VENTURE CAPITAL RISK IN TRANSITIONAL ECONOMIES:
EVIDENCE FROM CHINA

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ABSTRACT

In China, guanxi is a particular kind of interpersonal relationship or connection that serves as a form of social currency that can secure resources and benefits in business contexts. In the venture capital market in China, some have suggested that venture capitalists (VCs) use guanxi as a mechanism for addressing institutional risks. This study examines how VCs respond to institutional risks in China using appropriate guanxi networks, which in turn have a direct and indirect influence on VC investment performance. I propose an integrative framework that both delineates the direct effects of guanxi networks on firm performance and indicates how they are moderated by environmental turbulence and mediated by response capabilities, interlocking directorates varying in density and multiplicity, and syndications such as affiliated projects and affiliated funds. A group of 222 venture capital firms in China were surveyed. This study identifies a significant link between guanxi and VC firm performance but also demonstrates that this link is reduced by environmental turbulence. The mediators identified here also have a significant influence on the relationship between guanxi and VC performance.

Key words: transitional economy, institutional risk, guanxi network, firm performance
CHAPTER 1 INTRODUCTION

1.1 Research Background

Venture capital is considered a risky investment, especially in a transitional environment such as China (Ahlstrom & Bruton, 2006; Ahlstrom, Bruton, & Yeh, 2007; Bruton, Fried, & Manigart, 2005; Dauterive & Fok, 2004; Fung, Liu, & Shen, 2004; Peng, 2000; Tan, Zhang, & Xia, 2008). VCs make investments in opportunities that typically entail high risks as well as the potential for high returns (Guler & Guillén, 2010). VCs are skilled at assessing markets and venture potential as well as risks (Dubini, 1989). VCs operating in transitional economies have ascribed the majority of their failures to problems related to underdeveloped institutions (Ahlstrom & Bruton, 2006; Ahlstrom et al., 2007). VCs investing in transitional economies such as China have developed mechanisms for addressing uncertainty and risks that are suited to that particular institutional environment (Abramson & Ai, 1997; Li, 2008; Wright, 2007). In particular, guanxi networks are thought to substitute for missing or underdeveloped institutions as compared to a Western context (Kambil, Long, & Kwan, 2006; Wright, Pruthi, & Lockett, 2005; Xin & Pearce, 1996).

This research explores the relationship between VC guanxi networks that are formed to successfully cope with institutional uncertainty and VC investment performance in China. VCs investment opportunities in China are appealing because of the potential for high returns, but these investment opportunities are tempered by the accompanying political and economic risks. These accompanying risks create an environment that is very different from the one that VCs face in the U.S. and Europe. Such an environment might give rise to issues such as uncertain knowledge of the legal
structure and difficulties in interpreting the complex regulatory system. Other factors that also come into play include different concepts of (and levels of appreciation of) the importance of networks or guanxi, visions of governance and investor rights, the capacity to manage contractual and intellectual property, and the ability to adapt business models to local environments (Ahlstrom et al., 2007; Boquist & Dawson, 2004; Bottazzi & Rin, 2002; Mason & Harrison, 2002; Saxenian & Li, 2003; Wright, 2007).

The Chinese government has adopted a number of policy schemes to promote venture investment, develop small and medium-sized enterprises (SME), and advance the development of science and technology (Wang, 2007a). The first domestic VC in China began operating in 1986. This was just one year after the establishment of the first international VC in China, which was called Chinavest. Rapid growth in international VC investments in China occurred from 1998 to 2001. After a slow period of growth between 2001 and 2005, there was a strong resurgence of international VC investment activities. By 2006, over 70% of investment deals in China involved international VC investments (Wang, 2007b, p. 92). Total VC investments in China reached an all-time high of US$16.4 billion in 2007, representing an increase of almost 100% in one year. China has become the largest venture capital market in Asia in recent years despite factors such as regulatory hurdles and institutional uncertainty (Wang, 2007b).

VC-backed enterprises carry a substantial risk of failure, whether in China or the West. Wang (2007b) estimates that fewer than 20% of U.S.-based VC projects in China are able to cash out through Initial Public Offerings (IPOs). This is often seen as a symbol of success in VC investment (Bergemann & Hege, 1998). More than 60% of U.S.-based VC investments in China have resulted in losses or returns that were below
initial expectations according to the Organization for Economic Cooperation and Development (OECD) Investment for Development 2007 Annual Report. For VCs in the U.S. and Europe, Mason and Harrison (2002) have conducted a study showing that 45% of investments result in total losses. The failure rates for VCs in the U.S. and China are similar but have different drivers because of the differences between the U.S. and Chinese investment environments. Limited exit routes, high tax burdens, and the onshore investment structure are significant barriers to VC success in China (Wang, 2007b).

The absence of a regulatory framework, a lack of law enforcement, a short of skillful managers, and the slow pace of the development of regulations and guidelines hinder the advancement of China’s VC industry (Tan et al., 2008). As a result, the institutional development paces in China do not match the billions of funds flowing in from both domestic and international investors. Since 1998, the Chinese government has promulgated numerous policies and regulations at all levels to encourage venture capital development. According to the 2007 annual report by the China Venture Capital Research Institute (CVCRI), the Chinese government has taken steps to foster new venture growth, including spending US$1 billion to help registered SMEs experiencing capital difficulties. Registered SMEs account for almost half of the Gross Domestic Product (GDP) and provide 75% of urban jobs in China. These steps also involve legal and regulatory reforms, but many of these steps have not been uniformly implemented. Difficulties including a high tax burden, limited exit routes, a lack of trained fund managers, and a lack of transparency are all primarily institutional factors that are difficult for VCs with operations in China to overcome (Wang, 2007b).
The institutional and regulatory issues that have not yet been addressed for the Chinese VC industry (Batjargal, 2007) have even greater implications for international VCs, which have invested much more money than have local VCs. The same is true regarding capital scarcity. For the past 10 years, foreign venture capital investments have comprised over 70% of investment deals, over 90% of total venture capital, and almost all larger projects that have been conducted (Wang, 2007b). Institutional underdevelopment has had a particularly negative impact on the VC industry in China. For example, China’s central and local governments often simultaneously play the roles of VC shareholder, investor, fund manager, and auditor. Excessive regulatory interference, which creates a very different environment than exists in the U.S., further complicates the development of the VC industry.

A series of studies in Europe and East Asia have shown that in order to more fully understand a transitional economy, one must examine business networks in depth (Aguilera, 1998; Ren, Au, & Birtch, 2009; Stockman, Ziegler, & Scott, 1985). There have been multiple studies on the development of the VC industry in transitional and emerging markets with high levels of institutional uncertainty (Ahlstrom & Bruton, 2006; Bruton et al., 2005; Fischer & Pollock, 2004; Kumar, 2002; Pandey, 1998; Salehizadeh, 2005; Scheela & Thawatchai, 2008; Sorabella, 2000; Tan et al., 2008; Wonglimpiyarat, 2007). Most of these studies have tried to explore and explain the differences between VCs in developing countries and the West. Bruton et al. (2004) conduct a survey of VC investments in East Asia to examine how institutions and culture shape the venture capital industry and create an environment different from that faced by the VC industry in the West. In East Asia, a relationship must exist between the VC firm and the funded
firm’s top management for funding to be a possibility. The relationship between VCs and their related networks of investors, entrepreneurs, and other venture capitalists are also important in the U.S. (Bartlett, 1995), but in East Asia, guanxi connections between various parties are particularly crucial. Guanxi is very helpful to VC firms as they seek to conduct due diligence, successfully interact with the China-based firms, and ensure that the VC firm achieves the desired results.

The majority of the current literature focuses on the Chinese economy and how social networks matter in a transitional economy. For example, Ahlstrom and Bruton (2006) point out that guanxi networks play an influential role in transitional economies because they substitute for the formal institutions present in more developed economies. Guanxi networks in China serve as substitutes for key formalities such as the rule of law and well-developed, strongly enforced regulations (Ahlstrom & Bruton, 2006; Ahlstrom et al., 2007). In this context, seven disciplines critical to successful VC investment in China have been proposed by Kambil et al. (2006), including knowledge and appreciation of the importance of social capital networks such as guanxi.

A guanxi network perspective reveals how important different aspects of networks are to VC performance (Hochberg, Ljungqvist, & Lu, 2007; Matherne, 2007). Guanxi networking is not simply a matter of making connections. It is about building trust and partnerships based on mutual benefit and reciprocity. These are the connections that truly count, especially in a networked capitalist society (Boisot & Child, 1988; Child, 1994). Networks have been shown to play a key role in VC performance in the West. Drawing on 3,469 U.S.-based VC funds managed by 1,974 biotech-focused VC firms between 1990 and 1994, Hochberg et al. (2007) find that better-networked VC firms
experience significantly better fund performance as measured by the proportion of investments that successfully exit investment through an IPO or a sale to another company. Researchers such as Abramson and Ai (1997), Arogvaswamy (2001), and Chung (2006) suggest that guanxi networks play an even greater role for VCs in transitional economies like China. Hence, I expect guanxi networks to have a strong influence on VC performance in China, but few empirical studies have addressed this question.

1.2 Research Purpose

The purpose of this research is to investigate how VCs use guanxi to cope with the uncertainty caused by underdeveloped and changing institutions. In particular, the study examines the impact of guanxi networks on VC firm performance. In this study, risk is simply defined as the probability that an investment's actual return will be different than expected (Hubbard, 2009). Uncertainty due to institutional factors may be difficult to quantify in terms of probabilities (Knight, 1921), but it is nevertheless an important consideration for VCs attempting to manage risk (Ahlstrom & Bruton, 2006). There are two kinds of risk that are important to VCs, namely, firm-specific risk and market risk. It is market risk that is affected by institutions (Wang, 2007b). Market risk related to the weakness of institutions makes it more difficult for VCs to select ventures to fund, monitor funded ventures, and choose the form of exit for funded ventures (Bruton, Ahlstrom, & Puky, 2009). Guanxi networks are believed to facilitate these activities and help manage overall risk.

Transitional economies offer a natural laboratory for the investigation of the impact of institutions on VC activities and performance. Studying VC activities and their
institutional development in China can help us to develop a model for other transitional and emerging economies (Wright, 2007). The Asian financial markets (including China) are presently experiencing some of the largest investments in the world (Chen et al., 2007; Chotigeat, Pandey, & David, 1997). With only a few exceptions (e.g., Japan and Singapore), the Asian economies are undergoing transitional change; this is certainly the case for China, India, Vietnam, and other countries. Studying factors that affect VC returns in China can help us to further develop our understanding of how to cope with underdeveloped investment environments and institutions in other transitional economies.

Although this study does not address the differences between VC strategies and performance in China and those outside China, it should be possible to compare the results of this study with those of similar studies conducted in different contexts, such as Russia (Batjargal, 2007), India (Elango & Pattnaik, 2007), and Latin America (Bruton et al., 2009).

The remainder of the dissertation is organized as follows. Chapter 2 provides an overview of the literature on venture capital prior studies, institutional theory, and guanxi networks. Chapter 3 presents hypotheses and an integrative model. Chapter 4 describes the research design, including sampling, data collection, and measures. Data analysis and results are presented in Chapter 5. Chapter 6 presents the conclusion to this paper and includes a discussion of contributions to and implications for VC investment.
CHAPTER 2 LITERATURE REVIEW

2.1 Prior Studies

Despite the growth of venture funding in China, much remains unknown about the VC industry. A few studies have detailed the state of development of the industry from a macro-level perspective (Ahlstrom, Bruton, & Chan, 2000; Bruton et al., 1999; Ewing, 2004) by examining the financing of new ventures in China more generally and situating venture capital within this broader field of inquiry (White, Gao, & Zhang, 2005). Other studies have focused on VC tactics utilized in China’s challenging institutional environment (Ahlstrom et al., 2007; Bruton & Ahlstrom, 2003). One major insight is that while VCs have attempted to use the same model as employed in the West, key institutional and cultural issues have strongly affected the actual actions taken by VCs. Building on these insights, researchers have examined the role of social capital and networking for VCs, presenting findings that indicate that social capital is central to funding VC-backed firms (Batjargal & Liu, 2004). VCs operating in China face unique challenges. In particular, there is a lack of information available, and VCs may have limited knowledge regarding which portfolio companies are reliable and can be funded, VC-based firms may have limited information about how to maintain proper financials. VC investment requires a great deal of effort on the part of the VC firm to gather information and thus achieve desirable returns on investment.

Venture capital studies in related settings provide other insights, including studies conducted in China (Dauterive & Fok, 2004; Fuller, 2010; Pukthuanthong & Walker, 2007; Wright, 2007). Such studies have found that venture capital can still function when the environment lacks formal structures, such as market-friendly laws and regulations, or when laws are only minimally enforced. Thus, venture capital in such settings relies
heavily on social network ties to help substitute for the formal institutions present in the North American system (Bruton & Ahlstrom, 2003; Peng & Heath, 1996). The importance of social norms is suggested in Lockett et al. (2002), who find that the sources of information that VC firms seek and can utilize are culturally determined. However, despite research illuminating such differences, a great number of studies still presume that VCs typically operate in highly formal institutional environments, such as those predominantly present in North American economies (Jeng & Wells, 2000). Nevertheless, research on venture capital in China suggests that VCs have had to learn to work in informal environments and have faced many challenges in trying to make those environments more formal.

This research focuses on factors that could affect VC performance near the exit stage. Ruhnka and Young (1987) conclude that the lowest risk of investment is at the exit stage in the U.S. However, Liu and Chen (2006) find that for both domestic and foreign VCs in China, the exit stage presents higher risk than does any other point in the staging sequence. Hence, the exit stage is clearly essential to VC success or failure in China, and as such, it could provide a direct measure of VC performance. In general, the exit stage is the last stage in the venture capital financing process such that the main goal is to achieve an exit vehicle (in the form of either an IPO or a merge-and-acquisition M&A deal) for the investors and the venture in which they have invested. Internally, the venture may need to reposition the product, evaluate its subsequent position in the market, and investigate whether it is possible to attract new investments. This could lead to an additional continuation phase involving follow-up funding. This study investigates the VC performance in terms of various exit options in which VCs must manage risks
introduced by inadequate exit mechanisms, such as tightly controlled foreign currency exchange and greater restrictions on listing opportunities in domestic and overseas stock markets.

Within the literature on firm performance in China’s transitional economy, there are two topics relevant to VC performance, namely, the institutional environment and guanxi networks. It is widely accepted that institutions are important to the practice and theory of business. The issue is not whether institutional environment affects VC firms but rather how to deal with this particular influence. The persistence of institutional weaknesses in China such as ambiguous property rights suggests that guanxi cultivation is a necessary capability (Park & Luo, 2001). According to the institutional economics perspective, one important role of guanxi networks in transitional economies is their substitutability for external markets (Ahlstrom & Bruton, 2006; Caves, 1989). The lack of an adequate legal framework and a stable political structure in transitional economies has resulted in underdeveloped strategic factor markets (Barney, 1986). Guanxi networks substitute financial capital and entrepreneurial and management know-how for undeveloped external markets in transitional economies (Khanna & Palepu, 1997; Xin & Pearce, 1996). Therefore, previous studies on the significance of institutional theory and guanxi networks in terms of their effect on firm performance are reviewed in this chapter.

### 2.2 Institutional Theory

There is no single, universally accepted definition of an "institution” within the institutional school of thought. Institutions are defined as the “rules of the game in a society” (North, 1990, p. 3) and include formal rules (e.g., laws, regulations, and informal constraints such as customs, norms, and cultures). The social aspect of institutional
theory pertains to the way institutions emerge, function, and evolve to influence the behaviors of persons and firms in a society (Hung, Gu, & Yim, 2007). Institutions include formal organizations such as governments, legitimizing aspects such as public opinion, professions, religions, and ideologies (Scott, 1987), and invisible rules of operation, including those imposed by culture and norms (DiMaggio & Powell, 1983). These institutions represent the structures and mechanisms that function as the rules of the game in a society (North, 1990).

Scott (1995, p. 33) asserts that “institutions are social structures that have attained a high degree of resilience.” Scott (1995) also indicates that to survive, organizations must conform to the rules and belief systems prevailing in a given institutional environment (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). Institutional isomorphism, both structural and procedural, can increase an organization’s perceived legitimacy (Dacin, 1997; Deephouse, 1996; Suchman, 1995b). On this basis, institutional theory is also described as a theory of legitimacy-seeking (Dickson, BeShers, & Gupta, 2004). It might be argued that isomorphism is positively related to legitimacy (Deephouse, 1996). To gain legitimacy, firms need to adopt certain behaviors in accordance with the institution to be viewed as rational by those who are also influenced by the institution (Campbell, 2004).

