

**SOCIAL CAPITAL'S DARK SIDE: KNOWLEDGE, RECIPROCITY,  
AND THE LIABILITY OF RELATIONSHIPS**

A Dissertation

by

JAMIE D. COLLINS

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2006

Major Subject: Management

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Approved by:

Chair of Committee,  
Committee Members,

Head of Department,

Michael A. Hitt  
S. Trevis Certo  
R. Duane Ireland  
Dudley L. Poston, Jr.  
R. Duane Ireland

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**ABSTRACT**

Social Capital's Dark Side: Knowledge, Reciprocity, and the  
Liability of Relationships. (December 2006)

Jamie D. Collins, B.S., Missouri State University, Springfield, Missouri;

M.B.A., Texas A&M University

Chair of Advisory Committee: Dr. Michael A. Hitt

Social capital resources for the firm can be conceptualized as those executive-to-executive connections held by a firm's top management team, as well as firm-to-firm relationships that exist fairly independently of particular individuals. This type of resource can compose an important portion of any firm's overall resource portfolio. The potential benefits associated with social capital include enhanced economic exchange opportunities, improved innovation capabilities and increased firm survival rates, among others. This study adds to the literature stream focusing on the positive consequences of social capital by demonstrating the cross-level influence of social capital on the development of reciprocity within a joint venture network. It also highlights the link between social capital resources and the quality of knowledge available to a firm via its joint venture partnerships.

More importantly, though, we specifically investigate the conditions under which a firm's social capital (firm-to-firm relationships or the social capital held by key executives) can contribute to undesirable firm-level behaviors. One often mentioned, yet rarely explored dimension of social capital is the phenomenon frequently called the 'dark side' of social capital. This dark side of social capital is argued to exist whenever

the behavioral expectations accompanying social capital limit contribute to undesirable outcomes for the firm. Several hypotheses are tested in the context of joint ventures among S&P 500 firms.

The likelihood of a firm having legal action taken against it by federal regulatory agencies or other firms is demonstrated herein to be related to the number and strength of social capital relationships. In general this research supports the view that having a large number of weak ties is beneficial for firms. More specifically, we found that in the wake of the passage of the Sarbanes-Oxley Act of 2002, an inverse relationship exists between the likelihood of firms engaging in the undesirable behaviors investigated and the number of Boards of Directors on which the firms' respective executives held seats. Conversely, firms were more likely to engage in these undesirable behaviors whenever the firm-to-firm ties within their network of joint ventures were strongest. Furthermore, executive discretion was highly related to the likelihood of firms engaging in undesirable behaviors.

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## CHAPTER I

### INTRODUCTION

Although numerous benefits are associated with social capital, I specifically investigate the conditions under which a firm's social capital (firm-to-firm relationships or the social capital held by key executives) can be linked to undesirable behaviors for the firm. One often mentioned, yet rarely explored dimension of social capital is the phenomenon frequently called the 'dark side' of social capital. This dark side of social capital is argued to exist whenever the behavioral expectations accompanying social capital limit a firm's strategic options and may eventually lead to undesirable outcomes for the firm. Several hypotheses are tested in the context of joint ventures among Standard & Poor's 500 firms. The likelihood of a joint venture firm having legal action undertaken against it by federal regulatory agencies or other firms are predicted to be curvilinearly related to executive-level and firm-level social capital measures.

A commonly held position in the management literature is that social capital is a potential source of economic opportunities and performance benefits for firms. In fact, a large body of research has demonstrated that relationships provide access to potentially valuable economic opportunities (Burt, 1997, 2001; Ellis, 2002; Palmer & Barber, 2001). Tsai and Ghoshal (1998) found that social capital is positively related to the extent of resource exchange between organizations. Social capital is often thought of in

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terms of connections within and across networks (Burt, 1992, 1997; Gulati, 1995a; Tsai & Ghoshal, 1998). These and other authors have presented a convincing argument that social capital can be a source of firm-level benefits. Nahapiet and Ghoshal (1998) propose that networks of relationships constitute a valuable resource for its owners. This paper addresses the potential for social capital to cease being an asset for the firm and eventually become detrimental to its owners.

In order to possess social capital firms are required to have relationships with other firms and/or executives are required to have relationships with other executives outside his or her firm. While there is lack of consensus on exactly how firm-level social capital is created within networks, there is widespread agreement that networks create the potential for firm-level social capital (Gargiulo & Benassi, 2000). Social capital can provide a firm with a unique ability to gain access to resources from partner firms and economic opportunities. While this notion is both intuitively appealing and widely supported empirically, social capital has been argued by many to have an as-yet unexplored 'dark side' (Borgatti & Foster, 2003; Nahapiet & Ghoshal, 1998). I intend to explore this much alluded to "dark side of social capital." Thus, this study is among the first research efforts to explicitly develop theory and empirically test the expected causal mechanism(s) which lead from social capital resources to undesirable or maladaptive behaviors.

Kostova and Roth (2003) argue that social capital is "the potential value arising from certain psychological states, perceptions, and behavioral expectations that social actors form as a result of both their being part of social structures and the nature of their relationships in these structures" (2003: 301). The benefits of social capital within a

network structure have been demonstrated in numerous organizational settings. Gulati (1995a, 1995b) investigated the role of social networks in the facilitation of new alliance formation and subsequent inter-firm relationships. Examples of social capital benefits include: knowledge transfer, resource exchange and the level of innovation within a firm (Stuart, 2000; Tsai, 2001; Tsai & Ghoshal, 1998). Pennings et al. (1998) demonstrated that firm social capital is directly linked to organizational survival. Furthermore, firm level social capital has been shown to affect organizational advantage (Nahapiet & Ghoshal, 1998; Westphal, 1999).

A central notion in this paper is that social factors play an important role in firm-level decisions, as has been demonstrated in a number of settings (Baker, 1990; Palmer & Barber, 2001). For example, Palmer and Barber (2001) presented a class theory of corporate acquisitions which built extensively on previous work regarding social capital. In addition, numerous authors have focused on the important influence which social capital has on firm outcomes. Among others, authors such as Beckman et al. (2004), Reagans and McEvily (2003), Ahuja (2000a), Podolny and Baron (1997) and Burt (1997, 2001) each have illustrated the importance of inter-firm network connections as direct influences on firm outcomes such as knowledge transfer, intra-firm and inter-firm collaboration, as well as firm performance. This earlier research emphasizes that the social context in which any potential economic exchange is embedded must be considered (Larson, 1992; Uzzi, 1996). Accordingly, my intent is to consider the influence of the social context by expanding on the notion that the behavioral expectations accompanying social capital resources can influence firm-level decisions in such a manner as to eventually cause social capital to become a liability for the firm.

Behavioral expectations include specific norms of behavior regarding how firms and executives interact with each other within the context of a network of relationships. For the purposes of this study, the behavioral expectations related to reciprocity between actors are especially relevant.

Nahapiet and Ghoshal (1998) point out that although two actors may occupy equivalent positions in similar network configurations, they may engage in significantly different actions. This difference in action is based on different personal and emotional attachments to others in the network. Further, Emirbayer and Goodwin (1994) point out that network members with the same network connections may utilize them quite differently. In this dissertation, I argue that yet another perspective may also help account for significant differences in the value of social capital resources. This additional perspective extends existing social capital research by arguing that the behavioral expectations accompanying social capital resources often limit the quality and thoroughness of firm-level decision making, especially when social capital ties are particularly strong. The expectation of reciprocity, which is strongly associated with social capital, is argued to be the key behavioral expectation responsible for sub-optimal firm-level decision making. Moreover, as the number of social capital ties increases, diminishing returns eventually develop in terms of the complementarity of knowledge gained via such connections.

There is little disagreement that all social ties within the same network are not equally valuable. Some researchers have argued that this differential in the value of network connections could be attributed to such factors as differences in the types of information being exchanged (Koka & Prescott, 2002), the number of connections

(Mizruchi, 1996), the density of the network (Sparrowe et al., 2001), or the structural holes created by connections (Burt, 1997; Ahuja, 2000a, 2000b). The results of this differential value of social capital resources can be notable for its owner(s). For example, the performance of entrepreneurial firms which were less successful in establishing relationships within their network was associated with weaker performance compared to firms able to establish strong relationships. Batjargal and Liu (2004) found that relationships between entrepreneurs and venture capitalists have a significant direct effect on the success of their firms in acquiring financial backing. The firms in this study which attracted less venture capital funding were the firms whose founders failed to develop strong ties with venture capitalists. In contrast to these earlier researchers, I focus specifically on the conditions which cause social capital to cease being an asset for its owner(s) and which lead the firm to engage in detrimental behavior. The arguments developed herein focus on sociological (i.e., non-economic) causes and consequences of social capital's dark side.

The aim of this dissertation is to illuminate conditions under which a firm's social capital (its firm-to-firm relationships or the social capital held by key executives) is likely to cease being an asset and become detrimental to the organization. At some point, the cumulative behavioral expectations accompanying social capital are likely to limit the thoroughness and quality of decision making on behalf of the firm's executives. Such expectations may actually lead to undesirable or maladaptive actions by the firm. Examples of undesirable or maladaptive actions by a firm include: conflict between partner firms, strategic alliance dissolution, violating environmental, health and safety rules, engaging in ethically questionable corporate behaviors such as falsifying earnings,

hiding corporate debt, insider trading, front-running trades by mutual fund managers, utilizing contractors who employ child labor in developing countries, bribing government officials, among others. These actions are characterized as undesirable or maladaptive because they are generally considered to lack legitimacy by third party constituents (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Pfeffer & Salancik, 1978).

Furthermore, the number and strength of relationships maintained by the organization are expected to have opposite effects on the level of reciprocity between parties to social capital connections. Both the number of ties and the strength of existing social capital connections are expected to curvilinearly related to the likelihood of maladaptive or dysfunctional firm strategic actions. As the number of ties increases, a greater level of knowledge diversity is expected to exist within the network of social capital relationships, initially decreasing the likelihood of undesirable firm-level actions. However, as the network of relationships becomes overly diverse, knowledge complementarity between partners' knowledge stocks begins to decline and diminishing returns on those relationships set in. Conversely, as the strength of individual social capital ties increases, the quality of information made available via social capital connections is expected to initially increase, leading to a reduced likelihood of undesirable firm behavior. However, diminishing returns are expected to eventually set in as extra high levels of knowledge quality causes firms to rely too heavily on a limited number of knowledge sources. Further, reciprocity expectations are likely to lead to less thorough evaluation of strategic options available to the firm. Multiple authors have suggested that a curvilinear (inverted U-shaped) relationship exists between level of

social capital and firm outcomes (Gulati, 1995a, 1995b; Uzzi, 1997a, 1997b). These earlier studies were almost universally concerned with the consequences of socially-acceptable and/or desirable firm behavior. However, knowledge of the underlying causal mechanism(s) responsible for social capital's dark side is important for expanding our collective understanding of the potential limitations on social capital resources' value to an organization. In turn, this should aid firms desiring to achieve sustainable performance advantages vis-à-vis competitors by enabling them to determine how social capital fits into the firm's optimal mix of resources.

