to an outcome, rather than individual conditions. This approach is fundamentally different from the predominant methodological approach in management studies in which scholars tend to focus on individual effects of causal conditions. Equifinality suggests that there is no 'one size fits all' combination of causal conditions, but rather there are possible alternative combinations that can lead to the same outcome. Causal asymmetry implies that reverse configuration of causal conditions may not lead to absence of a given outcome, but there would be other combinations causing absence of the outcome. Therefore, analyses deeming to identify combinations of causal conditions leading to presence or absence of the outcome ought to be conducted separately, thus causal symmetry should not be routinely presumed. Harnessing the methodological power of QCA allows exploration of complex causal relationships that prevalent research methods in management studies fail to unravel. Nowadays, QCA is still considered as a novel methodological approach, though scholars have presented its exploratory power in management studies (Fiss, 2005, 2011; Greckhamer, 2016), corporate governance (Bell et al., 2013; Garcia-Castro, Aguilera, Ariño, 2013; Misangyi & Acharya, 2014) and in international business research (Pajunen, 2008; Schneider, Schulze-Bentrop, Paunescu, 2010).

Sample description

This study utilizes secondary data from listed firms in China. The empirical setting was selected because of several characteristics suitable for the researched problem. First, separation of CEO and board chair position is a common practice in China. However, the role of board chair usually has been discussed from internal control perspective (e.g. Peng et al., 2010) rather than from social capital perspective, despite strong cultural and institutional premises. Second, institutions in China are still relatively underdeveloped, compared to developed countries, and for this reason social relations are considered as important factors influencing social dynamics and economic activity (Peng & Luo, 2000). Last, highly relationship-oriented society in China offers a unique opportunity to explore the role of individual social capital, and particularly social capital of board chair, in relation to firm performance.

The data was extracted from China Stock Market and Accounting Research (CSMAR) database, which is an acknowledged data source for research on publicly listed firms in China. The CSMAR database encompasses data from annual reports of listed firms and has been used

in previous studies in the Chinese context (e.g. Markóczy et al., 2013). The design of the sample intended to contrast performance implications of social capital in strategic and non-strategic industries. For this reason, the sample included data from two industries, namely from a non-strategic Transportation Equipment Manufacturing and a strategic Production and Supply of Electricity, Steam & Hot Water. In our data source we identified 97 publicly listed firms in the Transportation Equipment Manufacturing and 60 in the Production and Supply of Electricity, Steam & Hot Water. Since application of fsQCA methodology imposes a limitation in terms of the number of possible variables included in the model, in the sampling process I have tried to control for sources of variation in firm performance. Such approach intended to increase comparability of the analyzed cases, by choosing firms with similar characteristics. Hence, cases in the final sample were either from the chosen strategic or non-strategic sector, all firms were publicly listed. Moreover, detected outliers in terms of firm size, measured as the value of total assets, were removed from the sample. Moreover, the cases that displayed missing or insufficient information were dropped from the sample. Another important criterion for sample design was separation of CEO and board chair roles. Therefore, firms in which CEO was also holding a position of board chair were removed from the sample. As a result, the final sample encompassed 83 publicly listed firms (cases) of which 38 were from the non-strategic industry and 45 from the strategic industry. To provide industry specific insights and check robustness of the results, supplementary fsQCA analyses were performed on separate samples from the non-strategic and the strategic industry. To observe short-term and long-term association of social capital with firm performance, the data on social capital were selected from year 2009, while the performance data was lagged by 2 and 4 years.

Measures and calibration

In order to apply fsQCA method, the selected causal conditions (variables) have to be transformed into sets. In the literature the concept of set is defined as “a mental representation of an empirical property” (Mahoney, 2010:2). Therefore, for each set qualitative thresholds defining set membership, non-membership, and a cross-over point or a point of maximum ambiguity (only for fuzzy-sets) have to be specified. The thresholds can be understood as boundaries for inclusion and exclusion from the set. The QCA literature advises selecting qualitative thresholds with regards to theoretical premises and advanced case knowledge (Schneider & Wagemann, 2012). For each case degree of membership in each set is determined during calibration process. I utilized direct method of calibration for conditions calibrated as

fuzzy-sets and qualitative calibration for crisp-sets (Ragin, 2008). In the description below names of the causal conditions are followed by names of the corresponding sets in brackets. Proxies for social capital of CEO, board chair, and board of directors have been developed on the grounds of previous studies, such as Kim (2005), Kor & Sundaramurthy (2009), Krause, Semadeni, Withers (2016), and Sundaramurthy, Pukthuanthong, Kor (2014).

CEO external social capital (extensive CEO external social capital) was measured as a number of external social ties created through having positions in other firms (e.g. board interlocks), memberships in business associations, and academic positions that CEO held in a given year. The threshold for full set membership was set at 3 ties (90th percentile). Less than 1 (50th percentile) external network tie was set as a non-membership threshold, while 2 external network ties were chosen as a cross-over point (75th percentile).

CEO internal social capital (existing CEO internal social capital) was measured as a binary variable indicating presence (1) or absence (0) of common external connections of CEO and other board members. The common external connections specifically could have been established through holding board positions at the same firms, except the focal firms, working at the same educational institutions, or memberships in the same business associations. Literature suggests that interacting outside the boardroom of the focal organization facilitates establishment of bonding social ties (Stevenson & Radin, 2009). Therefore, CEO internal social capital was calibrated as a crisp set demonstrating existence of common external connection of CEO and board members from the focal firm.

Board Chair external social capital (extensive board chair external social capital) was operationalized as a number of external network ties. The ties could have been established through holding board post at other firms (board interlocks) or having memberships in non-business organizations, including also political agencies and educational institutions. In order to capture board chair with widespread social connections, 5 external ties (90th percentile) were set as a threshold for full membership in the set. Board chairmen with 2 (50th percentile) or less external connections were considered to be out of the set. The cross-over point was set at 3 ties (75th percentile).

Board chair internal social capital (existing board chair internal social capital) was measured in a similar manner to CEO internal social capital, namely a binary variable was created to indicate presence (1) or absence (0) of common external connections of board chair and other board members, including CEO. As board chair may hold board posts in other firms, be a member of business associations, academic or governmental institutions, it may be not

uncommon that other board members hold positions in the same organizations as board chair. The corresponding set to this variable was calibrated as a crisp set to show presence of common external affiliations of board chair and other board members.

Board external social capital (extensive board external social capital) was measured as a sum of network ties of all board members, excluding CEO and board chair, that were created to other firms through board interlocks, or ties to non-business actors in firm environment, such as business associations, governmental agencies, and educational institutions. Boards with 33 (90th percentile) or more accumulated network ties were considered to be completely in the set. Less than 19 (50th percentile) external social connections were set as a threshold set non-membership. The cross-over point was set at the level of 26 (75th percentile) external network ties.

Board internal social capital (extensive board internal social capital) was captured by network density amongst board members, excluding CEO and board chair. Network ties created outside the firm indicate additional interactions of board members apart from board meetings of the focal organization. Therefore, it is a vital approximation of internal social capital within the board, as board members could also interact at board meetings of other firms, participation in the same professional interests groups or associations, etc. Moreover, network density is a well-recognized measure of internal social capital (Borgatti, Jones, Everett, 1998; Kim, 2005; Oh, Labianca, Chung, 2006). Accordingly, firms with network density amongst board members over 0.297 (90th percentile) were considered completely in the set, while below 0.11 (50th percentile) completely out of the set. The 75th percentile (0.214) was set as the cross-over point.

Strategic industry was employed as a binary variable for differentiation between firms operating in strategic and non-strategic industries. The condition was calibrated as a crisp set with 1 indicating full set membership, thus firms operating in the strategic industry.

As in the previous studies (Jackling & Johl, 2009; Morgan, Vorhies, Mason, 2009), **firm performance (high firm performance)** was measured as a returned on assets (ROA). To differentiate between short-term and long-term performance, the average ROA was captured over 2 and 4 years. In order to properly qualitatively assess performance, five leading firms from each industry were selected as a benchmark using external sources of information. Subsequently, based on the sample data and the benchmark values, threshold for full membership was set at the midpoint between the sample average and the average ROA for the leading firms over 2 and 4 years. The 50th percentile was chosen as a qualitative threshold for

non-membership in this set. The mid-point between the threshold for complete set inclusion and exclusion was a cross over point.

Table 1. Causal conditions, sets and calibration thresholds

Condition	Set	Threshold for Calibration
CEO external social capital	Extensive CEO external social capital	90th Percentile- In 75th Percentile – Crossover 50th Percentiles – Out
CEO internal social capital	Existing CEO internal social capital	1 – In 0 – Out
Board Chair external social capital	Extensive board chair external social capital	90th Percentile- In 75th Percentile – Crossover 50th Percentiles – Out
Board Chair internal social capital	Existing board chair internal social capital	1 – In 0 – Out
Board external social capital	Extensive board external social capital	90th Percentile- In 75th Percentile – Crossover 50th Percentiles – Out
Board internal social capital	Extensive board internal social capital	90th Percentile- In 75th Percentile – Crossover 50th Percentiles – Out
Strategic industry	Strategic industry	1 – In 0 - Out
Firm performance: Short-term performance (2-year ROA)	High short-term performance	0.056 - In 0.049 - Cross-over 0.042 - Out
Long-term performance (4-year ROA)	High long-term performance	0.052- In 0.05 - Cross-over 0.048 - Out

Analytical procedure

In contrast to variance-based analytical techniques, fsQCA investigates set relations, namely identifies necessary and sufficient causal conditions inducing a given outcome, such as firm performance in this study. FsQCA method begins with analysis of necessity that aims to detect if any of the selected causal conditions is inevitably linked to the outcome (Ragin, 2008). Following the QCA literature, to consider a condition or a negation of this condition as necessary, the threshold for consistency scores ought to be set at 0.9 or above (Ragin, 2006; Schneider & Wagemann, 2012).

Subsequently, fsQCA explores sufficient conditions for an outcome to occur. The analysis of sufficiency identifies alternative combinations of conditions, which equally effectively induce the same outcome. In other words, it reveals alternative paths leading to the same outcome. The literature recommends application of Quine-McCluskey's algorithm to perform analysis of sufficiency. Moreover, the minimum threshold for sufficiency consistency score ought to be set at 0.8 and the frequency threshold at 1 (Ragin, 2006; 2008; Schneider & Wagemann, 2012). The analysis delivers three types of solutions, whose complexity depends on the extent of integrated simplifying assumptions: complex, intermediate, and the most parsimonious solution. The complex solution does not permit for inclusion of any simplifying assumptions. In contrast, the intermediate solution allows inclusions of assumptions that are theory driven. The most parsimonious solution includes assumptions that are theory driven and those that results from the empirical material at hand, but are not always consistent with theoretical expectations. As recommended in the literature, the intermediate and the most parsimonious solutions are reported in this study (Ragin & Fiss, 2008; Schneider & Wagemann, 2012). In presentation of results I used notation from Ragin and Fiss (2008). Full circles indicate presence of conditions, while cross-out circles their absence. Large circles indicate core causal conditions, thus these conditions that occur in the intermediate and the most parsimonious solution. Small circles indicate complementary causal conditions, which occur in the intermediate solution and do not in the most parsimonious solution. Blank spaces designate irrelevant conditions for the given configuration. In this study theory-driven directional expectations are applied. The expectations presume that presence of external and internal social capital of board chair, CEO, and directors is associated with high firm performance (Harris & Helfat, 2007; Hillman & Dalziel, 2003; Krause, Semadeni, Withers, 2016; McDonald, Khanna, Westphal, 2008; Westphal, 1999). Because of the empirical context of the study, it is necessary to make a context-specific expectation regarding firms operating in the strategic industry. The substantial economic reforms, dating back to 1970s, had been reshaping institutional environment in China and leading it towards a market economy model (Lardy, 1993; Naughton, 2007). Positive outcomes of the reforms were reflected in rapid economic development, increasing productivity, trade, and high economic growth. Although successful opening of the economy resulted in ownerships reforms and consequent flourishing of private firms, even nowadays state-owned firms dominate strategic industries in China (Boisot & Child, 1996; Redding & Witt, 2007). Soft budget constraints, incentive systems not based on performance, and promotions linked to political connections, demotivate managers of state-owned firms to seek increasing efficiency and profit-

maximization (Li & Xia, 2008; Peng & Luo, 2000). Therefore, it is expected that actually not operating in a strategic industry is associated with high performance. The analysis of necessity and subsequent analysis of sufficiency were conducted using R software (Thiem & Dusa, 2013).

FsQCA employs two measures, consistency and coverage, as parameters of fit. Therefore, results of sufficiency analysis can be further assessed. The consistency measure captures correspondence of the identified combinations with empirical data. The coverage measure reflects relevance of the identified combinations for explanation of an outcome. The parameters of fit are computed as follows:

$$Consistency = \frac{\sum_{i=1}^I \min[x_i, y_i]}{\sum_{i=1}^I x_i}$$

$$Coverage = \frac{\sum_{i=1}^I \min[x_i, y_i]}{\sum_{i=1}^I y_i}$$

where x_i is a set membership score in a condition X and y_i is a set membership score in an outcome Y.

Despite the clear advantages of fsQCA, the method has a static cross-sectional nature and investigation of time effects is problematic (Schneider & Wagemann, 2012). Only recently Garcia-Castro and Ariño (2016) presented a possible application of fsQCA to panel data and provided diagnostic tool for assessment of consistency and coverage over time. This awaited advancement to set-theoretic research opens new possibilities for tackling causal complexity in corporate governance and management studies. Application of fsQCA to panel data, however, requires high quality longitudinal data suitable for calibration over several years. Depending on the nature and availability of data, this requirement may become a constraint. This study relied on secondary network data, which were reported by executives in annual reports. In spite of the possible perception biases, since the executives reported their networks themselves, this type of data was the best available approximation of the actual networks inside and outside the analyzed firms. The data selected for this study described networks in 2009. Because of poor quality of data from previous years that would enforce dropping too many cases from the sample, construction of a panel dataset and subsequent application of fsQCA was not possible. It is often recalled in the literature that unavailability of high quality longitudinal network data is a major constraint in social network research (Borgatti, Everett, Johnson, 2013). For this reason, and recognizing this limitation, the study applied static cross-sectional approach to the investigated relationship. To overcome this limitation, at least to some extent, separate fsQCA analyses were performed to investigate short-term and long-term associations between social capital and firm

performance. This partial solution for capturing dynamics in fsQCA is recognized in the literature (Schneider & Wagemann, 2012), yet it imposes limitations on this study.

RESULTS

Configurations of individual social capital in high performing firms

To investigate set relations between individual social capital and firm performance, analysis of necessity was performed in the first place. The obtained results, which are presented in Table 2, demonstrate that none of the selected causal conditions and none of negations of the conditions meet the requirements for necessity.

Table 2. Analysis of necessity

	Consistency	Coverage	Relevance of Necessity
Extensive CEO external social capital	0.216	0.436	0.873
Existing CEO internal social capital	0.441	0.368	0.619
Extensive board chair external social capital	0.289	0.563	0.895
Existing board chair internal social capital	0.885	0.446	0.285
Extensive board external social capital	0.238	0.355	0.803
Extensive board internal social capital	0.335	0.512	0.847
Strategic industry	0.476	0.363	0.571
Negations of conditions			
Not extensive CEO external social capital	0.792	0.412	0.304
Not existing CEO internal social capital	0.559	0.457	0.642
Not extensive board chair external social capital	0.721	0.378	0.302
Not existing board chair internal social capital	0.115	0.263	0.860
Not extensive board external social capital	0.787	0.451	0.409
Not extensive board internal social capital	0.684	0.388	0.377
Not strategic industry	0.524	0.473	0.692

Following the fsQCA analytical procedure, analysis of sufficiency was subsequently performed. The results presented in Table 3 include combinations of causal conditions, which are sufficient for inducing high firm performance in short-term (2-year ROA) and long-term (4-year ROA). The analysis revealed three configurations for high performing firms in short-term, namely solution A1, A2, and A3. These alternative solutions jointly covered 0.210 of membership in the outcome set, with consistency of 0.908. Solutions B1, B2, and B3 present alternative causal paths for high long-term performance. The solutions reported joint coverage at the level of 0.181 and consistency of 0.933.

Table 3. Configurations of individual social capital in high performing firms

Conditions	Short-term high performance			Long-term high performance		
	Solutions			Solutions		
	A1	A2	A3	B1	B2	B3
Extensive CEO external social capital		●	●		●	●
Existing CEO internal social capital	⊗	●	●		●	●
Extensive board chair external social capital	●	●		●	⊗	●
Existing board chair internal social capital		●	●	⊗	●	●
Extensive board external social capital		●	●		●	●
Extensive board internal social capital		⊗	⊗		⊗	
Strategic industry	⊗	⊗	⊗	⊗	⊗	●
Consistency	0.872	0.935	0.947	1.000	0.872	1.000
Row coverage	0.117	0.057	0.036	0.017	0.088	0.081
Unique coverage	0.117	0.057	0.036	0.017	0.083	0.075
Number of firms	6	2	2	1	3	3
% of the sample	7.23%	2.41%	2.41%	1.20%	3.61%	3.61%
Solution consistency	0.908			0.933		
Solution coverage	0.210			0.181		

● - core causal condition present; ⊗ - core causal condition absent; ● - complementary causal condition present; ⊗ - complementary causal condition absent, blank spaces indicate conditions that can be absent or present, but are not relevant for configurations.

The empirical results suggest that the following combinations of conditions are sufficient for inducing high short-term performance. Solution A1 propose that presence of extensive board chair external social capital combined with absence of CEO internal social capital is associated with high performance over the short term in firms operating in the non-strategic industry. Alternatively, high short-term performance of firms in this industry result from extensive external social capital of board chair, CEO, and the board that occur in combination with board chair and CEO internal social capital, yet in absence of board internal social capital (solution A2). A similar configuration of factors is suggested by Solution A3, namely a simultaneous presence of CEO and board external social capital, CEO and board chair internal social in combination with absence of extensive board internal social capital. These results show that board chair external social capital may have a positive effect on short-term performance when there is no social tie between CEO and board of directors (solution A1). When such tie exists,

presence of board chair external social capital may be still associated with high firm performance, when board chair has also internal ties to board members, whose are not densely connected amongst each other (solution A2). Moreover, even when board chair is not affiliated with many external actors, his internal ties to the board in combination with other factors may induce high short-term performance (solution A3).

The analysis of combinations of factors leading to long-term high performance revealed the following causal paths. Solution B1 demonstrates that in firms operating in the non-strategic industry external social capital of board chair may be linked to high long-term performance, if combined with absence of board chair internal social capital. Solution B2 corresponds to some extent to solutions A2 and A3. However, the solution (B2) shows that the same combinations of factors as in solution A2 and A3 may lead to long-term performance when board chair actually does not have wide-spread external networks, in other words, in absence of extensive board chair external social capital. The analysis also provided insights into long-term high performance of firms operating in the strategic industry (solution B3). Based on the results, in the strategic industry extensive external social capital of CEO, board chair, and the board combined with presence of internal social capital of CEO and board chair lead to high long-term performance. The empirical evidences show that external and internal social capital of board chair are important conditions, which in specific combinations with other factors induces high long-term performance. Moreover, board chair social capital is a relevant condition for firms operating in strategic and non-strategic industries. The causal paths identified for the non-strategic industry (solution B1 and B2) include presence of either internal or external social capital of board chair. In contrast to this patten, the causal path typical for firms in the strategic sector (solution B3) includes presence of both conditions. Hence, for high long-term performance in the strategic industry, presence of board chair internal and external social capital is essential.

Configurations of individual social capital in underperforming firms

To thoroughly investigate performance implication of board chair social capital, in the next step it is analyzed in the context of underperforming firms. The aim of this approach is to show if social capital of board chair may actually be also associated with firm underperformance. Moreover, the results presented in this section allow juxtaposition of insights from high performing firm with evidences from underperforming firms. The results are presented in Table 4. The empirical analysis revealed three alternative combinations associated

with short-term firm underperformance: solution C1, C2, and C3. These solutions jointly covered 0.392 of set membership in the outcome set, with consistency of 0.888. The results explaining long-term firm underperformance suggest three alternative causal paths: D1, D2, and D3. The overall coverage of the solutions was 0.409, with consistency of 0.871.

Table 4. Configurations of individual social capital in underperforming firms

Conditions	Short-term underperformance			Long-term underperformance		
	Solutions			Solutions		
	C1	C2	C3	D1	D2	D3
Extensive CEO external social capital	●	⊗		⊗	⊗	⊗
Existing CEO internal social capital				⊗	●	
Extensive board chair external social capital			⊗	⊗		⊗
Existing board chair internal social capital			⊗			⊗
Extensive board external social capital	⊗	●	⊗	⊗	●	⊗
Extensive board internal social capital	⊗		⊗	●		⊗
Strategic industry		●	⊗	⊗	●	⊗
Consistency	0.763	0.945	0.851	0.899	0.938	0.913
Row coverage	0.113	0.229	0.065	0.051	0.112	0.070
Unique coverage	0.099	0.214	0.065	0.051	0.096	0.036
Number of firms	2	10	4	2	5	4
% of the sample	2.41%	12.05%	4.82%	2.41%	6.02%	4.82%
Solution consistency	0.888			0.871		
Solution coverage	0.392			0.409		

● - core causal condition present; ⊗ - core causal condition absent; ● - complementary causal condition present; ⊗ - complementary causal condition absent, blank spaces indicate conditions that can be absent or present, but are not relevant for configurations.

The empirical analysis of underperforming firms delivered the following causal configurations. Solution C1 suggests that extensive CEO external social capital in combination with absence of board external and internal social capital is associated with short-term underperformance. Solution C2 demonstrates a reversed pattern, compared to solution C1. It shows specifically that amongst firms operating in the strategic industry absence of extensive CEO external social capital and presence of extensive board social capital lead to

underperformance. Solution C3 proposes an alternative causal path for firms operating in the non-strategic industry, namely a joint absence of internal and external social capital of board chair and the board. These results demonstrate that in the non-strategic industry absence of board chair external and internal social capital is actually associated with short-term underperformance of firms.

The empirical results suggest the following causal paths as explanations of long-term underperformance. Solution D1 combines absence of external social capital of CEO, board chair, and the board, and absence of internal social capital of CEO with presence of board internal social capital. This configuration, however, is relevant only for the non-strategic industry. Solution D2 shows that in firms operating in the strategic industry long-term underperformance may be explained by simultaneous presence of extensive board social capital and CEO internal social capital, and absence of CEO external social capital. In a similar manner to solution C3, solution D3 emphasizes that absence of external social capital of CEO, board chair, and the board combined with absence of internal social capital of board chair and the board led to long-term underperformance of firms in the non-strategic industry. The results explaining long-term underperformance present similar insights regarding board chair social capital to the evidences from firms underperforming in the short term. The results stress that in firms operating in the non-strategic industry absence of board chair external or internal social capital in particular configurations may be a cause of underperformance.

Post QCA analysis

The empirical results present a variety of possible alternative causal path leading to high performance and underperformance of firms in the selected industries. After obtaining the initial results, it is recommended in the QCA literature to actually ‘go back to cases’ and link the revealed causal configurations to particular empirical cases (Ragin, 2008). Therefore, to further explore social capital of board chair, in this section the results are related to empirical examples of firms that represent the identified combinations of conditions. An overview of board and firm characteristics typical for each causal combination is presented in Table 5.

Solution A1 is relevant for state-owned (SOEs) and private (POEs) firms operating in the non-strategic industry. The solution emphasizes importance of board chair external social capital for high short-term performance. Indeed in the typical firms board chairs was usually affiliated with numerous external actors. External affiliations of board chair often included board posts in firms operating within the same industry, firms from financial sector, such as China

Construction Bank, and firms owned by the same business groups as the focal firms. Moreover, not uncommonly directors in the focal firms were actually also connected with the business groups by holding board posts in other affiliates. Apart from having other business affiliations, board chair was also active in non-business institutions. Particularly in SOEs board chair was performing the role of Deputy Secretary or Secretary of Party Committee in other firms, thus had a politically connected position. In POEs board chair was active in numerous business associations, such as China Township Enterprise Association, China Enterprise Federation, etc. It is important to mention that typically for this configuration CEOs of these firms did not have external affiliations with other firms. Therefore, external social capital of board chair was actually spanning organizational boundaries of the firms, considering also few external affiliations of directors.

Solution A2 is relevant only for state-owned enterprises operating in the non-strategic industry. This configuration is typical for firms in which the role of board chair was performed by well-connected individuals, who usually were holding board posts in other firms. The external affiliations of board chair often included posts in firms affiliated with the same business group as the focal firm. Moreover, board chair could have had also non-business connections, owing to membership in associations, such as Asia Capital Forum or China Venture Capital Association. In one case board chair had also political ties, which were deriving from his position of Secretary of Party Leadership Group in a business group affiliate. It is worth mentioning that typically board chair was holding at least one board post in the same firm as CEO and some of directors. Therefore, in the typical firms board chair was not only performing a boundary-spanning role, but also contributing to internal social capital accumulation within the board and possibly foster its collaborative orientation.

Solution A3 presents a pattern that occurs amongst state-owned and private firms in the non-strategic industry. It shows that presence of board chair internal social capital, in combination with other causal conditions, leads to high performance over the short term. Board chair in these firms usually had single external connections, typically to firms affiliated with the same business group as the focal firms. Moreover, affiliation with these particular firms was also present amongst directors and CEO. Board chair was performing chairman or vice chairman role in other firms. However, in SOE board chair external duties were encompassing also the role of Secretary of Party Committee, thus a politically affiliated position in another state-owned firm. These examples show that even single connections of board chair may

contribute to strengthening of internal ties through holding post in the same firms, and strengthening of external ties, such as ties to the business group and political actors.

Solution B1 demonstrates a causal configuration typical for state-owned firms in the non-strategic industry. Similarly to the solution A1, it highlights the association of board chair external social capital with firm performance, here also over the long term. In the typical firm board chair was holding positions of supervisor or independent director in other firms, such as China Construction Bank. The chair had also an academic position in Renmin University of China. The external connections of board chair were not overlapping with connection of directors or CEO, who in fact did not have any external affiliations. Hence, in this case, external affiliations of board chair were significantly contributing to enlarging firm's external network and accumulating its external social capital.

Solution B2 is relevant for state-owned and private firms operating in the non-strategic industry. Again, it highlights the role of board chair internal social capital for inducing high performance, yet in this case it is actually combined with absence of board chair external social capital. In these firms board chair had only single external board posts typically in firms affiliated with the same business group as the focal firm. Moreover, CEO and some of directors also were holding post in these firms. It was also possible for board chair in SOEs, in addition to his regular post, to be a Secretary of Party Committee in another SOE. Since, board chair, CEO, and some directors were holding board posts in the same firms; it could have enhanced their collaboration in the boardroom.