Institutional theory essentially accounts for the causal power of culture and cognition, highlighting the rule-bound and ceremonial aspects of social life (DiMaggio & Powell, 1991) and emphasizing the cultural and normative framework within which organizations are embedded (Scott, 1995). Business people pursue their interests within the borders of institutional constraints (Ingram & Silverman, 2002). As Chinese
institutions undergo a transition, changes occur in the formal and informal rules of the game that affect firms as players (Peng, 2003). During the course of development of firm communities, processes of coercion, professional pressures, and mimicry due to institutional uncertainties force firms to adopt similar forms and business practices (DiMaggio & Powell, 1983). As time goes by, these forms and practices become widely accepted norms that are taken for granted, and firms that employ divergent forms or practices are less likely to succeed (Hannan & Freeman, 1984). In other words, the institutional characteristics of local environments create a selection environment for firm performance or outcomes.

Institutional theorists emphasize the cultural and normative framework within which organizational populations are embedded (Scott, 1995). As Scott (1987) argues, institutionalization is a process of instilling values (e.g., through guanxi networks in China), and the relationship between social networks and investor interest shows that institutional features, especially the cognitive aspects of the environment, shape both the results of the investments made and the available means of investing. Institutional theory holds that the beliefs, goals, and actions of individuals and groups are strongly influenced by various environmental institutions (Bruton & Ahlstrom, 2003; Scott, 1995; Scott, 1987).

China’s institutional environment is different from that of the West (Peng, 2000, 2003). Indeed, institutional factors in China may create a venture capital industry with its own idiosyncratic characteristics (Bruton & Ahlstrom, 2003; Bruton et al., 2005). China’s social and cultural tradition together create a distinct social and commercial setting (Boisot & Child, 1988; Child, Chung, & Davies, 2003). Private and privatized
companies in China have limited discretion as they seek to acquire and allocate resources and conduct business (Peng, 2004). Companies often engage in transactions in which personal connections matter more than company capabilities (Boisot & Child, 1996; Peng, 2000). Additionally, few managers in China have adequate experience competing in a market-based economy (Wang, 2007b). The research applying institutional theory to China has tended to focus on the constraining nature of institutions (Bruton & Ahlstrom, 2003). While institutions set limits on the actions that VCs can undertake, they can also establish a framework that will help VCs and VC-backed firms to succeed in the Chinese market (Peng, 2000, 2003).

There are two broad and complimentary approaches and sub-approaches to analyzing institutions, namely, economic and sociological (Hirsch & Lounsbury, 1997). This study uses a sociological approach that adds key sociocultural concepts (e.g., reciprocity, obligation, and networks) to our understanding of the Chinese social structure (King, 1991). Economic institutions shape a system by structuring political, social, and economic incentives and creating constraints that appear locally reasonable from an economic perspective (Powell, 1992a, 1992b). China may have formal institutions on paper but sometimes does little to enforce the regulation of economic activity. Sociologists focus on legitimacy-building and role-shaping actions on the part of institutions (Suchman, 1994) by examining shared beliefs that shape the way people in a society think and behave. These institutionalizable behaviors can arise out of a shared cultural and political system (Scott, 1995). Building on these insights, Batjargal and Liu (2004) examine the role of social capital and guanxi networking at VCs and VC-backed firms and find that social capital and guanxi networks are critical to fundraising. Kambil
et al. (2006) support the idea that guanxi networks are helpful in dealing with the unique operating challenges that arise in China, including the lack of information available to VCs. As Ahlstrom et al. (2007) suggest, venture capital in a Chinese setting relies heavily on guanxi network ties to help substitute for the formal institutions present in the North American system. VCs in China have had to learn to work in China’s informal environment and have faced challenges in trying to secure their desired returns.

In their efforts to cope with institutional uncertainty, people construct elaborate beliefs about the reality of the political-economic system, “beliefs that are both a positive model of the way the system works and a normative model of how it should work” (North, 2005, p. 2). In China, guanxi usually does not carry negative connotations, whereas allowing something to be decided via open competition instead of by using one’s connections may be considered unwise and disloyal (Xin & Pearce, 1996). Many Western researchers have connected guanxi with unethical acts like corruption (Snell, 1999). From their own cultural perspective, however, many Chinese people believe that guanxi is the only efficient means to conduct business in countries in which business infrastructures are not yet fully functional (Szeto, Wright, & Cheng, 2006).

Because VCs around the world share an industry that can be traced in relatively few steps to a common source in the U.S., the profession itself can provide an institutional source of convergence that encourages decision makers to engage in actions that lead to isomorphism (DiMaggio & Powell, 1983). Research into VC investment decision-making supports this view. For example, Knight (1994) finds that VCs around the world use similar decision factors to predict which new venture investment opportunities will succeed. Such findings suggest that VCs employ similar models of
venture success regardless of potentially contradicting institutional pressures due to differences in country-specific institutions such as the economy or culture. Hence, as new VCs around the world attempt to reduce uncertainty, employ best practices, and avoid costly errors in judgment, they choose to copy proven recipes by relying upon the types of information used by firms in the U.S. and Europe to screen new venture investment opportunities. Relying upon the same information, however, does not necessarily imply that this information means the same thing to different VCs across countries or that they rely upon it to the same extent. Institutions are typically thought to emerge from and evolve through transactions (North, 1990). Because each country has its own unique configuration of sociocultural, political, and economic institutions (Zacharakis, McMullen, & Shepherd, 2007), the costs of transacting vary by country as a function of trust (Fukuyama, 1995). Risk is at the heart of how people act and think about trust, but that risk varies distinctly along with the form of the relationship related to risk (Sheppard & Sherman, 1998).

The institutional framework views organizations and individuals as embedded in institutional arrangements (Child, 2000) and as subject to institutional effects that are distinct from economic or technical forces (Newman, 2000). These institutional arrangements impact the behavior of organizations and individuals in subtle but pervasive ways (Scott, 2002) and further affect the decision-making processes of firms and individuals (Lau, Tse, & Zhou, 2002).

Research performed primarily in the U.S. supports the idea that institutions have an impact on goal formation and the procedures of venture capital firms (Suchman, 1995a). These institutions, in turn, generate very similar VC behavior (Fried & Hisrich,
1995). These similarities occur not only in the U.S. industry but also in venture capital industries in other developed markets (Bruton et al., 2009). From an institutional perspective, this similarity stems not from similarities in the task environment but rather from strong similarities in the institutional environment. However, there can be considerable heterogeneity in institutional environments, especially in emerging economies (Sachs, 1993). In part, these different institutions result from differing approaches chosen by emerging economies as they move to market-based systems.

Institutional underdevelopment and change increase risk for VC’s in China. Any unexpected institutional change would have tremendous impact on VC returns (Chen et al., 2005). China economic reforms usually come as a coherent package of actions, not one action at a time. When an economic development that enthusiastically puts forward a series of dramatic changes but does not include in terms such as the constitution, legitimacy, and the public interest, institutional risks can result from adopting its one-size-fits all principles (Kobrak, 1996). For instance, VC-backed firms must satisfy some strict requirements specified by company law and security law that have been changed several times since 2004 (Li, 2008). Since institutional environment plays important roles in the investment monitoring process and exit choice (Cumming & Johan, 2008), institutional theory can be used to better understand the context in which a decision to invest is made in a developing institution, which lacks fully-developed legal and financial supports (Bruton & Ahlstrom, 2003; Bruton et al., 2005; Fried, Bruton, & Hisrich, 1998; Scheela & Thawatchai, 2008).
2.3 Guanxi Networks

If we are to understand how guanxi networks facilitate VC performance, it is important first to clarify the meaning of the term “guanxi network” in China by referring to the concept of social networks in the West. In Western social network theory, relationships are viewed in terms of nodes and ties; the nodes are the individuals within a network, and ties are the relationships between the individuals (Granovetter, 1973, 1983, 2005; Hansen, 1999). Social networks in the form of collaborations are used by businesses to gain access to up-to-date technology and market information (Wonglimpiyarat, 2007); they are also useful in knowledge transfer (Obstfeld, 2005; Reagans & McEvily, 2003).

Guanxi, the Chinese version of “social connection” (Xin & Pearce, 1996, p. 1642), is defined as a special relationship based on the existence of particularistic ties (Tsui, Farh, & Xin, 2000). Guanxi is described as a special type of relationship characterized by favor, trust, and interdependence that often leads to insider-based decision-making in business dealings (Wong & Chan, 1999). Wilpert and Scharpf (1990) suggest that such a special relationship can develop into highly complex social networks, whether formal or informal, that are governed by unwritten norms of reciprocity. While the term “social network” in the West has been used to describe non-work related networks of individuals, the common logic is that all networks are social (Johannisson, 2000). Butler et al. (2003) look at personal networks and business networks separately; however, because personal networks are also essential to business success (Butler et al., 2003) and the success of all firms within the network (Huggins, 2000), personal networks and business networks can be viewed as simply two sides of the same coin, i.e., as a social network. Wellman et al.
(2002) use social network analysis as a tool for studying guanxi (Wellman et al., 2002). Indeed, guanxi has been already used as an example of social networks in studies of Chinese managers and entrepreneurship (Ko & Butler, 2007).

All in all, guanxi is a special type of social network in China. Guanxi is a term for social ties that is unique to China (Gennaro, 2004); it is loosely used to refer to social connections that provide information (that is, weak ties), and in a narrower sense, it can be used to refer to social exchanges that involve mutual obligation and reciprocity (that is, strong ties) (Woo, Wilson, & Liu, 2001). Guanxi is a form of social currency that allows one to use one's social resources to develop and maintain one's connection network, affirming and honoring the relationship established between individuals in business transactions (Carlisle & Flynn, 2005). For insiders of such a network, guanxi can be an effective tool to enhance business performance or to achieve other aims (Szeto et al., 2006).

Guanxi ties promote interpersonal trust (Farh et al., 1998; Miles, 2003), facilitate business-to-business formal linkages (Butler et al., 2003), and enhance firm performance (Batjargal, 2007; Park & Luo, 2001). In the context of venture capital, researchers have found that VCs in China rely heavily on guanxi ties to reduce uncertainties and use universalistic investment criteria in particularistic ways to make investment decisions (Batjargal & Liu, 2004; Bruton & Ahlstrom, 2003). In the West, social networks are integrated within financial institutions to facilitate the effectiveness of exit investments and help VCs gain access to new sources of financing (Martin, Sunley, & Turner, 2002). Such networks are more dispersed because of the decentralized and localized banking structure. In the context of China, limited exit routes for VC-backed firms and a lack of
trained fund managers seem to hinder the development of the VC industry (Batjargal & Liu, 2004). Guanxi networks greatly reduce uncertainties because VCs are likely to try to reduce their risks by using private or particularistic channels when public institutions and channels prove dysfunctional (Xin & Pearce, 1996).

According to Ahlstrom et al. (2003), there are several cognitive institutions that are most closely associated with (but are not exclusively) cultural elements such as guanxi networks in China. Resulting from China’s high-context culture (Kim, Pan, & Park, 1998; Li & Putterill, 2007; Miles, 2003), guanxi networks influence how VCs in China react to market risks. From the perspective of 2,130 investment executives, market risk is important in determining return on investment (Henderson, 2005). Market risk may pose greater problems for international VCs than for domestic firms with a better knowledge of local markets. This suggests that following investment, international VCs will seek information regarding changes in market conditions and firm performance. As such, guanxi networks have been proposed as an effective tool for explaining international business success or failure (Burt, Hogarth, & Michaud, 2000).

Because a social network involves personal ties that can be transferred to business ties, an informal and dynamic view of social networks has emerged. Informal efforts have focused on highlighting specific mechanisms or examples of network dynamics. For instance, Barley (1990) focuses on the impact of introducing technology on firm structure and the changes in the firm network structure that occur when individual roles change. Frenzen and Nakamoto (1993) examine the impact of word-of-mouth information on the network structure of markets. Steier and Greenwood (2000) examine how networks of entrepreneurs and VC investors have evolved over time through the
search for investments. These types of studies have explored the value and benefits of social networks at both the individual level and the firm level, including how they help individuals secure jobs (Granovetter, 1974) and optimize intra-organizational mobility (Burt, 1992). At the firm level, among the many beneficial effects of networks are greater survival rates, improved firm performance, and innovation (Ahuja, 2000; Baum & Oliver, 1991; Higgins & Gulati, 2003; Pfeffer, 1997; Shan, Walker, & Kogut, 1994). At the individual level, perhaps the most studied benefit of social networks involves the ability of network members to access information. In general, social networks are thought of as a relatively efficient and inexpensive channel through which actors can access required information (Burt, 1992). In addition, social networks also often provide members with access to information that is not available elsewhere. Another important beneficial outcome of network membership is that it provides legitimacy to its members, where legitimacy is defined as “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions” (Suchman, 1995b, p. 574). Legitimacy enables members to access necessary resources from their environment (Podolny, Stuart, & Hannan., 1996; Zuckerman, 1999), which in turn affects both their survival and their performance.

For firms looking to tap external resources, building social networks is important. Who one knows can contribute to what knowledge one has and what one can do (Hsu, 2007). Social networks are vital to raising funds and establishing enterprises because their formation and subsequent combination depend on the influences and constraints of relationships between VCs and VC-backed companies (Robnik, 2006). In fact, social
networks are important to resource acquisition, which is contingent on the level of investment maturity (Stuart, Hoang, & R. Hybels, 1999). Interviewing management at nine VC firms, Waddell (1995) finds that VC networks and private funds are socially guided. Gulati (1995; 1998) extends prior research by identifying five key issues related to the study of strategic alliances like social networks (Brown & Butler, 1995), including the formation of alliances, the choice of governance structure, the dynamic evolution of alliances, the performance of alliances, and the performance consequences for firms entering alliances. The notion of “network resources” in particular usefully summarizes the implications of social structural theory for company strategy by framing social network research on inter-organizational relationships in terms of a resource-based understanding of competitive advantage (Wonglimpiyarat, 2007).

According to Ahlstrom and Bruton (2006), guanxi network connections among entrepreneurs, VCs, and VC-based firms may play a greater role in helping VCs navigate and respond to the environmental changes in emerging economies. They do so by partially substituting for relatively weak formal institutions, such as the market for corporate control and the rule of law (Butler et al., 2003), and by offering some protection from government interference (Peng, 2003). There is also limited research on venture capital that considers the function of guanxi networks in China (Bruton & Ahlstrom, 2003). The present study expands on that existing literature and suggests that venture capital can still function despite a lack of formal institutions or norms, such as the rule of law, regulations, and enforcement. This study also supports that guanxi networks, including those of VCs, can help substitute for the formal institutions present in the U.S. and European systems, thereby taking on more importance in emerging market settings.
The general linkages between guanxi networks and firm performance are well established (Luo & Chen, 1997; Si & Bruton, 2005; Watkins-Mathys & Foster, 2006; Wilson & Brennan, 2009; Xia, Qiu, & Zafar, 2007). However, such conclusions have not yet been applied to venture capital in China. In an attempt to highlight the involvement of guanxi network in the VC investment process, this study focuses on the connections between guanxi networks and firm capabilities and transaction costs. The resource-dependent view of the firm posits that the distinct resources or capabilities of a firm are its source of competitive advantage and that, as such, guanxi acts as a source of competitive advantage in China (Zou & Gao, 2007). It is the responsibility of top managers to develop their firm’s capacity to build and maintain a guanxi network, which works at both the business level and the personal level to help the firm capitalize on opportunities and control risks (Xia et al., 2007). A firm’s response capability allows it to develop strategic processes by adapting its resources to a purpose. This ability can be obtained using an external guanxi network in tandem with internal resource integration (Liu, 2005). Guanxi networks can also increase a firm’s capability to enhance resource allocation efficiency and help make strategic decisions (Sumelius, 2009). Transaction costs caused by environmental uncertainties are lower when the guanxi network is well developed than when it is less so (Standifird & Marshall, 2000). A well-developed guanxi network appears to be the key to making important market information available to a company. In other words, the transaction cost advantages of reduced environmental uncertainty are sufficient to warrant the integration of guanxi- and market-based exchange mechanisms.
Guanxi networks are mostly helpful in providing access to resources, information, and support (Chen, 2009). However, guanxi is a double-edged sword in social exchange in China (Warren, Dunfee, & Li, 2004). Under conditions of change, guanxi networks can have a negative impact at either the personal level or the business level. For example, they can lead to the mismanagement of organizational resources due to very close ties (Chen & Chen, 2009; Hung, 2008), the use of opposing channels of knowledge transfer due to infrequent activities between businesses (Ramasamy, Goh, & Yeung, 2006), and a lack of intangible goods for social exchange in the network (Warren et al., 2004). It is easy to understand how a misallocation of resources would incur when negative forms of guanxi are employed. For instance, obligations of guanxi are very real. In examining how guanxi systematically unfolds in the Chinese business settings, Ambler (1994) finds that in the wrong place, at an inappropriate time, with unsuitable people, the obligations can become a trap which is hard to escape and an disadvantage to business practices. As a social practice, guanxi may reduce societal wealth, benefit a few at the expense of the many and corrupt background institutions (Dunfee & Warren, 2001).
CHAPTER 3  RESEARCH QUESTIONS AND HYPOTHESES

3.1 Research Questions

In identifying areas for future research and comparing the Chinese VC context with that in North American and Europe, Wright (2007) suggests that venture capital in China can be analyzed in terms of a 2 X 2 matrix with one axis measuring whether the VC is independent or captive and the other measuring whether it is foreign or local. According to Wright and Robbie (1996), captive VCs do not have to raise capital from third parties, and they are often assumed to invest primarily in later-stage projects. Independent VCs tend to be seen as the more traditional type, and they are typically funded through limited-life, closed-end funds. During the early stages, they are also more committed than captive VCs to generating returns for investors via capital gains within a more clearly specified period of time, while captive VCs tend to focus more on the income stream from their investments. Using this configuration, Ahlstrom et al. (2006; 2007) focus on foreign independent VCs and the regional characteristics of markets in China. In studying the high-tech VC market in U.K, Lockett, Murray and Wright (2002) find that specialist VC firms were significantly more likely to prefer mature investments in expansion and buy-out investment stages while generalist VC firms have become more interested in early-stage investments. According to Wright (2007), some VCs in high-tech markets are generalists, while others are specialists, and thus, it would be useful to investigate the different guanxi network skills across these firms in China. Because the views of local VCs are not considered in comparison with those of foreign VCs in Ahlstrom et al. (2006; 2007), the present study includes local VCs (both independent and
captive and in various industrial sectors) that have had to adopt guanxi forms and business practices.