### **Purpose of the Study**

Whereas much existing social capital literature emphasizes the numerous benefits associated with social capital, I specifically investigate the conditions under which social capital can be detrimental to its owner(s). One often mentioned, yet rarely explored dimension of social capital is the phenomenon frequently called the 'dark side' of social capital (Collins & Uhlenbruck, 2004; Gargiulo & Benassi, 1999; Gulati & Westphal, 1999). This dark side of social capital is argued to exist whenever the reciprocity-based behavioral expectations accompanying social capital limit a firm's strategic options and may even lead to maladaptive and/or undesirable behavior (Borgatti & Foster, 2003). I intend to test this assertion by exploring the relationship between the strength and number of executive-level social capital connections, the impact of social capital on the thoroughness of strategic decision making (i.e., the quality and complementarity of knowledge exchanged in firm-to-firm relationships), and subsequent undesirable firm-level actions.



This research relies extensively on existing strategic management literature. In particular, it draws from social capital/network theory literature, the resource-based view of the firm (RBV) and the knowledge-based view (KBV). Theory is developed and tested regarding the potential for social capital to lead to maladaptive or undesirable strategic actions and firm outcomes. This study is unique in that it is designed specifically to investigate the influence of social capital on undesirable firm-level strategic actions and outcomes. The current lack of empirical support for the notion of a dark side to social capital has been due, in large part, to the traditionally positive framing of social capital as a resource. For example, numerous authors (Burt, 1992; Ireland et al., 2002; Tsai, 2001) argue that social capital is important because of the resources to which it provides access. In contrast, this study empirically tests the notion that under certain circumstances social capital can potentially become a liability for the firm.

### **Contributions of the Study**

This study makes contributions to several areas of strategic management research. In the broadest sense, this study enhances our collective understanding of the nature of social capital as well as the potential limitations in this resource's value to an organization. Researchers continue to respond to Putnam's (1995) call to further clarify dimensions and effects of social capital. This study continues in the pursuit of greater understanding of social capital's dimensions as well as its value and limitations. Although much strategic management research is focused on how to achieve and/or maintain positive benefits for the firm and a sustained competitive advantage there are certainly undesirable aspects of organizational life which can affect strategic decision

making and outcomes. Such undesirable behaviors can be harmful to individuals and organizations, undermining the credibility of institutions, and if left unchecked, potentially damaging to the fabric of society as a whole. Therefore, I seek to elucidate the causal mechanisms driving the ‘dark side of social capital.’

Furthermore, literature has largely ignored the fact that inter-firm relationships are influenced by both organization-level and individual-level factors (Marchington & Vincent, 2004). In fact, very little empirical research exists which specifically takes into consideration both organization-level and individual-level influences on firm-level social capital. This study focuses on social capital at both the firm-level of analysis and the executive level.

### **Units and Levels of Analysis**

Due to the existence of relationships across levels (individual-to-individual, firm-to-firm, group-to-group, individual-to-firm, etc.), social capital can be conceptualized as a multi-level construct. For this study I focus on two levels of social capital: executive level and firm level. I do not attempt to explicate the process via which organizations appropriate executives’ social capital and convert it into a firm-level resource or vice versa. Instead, I use separate measures to investigate how social capital at each level of analysis effects firm-level strategic actions and outcomes. At the executive level, this study focuses on executives’ social capital stocks represented by board memberships. At the firm level, this study focuses on firm-to-firm relationships (joint ventures) as well as the number and duration of those relationships as the primary indicators of firm-level social capital.

## **Research Questions**

In order to adequately explore the influence of different dimensions of social capital on undesirable firm-level strategic actions and outcomes, a model is developed to test the relationship between the number of social capital connections as well the strength of those connections and the likelihood of engaging in undesirable firm behavior. The questions addressed by this study are:

1. Is there a relationship between social capital (at executive level) and undesirable firm-level behaviors and outcomes?
2. Do extra high levels of firm-level social capital stocks tend to lead to undesirable behavior than when firms have low levels of social capital?
3. Do reciprocity and knowledge quality influence the likelihood of undesirable behavior?

## **Overview of Research Methods**

The theory and hypotheses developed in this dissertation will be tested by using data from multiple sources. The Securities Data Corporation (SDC) Database on Alliances and Joint Ventures is the primary source for the basic information regarding the joint ventures (JVs) in this study. This database contains information compiled from publicly available sources such as SEC filings and their international counterparts, trade publications, wires, and news sources. This database currently represents one of the most comprehensive sources of information on strategic alliances and joint ventures. Further, Gartner Dataquest is relied for additional JV-specific data for firms in the

information technology (hardware and software), communications, semiconductor and technology consulting industries.

Data pertaining to firm-level undesirable behavior will come from multiple sources. A number of public datasets exist which contain data regarding various types of undesirable firm-level behavior. Public datasets from the Federal Trade Commission (FTC), Securities and Exchange Commission (SEC), Internal Revenue Service (IRS), Occupational Safety and Health Administration (OSHA), and the Environmental Protection Agency (EPA) will be utilized to acquire data related to regulatory sanctions imposed against firms in this sample. Each agency keeps a complete record of administrative actions taken against companies deemed to violate specific regulations. In addition, because the most severe violations of federal regulation often lead to lawsuits being filed in federal courts against alleged violating firms, the Lexis-Nexis legal database will be used to collect information pertaining to this form of sanction. Lexis-Nexis will also be used to collect data regarding lawsuits involving disputes between (former) partner firms. Partner-to-partner lawsuits are considered manifestations of the extent to which partner firms have experienced conflict in their relationships. Each publicly-traded firm in the U.S. is required by the Securities and Exchange Commission to disclose material legal proceedings initiated against the firm in their 10-K filings and/or proxy statements. Thus, these filings will be one of the primary sources of data pertaining to undesirable firm behaviors in this study. The Investor Responsibility Research Center's Directors Database will be the primary source of board membership data. Firm proxy statements also will be utilized to collect supplemental executive-level social capital data.

## **Organization of the Dissertation**

Chapter II reviews relevant literature on the construct of social capital, earlier efforts to operationalize and measure social capital (at both the executive level and the firm level), and the empirical evidence related to the benefits provided by social capital stocks. The first section provides a general overview of social capital theory, as well as highlights the multiple definitions of social capital which exist in the literature. A review is provided of the literature arguing for a connection between top management team members' social capital being a potential resource for their respective firms. Finally, I provide a summary of existing firm-level social capital literature and empirical results.

Chapter III develops theory to explain the 'dark side' of social capital and hypotheses related to the potential for social capital resources to become a liability for its owner(s). More specifically, theory is developed to explain the potentially negative influence of reciprocity expectations which accompany social capital and the influence of different dimensions of knowledge involved in an exchange between partners. The role of status in potentially distorting firm-level decision making, as well as the influence of executive discretion in potentially limiting the value of social capital resources are also considered.

Chapter IV provides an in-depth discussion of the research methods used to test the hypotheses developed in Chapter III. Chapter V explores the results from the empirical analyses. Chapter VI provides a discussion of the results and their implications, limitations, and future avenues for extended this research.

## **CHAPTER II**

### **LITERATURE REVIEW**

This research study investigates the relationships between executive-level social capital, firm-level social capital and firms' likelihood to engage in undesirable behavior. Specifically, I am interested in the relationship between social capital resources and the associated behavioral expectations, the type of knowledge made available via social capital relationships and likelihood of firms engaging in undesirable behavior.

The literature reviewed in this chapter is covered in several sections. First, a general summary of social capital theory and its history are presented. An overview of the wide range of definitions and operationalizations which have been used for this construct is then provided. Although researchers have applied social capital theory in widely-varied contexts, only the most commonly utilized definitions and measures of social capital at the executive level and the firm level are explored. The most commonly sought benefits of social capital resources are highlighted, as are the dimensions of social capital. Then I explain the potential value of social capital resources for firms, drawing insights from the resource-based view (RBV) and the knowledge-based view (KBV).

Social capital literature at the executive level is summarized and board memberships, as an important source of executive social capital, are reviewed. The conceptual link between executive-level social capital and firm-level outcomes is also highlighted. Next, I review social capital literature at the firm level and strategic

alliances (including most notably, joint ventures), which are among the most common forms of firm-level social capital. Due to the importance of executives' connections in establishing some strategic alliances, this form of organization is particularly relevant for investigating potential cross-level issues pertaining to a firm's use of social capital resources. Then I provide a review of the literature regarding the vital role of trust in establishing and maintaining social capital. The chapter concludes with a review of the potential for social capital to hold risks for its owner(s).

### **Social Capital Theory**

The roots of the concept of social capital are well established in the field of sociology (Bourdieu, 1985; Granovetter, 1973). The initial focus of social capital research was often on the effect of family relations, community ties and resources on the development of children and economic opportunities for minorities (Bubolz, 2001; Portes & Sensenbrenner, 1993). The construct has been expanded and used in a wide variety of settings, at both the individual-level of analysis and the firm-level of analysis (Adler & Kwon, 2002). Among the topics related to individual-level social capital which have been examined include: career success (Burt, 1992; Podolny & Baron, 1997), labor market mobility (Burt, 1997; Granovetter, 1973; Lin et al., 1981), executive compensation (Belliveau et al., 1996; Burt, 1997), and employee turnover (Krackhardt & Hanson, 1993). At the firm level, topics studied include: resource exchange and product innovation (Bouty, 2000; Hansen, 1999; Hitt et al., 2000; Tsai & Ghoshal, 1998), organizational dissolution rates (Pennings et al., 1998), new firm start-ups (Portes & Sensenbrenner, 1993; Walker et al., 1997), firm learning (Ahuja, 2000a; Kraatz, 1998),

customer-supplier relations (Baker, 1990; Uzzi, 1997a, 1997b), and firm performance (Baker, 1990; Nahapiet & Ghoshal, 1998).

Due to the ever-expanding amount and foci of social capital research, there are a correspondingly large number of definitions and operationalizations which have been used by prior researchers in this area. In addition, divergent research streams analyzing social capital at the individual level versus the group level has created theoretical and methodological confusion (Leenders & Gabbay, 1999; Lin, 1999). Burt (1997) suggests that whereas human capital is a quality of individuals, social capital is a quality created between people. He also argues that social capital is the contextual complement to human capital (Burt, 1997). Social capital exists in the relationships held by individuals, groups, firms and other actors, and is therefore intangible. Just as physical capital and human capital facilitate productive activity, social capital does as well (Coleman, 1988).