Solution B3 presents a causal configuration that induces high long-term performance of firms in the strategic industry. All firms in this industry were state-owned. The configuration demonstrates that in these firms external and internal social capital of board chair complement each other. Board chair usually had a wide-spread external network to other firms in the industry and particularly to firms affiliated with the same business group as the focal firm. Also board chair was commonly performing the role of Secretary of the Party Committee, thus had a political affiliation in at least one firm he was affiliated with. Moreover, CEO and directors of the focal firms were holding external position in the same firms as board chair. In fact the typical focal firms were capitalizing on external connections of board chair, but also on external affiliations of CEO and directors, since their boards encompassed well-connected individuals.

Table 5. Overview of board and firm characteristics typical for firms representing the causal configurations

Solution	Average Board size		Average number of external network ties			Internal network ties			Ownership type	Industry
	Board	Chair	CEO	Board	Chair	CEO	Board of directors (Network density)			
High performing firms										
A1	16	5	0	15	Yes	No	0.13	SOE and POE	Non-strategic	
A2	19	7	4	30	Yes	Yes	0.13	SOE	Non-strategic	
A3	18	2	3	28	Yes	Yes	0.16	SOE and POE	Non-strategic	
Underperforming firms										
B1	17	3	0	19	No	No	0.07	SOE	Non-strategic	
B2	17	2	4	29	Yes	Yes	0.13	SOE and POE	Non-strategic	
B3	21	7	12	46	Yes	Yes	0.17	SOE	Strategic	
Underperforming firms										
C1	18	3	4	13	Yes	Yes / No*	0.11	SOE	Non-strategic and strategic	
C2	26	2	1	42	Yes / No*	Yes / No*	0.13	SOE	Strategic	
C3	21	1	1	17	No	Yes / No*	0.09	SOE	Non-strategic	
Underperforming firms										
D1	22	2	0	14	Yes	No	0.26	SOE	Non-strategic	
D2	24	2	1	45	Yes / No*	Yes	0.18	SOE	Strategic	
D3	21	1	1	17	No	Yes / No*	0.09	SOE	Non-strategic	

* Yes / No means that amongst firms representing a particular pattern (solution) a given characteristic was present and absent

Solution C1 is relevant for state-owned firms operating in the non-strategic and the strategic industry. It does not associate board chair social capital with firm short-term underperformance, but explain it by a combination of CEO external social capital with absence of board external and internal social capital. However, this does not mean that board chair in a typical firm did not have any external affiliations. Although only single, the external ties of board chair were connecting the focal firm with other actors in the environment, including other business group affiliates. Regardless the industry, board chair was usually performing the role of Secretary of the Party Committee in another firm. Moreover, board chair had common external affiliations with directors, yet not necessarily with CEO. While in this configuration social network of board chair is not mentioned as a condition leading to underperformance, it in fact existed and connected the focal firm to other external actors and also possibly had an impact on internal relationships within the board.

Solution C2 presents a causal configuration leading to short-term underperformance of state-owned firms in the strategic industry. Similarly to the solution C1, this causal configuration does not include board chair social capital. However, in majority of typical firms board chair actually was holding a position in another firm in which other directors also had board posts. Therefore, this common external affiliation also possibly had an impact on internal relationships between board chair and directors. Yet, it was not a causal condition leading to underperformance, since based on the results it was caused by extensive board social capital and absence of CEO external social capital.

Solution C3 demonstrates a pattern relevant for state-owned enterprises operating in the non-strategic industry. This causal path suggests that, amongst other conditions, absence of board chair internal and external social capital leads to short-term underperformance. In typical firms board chair either had only single external affiliations or did not have any at all. The external affiliations were usually formed by holding board posts in other firms in the industry, which were not affiliated with the same business group as the focal firm. Moreover, affiliations with these particular firms were uncommon amongst directors and CEO. Therefore, external affiliations of board chair did not substantially enlarge firm's external network and had no effect on building up internal social capital within the boardroom.

Solution D1 is relevant for state-owned firms operating in the non-strategic industry. The solution associates lack of board chair external social capital, in combination with other factors, with firm long-term underperformance. Typically for these firms, board chair had had only single external affiliations in other firms, which were owned by the same business group as the

focal firms. Moreover, such affiliations were present also in external networks of directors. In fact the common external affiliations of directors resulted in relatively high board internal social capital. As shown in the solution, this condition combined with absence of external social capital of board chair, CEO, and the board, also in absence of CEO internal social capital led to long-term underperformance.

Solution D2 presents a causal configuration relevant for state-owned firms operating in the strategic industry. This configuration does not include, however, neither external nor internal social capital of board chair. In typical firms board chair was holding only few external affiliations with other firms, including those within the same business group. Not uncommonly board chair, apart from having a board post in other state-owned firms, was also performing the role of Deputy Secretary or Secretary of Party Committee, thus had a politically affiliated position. Moreover, in some cases CEO and directors were also affiliated with the same firms as board chair. This reflects to some extent CEO's internal social capital, which is one of the causal conditions leading to underperformance.

Solution D3 demonstrates another configuration typical for state-owned firms operating in the non-strategic industry. It presents a causal path similar to the pattern identified by solution 3C, yet here the causal conditions are also combined with absence of external social capital of CEO. This configuration highlights that absence of internal and external social capital of board chair, in combination with other conditions, leads to long-term underperformance. In typical firms board chair was affiliated only with one firm, apart from the focal firm, or did not have any external affiliations. Moreover, this firm could have been, but not necessarily, affiliated with the same business group as the focal firm. Furthermore, neither CEO nor directors were holding posts in this firm. Hence, this external affiliation of board chair potentially was not affecting internal relationships within the boardroom.

Robustness check

In order to verify if the obtained results hold under different model specifications, the analysis was rerun with alternative consistency thresholds and alternative calibration of conditions. In the primary version of the model consistency level was set at 0.8. For robustness check consistency was decreased to 0.75, which is a lower-bound acceptable level, and subsequently increased to 0.85. This is in line with recommendations in the literature regarding robustness check in fsQCA (Schneider & Wagemann, 2012). The findings of analysis conducted with the increased consistency level to 0.85 to some extent differed from the initial results and

were in subset relation. However, the results were still corresponding to the original findings and capturing similar patterns. The decrease of consistency threshold to 0.75 resulted in increased coverage of solutions, which were in superset relations to the original results. Since changing of the consistency thresholds has not caused substantial divergence of results, robustness was confirmed.

Verification of robustness through alternative calibration was conducted with respect to the initial assumptions regarding design of the sets, namely by ensuring that qualitative characteristics of sets remained unaffected. The original design of sets aimed to include boards and individuals, such as CEOs and board chair, who possessed extensive social connections outside organizations. The same approach to capturing extent of social capital was utilized in calibration of board internal social capital. In consequence the thresholds for set memberships were set at high level of 90th percentile. As in robustness check the intension was to keep the qualitative characteristic of social capital, alternative thresholds were increased by 5 percentile points and subsequently lowered only by 10 percentile points. For calibration of the outcome set, the original thresholds were applied, because of strong qualitative premises. The obtained results closely corresponded to the original findings and demonstrated analogous patterns. Therefore, robustness was confirmed.

Insights from non-strategic and strategic industries – a supplementary analysis

To enrich our findings with industry-specific insights regarding board chair social capital, additional separate fsQCA analyses were performed on samples from the strategic and the non-strategic industries selected for this study. In the analysis of the non-strategic industry a variable for state-ownership was included in the model, to identify configurations of conditions typical for state-owned enterprises (SOEs) and privately-owned enterprises (POEs). This binary variable and the crisp set, which was created accordingly, assigned value of 1, and thus full membership in the set, to firms in which the state was a controlling shareholder either directly through its agencies or through other state-owned enterprises. The value of 0 was assigned to private firms. For further analysis of the strategic industry there was no need to include an ownership variable, since all firms in the sample were SOEs. However, for insightful analysis of this particular sector, the thresholds for high performance were adjusted, because the initial results (see Table 3) explaining high short-term performance have not included any configurations typical for the strategic industry. For this reason, the outcome set (high firm performance) was redesigned and thresholds for set membership adjusted following the

approach in Fiss (2011). Despite the adjusted thresholds, the new set still intended to capture high performing firms. Therefore, the 75th percentile was selected as a threshold for full membership in the set, to include firms that have reported above-average performance. For short-term performance this threshold was set at the level of 0.052 and for long-term performance at 0.05. To exclude average or below average performing firms from the set, the 50th percentile was selected as a threshold for non-membership in the set (0.04 for short-term and 0.046 for long-term). The mid-point between these two thresholds was set as a cross-over point (0.046 for short-term and 0.048 for long-term). The results of these supplementary industry analyses are presented in Appendix in Table 1 and Table 2.

The analysis of the non-strategic industry (see Table 1 in Appendix) has revealed that presence of board chair internal social capital in combinations with other factors lead to high performance over short-term and long-term. Moreover, it is relevant for state-owned enterprises (SOEs) as well as for private firms. In SOEs board chair internal social capital in combination with board internal social capital (solution E1), board chair external social capital and absence of CEO external social capital (solution E2) is associated with high short-term performance. Solution E3 is relevant for both types of firms and shows that high performance over short term may be caused by a simultaneous presence of board chair and CEO internal social capital, CEO and board external social capital, yet in absence of board chair external social capital. The results explaining high performance in the long term have demonstrated similar patterns. Solution F1, similarly to solution E1, emphasizes that in state-owned firms a simultaneous presence of board chair, CEO, and board internal social capital induced high long-term performance. Solutions F2 and F3 are relevant for SOEs and private firms. Solutions F2 and solution E3 correspond to some extent, since F2 also shows positive performance implication of a combination of CEO and board external social capital, CEO and board chair internal social capital, yet with absence of board internal social capital. Solution F3 demonstrated the same pattern as solution E3. Hence, this configuration leads to high performance over short and long term.

The empirical findings for underperforming firms in the non-strategic industry suggest the following causal paths that show similar patterns to the initial results (see Table 4 for comparison). The findings show that actually absence of board chair internal and external social capital in combination with absence of board internal and external social capital induces short-term underperformance in state-owned firms (solution G2). The analysis has revealed also two other alternative causal paths leading to short-term underperformance, yet none of these paths

include social capital of board chair as a causal condition. Solution G1 also explains underperformance of SOEs, but by a combination of absence of board internal and external social capital with presence of extensive CEO external social capital. Solution G3 demonstrates that in private firms short-term underperformance may derive from presence of extensive CEO external social capital and board internal social capital. Similar patterns explain also long-term underperformance. The results have shown that in SOEs absence of board chair internal and external social capital in combination with absence of CEO external social capital and board internal social capital leads to long-term underperformance (solution H2). Solution H1 shows that same pattern as solution G1. Hence, absence of board internal and external social capital combined with extensive CEO external social capital induces short-term and long-term underperformance of state-owned firms. Solution H3, similarly to G3, demonstrates that in private firms CEO external social capital may be associated with underperformance, yet in combination with extensive board chair external social capital it actually leads to long-term underperformance.

The analysis of the strategic industry (see Table 2 in Appendix) has demonstrated that presence of board chair internal social capital, in combinations with other conditions, may lead to high short-term and long-term performance. To induce high short-term performance, internal social capital of board chair ought to occur jointly with absence of board chair extensive external social capital and absence of CEO internal social capital (solution I1). Solution I2 offers an alternative causal path, namely a combination of external and internal social capital of CEO and board of directors. Solution J1, similarly to solution I1, shows that internal social capital of board chair is a causal condition leading to high performance also in the long term, if combined with absence of board chair external social capital and CEO internal social capital, yet in the presence of board internal social capital. Solution J2 demonstrates an analogous pattern to solution I2; however, apart from including CEO and board internal and external social capital, it shows that to induce long-term high performance these conditions ought to occur together with internal and external social capital of board chair.

Although the analysis of underperforming firms provided similar results to the initial findings presented in Table 4, some new patterns have been also revealed. The results suggest that underperformance of firms in the strategic industry may be explained by the following causal paths. Solution K1 and K2 clearly demonstrate that in particular combinations of conditions board chair external social capital is associated with short-term underperformance. In solution K1 presence of extensive board chair external social capital occur simultaneously with

board external social capital and absence of CEO external social capital. In like manner, solution K2 combines board chair external social capital with absence of CEO external social capital, yet in this case these factors occur together with presence of CEO internal social capital and absence of board internal and external social capital. In contrast to the findings regarding short-term underperformance, the results explaining long-term underperformance do not associate this outcome with board chair external social capital. Solution L1 encompasses absence of CEO external social capital and presence of CEO internal social capital that occur together with extensive board external social capital. Solution L2 emphasizes that absence of board chair internal social capital, absence of board internal and external social capital combined with CEO internal social capital lead to long-term underperformance.

The additional analyses have confirmed that social capital of board chair has significant implications for performance and underperformance of firms in the analyzed industries. Moreover, the evidences from the non-strategic industry emphasized that causal configurations leading to performance or underperformance may vary depending on firm ownership. The analysis of the strategic industry revealed possible alternative combinations inducing high firm performance and underperformance over short and long term. However, it is worth recalling that the insights from the strategic industry are only relevant for state-owned firms, since this was the only type of firm ownership present in this particular industry.

DISCUSSION AND CONCLUSION

The extant literature on social capital in boards is rich in studies focusing on CEO and directors, whereas board chair only recently has appeared in this context (Krause, Semadeni, Withers, 2016). For that reason, this study aims to contribute by enhancing knowledge on social capital of board chair and its performance implications. The study recognizes embeddedness of board chair in internal relationships within the boardroom and exposure to external relationships of CEO and directors. Therefore, performance implications of board chair social capital are investigated in combinations with social capital of CEO and directors, with differentiation between internal and external dimensions of social capital. This approach to conceptualization and empirical analysis reveals existing complementarities and substitutions between social capital of board chair, CEO, and directors that so far have not been explored in the literature.

Board chair external social capital may substitute and complement external connections of other actors and lead to high short-term and long-term performance. As shown in the recent

study by Krause, Semadeni, and Withers (2016) board chair may perform a boundary-spanning role in a firm and provide numerous resources, knowledge, and expertise through her/his external connections. The results confirm that boundary-spanning role of board chair has a positive association with firm performance. Moreover, board chair may contribute to achieving high firm performance by performing a boundary-spanning role, but also her/his internal relationships with board members may enhance collaboration within the boardroom. Board chair internal social capital complements internal social capital of CEO, in absence of board internal social capital. This result advocates for collaborative board model (Westphal, 1999) and shows that board chair may not only be included in the model, but accelerate its effectiveness in firms operating in strategic and non-strategic industries. The empirical evidences also assert that actually presence of board chair internal social capital and absence of the chair's external social capital, in combinations with extensive external networks of CEO and the board leads to high firm performance. It may be presumed that to induce high performance, in this case, the role of board chair ought to be focused on control issues rather than on resource provision, since it can be substituted by CEO and the board. Previous studies have shown that, in the case of directors, holding multiple board posts may lead to accumulation of obligations and ineffective role performance by such director that in turn is detrimental to firm's oversight and management (Ferris, Jagannathan, Pritchard, 2003; Ruigrok, Peck, Keller, 2006). It may be also applied to board chair, whose numerous board posts and memberships in non-business organizations may create a distraction from responsibilities in the focal firm. Therefore, the empirical evidences suggest that absence of external social capital may actually have positive implications for performance. In the aforementioned case board chair ought to serve as a counterbalance to the power deriving from external connections of CEO and directors. Alternatively, if CEO and the board are not connected and do not possess extensive external social capital, board chair acting as a boundary-spanner would contribute to high performance.

The evidences from analysis of underperforming firms suggest that absence of social capital is associated with firm underperformance. This also includes absence of internal and external social connections of board chair. Directors and CEO may use their external networks to span firm's boundaries, provide knowledge and resources, and get external viewpoints on strategic initiatives to increase firm performance (Geletkanycz & Boyd, 2011; Haynes & Hillman, 2010; Hillman, Cannella, Paetzold, 2000). Therefore, a shortage of external connections of board chair, CEO, and the board may have a detrimental effect on performance. Moreover, lack of internal agreement and cooperation, which typically is enhanced by internal

social capital (Harris & Helfat, 2007; Oh, Chung, Labianca, 2004), decreases board effectiveness and only adds up to the negative effect on performance. The empirical findings suggest that firm underperformance may be caused by extensive external social capital of one key actor in the board when others do not have wide-spread external connections. External social capital gives a sort of power, such as prestige power of CEO (Finkelstein, 1992), since it derives from connections to potentially powerful actors in firm's environment. The accumulated power may encourage the rent-seeking CEOs or directors to put their opportunism before firm's interest and consequently lead to underperformance. Moreover, if the board consists of directors, who hold multiple board appointments simultaneously, it may affect its effectiveness, because directors may not give considerable attention to oversight of the focal firm. Therefore, a 'busy board' may be the cause of firm underperformance (Ferris, Jagannathan, Pritchard, 2003; Ruigrok, Peck, Keller, 2006). In addition, if CEO is connected with such 'busy board' and does not have an established external network, then it may also lead to underperformance. In such case, CEO may not be able to counterbalance the powerful directors.

This study offers also industry insights regarding board chair social capital and its performance implications. In the analyzed strategic and non-strategic industries, board chair internal social capital was identified as one of the causal conditions leading to high performance over the short and the long term. This condition occurred almost in all causal configurations and confirmed the crucial role of social ties between board chair and other board members that may encourage collaborative approach to governance. As described by Sundaramurthy and Lewis (2003), collaborative approach to governance aims at forming a 'governing team' of directors and executives. Since board chair acts as a liaison between CEO and directors, it could be her/his big task to facilitate collaboration and ensure effective governance. Therefore, as the empirical results have shown, board chair internal social capital may complement and substitute internal social capital of CEO and the board. Moreover, internal social capital of board chair, in combinations with other factors, may induce high firm performance in strategic and non-strategic industries, regardless firm ownership.

This study offers the following contributions to the literature. First, it challenges the traditional perspective on the role of board chair, through demonstrating that this role is performed by an individual, who actually may have wide-spread social relationships within and outside the firm. This study argues that board chair has not only a control function in the board, as conventionally presumed (Boyd, 1995; Eisenhardt, 1989; Fama & Jensen, 1983), but her/his role goes beyond to boundary-spanning and teamwork facilitator. A position of board chair may

be held by a high-profile individual, who over the course of career has developed a wide-spread network of professional connections. This individual may contribute to resource provision and span firm's boundaries to the same extent as any director or CEO. Since, board chair is a liaison between CEO and directors, her/his internal connections within the boardroom may accelerate cooperation and support collaborative approach to governance.

Second, the study advocates for analyzing social capital in boards of directors in terms of complementarities and substitutions. This approach not only reveals nuances of social relationships within and outside the boardroom, but also brings empirical research closer to actual board behavior. The empirical findings support the rationale for adopting such approach by confirming and further exploring the proposed relationships between internal and external social capital of board chair, CEO, and directors.

Third, this study contributes also to a greater body of literature that investigates behavioral aspects of boards of directors and governance (Huse, 2007; Van Ees, Gabrielsson, Huse, 2009). It presents boards of directors as complex sets of social relationships amongst board chair, CEO, and directors, and their relationships with external actors in firms' environment. This approach goes beyond showing boards of directors as governing bodies and demographics of their members, and put emphasis on their social dimensions.

Finally, this study also shows that unconventional research methods, such as fsQCA, provides more refined results and answers research questions that otherwise could not have been answered. It is becoming more recognized that causal complexity can and should be studied to advance the existing research (Misangyi et al., 2017). Qualitative Comparative Analysis (QCA) offers a methodological possibility to empirically study causal complexity. This study presents valuable contributions of the method to uncovering complementarities and substitutions in the context of board chair social capital.

Although this study provides new insights into social capital in boards of directors, and social capital of board chair in particular, it is not free from limitations. First, the applied configurational method (fsQCA) indeed enables analysis of complex causal relationships, yet it imposes several methodological limitations. The method permits a limited number of causal conditions to be included into empirical analysis. For this reason, only causal conditions approximating social capital of board chair, CEO and directors could have been taken into account in combinations with industry type. This limitation was partially addressed in the post QCA analysis and in the supplementary analyses of strategic and non-strategic industries that provided complementary results and even more detailed insights. Moreover, to increase

comparability of the cases, outliers were removed from the sample. However, it is admitted that not all possible sources of variance in firm performance could have been controlled for. It is also worth mentioning that results of QCA analysis are sensitive to different set calibrations. Robustness of the results of this study has been confirmed by rerunning analyses with alternative set calibrations and thresholds for consistency. Yet, it is important to emphasize that sensitivity of results should be taken into account and checked whenever QCA method is applied. The qualitative comparative analysis (QCA) is typically applied to cross-sections data, as in this study, and encounters difficulties in explaining complex causal relationships over time. This limitation was addressed by conducting separate analyses for short-term and long-term outcomes that to some extent revealed stability of the causal relationships over time. However, future research could focus on further development the method and its suitability for longitudinal research, as it has been done by Garcia-Castro and Ariño (2016). Their approach has been recognized for integration of QCA and panel data econometrics, and for development of measures of consistency and coverage suitable for longitudinal QCA analysis (Misangyi et al., 2017). Knowing the static nature of QCA and its consequent limitations, the approach proposed by Garcia-Castro and Ariño (2016) offers an interesting way of integrating time dimension into QCA.

Second, this study relied on secondary data reported in annual reports of publicly listed firms in China that were extracted from CSMAR database. Knowing the difficulties in obtaining primary data regarding social connections of executives and directors in China, for the purpose of this study, it was decided that the secondary data provide the best available approximation of social networks. However, the results can be advanced by adopting alternative approaches to analyzing the role of board chair. For example, Krause (2017) recently has advanced research on board chair by investigating board chair orientation based on content-analysis of proxy statements. Therefore, future research may try to integrate secondary data from multiple sources and, if possible, collect primary data through surveys and interviews to validate the proposed causal relationships. In addition, to thoroughly investigate the relationship between configurations of social capital and firm performance, future studies may additionally apply market-based measures of financial performance, such as Tobin's Q.

Third, the empirical setting of this study, although provides evidences from China, also imposes limitations on external validity of the results. Moreover, the empirical evidences demonstrate patterns typical for firms operating in two types of industries: strategic (Production and Supply of Electricity, Steam & Hot Water) and non-strategic (Transportation Equipment

Manufacturing). Therefore, the results may be generalized to industries with similar characteristics, but generalizability to all industries is limited. Reliance on social networks and presence of powerful actors in firm environment is not only limited to China, but is typical for many countries going through institutional transition. Therefore, the results are relevant also for other developing economies in which social relationships tend to substitute market institutions. However, generalizability of the findings to developed economies is limited, because of different nature of business environment in these economies that are governed by contracts and regulations. For this reason firm operating in developed economies put trust in the rule of law rather than in social relationships. In developing economies this relationship is reversed (Akamatsu, 1962; Redding, 1990). Nevertheless, separation of board chair and CEO roles is a common practice also in developed economies, yet it has been studied mainly from internal control perspective (Boyd, 1995; Fama & Jensen, 1983). For this reason, a comparative study juxtaposing evidences from multiple countries could advance understanding of institutional factors determining the role of board chair and explore existing complementarities and substitutions between social capital of the key actors in the boardroom. Despite the above-mentioned limitations, hopefully this study raises awareness of the shortcoming of the literature regarding board chair and social capital in boards of directors, and will encourage further theoretical developments in this area.

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Appendix

Table 1. Configurations of social capital in the non-strategic industry

Conditions	Short-term high performance			Long-term high performance			Short-term underperformance			Long-term underperformance		
	E1	E2	E3	F1	F2	F3	G1	G2	G3	H1	H2	H3
Extensive CEO external social capital	⊗	●	●	●	●	●	●	●	●	●	⊗	●
Existing CEO internal social capital		●	●	●	●	●						
Extensive board chair external social capital	●	●	⊗	⊗	⊗	⊗	●	⊗	●	●	⊗	●
Existing board chair internal social capital	●	●	●	●	●	●		⊗			⊗	
Extensive board external social capital	●	●	●	●	●	●	⊗	⊗	●	⊗		
Extensive board internal social capital	●	●	●	●	⊗	●	⊗	⊗	●	⊗	⊗	
State ownership	●	●	●	●	●	●	●	●	⊗	●	●	⊗
Consistency	0.691	1.000	0.750	0.581	0.861	0.750	1.000	0.782	0.726	1.000	0.898	1.000
Row coverage	0.238	0.163	0.111	0.119	0.114	0.147	0.225	0.117	0.046	0.184	0.153	0.041
Unique coverage	0.176	0.108	0.105	0.111	0.105	0.139	0.225	0.089	0.046	0.184	0.007	0.041
Number of firms	4	3	2	2	2	2	5	2	1	5	3	1
% of the sample	10.53%	7.89%	5.26%	5.26%	5.26%	5.26%	13.16%	5.26%	2.63%	13.16%	7.89%	2.63%
Solution consistency	0.800		0.732				0.899			0.897		
Solution coverage	0.451		0.258				0.446			0.528		

● - core causal condition present; ⊗ - core causal condition absent; ● - complementary causal condition present; ⊗ - complementary causal condition absent, blank spaces indicate conditions that can be absent or present, but are not relevant for configurations.

Table 2. Configurations of social capital in the strategic industry

Conditions	Short-term high performance Solutions			Long-term high performance Solutions			Short-term underperformance Solutions			Long-term underperformance Solutions		
	I1	I2	J1	J2	K1	K2	L1	L2				
Extensive CEO external social capital		●		●	⊗	⊗	⊗					
Existing CEO internal social capital	⊗	●	⊗	●		●	●	●				
Extensive board chair external social capital	⊗		⊗	●	●	●						
Existing board chair internal social capital	●		●	●				⊗				
Extensive board external social capital		●		●	●	⊗	●	⊗				
Extensive board internal social capital		●	●	●		⊗		⊗				
Consistency	0.848	0.918	0.855	1.000	0.879	0.890	0.984	1.000				
Row coverage	0.311	0.076	0.152	0.045	0.199	0.096	0.154	0.088				
Unique coverage	0.123	0.035	0.152	0.045	0.092	0.088	0.126	0.060				
Number of firms	4	3	2	3	7	3	5	3				
% of the sample	8.89%	6.67%	4.44%	6.67%	15.56%	6.67%	11.12%	6.67%				
Solution consistency	0.847		0.884		0.890		0.989					
Solution coverage	0.269		0.197		0.096		0.214					

● - core causal condition present; ⊗ - core causal condition absent; ● - complementary causal condition present; ⊗ - complementary causal condition absent, blank spaces indicate conditions that can be absent or present, but are not relevant for configurations.