After reviewing a number of research gaps and limitations in the theoretical and methodological approaches used in previous studies, Wright et al. (2005) argue that one under-researched area is the influence of institutional contexts; in this respect, the role of social networks and culture is particularly neglected. They suggest that capabilities and institutional and network theories may offer insights that can further our understanding of the behavior of VC firms in this area. With that in mind, this study is designed to explore whether and how capabilities and institutional and network theories help to explain VC performance. The following research questions are formulated to enhance our existing knowledge of VC investment performance.

Q1. How do VCs respond to institutional risk using guanxi networks?
Q2. What type of link exists between guanxi networks and VC performance?
Q3. How do firm capabilities and other factors interact with the use of guanxi networks?
Q4. Do guanxi networks help explain why some VCs have better returns than others?
Figure 1 - Conceptual Framework Model

- **Potency of Guanxi**
  - Values
  - Benefits

- **Responsive Capability**
  - Cope with changes
  - Sustain changes

- **Interlocking Directorates**
  - Density
  - Multiplicity

- **Syndication**
  - Affiliated Projects
  - Affiliated Funds

- **Firm Performance**
  - IPO’s
  - M&A’s
  - Follow-On Funds

- **Environmental Turbulence**
  - market risk
  - institutional risk

- **Control Variables**
  - Management skills
  - Firm Size
  - Firm Age

- **H1**
- **H2**
- **H3a**
- **H3b**
- **H4a**
- **H4b**
- **H5a**
- **H5b**
3.2 Hypotheses

Figure 1 is the conceptual model developed for this study. The model shows hypotheses regarding the direct effect of guanxi on VC performance, indirect effects through mediators (i.e., response capability, interlocking directorates, and syndication), and effect moderators (that is, environmental turbulence), as described below.

VC investment in China is constrained by institutional forces and leveraged by guanxi-related forces. Zhang and Ma (2009) group all environment-, firm-, and individual-level variables into two categories: impetuses and impediments. Impetuses are forces that push businesses to adapt and go forward (e.g., firm size or prior experience), whereas impediments are forces that hold back business development (e.g., institutional forces or cultural tradition). Contrary to the intuition behind this framework, the cultural tradition of guanxi seems to provide an impetus rather than an impediment in China. As a part of the Chinese cultural tradition, guanxi networks are considered a mechanism that substitutes for and complements other institutional forces to address uncertainty (Ahlstrom & Bruton, 2006; Bruton, Dess, & Janney, 2007).

Guanxi is about the cultivation of personal relationships and networks of mutual dependence, particularly with respect to obligation and indebtedness (Yang, 1994). Although the importance of guanxi in China is well-documented (Arogyaswamy, 2001; Chen & Chen, 2009; Chen & Tjosvold, 2007; Chen & Chen, 2004; Luo & Chen, 1997; Qi, 2006; Rahman, 2008; Reid & Jallat, 2006), much less emphasis has been devoted to the implications for VCs in China, particularly how guanxi can compensate for a lack of institutional support for returns on investment. I investigated previous studies using the ProQuest ABI/INFORM database, which features over 4,975 journals and is used at
major business schools including Harvard, Michigan, Wharton, Northwestern, and Chicago. In searching abstracts for the keyword “guanxi”, I found that there were 261 scholarly articles on the subject. However, only five journal articles (Ahlstrom et al., 2007; Batjargal, 2007; Batjargal & Liu, 2004; Kambil et al., 2006; Liu & Chen, 2006) specifically consider guanxi networks and venture capital activities in China according to search for the keywords “guanxi” and “venture capital”. All five studies gather sample data using interviews with a limited number of VC firms of less than 50 on average. None of them collected a wide range of information from a large number of respondents. In this study, with scaled and standardized questionnaires distributed in a much larger sample size, various statistical techniques are used to determine validity, reliability, and statistical significances.

In the eyes of social capitalists, guanxi refers to a process of resource mobilization based on one’s guanxi networks (Bian, 2001). According to Lin (1999), individuals access the social resources that exist in their social networks and then mobilize and convert social resources into social capital for the purpose of goal attainment. In the Chinese business environment, guanxi provides a basis for information-sharing and communication, the building of trusted relationships, and collaboration (Lu et al., 2008). Some studies find that guanxi can generally enhance firm performance (Abramson & Ai, 1997; Ambler, Styles, & Wang, 1999; Ewing, Caruana, & Wong, 2000; Luo, 1997; Luo & Chen, 1997). A series of studies draws on the notion of social capital (Adler & Kwon, 2002; Burt, 1997; Uzzi, 1997) to indicate the capability that guanxi networks have because of their combination of information, trust, and control benefits, which suggests that guanxi may operate as a salient control mechanism that affects VC performance in
China. A VC’s guanxi networks provide the firm with control benefits (e.g., project monitoring) in addition to formal contractual agreements, resources from firm partners and the ability to anticipate and prepare for changes (Zhang, Cavusgil, & Roath, 2003).

In short, the information and control benefits of a VC’s guanxi network can be simply represented as the potency of that guanxi network. The word “potency” is adopted here based on applied psychology and is defined as the collective belief that something can be effective (Sosik, Avolio, & Kahai, 1997). In human resource management, potency is related to the benefits of network resources (Boziosnelos, 2006). It is an aggregate dimension of guanxi that includes reciprocity, face or mianzi, affect, and all of the facets of Western networking (Lee & Dawes, 2005; Redfern & Ho, 2009).

In this study, the potency of a guanxi network is an important factor in building network effectiveness and reflects the value and benefits of guanxi networks, which can be leveraged and capitalized on in order to cope with institutional risks.

H1: The potency of a VC’s guanxi network has a positive relationship with firm performance.

As the popularity of the term “old boys” club implies, interpersonal networks of trust and friendship are salient and popular in many cultures because of both perceived and real benefits of being part of one of these networks. In many Western cultures, relational exchanges are typically weak, are infrequently used, and involve no strong common values (Lovett, Simmons, & Kali, 1999), whereas guanxi is frequently practiced in China and often evokes shared values (Vanhonacker, 2004). However, guanxi can be a double-edged sword (Warren et al., 2004). Capabilities inevitably generate secondary
consequences, including unanticipated and harmful social implications that may be counter-productive to the original objectives (Vaughan, 1999). Purposive actions may prove a liability in light of environmental dynamics (Jap & Anderson, 2003). For instance, the obligations associated with guanxi networks function as a firm liability (Vanhonacker, 2004), and managers and firms can become involved in accusations of misconduct and unethical activities (Fan, 2002) because Westerners often view guanxi as a simple matter of corruption (Lovett et al., 1999). In China, guanxi is not merely a mechanism; it is a direct out-growth of Chinese collectivist culture (Hwang, 1987; Xin & Pearce, 1996). As a unique mechanism, guanxi depends on the institutional structure of Chinese society, which could create liabilities that become salient under certain circumstances. At times, the negative aspects of guanxi may offset its benefits for the people and firms involved.

The negative aspects of guanxi have been noted in the literature. In terms of the extent to which social ties (e.g., interaction frequency, degree of intimacy, and trust) exist in the network (Granovetter, 1973), guanxi can be viewed as either weak or strong as discussed in Section 2.3. It is important to note that a strong guanxi network will not predict business success better (Zhao, 2005). First, a strong guanxi network may create over-embeddedness, reducing the flow of new ideas into the network, and limiting openness to alternative ways of doing things (Gargiulo & Benassi, 1997). Guanxi may also overload a firm with obligations to its network members (Uzzi, 1997). It is problematic to measure strong network versus weak network since it is neither an individual-level nor a group-level phenomenon (Bankston & Zhou, 2002).
Second, from a contingency perspective, it is important to assess conditions like a firm’s position in the industrial hierarchy and market constraints on business practice to evaluate whether guanxi has had an impact in these areas (Guthrie, 1998; Lovett et al., 1999). Gu et al. (2008) identify technological turbulence as a force that is changing institutions in China as it undergoes reform. This force moderates the processes by which guanxi will affect value in terms of firm performance. Buganza et al. (2009) argue that each company faces different levels of environmental turbulence, including technological turbulence, and that these levels can change from one project to another. They suggest considering environmental turbulence as a project-specific variable rather than a company- or industry-specific one. They also suggest that this turbulence comes from both market needs and technological shifts. According to their analysis, rapid changes are not sufficient to create environmental turbulence. If rapid changes can somehow be foreseen, there is no turbulence at all. Hence, when approaching projects in potentially turbulent environments, managers should assess change in such environments in terms of both rapidity (i.e., the frequency of change in the environment) and unpredictability (i.e., the degree to which changes in the environment, regardless of their frequency, are foreseeable).

Management research also suggests that perceptions of industry complexity and the heterogeneity or diversity of market segments affect managerial decision-making and strategies (Keiser & Sproul, 1982). The ventures in which VCs invest are in different markets at different times and can face different levels and types of environmental turbulence. In an industry undergoing rapid changes, as is occurring in the venture capital industry in China, firms with newer technology and greater productivity are likely
to emerge and challenge firms that rely on guanxi (Lovett et al., 1999). By dealing only with existing members of a guanxi network, a firm may deprive itself of more capable and efficient partner firms. Indeed, as Yang (1994) observes, the inward-looking system of guanxi is relatively slow in accepting new members because it takes time to form strong particularistic ties.

H2: Environmental turbulence negatively moderates the effect of a VC’s guanxi network on firm performance in terms of IPO, M&A and follow-on funding.

Capitalizing on guanxi at the firm level is a challenge. A VC can be the person or the investment firm that makes venture investments, and this special characteristic of venture capital elevates personal guanxi to the level of a firm resource. For example, when two people marry, a basis for guanxi is formed immediately through the union of the two families. In the modern world, there are many commercial and noncommercial transactions between firms; indeed, the term “guanxi” is also applicable to these relationships (Tsang, 1998). Guanxi is often transferred from the individual level to the firm level to facilitate exchanges (Peng & Heath, 1996; Zhang & Zhang, 2006). For Chinese people, a person’s values and work are viewed as part of an extended self (Bond, 1991, 1996) or as qualities that others are obliged to respect. A personal obligation can be repaid by providing a favor within a business exchange. These processes blur personal and firm boundaries (Peng & Heath, 1996). Senior managers use interpersonal networks to create firm obligations that enable firms to obtain protection as well as resources that are unavailable elsewhere (Gu et al., 2008). The dynamics of guanxi at the individual level can be used in firm-level research to examine the usefulness of guanxi
with different types of people at different developmental stages in entrepreneurial firms (Fu, Tsui, & Dess, 2006).

A successful firm can incorporate manager and staff guanxi resources to improve response capability (Moorman & Slotegraaf, 1999), thereby also improving firm performance in today’s relationship-based economy (Gu et al., 2008; Nijkamp, 2003). Firm response capability refers to a firm’s ability to scan and respond effectively to market changes (Gu et al., 2008). Response capability is a key competence in markets in which levels of environmental uncertainty are high, as in China (Hoskisson et al., 2000). Environment turbulence as an external influence affects an entire industry uniformly. However, response capabilities built on guanxi networks are internal to particular firms. A firm’s ability to decode and navigate through an unstable environment is invaluable to its success (Child & Tse, 2001; Lau et al., 2002). Connections to guanxi networks enable firms to gain access to more diverse information sources rapidly and at lower costs (Burt, 1997). From a transaction cost perspective, as guanxi partners exchange information for mutual benefit, they effectively lower their information search costs (Williamson, 1975). The informational advantages of diversity, quality, and timeliness are crucial because they help build VC readiness to reduce VC vulnerability against institutional uncertainty.

Local Chinese entrepreneurs typically rely on their guanxi networks to reach their patrons in the government and attain market information, scarce resources, and protection when needed (Wank, 1996). The Chinese government continues to alleviate industry and business operating restraints stemming from the centrally-planned system, which makes it extremely critical for firms to decode disseminated information correctly (Peng & Heath, 1996). For international firms, this ambiguity of information may be related to
China’s high-context culture (Hall, 1959). Much of the Chinese government’s disseminated information remains uncodified (Boisot & Child, 1996, 1999; Puffer, McCarthy, & Boisot, 2010), leading to potential confusion. However, firms with guanxi are able to decode information regarding the country’s changing profile, its market characteristics, and government policy intents on markets with the help of government officials within the network.

Using guanxi networks to enhance response capability through the acquisition of beneficial information (Zhou, Wu, & Luo, 2007) improves firm performance (Gu et al., 2008). There is a mediating role of response capability for guanxi network that may have an impact on firm performance. Guanxi provides network members with the ability to anticipate and prepare for changes (Zhang et al., 2003). Firms in a guanxi network are able to call on their partners to make real-time changes to capitalize on major environmental shifts (Uzzi, 1997). These joint actions and collaborative norms equip firms with effective response capabilities under conditions of uncertainty. In China, guanxi provides a pragmatic response to regulatory distortion and information asymmetry (Buckley & Casson, 1988). By engaging in preferential, reciprocal, and highly personalized networks via guanxi, VCs gain valuable information about the environment, including policy changes and industry reforms, which help them to respond in a timely and effective manner. Despite efforts to develop its institutional infrastructure, China is still a society that relies largely on informal relationships or guanxi. Indeed, guanxi is an important part of the Chinese social fabric that effective managers cannot afford to ignore (Luo, 2005; Luo, 2000).
On the one hand, guanxi may constrain VCs and hinder firm performance in a turbulent environment. On the other hand, guanxi may amplify response capability, thereby improving firm performance in a turbulent environment. Gu et al. (2008) use “structure-loosening” forces as a term for market forces that change institutions. These forces include globalization, technological changes, shifts in opportunities, and the redistribution of power in various industries and among network members (Madhavan, Koka, & Prescott, 1998). The effectiveness of guanxi may be reduced through these structure-loosening forces. However, the agency theory perspective suggests that information and control benefits developed from guanxi networks can significantly enhance a firm’s response capability (Bergen, Dutta, & Walker, 1992) and, in turn, firm performance.

H3a: The potency of a VC’s guanxi network has a positive relationship with firm response capabilities in the context of environmental change.

H3b: A firm’s response capability positively mediates the effect of a VC’s guanxi network on firm performance.