Bourdieu (1985) defines social capital as “the aggregate of the actual and potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (p. 248). According to Bourdieu (1985), social capital has two components: 1) the social relationship between individuals that allows these individuals to claim resources possessed by their associates, and 2) the amount and quality of those resources. Social capital arises from durable obligations arising from feelings of gratitude, respect, and friendship or from the institutionally guaranteed rights derived from membership in a network such as a family, a class, or a school (Coleman, 1988). Significant social capital can be derived from membership in specific networks, particularly those in which such membership is relatively restricted (Nahapiet & Ghoshal, 1998). Further, Coleman



(1988) argues that a high degree of trustworthiness among parties to a relationship is essential for the existence of social capital.

As pointed out by Burt (1992), social capital research often falls into two broad categories: a) “whom you know,” and b) “how you are connected” to others. Research in the former category often views a network as one actor’s access to other actors with specific resources. Research in this tradition generally holds that the greater the volume of resources held by counterparts in a network, the more valuable the connections (Lin et al., 1981; Mizruchi, 1996). Research in the latter category tends to emphasize the structure of social networks as a key factor in the value of connections within the network (Ahuja, 2000b; Burt, 1992).

Further, Lin and colleagues (1981) views social capital as the resources embedded within an individual’s social network and which are accessible through direct and indirect ties. Portes (1998) defines social capital as “the ability of actors to secure benefits by virtue of membership in social networks or social structures” (p. 6). One of the first articles to introduce the concept of social capital to management scholars was written by Coleman (1988). Coleman established that relationships can have inherent value because of the access they provide to resources and opportunities. In a refinement of this view, Kostova and Roth (2003) argue that social capital is “the potential value arising from certain psychological states, perceptions, and behavioral expectations that social actors form as a result of both their being part of social structures and the nature of their relationships in these structures” (Kostova & Roth, 2003: 301).

Moreover, some definitions of social capital are broader than those listed above, in that they include not only relationships, but also include the norms and values

associated with the relationships (Portes & Sensenbrenner, 1993; Putnam, 1995; Tsai & Ghoshal, 1998). What all of these definitions have in common is the position that in order to possess social capital, an actor (individual, group or organization) must have relationships with others, and this relationship is the actual source of value of the social capital (Portes, 1998). In addition, each of the authors cited here also appear to agree that social capital both enhances trust between parties, as well as is enhanced by trust between the parties involved.

### *Benefits of Social Capital*

Social capital has been argued to have three primary benefits for its owner(s) (Adler & Kwon, 2002). First, social capital increases the value of information shared between partners because it provides easy access to information, facilitates the dispersion of information, and improves the quality of information (Coleman, 1988; Lin, 1999). Network members with high levels of social capital generally acquire higher volumes of information from others in the network. As executives interact with others within the firm and outside the firm, they acquire new knowledge as well as insights into how that knowledge is relevant for their firms. This knowledge can be either explicit or tacit. According to Hansen (1999) and Uzzi (1997a), social capital networks provide access to new knowledge and facilitate the transmission of difficult-to-transfer knowledge.

A second benefit associated with social capital resources is the ability to influence important decisions (Burt, 1992, 1997; Coleman, 1988). Due to being linked to multiple other members in a network, actors with higher levels of social capital have

higher levels of influence over decisions within the network. Further, network members with greater influence over decision making are more able to achieve their goals than less well-connected members. In addition to providing greater power over individual decisions, higher levels of social capital are also accompanied by greater social norms, expectations and constraints on behavior. Thus, cohesion among network members is the third benefit associated with social capital. Networks in which strong normative pressures exists are more likely to be characterized as being able to control behavior of members (Coleman, 1988; Granovetter, 1982). The greater social control associated with cohesive networks further facilitates interaction among network members and eases the flow of information among members.

#### *Dimensions of Social Capital*

Relationships built upon repeated interactions between firm representatives and in which mutual trust exists tend to produce social capital for partner firms (Kale et al., 2000). Although Kale and colleagues refer to the relationship developed between partners and its resulting benefits as ‘relational capital’, for all intents and purposes, their arguments parallel the fundamental arguments of social capital theory. The primary distinction between their argument and earlier social capital theory-based arguments is that Kale et al. (2000) focus more explicitly on the inter-personal dynamics and behavioral expectations involved in firm-to-firm collaborations.

One of the most recent trends in social capital research has been the recognition that social capital has both a relational dimension and a structural dimension (Kostova & Roth, 2003; Nahapiet & Ghoshal, 1998; Rowley et al., 2000). The structural dimension

of firm-level social capital is the formal firm-to-firm connection which exists independent of the individuals involved in executing any transaction. The structural dimension of social capital is the underlying source of network “closure” or interconnectedness (McFadyen & Cannella, 2004; Nahapiet & Ghoshal, 1998). These connections must exist in order for a firm to successfully engage in knowledge exchanges (particularly for tacit knowledge) with its partner(s). However, I argue that whether or not the true potential of a social capital resources are realized depends on the nuances of the relational dimension of firm-level social capital. I posit that whether or not the full opportunities created by the social capital connections are ever realized is directly influenced by the level of trust developed between exchange partners. Moreover, I argue that the likelihood of firms engaging in maladaptive or undesirable behavior is influenced by the relational dynamics affiliated with social capital resources. This is due to the fact that network connections cannot have significant social capital benefits independent of the content of such ties (Adler & Kwon, 2002; Podolny & Baron, 1997).

One of the most developed theories related to the structural dimension of social capital is the structural holes theory (Burt 1992, 1997). The theory describes social capital as a function of brokerage opportunities in a given network of relationships. The theory views social capital in terms of the information and control advantages of being the broker in relations between people or groups otherwise disconnected in social structure. According to this view, the manager or entrepreneur who creates a bridge between otherwise disconnected contacts has a say in whose interests are served by the

bridge. Managers with contact networks rich in structural holes know about, are involved in, and exercise control over the more rewarding exchange opportunities.

However, Nahapiet and Ghoshal (1998) point out that although two actors may occupy equivalent positions in similar network configurations, they may engage in significantly different actions. This difference in action is based on different personal and emotional attachments to others in the network. Further, Tsai (2000) points out that while they exist in the same network, some actors are better than others in the network at capturing opportunities. This argument is complementary to Adler and Kwon's (2002) assertion that the value derived from network connections is dependent of the content of such ties. The content of social capital ties is comprised of the knowledge involved in exchanges, as well as the social dynamics between the individuals involved (whether on an individual basis or as representatives of their respective firms). As a result, research related to the structural dimension of social capital needs to be augmented by insights into the relational dimension and factors which influence the relational dimension.

Whenever discussing the relational dimension of social capital and the trust developed between partners, I am implicitly acknowledging the existence and importance of the structural dimension. Without some type of network connection to its partners, the potential to exchange knowledge or other resources would not be discovered. However, social factors are crucial constraints on top executives and firm-level decisions. For example, Portes (1998), Waldinger (1995) and Portes & Sensenbrenner (1993) highlight the importance of factors such as social class and ethnicity in influencing the economic actions taken by individuals. This influence exists both within a firm and in inter-organizational networks. It is only by capturing exchange

opportunities once they have been discovered and engaging in exchange with partner firms, that a firm's full resource acquisition and utilization potential is realized.

The relational dimension of social capital pertains to the nature of the inter-personal dynamics of partner firms' representatives. It is best conceptualized as consisting of the strength of an individual's interpersonal relationships with her or his counterparts to an exchange. Although two firms or business units may have agreed to work together to achieve a common purpose, achieving the desired outcome is not automatic or guaranteed. The implementation of any such agreement is heavily influenced by the interaction between the individuals filling key roles at their respective firms. Although two actors may occupy equivalent positions in similar network configurations, they may engage in significantly different actions (Nahapiet & Ghoshal, 1998). Further, network members with the same network connections may utilize them quite differently (Emirbayer & Goodwin, 1994). Moreover, social forces can at times blunt the economic rationality employed in the development and maintenance of exchange relationships (Larson, 1992). While economic considerations are obviously important in the formation and development of exchange relationships, social factors are important in this process. The less readily transferable the knowledge involved in a transfer, the more likely individuals will need to interact in order to facilitate the knowledge transfer (Bouty, 2000; Inkpen & Dinur, 1998). Therefore, firms attempting to transfer knowledge resources (especially tacit knowledge) must emphasize the development of positive inter-personal dynamics between their representatives.

It is unlikely for all firms to be equally effective at developing the relational dimension of social capital. While competitive reasons (i.e., economic rationale) may

often be the primary motivation in establishing and developing intra-firm and inter-firm relationships, I suggest that they are frequently balanced or muted by how well firms develop the relational dimension of social capital. As previously noted, Larson (1992) argues that while economic rationales for exchange are obviously important in the formation of new network relationships, so too are social factors. This is essentially the long-standing argument that economic transactions are embedded in social contexts (Granovetter, 1973, 1982; Gulati, 1995a). I propose that the exchange of knowledge resources between firms and the value of the knowledge exchanged are influenced by the relational dimension of social capital. The inter-personal relationships between firms' representatives are the mechanisms via which knowledge is exchanged. However, inter-personal relationships are subject to influence by social norms and expectations which in certain circumstances can lead to undesirable behavior. Thus, the influence of these social norms and expectations on the decision-making by executives representing their respective firms is relevant for this study. Moreover, the importance of the relational dimension of social capital will likely be amplified when the firms and their representatives come from different cultural backgrounds. Effectively establishing and maintaining social capital in this circumstance will also be more challenging, thus, potentially inhibiting the exchange of knowledge.

### **Executive-Level Social Capital**

Adler and Kwon (2002) provide a summary of the wide range of attempts to clarify the nature and value of social capital at the individual level of analysis. They distill much of the existing research in this area to conclude that a common theme among

a multitude of definitions of social capital is that the nature of relationships held by individuals varies widely and is predictive of resources made available to the individual. They argue that an actor's social ties create opportunities for potential exchange, which is generally aided by social capital (Adler & Kwon, 2002). Due to being an idiosyncratic, difficult-to-imitate resource, social capital can be highly valuable to its owner(s). Relationships between executives develop as a result of shared experiences and through interpersonal exchanges. Examples of potential sources of executive social capital include sharing such connections as university ties, prior work experiences, church and non-profit ties, living in the same neighborhood, and similar family social status, among others (Coleman, 1988; Knoke, 1999). Executive-level social capital reduces the costs associated with building and maintaining social networks inside and outside the firm. As a result of enhanced trust accompanying social capital, the cost of monitoring and enforcing behavioral expectations reduces (Williamson, 1985). Coleman (1988: 102) argues that "if A does something for B and trusts B to reciprocate in the future, this establishes an expectation in A and an obligation on part of B." Thus, when executives possess high levels of social capital with other executives and important institutional actors outside the organization, there will also tend to be high levels of trust between these actors. This trust increases the ease of communication and cooperation between parties to an exchange. Stated differently, by enhancing trust, social capital among executives increases the ease of cooperation both inside and outside the organization.