Chapter 4: Dynamics of Board Social Capital – Multiple Case Studies from China²³

Abstract: To address the shortcomings of the literature, this study explores dynamics of board social capital in the context of firm expansion. In the study we emphasize complexity of board social capital and disentangle its dynamics through investigating evolution patterns of external and internal networks formed by board members. The undertaken multiple case study analysis of publicly listed firms in China generates novel insights on how internal and external network may evolve when firms are transitioning between stages of expansion. Building on the findings, we propose that diversity of external network ties will follow an inverted U-shape pattern, as firms move from an initial to a later stage of expansion. Similarly, strength of external network ties will be subjected to an initial strengthening of weak ties and weakening of strong ties, followed by strengthening of strong ties and dissolution of weak ties. However, in contrast to these patterns, cohesion of the internal network amongst board members will be consistently increasing. This study shows that evolution patterns of external and internal networks differ, because the networks have different instrumental functions. Moreover, we demonstrate that network ties of board members may be temporal, as their value grow or decay over time and along with firm expansion. Furthermore, we present an effective combination of research methods suitable for investigating unexplored theoretical concepts.

² This chapter is co-authored with Bella Butler (Curtin Business School, Perth, Australia)

³ An earlier version of this study was accepted to AIB Southeast Asia Regional Conference (December, 2015)

INTRODUCTION

The concept of board social capital recently became a popular topic in management studies, as it proposes a new perspective on boards of directors (Hillman & Dalziel, 2003; Haynes & Hillman, 2010). It particularly brings attention to the resources deriving from network ties of board members and their wide-spread organizational implications (Nahapiet & Ghoshal, 1998; Pfeffer & Salancik, 1978). Therefore, the literature has been associating resource provision through network ties with numerous organizational outcomes, such as firm performance (Zona, Gomez-Mejia, Withers, 2015), competitive advantage over other market players (Wu, 2008), or dissemination of governance practices (Shipilov, Greve, Rowley, 2010). Moreover, board social capital has been acknowledged for its facilitating role in embracing strategic change (Haynes & Hillman, 2010), like also in stimulating growth of new venture companies (Han, 2006; Prashantham & Dhanaraj, 2010).

Despite the acknowledged importance of board social capital, the existing literature fails to thoroughly explore its dynamic facet. Moreover, scholars emphasize in general that "... to date we know very little about how organizations' social capital develops over time, about the factors and processes enabling and constraining its development, and about possible related performance implications" (Maurer & Ebers, 2006, p. 262). This issue is particularly alerting, for social capital "like any other capital asset, has to be seen as being dynamic" (Prashantham & Dhanaraj, 2010, p. 967). It is acknowledged in the literature that board of directors, in order to perform its roles, utilizes the available resources, such as knowledge and expertise of members, but also the network resources that derive from their social connections (Kor & Sundaramurthy, 2009; Mizruchi, 1996). Moreover, networks of board members may evolve for specific purposes, as their social relationships can be established, re-established, and dissolved. Board of directors may also appoint new members, to acquire unique resources, for example, foreign market knowledge (Connelly et al., 2011) or connections to political actors in firm's environment (Hillman, Keim, Schuler, 2004; Lester et al., 2008). This shows that board of directors may instrumentally employ networks to support execution of firm strategy, thereby effectively performs its strategy role (Geletkanycz & Hambrick, 1997). Although scholars have been successfully investigating motivations behind formation of network ties, still the evolution process of networks remains a relatively unexplored phenomenon (Ahuja, Soda, Zaheer, 2012). This is problematic, because static approach to board social capital understates the dynamic relationship between the board, its networks, and firm-level outcomes.

To address the shortcomings of the literature, this study aims to explore dynamics of board social capital. As the construct encompasses a variety of social relationships formed by board members, in order to reflect its complexity, first we disentangle different types of networks and then look into their evolution patterns. Referring to the differentiation between internal and external social capital (Kim & Cannella, 2008), we argue that dynamics of board social capital encompass changes in networks, which board members form inside and outside the organization. Therefore, in this study we investigate how internal and external networks may evolve over time. To shed light on the relationship between evolution of networks and firm-level outcomes, we conduct our study in the context of firm expansion, since social capital is a recognized factor facilitating firm growth (Coviello, 2006; Maurer & Ebers, 2006; Prashantham & Dhanaraj, 2010). For the purpose of this study, we treat firm expansion as a process of establishing subsidiaries on domestic and international markets, and particularly focus on capturing a shift from an initial to a later stage of expansion. We argue that this shift is a well suited period in firm's expansion history to investigate patterns of networks that evolve to address firm's changing needs for resources. In the study, we emphasize a temporal nature of network ties, since networks are instrumental and their value may grow or decay over time and, in this case, simultaneously with firm expansion (Burt, 2002; Soda, Usai, Zaheer, 2004).). Setting the study in this context helps us to demonstrate that networks "carry out specific tasks over a period of time" (Halinen & Törnroos, 2005). Taking into account the limited theoretical developments in this area, we develop theoretical propositions on how external and internal networks may evolve, when firms are transitioning between stages of expansion.

In light of the limited theoretical developments regarding dynamics of board social capital, we applied a process approach (Pettigrew, 1990; Van de Ven, 1992) to carry out a multiple case study analysis of emerging market multinational enterprises (EMNEs) from China. To thoroughly investigate evolution patterns of networks of the selected firms, we performed a longitudinal social network analysis. In our methodology we aimed to emphasize the two dimensions of social capital, thus the network analysis covered: 1) changes in external social capital with focus on strength and diversity of external network ties; 2) changes in internal social capital captured by changes in cohesion of internal network. In order to link evolution of networks with firm expansion, we additionally applied an event-based approach (Halinen, Thörnroos, Elo, 2013) with establishment of new subsidiaries on domestic or international market as the key elements of expansion process. Moreover, to capture the shift in firms' growth, we differentiated between expansion events that had occurred in an initial and a later

stage of expansion. The obtained empirical findings and evidences from the existing literature led to development of theoretical propositions

The study makes several contributions to the literature. First, we disentangle dynamics of board social capital by showing that it encompasses evolution of networks that board members form within and outside the organization. Through investigating evolution patterns of internal and external networks of board members, we emphasize that these networks have different instrumental functions, and thus their evolutions patterns differ. Second, we advance understanding of motivation behind network development in the context of firm expansion. Our study confirms the facilitating role of social capital, especially in the initial stage of expansion (Coviello & Munro, 1997; Coviello, 2006), but also demonstrates novel patterns in social capital accumulation that has not been discussed in this context. While discussing our findings, we touch upon depreciating value of social capital and temporary nature of network ties. Although these issues are of great importance, still often are overlooked in social capital studies (Adler & Kwon, 2002). Finally, we combine two research methods, namely multiple case study analysis with social network analysis. By doing so we demonstrate how a combination of methods may help to advance understanding of unexplored theoretical concepts. Although the study has several limitations, the results challenge the existing findings and hopefully will trigger further research on dynamics of board social capital.

The paper is structured as follows. Firstly, we introduce the theoretical background for this study. We continue with explanation of the applied methodology, case selection, and data. Further we carefully explain the process of case analysis and report our findings. Finally, we discuss the empirical results and develop theoretical propositions. Theoretical implications conclude the paper together with limitations of the study and directions for future research.

THEORETICAL BACKGROUND

Board of directors comprises diverse members, whose accumulated network resources build up board social capital. These members are responsible for management oversight and control (Jensen & Meckling, 1976), like also for provision of resources through their social connections (Pfeffer & Salancik, 1978). Board of directors, however, also plays an important role in strategy formulation and implementation (Fama & Jensen, 1983; Jensen & Zajac, 2004). This strategy role of the board makes board members active participants in designing and overseeing strategic focus of an organization. Hence, board of directors may be perceived as a strategic decision-making group (Forbes & Milliken, 1999). The decision making process is

supported by skills and expertise of board members, thus by their human capital (Kor & Sundaramurthy, 2009; Tian, Haleblian, Rajagopalan, 2011), but also by their aforementioned social connections and accumulated board social capital (Palmer, Jennings, Zhou, 1993; Stuart & Yim, 2010).

Carpenter and Westphal (2001, p. 653) interestingly concluded that “behavior of directors depends on the strategic perspective and base of expertise provided by their appointments to other boards.” Therefore, it is in the interest of the organization to have a board composed of members capable to effectively support its strategic vision and, if necessary, appoint new members with complementary skills (Hillman & Dalziel, 2003; Kim & Cannella, 2008). A properly selected pool of skills, knowledge, and expertise may considerably reduce uncertainty and mitigate risk of failure for numerous strategic initiatives (Geletkanycz & Hambrick, 1997). Firm expansion represents a strategic initiative that particularly requires attention and commitment of the board. Decision about expansion, either on domestic or international market, is challenging. Moreover, the whole process has to be carefully navigated, as it increases organizational complexity and exposes the firm to institutional uncertainty of host countries (Delios & Henisz, 2003; Johanson & Vahlne, 2009). Hence, board of directors ought to represent a mix of resources and expertise that is relevant for sustaining firm growth and guiding it thorough organizational and institutional challenges.

The importance of social connections of board members for successful international expansion has been demonstrated on the example of US firms expanding to China (Connelly et al., 2011). The findings argue for a positive influence of directors’ connections to firms, which have already successfully expanded to China, on a successful expansion of the focal firm to this country. This is in line with the existing research arguing that boards may use board interlocks, that is connections to other firms established through simultaneous board posts, to acquire knowledge about institutional environment, business practices, or even cultural differences of host countries (Sharma & Blomstermo, 2003; Yli-Renko, Autio, Tontti, 2002). In this way, through observing behavior and practices of other firms, the board is able to reduce uncertainty that is associated with expansion or any other undertaken strategic initiatives (McDonald, Khanna, Westphal, 2008; Mizruchi, 1996; Useem, 1986).

Imitation of strategy, with respect to foreign market entry, has been also observed amongst firms affiliated within the same business group (Westney, 1993). Owing to formalized ownership ties and likely shared directors, these firms establish strong channels of communication and information exchange. Moreover, affiliation of a firm with a business group,

which had expended its operations to a given foreign country, is likely to reinforce the firm's strategy to also expand to this country and its experiences after foreign market entry (Guillén, 2002). Affiliation with a business group has a far-reaching effect on firms. Apart from being a channel for knowledge sharing, connection to a business group is an important source of capability acquisition, including also R&D capabilities (Mahmood, Zhu, Zajac, 2011). Moreover, in emerging countries where business groups are the main organizational forms, intragroup connections are of utmost importance for firm growth and performance (Chang & Hong, 2000; Keister, 1998; Khanna & Palepu, 2000). In this context business groups serve as substitutes for market institutions, which are underdeveloped in emerging countries, and lower transaction costs for the affiliated firms (Caves & Uekusa, 1976; Chang & Choi, 1988). Moreover, business group affiliation adds value to a firm, as it gets access to pooled resources that can be easily distributed within a group (Guillén, 2000). Hence, firm growth and value creation, in the context of emerging markets, is greatly dependent on intragroup connections that drive resource distribution and capability development (Yiu, Bruton, Lu, 2005).

Successful implementation of expansion strategy may be associated with inclusion of individuals, who represent powerful actors in firm's environment, into leadership structures. It is particularly applicable to the context of emerging countries where relationship based societies and imperfect market institutions dominate business environment. Hence, appointments of politically affiliated directors are not uncommon, since reliance of government influence causes a significant issue for organizations (Li, Peng, Macaulay, 2013; Sun, Mellahi, Wright, 2012). Also, it has been shown that internationally expanding firms from emerging countries tend to have densely connected networks of interlocks with other firms and are more likely to appoint politically or even military connected individuals to serve on their boards, compared to firms that do not internationalize (Luo & Tung, 2007; Peng, Au, Wang, 2001; Sheng, Zhou, Li, 2011; Wang et al., 2012). The strategic importance of political ties has been acknowledged in the context of developed and emerging economies (Zheng, Singh, Mitchell, 2015; Faccio, 2006; Hillman, 2005; Li, Poppo, Zhou, 2008), though in the latter ones the effect on firm performance is more pronounced (Acemoglu et al., 2016; Boubakri, Cosset, Saffar, 2008). In the context of emerging countries, organizations not only utilize political ties to neutralize threats to their survival, but also for performance improvement in terms of sales growth (Zheng, Singh, Mitchell, 2015). Also in a broader perspective scholars generally agree that organizations engage in corporate political activity to influence and manage political actors, which through regulations shape the business environment (Hillman, Keim, Schuler, 2004). For this reason,

board members with political affiliations or connections to lobby groups, able to employ effective corporate political strategy, are often important elements of organizational networks that positively influence firm performance (Lester et al., 2008; Lux, Crook, Woehr, 2011).

Board social capital is often conceptualized as actual and potential resources accumulated within board's network of social relationships (Hillman & Dalziel, 2003; Nahapiet & Ghoshal, 1998). The social relationships may take a form of bonding ties amongst board members or bridging ties to actors outside the organization. Hence, social capital within a board may have either internal or external nature (Harris & Helfat, 2007; Kim & Cannella, 2008). Through creating network ties to external actors, board members span organizational boundaries and link the organization with its environment (Aldrich & Herker, 1977; Mintzberg, 1973). Hence, board members act as boundary spanners and facilitate flow of information and resources originating in the external environment (Mizruchi, 1992; Tushman & Scanlan, 1981). A pool of external actors encompassed in this way by firm's network depends on previous professional experience and current occupation of board members (Kor & Sundaramurthy, 2009). As often directors and CEOs hold multiple board positions simultaneously, they get access to advice and expertise of other executives that in turn may be helpful for crafting strategic responses addressing internal challenges or external dependencies of the organization (McDonald, Khanna, Westphal, 2008; McDonald & Westphal, 2010). Likewise, an advice network may emerge from memberships in associations attracting prominent professionals, thus corporate elite members, or alumni clubs of prestigious universities, charities, and other non-profit organizations (Davis, Yoo, Baker, 2003; Useem, 1979).

Network ties to external actors reflect organization specific environmental dependencies. It is highlighted in the literature that different types of ties require "different forms of co-optation depending on the specific dependencies" of the organization and that different types of resources may be provided through different types of network ties (Zheng, Singh, Mitchell, 2015: 1633). Hence, boards gain ability to influence stakeholders, access resources, and reshape the environment through cooptation, namely "the process of absorbing new elements into the leadership or policy-determining structure of an organization as a mean of averting threats to its stability or existence" (Selznick, 1949:13). Nevertheless, dependence on the external environment is mirrored not only in the types of actors embedded in the network, but also in strength of network ties. The tie strength is often conceptualized as "a combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and reciprocal services" (Granovetter, 1973: 1361). The literature distinguishes weak and strong network ties

through highlighting their different instrumental functions and context dependent value (Burt, 1992; Granovetter, 1973). In the early studies on networks antecedent and consequences, scholars have perceived network structure and extent of connectedness amongst network actors as a predictor of their individual behavior. In the case of weak ties, which exist in large open networks where network actors do not know each other (Granovetter, 1973), actors can exchange information stemming from the 'structural holes', namely gain advantage by brokering information or resources unavailable to others (Burt, 1992). The role of social capital in such open networks is to encourage cooperation of actors (Putnam, 2000) and 'bridge' dissimilar actors who may provide new information and resources. In contrast, strong ties exist in closed networks of densely connected actors (Coleman, 1988). Social capital in such closed networks bonds actors with common norms, values, expectations and obligations. Moreover, the strong ties are associated with building trust amongst actors, collective conflict resolutions, and enhanced cooperation. As value of strong and weak ties is context dependent, actors can benefit from belonging to both open and closed networks (Antcliff, Saundry, Stuart, 2007; Putnam, 2000).

The concepts of ties strength and network connectedness are also relevant in the context of internal social capital. Boards of directors may be perceived as groups of frequently interacting actors, thus individuals forming internal social networks within organizations (Harris & Helfat, 2007). Board members are consequently embedded in a network structure that has emerged within a board. This structural embeddedness, namely the pattern of network ties amongst members, determines relative advantage, power or constraint of individual actors (Granovetter, 1992). Following Freeman (1978), a central position in a network enables an actor to have greater access and control over information, or other resources flowing through the network ties. Hence, the central actor is able to accumulate greater individual social capital. The advantage arising from network centrality relates to some extent to the concept of 'structural holes', namely to utilizing limited existence of network ties amongst actors embedded in a network (Burt, 1992). Densely connected networks where actors build strong relationships have considerable advantages in terms of communication and exchange of information (Granovetter, 1985). Moreover, dense network connections facilitate building trust amongst network actors. Therefore, boards of directors characterized by cohesive networks amongst members are likely to have more effective decision making process, owing to enhanced cooperation and teamwork (Forbes & Milliken, 1999). This bonding effect of structural embeddedness may however be a constraint for actors. Being embedded in a particular network and sustaining strong relationships

with network members is associated with high maintenance costs, thus an actor may lose opportunities for extending its network outside a given group or an organization (Adler & Kwon, 2002). Moreover, strong social ties, typical for cohesive networks, may exert influence and pressure to conform on individual actors. Consequently, individual judgment of actors may be subjected to group pressure. This mechanism in boards of directors results in formation of influential cliques able to dominate decision making (Harris & Helfat, 2007). It is particularly pronounced, if board members hold prior relationships or interact outside board meeting (Stevenson & Radin, 2009, 2014).

Given the complexity of board social capital, explanation of its dynamics requires a close up at evolution of social networks that it originates from. As the literature differentiates between internal and external board social capital (Kim & Cannella, 2008), internal and external networks of social relationships formed by board members should be encompassed by a dynamic perspective on the construct. Moreover, the dynamic perspective shall highlight particular dimensions of internal and external networks. The external network ties perform a boundary-spanning role and facilitate management of environmental dependencies (Hillman, Cannella, Paetzold, 2000; Pfeffer & Salancik, 1978), thus an evolution process may unfold along with inclusion and exclusion of network actors and varying strengths of network ties. Likewise, the internal network amongst board members may evolve through changes in its cohesion. Simultaneous observation of development paths at internal and external level draws a complete picture of how board social capital may evolve over time. The wide-ranging influence of board social capital demonstrates that networks of board members may be instrumentally employed to support achievements of numerous organizational goals. The literature has shown evidences for social capital instrumentality in the context of international growth of enterprises (Maurer & Ebers, 2006; Prashantham & Dhanaraj, 2010). As firm expansion is not a one-time event but a complex process, it is a useful context for investigating dynamics of board social capital. The expansion process on domestic and international markets requires accumulation of diverse organizational resources and capabilities (Barney, 1991; Mahoney & Pandian, 1992). The effect of board social capital will derive from instrumental utilization of external and internal networks of board members. While the resources deriving from the internal network affect cooperation and teamwork within the boardroom, the external network ties secure access to resources that the firm does not own. Yet, as the process unfolds, the resource requirements will be changing alongside with firm expansion. As it has been shown in the context of new ventures, importance of different network ties varies along with stages of firm expansion

(Coviello & Munro, 1997; Coviello, 2006). Similarly, external and internal network ties of board members may be reconfigured accordingly to support the firm at an initial and a later stage of expansion. Therefore, going through different stages of expansion will be associated with dynamic network changes, to align the available network resources with new requirements. Although, reconfiguration of network ties seems to be a logical way to address changing demands for resources, the literature lacks research on how internal and external networks of board members evolve along expansion process. This again highlights that little is known about social capital evolution in general (Adler & Kwon, 2002; Prashantham & Dhanaraj, 2010), and particularly evolutions paths of board social capital.

METHODS

Given the limited theoretical developments regarding evolution of board social capital, we have applied multiple case study methodology together with longitudinal social network analysis in the context of Chinese multinational enterprises (MNEs) operating in transportation manufacturing industry (Borgatti, Everett, Johnson, 2013; Eisenhardt, 1989). Juxtaposition of findings from multiple case studies offers more robust results and, compared to a single case study analysis, is a good tool for theory building and development of parsimonious, testable propositions (Eisenhardt & Graebner, 2007; Yin, 1994). In the multiple case study analysis, we decided to compare evolution paths of board social capital in the selected firms along with their expansion. Moreover, we aimed to explain convergence and divergence of practices related to development of board social capital. Such research approach allowed to explore nuances of the evolution paths and to detect replication of logic across cases.

As the evolution path of board social capital is of interest of this study, we applied process research to investigate the phenomenon (Pettigrew, 1990; Van de Ven, 1992). “Process research deals with how events come into being and unfold over time in a context” (Halinen, Medlin, Thörnroos, 2012: 215). The process research deems appropriate as network relationships “grow or decay over time” (Prashantham & Dhanaraj, 2010: 968) and are “recreated over and through time” (Halinen, Medlin, Thörnroos, 2012: 215). Consequently, the evolution process of board social capital was conceptualized as a “comprising sequences of connected events and activities that unfold over time in and around networks” (Halinen, Thörnroos, Elo, 2013: 1214). In order to capture patterns of the evolution paths and uncover the underlying mechanisms, we have focused on particular events in the process (Halinen, Thörnroos, Elo, 2013). In the case of this

study, the events were identified as establishments of new subsidiaries on either domestic or foreign markets.

The empirical setting of this study offers an advantage for studying social capital and influence of social relationships on economic activity, as the society in China is relationship-oriented and market institutions are still underdeveloped. In the collectivist societies social ties or “personal trust” is more important than “system trust” (Ibeh & Kasem, 2011; Hofstede, 1980; Wong, 1996). Moreover, utilization of social networks and social capital by firms operating in emerging economies is more pronounced than in developed countries, because of market uncertainties (Butler & Purchase, 2008; Luo, 2003; Peng & Luo, 2000; Peng, 2003; Peng & Zhou, 2005). The market uncertainty is caused by the speed of changes and either underdeveloped or absent market-supporting institutions (Hoskisson, et al., 2000; Khanna & Palepu, 1999; Peng, 2003). While the market institutions in emerging economies remain weak, the governments there are still powerful actors in the business environment and the boundaries between market forces and government influences are blurring (Li, Peng, Macaulay, 2013).

In order to obtain rich, not-biased, and comparable data, we have been considering selecting cases from non-strategic industries in which firms with diverse forms of ownership operate and actively engage in international and domestic business activity. The selection of a proper industry sector was particularly important, knowing that strategic sectors, not only in China, tend to be dominated by state-owned enterprises (SOEs). Finally, we decided to investigate firms from transportation manufacturing industry. For the last 30 years, along with the market reforms, the industry has been experiencing a rapid growth combined with increasing domestic demand and interest from foreign manufacturers seeking opportunities to establish production sites in China. Nonetheless, in this period Chinese transportation manufacturers also have been actively expanding on international markets through establishment of foreign subsidiaries or M&A. The scope of international expansion has been spreading across developed and developing countries. It is worth mentioning that not only SOEs started expanding internationally, but also private-owned enterprises (POE). Recently, international engagements of Chinese transportation manufacturers in Europe and the USA have been getting intense media coverage, for example when in 2010 Zhejiang Geely Holding acquired Volvo - a Swedish car manufacturer (The New York Times, 2010). Compilation of these factors motivated us to look closely into boards of multinational firms operating in this industry and investigate how board social capital has been evolving along with international and domestic expansion.

In order to select firms for further analysis, we applied theoretical sampling. It is accepted in the literature to adopt this kind of sampling for multiple case studies instead of random sampling. Hence, the cases were selected for theoretical reasons (Eisenhardt & Graebner, 2007; Yin, 1994). We were particularly interested in depicting evolutions paths of board social capital and investigating if there were any commonalities in the ways it has been shaped over time. Therefore, we decided to identify comparable firms that were successfully operating on domestic and international markets, thus were quoted as leaders within the transportation manufacturing industry. Also, knowing that conducting this kind of study would require access and collection of large amount of archival data regarding affiliations of corporate directors, focusing on the leading firms was a mean to overcome problems associated with data availability and reliability. Having that in mind, we finally selected three firms that were important actors on the domestic market and also started expanding internationally around the same time. In the selection process, we presumed that the current leading position of these firms was indicating effective utilization of board social capital combined with successful deployment of growth strategies. With the aim to develop generalizable propositions, we made sure that characteristics and measures related to board social capital were varying among the selected firms. The overview of cases is presented in Table 1.

Firm “A” was founded in 2002 as a subsidiary of a state-owned business group, which was one of the biggest market players in the automobile manufacturing sector in China. It is worth mentioning that the business group was ranked second amongst country’s top 100 machinery industry enterprises in 2014. In 2007 firm “A” got publicly listed in China on the Shenzhen Stock Exchange, though it had been already listed on the Hong Kong Stock Exchange. Firm “A” is headquartered in Shandong province. However, its operations centralize in four hubs located in Shandong, Shaanxi, Chongqing, and Jiangsu province. By the time of IPO in China (initial public offering in 2007), the firm had been dynamically expanding on domestic and international markets. In 2007 it already owned 33 domestic subsidiaries spread across eleven Chinese provinces and one foreign subsidiary located in the USA. To further enhance its growth and international presence, in 2012 the firm initiated a strategic cooperation with KION Group Germany, which is a leading forklift manufacturer.

Firm “B” is a private enterprise and was founded as a subsidiary of a Chinese business group operating in the construction machinery sector. The firm was established in 1994 in Hunan province in China and later got publicly listed in 2003 on the Shanghai Stock Exchange. In 2011 the Financial Times Global 500 ranked the firm on the list of the most valuable

companies in the world in terms of market capitalization. In 2003, thus by the time of its IPO, firm “B” was operating in three provinces in China. However, since 2006 it had been dynamically expanding its operations on the domestic and international markets. From 2006 firm “B” established foreign subsidiaries, which also included R&D and manufacturing sites, on such diverse markets like Algeria, Belgium, Qatar, South Africa, or South Korea, to name a few.