Research has shown that we can develop a deeper understanding of the network structure of an economy if we examine the issue of interlocking directorates (Pennings, 1980). When an individual sits simultaneously on the boards of directors of two or more firms, those firms are said to interlock or have interlocking directorates (Au, Peng, & Wang, 2000; Mariolis & Jones, 1982). Scholars have examined the business network structures formed through interlocking directorates (Au et al., 2000; Ren et al., 2009; Scott, 1991a, 1991b, 1992; Stockman et al., 1985) and have derived three major business
network models as a result, including the continental European model, the Anglo-American model, and the Japanese model (Aguilera, 1998). Variations have been noticed across East Asian cultures. For example, in Thailand, Multinational Corporations (MNCs) play a central role in the economy, as interlocking directorates are important to the functioning of the country’s business network (Peng, Au, & Wang, 2001). In Korea, the government is a key constituent that helps to shape the role of banks and trading companies (Biggart, 1990). In Hong Kong, firms form business groups via interlocking directorships to enhance industry power and market status (Wong, 1996). During Hong Kong’s accession to Chinese rule in 1997, interlocking business networks reduced environmental uncertainty (Au et al., 2000).

In China, business requires relational contracts and trust relationships as part of network capitalism (Boisot & Child, 1996; Keister, 1999), whereas in the West, businesses rely primarily on legal contracts and property rights. Keister (1998) identifies interlocking directorates as having been a key feature of Chinese business groups in the late 1980s. Ren et al. (2001; 2004) examine the business network structure formed by interlocking directorate ties in the two Chinese regions of Shanghai and Guangdong. Business groups have been found to be an important inter-firm structure in the Chinese economy (Lu & Yao, 2006; Ma, Yao, & Xi, 2006). These Chinese firms join diversified business groups to further business (Keister, 1998). Firms may be tied to each other through ownership, capital, or trade relations (Keister, 2000). The holding and trading companies in these business groups are influential as a result of their ability to provide capital and access to marketing channels (Keister, 1998, 1999, 2000).
Sheehan (2005) provides a network analysis of clique-based structures (such as those among bankers) and web-like structures (such as those among bankers and non-bankers) of interlocking directorships in Chinese banking. He argues that personal relationships produce discrete factions instead of being more disbursed. Web-like guanxi networks include members who sit on numerous boards of directors, suggesting that associations are based on business ties, professional interests, and the relative importance of business. Clique-based guanxi networks are those whose members share a common native place. This suggests the existence of strong but very local guanxi ties. For VCs in China, guanxi networks arise as much from historical contingency as from cultural predisposition. To analyze the network characteristics of VCs, density and multiplicity are utilized in the present model in light of prior studies (Au et al., 2000; Scott, 1992). Operationally, density is the number of observed relationships in proportion to the number of possible relationships, and multiplicity is the number of interlocking directors at any two firms.

Director interlocking is often used for anti-competitive purposes (Carroll & Thanos, 1994). Existing research supports the view that such interlocking provides information that affects a firm’s adoption of strategies and structures (Haunschild & Beckman, 1998). In addition, information from such partners appears to be more influential than information from business partners who do not have these sorts of interlocking relationships (Haunschild & Beckman, 1998). Unlike in the U.S. and Australia, where existing common law and statutory provisions indicate a comprehensive range of responsibilities for companies with interlocking directorships (Carroll, 1990), there is no legislative limit to the number of directorships that one person may hold in
China. Interlocking directorates are thus practically important in achieving stable inter-firm connections and firm goals (Koenig, Gogel, & Sonquist, 1979).

H4a: The potency of a VC’s guanxi network has a positive relationship with the density and multiplicity of the interlocking directorates of VC boards.

H4c: The density and multiplicity of interlocking directorates positively mediate the effect of a VC’s guanxi network on firm performance.

Syndication is widely observed in VC financing, even if the investors can afford all of the capital required for a project. VC investment is syndicated if two or more investors invest jointly in an investment stage or in a VC-backed firm (Wang, 2007b). The most common occurrence of syndication happens in a later stage of an investment by the lead VC (Brander, Amit, & Antweiler, 2002). There are two main approaches to the study of syndication. The first is the risk-sharing or financial motive framework (Lockett & Wright, 2001; Smith & Smith, 2000; Sorenson & Stuart, 2001). In this framework, syndication is a risk-averse behavior and a risk-sharing strategy because it can substantially reduce overall investment risks for VCs via portfolio diversification (Wang, 2007b). Lockett and Wright (2001) argue that there are two risk-sharing motives for syndication. The first is the need to maintain cash flow for a VC fund together with the ability to raise funds as opportunities arise. The second motive is the illiquidity of VC investment as compared to stock market investments. When a portfolio investment is illiquid, it is hard to adjust the investment within a short period of time after the risk emerges. Hence, syndication provides a means of risk-sharing on a deal-by-deal basis to reduce overall portfolio risk for VC firms. Another perspective on motives is provided
by the resource-sharing or value-added framework, according to which additional financial and managerial resources can be made available through syndication that can efficiently improve a VC firm’s performance.

In syndication, the resources underling firm capabilities are tightly shared with business groups in the guanxi network during institutional development (Chung, 2006). Each VC firm typically manages several VC funds that have different investment preferences, targets, and objectives in the same or a different round. The funds and managers behave in the best interests of the VC firms by sharing information and experiences. Brander et al. (2002) suggest that all VCs in a syndication add value to a project, as different VCs have different skill sets and information sources that can assist with different aspects of the project, including organizing production, human resources management, customer service, and so on. In line with resource-sharing theory, Lerner (1994) argues that a VC may wish to see a similar or different decision from other VCs when selecting syndication as an approach to networking. Therefore, syndication may lead to correct decisions about whether or not to continue with an investment.

Syndication and co-investment are sometimes used synonymously in research (Bygrave, 1988; Trapido, 2005), but the two terms should be distinguished from one another (Cumming, Schmidt, & Walz, 2010; Lerner, 1994). Commenting on the usefulness of syndication versus co-investment, Lerner (1994) argues that syndication is a positive mechanism that is used to create a larger network of VCs and that thereby facilitates information-sharing, whereas co-investment does not have such characteristics and could be a problematic approach when there is not enough capital in the market. Syndicated investment normally does not include co-investment because syndication
involves the collaboration of different VCs on one or more investments, whereas co-
investment involves pooling different funds within the same VC firm run by the same
group of managers investing in the same entrepreneurial firm (Cumming, 2005). A
syndicated investment involves funds that are completely independent of one another.
Studies often only use syndication to refer to the monitoring stage of VCs, or they
examine the role of syndication in facilitating due diligence before a VC firm takes on an
investment or an exit through an IPO or trade sale (Cumming, 2007; Lerner, 1994).
Brander et al. (2002) find that syndicated VC investments have higher returns, thereby
increasing the possibility that syndication itself may improve the chances of high returns.
In syndicating investments, affiliated project represents the frequent reliance on
investment coalitions between firms, and affiliated fund reflects the particular motives to
syndicate a given deal in a designated period of time (Hochberg et al., 2007; Sorenson &
Stuart, 2001).

H5a: The potency of a VC’s guanxi network has a positive relationship with its number
of syndications (that is, affiliated projects and affiliated funds).

H5b: The number of syndications positively mediates the effect of a VC’s guanxi
network on firm performance.
4.1 Sample

This primary data sample frame consists of 406 VC firms officially registered with China National Development and Reform Commission (CNDRC) by April, 2009. The key informant in the study is the senior manager (e.g., managing director, general manager, regional manager, etc) directly involved with the strategic and tactical operations of the VC firm. The senior managers would likely develop guanxi networks as a resource to facilitate important deals, and they would be able to assess guanxi’s role and contribution to the firm performance.

According to the China Venture Capital Profiles (Fung et al., 2004), there are 121 and 200 venture capital firms in year 2000 and 2001, respectively. I also cross checked the VC&PE 2007 Directory published by Zero2IPO Research Center, which covers nearly 400 major domestic and overseas institutions actively operating business in both venture capital and private equity (PE) investment in China since 2005. In that directory there are 209 VC/PE firms that have contact information in mainland China. Hence, it is reasonable to believe that the sampling frame of 406 VC firms established in this survey truly represent the population of active VC firms in China.

To ensure the representativeness of the sample, a multi-stage sampling method was chosen over single-stage sampling techniques in the process. The method, in which larger cities, e.g., Shenzhen, Shanghai, and Beijing, are initially selected and progressively smaller cities, e.g., Suzhou, Xiamen, and Xian, within the larger ones are sampled, can achieve a representative sample at a reasonable cost by scaling down the
sample area (Wang, 2006). This method overcomes the constraints of time and funding and ensures the external validity of the research (Wang, 2007c).

4.2 Data Collection

The data collection process included primary data collected using a survey instrument. The primary data were collected specifically to address issues related to VC perceptions of the investment environment and the use of guanxi networks. The unit of analysis in the data collection process was a VC firm that is formally and actively operating in Mainland China.

Based on a pilot survey and phone interviews conducted in the spring of 2007 with a group of VC firms located in Hawaii and California that have investments in China, it was confirmed that local research contacts are key means of obtaining reliable and valid information in an emerging economy (Hoskisson et al., 2000). By Chinese law, no non-local individuals or firms are allowed to conduct surveys themselves (Gu et al., 2008). Therefore, I established a research affiliation with the China Venture Capital Research Institute (CVCRI) at Hong Kong Polytechnic University. The CVCRI is a research institute that has been restructured and managed by the Central Committee of the China National Democratic Construction Association (CNDCA) to specialize in venture capital investments. The survey was conducted by the CVCRI during November of 2009 and March of 2010. Since 2003, the CVCRI has been collecting and publishing its own annual survey reports on VC investments in Hong Kong and Mainland China. To incorporate this survey into its 2009 annual survey, the CVCRI formed a team of five people in the Shenzhen branch office and began the data collection process in the first week of November 2009.
During the pilot survey conducted in the spring of 2007, 16 VC senior managers interviewed agreed that significant, troubling issues remain for venture capital development during the period of market and ideology transformation, which has included the transition from a centrally planned economy to a quasi-market economy and from a communist government policy to a mix of socialism and capitalism. Based on a survey developed from several studies (Appendix A), I incorporate and compose a new survey with a more confirmatory nature (Appendix A) in which indicator variables are selected on the basis of prior studies and factor analysis is used to see if they load as predicted on the expected number of factors. The survey items and measures for the variables are described in Section 5.3. The original English-language questionnaire was translated into Chinese by professional translators and then back-translated to ensure the equivalency of the questions (Brislin, 1970).

The questionnaire was distributed primarily via e-mail using the CVCRI’s VC email database in both English (Appendix B) and Chinese (Appendix C). For a small group of VC firms that do not have or do not prefer to receive email, the CVCRI distributed the survey via fax and regular mail. To ensure that VC firms received the survey within the first week, the CVCRI made two rounds of phone calls to the firms in question within two days after the survey was sent. There were a few VC firms that had only provided physical addresses, and so the CVCRI visited these firms in order to deliver the survey in person. In mid-December 2010, the CVCRI sent out a reminder to the VC companies that the original deadline for returning the survey was in the first week of January 2010. The first usable 160 survey results were received in the second week of January after several rounds of follow-ups calls and even visits to firms by the CVCRI.
survey team. The response rate was low as compared to that of some prior studies conducted in other countries (e.g., 51% in Singapore (Lu & Hwang, 2008), 53% in the U.K. (Hassan & Leece, 2007), and 69% in Japan (Cumming, Fleming, & Schwienbacher, 2008)). However, the relatively low yet anticipated response rate of 39.4% (160/406) may in part be explained by the fact that the holiday season falls in late December of 2009 and early January of 2010 in China. The questionnaire fatigue reported to the CVCRI survey team by firms may have also been a factor. Senior managers in some VC firms that participated in the survey explained that they received too many questionnaires at that time of year. Some senior managers also mentioned that they needed more clarification regarding some questions in the survey. Senior managers play critical roles in business operations on a daily basis and in developing company perspectives. Their responses can truly reflect a firm’s internal ability to react to external environment changes.

Sponsored by a CIBER (Center for International Business Education & Research) Interdisciplinary Research Grant, the data collection process was implemented and completed by the CVCRI. To further increase the response rate for the survey, I traveled to China during the period from January 15 to 20, 2010, to work with CVCRI liaisons in clarifying survey questions for participating VC firms. After every question raised during the survey process was resolved, all incomplete surveys were returned back to the VC firms that had requested more clarification via email, fax, or regular mail in the last week of January 2010. After the national Spring Festival took place in mid-February in China, a total of 228 results were finally cumulated in the first week of March after several rounds of phone calls and reminders before and after the week of February 14,
2010 (the Chinese New Year). After the missing data and outliers were deleted, 222 useable survey results were retained for study, yielding a survey response rate of 54.7% (222/406).

As a result, 222 usable surveys were compiled based on surveys from senior managers who responded to a questionnaire with a total of 56 items. The 222 sets of survey data retained represent a variety of firms in terms of size, fire age, amount of funding under management, and investment stage (see Table 1). For instance, over half of the firms have fewer than 20 employees, and the number of firms founded fewer than 5 years ago is about the same as the number of firms founded between 5 and 10 years ago. Almost two-thirds of the VC firms manage total funds less than US$100K, and more than half of the VC firms invest in either the maturity stage or the exit stage. The small size funds are probably suitable for VC firms involved in late stage investments that do not require large funds for products and markets development in the early stages. Thus, one can assert that the results of the survey represent a relatively diverse body of firms in terms of size, firm age, financial strength, and investment focus.
<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>Percentage (n/N)%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Firm Size (FS)</strong> -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20 employees</td>
<td>132</td>
<td>59.4%</td>
</tr>
<tr>
<td>20 - 50 employees</td>
<td>53</td>
<td>23.9%</td>
</tr>
<tr>
<td>&gt; 50 employees</td>
<td>10</td>
<td>4.5%</td>
</tr>
<tr>
<td>Missing</td>
<td>27</td>
<td>12.2%</td>
</tr>
<tr>
<td><strong>Firm Age (FA)</strong> -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 5 years</td>
<td>74</td>
<td>33.3%</td>
</tr>
<tr>
<td>5 - 10 years</td>
<td>80</td>
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</tr>
<tr>
<td>&gt; 10 years</td>
<td>39</td>
<td>17.6%</td>
</tr>
<tr>
<td>Missing</td>
<td>29</td>
<td>13.1%</td>
</tr>
<tr>
<td><strong>Funds Managing</strong> -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; US$100K</td>
<td>137</td>
<td>61.8%</td>
</tr>
<tr>
<td>US$100K – US$250K</td>
<td>34</td>
<td>15.3%</td>
</tr>
<tr>
<td>&gt; US$250K</td>
<td>24</td>
<td>10.8%</td>
</tr>
<tr>
<td>Missing</td>
<td>27</td>
<td>12.2%</td>
</tr>
<tr>
<td><strong>Investment Stage</strong> -</td>
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<td></td>
</tr>
<tr>
<td>Start-Up/Growth</td>
<td>73</td>
<td>32.9%</td>
</tr>
<tr>
<td>Maturity/Exit</td>
<td>126</td>
<td>56.8%</td>
</tr>
<tr>
<td>Missing</td>
<td>23</td>
<td>10.3%</td>
</tr>
<tr>
<td><strong>Education of Informants</strong> -</td>
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<td></td>
</tr>
<tr>
<td>Bachelor</td>
<td>79</td>
<td>35.6%</td>
</tr>
<tr>
<td>Master</td>
<td>100</td>
<td>45.0%</td>
</tr>
<tr>
<td>Ph.D</td>
<td>17</td>
<td>7.7%</td>
</tr>
<tr>
<td>Missing</td>
<td>26</td>
<td>11.7%</td>
</tr>
<tr>
<td><strong>Experience of Informants</strong> -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 5 years</td>
<td>64</td>
<td>28.8%</td>
</tr>
<tr>
<td>5 – 10 years</td>
<td>90</td>
<td>40.5%</td>
</tr>
<tr>
<td>&gt; 10 years</td>
<td>11</td>
<td>5.0%</td>
</tr>
<tr>
<td>Missing</td>
<td>26</td>
<td>25.7%</td>
</tr>
</tbody>
</table>

### 4.3 Variable Measures

In this study, there are six constructs, namely, potency of guanxi (POG), environmental turbulence (ET), responsive capability (RC), interlocking directorates (ID), syndication (SD), and firm performance (FP). Any one construct can be measured in many different ways, because there are a variety of concrete representations of any abstract idea (Hoyle, Harris, & Judd, 2002). Variables are partial and fallible representations of constructs (Hoyle et al., 2002). Therefore, a construct can be measured
using one or more variables, and high associations among variables indicate the multidimensionality of the construct. In this study, each of the six constructs has more than one associated variable. An advantage of multiple-item measures is improved measurement reliability and validity (Hoyle et al., 2002). For example, firm performance for VC firms examined in the context of relationships established as guanxi networks is measured using three indicators (Hochberg et al., 2007), namely, investments that are successfully exited through an IPO, an M&A deal or receive follow-on funding. These performance data are requested in the questionnaire survey (see Appendix B or C).