Executive-level social capital provides access for exchanging knowledge between individual executives. Social capital enables executives to share information



which, in turn, accelerates knowledge transfer (Bouty, 2000) and facilitates the creation of intellectual capital within an organization (Nahapiet & Ghoshal, 1998). According to Castanias and Helfat (1991, 2001), rent generating resources and organizational abilities emerge only in conjunction with effective top management within the firm.

Furthermore, effective top management does not arise without effective communication networks (both inside and outside the firm) (Castanias & Helfat, 1991). In turn, executive-level social capital can be used to acquire external resources for the firm. Top management team members often have externally-oriented roles that may generate rents for their firms (Ungson & Steers, 1984). The extent to which executives in these externally-oriented roles are successful is highly dependent on the ability of the executives to leverage their social capital resources. Executives who can effectively link their organization(s) to the institutional environment via their social capital resources tend to be more successful than those top managers without extensive social capital. Further, executive social capital is vital for the firm as it provides influence with stakeholders, is a key source of connections to the environment and essential for acquiring information from external sources.

### *Board Memberships*

One of the most visible, and most widely-researched, forms of executive-level social capital involves executives' board of director memberships (Gulati & Westphal, 1999; Mizruchi, 1996). There are a number of mechanisms which are used to align the interests of shareholders and executives, with the board of directors being one of the foremost (Fama, 1980; Walsh & Seward, 1990). Members of boards of directors have a

fiduciary responsibility to serve the financial interests of investors. Boards are generally composed of a mix of inside directors, who are also executives of the firm, and outside directors, who hold no management position inside the firm. Membership on multiple boards of directors provides executives with an important source of social capital which can potentially be utilized by the executive and her or his firm.

Directors are generally expected to fulfill three roles while serving as a board member—providing strategic advice, resource access and oversight of management (Dalton et al., 1998; Johnson et al., 1996). Multiple researchers have argued that a primary role of the board of directors is to monitor the behavior of corporate executives so as to minimize agency costs by aligning the incentives of owners and executives (Fama, 1980; Fama & Jensen, 1983; Jensen & Meckling, 1976). In addition to being primarily responsible for the minimization of agency costs and the alignment of executives' and shareholders' interests, board members often provide the firm with unique access to valuable resources (Hillman et al., 2000; Hillman & Dalziel, 2003; Pfeffer & Salancik, 1978). By providing the firm with access to resources such as legal expertise, cheaper financial capital, government contacts and business relationships, board members potentially enable the firm to realize performance benefits. Further, according to the strategic leadership theory (Hambrick & Mason, 1984; Miller et al., 1998) board members provide the firm with additional cognitive and decision-making capabilities. By being involved in the formulation and implementation of significant strategic decisions by the firm (such as acquisitions, alliance formations, divestitures, etc), board members can improve the quality of decision-making by the firm's executives. This is consistent with the 'service' role discussed by Johnson et al. (1996).

Due to their heterogeneity of skills, experiences and backgrounds, board members can provide the firm with contrasting points of view and enhance the quality of firm decisions.

The influence of executive-to-executive relationships on the effectiveness of boards of directors has been a topic of increasing interest. Each type of director provides the board with important resources and fills critical roles for the firm. Outside directors bring additional resources, beyond those provided by insiders, to firms on whose boards they sit. Further, directors who have close personal or professional relationships with the corporation or its CEO are commonly referred to as “affiliated directors.” The Securities and Exchange Commission defines affiliated directors as those who meet any of the following conditions: 1) employment by the corporation or any of its affiliates within the prior five years, 2) any family relationship by blood or marriage closer than second cousin, 3) affiliation in the last two years with a concern that has had a customer, supplier, banker, or creditor relationship with the corporation, 4) affiliation with an investment banker who has performed services for the corporation within two years or will do so within one year, 5) holding control of corporate stock, and 6) association with a law firm engaged by the corporation (Daily & Dalton, 1994: 1607). A general theme in this area of research has been that firms need to find a balance between independent outsiders, who are more likely to provide greater oversight, versus affiliated directors and insiders, who are more likely to have a thorough understanding of the workings of the firm and the demands of its multiple constituents.

Moreover, the behavioral implications of executives maintaining multiple social capital ties via board memberships are also important considerations. Directors with

numerous ties or strong, fewer ties might be constrained in executing their responsibilities due to social constraints and feelings of reciprocity. As a result, directors with personal or other professional affiliations with top executives at the firm(s) on whose board(s) they sit may be less effective at providing oversight and unbiased advice than those directors without such connections. This is because reciprocity norms accompanying social capital resources may constrain board members' behavior. Thus, the balance of insider directors versus affiliated directors versus outsider directors on a board will likely influence the extent to which the board actively fulfills its multiple roles to the firm (Westphal, 1999; Westphal & Zajac, 1997).

Executives can potentially hold seats on multiple boards of directors at any given time. According to Westphal (1999), social ties between executives holding board memberships increase the involvement of the board in the strategic decision making of the firm. This situation would be seen by social capital theorists as evidence that an executive with multiple board memberships held a high level of social capital (Mizruchi, 1996; Mizruchi & Stearns, 2001). Further, executives with high levels of existing social capital via connections to other executives and firms will be more likely to be asked to assume future board memberships (Zahra & Pearce, 1989; Zajac & Westphal, 1996). Board memberships, in turn, further enhance an executive's stock of social capital resources. While this form of executive social capital has been investigated by numerous researchers, few have explicitly sought to understand the potential for such social capital resources to lead to maladaptive or undesirable behavior.

## **Executive-Level Social Capital and Firm-Level Behavior**

Strategic leadership theory argues that organizations are reflections of top executives in that the experiences, values, specific knowledge, and preferences of top managers are reflected in firm-level decisions (Cyert & March, 1963; Hambrick & Mason, 1984). Cannella and Monroe (1997) provide an overview of early work in this area. Researchers in this area tend to argue that executives can, and frequently do, have a positive impact on the firm's performance. Thus, much prior research on top management teams has sought to identify traits, knowledge, skills, and capabilities of top managers and to understand the determinants of effective strategic leadership (Cannella & Monroe, 1997; Finkelstein & Hambrick, 1996). In general, literature on top management teams (TMTs) has largely focused on the influence that demographic characteristics have on firm behavior and performance. Researchers have relied extensively on variables such as educational background, functional background, age, and tenure as predictor variables in TMT studies. The popularity of this approach also seems to be due in part to the availability of TMT demographic data. While a useful initial approach, it does not actually measure the phenomenon of interest—cognitive processes within the TMT (Miller et al., 1998).

The empirical evidence linking demographic variables to firm performance has thus far been mixed at best. This is one area in which March and Sutton's (1997) caution against using organizational performance as a dependent variable seems to be appropriate. Although some individual studies have seemed to suggest a link between demographic variables and firm performance, it is difficult to assert this conclusion with

much confidence. In part, these inconsistent results may be due to underspecified models which have not accounted for important mediating and/or moderating factors. While, Barsade et al. (2002) found that affective diversity impacts team conflict and decision making, Dalton and co-authors (1998) found no systematic relationship between leadership characteristics and firm performance. Carpenter and colleagues (2001) found that while international assignment experience is predictive of CEO pay, it is not predictive of firm performance. Further, a recent meta-analysis by Certo et al. (2006) found that demographic characteristics such as tenure heterogeneity and functional heterogeneity are predictive of firms' strategic choices, but not of firm performance. Thus, firm strategic may actually be a mediating variable in these earlier studies. Collectively these studies suggest that one or more intervening variables likely impact the relationship between the demographic characteristics and firm performance.

Thus, we know that demographic variables are imperfect proxies for cognitive processes and that no systematic relationships between demographic variables and firm performance have been discovered by existing studies. Therefore, an understanding of the still undiscovered mediating and/or moderating variables is required and, maybe more importantly, researchers should begin to investigating factors which influence cognitive processes for members of the top management team. In fact, some researchers have called for an end to TMT research using demographic variables (Certo et al., 2006). Insofar as they influence cognitive processes of top management team members, social dimensions of inter-executive and inter-firm relationships merit further research. The characteristics and dimensions of social capital are key examples of potential intervening variables which influence the TMT decision making process.

Firm-level decision making frequently involves political coalitions, with top executives as the most influential political actors in the organization (Cyert & March, 1963; March, 1962). According to this perspective, firm behavior is directly influenced by the interests and beliefs of the dominant coalition of executives in the firm. Furthermore, whenever executives' have discretion about how to fulfill their responsibilities to the firm (Finkelstein & Boyd, 1998; Finkelstein & Hambrick, 1990; Hambrick & Finkelstein, 1987), and power over firm-level decisions (Finkelstein, 1992), executive-level social capital is also influential in firm-level strategic actions.

The establishment and maintenance of internal and external communications systems is the primary task of executives. In their roles as boundary spanning agents for their respective firms, executives frequently build communications networks through which information is exchanged inside and outside the organization (Tushman, 1977; Tushman & Scanlan, 1981). Moreover, Finkelstein and Hambrick (1996) classify executives' roles into three categories: 1) external and internal activities, 2) strategy formulation and implementation (including context creation), and 3) managing substance and symbols. Each of these roles involves a combination of economic and socially-constrained actions (Granovetter, 1973, 1985). Thus, their actions are partially guided by social norms and expectations.

Executives routinely engage in acquisition, assimilation and utilization of knowledge from outside their firms. In carrying out their responsibilities to their various stakeholders, executives deal with two general categories of knowledge: 1) explicit knowledge, and 2) tacit knowledge (which by definition is not publicly-available). Because explicit knowledge is easily codifiable, it can be easily transferred between

individuals, often without interpersonal interaction (McFadyen & Cannella, 2004). Publicly-available explicit knowledge is readily accessible to anyone interested in acquiring it.

The existence of firm-level social capital requires firms to have relationships with other firms. Integral to the development of the relationship between organizations is the development of a relationship between the firms' top management team members and other key boundary-spanning representatives. Over time the firm-to-firm relationship becomes institutionalized as more members of the firms become involved in the exchange relationship and as the firms develop trust in each other, which results from repeatedly engaging in exchanges with each other (Gulati, 1995a, 1995b; Kostova & Roth, 2003). During this process firm-level relationships can become institutionalized. As a result of the institutionalization of the exchange relationships between the firms, the inter-personal relationship between their representatives may become less crucial (Larson, 1992). Even if the representatives of each firm exit their organizations, the relationship between the firms can survive due to an established assumption of how each party will behave, i.e., once the connection between them has become institutionalized.

### **Firm-Level Social Capital**

Although early research in this area focused on the social capital of individuals, the notion of social capital is applicable to firms as well as individuals (Ellis, 2002; Florin et al., 2003; Gargiulo & Benassi, 2000; Palmer & Barber, 2001; Pennings et al., 1998; Uzzi, 1997b). Firms routinely interact with numerous other organizations in the conduct of their business activities. Firm-level social capital can be conceptualized as a



firm's relationships with other companies. These relationships can be independent of the firms' representatives (i.e., institutionalized) (Larson, 1992) or they can be explicitly dependent on executives and key employees' relationships with others outside of their own firm. Therefore, social capital is a product of relationships that have developed through long-term interactions and is developed through networks of relationships (both personal and firm-level).