Table 1. Overview of the selected cases

	Firm A	Firm B	Firm C
Ownership type	State-owned	Private	State-owned
Nature of ultimate controller	Locally managed State-owned Enterprise	Private	Centrally managed State-owned Enterprise
Foundation and public listing	Founded in 2002 in Weifang (Shandong) as a part of a leading state-owned business group in the industry Publicly listed (IPO) in Hong Kong in 2004 and in China in 2007	Founded in 1994 in Changsha (Hunan) as a part of a business group Publicly listed (IPO) in China in 2003	Founded in Shanghai in 1998 as a part of state-owned business group Publicly listed (IPO) in China in 1998
Domestic activity	Subsidiaries in more than 10 provinces in China Domestic subsidiaries located mostly in Hunan, Shandong, and Shaanxi province 2011- biggest domestic expansion	Gradual expansion of domestic operations up to 17 provinces Domestic subsidiaries located mostly in Hunan province 2011 - biggest domestic expansion	Gradual expansion on domestic market Domestic subsidiaries located mostly around Shanghai and in Gansu province 2012 - biggest domestic expansion
International activity	A subsidiary in the USA even before domestic IPO 2009 – beginning of expansion by establishing foreign subsidiaries on markets in Europe, Asia, and the Middle East 2012 - strategic cooperation with a German firm and peak of international expansion Relatively moderate international activity in terms of the number of foreign subsidiaries	International expansion started 3 years after IPO 2006 – beginning of expansion by establishing foreign subsidiaries mostly in Europe and the USA 2008- peak of international expansion in terms of the number of new foreign subsidiaries Relatively high international activity in terms of the number of foreign subsidiaries	No international subsidiaries until 2009 International subsidiaries located in Europe and Hong Kong. Gradual increase in the number of foreign subsidiaries. New foreign subsidiaries opened every year starting from 2009 Relatively low international activity in terms of number of foreign subsidiaries

Firm “C” is a state-owned enterprise (SOE) founded in Shanghai in 1998. The firm’s controlling shareholder is a centrally managed state-owned enterprise, thus its assets are under management of the State-owned Assets Supervision and Administration Commission of the State Council (SASAC). Firm “C” specializes in three areas: solar energy, manufacturing of high-end auto parts, and new composite materials application. The firm had been actively participating in international expos and became a strategic partner for globally recognized

players in the automotive industry, such as General Motors, Volkswagen, and BMW. Firm “C” got publicly listed on the Shanghai Stock Exchange in 1998. In the following years the firm had been successively deploying a growth strategy focused on the domestic market that resulted in formation of a subsidiary base scattered around Shanghai. The domestic expansion had continued until 2009 when firm “C” established its first foreign subsidiary in the Netherlands. That was a turning point in firm’s growth strategy. Since 2009 firm “C” not only had been expanding on international market, but also started geographically spreading its domestic operations through expansion across provinces in China.

Board social capital derives from individual social ties of board members, thus its in-depth longitudinal analysis required access to detailed archival data. We utilized data on external affiliations of board members as a proxy for network ties, following the approach adopted in the existing studies (e.g. Martin, Gözübüyük, Becerra, 2015). The data was extracted from CSMAR (China Stock Market and Accounting Research) database that covers data on directors’ affiliations based on information published in annual reports of publicly listed companies. Having this data as a base for analysis allowed us also to identify the extent of overlap in the affiliations. To be more specific, we were able to identify to what extent directors from one firm simultaneously held positions in the same firms or organizations. In this way, the data revealed first snapshots of social networks created by the board members and enabled reference to the concepts of internal and external social capital that we intended to investigate. In addition, we collected data on board characteristics and board appointments to support interpretation of results.

In order to link the evolution paths of board social capital with firm expansion we needed information regarding establishment of new subsidiaries in China or in other countries. For this purpose, we also used CSMAR database and extracted data on location of subsidiaries that had been reported in the annual reports. By comparing reported data from different years we were able to track establishment of new subsidiaries and draft expansion history of the selected firms. Additionally, we used company materials, publications, press releases, and other available external data sources to validate and complement the obtained information regarding expansion history and external affiliations. Utilizing archival data was particularly useful for this type of study, as we could get snapshots of firm expansion and social networks created by board members that were not biased by their own perception. However, data availability posed a minor constraint on the observation window. As the disclosure requirements apply only to publicly listed firms, the reported data on external affiliations and location of subsidiaries was only

available in the period following initial public offering (IPO) and continued until 2012. In the case of firm “C”, we realized that although the firm was listed in 1998, the data in CSMAR was only available from 2001. Hence, data unavailability had slightly limited the observation period for this firm. It is worth mentioning that 2001 was a year of important regulatory changes for corporate governance in China, namely China Securities Regulatory Commission issued ‘Guidelines for Introducing Independent Directors to the Board of Directors of Listed Companies’ and ‘Code of Corporate Governance for Listed Companies in China’. Issuance of these guidelines have introduced concepts of independent directors, separation of general manager (CEO) and chairman positions, and board independence (boards consisting in 1/3 of independent directors), like also opened doors for gradual dissemination of practices typical for the Western models of corporate governance. Moreover, it perhaps also facilitated board interlocks and development of business networks. As previous studies have shown, before 2001 the extent of networks created through interlocking directorate was relatively small compared to the scale of such practices in the Western countries (Ren, Au, Birtch, 2009).

Data analysis

In the analysis of the collected data we linked multiple case studies methodology with longitudinal social network analysis (Borgatti, Everett, & Johnson, 2013; Eisenhardt, 1989). Following the literature on case study methodology (Yin, 1994), firstly data for each case was analyzed and then the identified patterns were compared across the cases. In this way, this study applied multiple case study methodology on one hand. On the other hand, while analyzing individual cases, we conducted longitudinal social network analysis for each of the selected firms (Borgatti, Everett, & Johnson, 2013). To elaborate further on this step, for each case data on directors’ external affiliations was collected from published annual reports on a yearly basis, making it possible to catch snapshots of networks created by board members in the given years. We were observing and comparing snapshots of the networks for each firm with yearly intervals. With the aim to reflect features of internal and external social capital, a series of network measures was further applied to the yearly data. The patterns of changes in these measures were compared year over year and interpreted with consideration of expansion events, namely establishment of new domestic and foreign subsidiaries. Moreover, to support interpretation of network changes we relied on additional data collected from CSMAR database, for example data on new board appointments. Details of the applied network measures are outlined in the following sections.

Having the data on directors' affiliations, we aimed for an in-depth investigation of board social capital evolution patterns. Following previous studies, we distinguished between internal and external social capital to reflect complexity of the construct (Barroso-Castro, del Mar Villegas-Periñan, Casillas-Bueno, 2016; Kim & Cannella, 2008). In each case study, the external social capital was operationalized as a network of ties formed by board members to actors outside the firm. In the analysis of this dimension, we were particularly interested in relational diversity reflected in variety of network ties that board members have formed outside the organization (Harrison & Klein, 2007). Also, we wanted to investigate strength of these ties. Therefore, to capture strength of different networks ties, we firstly aggregated the data on the number and type of directors' affiliations to a firm level. Then, the strength of each type of ties was reflected as a proportion of the whole network of the firm (Borgatti, Everett, & Johnson, 2013). The measures of tie strength were calculated for each type of ties across the analyzed time period. Prior to aggregation of network data, we aimed for as close as possible approximation of social relationships formed outside the selected firms. Hence, we differentiated between six categories of network ties. This classification was applied further also in the analysis of relational diversity. To obtain theoretical guidelines, we referred to prior classifications that have been introduced in other studies exploring network ties in organizational context (Adler & Kwon, 2002; Hillman, Cannella, Paetzold, 2000; Lester et al., 2008). The obtained affiliation data was classified and coded accordingly into the following categories:

- 1) **Ties to shareholders** – ties to shareholding companies (incl. business group). The ties are created through interlocking directorships or employment of board members of the focal firm in the shareholding firms;
- 2) **Business ties** – ties to other firms (excl. shareholding firms). The ties are created by board interlocks or employment in other firms, excluding shareholding firms;
- 3) **International ties**– ties to firms located abroad, including firms in Hong Kong. The ties are created through holding board directorships or other positions in firms located abroad;
- 4) **Political ties** – ties to political and politically affiliated actors within firm environment. The ties are established through holding affiliations or positions in governmental agencies or memberships in the Party Committees;

5) **Non-business ties** – include a wide range of ties to non-business actors in firm environment, specifically to universities and other educational institutions, business associations and charities. The ties are formed through employment or membership.

6) **Ties to financial institutions** – ties to banks and financial institutions created through board interlocks or other forms of employment.

During the coding process we had to identify types of actors and organizations that board members were affiliated with. We were aware that while the data regarding business ties were relatively easy to validate, the data regarding political ties, considering sensitiveness of such information, might have been underreported in our sources. Still, having this limitation in mind, we proceeded with careful validation and coding of network ties. For identification of the external parties that board members were affiliated with, we utilized publicly available secondary sources. Also to obtain additional data, for example regarding ownership structure, we referred to CSMAR database. The solid archival work resulted in as close as possible approximation of the external network ties of board members with exceptionally detailed classification of network ties.

The next step of analysis aimed to explore diversity of ties through analyzing the Blau's (1977) index, which is a commonly accepted measure of diversity as variety (Harrison & Klein, 2007). The Blau's index assumes categorical scale of measurement. The values of the index can range from 0 to $(K-1)/K$, where K is a number of possible categories. The maximum value occurs when members of each category are equally represented (evenness) in a population. In the context of this study, it means that when all categories of ties are represented within the network in the same proportion, then the index reaches its maximum value. The Blau's index is calculated according to the following formula: $1 - \sum p_k^2$, where p_k is a proportion of the population in each category. As the study applies six categories of network ties, the Blau's index for relational diversity reaches maximum value at 0.83 $((6-1)/6)$. The value of the index increases when ties are distributed evenly among categories. Knowing the nature of ties in corporate boards, we did not expect maximum values of the Blau's index, as it is not necessary for network ties to be equally represented, in order to provide resources. In fact, already previous studies have shown importance of weak ties in providing non-redundant, unique information (Burt, 1992; Coleman, 1990). Overall, by using this measure we were able to assess to what extent board members were engaging in networking with diverse actors in external environment. In the subsequent step of analysis, we switched attention to internal social capital. It was operationalized as a network of ties amongst board members of the focal firm and

captured by the extent of affiliations they shared outside the firm. To give an example, if two or more board members were also members of the same business association or another board of directors, we presumed that these directors knew each other better, thus a social relationship existed between them. Such interactions outside the boardroom are known to increase board internal social capital (Stevenson & Radin, 2009).

In order to explore this angle, we transformed the two-mode affiliation data obtained from CSMAR data base into one-mode network data. The data transformation was performed using UCINET (Borgatti, Everett, & Freeman, 2002) software for social network analysis. The transformation output for each firm was a one-mode network of ties amongst board members. After data transformation we applied structural shape measures to assess cohesiveness of each network. For this purpose multiple measures of cohesion were adopted, such as average degree, density, number of components, component ratio, connectedness, and fragmentation. Average degree is an average number of ties for each node, thus it captures an average number of external affiliations directors shared with other members. Density is a number of actual ties divided by a number of all possible ties. This measure captures a proportion of the actual common affiliations amongst board members to the number they could possibly have. Number of components shows a number of weak components in the network. In other words, it captures a number of subgroups formed by members within the board. In each subgroup board member possesses direct or indirect social ties to other members of the group. Component ratio is computed as a number of components minus 1 divided by a number of actors minus 1. The values of the ratio can vary from 1, when each member does not share external affiliations with any other board member, to 0 if there is only one component in the network. The emergence of one component occurs when all board members are directly or indirectly, through other directors, connected with each other. Connectedness is computed as 1 minus fragmentation. Connectedness expresses proportion of pairs of nodes that are in the same component. In our study, it is a proportion of board members that are in the same subgroup within the board. Fragmentation is a proportion of pairs of nodes that are unreachable, in other words proportion of board members that do not share external affiliations with any other member. The measures of network cohesion were calculated using UCINET software (Borgatti, Everett, & Freeman, 2002).

RESULTS

Evolution of external and internal networks

In this section we present our case study results for firm A, B, and C. The case analysis was concentrated on several aspects of external and internal networks, such as external network size, identification of key boundary spanners, diversity of external network ties, and cohesion of internal network. To visually present the identified patterns of how external and internal networks have evolved over time and across cases, we graphically summarize our key findings in Figure 1.

Firm “A”

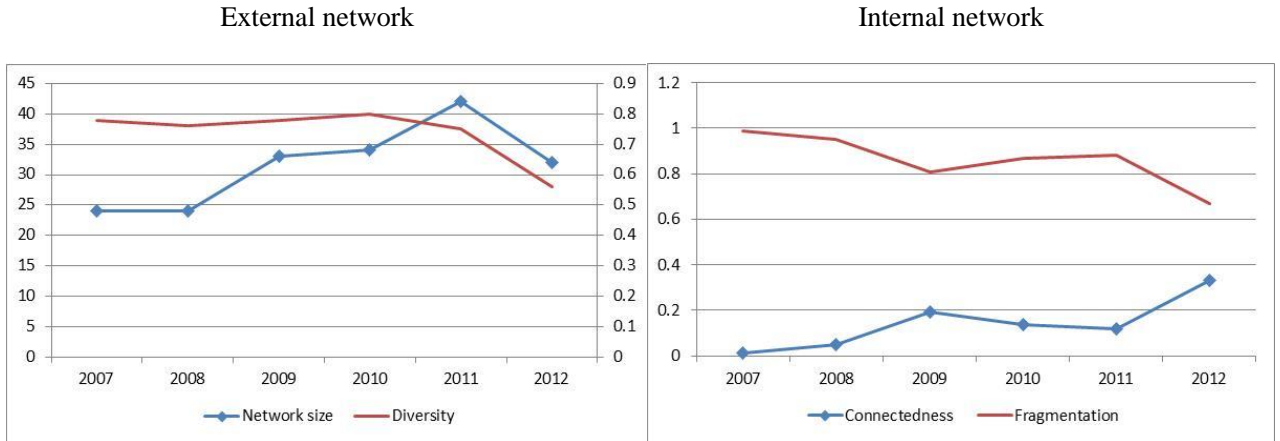
I. External network size

We started case analysis of firm “A” from the year of its IPO on the Shenzhen Stock Exchange, because of limited data availability. The analyzed period covered years from 2007 to 2012. Looking first at the size of the external network created by board members, we concluded based on the data that it was medium, compared to the other selected cases (see Table 2 in the text and Table 1 in the Appendix). Just after the IPO in 2007, the network consisted of 24 ties to external actors. Although over the years the network size had not been increasing systematically, it was increasing until 2011 and then started decreasing. This pattern indicated that the year 2011 was a pivotal point in which increasing trend turned into decreasing. From this point network size had shrunk from 42 ties reported in 2011 to 32 in 2012.

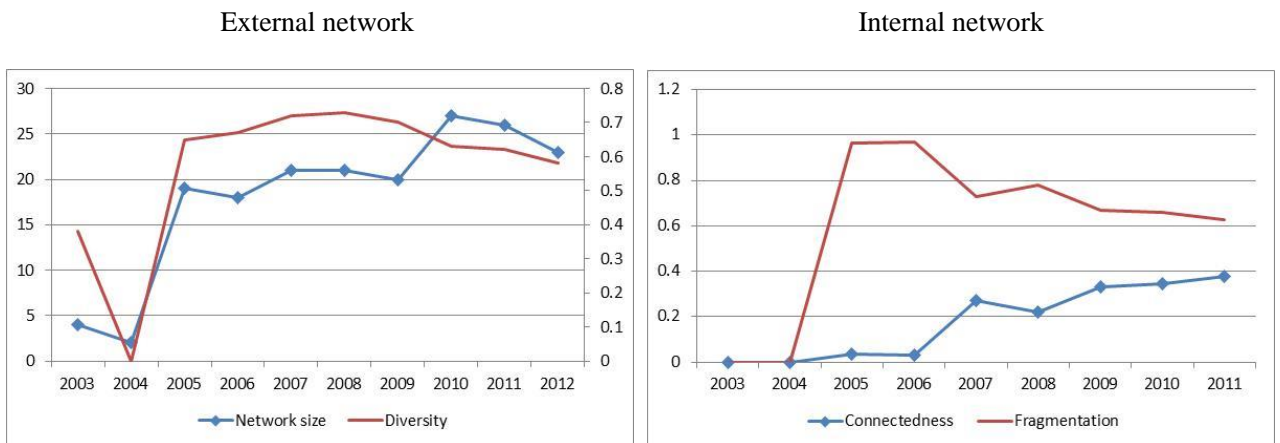
The identified evolution patterns of network size had triggered questions about mechanisms driving these changes. Therefore, we decided to closely investigate actions of firm “A”, such as new board appointments, which potentially could have affected network size. According to our data, in the analyzed period the firm made only few new board appointments in 2008, 2011, and 2012 (see Table 7 in the Appendix). The new board members either did not have any external affiliations or held positions in the business group, which firm “A” was affiliated with. For this reason, the new board appointments had contributed only marginally to the overall increase of network size, yet with one exception in 2012 when the new members contributed in total with seven network ties to the firm’s network. We consequently presumed that other mechanisms than new board appointments must have been driving evolution of network size. This motivated us to look further into details of individual networks of board members and investigate evolution patterns at this level (see Table 2).

Figure 1. Evolution patterns of external and internal networks observed in the selected firms

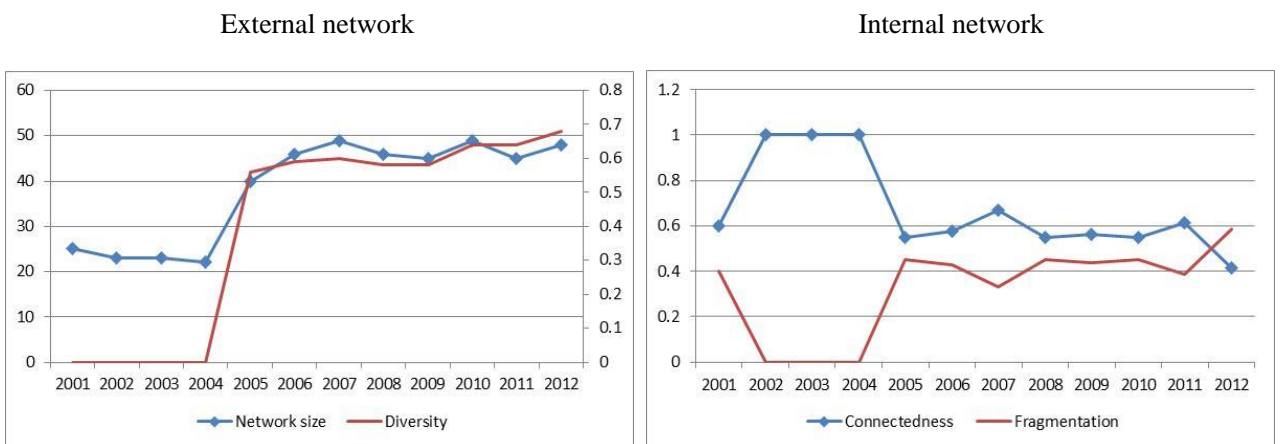
Firm A



Firm B



Firm C



II. Key boundary spanners

Board of directors comprises individuals with different professional profiles. Moreover, individual networks of board members may differ substantially, because of their diverse professional experience and employment history. In the case “A”, individual board members had been demonstrating different extent of networking activities outside the firm. While typically several board members were holding single external affiliations outside firm “A”, two individuals in the board had relatively more wide-spread networks. After checking functional roles of these individuals, we found that CEO, who was also performing the role of board chairman, and an inside director could have been clearly called the key boundary spanners for firm “A”, because of their extensive external networks.

Networking activities of these individuals contributed to the growth of firm’s network size and increased diversity of network ties, as the CEO and the inside director had been affiliating with numerous types of actors in firm’s environment. Although we had not observed a systematic increase in sizes of individual networks, a period of intensified networking activities occurred between years 2009 and 2011. It was particularly evident in the case of the inside director, who was stretching his network extensively in this period. To give an example, before 2009 the inside director was holding a general manager position in one of the shareholding companies of firm “A”. He was also politically connected by holding a position of the Secretary of the Party Committee, which is a leadership position within the Communist Party structures operating in state-owned enterprises. Afterwards, he started extending his network through holding directorships in firms directly affiliated with the same business group as firm “A”. Moreover, he joined a board of a local bank and thus established a network tie to a financial institution.

A different pattern was observed in CEO’s network. To avoid confusion, it is worth to mention that the role of CEO in firm “A” was performed by the same individual over the entire analyzed period. Similarly to the inside director, the CEO was actively extending his network between years 2009 and 2011. However, compared to the network of the inside director, the CEO’s network included more diverse actors. While holding several board posts in companies affiliated with the business group, the CEO was also politically connected through holding a position of the Secretary of the Party Committee. In addition, he had joined numerous professional and industry associations, such as China Entrepreneur Association and China Machinery Industrial Federation. In this way, the CEO spread the reach of his network to associations gathering key figures in the industry and business elite. The CEO and the inside

director were not replaced in the analyzed period and were contributing continuously to the growth of firm's network. In 2012 the overall network size of firm "A" decreased and composition of network ties changed, owing to appointment of a new well-connected inside director. The director had been already affiliated with the same business group as firm "A" and, at the same time, he was holding several board posts in firms operating in the transportation manufacturing industry. In this way, firm "A" further strengthened its business ties and ties to shareholding companies.

III. Diversity and strength of external network ties

Board members, owing to their previous professional experience, may already have network ties to diverse actors in firm's environment, for example to other firms in the industry or to professional associations. Over time, however, board members may form new network ties or dissolve the already existing ties. In this way diversity of actors encompassed in individual networks of board members, and thus in firm's network, evolves over time. Moreover, it may directly affect strength of network ties to particular types of actors. To give an example, if an organization appoints a politically connected director, then dissolution of this tie, through contract termination for instance, not only lowers diversity of firm's network ties, but also potentially weakens strength of ties to political actors.

The collected data for firm "A" accurately demonstrate how diversity of network ties may evolve over time (see Table 3 in the text and Table 4 in the Appendix). Board members of firm "A", and particularly the key boundary spanners identified earlier, had been networking with different types of actors, thereby affecting diversity of network ties and leading to its increases and decreases. At the time of IPO in 2007, the network of firm "A" was demonstrating richness and verity of ties. Board members had already owned strong business ties and ties to shareholding companies. Moreover, the network was encompassing weak international and political ties, like also ties to financial institutions and non-business actors. This high diversity of ties was also confirmed by the high value of the Blau's index (0.78) calculated for this year (see Table 4 in the Appendix). Based on the values of the index, the diversity of ties was subsequently increasing and reached the highest value of 0.80 in 2010. In the following years, however, the diversity started decreasing, and thereby the values of the Blau's index. In 2012 the index dropped to of 0.56, which was the lowest value observed in the entire analyzed period.

From the very beginning of our analysis, network of firm "A" was demonstrating strong business ties and strong ties to shareholding companies. This was a result of multiple network

ties created by inside directors, who were simultaneously affiliated with firms from the same business group as firm “A” and other firms in the environment. Multiple board posts were also characteristic for the individuals, who we earlier identified as the key boundary spanners, namely the CEO and one of inside directors. In the analyzed time period, the CEO was holding several board posts in firms from the same business group, likewise the inside director. The ties to shareholding companies and business ties remained relatively strong over the analyzed years. In fact these types of ties were predominant in the firm’s network. Interestingly, majority of these ties had been formed by inside directors. In comparison to networks of independent directors, inside directors held more external positions outside firm “A”, thus had bigger individual networks (see Table 1 in the Appendix). This was a typical pattern for the analyzed years 2007-2012.

As shown in our data, independent directors played a significant role in connecting the firm to non-business actors. The independent directors often were members of professional and industry associations, such as China Machinery Industrial Federation. Moreover, at some point the CEO also became active in business associations and in this way strengthened the non-business ties of firm “A”. Though irregularly, the strength of non-business ties was increasing until 2009, then in the following years the ties were consistently weakening and were finally dissolved in 2012.

Firm “A” had also international connection in its network, as some of its independent directors were affiliated with firms in Hong Kong. This was already observed in 2007. The international ties had been strengthened also by the presence of a foreigner non-executive member in the board. This individual simultaneously held another board post in a firm in Europe. The foreign member was appointed already in 2002, thus even before the IPO, and had not been replaced over the whole analyzed period. Moreover, networking activity of other directors contributed to making international network ties particularly strong in 2007, 2009, and 2010.

Table 2. Dynamics of board social capital: network size

	Firm A	Firm B	Firm C
Relative network size over time	Medium	Small	Big
Trends of network size	Inverted U-shape	Inverted U-shape	Increase and constant
Proportion of board members with network ties	Increase over time	Increase over time	Increase over time
Number of individual networks ties of board members	Increase over time	Increase over time	Increase over time
Network extension by new board appointments	No	No Exception in 2010	New and already appointed directors were extending the network
Network ties of new board members	Majority of new members already connected to the same business group	Majority of new members already connected to the same business group	Majority of new members already connected to the same business group
Actors extending network size	Already appointed board members	New and already appointed board members	New and already appointed board members
Key boundary-spanners	CEO/board chair and inside director	Independent directors	Board chair, CEO, and assistant general manager
Replacements of boundary spanners	No replacements The same individuals remained the most connected	Yes, on small scale There was a small scale replacement of individuals, who were the most connected to the environment	Yes Individuals with extensive networks joined the board. Replacements also on board chair, CEO, and assistant general manager positions

The network of firm “A” included also ties to financial institutions, owing to simultaneous board posts of inside directors in local banks and investment companies. These ties were gradually strengthening until 2010 and then weakened substantially in 2012. A similar trend was observed in the case of political ties. Particularly between 2007 and 2010, inside directors were extensively networking with political actors in firm’s environment. The political ties were additionally strengthened by a political affiliation of one independent director. Political affiliation of directors was mainly resulting from employment in governmental agencies, such as the Ministry of Constructions, and memberships in the Party Committees in other state-owned enterprises. To give an example, the individual network of the inside director, who we already identified as the key boundary-spanner, was encompassing several political connections. In 2010 when political ties of firm “A” were the strongest, the director was a Deputy to the People’s Congress, a member of the National Committee of CPPCC (Chinese People's Political Consultative Conference), like also served as the Secretary of Party Committee in a business group. However, after consequent strengthening of political ties, the ties were dissolved in 2012 by both inside and independent directors. This dissolution considerably affected diversity of ties in the entire network of the firm.

IV. Internal network cohesion

The data for internal network of firm “A” (see Table 3 in the text, Table 13 in the Appendix, and Figure 1) demonstrated an overall pattern of growing cohesiveness. A careful tracking of individual networks of board members had shown that the identified key boundary spanners, namely the CEO and the inside director, were contributing significantly to the increase in cohesion of the network amongst board members. Their contribution was deriving from joining boards and associations where the other board members already had held posts or memberships. In addition, both the CEO and the inside director were holding board positions in another firm affiliated with the same business group as “A”. The CEO served there as a board chairman, while the inside director held a non-executive position. It is worth mentioning that the inside directors did not have any external affiliations in common with other board members, but only with the CEO. This indicates some extent of exclusiveness of the social relationship between these two boundary-spanners.

The CEO played a particularly interesting role in formation of the cohesive internal network, as he commonly held post and memberships in firms and associations together with other members. Already by the time of IPO the CEO had been creating a cohesive network around him throughout external affiliations in firms from the same business group as firm “A” and his non-business ties. As a result the CEO had formed a subgroup of board members, who had common external affiliations with him. Still, it was the CEO who was keeping the central position in this internal network (see Figure 2).