Using the results of tests done previously to validate the survey measurement instrument and the scales used, I developed a new comprehensive survey based on the results and modified a pool of existing measurements to suit this research purpose at hand (see Appendix A). All of the scales ranged from 1 to 6, with 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Somewhat Agree, 5 = Agree, and 6 = Strongly Agree (see Attachment B and C). To use a six-point Likert scale is not unusual in research published in Academy of Management Journal (Bae & Lawler, 2000; Burkhardt, 1994; Gregersen & Black, 1992; Griffin, Tesluk, & Jacobs, 1995; Stroh et al., 1996). It is particularly helpful in providing useful information for studies on China in minimizing the reluctances to answer certain questions (Chi & Chiou, 2007; McAdam et al., 2007; Noronha, 2002). Three items were reversed-coded in the survey to encourage respondents to actually pay attention to the questions they are reading. As a result, three surveys were eliminated for inconsistency and contradictions in the answers.

Potency of Guanxi (5 items). This is a predictor variable that can affect firm performance. The measurement items come from multiple sources, including Gu et al.
The intention is to identify the key dimensions of guanxi in terms of value and benefits. The core notion underlying guanxi is personalized relationships with important people (Davies et al., 1995; Xin & Pearce, 1996; Yang, 1994); duality at the firm level is used to obtain different types of resources (Peng & Luo, 2000; Xin & Pearce, 1996). These academic insights into the nature of guanxi networks have come from senior managers who practice guanxi extensively in their respective business environments.

Environmental Turbulence (11 items). This moderator of the effect of guanxi’s potency on firm performance is examined to determine respondent perceptions of technological advancement, perceived opportunities over the past five years, and understandings of the rapid changes and shifts in the political, legal, and economic environment of VC firms in a transitional era (Buganza et al., 2009; Haleblian & Finkelstein, 1993; Liao, Welsch, & Stoica, 2008). This moderator is also related to VC firm reactions to external pressures and volatility.

Response Capability (2 items). As a mediator between the potency of guanxi and firm performance, this factor is considered to reflect the speed of firm responses in a fast-moving process (Nayyar & Bantel, 1994). In this study, response capability refers to a VC’s efficiency in responding to three types of changes, namely, changes in the market, in the political environment and in legal systems (Gu et al., 2008).

Interlocking Directorates (4 items). As a mediator of the potency of guanxi and firm performance, this factor is used to analyze guanxi at VC firms by taking into account density and multiplicity (Ren et al., 2001; Ren et al., 2004; Ren et al., 2009; Scott, 1992). Density reflects the ratio of the number of actual links in a population to the number of
possible links in the same population. Information is expected to flow more freely in a high-density network (Ren et al., 2009; Scott, 1992). Multiplicity is the total number of interlocking directorates that connected firms share in common. A higher degree of multiplicity indicates a tighter relationship (Ren et al., 2009; Scott, 1992).

Syndication (2 items). A mediator between the potency of guanxi and firm performance, this factor measures the number of affiliated projects and affiliated funds. One can construe syndication as an actor-event (Sorenson & Stuart, 2001), in which VCs intersect in the target event when more than one VC firm contributes funding to the same target. A syndicated investment thus provides the precipitating event leading to interaction among VCs that jointly finance a target. A syndicated investment leads to interaction among the VCs that jointly finance a project. Sorenson and Stuart (2001) count all affiliated VC firms with a focal VC firm. These affiliations also include VC firms both previously co-invested and not co-invested in the current project (Hochberg et al., 2007).

Firm Performance (5 items). This factor serves as the dependent variable and is measured in terms of the number of IPOs, M&As and follow-on funds across all investment stages. Because VC funds generally disclose their financial performance only to their investors, firm performance is usually operationalized by using two indicators of firm-level performance, namely, the number of IPOs and the number of M&As (Hochberg et al., 2007). Moreover, most VC-backed investments are staged in the sense that portfolio companies are periodically reevaluated and receive follow-on funding only if their prospects remain promising (Gompers, 1995). Because surviving another funding round is an interim signal of success, the number of follow-on funds is used to measure
firm performance in this study. Eventually, successful portfolio companies go public or are sold, with a successful exit providing a final signal of the investment's success (Brander et al., 2002; Gompers & Lerner, 1998, 2000).

Control Variables (8 items). There are three control variables in the model, namely, management skill (4 items), firm size (3 items), and firm age (1 item). Using scales adapted from the work of Park and Luo (2001), one can control for the effect of management skill on firm capabilities and firm performance. Management skill is perceived as the firm’s ability to develop manager competences (Park & Luo, 2001). Firm size in terms of the number of employees is controlled for firm performance. Firm age is the number of years that the firm has been in operation in China.

Table 2 in Chapter 4 contains the descriptive statistics for the self-reported measures for the above constructs and variables. The firm performance measures are self-reported because in China, accurate and transparent financial related performance data are unavailable for new and small firms.

4.4 Mediation Measures

Mediation is assumed to entail a causal relationship in which one variable (X) affects a second variable (M) that affects a third variable (Y) in turn: X -> M -> Y. The variable (M) is the mediator, and the indirect effect represents the portion of the relationship between X and Y that is mediated by M. The partial regression of M predicting Y is also a direct effect.

Baron and Kenny (1986) propose a chain of steps that can be used to establish zero-order relationships among variables and test mediation. Their approach is probably the most cited and most commonly used approach in this type of mediation research.
(Taylor, MacKinnon, & Tein, 2008). However, there are potential problems with this approach. For example, it tends to miss some true mediation effects if early steps of testing provide insignificant results (MacKinnon, Fairchild, & Fritz, 2007; Rosopa & Stone-Romero, 2008). Baron and Kenny’s (1986) framework for mediation analysis involves a one-dimensional conception of mediation that can be seen as two-dimensional in classifying indirect effects (Zhao, Lynch, & Chen, 2010). In general, there are two ways to estimate the indirect effect coefficient. The first approach involves subtracting the partial regression coefficient \( M \rightarrow Y \) from the simple regression coefficient \( X \rightarrow Y \) (Judd & Kenny, 1981). The second approach involves multiplying another partial regression coefficient \( X \rightarrow M \) by the simple regression coefficient \( X \rightarrow Y \) (Sobel, 1982). Both approaches can produce the same non-standardized coefficients for indirect effects (MacKinnon et al., 2002). After the regression coefficients for the indirect effect are obtained, the significance of the indirect effect must be tested. If the sample size is considerably small, bootstrapping, a resampling estimation procedure that uses repeated small data to establish confidence intervals, is employed to determine the significance of the indirect effect (Shrout & Bolger, 2002). According to Fritz and MacKinnon (2007), the median of sample sizes needed to achieve adequate power when testing for mediation is 187, and the sample size in this study is 222 which is adequate enough not use bootstrapping as an option.

In this study, the variable \( X \) is represented by potency of guanxi, and the variable \( Y \) stands for the firm performance in terms of IPOs, M&As and follow-on funds, respectively. For the mediating variable \( M \), there are three mediators, namely, responsive
capability, interlocking directorates in terms of density and multiplicity, and syndication in terms of affiliated projects and affiliated fund.
Table 2 - Descriptive Statistics of the Variables

<table>
<thead>
<tr>
<th>Pearson Correlation Coefficients</th>
<th>PGX</th>
<th>RC</th>
<th>ET</th>
<th>MS</th>
<th>Den</th>
<th>Mul</th>
<th>SD Proj</th>
<th>SD Fund</th>
<th>P5inv</th>
<th>FP IPO</th>
<th>FP MA</th>
<th>FP FF</th>
<th>FS</th>
<th>FA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand. Dev.</td>
<td>1.125</td>
<td>1.009</td>
<td>0.750</td>
<td>0.820</td>
<td>5.155</td>
<td>1.184</td>
<td>2.636</td>
<td>11.476.000</td>
<td>24.079</td>
<td>4.388</td>
<td>2.810</td>
<td>16.861</td>
<td>269.528</td>
<td>4.568</td>
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<td>PGX</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>RC</td>
<td>0.133 **</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ET</td>
<td>0.289 **</td>
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<tr>
<td>MS</td>
<td>0.039</td>
<td>0.544 **</td>
<td>0.128 *</td>
<td>1.000</td>
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<td></td>
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<tr>
<td>Den</td>
<td>0.057</td>
<td>0.126 *</td>
<td>-0.087</td>
<td>0.102</td>
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<tr>
<td>Mul</td>
<td>-0.061</td>
<td>0.058</td>
<td>-0.065</td>
<td>0.040</td>
<td>0.132</td>
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<td>SD Proj</td>
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<td>0.127 *</td>
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<td>SD Fund</td>
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<td>FP IPO</td>
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<td>0.398 **</td>
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<td>FP MA</td>
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<tr>
<td>FP FF</td>
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<td>-0.040</td>
<td>0.141 *</td>
<td>-0.072</td>
<td>0.088</td>
<td>0.011</td>
<td>0.141 *</td>
<td>0.052</td>
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<td>FS</td>
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<td>0.139 *</td>
<td>-0.020</td>
<td>0.166 **</td>
<td>0.004</td>
<td>0.004</td>
<td>0.123</td>
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<tr>
<td>FA</td>
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<td>-0.096</td>
<td>0.108</td>
<td>0.171</td>
<td>-0.029</td>
<td>0.246 **</td>
<td>0.112</td>
<td>0.127</td>
<td>0.184 **</td>
<td>0.042</td>
<td>0.220 **</td>
<td>1.000</td>
</tr>
</tbody>
</table>

**Prob > |r|, * p < 0.05; ** p < 0.01**
CHAPTER 5      DATA ANALYSIS AND RESULTS

5.1    Factor Analysis and Results

To examine construct validity, Exploratory Factor Analysis (EFA) is conducted to determine whether underlying structures exist for the first 22 items associated with the 4 scaled variables, including potency of guanxi, environmental turbulence, response capability, and management skill. In factor analysis, the number of variables is reduced by determining which variables cluster together; factors are the groupings of variables that measure common variances or constructs (Mertler & Vannatta, 2005). Varimax rotation is performed orthogonally to ensure that the factors are minimally correlated with each other. In this way, varimax rotation helps to enhance discriminant validity by producing distinct factors while also allowing convergence by clustering items. Using SAS 9.1, principal component factor analysis is conducted to capitalize on shared variability; an orthogonal rotation method is used to produce factors containing items correlated with each other.

The variables determined to represent the four constructs are selected to facilitate interpretability (Mertler & Vannatta, 2005) and to maximize reliability using the Cronbach alpha as the reliability coefficient (Cronbach, 1951). Any item loading below 0.6 was eliminated. Table 2 shows the survey items, the scale descriptions, and measurement results of the following measures. Factors with a Cronbach’s alpha of 0.6 or higher are regularly accepted as valid in the literature (Butler et al., 2003). Regarding convergent validity, one note is that each factor has items that are consistent with prior studies on information-gathering in a business context.
### Table 3 – Rotated Principal Component Matrix

<table>
<thead>
<tr>
<th>Survey Items (n)</th>
<th>POG</th>
<th>Factors</th>
<th>ET</th>
<th>RC</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. We have personal relationships with important people in big state-owned enterprises, big banks, government, or military (215)</td>
<td>0.763</td>
<td>0.150</td>
<td>-0.059</td>
<td>0.017</td>
<td></td>
</tr>
<tr>
<td>2. We are able to obtain valuable and important information through personal relationship in the province or the city government offices (215)</td>
<td>0.827</td>
<td>0.135</td>
<td>-0.004</td>
<td>0.079</td>
<td></td>
</tr>
<tr>
<td>3. We are able to obtain government approvals by knowing the right people (215)</td>
<td>0.817</td>
<td>0.069</td>
<td>-0.043</td>
<td>0.275</td>
<td></td>
</tr>
<tr>
<td>4. We are able to obtain resources from local authorities through a good network of relationships (215)</td>
<td>0.796</td>
<td>-0.057</td>
<td>0.142</td>
<td>0.042</td>
<td></td>
</tr>
<tr>
<td>5. We are able to obtain financing or list stocks with help from social relationships (215)</td>
<td>0.520</td>
<td>-0.203</td>
<td>0.305</td>
<td>0.042</td>
<td></td>
</tr>
<tr>
<td>6. We are able to respond properly to market, political and legal law changes (222)</td>
<td>0.206</td>
<td>0.184</td>
<td>0.602</td>
<td>-0.189</td>
<td></td>
</tr>
<tr>
<td>7. We are able to sustain advantage during market, political and legal law changes (222)</td>
<td>0.129</td>
<td>0.261</td>
<td>0.645</td>
<td>-0.232</td>
<td></td>
</tr>
<tr>
<td>8. The change of industry regulation, policy and law is rapid (202)</td>
<td>-0.018</td>
<td>0.456</td>
<td>-0.330</td>
<td>0.147</td>
<td></td>
</tr>
<tr>
<td>9. The change of industry regulation, policy and law is not foreseeable (202)</td>
<td>-0.004</td>
<td>0.469</td>
<td>0.120</td>
<td>0.306</td>
<td></td>
</tr>
<tr>
<td>10. High-Tech project numbers have dramatically increased (202)</td>
<td>-0.112</td>
<td>0.574</td>
<td>-0.273</td>
<td>0.240</td>
<td></td>
</tr>
<tr>
<td>11. Our business unit must change its practices frequently (202)</td>
<td>0.076</td>
<td>0.762</td>
<td>-0.098</td>
<td>0.118</td>
<td></td>
</tr>
<tr>
<td>12. The rate at which market, finance and political information are getting obsolete in the VC industry is high (202)</td>
<td>0.068</td>
<td>0.725</td>
<td>0.289</td>
<td>0.131</td>
<td></td>
</tr>
<tr>
<td>13. Actions of central or local government are not easy to predict (202)</td>
<td>-0.212</td>
<td>0.555</td>
<td>-0.201</td>
<td>-0.212</td>
<td></td>
</tr>
<tr>
<td>14. The interpretation of law and regulation is vague (202)</td>
<td>0.098</td>
<td>0.744</td>
<td>0.090</td>
<td>0.186</td>
<td></td>
</tr>
<tr>
<td>15. The enforcement of legal system is weak (202)</td>
<td>0.182</td>
<td>0.711</td>
<td>0.047</td>
<td>-0.019</td>
<td></td>
</tr>
<tr>
<td>16. Very risky, one false step can mean our business is undoing (202)</td>
<td>0.106</td>
<td>0.794</td>
<td>0.008</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td>17. Very stressful, exacting hostile; very hard to keep afloat (202)</td>
<td>0.121</td>
<td>0.743</td>
<td>0.121</td>
<td>-0.153</td>
<td></td>
</tr>
<tr>
<td>18. An environment in which our business initiatives count for little against the tremendous political and legal hindrances (202)</td>
<td>0.153</td>
<td>0.468</td>
<td>-0.389</td>
<td>0.159</td>
<td></td>
</tr>
<tr>
<td>19. We effectively lead team work (219)</td>
<td>0.064</td>
<td>0.000</td>
<td>0.033</td>
<td>0.819</td>
<td></td>
</tr>
<tr>
<td>20. We have strong social skills and communication skills (219)</td>
<td>0.070</td>
<td>-0.028</td>
<td>0.005</td>
<td>0.844</td>
<td></td>
</tr>
<tr>
<td>21. We encourage team work, group decision-making, and internal communications (219)</td>
<td>-0.036</td>
<td>-0.026</td>
<td>0.132</td>
<td>0.799</td>
<td></td>
</tr>
<tr>
<td>22. We are capable of solving internal and external conflicts (219)</td>
<td>-0.033</td>
<td>0.079</td>
<td>-0.037</td>
<td>0.836</td>
<td></td>
</tr>
</tbody>
</table>

Reliability Coefficient (Cronbach α): 0.862 0.670 0.750 0.891
5.2 Direct Effect on Firm Performance

Multiple regressions are used to explain variations for the dependent variable by regressing firm performance on multiple independent variables, thereby incorporating control variables, moderating variable, and mediating variables. Overall significance is tested using the F value and $R^2$, the variance in the dependent variable explained by the independent variables. For each independent variable in each regression, weight $\beta$ and significance $p$ are tested for their relative predictive importance.

A series of regression analyses are implemented in SAS 9.1. The first hypothesis $(H_1)$ concerns the direct link between the potency of guanxi and firm performance. The direct effects of the potency of guanxi on VC firm performance in terms of IPOs, M&A deals, and follow-on funds are examined (Table 4). $H_1$ suggests that the potency of guanxi is positively related to firm performance. Table 4 shows that the potency of guanxi has a significant positive effect on the occurrence of M&A deals ($\beta = 0.103, p < 0.05$), but it has no statistically significant effect on IPOs and follow-up funds when no mediating effects are involved.