Social capital can be thought of as a combination of firm's relationships and the resources available to the firm as a result of its relationships with other companies. The development and maintenance of social capital requires mutual commitment and cooperation from the individuals/groups involved (Adler & Kwon, 2002; Coleman, 1988; Portes, 1998; Portes & Sensenbrenner, 1993). Developing social capital often requires intentional effort and is accumulated over time and with experience (Dierickx & Cool, 1989; Ireland et al., 2002). Research has shown that social factors, especially social capital, play an important role in firm-level outcomes (Baker, 1990; Hitt et al., 2002; Palmer & Barber, 2001). Although firm-level social capital is an organizational resource, it is built through the relational networks of individuals. For example, social capital between firms develops as representatives of each partner firm interact with one another (Ireland et al., 2002). Resource exchanges between two firms can be influenced by the nature of the non-business connections between each firm's agents (Knoke, 1999). For example, executives at two firms also may be members of the same social organizations, have children enrolled in the same school, be alumni of the same university, attend the same church or volunteer for the same not-for-profit groups.

Social capital increases the probability of success for inter-firm cooperative ventures as a result of the development of trust and a willingness to share resources (Bouty, 2000; Hitt et al., 2000). Walker et al. (1997) demonstrated that social capital is an essential ingredient in network formation and industry growth for biotechnology start-ups. Additionally, firm-level social capital facilitates resource exchange and the level of innovation within a firm (Ahuja, 2000a; Stuart, 2000; Tsai & Ghoshal, 1998).

### *Inter-Firm Partnerships*

Strategic alliances involve any voluntarily initiated agreement between firms in which they cooperate in sharing, exchanging, or jointly-developing resources (Gulati, 1998; Gulati & Singh, 1998; Stuart, 1998). Joint ventures (JVs), which involve mutual equity investment, have become one of the most frequently used forms of strategic alliances (Currall & Inkpen, 2002; Dollinger et al., 1997; Houston & Johnson, 2000). Alliances can be effective vehicles through which knowledge can be acquired more rapidly than via internal development or acquisition of another firm (Hamel et al., 1989; Inkpen, 1996; Inkpen & Dinur, 1998). Multiple researchers have employed a social network perspective in assessing the consequences of strategic alliances (Das & Teng, 2002; Gulati, 1998; Koka & Prescott, 2002).

Strategic alliances are widely viewed as an important firm strategy (Gulati, 1998). Thus, firms utilizing strategic alliances normally have multiple strategic alliances (Parise & Casher, 2003). For example, the top 500 global businesses each have an average of 60 major strategic alliances and multiple non-major alliances (Dyer et al., 2001). This popularity is likely due to the numerous potential benefits associated with

strategic alliances. Strategic alliances enable the participating partners to acquire skills and knowledge from each other (Hitt et al., 2000; Rothaermel & Deeds, 2004). The knowledge acquired can relate to customers preferences, institutional demands, supplier relationships, cultural idiosyncrasies, and more. Further, strategic alliances provide access to resources which can enhance a firm's ability to innovate (Rothaermel & Deeds, 2004; Tsai, 2001) and firm-level performance (Gulati & Gargiulo, 1999; Harrison et al., 2001).

Firms build alliances (including JVs) to access complementary assets held by partner firms. Partners voluntarily pool their resources in an attempt to achieve strategic purposes that are either not possible or too costly to achieve independently (Ireland et al., 2002). In addition, collaborating with prestigious partners may provide endorsement and status enhancement (Podolny, 1994, 2001). Several studies have observed that firm-to-firm collaborations contributed to firm's innovative performance through mutual learning and knowledge acquisition. Hagedoorn and Schakenraad (1994) found that by allying with large firms, start-up firms are able to improve their ability to innovate. Further, Ahuja (2000b) found that engaging in alliances increases the probability of producing radical technological breakthroughs. Similarly, Powell and colleagues (1996) found that partnerships between biotechnology firms and pharmaceutical firms significantly enhanced firm innovation.

Further, investors often respond favorably to alliance formations and seem to respond to the potential of such collaborations to create value (Anand & Khanna, 2000). Earlier research has also shown that inter-firm partnerships promote firm growth (Chung, 1996; Powell et al., 1996) and enhance firm survival (Baum & Oliver, 1991;

Mitchell & Singh, 1996; Singh & Mitchell, 1996). Moreover, JVs prove to be an effective strategy for entering new markets (Inkpen, 1998; Inkpen & Dinur, 1998).

Social capital from inter-firm collaborations is derived from each unique partnership and can serve as a basis for subsequent formation of additional partnerships (Kale et al., 2000). Firms may seek partners with significant social capital to gain access to the network's resources. In addition, greater diversity in terms of with whom firms form partnerships creates more social capital (Baker, 1990). Earlier research has demonstrated that inter-firm collaborative success is directly influenced by the quality of relationships between partners (Glaister & Buckley, 1999; Ireland et al., 2002). Thus, social capital gained via alliances such as joint ventures is a resource that attracts firms seeking access to the resource base of firms' networks. Social capital via alliances, in turn, provides exposure to a wider, more valuable, range of knowledge resources.

### **The Key Role of Trust**

Trust is a willingness to be vulnerable and potentially exposed to opportunistic behavior on behalf of the exchange partner because of a positive expectation about that partner's behavior (Hitt et al., 2000; Kale et al., 2000). When trust exists between firms, the partners do not fear the other partner's actions (McAlister, 1995). Trust is learned and is reinforced through repeated interactions among partners (Powell, 1996). Similarly, Gulati (1995a) argued that familiarity (via repeated interactions) tends to be associated with trust between organizations. Therefore, regular interaction between partners is one of the essential characteristics of trust-based relationships (McEvily et al., 2003).

Research by numerous authors points out the direct benefits of trust, both to executives and to firms. Trust between partners serves as a governance mechanism which promotes voluntary, non-obligating exchanges of resources (Uzzi, 1996). For example, Gulati (1995a, 1995b) found that trust resulting from multiple alliance experiences with partners decreases the likelihood of costly equity-based governance mechanisms. A prominent concern for firms entering alliances and joint ventures is the predictability of their partners' behaviors. Trust is necessary for the parties to make good-faith efforts not to take advantage of the other. Zaheer et al. (1998) indicate that increased trust between exchange partners reduces the level of conflict and negotiation costs between partners. In addition, Gulati and Westphal (1999) found that trust due to social ties promotes alliance formation. Relationships based on mutual trust and interactions between representatives of partner firms tend to produce increased social capital (Kale et al., 2000). Trusting relationships are the basis for managing alliances to maximize their potential value. Social capital increases the probability of strategic alliance success because of the trust and willingness to share resources among partners.

Currall and Inkpen (2002) demonstrate that lower levels of trust at the individual level lead to lower levels of organizational-level trust. Through earlier interactions, partner firms understand each other's know-how, operating routines, and dominant logic. Over time the firm-to-firm relationship becomes institutionalized as more members of the firms become involved in the exchange relationship and as the firms develop trust in each other, which results from repeatedly engaging in exchanges with each other (Gulati, 1995a, 1995b; Kostova & Roth, 2003). Familiarity with partners facilitates the development of mutual understanding and trust which eases communication and

cooperation between partners. In turn, partners with a history of repeated each with one another come to take the relationship for granted, often assuming it to be beneficial without explicitly comparing its benefits to other potential partnerships (Gulati, 1995a, 1995b).

Willingness to share resources may be necessary to ensure that both partners gain from the relationship (Hitt et al., 2000). As exchange partners engage in repeated interaction with each other, their relationships tend to strengthen and the partners become more willing and able to share tacit knowledge with each other. Partners are better able to understand knowledge from each other in long-lasting partnerships, and have more efficient exchange relationships, than those who have not developed long-term relationships (Bouty, 2000; McFadyen & Cannella, 2004). The frequency of interactions between partners is also an important indicator of the resources the partners have invested in their relationship. Greater amounts of time spent interacting also lead to the establishment of behavioral expectations.

Whereas Granovetter (1985) argued that ongoing experience within a network of exchange relationships is likely to be a key source of trust, ongoing interaction is a necessary but insufficient factor in the development of trust when firms are faced with uncertainty. In inter-organizational relationships both parties are potentially exposed to risks (Kollock, 1994). Existing network members are especially exposed to risk due to their lack of knowledge about the potential new exchange partner's capabilities and behavior.

Without exchanges occurring, social capital between firms cannot develop (Bourdieu, 1985). Repeated ties are evidence of partners' efforts to optimize its

relationship-specific assets (Koka & Prescott, 2002). Social capital is created through exchange—and in turn facilitates exchange (Nahapiet & Ghoshal, 1998). The economic exchanges between firms in a network create an accumulated history for the firms involved. The accumulated history of transactions enables firms to develop trust and to predict each others' behavior (Ireland et al., 2002; Gulati, 1995b). This accumulated history is built through frequent interactions which permit actors to know one another, to share information, and to create a common understanding (Tsai & Ghoshal, 1998). The greater the number of previous transactions between exchange partners, the more trust exists between partners, as greater amounts of information are shared (Larson, 1992) and fear of opportunistic behavior decreases (Bradach & Eccles, 1989; Uzzi, 1996).

### **Undesirable Behavior by Partner Firms**

A number of potential problems associated with inter-firm collaborations have been noted in the literature. For example, partnerships can become redundant if they provide access to the same information (Burt, 1992) or complementary capabilities (Gomes-Casseres, 1994). In addition, a given new partnership can create unnecessary duplications (Park & Ungson, 2001). Further, firms participating in joint venture also risk leaking proprietary knowledge to partners or losing control of other important assets (Hamel, 1991; Williamson, 1991). Several researchers have argued that the collaboration process is dynamic, with partnerships being forced to either evolve to meet changing conditions or likely encounter conflict and possible dissolution due to failure to meet expectations (Doz, 1996; Hutt et al., 2000; Jones et al., 1998). Changes to the competitive environment facing a partnership often leads to either a renegotiation of the

terms of the partnership (Kale, & Puranam, 2004; Weber & Camerer, 2003), or to firms modifying their behavior unilaterally in order to maintain an acceptable level of satisfaction with the partnership (Arino & de la Torre; 1998; Ring & Van de Ven, 1994). Such changes lead the affected partner to attempt to regain an acceptable expected outcome from the partnership by readjusting the firm's contributions to the venture and/or the firm's share of the outcome. The more extreme the imbalance, the more drastic the affected partner's actions, and the more likely the relationship will be dissolved (Arino & de la Torre; 1998; Hutt et al., 2000).