Despite commonality of having posts or memberships in the same organizations as the CEO or other directors, it was not the case for all board members. Some members either did not have any external affiliations at all or none in common with other members. Externally affiliated independent directors usually were linked to other firms through board interlocks, like for example the aforementioned foreign board member, or had memberships in professional associations. Externally affiliated inside directors typically were holding post in boards of firms affiliated with the same business group as firm “A”. In a broader perspective some of directors were isolated from the internal group of board members, which had formed around the CEO. This structure remained stable over time and was also reflected in the measures of network cohesion calculated for the analyzed years. The increasing average degree, density, and connectedness of the internal network confirmed the observed pattern that board members were becoming more connected to each other. The decreasing values of network fragmentation have

shown that although some of the board members remained isolated in the network this trend was declining over time.

Firm “B”

I. External network size

In 2003 firm “B” got publicly listed on the Shanghai Stock Exchange, and thus this year marked a starting point for our analysis, because of data availability and disclosure requirements for publicly listed companies in China. We analyzed the available data from 2003 to 2011. To start the investigation of firm’s network created by its board members, we first looked at the size of the network. In comparison to the other selected cases, network size of firm “B” was relatively small and this relation continued over the analyzed years (see Table 2 in the text and Table 2 in the Appendix). In the year of IPO the network contained only few network ties to shareholding companies and one tie to an investment company that had been created by an inside director (see Table 2 in the Appendix). The network enlarged substantially in 2005 and reached its biggest size in 2010. The increase of the network size between 2005 and 2010 resulted from adding only single network ties. Also, in 2006 and 2009 we reported slight decreases in network size. The decreasing trend occurred again in 2011. Although we could not have obtained data on firm expansion in 2012, the network data for this year confirmed continuation of the decreasing trend. Hence, we concluded that 2010 was a pivotal point in evolution of network size, as it marked a significant change in the growth pattern. Similarly to the analysis performed for firm “A”, in the next step we aimed to identify board members, who were leading changes in the firm’s network. As in the previous case, we labeled these individuals as the key boundary spanners.

II. Key boundary spanners

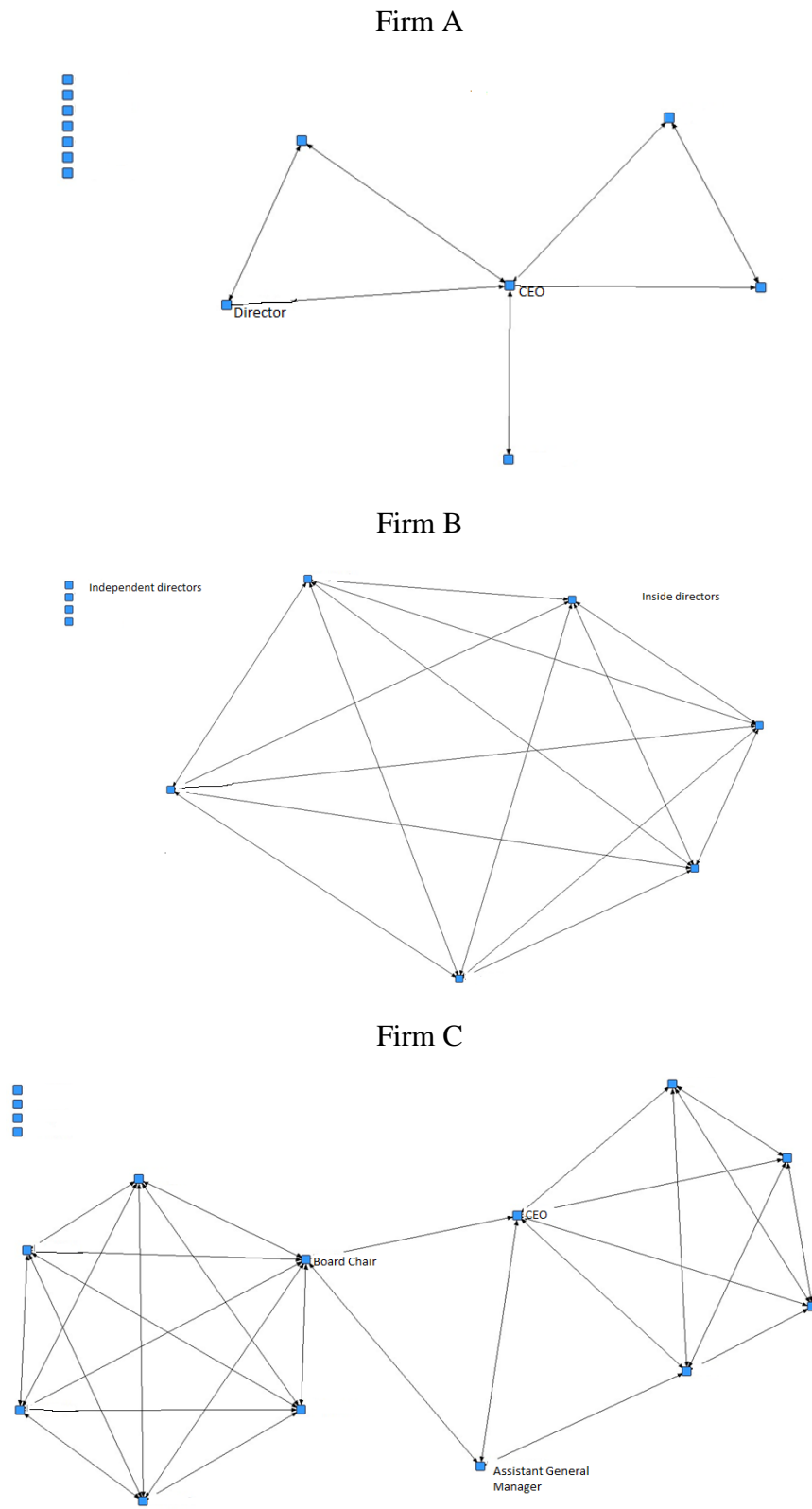
The substantial increase of network size observed in 2005 was resulting from extension of individual networks of the already appointed board members. Although firm “B” appointed six new board members in 2004 (see Table 8 in the Appendix), they did not have any external affiliations at that time. Nevertheless, a new independent director, who was appointed in 2004, started actively extending his external network in the following years. This independent director established a political connection through performing a role of the Secretary of the Party Leadership Group in a state-owned enterprise. Moreover, he was also appointed a vice board

chairman in an investment company. This individual network extension enriched firm’s “B” network with a political tie and tie to a financial institution.

Table 3. Dynamics of board social capital: strength, diversity of ties, and network cohesion

	Firm A	Firm B	Firm C
Diversity of ties over time	Relatively high (average Blau’s index=0.74)	Relatively medium (average Blau’s index=0.56)	Relatively low (average Blau’s index=0.26)
General characteristics of ties over time	Strong business ties and ties to shareholding companies Strong reported political ties Presence of weak international ties over the whole period Strong non-business ties	Strong business ties and ties to shareholding companies Weak reported political ties No international ties, but appointed foreigner to the board Strong non-business ties	Strong business ties and ties to shareholding companies Random reported weak political ties Growing strength of international ties over time Weak non-business ties
Foreign board members	Yes One foreign board member	Yes One foreign board member	No International ties established through Chinese directors
Network cohesion over time	Increase over time	Increase over time	Initial decrease and further increase
Subgroups within the board	A subgroup created around CEO Other board members not connected to each other	A subgroup of inside directors connected to each other through external affiliations. Independent directors disconnected from the insiders and each other.	Two subgroups: 1. Board members connected to CEO and assistant general manager 2. Board members connected to board chair
Major actor (central) in the internal network	CEO	No major actors	CEO, board chair, and assistant general manager

Figure 2. Examples of network structures developed amongst board members of the selected firms in 2009



The further development of firm's "B" network was a result of individual networking activities performed by the newly appointed independent directors. Interestingly, none of the inside directors or executives was engaged in the process of building up the firm's external network to the same extent as the independent directors. The CEO of firm "B" played a rather passive role in this process. It is worth to mention that individuals serving as CEOs were replaced two times in 2004 and 2007. The individual, who was appointed first as CEO and served until 2004, did not have any external affiliations. Then he was replaced by an individual, who was serving as an independent director in another firm operating also in the construction machinery sector. Likewise, the CEO appointed in 2007 held only a board post in a firm affiliated with the same business group as firm "B". In the following years, the CEO had not extended his network beyond this affiliation.

Our investigation has shown that the process of accumulating external social capital was driven primarily by independent directors, who were jointly acting as boundary-spanners for firm "B". This pattern continued over the entire analyzed period. Over time firm "B" attracted independent directors, who contributed to enriching its network with new connections to external actors. To give an example, in 2010 firm "B" appointed 10 new members out of whom 6 had other external affiliations (see Table 8 in the Appendix). The newly appointed inside directors were already affiliated with the same business group as firm "B", while the new independent directors had more wide-spread individual networks. For instance, they were holding board posts in other firms operating in the construction machinery sector and were members of prestigious industry associations, such as China Engineering Machinery Industrial Association.

III. Diversity and strength of external network ties

In the beginning of the analyzed time period the external network of firm "B" demonstrated a relatively low diversity of ties. In fact in 2003 and 2004 the network contained only single ties to shareholding companies and a tie to a financial institution, which was created by an inside director. Therefore, the Blau's index reached a very low value in 2003 and even dropped to zero in 2004 (see Table 3 in the text and Table 5 in the Appendix). Although the values of the index increased in the following years, in comparison to the other analyzed cases, overall diversity of network ties was relatively medium (compare Tables 4,5, and 6 in the Appendix). Since 2005 the Blau's index had been increasing, until it reached its highest value in

2008, which marked a pivotal point for evolution pattern of diversity. From this point diversity of ties started successively decreasing and its lowest value (0.58) was observed in 2012.

Network ties to business type of actors, namely to shareholding companies and to other firms, were representing the strongest connections of firm “B” over the entire analyzed period (see Table 3 in the text and Table 5 in the Appendix). Particularly in years 2003 and 2004 these types of ties were the strongest, owing to homogenous external affiliations of board members. In the following years, despite the growing diversity of network ties, firm “B” sustained its relatively strong business ties and ties to shareholding companies through affiliations of already appointed inside and independent directors. Even after a substantial change in board composition that occurred in 2010 and brought ten new members to the board, strength of these network ties did not decrease. In fact the new inside directors had been already affiliated with the same business group as firm “B”, thus increased the strength of firm’s ties to shareholding companies. Likewise, the new independent directors simultaneously held board posts in other firms, thus strengthened business ties of the firm.

Despite numerous ties to business actors, firm “B” was able to establish relatively strong non-business ties, particularly to universities. This type of ties appeared in the network owing to external affiliations of independent directors, who were holding academic positions simultaneously to directorships in firm “B”. Over time the connections to academic environment were sustained by already appointed and new board members. For example a new independent director, who was appointed in 2007, linked firm “B” to Renmin University of China where he had an academic position. Moreover, appointments of new independent directors in 2010 strengthened the non-business ties through directors’ connections to industry associations, such as China Engineering Machinery Industrial Association and China Engineering Machinery Federation.

In the analyzed period firm “B” did not establish any explicit international ties, as its board members had not held any external affiliations in foreign entities. Yet, in 2012 a foreign individual was appointed to the board. By the time of appointment, this board member had been already affiliated with the same business group as firm “B”. Moreover, he previously held a CEO position in a firm in Europe, which was acquired by the business group. After the acquisition, the CEO was nominated to the board of directors of the acquirer and subsequently to the board of firm “B”.

External affiliations of independent directors were connecting firm “B” also to political actors and financial institutions, though these ties were relatively weak in comparison to other

network ties. These ties appeared in the network in 2005, owing to new external affiliations of the already appointed independent directors. Particularly one independent director was the only reported political connection for the firm, as in 2005 he had become the Secretary of the Party Leadership Group in another firm. However, he left the board in 2010, and thus the political tie was dissolved. The initial network ties to financial institutions, though also dissolved as a result of directors' replacements in 2010, had been strengthened through affiliations of the independent director appointed in 2007. The new director linked the firm to Bank of Beijing, where he served as an independent director, and to an investment company.

IV. Internal network cohesion

Although the described changes in diversity and strength of network ties clearly demonstrate patterns of board members' interaction with external actors, they also had an impact on the relationships inside the boardroom. Similarly to the case "A", the performed analysis of internal network cohesion aimed to reveal patterns of how internal social capital had been accumulated over time (see Table 3 in the text, Table 14 in the Appendix, and Figure 1). While development of external network of firm "B" was driven by external affiliations of independent directors, the internal network was build up by dense connections amongst inside directors exclusively. Our data has shown that inside directors, likewise CEOs, were usually affiliated with the same business group as firm "B" and often it was the only external affiliation they had. Therefore, these common affiliations constituted a foundation for emergence of a subgroup within the board. The subgroup comprised inside directors, who were interacting also outside of the board meetings in firm "B", because of their other board posts in the same firms. Moreover, the subgroup was exclusive in some way, as independent directors did not share any affiliations with inside directors, thus were disconnected from the subgroup. Furthermore, the independent directors did not have any common affiliations with each other (see Figure 2). Therefore, in the internal network they were acting as isolated actors. The isolation of independent directors was also captured by the measure of network fragmentation calculated for this period, though it had been decreasing over time (see Table 14 in the Appendix). This structure of internal network emerged in 2005 and sustained in the following years. Yet, before the emergence of the subgroup, board members had not shared common external affiliations. The calculated measures of network cohesion have shown that only from 2005 network average degree, density, and connectedness started increasing. These growths resulted from a growing number of inside directors who had common external affiliations with each other. Also, the

subgroup was growing along with appointments of directors, who had been already affiliated with the same business group as firm “B”. Interestingly, there was no central actor in the subgroup, since the members were bonded by the common affiliation with the business group.

Firm “C”

I. Network size

Limited data availability for the period immediately following firm’s IPO forced us to adjust our case analysis and restrained the observation period. Therefore, even though the firm got publicly listed in 1998, we were able to track its network evolution from 2001 to 2012. Similarly to analysis of the other cases, we started with investigation of external network size. In case “C” the size of the external network was relatively big, in comparison to networks of the other selected firms (see Table 2 in the text and Table 3 in the Appendix). Owing to numerous external affiliations of board members, the number of network ties of firm “C” had been consistently outnumbering figures for the other selected cases. Initially the network consisted of strong ties created through board interlocks with shareholding companies. These simultaneously held board posts of inside directors had created strong ties between the firm and its shareholding companies. Such structure of the network had been sustaining until 2005, when board members started expanding their external networks. Although in the following years network size was slightly increasing, since 2008 it remained relatively stable, despite addition and dissolution of single network ties. To further investigate growth patterns of network size, we proceeded with analysis of individual networks of board members with the aim to identify the key boundary spanners for firm “C”.

II. Key boundary spanners

The network size of firm “C” remained relatively stable until 2005. Although over these years firm “C” appointed eight new board members, none of them was affiliated with external actors (see Table 9 in the Appendix). Therefore, these new appointments had not affected the network size. The following increase in the number of network ties, which occurred in 2005, expanded firm’s network across diverse actors in its environment. This increase was a result of intense networking performed by the already appointed board members. Though a new board member, who was already affiliated with the same business group as firm “C”, got appointed in 2005 and also contributed to the network enlargement. Looking closely at individual networks

of board members, who were shaping the firm's external network, we observed that particularly CEO, board chairman, and assistant general manager had the most extended external networks. Likewise, few inside directors were also affiliated with several external actors. Yet, these three individuals had been consistently contributing to the development of firm's external connections, and thus were acting as key boundary spanners for the firm. Over the years, the CEO joined numerous boards of directors in firms operating within the same industry. Likewise, board chairman through his board interlocks linked firm "C" to its shareholding company and other business actors in the industry. Moreover, the board chairman was also a member of China Aerospace Science & Technology Group Research Institute. Similarly to the CEO and the chairman, assistant general manager was simultaneously holding several board posts in other firms, including a directorship in a foreign firm operating in China.

Although firm "C" only slightly increased its board size over the analyzed period, significant changes in board composition occurred in 2008, 2009, and 2012. These changes included also CEO replacement in 2008 and then again in 2012. Board chairman was replaced in 2002 and 2009. The replacements of key individuals in the board also affected assistant general manager. We detected three replacements for this role in 2008, 2009, and 2012. The replacements had not affected the network size, as the newly appointed individuals already had solid external networks. It was especially the case for individuals appointed for the role of assistant general manager. Often these individuals had the largest external network amongst all board members. Hence, the firm still benefited from extended external affiliations of its board members, despite the replacements. Furthermore, the replacements had more impact on diversity of ties included in the firm's network rather than on network size.

III. Diversity and strength of external network ties

Initially board members were connecting firm "C" only to its shareholding companies. For this reason, the network that emerged from their combined external affiliations included only ties to one type of actors. Despite numerous external ties, the network was encompassing connections to homogenous actors and thus even the Blau's index calculated for the first analyzed years equaled zero (see Table 6 in the Appendix). This composition of external ties had been sustaining until 2005, when board members established new external affiliations with actors outside the firm. It positively affected diversity of ties and increased the Blau's index to 0.56 (see Table 5 in the Appendix). Over the next years we observed consequent increase in diversity of network ties, yet with few exceptions in 2008 and 2009. At the final point of

analysis, namely in 2012, diversity of ties reached its highest level and the value of the Blau's index increased to 0.68.

Firm "C" kept sustaining relatively strong ties to its shareholding companies over the analyzed years (see Table 3 in the text and Table 6 in the Appendix). Already in the bagging of our analysis, we observed that this type of network ties was dominating the firm's network. Although simultaneously to the enlargement of its size in 2005 the network gained new connections to other actors in the environment, strong ties to shareholding companies remained typical for this network. The network enlargement in 2005 was caused by new external affiliations of board members and, in particular, by new board appointments of CEO, board chairman and assistant general manager. In this way board members connected firm "C" to other actors, including other firms in its environment and also in the same industry. This type of connections, apart from ties to shareholding companies, had become an important element in firm's network. Moreover, business ties remained the second strongest type of network ties for firm "C". In terms of tie strength, business ties and ties to shareholding companies were the most significant over the analyzed years.

Apart from strong ties to business actors, firm "C" was also connected to non-business actors, owing to affiliations of its independent directors. Our investigation of individual network ties had shown that only independent directors were providing connections to non-business actors (see Table 3 in the Appendix). Although the non-business ties were relatively weak in the network, and only appeared from 2005, firm "C" gained connections to such actors as Shanghai Tongji University and Shanghai Information Association. These ties, however, had remained relatively weak in comparison to the strength of other network ties.

The enlargement of network size in 2005 resulted in formation of network ties to foreign entities. Since 2005 inside directors had been joining boards of international firms and foreign affiliates of the business groups that firm "C" was affiliated with. Also, we observed that it was not uncommon for inside directors to simultaneously hold board posts in the same foreign affiliates of the business group. Moreover, over the years the international ties had been successively strengthening and became the strongest in 2012. However, despite these strong international connections, firm "C" had not appointed a foreign board member, unlike the other analyzed firms.

As board members had started expanding their networks beyond ties to shareholding companies, some of them joined also boards of financial institutions, such as Bank of Communications. Having ties to financial institutions was typical for inside and independent

directors, though these ties were formed infrequently. We observed that ties to financial institutions, similarly to political ties, were weak and irregular. In the case of political ties, we identified two inside directors with connections to the government through their affiliations with the Ministry of Science and Technology. Even though these single network connections were probably of a great importance to the firm, we also presumed that the actual presence of political ties in this board might have been underreported in our data sources.

IV. Internal network cohesion

The discovered patterns of networking behavior outside the firm provided valuable insights into external connections of firm “C”. Yet, this behavior indirectly had been also affecting dynamics inside the board. Starting from 2001 when several board members were holding simultaneous board posts in shareholding companies, the internal network began to form through bonding ties of the board members, who were affiliated with the same firms. As presented earlier in our analysis, until 2005 the network of firm “C” comprised only ties to shareholding companies. Hence, affiliations with the same firms were leading to strengthening of internal network ties amongst board members. Moreover, based on the measures of internal network cohesion (see Table 3 in the text, Table 15 in the Appendix, and Figure 1), we confirmed that board members were typically holding other posts in the same shareholding firms. Therefore, the measures of network cohesion calculated for the period from 2001 to 2004 reached maximum value of density and connectedness.

In the following years, simultaneously to increasing network size and diversity of ties, this dense internal network started evolving to a more complex structure. The structure was still demonstrating a high level of connectedness amongst actors, but it became more fragmented in comparison to its state in the previous years. In fact the high level of connectedness was sustaining not only because of the already present common affiliations to shareholding companies, but also owing to appointments of new board members, who were affiliated with the same business group as firm “C”. We spotted this pattern also in replacements of the key figures in the board, such as CEO, board chairman and assistant general manager.

Since 2005 board members had started forming two separate subgroups within the internal network that included individuals densely connected to each other. Even after the aforementioned replacements of the key figures in the board, the subgroups retained their characteristics. Therefore, since 2005 the internal network was containing two subgroups, which were structured as follows. In the internal network one subgroup was formed around CEO and assistant general manager. This subgroup included inside directors, who were sharing common

external affiliations with these individuals. The other subgroup was formed by board members sharing affiliations with board chairman. Only after 2009, and the following replacement of board chairman, CEO and the chairman were directly connected through a common external affiliation (see Figure 2), until then an inside director had been connecting these two individuals. The director could have been acting as a broker in the CEO-board chairman relations. Despite reshuffling of ties between CEO and board chairman, the network structure with clearly defined two subgroups remained stable over time.

Network dynamics and firm expansion

This section presents how the selected firms were expanding in the analyzed periods and how their external and internal networks were evolving over time. For each case we analyzed expansion events and network changes that occurred in an initial and a later stage of expansion. This differentiation between stages of expansion allowed for a clear identification of patterns typical for each stage. For better demonstration of results, in Figure 3, 4, and 5 we graphically present expansion timelines and for each case together with the identified evolution patterns of networks. We additionally summarize our findings in Table 4.

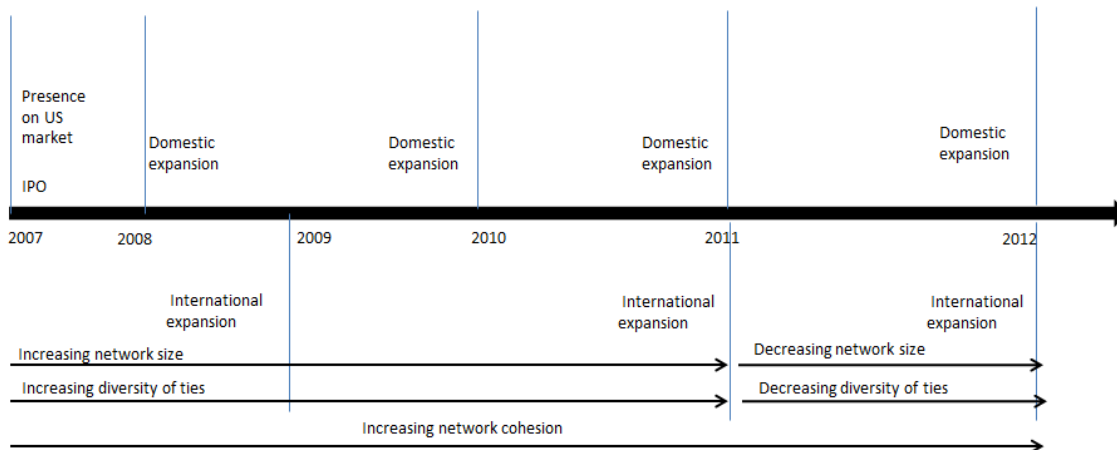
Firm “A”

I. Initial stage of expansion (from 2007 to 2010)

The expansion process of firm “A” had already started before its IPO in 2007. By that time the firm was operating in eleven provinces in China through its 33 domestic subsidiaries (See Table 10 in the Appendix). Moreover, firm “A” already had one foreign subsidiary in the USA. Further establishment of foreign subsidiaries, however, had been postponed until 2009. Meanwhile, the firm kept expanding on the domestic market and as a result increased the number of domestic subsidiaries to 36 in 2008. The establishment of new domestic subsidiaries significantly increased the total assets of the firm, likewise contributed to the growing number of its employees and operating revenues. In 2009 firm “A” established new foreign subsidiaries in France, Morocco, and Hong Kong. Although it resulted in an increase of firm’s assets, it had a smaller impact on employment and revenues than the expansion events from the previous years. In the following year firm “A” again focused on expansion on the Chinese market. The three newly opened domestic subsidiaries were very important for the growth of the entire firm. The significant growth of asset base, number of employees, and operating revenues had shown that

the expansion of operations in 2010 affected firm “A” to a greater extent than the previous expansion events. It was in fact the highest reported growth in terms of total assets and operating revenues between years 2007 and 2012.

Figure 3. Expansion timeline and dynamics of board social capital of firm “A”



During the first analyzed years, namely in 2007 and 2008, the external network of board members, although its size remained constant, demonstrated a slight change in diversity of ties. The firm strengthened its ties to shareholding companies and political actors, while ties to international and non-business actors slightly decreased. For this reason we observed also a decreased value of the Blau’s index in 2008 (see Table 4 in the Appendix). However, already in 2009 network size as well as diversity of network ties increased, as board members through their external affiliations had strengthened firm’s ties to financial institutions, non-business, political, and business actors. In the following year and simultaneously to the extensive firm growth, the external network did not show significant increase in terms of its size. However, diversity of network ties reached its maximum level reported for this period. The value of the Blau’s index in 2010 was 0.8 and this high value was a result of further strengthening of previously weak ties, such as international ties. Moreover, the key boundary spanners, namely the CEO and the inside director, were actively stretching their networks to accumulate potential resources deriving from political ties and ties to financial institutions. ,

A thorough investigation of the internal relationships amongst board members has revealed the following pattern. In the initial stage of expansion board members typically had common external affiliations with the CEO and not necessarily with each other. This led to formation of a subgroup within the board that was centered around the CEO (see Table 4 in the

text). At this stage, however, the subgroup was only emerging and the entire internal network was still very fragmented, as demonstrated by the high degree of network fragmentation between 2007 and 2010 (See Table 13 in the Appendix). Despite the high fragmentation, the increasing values of average degree, density, and connectedness had confirmed that the internal network started becoming more cohesive over time.