Regarding the three control variables that are included in each of the regressions, it is noted that management skill has a statistically significant, positive relationship with successful IPO deals ($\beta = 0.184, p < 0.05$). The same is true for firm age and both IPOs ($\beta = 0.165, p < 0.05$) and M&A deals ($\beta = 0.140, p < 0.01$). However, firm size in terms of the number of employees does not have a statistically significant direct effect on any of the three variables related to firm performance.
Table 4 - The Direct Effect of Potency of Guanxi (POG) on Firm performance (FP)

<table>
<thead>
<tr>
<th>Independent Variables (IV)</th>
<th>Firm Performance (H1)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IPO</td>
<td>M&amp;A</td>
<td>Follow-on Fund</td>
</tr>
<tr>
<td>Potency of Guanxi (POG)</td>
<td>0.099</td>
<td>0.103*</td>
<td>0.133</td>
</tr>
<tr>
<td>Environmental Turbulence (ET)</td>
<td>-0.062</td>
<td>-0.039</td>
<td>0.035</td>
</tr>
<tr>
<td>Control Variables (CV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Skill (MS)</td>
<td>0.184*</td>
<td>0.036</td>
<td>-0.119</td>
</tr>
<tr>
<td>Firm Size (FS)</td>
<td>-0.001</td>
<td>0.003</td>
<td>-0.001</td>
</tr>
<tr>
<td>Firm Age (FA)</td>
<td>0.165*</td>
<td>0.140**</td>
<td>-0.160</td>
</tr>
<tr>
<td>Overall Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-Value</td>
<td>1.290</td>
<td>1.960*</td>
<td>0.900</td>
</tr>
<tr>
<td>R²</td>
<td>0.045</td>
<td>0.373</td>
<td>0.029</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01

5.3 Direct Effects on Mediators

Hypotheses H₃ₐ, H₄ₐ, and H₅ₐ propose that the potency of guanxi is positively associated with three mediators, namely, responsive capability, interlocking directorship, and syndications. These mediators, in turn, are positively associated with VC firm performance in supporting H₃ᵇ, H₄ᵇ, and H₅ᵇ. Regression analysis is again used to examine (Rosopa & Stone-Romero, 2008) the effects of guanxi on the mediators. In support of H₃ₐ, H₄ₐ, and H₅ₐ, Table 5 shows that the potency of guanxi has a statistically significant, positive relationship with VC firm response capability (β = 0.141, p < 0.01), interlocking directorates in terms of density (β = 0.116, p < 0.05 and multiplicity (β = 0.131, p < 0.01), and syndications in the form of affiliated funds (β = 319.637, p < 0.05). The potency of guanxi has no significant effects on affiliated projects by VC firms.
For the control variables, management skill has a statistically significant, positive relationship with successful VC firm responsive capability ($\beta = 0.310, p < 0.01$) and the density of interlocking directorates ($\beta = 0.220, p < 0.05$). Firm size has a statistically significant, negative effect on VC firm response capability ($\beta = -0.001, p < 0.01$) and positively effect on the density of interlocking directorates ($\beta = 0.003, p < 0.01$). Firm age has a statistically significant, positive association with syndication with regard to affiliated funds ($\beta = 641.352, p < 0.01$).

### Table 5 - The Effects of Potency of Guanxi (POG) on Mediators

<table>
<thead>
<tr>
<th></th>
<th>Responsive Capability (H3a)</th>
<th>Interlock Directorate (H4a) Density</th>
<th>Interlock Directorate (H4a) Multiplicity</th>
<th>Syndication (H5a) Aff. Project</th>
<th>Aff. Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POG</td>
<td>0.141**</td>
<td>0.116*</td>
<td>0.131**</td>
<td>0.040</td>
<td>319.637*</td>
</tr>
<tr>
<td>ET</td>
<td>-0.004</td>
<td>-0.169*</td>
<td>-0.020</td>
<td>0.000</td>
<td>151.980</td>
</tr>
<tr>
<td><strong>Control Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS</td>
<td>0.310**</td>
<td>0.220*</td>
<td>-0.031</td>
<td>0.088</td>
<td>419.745</td>
</tr>
<tr>
<td>FS</td>
<td>-0.001**</td>
<td>0.003**</td>
<td>0.000</td>
<td>0.000</td>
<td>1.622*</td>
</tr>
<tr>
<td>FA</td>
<td>0.029</td>
<td>0.089</td>
<td>-0.010</td>
<td>-0.011</td>
<td>641.352**</td>
</tr>
<tr>
<td><strong>Overall Model</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-Value</td>
<td>14.600**</td>
<td>2.420**</td>
<td>1.560</td>
<td>0.590</td>
<td>3.120**</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.294</td>
<td>0.366</td>
<td>0.083</td>
<td>0.018</td>
<td>0.308</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01

### 5.4 Mediators’ Partial Direct Effects on Firm Performance

As for hypotheses H3b, H4b, and H5b, I examined the impact of the three mediators in the regression on firm performance. The first three columns in Table 6 show the following effects on firm performance. The density of interlocking directorates has a
significant and positive impact on follow-on funds ($\beta = 0.307, p < 0.01$), whereas multiplicity has a significant and positive effect on M&A deals ($\beta = 0.490, p < 0.01$) and follow-on funds ($\beta = 0.122, p < 0.05$). Regarding syndication, note that having more affiliated projects significantly and positively affects the receipt of follow-on funds ($\beta = 0.058, p < 0.01$) and that having more affiliated funds significantly and positively affects the number of M&A deals ($\beta = 0.010, p < 0.05$). In contrast, response capability has no significant effect on firm performance.

To further evaluate the effects of mediating factors on firm performance, the interaction effects of the potency of guanxi and the three mediators are included in the regression analysis. The last three columns in Table 6 show the following significant results. The interaction between the potency of guanxi and responsive capability (POG*RC) has significant but negative effects on obtaining M&A deals ($\beta = -0.131, p < 0.05$). The interaction between the potency of guanxi and the density of interlocking directorships (POG*Den) has a significant and positive impact on follow-on funds ($\beta = 0.052, p < 0.01$), as does the interaction between the potency of guanxi and the multiplicity of interlocking directorships (POG*Mul) ($\beta = 0.165, p < 0.01$). The interaction between the potency of guanxi and affiliated projects (POG*Aff. Proj) has a significant and positive effect on follow-on funds ($\beta = 0.110, p < 0.01$), and the interaction between the potency of guanxi and affiliated funds (POG*Aff. Fund) has a significant and positive impact on the occurrence of M&A deals ($\beta = 0.073, p < 0.05$).
<table>
<thead>
<tr>
<th>Mediating Variables</th>
<th>Firm Performance (H3b, H4b, H5b)</th>
<th>Firm Performance (H3b, H4b, H5b) + (H2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IPO</td>
<td>M&amp;A</td>
</tr>
<tr>
<td>RC</td>
<td>0.067</td>
<td>-0.176</td>
</tr>
<tr>
<td>Den</td>
<td>0.016</td>
<td>0.107</td>
</tr>
<tr>
<td>Mul</td>
<td>0.029</td>
<td>0.490**</td>
</tr>
<tr>
<td>Aff. Proj</td>
<td>0.001</td>
<td>0.069</td>
</tr>
<tr>
<td>Aff. Fund</td>
<td>0.016</td>
<td>0.010*</td>
</tr>
<tr>
<td>Mediating Interactions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POG * RC</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>POG * Den</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>POG * Mul</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>POG * Aff Proj</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>POG * Aff Fund</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Moderating Interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POG * ET</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Independent Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POG</td>
<td>0.079</td>
<td>0.257*</td>
</tr>
<tr>
<td>ET</td>
<td>-0.102</td>
<td>-0.061</td>
</tr>
<tr>
<td>Control Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS</td>
<td>-0.027</td>
<td>-0.017</td>
</tr>
<tr>
<td>FS</td>
<td>-0.012</td>
<td>0.018</td>
</tr>
<tr>
<td>FA</td>
<td>-0.023</td>
<td>0.319**</td>
</tr>
<tr>
<td>Overall Model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-Value</td>
<td>0.780</td>
<td>3.210**</td>
</tr>
<tr>
<td>R²</td>
<td>0.133</td>
<td>0.386</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01
5.5 Mediating Indirect Effects on Firm Performance

The concept in various mediation analyses is held with equal force to regression analyses and structural equation modeling (SEM) (Zhao et al., 2010). Whether via regression or SEM, only the indirect effect needs to be significant, the mediation type should be properly classified in differentiating from each other, and one should consider the sign of unexpected “direct” effect for hints about omitted mediators.

SEM can be used to test significance in a single analysis (Preacher & Hayes, 2004; Zhao et al., 2010). However, based on the SAS macro script of bootstrapping mentioned in that study (Preacher & Hayes, 2004), the SAS syntax codes for the single bootstrap test of the indirect effect actually contain early regressions and a Sobel z-test (Sobel, 1982). Because the early regressions are established in Sections 5.2, 5.3 and 5.4 and the sample is large enough for me to detect mediated effects (Fritz & MacKinnon, 2007), an Aroian test, which is an advanced version of the Sobel test that does not omit any variance estimates from the testing equation (Preacher & Hayes, 2008) is used to test whether the indirect effects of the potency of guanxi on firm performance via the three mediators are significant.

Note: Aroian z-test = $\frac{\beta_{XM} \beta_{MY}}{\sqrt{\beta_{MY}^2 SE_{XM}^2 + \beta_{XM}^2 SE_{MY}^2 + SE_{XM}^2 SE_{MY}^2}}$
Sobel z-test = $\frac{\beta_{XM} \beta_{MY}}{\sqrt{\beta_{MY}^2 SE_{XM}^2 + \beta_{MM}^2 SE_{MY}^2}}$

where $\beta_{XM}$ stands for the regression coefficient $X \rightarrow M$, $SE_{XM}$ is its standard error $\beta_{MY}$ stands for the regression coefficient $M \rightarrow Y$, $SE_{MY}$ is its standard error

“$SE_{XM}^2 \times SE_{MY}^2$” is the extra term with respect to Sobel test

Table 7 illustrates the estimates of indirect, direct, and total effects. For regression coefficients and standard errors, any differences between the results obtained
using regression analysis and bootstrap estimates are slight and insignificant (Mallinckrodt et al., 2006). The 95% confidence interval is embedded in the test of significance in terms of the $p$ value.
<table>
<thead>
<tr>
<th>Mediators</th>
<th>$\beta_{XM}$</th>
<th>SE$_{XM}$</th>
<th>$\beta_{MY}$</th>
<th>SE$_{MY}$</th>
<th>Aroian z-test</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>IPO</td>
<td>M&amp;A</td>
<td>IPO</td>
<td>M&amp;A</td>
<td>IPO</td>
</tr>
<tr>
<td>Responsive Capability (RC)</td>
<td>0.141**</td>
<td>0.018</td>
<td>0.067</td>
<td>-0.176</td>
<td>0.347</td>
<td>0.051</td>
</tr>
<tr>
<td>Interlocking Directorates (ID)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>0.116**</td>
<td>0.053</td>
<td>0.016</td>
<td>0.107</td>
<td>0.307**</td>
<td>0.011</td>
</tr>
<tr>
<td>Multiplicity</td>
<td>0.131**</td>
<td>0.011</td>
<td>0.029</td>
<td>0.490**</td>
<td>0.122**</td>
<td>0.018</td>
</tr>
<tr>
<td>Syndication (SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aff. Project</td>
<td>0.040</td>
<td>0.016</td>
<td>0.001</td>
<td>0.069</td>
<td>0.058**</td>
<td>0.001</td>
</tr>
<tr>
<td>Aff. Fund</td>
<td>319.637*</td>
<td>101.390</td>
<td>0.010*</td>
<td>-0.017</td>
<td>0.003</td>
<td>0.009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IPO</td>
<td>M&amp;A</td>
<td>IPO</td>
<td>M&amp;A</td>
<td>IPO</td>
</tr>
<tr>
<td>Follow-on Fund</td>
<td>1.296</td>
<td>-2.070*</td>
<td>1.595</td>
<td>0.195</td>
<td>0.038</td>
<td>0.111</td>
</tr>
</tbody>
</table>

p < 0.05, **p < 0.01
Using the mediation framework developed by Zhao et al. (2010) and taking the findings regarding mediation and direct effects as displayed in Table 4, the following mediations have been successfully established.

1) Response Capability: The potency of guanxi has a significant direct effect on M&A deals ($\beta = 0.103, p < 0.05$); however, the indirect effect of response capability on M&A deals is negative ($\beta_{XM} \cdot \beta_{MY} = 0.141 \cdot -0.176 < 0, p < 0.05$). In an instance of competitive mediation, both indirect and direct effects on firm performance exist in terms of M&A deals, and these effects occur in opposite directions.

2) Interlocking Directorship: The potency of guanxi has no direct effect on firm performance in terms of IPOs, M&A deals, or follow-on funds. However, the indirect effects of density ($\beta_{XM} \cdot \beta_{MY} = 0.116 \cdot 0.307 > 0, p < 0.05$) and multiplicity ($\beta_{XM} \cdot \beta_{MY} = 0.131 \cdot 0.122 > 0, p < 0.05$) on follow-on funds are statistically significant. Therefore, through indirect-only mediation, both density and multiplicity have indirect effects on follow-on fund performance without the potency of guanxi having any direct influence.

3) Syndication: The potency of guanxi has no direct effect on firm performance. However, there are two indirect-only mediations as follows.

(a) There is an indirect effect of affiliated projects ($\beta_{XM} \cdot \beta_{MY} = 0.040 \cdot 0.058 > 0, p < 0.05$) on follow-on funds.

(b) There is an indirect effect of affiliated funds ($\beta_{XM} \cdot \beta_{MY} = 319.637 \cdot 0.010 > 0, p < 0.05$) on M&A deals.
5.6 Moderating Effects on Firm Performance

Moderation occurs when the relationship between two variables (e.g., the independent variable and the dependent variable) depends on a third variable or a moderator. The effect of a moderating variable is characterized statistically as an interaction (Hayes & Matthes, 2009); specifically, “a basic moderator effect can be represented as an interaction between a focal independent variable and a factor that specifies the appropriate conditions for its operation” (Baron & Kenny, 1986, p. 1174).

In H2, environmental turbulence is proposed to moderate the relationship between the potency of guanxi and firm performance. To test for the moderating effect of environmental turbulence in the model, the interaction of the potency of guanxi and environmental turbulence (POG*ET) is examined in the regression analysis. Table 6 shows that the moderating effect is significantly and negatively related to M&A deals ($\beta = -0.202$, $p < 0.05$) and follow-on funds ($\beta = -0.038$, $p < 0.05$). This suggests that the potency of guanxi is significantly weakened in contexts of higher environment turbulence in terms of effects on M&A deals and follow-on funds for investments.

To visually illustrate the significant moderating effects on firm performance in terms of M&A and follow-on funds, I plot two 3-D curves (Figure 3) in Matlab 7.6 to indicate the significant interactions or moderating effects (POG*ET) on M&A and follow-on fund performance. Figure 3 shows how the changes in the interaction between environment turbulence and the potency of guanxi affect M&A deals and follow-on funds. When the environmental turbulence level is low, the potency of guanxi has a positive impact on both M&A deals and follow-on funds. However, when the environmental turbulence level is high, the potency of guanxi has a slightly lower impact. Hence, both
the peak value of M&A and that of follow-up funds are such that environmental
turbulence is greater but the potency of guanxi is relatively lower. The interaction effect
supports the notion that environment turbulence is damaging to VC firm performance in
terms of M&A deals and follow-up funds. That is, placing more emphasis on guanxi in a
highly turbulent environment could be detrimental to VC venture investment returns.
Taken together, these two 3-D curves illustrate the mitigating effects of environment
changes on the relationship between the potency of guanxi and firm performance,
providing additional evidence of the negative side effects of guanxi as suggested in H2.

Regarding the three control variables in Table 6, note that management skill turns
out not to make a significant contribution to the effects of the potency of guanxi on any
variables related to firm performance. However, firm size makes a significant but
negative contribution to the likelihood of obtaining follow-on funds ($\beta = -0.375, p < 0.01$).
That is to say, the more employees that a VC firm has, the less likely it is to provide
follow-on funds to a VC-backed company. Firm age is also significantly and positively
associated with both M&A deals ($\beta = 0.343, p < 0.01$) and follow-on funds ($\beta = 0.161, p
< 0.01$). VC firms with a longer history and more experienced senior managers have a
better chance of succeeding in arranging M&A deals and obtaining follow-on funds.
Figure 2 – Moderating Effects on M&A and Follow-on Fund
Figure 3 provides a summary of the results related to all of the hypotheses tested in this study. Figure 4 provides an expanded summary of the results in terms of the different variables. One dependent variable (namely, IPO) and one control variable (namely, MS) do not have a significant relationship with any of the other factors examined in the model. Hochberg et al. (2007) find that a VC firm’s network position is unrelated to the number of funded companies that it has exited through IPOs, but network position is related to centrality, which measures the number of relationships that a firm or a person has in the network. It is important to note that only 29% (65/222) of respondents provided IPO information as part of the survey. IPOs may be too rare to be a useful measure of firm performance. Unlike Gompers and Lerner (1998) and Brander et al. (2002), who only account for successful exit via IPOs, I use the approach presented in Hochberg et al. (2007) and account for successful exits via M&A transactions as well as IPOs.