The arguments presented herein are an extension of this earlier research in that I argue that the reciprocity expectations and knowledge-related characteristics of social capital cause some firms to engage in undesirable behaviors in response to competitive constraints. This is due to the drastic nature of the responses which likely accompany poor-performing partnerships. Firms that are constrained by high levels of reciprocity will be slow to respond to changes external to the partnership. This causes short-term performance problems and can eventually place the partnership at a competitive disadvantage. Thus, one or more of the partners is more likely to engage in undesirable behavior in an attempt to restore a desired level of outcome for the firm. The more constrained a firm is by reciprocity expectations, the slower it will be to respond to external changes. The slower the response, the more drastic an eventual response will need to be in order to adjust to the change. Thus, firms are expected to become more likely to engage in actions such as behaving opportunistically towards partner firms, violating terms of agreements, and violating federal regulations.



Examples of undesirable or maladaptive actions which are of particular interest include: conflict between partner firms; violating regulatory, environmental, health and safety rules; and engaging in behavior which leads to legal action between partner firms or legal action against the focal firm by a non-partner firm. These actions are considered undesirable or maladaptive because they are generally viewed unfavorably by outsiders (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Pfeffer & Salancik, 1978).

### **Social Capital's Risks**

The idea that social capital is not universally beneficial to its owners is not a new concept. Portes and Sensenbrenner (1993) point out that while social capital is frequently beneficial to ethnic entrepreneurs, the associated social constraints can overwhelm social capital's value in many instances. Since behavioral expectations inevitably accompany social capital resources, it is necessary to consider their influence on both executive-level and firm-level social capital. For example, when social capital ties are particularly strong, they may enhance the volume of information shared, at the expense of slowing down decision making (Hansen, 1999). This suggests that greater amounts of social capital resources (stronger ties and/or more ties) are more expensive to maintain than fewer, weak ties (Granovetter, 1973). Actors can become over-embedded in a network of social capital relationships (Coleman, 1988; Granovetter, 1985; Uzzi, 1997a). When a network of relationships becomes characterized by over-embeddedness, the network members fail to effectively acquire valuable knowledge outside the reach of the network. As a result, they may become complacent (Gargiulo & Bernassi, 1999, 2000) and so committed to existing relationships that they fail to innovate as quickly as

firms who are not as highly embedded in a network (Kern, 1998). Social capital also requires ongoing resources and attention to maintain (Gabbay & Leenders, 1999). Other researchers have found that networks of actors with high levels of social capital can also be plagued by insularity, free-rider problems, and a lack of entrepreneurship (Portes, 1998; Waldinger, 1995). These problems arise because limited interaction with others outside the network limits the diversity of information available to the network and promotes the development of an us-vs.-them mentality within the network (Krackhardt & Stern, 1988). Although numerous problems have been associated with social capital resources, very few studies exist which specifically investigate the potential for social capital resources to lead to undesirable behavior (for a few rare exceptions, see Baker & Faulkner, 1993; Brass et al., 1998; Raab & Milward, 2003). I will specifically explore several theoretical explanations for causal mechanisms underlying the potential for social capital resources to become liabilities in the following chapter.

### **Summary**

A commonly-held perspective in the management literature is that top executives directly influence the actions undertaken by their firms and the outcomes resulting from those actions. Thus, central to this paper is the view that social factors play an important role in firm-level decisions. Executives focus much of their effort on the establishment and maintenance of connections to important stakeholders outside the firm. As a crucial link to the firm's environment, top management team members provide access to knowledge residing outside the firm's boundaries. Executives' social capital is often central to building networks through which information and resources are exchanged and

economic opportunities are discovered. In particular, connections to external actors via board memberships and firm-level strategic alliances are of interest for this study.

Social capital theory provides complementary insights to traditional economics-based perspectives on firm actions and outcomes. This perspective offers an alternative logic to explain the behavior of firms and their senior executives. According to social capital theory, socially-embedded economic actions are facilitated by social norms and expectations. Social capital resources provide their owners with access to valuable knowledge, eases the flow of that knowledge between partners, and generates economic opportunities. In fact, social capital has been demonstrated to be valuable to its owners in numerous contexts. Social capital generates trust, which reduces the fear of partner opportunism and reduces the need for costly monitoring of partners' behavior. Repeated interaction between the social capital counterparts leads to enhanced communication and cooperation.

The aim of this dissertation is to illuminate the potential for social capital to hold negative implications for firm-level behaviors and outcomes. Earlier research has emphasized that the social context in which any potential economic exchange is embedded must be considered. My intent is to consider the influence of the social context by expanding on the notion that the behavioral expectations accompanying social capital resources can influence firm-level decisions in such a manner that these resources become a liability for the firm. Although multiple authors have made reference to social capital's 'dark side,' this concept has yet to be satisfactorily developed in the management literature. Whereas the characteristics and behavioral expectations of social capital are associated with numerous benefits, these characteristics

and behavioral constraints can potentially become detrimental for the owner(s) of social capital. At the extreme, social capital may become a liability rather than an asset, as decision-making processes are distorted and economic rationality becomes increasingly rare. I develop a number of theoretical arguments pertaining to social capital's dark side in Chapter III. Several hypotheses are offered regarding the potential for the characteristics inherent to social capital and the behavioral expectations affiliated with social capital to produce undesirable behavior by top executives and their firms.

The perspective offered in Chapter III extends existing social capital research by arguing that the behavioral expectations accompanying social capital resources often limit the thoroughness and quality of firm-level decision making, especially when social capital ties are particularly strong and/or overly similar in content. The expectation of reciprocity, which is strongly associated with social capital, is argued to be the key behavioral expectation responsible for sub-optimal firm-level decision making. Moreover, as the number of social capital ties increases, diminishing returns eventually develop in terms of the complementarity of knowledge gained via such connections. Further, the relationships between social capital's characteristics, social norms and sanctions, social status, and the nature of knowledge involved in an exchange are explored.

## CHAPTER III

### THEORY AND HYPOTHESIS DEVELOPMENT

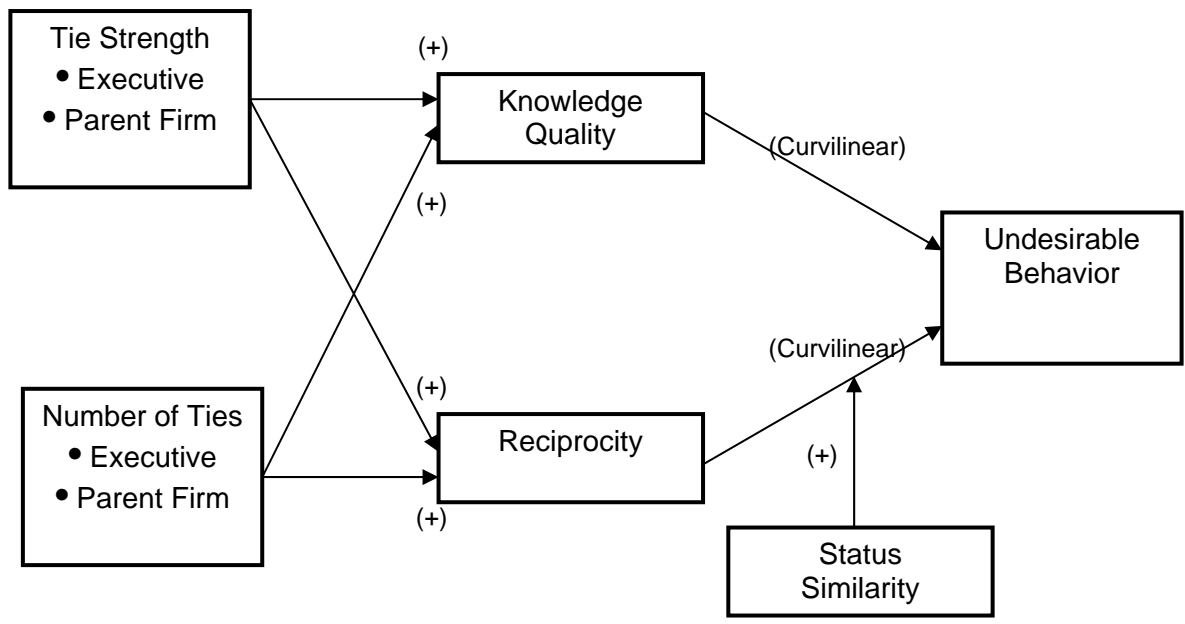
Whereas Chapter II provides a review of several literature streams connected to social capital at the executive level and the firm level, this chapter is intended to establish the potential for social capital to become detrimental for its owner(s). In this chapter I develop several arguments pertaining to the relationships between important factors influencing social capital's potential to lead to undesirable behavior. This discussion covers: social capital's characteristics (including the strength of existing network ties, the number of social capital ties held, and network closure/cohesion), reciprocity, trust, the influence of status and the nature of information being exchanged via social capital connections.

The specific purpose of this chapter is to develop a theoretical framework explaining the mechanisms involved in social capital becoming a liability to firms. The conceptual model is presented in Figure 1. Both firm-level and executive-level social capital are argued to influence the likelihood of firm-level undesirable behavior. In particular, the number of executive ties via board memberships and affiliated relationships as well as the strength of an executive's ties are expected to be curvilinearly related to the likelihood of the firm behaving opportunistically towards its partners, violating terms of agreements and/or violating industry regulations. In this model, reciprocity and knowledge quality are predicted to mediate the relationship

between social capital resources and the likelihood of firm-level undesirable behaviors. In addition, status similarity is expected to be a moderating factor in the model.

**FIGURE 1**  
**Conceptual Model**

Social Capital's Dark Side: Undesirable Firm-Level Behavior



Social capital is argued to become a liability to firms whenever the behavioral expectations and social dynamics related to social capital limit firms' options for strategic actions, distort the quality of executive decision making and ultimately lead to undesirable or maladaptive behavior. Further, a distinction is drawn between existing arguments which allude to social capital's dark side in terms of its diminishing return to holders versus a view that key characteristics of social capital hold the potential to become detrimental for firm-level decision quality and firm actions due to their influence on knowledge quality and reciprocity involved in social capital relationships.

First, I establish the conceptual link between executive-level social capital and firm-level social capital. Then I broadly highlight the potential downside of each social capital benefit discussed in Chapter II. Next I explain how the characteristics of social capital resources can become detrimental and ultimately lead to undesirable firm behavior(s). Several hypotheses are presented pertaining to the relationships between the strength and number of social capital resources at the executive level versus firm level behaviors.

### **Linking Executive-Level and Firm-Level Social Capital**

According to Brass and colleagues (2004), greater emphasis on how leadership effectiveness is influenced by social capital and network constraints is merited. This study responds to this need by focusing on the characteristics of executives' social capital (in the form of board memberships and affiliated ties) influence the quality of executive decision making. Although economic rationales are certainly influential in determining the decisions of executives and the influence exerted by boards of directors, so too are the dynamics of inter-personal relationships involved in any decision (Larson, 1992; Levinthal & Fichman, 1988; Marchington & Vincent, 2004). Thus, behavioral expectations provide the backdrop against which formal governance and oversight occur (Larson, 1992; Seabright et al., 1992). In addition to experience, skills and general knowledge, executives possess varying levels of resources in their personal social capital networks. These resources can be of benefit to firms for which executives are employed and also for those on whose boards of directors an executive is a member, as executives' social capital can speed the acquisition of information residing outside of the firm's

boundaries. The link between executive social capital and firm social capital is expected to lead to a larger number of inter-firm partnerships for firms whose executives have the largest number of connections and strongest connections to other executives.