Table 4. Dynamics of board social capital and firm expansion

	Firm A	Firm B	Firm C
Initial stage of expansion			
Network size	Increasing network size Network extended by already appointed directors No significant replacements	Increasing network size Network extended mostly by the already appointed board members, with exception of new independent directors appointed in 2007	No significant increase until 2005 Big extension in 2005, since then small increases and decreases in the size
External social capital	Increasing diversity of ties Stronger political ties, ties to non-business actors, and to financial institutions	Increasing diversity of ties Strong ties to shareholding companies just after IPO Stronger non-business ties over time Weak political ties	Low diversity of ties Strong ties to shareholding companies Strong business ties Presence of other types of ties, yet very weak
Internal social capital	Increasing network cohesion over time Few board members connected to CEO, but also many other disconnected members present at the board	Increasing network over time Inside directors linked through common affiliation with the business group Independent directors disconnected	Initial maximum network cohesion followed by decrease and increase Two subgroups formed by board members: 1) around CEO and assistant general manager, 2) around board chair
Later stage of expansion			
Network size	Further increase, followed by a decrease	Stable in the beginning, followed by increase and decrease	Relatively stable network size, slight decrease and increase
External social capital	Network ties concentrated around shareholding companies and business actors Weak international ties and ties to financial institutions	Diversity of ties decreased Network ties concentrated around shareholding companies and business actors Relatively strong ties to non-business actors	Increasing diversity of ties Network ties concentrated around business and international actors Relatively strong ties to shareholding companies, weak ties to non-business and financial actors
Internal social capital	Gradual increase in network cohesion orchestrated by CEO Still some board members disconnected to CEO and to each other	Network of inside directors became more cohesive, because of common affiliations to the business group Independent directors not connected to insiders or to each other	Further increase in network cohesion Structure of the network remained stable over time and still contained two subgroups

II. Later stage of expansion (from 2011 to 2012)

In 2011 firm “A” entered a stage of intensive expansion in terms of the number of established domestic and foreign subsidiaries (see Table 10 in the Appendix). On the domestic market the firm had opened six new subsidiaries and expanded its operations across 16 provinces in China. Moreover, three new foreign subsidiaries were established in the USA, the UAE, and Singapore. Although over this year firm “A” indeed spread its operations geographically and increased the value of its assets by about 18%, it did not report a substantial growth of employment. The data has shown that at this stage of expansion, firm “A” rather concentrated on geographical spread of its operations. After establishment of new foreign subsidiaries in 2011, the firm continued its international expansion. In 2012 the already diverse portfolio of foreign markets where the firm had its subsidiaries was further enriched through expansion to Russia, India, Luxembourg, Germany, and again to Singapore. The investment in these five new foreign subsidiaries caused a substantial increase in the number of employees working for firm “A”, yet it did not increase firm’s assets to the same extent. Also, on the domestic market the firm opened only one new subsidiary in 2012 and in total its operations were covering in 16 provinces in China.

The geographical expansion of firm “A” covered with a substantial increase of network size. In fact in 2011 the network reached the biggest size reported for the period from 2007 to 2012 (see Table 1 in the Appendix). However, diversity of network ties dropped from the high level observed in the previous year. The decrease was a result of weakening of already weak ties, such as ties to non-business actors, and strengthening of ties, which already had been strong in the network (see Table 4 in the Appendix). In other words, board members were networking with less dissimilar actors than in the previous years. Business ties and ties to shareholding companies, which in general were relatively strong in the entire analyzed period, became even stronger, because of the new board posts held by the CEO and the inside directors of firm “A”. In the following year firm “A” experienced a decrease in its network size. Moreover, when board members dissolved their ties to non-business and political actors, it had a substantially decreasing effect on diversity of network ties. Board members, however, still kept single international ties and ties to financial institutions, while at the same time business ties and ties to shareholding companies were being further strengthened. In this way the external network became more centralized around business actors, although it lowered the diversity of ties to a minimum level observed in the analyzed period.

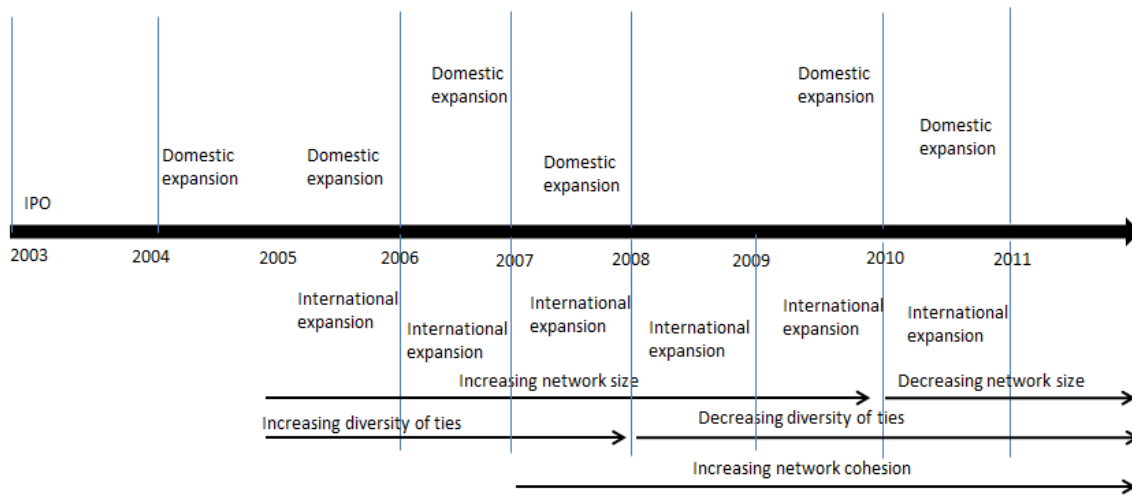
The observed strengthening of ties to business actors and shareholding companies also had an impact on the relationships amongst board members. It facilitated further bonding amongst members through having common external affiliations outside firm “A”. The CEO, in particular, was actively developing his individual network in firms affiliated with the same business group as firm “A”. Moreover, the new board members, who were appointed in this period, usually, had been already affiliated with this business group. This increasing cohesiveness was clearly reflected in the increasing measures of network cohesion (see Table 13 in the Appendix). The measures indicated a growing number of ties amongst board members, increasing density and connectedness of the internal network. Hence, over time more board members had common external affiliations with each other, and particularly with the CEO. However, some of the board members remained isolated in the internal network, thus had not shared any external affiliations with other members. This was also shown by the high, yet decreasing, values of network fragmentation. The case of the inside director, who was identified as the key boundary spanner for firm “A”, is a good example depicting partial isolation in the network. Though the director had a wide-spread network outside firm “A” and was connected to the CEO, he had not engaged in networking with other board members. Also, it was the case for independent directors, who indeed had established network ties to numerous actors in firm’s environment, but did not have any affiliations in common with other directors.

Firm “B”

I. Initial stage of expansion (from 2003 to 2007)

In the beginning of the initial stage of expansion firm “B” owned three domestic subsidiaries, which were operating in three Chinese provinces (see Table 11 in the Appendix). At that time, the firm did not have any foreign subsidiaries. Also in the following years the growth strategy was focus on expanding operations in the domestic market. Consequently, in 2004 firm “B” established four new subsidiaries, which increased its total assets by more than 50% and revenues by more than 20%, yet had not spread the operations geographically as the firm was still operating in four provinces. Although in 2005 the firm continued its domestic expansion, the achieved growth had a small impact on assets and revenues. In fact the firm reported a decrease of revenues compared to the previous year. These perhaps unsatisfactory results improved in the following year.

Figure 4. Expansion timeline and dynamics of board social capital of firm “B”



From the strategy perspective the next two years were very important and characterized by crucial events for firm’s initial expansion. Apart from further domestic expansion, in 2006 firm “B” established its first foreign subsidiaries in India, Qatar, and Hong Kong. This domestic and international growth had turned into growth of firm’s assets, employees, and also substantially increased firm’s revenues. The results for the next year were even better, owing to further international expansion and strengthened position on the domestic market. By the end of 2007 firm “B” established six new foreign subsidiaries in multiple locations, for example in South Africa, Brazil, Singapore and the US. Moreover, it experienced the biggest domestic expansion in terms of the number of owned subsidiaries. As a result the firm had in total 28 domestic subsidiaries operating across 15 Chinese provinces. This geographical spread of operations was also reflected in rapidly increasing value of assets, number of employees, and also revenues followed that trend.

During the initial expansion stage board members were successively enlarging firm’s network through affiliating with numerous actors in firm’s environment. Despite only few network ties initially present in the network, in the following years the network size grew substantially, because of extensive networking activities of independent directors (see summary in Table 3). Starting from 2005, board members had created particularly strong network business ties with other firms and with shareholding companies. Apart from typically business actors, board members formed relatively weak ties with political actors, academic and financial institutions. Moreover, the new independent directors, who were appointed in 2007, further strengthened firm’s ties to financial institutions. This growing diversity of network ties was also

reflected by the increasing values of the Blau's index calculated for this period (see Table 5 in the Appendix). From 2003 to 2007 the value of the index increased from 0.38 to 0.72 accordingly. Apart from the year 2004 when the index value dropped to zero, because at that time board members were only affiliated with shareholding companies, the Blau's index was continuously increasing throughout the entire initial stage of expansion.

In the beginning of the initial stage of expansion in 2003 board members did not have any common external affiliations. This lack of internal connectedness amongst board members had continued also throughout 2004 (see Table 14 in the Appendix). Based on the diversity measures we could conclude that during these years the inside directors, who at that time were building up external network of the firm, were affiliated with the same type of actors, namely with shareholding companies. However, these were not the same shareholding companies. Therefore, even the calculated measures of internal network cohesion have shown that the inside directors remained disconnected from each other, as the component ratio reached its maximum value of 1. Therefore, at this stage the internal network consisted of disconnected individuals. In the following years growth of network size and diversity of ties disrupted this structure. We observed that since 2005 board members had been networking not only with similar types of actor, but also with actually the same actors. It increased connectedness amongst board members and reduced fragmentation of the internal network. However, we also observed that networking with the same actors, and thus formation of densely connected subgroup in the board, was typical only for inside directors. Though independent directors had been playing a significant role in connecting firm "B" to various external actors, in the internal network they remained disconnected from each other and from inside directors. Inside directors, however, were successively forming a cohesive subgroup within the internal network and thus within the board, owing to their affiliations with the same shareholding companies.

II. Later stage of expansion (from 2008 to 2011)

For the purpose of our analysis we marked the year 2008 as the beginning of the later stage of expansion. This year was following a big firm's growth on domestic and international markets. As a continuation of its expansion strategy, in 2008 firm "B" concentrated more on strengthening its international presence. In 2008 it subsequently established the biggest number of foreign subsidiaries, simultaneously to further expansion on the domestic market, yet on a smaller scale than in the previous year. This apparent international focus had spread firm's

operations geographically to multiple locations, for example to Australia, Belgium, Ukraine, Germany, France, Italy, Spain, Poland, and the United Kingdom. The scale of international growth was particularly evident in the increasing number of employees and revenues in this period (see Table 11 in the Appendix).

Over the next year firm “B” kept focusing on international growth and marked its presence in the United Arab Emirates, South Korea, and Japan. The growth strategy implemented also in the following years had clearly shown that international growth was a priority in the later stage of firm’s expansion. In 2010 firm “B” expanded to the British Virgin Islands, South Africa, and Jordan, while keeping the domestic operations on a scale comparable to previous years. Nevertheless, firm’s assets, revenues, and number of employees grew substantially and clearly these expansion events were the most significant from the perspective of firm growth at the later stage. A slight turn in the growth strategy of the firm occurred in 2011, when it switched its focus again to domestic market. Over the year firm “B” had established the biggest number of domestic subsidiaries, thus strengthened its position on the Chinese market and spread operations across twenty provinces.

The later stage of firm’s expansion was associated also with changes in its external network. Although in 2008 we did not observe any changes in the size of the network, diversity of network ties reached the highest level for the analyzed period, namely the Blau’s index reached the value of 0.73 (see Table 5 in the Appendix). From this point diversity of network ties had been subsequently decreasing, until it dropped to 0.58 in 2012. Also, the structure of external network experienced significant changes in 2010, when 10 new board members joined the board. Although individual networks of the new board members had increased the size of firm’s network, we observed a subsequent decrease in the following years. The new board appointments also did not disrupt the pattern of decreasing diversity of ties, as inside and independent directors had been strengthening firm’s non-business, business ties, and ties to shareholding companies. Yet, simultaneously to directors’ replacements, ties to financial institutions and political ties were dissolved. In the following years directors’ affiliations were linking the firm only to these three types of actors. Also, ties to shareholding companies and business ties remained the strongest in the network.

In the dynamics amongst board members we observed a clear continuation of the pattern identified in the initial stage of expansion. Over the course of 2008 and 2009 the internal network slowly had been becoming more cohesive. This pattern continued further also in 2010 after appointments of new directors (see Table 14 in the Appendix). The new appointments

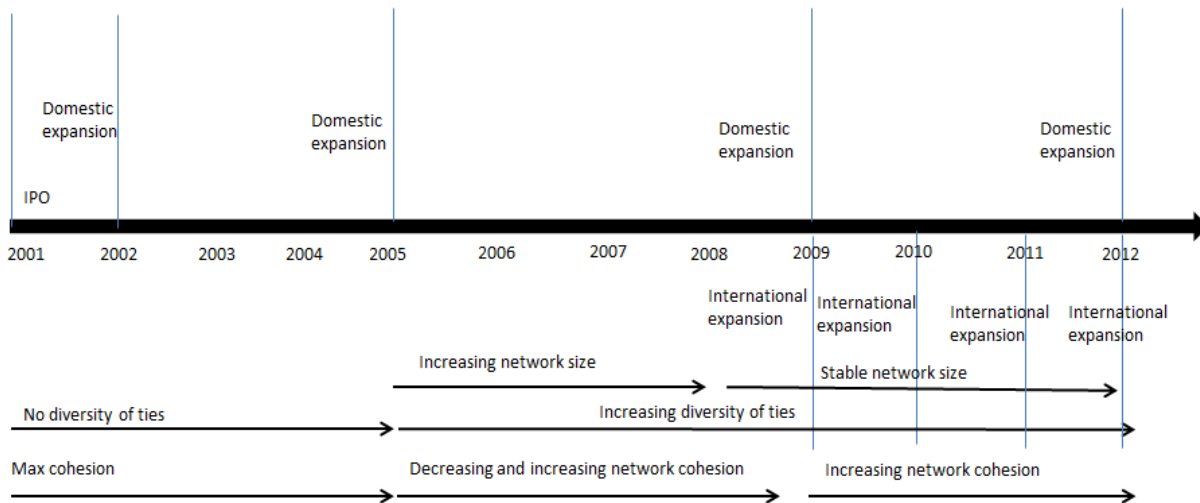
positively contributed to the growth of network cohesiveness. The new inside directors had been already affiliated with the same business group as firm “B” and shared common external affiliations with the already appointed inside directors. Similarly to the pattern observed before, the new independent directors remained isolated in the internal network, as they still did not have common affiliations neither with each other nor with inside directors. This stable pattern was also reflected in the increasing average degree, network density, and connectedness. Still, because independent directors did not have common external affiliations with other board members, the internal network was demonstrating a high level of fragmentation, though decreasing over time.

Firm “C”

I. Initial stage of expansion (from 2001 to 2008)

In the beginning of the initial stage of expansion firm “C” owned three subsidiaries, which were operating in Shanghai area (see Table 12 in the Appendix). At that time the firm did not have any foreign subsidiaries. Moreover, also in the following years, the firm was focusing on its growth on the domestic market. The consequent strategy resulted in an increasing number of established subsidiaries, yet concentrated geographically in Shanghai area. The domestic expansion had not been continuous, as the firm reported new subsidiaries only in 2002 and 2005. Yet, indeed it successively strengthened firm’s position on the domestic market. The new domestic subsidiaries strongly contributed to the growth of firm’s assets, employees and firm’s operating revenues. However, since 2006 we observed stagnation in the firm’s growth. Over the next years the firm had postponed further domestic expansion and continued running the business through its fourteen subsidiaries located around Shanghai. This stagnant state began in 2006 and lasted throughout 2008. It caused also a slowdown in the growth of firm’s assets, employees and revenues.

Figure 5. Expansion timeline and dynamics of board social capital of firm “C”



Although the initial stage of expansion included only two significant expansion events in 2002 and 2005, significant changes at the board level had occurred at that time. We observed that in the period from 2001 to 2004 the network initially contained homogenous ties connecting firm “C” to its shareholding companies. Only since 2005 the already appointed board members had been expanding their individual networks and formed connections to more diverse actors in firm’s environment (see summary in Table 4 in the text and Table 3 in the Appendix). The CEO together with board chairman and assistant general manager particularly contributed to this network enlargement. These three individuals, through their board post at other firms, linked firm “C” mostly to business actors. However, owing to affiliations of independent directors, the firm could have benefited also from connections to a non-business actor and a financial institution. Therefore, compared to the initial network structure observed in 2001, the network had evolved through establishment of more diverse network ties. Because of prevalent strong business ties and ties to shareholding companies, diversity of network ties in 2005 still remained relatively low. In the following years we observed a slow increase in diversity, yet in 2008 it was negatively affected by changes in board composition. As firm “C” appointed 14 new members, out of whom 12 already had developed extensive network connections, it further strengthened firm’s ties to business actors and reduced the overall diversity of network ties.

The early networking pattern observed amongst board members was reflecting homogeneity of their external affiliations. As since 2001 to 2004 board members were holding simultaneous board posts in shareholding companies of firm “C”, it affected the internal

dynamic in the boardroom. Based on the calculated data on internal network cohesion, we observed a recurrent pattern in these years for sustaining a dense internal network amongst board members sharing common external affiliations (see Table 15 in the Appendix). This network was particularly dense from 2002 to 2004, thus network density and connectedness research maximum values. This dense structure was further disrupted by changes unfolding in individual networks of board members. The disruption was therefore associated with a growing fragmentation of the internal network. While board members had been expanding their individual networks and forming ties to more diverse actors in firm's environment, the internal network started reshaping into a structure encompassing two subgroups of densely connected actors. Finally one emerging subgroup included board members connected to CEO and assistant general manager, while the other subgroup formed around board chairman.

II. Later stage of expansion (from 2009 to 2012)

Based on observation of the expansion process, we marked the year 2009 as the beginning of the later stage of expansion. This choice was made purposely, as from that year firm "C" began expanding on international markets and also further in China (see Table 12 in the Appendix). In comparison to the earlier stage, we observed a significant seed-up in strengthening of firm's position on the domestic market that was carried out simultaneously to the first establishments of subsidiaries on foreign markets. Only in 2009 firm "C" opened three new domestic subsidiaries also outside Shanghai area, after stagnation for several years, and also established its first foreign subsidiary in the Netherlands. This expansion of operations was reflected in a significant growth of asset base. Also, it had a positive effect on the growth of the number of employees and revenues. After years of slowdown in firm's growth between 2006 and 2008, in 2009 "C" finally started expanding on a greater scale. In the following years the firm was geographically spreading its operations also on the domestic market. After the years of concentrating operations around Shanghai area, this geographical spread was indeed a new element in firm's strategy.

In 2010 the firm established three new domestic subsidiaries and in overall owned 20 subsidiaries across four provinces in China. Firm "C" also expended further on the international markets through establishment of three foreign subsidiaries in Europe, specifically in Italy and Spain. The next years followed the same pattern of expansion, namely a simultaneous actions on domestic and international markets. Hence, in 2011 firm "C" strengthened its position on the domestic markets and spread its operations across another province and also expanded further in

Italy and Hong Kong. In 2012 the firm focused on domestic expansion and consequently was operating through its 27 domestic subsidiaries spread across 8 provinces. The international side of expansion in that year included establishment of two subsidiaries in Luxemburg and Germany. It is worth mentioning that these expansion events both on domestic and international markets had a substantially stronger effect on firm's growth, in terms of assets, employees and revenues, than the events from the initial stage of expansion. Since 2009 the firm had accelerated in accumulation of asset base and employees. Also, firm's revenues followed this increasing trend.

Despite the accelerated growth of the firm, external network had not experience any substantial changes in terms of its size (see summary in Table 4 in the text and Table 3 in the Appendix). The network size was relatively stable, though demonstrated slight decreases and increases in the following years. However, an increasing diversity of network ties was typical for this period. Since 2009 the value of the Blau's index had grown from 0.58 to 0.68 in 2012 (see Table 6 in the Appendix). This was caused by an increasing engagement of inside directors in foreign affiliates of the business group that firm "C" was also affiliated with. The increasing diversity of ties was also associated with the presence of weak ties established by inside directors to political actors and financial institutions, like also with non-business ties established by independent directors. The firm, however, had sustained strong business ties and ties to its shareholding companies over the analyzed years. Despite changes in board composition in 2009 and 2012 that replaced CEO, board chairman, and assistant general manager, diversity of ties and network size still followed the described pattern. This continuity had been supported by appointments of individuals with specific profiles matching the pattern. For this reason, even the new individuals appointed to the board continued strengthening firm's ties to business actors, shareholding companies, and international entities.

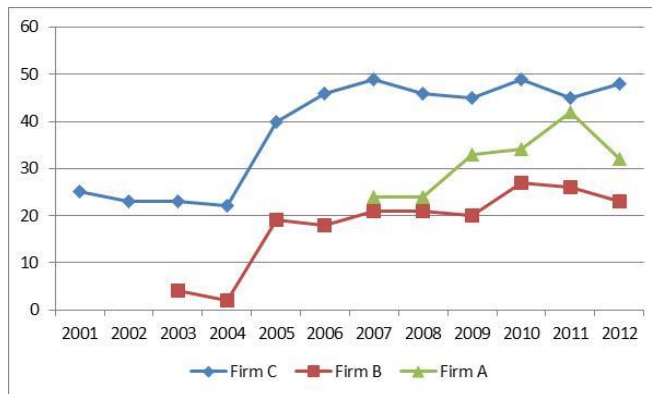
Continuation of the aforementioned pattern had an impact also on the internal network. As board members had been affiliating with the same firms associated within the same business groups and its foreign subsidiaries, it sustained cohesiveness of the internal network (see Table 15 in the Appendix). Moreover, in this period we did not observe any substantial changes in the structure of the internal network. It was also confirmed by stability of measures that were calculated for investigating cohesion of the internal network. The measures have shown that the structure of the internal network was sustainable. Therefore, also in the later stage of expansion, the internal network consisted of two subgroups formed around the key boundary spanners.

DISCUSSION AND CONCLUSION

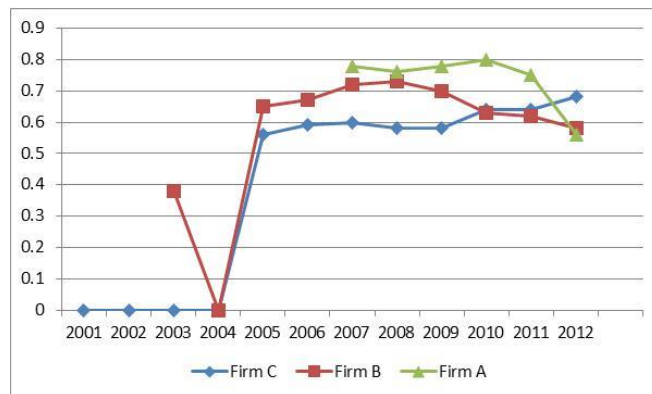
The purpose of this study is to demonstrate that dynamics of board social capital encompasses evolutionary changes of social relationships formed within and outside the organization. Taking into account the limited theoretical developments in this area, a multiple case study analysis was performed on the selected firms from transportation manufacturing industry in China. To capture complexity of board social capital, the analysis was focused on internal and external dimensions of the construct. Therefore, the analysis covered evolution paths of internal and external networks formed by board members. In order to explain and link changes within external and internal networks with firm level outcomes, we applied a process approach to the case study data. As firm expansion is a process that requires acquisition of new resources and development of new capabilities, it is a good context for investigating how networks evolve to accommodate this process. It has been shown in the literature that firms face different needs for resources depending on their stage of growth (Yiu, Bruton, Lu, 2005; Prashantham & Dhanaraj, 2010), and that firms' networks may be used instrumentally as conduits for resource flow to facilitate expansion (Coviello & Munro, 1997; Coviello, 2006; Hite & Hesterly, 2001). For this reason, in each of our cases we have differentiated between an initial and a later stage of expansion, and then investigated how external and internal networks were evolving throughout these stages. In this section we show that when firms are moving from an initial to a later stage of expansion, it is associated with changes in their external and internal networks. While facing a transition between stages of expansion, board of directors likely will be reshuffling and optimizing its networks to address shifting needs for resources. Especially in this transitional period, the board must ensure that effective performance of its strategy role is sufficiently supported by the accumulated network resources and thus by board social capital. Therefore, to enhance understanding of how external and internal networks may evolve as firm transitions from an initial to a later stage of expansion, in this section we develop theoretical propositions. The propositions are based on our empirical findings and integrated into the existing literature. To show a clear link between our findings and the propositions, we visually present developments of the key concepts in Figure 6 and summarize in the results in Table 5.

Figure 6. Development of the key concepts across the analyzed cases

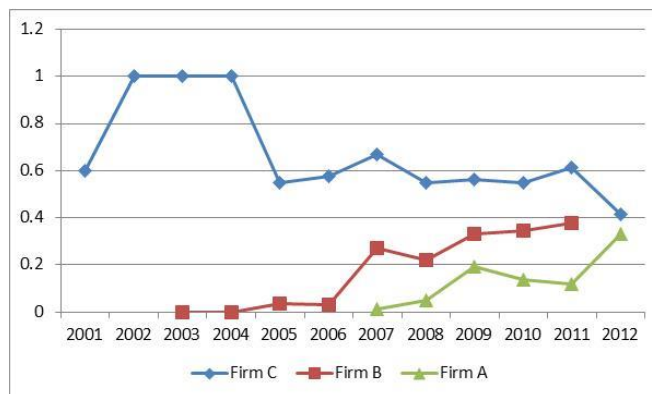
External network size



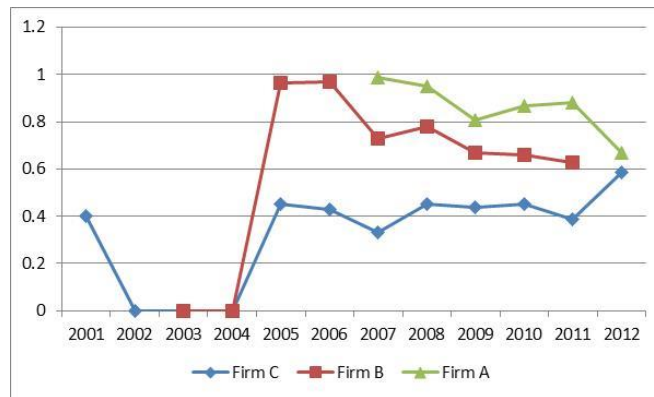
Diversity of external network ties



Connectedness of internal network



Fragmentation of internal network



The undertaken case study analysis has revealed a common evolution pattern of external network size. In the analyze time frame the sizes of external networks in cases “A” and “B” were initially increasing up to a point when the pattern shifted to decreasing (see Figure 6). In these cases evolution of external network size followed an inverted U-shape pattern. Network size of firm “C” has demonstrated a contrasting pattern, namely the network was initially increasing up to a point from which it kept a relatively stable size in the following years (see Table 5 and Figure 6). These results have shown that network size does not have to follow a linear growth pattern, but instead may grow up to a pivotal point after which it starts decreasing or remains stable. The identified pattern suggests a two-stage evolution process of external network size. In the first stage network size is increasing, while in the second stage it is decreasing or keeping a stable size. By implementing the process approach to our data, we have observed that the two-stage evolution process matches with expansion patterns of the selected firms. The first stage corresponds with the initial stage of expansion, when firms were active on the domestic market and only started to engage internationally. The second stage matches with the later stage of expansion, when firms had already gained experience on international markets and also keep expanding domestically.