Management skill indicates perceived company strengths related to the development and use of managerial competences to lead and motivate employees (Park & Luo, 2001). One plausible way of interpreting its lack of significance in the results is that management skill is correlated with responsive capability and environmental turbulence (see Table 2). Management skill is not only about leading and motivating internal employees but also about socializing and communicating outside the VC firm. It seems that management skill possessed in the VC firms is inadequate to make significant contribution to the firm performance. Further investigation of management skill for VC firms may be necessary.
Figure 3 – Summary of Hypotheses Tested

Potency of Guanxi (POG)
direct effect
indirect effect

Responsive Capability (RC)  
*competitive mediation*

Interlocking Directorates (ID)  
*indirect-only mediation*

Syndication (SD)  
*indirect-only mediation*

Firm Performance (FP)

Environmental Turbulence (ET)  
*significant moderation*

Control Variables (CVs)
- Management skills
- Firm Size **
- Firm Age **

H1*
H2*
H3a**
H3b
H4a**
H4b**
H5a*
H5b*

*p < 0.05, **p < 0.01
Figure 4 – Results of Hypotheses Tested

*p < 0.05, **p < 0.01
CHAPTER 6  DISCUSSION AND CONCLUSION

6.1 Theoretical Implications

This study supports the commonly held belief that in China’s venture capital industry, potent guanxi is a significant and well-functioning risk-mitigating mechanism. It also indicates how guanxi affects VC firm performance, thereby providing several contributions on this subject. First, the results support the hypothesis (H1) that guanxi impacts VC firm performance; i.e., guanxi networks generally improve firm performance. This evidence runs contrary to the view that local cultural traditions like guanxi networks affect businesses negatively at the firm level in China (Zhang & Ma, 2009). This empirical study is in line with research that draws on institutional theory to study cognitive or cultural characteristics; such studies indicate that institutions such as guanxi networks influence VC firm performance positively when regulative and normative elements are not functioning in transitional economies (Ahlstrom et al., 2007; Bruton & Ahlstrom, 2003). The integrative model (Figure 3) predicts that a guanxi network as part of VC investment strategy can be leveraged from the personal level to firm level (Fu et al., 2006) and can indeed help to explain why some VCs experience better performance than others in China.

Second, the integrative model (Figure 4) presents a number of important variables and indicates how they mediate and moderate the effects of guanxi networks on various measures of VC firm performance. VC firm responsive capabilities and other network characteristics, such as the density and multiplicity of interlocking directorates and their interactions with guanxi networks, are helpful in explaining VC firm performance when the investment environment is turbulent. In particular, the direct and indirect effects of
guanxi networks on VC firm performance can be undermined when environmental turbulence intensifies to a certain extent (H2). However the findings in the integrative model clearly support that reliance on guanxi networks, which is a social behavior deeply rooted in China, has become a strategic tool for VCs in transitional economies in which institutions are underdeveloped. In an era of globalization challenged by localization, it is important for international VC investors to develop and utilize appropriate cultural knowledge to understand and address the institutional discrepancies between their countries of origin and the countries in which international VCs invest their money.

Third, this study is the first of its kind to investigate interlocking directorship, syndication, and affiliations to firm performance for VCs in China. The findings suggest that VCs respond to China’s transition to a market-oriented economy by using appropriate guanxi networks as a firm asset or resource in order to leverage firm capabilities. Like response capability in the integrative model (Figure 4), interlocking directorship and syndications appear to affect VC firm performance. Reliance on guanxi networks makes sense from a resource dependency perspective, as firms maximize their power by utilizing the resources of other firms (Oliver, 1991; Pfeffer, 1981; Salancik, 1979; Scott, 2003). The resources that a VC firm possesses can also be used to ensure desirable outcomes if they are combined with different resources that other VCs possess. Senior managers can enrich the endowment of their VC firms by accessing valuable, rare, imperfectly imitable, and non-substitutable resources (Barney, 1991a, 1991b; Barney, 2001). As part of firm resources, guanxi networks can be leveraged using personal ties among senior managers in order to reduce transaction costs participating in a market (Brouthers, 2002; Coase, 1998; Jones, 1983; Nee, 1992; Williamson, 1981).
Fourth, senior managers need to be cognizant of the influences of interlocking directorships so that they can balance out their investment strategies. In contrast to the view that firm performance is closely aligned with densely connected networks (Peng, 2003), this empirical study finds support for the notion that VC firms benefit more from high multiplicity than from high density (Figure 4). Senior managers in a dense guanxi network may have a greater level of contact, but interlocking directors who connect two or more firms tend to share with each other, have tighter inter-organizational relationships, and enjoy better firm performance. In one comparative study (Ren et al., 2009), public companies in China are found to have much lower network density and much higher multiplicity levels than their counterparts in the U.S. After a closer look at the typical view that guanxi networks are all-pervasive in China, the findings in this study suggest that guanxi-oriented markets do not necessarily imply the existence of a densely interlocked business network.

Economically, VC firms benefit from the existence of a wide range of guanxi relationships, especially when they are linked with other well-connected VC firms. Kaplan and Schoar (2005) attribute the persistence of firm performance to VC access to better deal flow. One way to access deal flow is for a VC firm to invite other VCs into syndications. Over time, this appears to lead to reciprocal co-investment opportunities. These findings have clear ramifications for VC investors looking to choose the right type of syndication; affiliated projects are helpful for firms looking to secure follow-on funding, while affiliated funds are useful in securing an M&A deal.

Another important point revealed in this study is that guanxi networks do have weaknesses or drawbacks. The premise of this study is that because of the
underdeveloped institution and environmental turbulence in the transitioning economy (Naughton, 1987), guanxi network has been emerged and leveraged as a mechanism to mitigate the institutional risks in the venture capital process. An inference derived from the study is that as China’s transitional economy becomes more like the market economies in the West, the institution will be further developed and matured in regulating the market (Droege, Lane, & Spiller, 2009); therefore, the environment turbulence will have less occurrence and the institutional risk will be considerably decreased. Thus guanxi will have less involvement in the venture capital process and less effect on firm performances. This derivation is in line with other guanxi researchers who suggest that once the legal and economic systems fully develop, the need for guanxi will diminish or disappear (Guthrie, 1998; Luo, 2001; Park & Luo, 2001; Peng & Luo, 2000; Tsui et al., 2000). The findings presented here indicate that guanxi networks are not a one-fits-all solution to the issue of turbulent environmental changes. The findings also suggests that guanxi networks, as on-going relationships (Jap & Anderson, 2003), can be destabilized when environmental turbulence increases to a certain degree.

6.2 Managerial Implications

This empirical study has several important management implications for VC investors and policy-makers in China. Many VC firms have become aware of the importance of guanxi networks and of actively developing relationships with other firms, government officials, and international and local management teams. In this study, the potency of guanxi has been examined from two perspectives. First, it helps VC firms to gain access to insider information, navigate regulations and legal systems, decode policy intents, and obtain necessary resources. Cultivating a guanxi network is an economic and
practical endeavor, and as such, it is unquestionably valuable in the context of the relatively open market system in China. For VC investors, being able to identify and understand firm capabilities and personal ties relative to an investor’s inter-firm network provides insight into why firms and business partners are connected and how these connections could potentially influence a firm’s performance. Based on the three (3) different outcomes of firm performance, VCs can make appropriate decisions in order to achieve any of these three exit options. For instance, increasing the density and multiplicity of the seats in the board of directors would be helpful in getting follow-on funds.

Second, Chinese policy makers should consider regulatory effects to manage institutional risk that could potentially hinder VC competitiveness and the development of nationally coordinated capabilities. Regardless of the underlying reasons for the economic transition, it is clear that China's economy has not functioned as a pure market economy throughout its reform era. China’s market reform favoring private enterprises and SMEs has constituted the overwhelming majority of transition in China (Kuhn, 2000). Along with the reorganizing of state-owned enterprises (SOEs), the hybrid forms of organization developed in reaction to the transition to a market economy given ambiguity of institutions and low information codification, e.g., ill-defined property rights (Nee, 1992) and vague legal mechanisms (Boisot & Child, 1996). The distinction between trust in specific persons and trust in institutions or the system in general is neglected (Schneider, 2006). Guanxi becomes central to people's coping strategies precisely when they feel that they can trust known individuals more than they can the system and the application of the rules. Reliance on reciprocal guanxi results in an economy that
contains features of both capitalism via reliance on free market mechanisms as well as socialism via centralized redistributive activity and factor resource access via governmental bodies has made the venture capital industry in China a minor league in relative to that in the U.S. and Europe. Firms in China are viewed as lacking of national competitiveness due to their inadequate transparencies (Meyer, 2008).

6.3 Limitations

Despite its theoretical and managerial contributions, this empirical study has several limitations that warrant attention. First, Durlauf (2002) argues that much of the empirical research on social networks fails to adequately consider the possibility of bias due to endogeneity. The reliance on data taken at one time and the use of correlation open up the possibility of reverse causality (Burt, 1992; Rhee, 2004). That is, a better firm performance may determine the formation of subsequent guanxi network. Such reverse causality may increase the possibility of a statistically significant relationship between the guanxi network and the mediators. All correlation findings that do not control for time are subject to this problem. It is not a special feature of social network research. Grounded in the reality of systems, most likely the circularity problem can not be ruled out. The issue of endogeneity would not be a particular concern if firm performance is introduced as a lagged dependent variable, but that is usually not possible through a survey collected according to the procedures used in this study. The use of lagged dependent variables is desirable in this type of research because it is reasonable to expect a time lag between a firm's efforts to establish and internalize a network as part of its operations and the outcome of these efforts in an internationalized market (Elango &
Pattnaik, 2007). To better mitigate the problem of endogeneity, future studies could be conducted using longitudinal data (Yiu, Lau, & Bruton, 2007).

Second, one of the main sources of measurement error is method variance, which may arise from various sources (Bagozzi & Yi, 1991). Commonly method variance is attributed to the measurement method rather than the constructs of interest, and it may cause systematic measurement error and bias the estimates of the true relationship among theoretical constructs (Fiske, 1982). Common method variance threatens the validity of conclusions about the relationships between measures. Typically, common method variance occurs when the independent variables (e.g., the potency of guanxi) and the dependent variables (e.g., firm performance) are obtained from the same subject using a questionnaire like the survey used in this study (Appendix B and C). A good strategy for avoiding common methods variance is to obtain the measures for the predictor and criterion variables from different sources (Crampton & Wagner, 1994; Podsakoff et al., 2003). The multiple source method can help to avoid the method variance problem; however, CVCRI did not implement this method due to the lack of manpower and financial resources. With this in mind, it seems possible that the results of the questionnaire survey would be better if the CVCRI had employed two informants for a given VC firm, making it possible to measure the variables more independently.

### 6.4 Future Research

Future research could build upon the findings of this empirical study to explore its implications and overcome its limitations. First, whereas social networks are etic, guanxi networks are emic and are known to have an influence on business in China. In this regard, although this empirical study examines guanxi in China specifically, other
transitional economies that have similar and/or different cultural orientations (e.g., Brazil, Russia, and India) may feature related forms of social influence. An emic cross-national study approach will be necessary if researchers hope to ascertain whether other economies, including those with developed institutions (e.g., Canada) and different cultural orientations, have similar kinds of social networks and feature factors with a similar impact on VC activities and performance.

Second, this empirical study delineates and confirms the potency of guanxi as a control mechanism. Further research could address questions regarding how VCs use guanxi networks in order to enhance firm performance. This may provide further theoretical insight into why VCs interlock and syndicate. In institutional transitions, VC firms have considerably less bargaining power than do local government officials who may exercise considerable self-interest in controlling local businesses. A consistent interest in possessing more bargaining power may drive interlock patterns and syndicate patterns.

Third, given the hypotheses tested using the integrative model (Figure 3), it is still difficult to ascertain the causal relationships between these three mediators and firm performance. In many studies based on observational data, especially when the effects are small and there are questions of causality at play, regression methods based on the assumption of a causal relationship may provide misleading results (Freeman, 2005). Future research should consider tools like SEM to study path relationships and test causal relationships in the integrative model.

Fourth, note that regarding the competitive mediation of response capability as reflected in Table 7, the significant direct effect of the potency of guanxi on firm
performance in terms of M&A deals points to the possible existence of some omitted mediator that future researchers might seek to identify. The sign of the direct effect gives some indication of the sign of omitted indirect path (Zhao et al., 2010). Thus, it might be worthwhile to consider some factors that encourage the development and performance of VCs, including loans, business expansion, and the creation of unlisted markets (Rothwell, 1985), and to see whether they are at work in China and other transitional economies.

Fifth, guanxi is often characterized as a necessary step along a transitioning country’s progression towards just and efficient background institutions (Luo, 1997; Luo, 2001; Warren et al., 2004; Xin & Pearce, 1996). As the institutions in China keep developing, guanxi will have less usage of intervention in the legal and economic systems (Guthrie, 1998; Luo, 2001; Park & Luo, 2001; Peng & Luo, 2000; Tsui et al., 2000). However, none of the prior research considers whether some of the practices associated with guanxi stand in the way of the development of such institutions even though such assertions appear in the literature on social exchange (Kranton, 1996). More research is needed if researchers and practitioners are to understand how guanxi networks can influence the development of a transitional economy and what processes might be undertaken to correct any imbalances that arise due to the existence of underdeveloped institutions in such economies.

Sixth, there are several technical aspects that could be further examined. For example, the roles of moderator and mediators can be exchanged in the integrative model. Mediation and moderation can co-occur in statistical models, and so it is possible to mediate moderation and moderate mediation. Moderation and mediation are different with respect to their end results, how they occur, and how they are interpreted. In the
case of moderation, one may want to identify whether a significant interaction has occurred, whereas in mediation, the issue is whether there is overlapping variance among the three variables ($X \rightarrow M \rightarrow Y$). The statistical techniques involved in using these two methods are also different to some extent. Although regression is used in both techniques, the types of regressions are different because the type and order of the independent variables varies for the two methods.

Moderation means that the effect of a variable (e.g., POG) on an outcome (e.g., FP) is altered by another variable (e.g., ET). Moderation is usually indicated by the interaction between two initial variables (e.g., POG*ET). If this moderation is mediated, then it is referred to as mediated moderation. All of the steps described in Section 5.6 can be applied to this interaction so that the two main effects can be treated as "covariates." A mediator (e.g., the multiplicity of interlocking directorates) can be stronger for one group (e.g., M&A as an aspect of firm performance) than for another (e.g., follow-on funds as an aspect of firm performance). The mediator may interact with the moderator to cause the outcome (e.g., firm performance). In addition, while such interactions are commonly tested by computing a product term, there are other ways to pinpoint these interactions (e.g., absolute difference) (Muller, Judd, & Yzerbyt, 2005).

6.5 Conclusion

Guanxi is the lifeblood of Chinese society (Lu et al., 2008). Research on guanxi networks and how they fit into VC activities in transitional economies has been increasing. As such, this empirical study is an effort to expand our knowledge about present-day China. From a theoretical perspective, guanxi-based explanations at the firm level or the business level appear to offer more insight than the initial efforts to examine
guanxi on a personal or individual level have. The findings here certainly suggest that VCs in China see and use guanxi network as a valuable and effective mechanism in dealing with institutional uncertainty. The findings also suggest that VCs capitalize on the potency of guanxi network both directly and indirectly.

In the Chinese business world, the link between guanxi networks and performance for various firms is stronger than is the case for other types of business networks in East Asia (e.g., chaebol in Korea (Chang & Hong, 2000, 2002; Kim et al., 2004) and keiretsu in Japan (Ahmadjian & Lincoln, 2001; Hayashi, 2002)). Guanxi networks connect family businesses (Murray, 1996), government-owned business groups, private business groups (Fan et al., 2008; Zhao, 2009), and international joint ventures (Kang, Lee, & Zhao, 2008; Zhao, Anand, & Mitchell, 2005).