In their external capacity, executives represent the firm to the outside world and interact with other firms' key executives. Bartel (2001) and Friedman and Podolny (1992) demonstrate that these representatives in boundary-spanning roles are unlikely to be completely systematic and rational in their evaluation of strategic alternatives. Individuals in boundary-spanning roles acquire information from outside their respective organizations, interpret and distribute the information, and influence firm-level decisions that incorporate such information (Au & Fukuda, 2002; Tushman, 1977; Tushman & Scanlan, 1981). Especially when these representatives are empowered with a great deal of autonomy or discretion, such as is the case for members of a firm's top management team, inter-personal dynamics and associated behavioral expectations influence their decision-making on behalf of the firm (Finkelstein & Hambrick, 1990; Perrone et al., 2003).

In situations where interlocking boards of directors exist between firms, there is a significant overlap in the executives holding board memberships for a given set of firms. There is also likely to be a strong relationship between the level of social capital for a firm's executive team members and the firm's level of social capital. Further, the social capital of these executives frequently is utilized to generate social capital for their respective firms (Gulati & Westphal, 1999; Westphal, 1999). Ties between the boards of directors on which executives serve are shaped by the dynamics between the key executives involved. Often collaboration between firms results from executives having



first established inter-personal relationships. Interlocking directorates can aid the development of communication networks between executives and facilitate information sharing among board members and their respective firms.

Moreover, Granovetter (1985) suggested that economic relations are embedded in social contexts. Especially when executives operate with a great deal of autonomy or discretion (Finkelstein, 1992; Finkelstein & Hambrick, 1987; Perrone et al., 2003), they have the ability to exert a great deal of influence over the strategic actions undertaken by a firm. It is also likely that the business experience of executives affect their perceptions and social obligations. By interacting frequently with their counterparts on various Boards, executives develop an understanding of how to interpret knowledge gained from other executives and what limits exist regarding social constraints on their behavior.

In general, the transferability of executive social capital into firm-level social capital is useful in helping firms involved in exchanges achieve their desired outcomes. This has been demonstrated repeatedly in various contexts including: product innovation (Hansen, 1999; Hitt et al., 2000; Tsai & Ghoshal, 1998), firm start-up and growth (Portes & Sensenbrenner, 1993; Walker et al., 1997), customer-supplier relations (Baker, 1990; Uzzi, 1997a), and firm performance (Baker, 1990; Tsai, 2001). By gaining access to trusted sources of knowledge and using social capital as the conduits for that knowledge, firms can benefit from their executives' social capital connections (Gulati, 1995b; Gulati & Gargiulo, 1999). Regardless of various industry and competitive conditions, there should be a strong positive relationship between executive-level social capital resources and firm-level social capital resources.

## Exploring Social Capital's Dark Side

Executives' ability to leverage their social capital resources into opportunities for their respective firms is related to the extent to which they have the ability to effect firm-level decisions. Executive teams with greater control over strategic decisions have more latitude to initiate inter-firm partnerships based on executives' connections. Conversely, top management teams constrained by significant oversight from its board of directors are more limited in their ability to convert personal connections into firm-to-firm relationships. The appropriate balance of power between a top management team and its board of directors is an area of much debate, with researchers generally adhering to one of two important theoretical perspectives on the issue.

Agency theory has been a dominant perspective utilized in researching executives' behavior (Daily et al., 2003). Agency theory seeks to explain executives' behaviors as a functional of opportunism and information asymmetry (Lane et al., 1998). Further, the theory deals with incentive agreements and decision rights among individuals with conflicting interests or priorities (Eisenhardt, 1989). According to this theory, individuals are self-interested, limited by bounded rationality, and are risk-averse. Partial goal conflict among participants exists and information is asymmetric between the principal and the agent. An agency problem arises when the desires or goals of the principal and agent conflict and it is difficult and/or expensive for the principal to effectively monitor the agent (Eisenhardt, 1989; Lane & Cannella, 1999). A common view derived from agency theory is that managers, unless closely monitored, will generally behave in self-serving and opportunistic ways (Lane & Cannella, 1999;

Lane et al., 1998). Fama and Jensen (1983) argue that the board of directors provides oversight and monitoring which minimizes the opportunism of top executives.

More recently researchers have proposed a positive formulation for the influence of executive discretion. For example, Perrone et al. (2003) present a view of trust in boundary spanners explained by their role autonomy. Autonomy reflects the discretion that boundary spanners have in interpreting and enacting their roles. This idea is generally consistent with notion of executive discretion presented by Hambrick and Finkelstein (1987) and Finkelstein (1992). Firm representatives will be trusted to a greater extent by potential exchange partners when they are free from constraints that limit their ability to interpret and execute their boundary-spanning roles. Role autonomy permits boundary-spanning executives to engage in behaviors that allow their counterparts to learn about their underlying motives and intentions. Representatives of firms who have significant latitude to interpret and implement their roles are more likely to influence firm behaviors, all else equal (Finkelstein, 1992; Hambrick & Finkelstein, 1987; Perrone et al., 2003).

As discussed in an earlier chapter, social capital has been argued to have three primary benefits for its owner(s) (Adler & Kwon, 2002; Coleman, 1988; Uzzi, 1996). An interesting void in extant social capital literature pertains to how the same characteristics which lead to social capital creating value for its owner(s) can eventually lead social capital to become detrimental. First, social capital increases the value of information shared between partners because it provides easy access to information, facilitates the transfer and dispersion of information, and improves the quality of information shared between actors. Social capital resources found within networks

provide access to new knowledge and facilitate the transmission of difficult-to-transfer knowledge. As partners repeatedly interact and exchange knowledge, trust develops between the partners, which leads to greater volumes of knowledge subsequently being exchanged.

As is the case with virtually all types of resources, diminishing returns eventually set in as the knowledge made available by social capital connections becomes too heterogeneous. A firm's absorptive capacity is typically defined as the ability of an organization to recognize the value of new information, assimilate it with existing knowledge and apply it to create new capabilities (Cohen & Levinthal, 1990; Lane et al., 2001; Zahra & George, 2002). High absorptive capacity is associated with effectively applying new knowledge towards commercial ends, thereby leading to increased innovation and improved performance (Szulanski, 1996; Tsai, 2001). However, although a firm may possess a high level of absorptive capacity, in order for each additional component of knowledge to be of value, it has to be somewhat related to existing knowledge stocks (Cohen & Levinthal, 1990; Zahra & George, 2002). Overly disparate new knowledge will be difficult to assimilate and combine with a firm's current knowledge resources. This suggests that the benefit garnered from acquiring knowledge is quadratic (curvilinear) rather than linear. Whenever incremental knowledge obtained is too disparate from a firm's existing knowledge stocks, more resources are required to assimilate and combine the incremental knowledge with a firm's existing knowledge base than is warranted from the benefit associated with the incremental knowledge.

A second benefit associated with social capital resources is the ability to influence important decisions (Burt, 1992, 1997; Coleman, 1988). Because of linkage to multiple other members in a network, actors with higher levels of social capital have greater influence over decisions within the network. This influence helps direct the flows of knowledge and resources among network members. By exercising such influence, network members with higher levels of social capital obtain financial and social rewards by influencing the allocation of resources. However, when social capital resources are concentrated in a relatively small number of actors in the network, the quality of information these firms make available to network partners may be reduced as firms with the largest number of network ties and/or strongest network ties seek to exercise control over the network. Although they have network connections, less influential actors can eventually be harmed by the influence exerted by highly-influential network members.

Cohesion among network members is the third benefit associated with social capital. In addition to providing greater power over individual decisions, higher levels of social capital are also accompanied by more prevailing social norms, expectations and constraints on behavior. Networks in which strong normative pressures exist are more likely to be characterized by control of members' behavior (Coleman, 1988; Granovetter, 1982). The greater social control associated with cohesive networks facilitates interaction among network members and eases the flow of information and resources among members. Whenever these higher levels of control are effective at preventing opportunistic behavior by network members, the efficiency of transactions in the network improves. Thus, the overall network initially benefits from increased

control over member actions. This control over network members can become dysfunctional, however, as cohesion prevents the import of external knowledge and fosters over-embeddedness among network members (Coleman, 1988; Uzzi, 1997a, 1997b). In circumstances where social capital networks are especially cohesive, the lack of external knowledge suggests that these networks are likely to be prone to parochialism and path dependence in learning. Thus, the likelihood of executives being engaged in reduced quality decision-making and their respective firms engaging in undesirable actions are increased.

The preceding arguments point to the potential for social capital resources to eventually limit the quality of decisions. This is because social constraints do not exist in a vacuum—they exist in the context of making economic decisions. As behavioral expectations play an increasingly important role in determining actions undertaken, social capital can impede economically-rational decision making. For example, whenever executives become overly embedded in a network of directorships, the firms whose boards they occupy seats are likely to suffer from a lack of diversity of frames of reference about such things as customer needs, availability of new market opportunities, operational best practices, competitive interactions, and resource availability. Moreover, as a firm develops more relationships within a given network of firms, behavioral constraints become increasingly influential and the complementarity of the knowledge exchanged via social capital connections is expected to be curvilinear. Firms are simultaneously exposed to greater risk of opportunistic behavior by partners with weak ties inside the focal network. Thus, the characteristics of social capital which frequently make this resource highly desirable to executives and their firms can ironically lead to

sub-optimal strategic behaviors. When considered individually and collectively these arguments lead to the following hypotheses:

*Hypothesis 1a: A curvilinear (U-shape) relationship exists between the number of social capital connections held by a firm's key executives and the likelihood of firm-level undesirable behaviors.*

*Hypothesis 1b: A curvilinear (U-shape) relationship exists between the strength of social capital connections held by a firm's key executives and the likelihood of firm-level undesirable behaviors.*

*Hypothesis 1c: A curvilinear (U-shape) relationship exists between the number of social capital connections held by a JV parent firm and the likelihood of firm-level undesirable behaviors.*

*Hypothesis 1d: A curvilinear (U-shape) relationship exists between the strength of social capital connections held by a JV parent firm and the likelihood of firm-level undesirable behaviors.*

#### *Embeddedness and Knowledge Quality*

Embeddedness research by Uzzi (1996, 1997a, 1997b) and Granovetter (1973, 1985) and others (Coleman, 1988; Portes & Sensenbrenner, 1993; Waldinger, 1995) comprises a preeminent a position among the research streams related to social capital's dual effects (having potential to be either positive or negative). The actions of firms which are embedded in a network of relationships are influenced by the social nature of their ties to other firms. These firms can have either: a) a large number of connections with other firms or b) strong connections with a smaller number of firms; they generally

do not have a large number of strong connections (Uzzi, 1996, 1999). Thus, a firm's embeddedness (via number and/or strength of connections) is indicative of its level of social capital resources within a network of firms. Embeddedness has been demonstrated to affect factors ranging from cost of capital (Uzzi, 1997a, 1999; Uzzi & Gillespie, 2002) to selection of joint venture partners (Gulati & Gargiulo, 1999) to firm performance (Uzzi, 1997a). The aggregate results for this extant literature demonstrate that the content of social capital connections, the social dynamics involved in an exchange and the structural connectedness within a network of relationships each exert influence over inter-executive and inter-firm exchange. The number of connections held by a given actor within a network and the level of network cohesion determine the degree to which the exchange of high quality, complementary stocks of knowledge is possible. Moreover, the strength of social capital relationships is a key determinant of whether or not this exchange potential is realized. The key mechanism involved in optimizing the value of embedded social capital relationships is the constraint of opportunism provided by behavioral expectations. Embedded social ties, therefore, constrain behavior and reduce the probability of opportunism by affecting actors' motivations, expectations, and decision-making processes (Portes & Sensenbrenner, 1993; Uzzi, 1996).