Table 5. Summary of results

Higher level constructs	Key concepts	Patterns of changes over time		
		Firm A	Firm B	Firm C
External social capital	Network size	Inverted U-shape	Inverted U-shape	Increase over time
		Key boundary-spanners: CEO/board chair and inside director	Key boundary-spanners: Independent directors	Key boundary-spanners: Board chair, CEO, and assistant general manager
	Diversity of ties	Inverted U-shape	Inverted U-shape	Increase over time
	Strength of ties	Strengthening of weak ties and weakening of strong ties followed by strengthening of strong ties and decaying weak ties	Strengthening of weak ties and weakening of strong ties followed by strengthening of strong ties and decaying weak ties	Consistent firming of strong ties followed by slow and gradual strengthening of weak ties
Internal social capital	Network cohesion	Increase over time	Increase over time	Increase over time
		Emergence of a subgroup within the board	Emergence of a subgroup within the board	Emergence of subgroups within the board
		The subgroup was formed around CEO	The subgroup was formed among insiders, including CEO and the board chair	Two subgroups emerged, one around CEO and assistant general manager, the other one around board chairman

In line with the dominant logics in the literature, our results have confirmed that network size may be increased through appointments of new board members and integration of their individual networks into firm’s network (Kim & Cannella, 2008; Hillman, Cannella, Paetzold, 2000). However, a detailed analysis of individual networks of the new members has shown that some of them provided only single network ties or did not have any external ties at all. In contrast to this prevailing assumption about enlarging network size through new board appointments, our results have revealed that the already appointed board members may play a crucial role in expanding external network of an organization. While holding board posts in a given firm, the appointed board members may join boards of other firms, start political careers, or become members of industry associations. Hence, being appointed to one board does not constraint board members from forming new network ties to actors in firm’s environment. By doing so, they actually not only expand their individual networks, but also increase the size of firm’s external network. This applies to inside board members as well as to independent directors. As observed in our cases, firm’s external network may be developed by inside and independent board members. In two analyzed state-owned enterprises “A” and “C”, the growth of external network had been driven by actions of insiders, and in particular by individual

networking of CEO, board chair, inside director, and assistant general manager. In contrast to this pattern, the case of the private firm “B” has shown that firm’s external network may be as well expanded through actions of independent directors. Therefore, our findings suggest that the type of implemented development strategy for external network may be contingent on firm ownership.

The literature generally agrees that social capital plays a facilitating role in firm growth and international expansion (Coviello & Munro, 1997; Coviello, 2006; Han, 2006; Hite & Hesterly, 2001). The evidences from our case studies also support this statement. In addition to previous findings, our results have shown that diversity of external network ties follows an inverted U-shape pattern, when firms are transitioning from initial to later stage of expansion. Similarly to the pattern identified for network size, diversity of ties also follows a two-stage evolution process, which corresponds with stages of firm expansion. In the initial stage of expansion diversity of ties was increasing in the cases “A” and “B” (see Figure 6), as their board members had been creating network ties with more diverse actors in the environment. Hence, in both cases being in the initial stage of expansion was associated with enlargement of external networks and inclusion of new, diverse, actors into the networks. Our analysis has shown that, despite the primary level of diversity, the initial stage of expansion was a period of forming or/and strengthening of weak ties. These ties had been created to political or non-business actors, financial or international institutions. In both cases inclusion of the weak ties caused disruption of the primary network composition, which until then had been dominated by business ties and ties to shareholding companies. Although the external network of firm “A” at the starting point of our analysis already was more diversified in comparison to the other analyzed networks (see Table 4, Table 5, and Table 6 in the Appendix), the Blau’s index further increased from 0.78 in 2007 to 0.8 in 2010. Similarly in case “B”, the index increased from 0.38 in 2003 to 0.72 in 2007. Hence, throughout the initial stage of expansion the external network of firm “B” had evolved from a network dominated by homogenous ties to a network encompassing highly diverse actors.

Firm expansion requires resources and development of unique organizational capabilities, thus it may be expected that firms are likely to utilize the existing network or form new ties to actors endowed with unique resources. Such pattern of networking is recognized in the literature, as external ties are known to provide access to resources that expanding firms are not able to develop internally (Oviatt & McDougall, 1994), such as foreign market knowledge (Sharma & Blomstermo, 2003; Yli-Renko, Autio, Tontti, 2002). Our findings confirm that firms

in the initial stage of expansion spread their external networks, both in terms of size and diversity of ties, to establish connections to actors in the environment and enrich their pool of network resources. Hence, an early firm growth is associated with seeking unique resources and intentional management of external networks to exploit structural holes (Hite & Hesterly, 2001).

Our results indicate a pivotal point in which a previously increasing diversity of external network ties starts decreasing. Hence, at some point the evolution pattern of diversity shifts from a linear growth to an inverted U-shape. The evidences suggest that this shift may be associated with firm maturity, as in our cases it covered with entering a later stage of expansion. When firms “A” and “B” had entered a later stage of expansion, it was associated with decrease in diversity of ties encompassed in their external networks. For firm “A” the Blau’s index dropped from 0.8 in 2010 to 0.56 in 2012. Although in case “B” in 2008 we again observed an increase of the Blau’s index to 0.73 (from 0.72 in 2007), it was followed by an immediate decrease. Since then the values of the index had been successively decreasing to reach the value of 0.58 in 2012. In both cases the decrease in diversity of ties was caused by dissolution of ties to political, non-business actors, or financial institutions. Hence, over time the weak ties, which had been established throughout the initial stage of expansion, were subsequently being dissolved in the later stage.

In contrast to the inverted U-shape pattern observed in cases “A” and “B”, case “C” had shown a contrasting pattern. From the very beginning of our analysis, the external network of this firm consisted of homogenous network ties, namely ties to shareholding firms. For this reason, the values of the Blau’s index equaled zero from 2001 to 2004. In fact only since 2005 the external network started becoming more diverse, what was also reflected in the growing values of the index. This case has shown a slow and consistent increase in diversity of ties over time. This pattern is well depicted in Figure 6. Although we could conclude that, similarly to cases “A” and “B”, firm “C” in its initial stage of expansion also increased diversity of external network ties from 0 in 2001 to 0.58 in 2008, it did not follow the inverted U-shape patter as the other cases. When firm “C” had entered the later stage of expansion in 2009, diversity of external network ties continued increasing and in 2012 the Blau’s index reached the value of 0.68. We have observed that this case deviated also from the patterns identified for evolution of tie strength. Therefore, later in this section we discuss potential reasons for its deviating patterns.

A common view in the literature suggests that firms at different stages of growth require different resources (Delmar & Shane, 2004). Hence, some network ties may be more important

than other at different stages of expansion, because of their unique resources (Coviello & Munro, 1997; Coviello, 2006). While our analyzed firms were moving from an initial to a later stage of expansion, the evolution pattern of diversity of ties had shifted from a linear growth to an inverted U-shape pattern. This shift may reflect changing demands for resources caused by transitioning to the later stage of expansion. Moreover, it may also show redundancy of some network ties, which have been useful only during the course of the initial stage. As pointed by Adler and Kwon (2002, p.22) “(...) social capital needs maintenance. Social bonds have to be periodically renewed and reconfirmed or else they lose efficacy”. In addition, maintenance costs of being part of a particular network might make it difficult for directors to extend their individual networks outside the firm (McFadyen & Cannella, 2004). Hence, maintenance cost of redundant network ties may be too high and lead to dissolution of social relationships. Nonetheless, the decrease in diversity of ties, thus a decrease in amount of potentially novel information or resources provided through the network, could also be explained by a “network memory”, namely the accumulated social capital resulting from past network relationships (Soda, Usai, Zaheer, 2004). Hence, based on our findings we propose:

Proposition 1: An increase in diversity of ties in firm's external network will be followed by a decrease, as the firm moves from an initial to a later stage of expansion.

Diversity of network ties is closely linked to the concept of tie strength. These two concepts combined present a variety of actors embedded in a network and intensity of network relationships. Establishment, maintenance, and dissolution of network ties are contingent upon firm's current needs for resources (Delmar & Shane, 2004; Hite & Hesterly, 2001). The established network ties may be either weak or strong, as the social relationships between firms and external actors vary in terms of intensity and reciprocity (Granovetter, 1973). The evidences from our cases have shown that firms modify the strength of network ties to external actors depending on their stage of expansion. In general our case firms kept relatively strong ties to business actors and their shareholding companies over the entire analyzed period. However, we observed strengthening and weakening of particular types of network ties, while the firms were going through an initial and a later stage of expansion. In the beginning of the initial stage, external network of firms “A” and “B” were consisting of strong business ties and ties to shareholding companies. Typically for both cases, the strength of these ties was slightly weakening, as the firm was progressing with its expansion. Simultaneously to the weakening of

strong ties, firm “A” was strengthening, and firm “B” actually established, weak ties to other actors in their environment, such as non-business and political actors, firms located outside China, and financial institutions. Based on this observation we could conclude that the initial stage of expansion was characterized by weakening of strong ties to business actors and shareholding companies, and simultaneous strengthening of weak ties to other actors. This conclusion is consistent with the prior findings that suggest a continuous accumulation and appreciating value of social capital for expanding firms, while their networks are spreading to diverse actors (Coviello, 2006; Ring & Van de Ven, 1994). Moreover, the weak ties to diverse actors play a significant role in the expansion process, because they bridging nature enables access to novel resources and information (Burt, 1992; Geletkanycz & Hambrick, 1997). Strong ties reflect closeness between actors and often imply reciprocal services (Coleman, 1988). Strong ties to business group may lower transaction costs for the affiliated firms and facilitate capability development within the group (Caves & Uekusa, 1976; Guillen, 2000). Therefore, although in the initial stage of expansion the strong ties to shareholding companies were weakening, still firms “A” and “B” could have capitalized on the relationships to their business groups, in order to get access to resources and develop capabilities to expand.

While firms “A” and “B” were transitioning to the later stage of expansion, the strengths of network ties started adjusting as well. As we observed in cases “A” and “B”, transition to the next stage was associated with strengthening of the initially strong business ties and ties to shareholding companies. Our data has shown that many of the weak ties occurred to be temporary, as they had been weakened or completely dissolved in the later stage of expansion. For firm “A” further expansion was associated with gradual weakening of its international ties and ties to financial institutions. Moreover, the weak ties to political and non-business actors that had existed in firm’s network even at the time of its IPO, in the later stage of expansion were completely dissolved. Yet, the firm kept strengthening ties to shareholding companies and other firms in the environment. Firm “B” followed a similar pattern of strengthening these two types of ties, yet in this case the ties to shareholding companies were becoming stronger over time, while the strength of the business ties in the last two years of the analyzed period (2011 and 2012) had shown a slight weakening. The weak ties to political actors and to financial institutions that had been present during the initial stage of expansion were dissolved shortly after entering the later stage. The firm, however, sustained weak ties to non-business actors, but these ties were decaying over time. Nevertheless, our evidences have demonstrated that weak ties may decay and be dissolved over time, when firms are transitioning between stages of

expansion. This phenomenon of weak tie decay could be explained by the previous research arguing that social capital deriving from bridging ties may quickly depreciate and the ties may disappear (Burt, 2002). Although the literature has paid less attention to dissolution of network ties and social capital depreciation (Adler and Kwon, 2002); it is acknowledged that tie strength and its importance may depreciate over time (Prashantham & Dhanaraj, 2010; Soda, Usai, Zaheer, 2004). The obtained results are in line with the literature, yet to advance the existing studies we propose the following, based on our evidences:

Proposition 2: An initial strengthening of weak ties and weakening of strong ties in firm's external network will be followed by a subsequent strengthening of strong ties and weak tie decay, as the firm moves from an initial to a later stage of expansion.

The case "C" deviates from the logics replicated across the other cases. In contrast to other firms, from the very beginning of the initial stage of expansion firm "C" had been keeping very strong ties only to shareholding companies, until 2005 when other actors appeared in the network. Since then the established weak international ties started strengthening and remained relatively strong also in the later stage of expansion. Since 2005 the firm also had been keeping weak ties to non-business actors and financial institutions throughout both expansion stages. Also, weak political ties temporarily appeared in the network. Hence, throughout the initial and the later stage of expansion firm "C" was keeping strong ties to shareholding companies, intensively networking with other firms in the environment, strengthening international ties over ties, and maintaining weak ties to non-business actors and financial institutions. The deviation of this case from the pattern identified for cases "A" and "B" could have been caused by the following factors. First, in comparison to the other cases, firm "C" had experienced relatively more frequent changes in board composition, including replacements of CEO, board chair, and assistant general manager. These replacements inevitably disrupted evolution paths of networks formed by board members, and presumably also affected consistency of firm's expansion strategy. Second, a relatively later engagement in expansion of operations could have caused divergence from the pattern. In fact until 2009 the firm owned subsidiaries only on the domestic market. Since then the firm had been successively establishing foreign subsidiaries and expanding further on the domestic market. The international expansion was closely matching with strengthening of firm's international network ties. Still, domestic and international

expansion started relatively later, compared to the other firms, thus it might have been another reason for divergence of the network evolution pattern.

The empirical investigation of internal networks formed amongst board members of the analyzed firms has revealed replication of logics across cases. The identified pattern has two distinctive features: emergence of subgroups (cliques) within boards and increasing network cohesion. Along with consistently increasing network cohesion, board members had formed densely connected subgroups within boards. The subgroups, however, displayed structural differences. For example, in firm “B” the subgroup included only inside board members, none of whom held a central position in the network. In contrast to that, in firm “A” CEO was the most central actor. The CEO was connected to several board members, but the members were not necessarily connected to each other. The internal network of firm “C” followed an evolution path, which resulted in emergence of two subgroups within the board. One subgroup had formed around CEO and assistant general manager, while the other subgroup around board chairman. Despite these structural differences, across the analyzed cases the emergence of subgroups was linked to common external affiliations of board members. The already appointed and the new board members typically had been already affiliated with shareholding business groups. This finding suggest that homophily (Lincoln & McBride, 1985; Wholey & Huonker, 1993) is a powerful factor affecting evolution of internal networks, namely that similar actors are more likely to establish social relationships. The emergence of subgroups within boards can be also explained by the faultline theory, which proposes that a team is likely to split into subgroups when demographic attributes of team members are aligned (Lau & Murnighan, 1998). The theory describes faultlines as “hypothetical dividing lines that may split a group into subgroups based on one or more attributes” (Lau & Murnighan, 1998, p. 328). In the analyzed cases affiliation with shareholding business groups was a common attribute amongst inside directors, CEOs, board chairmen, and assistant general managers. Hence, the boards split along these attribute and formed distinctive subgroups of members with common external affiliations. Previous studies on subgroups report that agreement within a subgroup with strong faultlines, namely with more aligned characteristics of members, is greater than the overall agreement within a group (Lau & Murnighan, 2005; Tuggle, Schnatterly, Johnson, 2010). Therefore, we may presume that the presence of subgroups in boards of the analyzed firms had facilitated communication and efficient decision making. This argument is also supported by previous research on internal social capital that has shown a positive effect of strong network ties amongst board members on building trust, knowledge sharing, and teamwork (Forbes and

Milliken, 1999; Granovetter, 1985). In addition, strong ties to business group facilitate acquisition of organizational capabilities outside the firm boundaries, but within a business group (Mahmood, Zhu, Zajac, 2011).

The analyzed internal relationships within boards had evolved from fragmented networks of isolated members to high density networks with an increasing number of ties per each board member. Considering the context of firm expansion, such development pattern highlights importance of cohesive networks for internal control and decision making process. Following Coleman's (1988) argumentation, actors in densely connected networks develop common routines, mutual understanding, and trust. It improves information sharing within the network and in turn may positively influence teamwork and group performance (Forbes & Milliken, 1999). While the benefits of high cohesion may explain motivation for emergence of such network structure, our findings show new insights regarding evolution patterns and sustainability of the structure. Previous findings suggest that a highly interconnected network structure is expected to follow an inverted U-shape evolution pattern, because of diminishing bridging ties, homogenization of exchanged information, and potential fragmentation of the structure over time (Gulati, Sytch, Tatarynowicz, 2012). This indeed had occurred in the internal network of firm "C". The very densely connected internal network disrupted in 2005, after being sustained for three years. While increasing its level of fragmentation in the following years, the firm's internal network still kept a relatively high connectedness, in comparison to the other analyzed cases. However, our results have also demonstrated that cohesive internal networks may be sustainable over time. Network sustainability in our cases was associated with the observed pattern of board appointments and board interlocks. Most of the new members had been affiliated with the same business groups as the already appointed board members. The literature highlights that social capital influences director selection in a way that results in appointments of candidates, who have prior relationships with other members (Kim & Cannella, 2008). Nonetheless, research also reports that well-connected board members who have extensive internal and external ties may influence board decisions (Stevenson & Radin, 2009; Westphal, 1999). The literature suggests that in conditions of uncertainty and ambiguity boards face challenging decisions and consensus is more likely to be achieved in a group characterized by stronger ties among members (Kim & Cannella, 2008; Rice & Aydin, 1991, Stevenson & Radin, 2009). We argue that design and implementation of expansion strategy requires new expertise and, at the same time, effective decision making. Empirical findings from the cases have shown that in response to this challenge the external networks of the previously appointed

board members were extending to access unique resources. The internal networks, however, were becoming more cohesive and strongly bonding, since board members had been forming board interlocks with the firms. Moreover, the cohesive network structure was further strengthened by the patten of appointing new board members, who had been already affiliated with the same business groups as the analyzed firms. Therefore, considering our empirical evidences, we propose:

Proposition 3: Firm's internal network will be consistently increasing its cohesion, as the firm moves from an initial to a later stage of expansion.

Though the previous studies rightly acknowledge that social capital ought to be perceived as dynamic (Prashantham & Dhanaraj, 2010), its evolution still remains underexplored, particularly in the context of boards of directors. This study contributes in several ways to understanding how board social capital can evolve over time. First, we disentangle dynamics of board social capital by investigating evolution patterns of networks it derives from. Following the literature, we assert that board social capital is an asset that derives from network ties of board members (Hillman & Dalziel, 2003; Nahapiet & Ghoshal, 1998), however, in order to thoroughly depict its dynamics, a distinction between its internal and external dimension has to be made. As networks of board members can evolve and be adjustable over time, then evolution patterns of internal and external networks ought to be investigated. Our findings demonstrate that internal and external networks follow different patterns, as they approximate different instrumental functions of board social capital. While external social capital, investigated through the changes in diversity and strength of external network ties, follows an inverted U-shape pattern, evolution of internal social capital is associated with consistent increase in cohesion of internal network. Therefore, we highlight that board social capital is a complex construct and better understanding of its development patterns requires a careful consideration of multidimensional changes at the network level. Second, a separate analysis of internal and external networks gives insights into different motivation for network development in the context of firm expansion. While the literature acknowledges the facilitating role of external social capital in firm expansion (Coviello & Munro, 1997; Coviello, 2006), our results demonstrate a pivotal point in social capital accumulation, which possibly results from “network memory” (Soda, Usai, Zaheer, 2004) and high maintenance costs of redundant network ties. Moreover, we stress depreciating value of social capital, which has been underestimated in

previous studies (Adler & Kwon, 2002). Nonetheless, we touch upon evolution of internal social capital, which so far has been overlooked in the context of firm expansion and not exhaustively discussed in the literature (Harris & Helfat, 2007). We specifically show that homophily (Lincoln & McBride, 1985; Wholey & Huonker, 1993) has a strong influence on the evolution pattern of internal network. Moreover, the observed pattern suggest emergence of subgroups with strong faultlines that consist of board members with similar attributes, such as affiliations with the same business groups (Lau & Murnighan, 2005; Tuggle, Schnatterly, Johnson, 2010). Moreover, internal network develops a more cohesive structure along with firm's transition from an initial to a later stage of expansion, which could be explained by motivation to keep control and effective decision making (Coleman, 1988; Stevenson & Radin, 2009). Third, we demonstrate how combination of different methods, namely multiple case study analysis and social network analysis, may help to disentangle complexities of unexplored theoretical concepts. Owing to such approach we were able to carefully observe mechanisms and develop theoretical propositions suitable for empirical testing.

Although this study provides new insights into how board social capital may evolve, inevitably it has some limitations. First, this study relied on accuracy of the reported data in annual reports of the selected firms. This secondary data were obtained from CSMAR database. Although we are aware that some network ties might have been underreported in our data, still we are convinced that this data provide the best longitudinal approximation of firms' networks. Primary data collection for network research poses certain constrains and risk of biases, as the information regarding professional connections often seems confidential. Moreover, potential respondents may not be able to accurately describe their present and past networks. Therefore, we have decided that using secondary data from annual reports is the most suitable for our longitudinal study. Future research could complement our findings by analyzing primary data from expanding companies. Advancement for this and other network studies could be provided by discussing the relationship between networks and expansion during interviews with senior executives and board members. It would confirm our assumptions regarding the way networks may be changing over time because and along with expansion process.

Second, reliance on secondary data had limited our conclusions to assumptions based on the matched patterns in the data. We acknowledge that inability to strongly indicate the causal relationship is a major limitation of this study. However, this is also a broader problem in social network research. As the analyzed firm-level outcome, such as firm expansion in our study, may be a predictor as well as a consequence of the network, studies investigating causal relationships

between networks and firm's outcomes struggle with endogeneity problem and recognize it as a main challenge (Burt, 1992; Carpenter, Li, Jiang, 2012). In our study we assume that changes in external and internal network are antecedents of firm expansion, based on the presented theoretical premises. However, we are aware that our data do not sufficiently support this claims. Also for this reason, we were unable to develop strong causal claims about the relationship between changes of networks over time and firm expansion, like also to control for other alternative explanations. However, we were able to show network changes with exceptional detail and capture the possible associations with patterns of firm expansion. Therefore, we argue for the link between sociological network effects and economic outcomes. While this study captures multiple snapshots of network development, we do not claim that the results are exhaustive. Perhaps observation of networks over a longer period of time, although knowing difficulties in data collection, would reveal subsequent cycles in network development and accumulation of board social capital. We do not claim that our findings demonstrate complete process of network development. Depending on expansion plans and external environment, internal and external networks may develop in another direction, as current stock of social capital has a temporal value and may be adjusted accordingly.

Third, given that the study focuses on a specific empirical context, external validity of this study is limited. The insights from the selected Chinese firms show evolution patterns typical for business environment in emerging economies. Therefore, our findings may be generalizable also to other countries going through institutional transition, where reliance on network relationships is a common practice in business. Our findings, however, have a limited generalizability to developed economies. In these economies business activity is regulated by laws and contracts, which are effectively executed. Therefore, organizations in developed economies rely on the rule of law, while reliance on social relationships is typical for emerging economies (Akamatsu, 1962; Redding, 1990). Future research could complement our findings with evidences from developed economies, to juxtapose the patterns and enhance understanding of board social capital dynamics in different empirical contexts. Although organizations in developed economies do not rely on social relationships to the same extent as organizations in emerging economies, still social capital is important when it comes to industry knowledge sharing (Geletkanycz & Hambrick, 1997), advice seeking by executives (McDonald, Khanna, Westphal, 2008), or dissemination of practices between organizations (Shipilov, Greve, Rowley, 2010). Therefore, social capital also in this empirical context should not be ignored, especially when research on dynamics of board social capital is still scarce. Therefore, regardless of the

aforementioned limitations, we hope that our study brings attention to the shortcomings of the literature, particularly in the area of board social capital dynamics, and will motivate further research in this area.

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Appendix

Network size, categories and number of network ties

Table 1. Number and categories of ties included in the network of firm "A" from 2007 to 2012.

Year	Categories of network ties														Network size	
	Ties to shareholders		Business ties		International ties		Political ties		Non-business ties		Ties to financial institutions					
	Independent	Inside	Independent	Inside	Independent	Inside	Independent	Inside	Independent	Inside	Independent	Inside				
Type of board members holding the ties																
2007	0	7	1	6	2	1	0	1	4	0	0	0	2	2		24
2008	0	8	1	6	0	1	1	2	3	0	0	0	2	2		24
2009	0	5	1	10	0	1	1	4	3	4	0	0	4	4		33
2010	0	5	1	9	1	1	1	6	3	2	0	0	5	5		34
2011	0	8	2	15	1	1	1	6	3	0	0	0	5	5		42
2012	0	16	3	11	0	1	0	0	0	0	0	0	1	1		32

Source: Authors' calculations based on CSMAR data

Table 2. Number and categories of ties included in the network of firm “B” from 2003 to 2012.

Year	Categories of network ties												Network size		
	Ties to shareholders		Business ties		International ties		Political ties		Non-business ties		Ties to financial institutions				
	Independent	Inside	Independent	Inside	Independent	Inside	Independent	Inside	Independent	Inside	Independent	Inside			
Type of board members holding the ties															
2003	0	3	0	0	0	0	0	0	0	0	0	0	0	1	4
2004	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
2005	0	4	9	1	0	0	1	0	0	3	0	1	0	0	19
2006	0	4	9	0	0	0	1	0	0	3	0	1	0	0	18
2007	0	7	5	3	0	0	1	0	0	2	0	3	0	0	21
2008	0	6	7	1	0	0	1	0	0	3	0	3	0	0	21
2009	0	7	7	1	0	0	1	0	0	2	0	2	0	0	20
2010	0	10	11	1	0	0	0	0	0	5	0	0	0	0	27
2011	0	11	11	0	0	0	0	0	0	4	0	0	0	0	26
2012	0	13	5	1	0	0	0	0	0	4	0	0	0	0	23

Source: Authors' calculations based on CSMAR data

Table 3. Number and categories of ties included in the network of firm “C” from 2001 to 2012.