The relationship between guanxi networks and firm performance may be affected by the legitimate status of many businesses in the eyes of government. Nowadays SMEs get more attention from Chinese government, but SOE still constitute the top tier of the hierarchy as far as the government and policymakers are concerned. This dynamic will affect VCs firm that may be attempting to make their guanxi networks more selective, exclusive, and extensive so that they can acquire more accurate information and more resources. Based on these conditions and challenges, VC managers should become more proactive regarding their own guanxi networks and the information that these networks allow them to access. Now more than ever, VC managers must focus on the different segments of guanxi networks that can help them make high-quality and highly efficient investments. To shorten the investment period time, more VCs in China have invested during the mature and late stages, instead of going through the early and growth stages.
For VC firms, the ability to weather institutional uncertainty is associated with proactiveness. In the context of this paper, this means tapping into guanxi networks. VCs that can identify opportunities that exist in particular investment situations will be more successful at entrepreneurship, and those that increase their capabilities will achieve desirable performance levels with demonstrated competence. As such, evaluating VC activities from the perspectives of entrepreneurship and competitive advantage may be a fruitful topic for future empirical and theoretical research.

Although this study is limited in scope, I believe that the purposeful sample employed here is likely to be broadly representative of the views of present VC investors about the utility and potency of guanxi networks. Guanxi remains a convenient, effective, and perhaps necessary way of coping with institutional risks. Culturally, guanxi may shift and change with changes in circumstances and the environment, but the old patterns will still have an influence on the new ones. This suggests that even in the context of globalization, ignoring cultural mores may not be the wisest personal decision or the best business practice. The differences between China and the West suggest that researchers and practitioners need to tease out the common aspects of VC investing across all markets, including transitional economies like China, by pinpointing successful points of transition as well as areas in which previous practices persist.

Overall, this research has aimed to improve the understanding of the structure of China’s transitional economy. In this way, it reflects previous attempts within the literature to apply Western-based theories of social networks and institutional transitions to non-Western environments. The theories that have been examined seem applicable, and indeed, they provide some explanation of VC practices and performance. Still, more
comprehensive research will be necessary if researchers hope to better understand the effects of institutional forces on VC development in transitioning economies like those not only in China but also in Brazil, Russia, and India.
## APPENDIX

### Appendix A – Survey “Code Book”

<table>
<thead>
<tr>
<th>Constructs to Measure</th>
<th>Source of Survey Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potency of Guanxi (POG)</strong></td>
<td>Davies et al., 1995; Gu et al., 2008; Peng and Luo, 2000; Rao et al., 2005; Xin and Pearce, 1996; Yang, 1994</td>
</tr>
<tr>
<td>- We have personal relationships with important people in big state-owned enterprises, big banks, government, or military</td>
<td></td>
</tr>
<tr>
<td>- We are able to obtain valuable and important information through personal relationship in the province or the city government offices</td>
<td></td>
</tr>
<tr>
<td>- We are able to obtain government approvals by knowing the right people</td>
<td></td>
</tr>
<tr>
<td>- We are able to obtain resources from local authorities through a good network of relationships</td>
<td></td>
</tr>
<tr>
<td>- We are able to obtain financing or list stocks with help from social relationships</td>
<td></td>
</tr>
<tr>
<td><strong>Responsive Capability (RC)</strong></td>
<td>Nayyar and Bantel, 1994; Gu et al., 2008</td>
</tr>
<tr>
<td>- We are able to respond properly to market, political and legal law changes</td>
<td>Capability based on speed and variety</td>
</tr>
<tr>
<td>- We are able to sustain advantage during market, political and legal law changes</td>
<td>We are able to respond properly to market changes</td>
</tr>
<tr>
<td>- We are able to sustain advantage during industry changes</td>
<td>We are able to sustain advantage during industry changes</td>
</tr>
<tr>
<td><strong>Environmental Turbulence (ET)</strong></td>
<td>Buganza et al., 2009; Haleblian and Finkelstein, 1993; Liao et al., 2008</td>
</tr>
<tr>
<td>- The change of industry regulation, policy and law is rapid</td>
<td>Competitive Turbulence; Environmental Turbulence; Environmental Discretion; Market Turbulence; Regulatory Turbulence; Technological Turbulence;</td>
</tr>
<tr>
<td>- The change of industry regulation, policy and law is not foreseeable</td>
<td></td>
</tr>
<tr>
<td>- High-Tech project numbers have dramatically increased</td>
<td></td>
</tr>
<tr>
<td>- Our business unit must change its practices frequently</td>
<td></td>
</tr>
<tr>
<td>- The rate at which market, finance and political information are getting obsolete in the VC industry is high</td>
<td></td>
</tr>
<tr>
<td>- Actions of central or local government are not easy to predict</td>
<td></td>
</tr>
<tr>
<td>- The diversity in production technology has dramatically increased</td>
<td></td>
</tr>
<tr>
<td>- The leading foreign firms have introduced their state-of-the-art products into China at the same time as their home market</td>
<td></td>
</tr>
<tr>
<td>- Market rapidity and unpredictability</td>
<td></td>
</tr>
<tr>
<td>- Technological rapidity and unpredictability</td>
<td></td>
</tr>
</tbody>
</table>
- The interpretation of law and regulation is vague
- The enforcement of legal system is weak
- Very risky, one false step can mean our business is undoing
- Very stressful, exacting hostile; very hard to keep afloat
- An environment in which our business initiatives count for little against the tremendous political and legal hindrances

<table>
<thead>
<tr>
<th>Management Skill (MS)</th>
<th>Park and Luo (2001)</th>
</tr>
</thead>
<tbody>
<tr>
<td>We effectively lead team work</td>
<td>Organizational Skill; Managerial Skill</td>
</tr>
<tr>
<td>We have strong social skills and communication skills</td>
<td></td>
</tr>
<tr>
<td>We encourage team work, group decision-making, and internal communications</td>
<td></td>
</tr>
<tr>
<td>We are capable of solving internal and external conflicts</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interlocking Directorates (ID)</th>
<th>Ren et al., 2001; Ren et al., 2004; Ren et al., 2009; Scott, 1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of current directors</td>
<td>Interlocking Directorates</td>
</tr>
<tr>
<td>Total number of director seats</td>
<td></td>
</tr>
<tr>
<td>Total number of multiple directors</td>
<td></td>
</tr>
<tr>
<td>Number of director seats held by multiple directors</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Syndication (SD)</th>
<th>Hochberg et al., 2007; Sorenson &amp; Stuart, 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>The average number of syndicated projects we have in a year</td>
<td>Syndication</td>
</tr>
<tr>
<td>The average number of syndicated funds we have in a year</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Firm Performance (FP)</th>
<th>Brander et al., 2002; Hochberg et al., 2007; Gompers and Lerner, 1998, 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>The amount of investments in the past 5 years</td>
<td>Firm Performance; Investment Performance</td>
</tr>
<tr>
<td>The number of successful IPOs in the past 5 years</td>
<td></td>
</tr>
<tr>
<td>The number of successful M&amp;A transactions in the past 5 years</td>
<td></td>
</tr>
<tr>
<td>The number of portfolio companies that received follow-on funding, including outside-led, in the past 5 years</td>
<td></td>
</tr>
<tr>
<td>The average number of prior-year IPOs underpricing</td>
<td></td>
</tr>
</tbody>
</table>

- Frequency of environmental scanning
- Task environmental turbulence perceived by managers
- Borrowing capability and efficiency
Appendix B – Questionnaire on Venture Capital in China (English)

Questionnaire on Venture Capital in China

For each of the following statements, check the box that best indicates how much you agree or disagree. On a scale from 1 to 6, 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Somewhat Agree, 5 = Agree, 6 = Strongly Agree.

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>We have personal relationships with important people in large state-owned enterprises, large banks, government and/or military</em></td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>We are able to obtain valuable and important information through personal relationship in the provincial/city government offices</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>We are able to obtain government approvals by knowing the right people</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>We are able to obtain resources from local governmental authorities through a good network of relationships</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>We are able to obtain financing assistance and/or list stocks with the helps from social relationships</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>We are able to respond properly to market, political and legal law changes</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>We are able to sustain advantage during fast changes in the market, political, and legal environment</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Our high-tech project numbers have greatly increased</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>China VC industry regulation, policy and law are changing rapidly</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Changes in industry regulation, policy and law are not foreseeable</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Our business unit must change its practices frequently (e.g., semi-annually)</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>The rate at which market, finance and political information are getting obsolete in the China VC industry is high</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Actions of central or local government are not easy to predict</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>We think that interpretation of law and regulation in China is vague</td>
<td>6 5 4 3 2 1</td>
<td></td>
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<tr>
<td>15.</td>
<td>We think that enforcement of the legal system in China is weak</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Our business is very risky</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Our business is very stressful</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Our business initiatives count for little against the tremendous political and legal hindrances</td>
<td>6 5 4 3 2 1</td>
<td></td>
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<tr>
<td>19.</td>
<td>We effectively lead team work</td>
<td>6 5 4 3 2 1</td>
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<tr>
<td>20.</td>
<td>We have strong social skills and communication skills</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>We encourage team work, group decision-making, and internal communications</td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td><em>We are capable of solving internal and external conflicts</em></td>
<td>6 5 4 3 2 1</td>
<td></td>
</tr>
</tbody>
</table>
For each of the following questions, please provide factual answers:

23. **Our total number of current directors is:**

24. Our total number of director seats is:

25. Our total number of multiple directors (e.g., with 2 or more director seats) is:

26. Check one number of director seats held by multiple directors (the number of companies, including VC and non-VC firms, that a multiple director serves): □ 2 □ 3 □ 4 □ 5 or more

27. In all stages (e.g., fund-raising, disbursement, or exit), the average number of syndicated projects we have in a year is:

28. In all stages (e.g., fund-raising, disbursement, or exit), the average number of syndicated funds we have in a year is:

29. The amount of investments in the past 5 years is:

30. The number of successful IPOs in the past 5 years is:

31. The number of successful M&A transactions in the past 5 years is:

32. The number of portfolio companies that received follow-on funding, including outside-led, in the past 5 years is:

33. The average number of prior-year IPOs underpricing is

34. Relations with foreign (e.g., US) VC firm, check one: □ Independent □ Partner □ Subsidiary

35. Number of total employees in our company:

36. Year of our company formed:

37. Amount of funds under management:

38. Total number of investments made to date:

39. Investment stage focus, check one: □ start-up □ growth □ maturity □ exit

40. Industry preferences:

41. Industries specifically avoided to invest:

42. Geographic preferences in terms of the cities and provinces:

43. Investment amount preferred (range): US$ ~ US$

44. Average number of venture proposals received per year:

45. Average number of proposals where due diligence is conducted per year:

46. **Average number of investments per year:**

Please provide the following background information factually:

47. **Your position within your company**

48. **Your level of education**

49. **Your nationality**

50. **Education in the West (no. of years & degree)** &

51. **Years of experience in venture capital business in the West**
### 问卷调查在中国的风险投资

请对以下的每个陈述，选择一个(1 - 6) 最能表达你的同意或不同意的程度. 1 = 强烈不同意, 2 = 不同意, 3 = 有些不同意, 4 = 有些同意, 5 = 同意, 6 = 强烈同意.

<table>
<thead>
<tr>
<th>序号</th>
<th>陈述</th>
<th>强烈不同意</th>
<th>强烈同意</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>我们跟大型国有企业、大银行、政府或军队里的一些重要人物有私人关系</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>我们能从省市政府的私人关系那里了解一些有价值的重要信息</td>
<td></td>
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<tr>
<td>3.</td>
<td>我们有合适的人帮我们通过当地政府的审批</td>
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<tr>
<td>4.</td>
<td>我们能通过良好的社会关系网从当地政府获得所需资源</td>
<td></td>
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<tr>
<td>5.</td>
<td>我们的社会关系有助于我们进行融资、并购、或者上市</td>
<td></td>
<td></td>
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<tr>
<td>6.</td>
<td>我们能对市场、政府和法律政策的变化作出适当的调整</td>
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<tr>
<td>7.</td>
<td>我们能在资本市场,政府和法律政策的变化过程中保持投资优势</td>
<td></td>
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</tr>
<tr>
<td>8.</td>
<td>在过去5年中,我们的风险投资项目中高科技项目的数量有较大增加</td>
<td></td>
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<tr>
<td>9.</td>
<td>我们面临的风险投资行业的规定,政策和法律变动飞快</td>
<td></td>
<td></td>
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<tr>
<td>10.</td>
<td>我们无法预见风险投资行业的规定,政策和法律的变动</td>
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<tr>
<td>11.</td>
<td>我们的投资业务须做经常性的调整和变动(例如: 每半年一次)</td>
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<tr>
<td>12.</td>
<td>我们认为对于风险投资行业,市场、经济和政策信息的时效性非常高</td>
<td></td>
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<tr>
<td>13.</td>
<td>我们认为市场对于中央或地方政府的举动无法预知</td>
<td></td>
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<tr>
<td>14.</td>
<td>我们认为中国针对风险投资市场的法律和规定的诠释比较模糊</td>
<td></td>
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<tr>
<td>15.</td>
<td>我们认为中国的法律政策在风险投资市场的执行较弱</td>
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<tr>
<td>16.</td>
<td>我们的风险投资业务风险很高</td>
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<tr>
<td>17.</td>
<td>我们在风险投资行业的从业人员的压力很大</td>
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<tr>
<td>18.</td>
<td>对于巨大政策和法律上的障碍,我们在进入中国风险投资市场的初期考虑少或准确的不够</td>
<td></td>
<td></td>
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<tr>
<td>19.</td>
<td>我们领导团队的工作有效率</td>
<td></td>
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<tr>
<td>20.</td>
<td>我们有很强的社交和沟通本领</td>
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<tr>
<td>21.</td>
<td>我们鼓励团队工作,集体决策和内部沟通</td>
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<tr>
<td>22.</td>
<td>我们有能力建立内部和外部的矛盾</td>
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<tr>
<td>23.</td>
<td>我们公司目前有总监和(或者)主管,一共有几人</td>
<td></td>
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</tr>
<tr>
<td>24.</td>
<td>我们公司设有总监和(或者)主管的位子,一共有几个</td>
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</tbody>
</table>

请对以下的每一个问题实际回答：
25. 我们公司有兼任其他风险投资公司的总监和/或者主管,一共是几个。

选一个：  □ 2  □ 3  □ 4  □ 5 或5个以上

26. 我们公司这些兼任其他公司的总监和/或者主管的人中,兼任其他公司的位子一共是几个。

27. 在所有投资阶段(融资, 增资, 或者退出阶段),我们公司平均一年与其他风险投资公司联合的投资项目是几个。

28. 在所有投资阶段(融资, 增资, 或者退出阶段),我们公司平均一年与其他风险投资公司联合的投资总额是多少, 人民币￥

29. 我们公司过去5年的投资项目的数量是多少个:

30. 我们公司过去5年顺利上市的首发股(IPO) 有多少:

31. 我们公司过去5年顺利达成的合股/并购的项目有多少:

32. 我们公司过去5年中手里的项目中,有筹集连续/追加资金的一共有多少项目:

33. 我们公司过去所有的首发股(IPO)当中,一共有多少个是抑价发行的:

34. 我们公司与境外风险投资公司的关系,如果有,选一个:  □ 我们公司是境外公司在中国的独资子公司  □ 我们公司是中国本地公司与境外公司的合资公司  □ 我们公司是境外公司在中国的分支

35. 我们公司所有工作人员有多少人:

36. 我们公司哪年开业的:

37. 我们公司管理的总资金是多少, 人民币￥

38. 我们公司至今一共完成多少个风险投资项目:

39. 我们公司投资主要的阶段是,选一个:  □ 初创期  □ 发展期  □ 投资后期  □ 并购/上市

40. 我们公司主要投资的行业是:

41. 我们公司规避的投资行业是:

42. 我们公司投资的优先地区是:

43. 我们公司投资额的范围是: 人民币￥——人民币￥

44. 我们公司平均每年收到的项目计划/提案书有多少份:

45. 在实际投资之前,我们公司平均每年对多少个项目进行投资价值调查分析:

46. 我们公司平均每年的实际投资项目有多少个:

请对以下答卷者的背景资料如实填写:

你在目前风险投资公司的职位:

你的教育程度: 选一个:  □ 学士  □ 硕士  □ 博士  □ 其他

你的国籍是:

你在西方国家接受过的教育(几年):  学位:  

你在西方国家做风险投资的年数是:  年

你在西方国家做风险投资的年数是:  年
REFERENCES


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Wang, L. (2007b). Four essays on venture capital. Unpublished Ph.D., Hong Kong University of Science and Technology (Hong Kong), Hong Kong.