Year	Categories of network ties												Network size			
	Ties to shareholders		Business ties		International ties		Political ties		Non-business ties		Ties to financial institutions					
	Independent	Inside	Independent	Inside	Independent	Inside	Independent	Inside	Independent	Inside	Independent	Inside				
Type of board members holding the ties																
2001	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25
2002	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	23
2003	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	23
2004	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	22
2005	0	23	1	12	0	2	0	0	0	1	0	0	1	0	0	40
2006	0	23	1	17	0	3	0	0	0	1	0	0	1	0	0	46
2007	0	24	2	17	0	3	0	0	2	1	0	0	0	0	0	49
2008	0	22	2	18	0	2	0	0	0	2	0	0	0	0	0	46
2009	0	22	2	17	0	1	0	0	2	1	0	0	0	0	0	45
2010	0	23	2	16	0	3	0	0	2	2	0	0	0	0	1	49
2011	0	22	2	12	0	6	0	0	0	2	0	0	0	0	1	45
2012	0	22	2	11	0	9	0	0	0	2	0	0	1	1	1	48

Source: Authors' calculations based on CSMAR data

Diversity and strength of network ties

Table 4. Diversity and strength of network ties included in the network of firm "A" from 2007 to 2012.

Year	Strength of network ties						Diversity
	Ties to shareholders	Business ties	International ties	Political ties	Non-business ties	Ties to financial institutions	
2007	0.29	0.29	0.13	0.04	0.17	0.08	0.78
2008	0.33	0.29	0.04	0.13	0.13	0.08	0.76
2009	0.15	0.33	0.03	0.15	0.21	0.12	0.78
2010	0.15	0.29	0.06	0.21	0.15	0.15	0.80
2011	0.19	0.40	0.05	0.17	0.07	0.12	0.75
2012	0.50	0.44	0.03	0.00	0.00	0.03	0.56

Source: Authors' calculations based on CSMAR data

Table 5. Diversity and strength of network ties included in the network of firm "B" 2003 to 2012.

Year	Strength of network ties						Diversity
	Ties to shareholders	Business ties	International ties	Political ties	Non-business ties	Ties to financial institutions	
2003	0.75	0.00	0.00	0.00	0.00	0.25	0.38
2004	1.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.21	0.53	0.00	0.05	0.16	0.05	0.65
2006	0.22	0.50	0.00	0.06	0.17	0.06	0.67
2007	0.33	0.38	0.00	0.05	0.10	0.14	0.72
2008	0.29	0.38	0.00	0.05	0.14	0.14	0.73
2009	0.35	0.40	0.00	0.05	0.10	0.10	0.70
2010	0.37	0.44	0.00	0.00	0.19	0.00	0.63
2011	0.42	0.42	0.00	0.00	0.15	0.00	0.62
2012	0.57	0.26	0.00	0.00	0.17	0.00	0.58

Source: Authors' calculations based on CSMAR data

Table 6. Diversity and strength of network ties included in the network of firm “C” from 2001 to 2012.

Year	Strength of network ties							Diversity Blau's index
	Ties to shareholders	Business ties	International ties	Political ties	Non-business ties	Ties to financial institutions		
2001	1	0	0	0	0	0	0	
2002	1	0	0	0	0	0	0	
2003	1	0	0	0	0	0	0	
2004	1	0	0	0	0	0	0	
2005	0.58	0.33	0.05	0.00	0.03	0.03	0.56	
2006	0.50	0.39	0.07	0.00	0.02	0.02	0.59	
2007	0.49	0.39	0.06	0.04	0.02	0.00	0.60	
2008	0.48	0.43	0.04	0.00	0.04	0.00	0.58	
2009	0.49	0.42	0.02	0.04	0.02	0.00	0.58	
2010	0.47	0.37	0.06	0.04	0.04	0.02	0.64	
2011	0.49	0.31	0.13	0.00	0.04	0.02	0.64	
2012	0.46	0.27	0.19	0.00	0.04	0.04	0.68	

Source: Authors' calculations based on CSMAR data

Board characteristics and new board appointments

Table 7. Board characteristics and new board appointments in firm “A” from 2007 to 2012.

Year	Number of independent directors	Number of supervisors	Number of inside directors	CEO duality	Board size	Number of new board appointments	Number of network ties provided by the new board members	Network size
2007	6	3	18	Yes	33	-	-	24
2008	6	3	18	Yes	32	2	1	24
2009	6	3	18	Yes	32	-	-	33
2010	6	3	18	Yes	32	-	-	34
2011	6	3	18	Yes	33	3	1	42
2012	6	3	17	Yes	39	6	7	32

Source: Authors' calculations based on CSMAR data

Table 8. Board characteristics and new board appointments in firm “B” from 2003 to 2012.

Year	Number of independent directors	Number of supervisors	Number of inside directors	CEO duality	Board size	Number of new board appointments	Number of network ties provided by the new board members	Network size
2003	3	3	9	No	16	-	-	4
2004	4	3	9	Yes	17	6	0	2
2005	4	3	9	Yes	17	-	-	19
2006	4	3	9	Yes	17	-	-	18
2007	3	3	8	No	19	6	7	21
2008	4	3	9	No	27	10	1	21
2009	4	3	9	No	24	2	1	20
2010	5	3	12	No	27	10	12	27
2011	5	3	12	No	27	-	-	26
2012	4	3	11	No	32	5	1	23

Source: Authors' calculations based on CSMAR data

Table 9. Board characteristics and new board appointments in firm “C” from 2007 to 2012.

Year	Number of independent directors	Number of supervisors	Number of inside directors	CEO duality	Board size	Number of new board appointments	Number of network ties provided by the new board members	Network size
2001	0	5	9	No	18	-	-	25
2002	2	5	8	No	18	3	-	23
2003	3	5	9	No	19	1	-	23
2004	3	5	9	No	21	4	-	22
2005	3	5	9	No	19	1	3	40
2006	3	5	9	No	19	-	-	46
2007	3	5	9	No	19	-	-	49
2008	3	5	9	No	19	14	34	46
2009	3	5	9	No	20	4	4	45
2010	3	5	9	No	22	2	-	49
2011	3	5	9	No	20	2	1	45
2012	3	5	9	No	24	5	15	48

Source: Authors' calculations based on CSMAR data

Domestic and international expansion

Table 10. Domestic and foreign subsidiaries established by firm "A" from 2007 to 2012.

Year	Total number of domestic subsidiaries	Number of provinces where the firm was operating	Total number of foreign subsidiaries	Number of countries where the firm owned foreign subsidiaries	Total Assets (mln RMB)	Number of Employees	Total Operating Revenue (mln RMB)
2007	33	11	1	1	22422.66	27 586	29260.97
2008	36	11	1	1	29267.74	32 027	33127.78
2009	36	11	4	4	36218.15	31 995	35525.18
2010	39	13	4	4	52159.85	38 174	63279.56
2011	45	16	7	7	61544.55	41 426	60019.27
2012	46	16	12	12	66320.36	60 916	48165.39

Source: CSMAR database

Table 11. Domestic and foreign subsidiaries established by firm "B" from 2003 to 2011.

Year	Total number of domestic subsidiaries	Number of provinces where the firm was operating	Total number of foreign subsidiaries	Number of countries where the firm owned foreign subsidiaries	Total Assets (mln RMB)	Number of Employees	Total Operating Revenue (mln RMB)
2003	3	3	0	0	2681.48	3 622	2088.01
2004	7	4	0	0	4323.53	4 091	2656.23
2005	10	7	0	0	4757.81	5 210	2537.40
2006	16	8	3	3	5917.05	6 322	4574.46
2007	28	15	9	8	11179.13	9 231	9144.95
2008	32	17	18	17	13967.34	16 656	13745.26
2009	32	17	21	20	15837.00	21 598	16495.88
2010	33	18	24	22	31340.77	42 367	33954.94
2011	36	20	25	22	51306.72	51 827	50776.30

Source: CSMAR database

Table 12. Domestic and foreign subsidiaries established by firm “C” from 2001 to 2012.

Year	Total number of domestic subsidiaries	Number of provinces where the firm was operating	Total number of foreign subsidiaries	Number of countries where the firm owned foreign subsidiaries	Total Assets (mln RMB)	Number of Employees	Total Operating Revenue (mln RMB)
2001	3	1	0	0	2782.30	2167	2057.30
2002	8	1	0	0	3792.97	3220	2793.17
2003	8	1	0	0	4026.94	3655	3227.15
2004	8	1	0	0	4216.15	4236	3857.74
2005	14	1	0	0	5862.71	5927	4803.19
2006	14	1	0	0	7152.58	7353	5206.77
2007	14	1	0	0	7343.95	7401	5750.83
2008	14	1	0	0	7928.74	7526	6335.02
2009	17	3	1	1	10654.24	12432	9910.28
2010	20	4	4	3	17897.40	19865	16488.50
2011	23	5	5	4	29989.22	28430	27387.16
2012	27	8	7	6	41145.94	37271	35129.39

Source: CSMAR database

Network cohesion

Table 13. Measures of internal network cohesion calculated for the network data of firm A from 2007 to 2012.

	2007	2008	2009	2010	2011	2012
Average Degree	0.143	0.5	1.077	1.235	1.530	4.118
Density	0.011	0.033	0.090	0.093	0.096	0.257
Components	13	13	8	12	11	8
Component Ratio	0.923	0.800	0.583	0.578	0.625	0.438
Connectedness	0.011	0.050	0.192	0.135	0.118	0.331
Fragmentation	0.989	0.950	0.808	0.865	0.882	0.669

Source: Authors' calculations based on CSMAR data and UCINET software

Table 14. Measures of internal network cohesion calculated for the network data of firm B from 2003 to 2011.

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Average Degree	0	0	0.250	0.225	2.728	2	3	4.8	5.625
Density	-	-	0.036	0.325	0.273	0.222	0.333	0.343	0.375
Components	4	2	7	7	6	6	5	7	7
Component Ratio	1	1	0.857	0.7523	0.500	0.556	0.444	0.429	0.400
Connectedness	-	-	0.036	0.030	0.273	0.222	0.333	0.343	0.375
Fragmentation	-	-	0.964	0.970	0.727	0.778	0.667	0.657	0.625

Source: Authors' calculations based on CSMAR data and UCINET software

“-” indicates that because of the network structure, the particular measures of internal cohesion could not have been calculated

Table 15. Measures of internal network cohesion calculated for the network data of firm C from 2001 to 2012.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Average Degree	2.400	2	2	2	4.250	3.647	4.235	3.875	3.444	3.625	3.474	3.500
Density	0.600	1	1	1	0.283	0.228	0.265	0.258	0.249	0.242	0.193	0.184
Components	2	1	1	1	5	5	4	5	5	5	5	7
Component Ratio	0.250	0	0	0	0.267	0.250	0.188	0.267	0.288	0.267	0.222	0.316
Connectedness	0.600	1	1	1	0.550	0.574	0.669	0.550	0.561	0.550	0.614	0.416
Fragmentation	0.400	0	0	0	0.450	0.426	0.331	0.450	0.439	0.450	0.386	0.584

Source: Authors' calculations based on CSMAR data and UCINET software

Chapter 5. Conclusion

The dissertation explores social capital in boards of directors from the perspective of its complexities. It puts emphasis on the often overlooked fact that social capital is a more complex construct than has been assumed in previous studies. A common oversimplification of social capital in empirical research diminishes its value and leads to misleading conclusions. In the dissertation it is consequently asserted that refocusing on perhaps difficult and inconvenient features of social capital is a way forward for advancing the knowledge on the construct. Therefore, the dissertation aims to address the overarching research question: *in the context of boards of directors, how can social capital be better understood through exploration of its complexities?* Owing to careful consideration of numerous complexities that are inherent to social capital, the dissertation provides detailed insights on the construct, proposes how to integrate the complexities into empirical research, and executes these insights in three empirical studies presented in the respective chapters. The studies with their distinct findings contribute to answering the overarching research question and construct a comprehensive perspective on social capital.

The study presented in *Chapter 2 (“Board social capital and firm performance: nuances of the relationship”)* shows that board social capital derives from an integrated system of social ties created by board members in which there is a possible interplay between the resources transmitted through the ties to actors both inside and outside the organization. This perspective helps to understand that the impact on firm performance actually stems from complementarity and substitution between the resources available through internal and external ties of board members. Unlike Chapter 2, which looks at social capital in a group context, the next empirical study in *Chapter 3 (“Social capital of board chair and its performance implications”)* migrates to a different level of analysis: assessment of social capital at the individual level. The study challenges the traditional perspective on board chair and asserts that in the relationship with firm performance social capitals of board chair, CEO and the board play equal roles and, most importantly, may act as complements and substitutes. Therefore, the resources available through external and internal social ties of these actors may complement each other or compensate for the lack of resources in the boardroom. The previous two studies offer a static perspective on social capital: first at the group level and then at the individual level. The following study presented in *Chapter 4 (“Dynamics of board social capital – multiple case studies from China”)* progresses into a dynamic angle. The study explores how board social capital may evolve when

firms are transitioning from an initial to a later stage of expansion. Based on empirical evidences, it proposes a multidimensional evolution process, which unfolds within external and internal social networks of board members.

Altogether, the studies included in this dissertation argue that in academic research social capital in boards of directors ought to be studied with reflection on its complex nature. The construct should not be narrowed down to a single type of social tie or an individual social network, but rather should be seen as a constellation of social relationships formed by board members, who also may establish new ties or dissolve the existing ones over time. Boards of directors are decision-making groups to which all members contribute with their diverse background, expertise, and social networks (Hillman, Cannella, Paetzold, 2000; Kor & Misangyi, 2008; Kor & Sundaramurthy, 2009). Therefore, board social capital derives from a system of social ties formed by all members in which the available resources may complement each other or compensate for the absence of other resources (Chapter 2). Social ties of any board member may be of great importance for organizational outcomes, as evidenced in Chapter 3. Therefore, when studying individual social capital of CEOs and directors, scholars ought to take into account also social capital of board chair and the potential interplay between the resources available through social ties of these individuals (Chapter 3). Research on social capital in boards may focus on snapshots of social networks from a given point in time, but also may try to investigate dynamic nature of the construct and the link to organizational changes, such as firm expansion analyzed in Chapter 4. While diving into dynamics of social capital, it is essential to have in mind that changes in social networks of board members may occur in several dimensions, such as strength and diversity of external ties, and cohesion of internal network within the board. The outlined findings from the empirical studies hold implications for theory development and open possibilities for future research, which will be elaborated in the next section.

General findings, limitations, and implications for future research

General findings

The dissertation provides a number of general findings that have theoretical implications and motivate future research on social capital in boards of directors. First, it demonstrates that studying social ties of board members regardless whether at a group or individual level requires a comprehensive perspective that includes diversity of ties and their interplay that contributes to

organizational outcomes (Chapter 2 and Chapter 3). Although research on social capital is flourishing (Drees & Heugens, 2013; Sauerwald, Lin, Peng, 2016; Zona, Gomez-Mejia, Withers, 2015), it rarely pays attention to the complex nature of the construct itself. This implies that social capital research may be still in its infancy, because of recurring oversimplification of the construct. This dissertation encourages scholars to be mindful of the comprehensive and complex nature of social capital, regardless the level of analysis. The evidences from the study presented in Chapter 2 motivate future research to reconsider social networking of board members with attention to diversity of their social ties. The study extends the existing research on board social capital (Haynes & Hillman, 2010; Hillman, Cannella, Paetzold, 2000; Hillman & Dalziel, 2003; Johnson, Schnatterly, Hill, 2013) by demonstrating how the resources deriving from both external and internal social ties of board members work together to contribute to firm performance. This is a significant change in approach to social capital in boards, since previous studies have been mostly focusing on either board interlocks, thus external social ties (Martin, Gözübüyük, Becerra, 2015; Mizruchi, 1996; Shipilov, Greve, Rowley, 2010) or on internal social ties, though to a lesser extent (Harris & Helfat, 2007; Kim & Cannella, 2008). In contrast to previous research, this study brings together external and internal dimensions of social capital in an inclusive perspective and demonstrates the richness of social capital in boards. Moreover, the empirical evidences demonstrate that in studying the relationships between board social capital and organizational outcomes it is reasonable to consider the whole system of social relationships created by board members. This is highly relevant for development of social capital research, since the field suffers from lack of nuanced studies challenging the existing perspectives on social capital. Future research may fill this gap by exploring further how the resources transmitted through external and internal social ties may be associated with other organizational outcomes, such as firm competitiveness and product diversification. Moreover, industry expertise combined with trust and shared values amongst board members may also have an impact on firm innovativeness. Furthermore, future research by looking at the accumulated external knowledge and internal dynamics within the board may assess their impact on the adopted corporate governance practices and firm's commitment to corporate social responsibility.

Second, the dissertation challenges the academic community to redefine the role of board chair in boards of directors. The empirical study in Chapter 3 emphasizes the importance of both internal and external social ties of board chair for firm performance. In this way the study, contrary to the existing research, moves the focus from control and liaising functions of board

chair to her/his social relationships. Chapter 3, as well as the whole dissertation, is a continuation of the scholarly effort to reflect the richness of board composition with regard to professional background (Hillman, Cannella, Paetzold, 2000; Kor & Misangyi, 2008; Kor & Sundaramurthy, 2009) and the consequent social networks. Particularly the evidences from Chapter 3 build ground for redefinition of the role of board chair and advancements of research on individual social capital in boards of directors. While the field has been focusing on individual social capital of CEOs and directors (Geletkanycz & Boyd, 2011; McDonald, Khanna, Westphal, 2008; Tian, Halebian, Rajagopalan, 2011), it marginalized social capital of board chair. The outcomes of Chapter 3 contribute to the field by bringing the scholarly attention back to the board chair and opening a discussion on how board chair may contribute to the board and firm performance through capitalizing on her/his social relationships inside and outside the organization. It is a very relevant extension of the existing way of thinking about board chair, since, as evidenced in Chapter 3, board chair together with CEO and directors join effort to contribute to firm performance. Although board chair, CEO, and directors are distinct individual with particular roles assigned within the board, still they build a decision making group in which their knowledge, expertise, and other resources are accumulated to set the strategic direction of the firm and monitor its execution. However, because of fragmentation of the literature, research has overlooked this natural interplay between the key figures in the board. On top of this, only recently scholars have launched a discussion on board chair beyond the context of CEO duality (Krause, Semadeni, Withers, 2016; Krause, 2017). Future research may use the presented findings to further explore how social capital of board chair, CEO, and directors is linked to board effectiveness, how it affects collaboration amongst board members and the overall board orientation. Moreover, as it has been shown in previous studies, individual social capital may be a source of power in a group (Oh, Chung, Labianca, 2004; Westphal, 1999). Hence, investigation of power balance with consideration of the power deriving from social capital of board chair would provide new insights into this phenomenon and move the research on individual social capital in boards beyond its present boundaries.

Third, this dissertation acknowledges the complexity of board social capital to a new level by offering insights also into its dynamics. As evidenced in Chapter 4, evolution of board social capital is a multidimensional process, which unfolds within external and internal social networks of board members. Triggered by organizational changes, such as firm expansion, social ties are reconfiguring to adapt to the new circumstances and, depending on the type of ties, may follow divergent evolution patterns. The empirical evidences from this chapter suggest that when firms

are transitioning from an initial to a later stage of expansion diversity of external network ties follows an inverted U-shape pattern. Likewise, the pattern typical for strength of external network ties demonstrates initial strengthening of weak ties and weakening of strong ties, and subsequent strengthening of strong ties and dissolution of weak ties. In addition, in the transition between stages of expansion cohesion of internal network amongst board members increases consistently. This implies that whenever social capital dynamics are studied, it is reasonable to dive into evolution processes of external and internal networks, in order to get a full picture of how social capital is evolving. This chapter with its distinct insights addresses the recognized problem in the literature, namely the lack of evidences regarding dynamics of social networks and social capital (Ahuja, Soda, Zaheer, 2012; Prashantham & Dhanaraj, 2010). While scarce previous research has studied evolution of entrepreneurial social networks (Coviello & Munro, 1997; Coviello, 2006; Maurer & Ebers, 2006), this is a first study of its kind investigating board social capital dynamics. The study raises awareness of the possible reconfiguration of social ties to actors inside and outside the firm in response to firm expansion. Social ties of board members serve as conduits for resource flow (Pfeffer & Salancik, 1978), transmit knowledge and information from external actors and facilitate cooperation within the board (Kim & Cannella, 2008). Therefore, it is natural to presume that, in order to respond to organizational challenges, social ties of board members may reconfigure. However, the existing research has not explored this angle hitherto. The findings from Chapter 4 reveal evolution patterns of external and internal social ties when firms are moving from an initial to a later stage of expansion, and thereby offer unique insights into the dynamics of social capital in the context of firm expansion. Nevertheless, reconfiguration of social ties of board members, and thus evolution of board social capital, may be motivated by numerous factors. For instance, previous research has shown that changes to business environment in which the firm is operating have an impact on its board composition (Hillman, Cannella, Paetzold, 2000; Mizuchi, 1996). By altering board composition firms may secure their positions in the new circumstances by establishing social connections to powerful actors in the business environment, and in this way enrich board social capital. Therefore, future research may build on the findings of this chapter and utilize insights from previous research to investigate how board social capital is evolving in response to environmental changes, such as introduction of new regulations or industry deregulation, industry consolidation, or when a new competitor enters the market. Scholars may also take a more firm-centric approach and provide insights on how board social capital evolves in the context of mergers and acquisitions (M&As). The integration process proceeding M&As

requires coordination and extraction of synergy between the entities (Datta, 1991; Shrivastava, 1986; Vaara, 2002). This process may also trigger changes at the board level and affect board composition of the acquired firm and the acquirer or of the new firm composed of the merged entities. Therefore, scholars in future research may investigate if effectively adapted board social capital may be the key to successful post M&A integration.

Fourth, the evidences in Chapter 2, Chapter 3, and Chapter 4 highlight the social dimension of boards of directors. Boards are groups of individuals, who build social relationships with colleagues, industry professional, politicians, alumni groups, etc. These relationships are not without organizational implications, as evidenced in the dissertation. These individuals are responsible for decision making, firm strategy, and consequently firm performance. Therefore, it is highly important for the field of corporate governance and strategic management to unpack the black box of boards of directors and reveal their human side. The dissertation provides guidelines how to investigate social capital in boards in the context of groups and individuals, and how to approach its dynamic facet. In a broad perspective, it is an extension of the existing research on the behavioral aspects of boards of directors (Huse, 2007; Osterloh, Frey, Frost, 2001). The outcomes of the dissertation and previous evidences draw a roadmap to guide future research amongst sociological features of boards. Building on the presented empirical findings, the dissertation argues for recognition of social relationships, both internal and external, as an inherent feature of boards. This perspective may be relevant for uncovering nuances of the phenomena underpinned by interactions of individuals, such as conflict resolution in boards, leadership style, board teamwork, and cooperation amongst CEO, board chair and other board members.

General limitations

Although the discussed studies contribute to unraveling the complexities of social capital in boards of directors, the dissertation ought to be viewed in light of its limitations. First, all of the empirical studies included in the respective chapters utilize secondary data. Obtaining reliable and unbiased primary data on social ties of board members, and in the context of China in particular, constitutes a challenge for researchers studying social capital and social networks (Borgatti, Everett, Johnson, 2013). Therefore, for conducting the presented empirical studies an optimal solution has been found in reliance on an acknowledged secondary data source, such as CSMAR database utilized by, for example, Markóczy and colleagues (2013) and supplementing this data with information obtained from other external sources. However, the studies would

undoubtedly benefit from additional primary information collected through surveys or interviews. Future research therefore may enrich in this way the presented findings, to enhance the knowledge on social capital and its organizational implications.

The studies presented in Chapter 2 and Chapter 3 have adopted a novel methodology, namely fuzzy-set Qualitative Comparative Analysis (fsQCA) (Ragin, 2006; 2008), which generated nuanced insights into the relationship between social capital and firm performance. However, as any other method, it has some limitations. Modeling a causal relationship using fsQCA has to deal with a limited number of causal conditions, which can be included in the model. Therefore, the causal conditions included in the studies were mainly representing social ties or social capital, while other sources of variance in firm performance were controlled for in the sampling process to ensure comparability of the analyzed cases. Moreover, as recommended in the literature (Ragin, 2008; Schneider & Wagemann, 2012), post QCA analyses of the results provided complementary insights and added more details about the investigated relationships. Although fsQCA has the analytical power to explore complex causal relationships, it has a static nature and is mostly applied to cross-sectional data. This is a recognized problem in the QCA literature that makes investigation of time effects problematic. To overcome this problem, in the empirical studies presented in this dissertation separate fsQCA analyses were performed with two different outcomes sets, namely short-term and long-term firm performance. The QCA literature accepts this partial solution to the problem (Schneider & Wagemann, 2012), however, the method is being constantly developed and new advancements hopefully will make longitudinal fsQCA applicable in empirical research. For example, Garcia-Castro and Ariño (2016) presented a promising development of the method by combining QCA with panel data econometrics. Moreover, Misangyi and colleagues (2017) has recently outlined several interesting trends in the development of QCA methodology. The high level of academic interest in the method encourages scholars to adopt it to investigation of complex causal relationships underlying various organizational phenomena.

The last general limitation stems from the choice of empirical context. Conducting a study in the context of China is definitely an opportunity for delivering unique insight from a non-Western context, yet it limits generalizability of results. Therefore, the findings presented in this dissertation cannot be generalized to a larger population of countries. The particular institutional setting of China makes the results relevant for other countries going through institutional transition. Typically for these countries, social relationships serve as substitutes for market institutions and become an important element of economic activities. This is in stark contrast to

the institutional setting typical for developed countries, which rely on the rule of law and regulations. For this reason the results cannot be generalized to the context of developed countries, yet may serve as an inspiration for future research juxtaposing the role of social capital in boards of directors in different countries. Moreover, generalizability of the findings is also limited by the choice of industries analyzed in the respective studies. Therefore, one should have in mind that the findings are applicable only to industries with similar characteristics to those analyzed in the dissertation. Future research may, however, extend applicability of the results to other industries.

Concluding remarks

The dissertation presents a novel approach to studying social capital in boards of directors with particular attention given to complexities of the construct and elaboration on their impact on organizational outcomes, such as the investigated firm performance and firm expansion. The chosen perspective responds to the prevalent oversimplification of social capital in academic research that hitherto has been focusing on particular types of social ties formed by board members or individual social networks of CEOs and directors. Contrary to the common assumptions, social capital is a rich, multidimensional construct, which requires scholarly effort to be explored and applied in empirical research. In the context of boards of directors social capital derives from an entire system of social relationships in which the available resources may be complements or substitutes, and thereby contribute to organizational outcomes. Likewise, individual-level social capital of CEOs, board chair, or directors ought to be discussed with consideration of social capital of the other actors in the board, since all of them participate in oversight and may have an impact on strategic decisions. Furthermore, social capital has also a dynamic nature, since board members may establish and dissolve their social relationships. In studying social capital dynamics it is important to recognize simultaneous changes occurring in multiple dimensions of social networks. The findings of this dissertation are by no means exhaustive, but indicate important features of social capital that have been overlooked and leave room for academic debate.

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