Interorganizational networks and inter-personal networks serve as repositories of information (Gulati, 1995b) and are generally accompanied by social obligations, as well as the means to enforce them (Portes, 1998). Embeddedness, the extent to which exchanges within a group are shaped by social relations, is often argued to directly influence the amount and quality of information available via a network (Uzzi, 1996,



1997b). Further, embeddedness enhances the value of connections within a network as the formation of additional ties is greatest for actors that are already highly embedded within the network (Gulati & Gargiulo, 1999; Powell et al., 1994). Networks with larger numbers of direct exchange partners tend to possess greater amounts of information and resources (McFadyen & Cannella, 2004). When a firm is highly embedded in a network, it tends to have recurring interactions with other network firms, which in turn creates familiarity and trust between network firms.

Networks of inter-firm relationships are useful for firms in numerous ways. In addition to providing direct economic exchange opportunities, they can serve as a conduit for important resources sought by a firm. Firms often search for exchange partners with resources they lack (Gulati & Nohria, 2000). Firms can benefit from such resource combinations by leveraging the strengths of exchange partners in areas of particular weakness or need for the firm. Related research has concluded that such complementarity allows firms to develop and take advantage of new opportunities (Hitt et al., 2001). Harrison and his colleagues have persuasively argued and found that the complementarity of assets is potentially valuable for strategic alliances as well as for merged firms (Harrison et al., 1991, 2001a). They argue that synergistic benefits from resource combinations are more likely to be generated by complementary rather than similar assets. This theme is repeated in Madhok and Tallman's (1998) argument that complementary resources offer the highest probability of creating value for partners.

Although exchange partners actively seek to establish relationships which provide access to complementary resources, including knowledge, the question of how to ensure that information acquired via a partner is also of high quality is an important

consideration. The number of social capital relationships maintained by a firm and by its key executives is expected to be positively related to the complementarity of knowledge available to the firm. All else equal, as more connections are established with an increasingly large group of other actors, the higher the probability the knowledge exchanged among network members will be complementarity in nature. In addition, the strength of the average network connection is likely to be positively related to the quality of knowledge exchanged between parties to a social capital relationship. Strong social capital ties are the result of repeated interaction and an aggregated level of trust between the parties involved. In such a situation, the parties will generally provide reliable information because of a positive expectation about each partner's behavior (Hitt et al., 2000; Kale, Singh & Perlmutter, 2000). Because partners do not fear the other partner's actions, they will be less inclined to provide partial information or incorrect information. In addition, partners understand each other's know-how, operating routines, and dominant logic as a result of prior interactions. This enables them to effectively transfer reliable, accurate knowledge between partners. Consequently, whereas relationships with a large group of other actors enhance the complementarity of knowledge between partners, stronger ties are likely to be the source of higher quality information, *ceteris paribus*. Thus, the next hypotheses are presented.

*Hypothesis 2a: The number of social capital connections held by a firm and its key executives is positively related to the quality of knowledge exchanged via firm-to-firm partnerships.*

*Hypothesis 2b: The strength of social capital connections held by a firm and its key executives is positively related to the quality of knowledge exchanged via firm-to-firm partnerships.*

Multiple relationships and repeated interaction among network firms have been argued to create greater levels of trust between organizations, as exchange partners know how to interpret each other's behavior and tend to behave less opportunistically. However, building and maintaining multiple relationships requires a commitment of resources. Eventually additional relationships provide diminishing returns. Whereas additional transactions within a given relationship may continue to create value, once diminishing returns set in incremental relationships become detrimental to a given portfolio of social capital resources. Establishing and maintaining more relationships can begin to consume scarce resources which can be better utilized in other activities (McFadyen & Cannella, 2004).

Weak ties and sparse networks have been argued to be especially valuable sources of knowledge (Burt, 1992, 1997; Granovetter, 1973, 1985), suggesting that a trade-off exists between the strength of ties and their value to firms. When social capital ties are particularly strong, they enhance the volume of information shared, although the decision making process is slowed (Hansen, 1999). Thus, certain configurations of social capital resources (stronger ties and/or more ties) are more expensive to maintain than fewer, weak ties (Granovetter, 1973). One of the primary benefits of having high levels of social capital, and thus being highly embedded in a network, is the improved quality of knowledge made available to the focal actor. High levels of social capital provide overlapping sources of knowledge, which enables continuing assessment of the

accuracy and quality of the knowledge (Gulati, 1998; Uzzi, 1996). However, actors can become over-embedded in a network of social capital relationships (Coleman, 1988; Granovetter, 1985, 2005; Uzzi, 1997b). When a network of relationships becomes over-embedded, the network members fail to effectively acquire valuable knowledge outside of the network. Further, firms become increasingly isolated from changes in the external environment (Uzzi, 1996, 1999). As a result, they may become complacent (Gargiulo & Benassi, 2000, 1999) and so committed to existing relationships that they fail to extend their knowledge search beyond the existing network (Kern, 1998; Krackhardt & Stern, 1988). Thus, any enhancements to existing knowledge stocks are only incremental in nature.

This scenario may prevent firms from obtaining new and/or novel information which would enable their adaptation to external changes such as emerging technological innovation (Uzzi, 1997a). Innovation can, therefore, become more incremental rather than radical as social capital relationships become embedded. This leads to low levels of new complementary knowledge being absorbed and combined with existing knowledge stocks. Although the knowledge shared among highly embedded network members is likely reliable and generally trustworthy, its value is reduced due to the lack of external input. Because limited interaction with others outside the network limits the diversity of information available to the network, the ability of actors within the network to effectively respond to new competitive circumstances, resource constraints, technological improvements or other new information in the external environment is also limited.

As the knowledge shared between highly embedded partners becomes less valuable to the partnering firms, the likelihood of undesirable behavior is expected to increase. High quality knowledge which is not complementary to existing knowledge stocks is of little value to firms in a collaborative agreement. Such a lack of new complementary knowledge being shared among partners ultimately is likely to become dysfunctional and lead to undesirable behavior among partners. As partners begin to recognize the diminishing incremental value of knowledge from their partnerships, they are likely to be less concerned with maintaining those relationships and be more concerned with responding to competitive pressures. Thus firms become more likely to modify their behavior unilaterally in order to maintain an acceptable level of satisfaction with the partnership (Arino & de la Torre; 1998; Ring & Van de Ven, 1994). Partners most affected by external changes will eventually attempt to regain an acceptable expected outcome from the partnership by either adjusting the firm's contributions to the partnership and/or the firm's share of the outcome. The more severe the perceived disadvantage resulting from being slow to respond to competitive pressures, the more drastic the affected partner's actions will become (Arino & de la Torre; 1998; Hutt et al., 2000). This is expected to cause some firms to eventually engage in maladaptive or undesirable behavior. Thus, the following hypotheses are presented:

*Hypothesis 2c: The relationship between the number of social capital connections and the likelihood of firm-level undesirable behaviors is mediated by the quality of knowledge available via the firm's joint venture network.*

*Hypothesis 2d: The relationship between the strength of the social capital connections and the likelihood of firm-level undesirable behaviors is mediated by the quality of knowledge available via the firm's joint venture network.*

### *Reciprocity*

Inter-firm exchange and cooperation often has a social dimension as well as an economic dimension (Blau, 1964; Granovetter, 1973). Social theorists often view people's social behavior in terms of exchanges of resources (Blau, 1964). According to Blau (1964), social exchange involves voluntary actions of individuals that are motivated by the returns they are expected to bring and is an ongoing reciprocal process. Social exchanges often do not involve benefits with clear, objective economic value. This means that exchange partners are uncertain whether they will ever receive direct benefits. Reciprocity refers to a rule of behavior in social exchange situations in which parties to a transaction or exchange have social obligations to one another (Gouldner, 1960; Westphal & Zajac, 1997). As Westphal and Zajac (1997) point out, generalized norms of reciprocity exist whenever an obligation exists to reciprocate another's action. Further, research has shown that high levels of group solidarity encourage cooperative behavior among group members. Although originally formulated at the individual level, social exchange theory has also been applied at the organizational and inter-organizational levels (Aiken & Hage, 1968).

Should a party to an exchange violate an existing social norm, others in the network have "a context for generalized reciprocal 'retaliation', defined broadly as the repayment of injurious or otherwise undesired acts" (Westphal & Zajac, 1997: 164).

This often involves collective sanctions, in which all members punish those who violate group norms. Social sanctions involve “the mutual monitoring between the participants and the rapid dissemination of information” about the behavior of any violations by an exchange partner (Hagen & Choe, 1998: 595). Reciprocity exists not just between actors with a history of direct interactions, but also with each actor’s other partners in the network. The norm of reciprocity obligates actors to assist an actor connected indirectly to the focal actor, even if a direct exchange between the two parties is unlikely in the future. Punishment for any norm-breaking behavior can be collectively enforced by all network members or selectively enforced by individual firms in the form of competitive retaliation. Thus, fear of damaging one’s reputation in a social network is often a motivating factor in enforcing norms of behavior. As a result, social sanctions are an effective mechanism to ensure that network members do not violate network norms. As the strength of existing connections increases, so does the level of reciprocity between the partners. This logic, combined with earlier research, leads to the next set of hypotheses.

*Hypothesis 3a: The number of social capital connections held by a firm and its key executives is positively related to the level of reciprocity involved in joint venture networks.*

*Hypothesis 3b: The strength of the social capital connections held by a firm and its key executives is positively related to the level of reciprocity involved in joint venture networks.*

While initially a positive attribute of social capital relationships, whenever too much reciprocity exists between partners, there exists the potential for the decision

making process within a network of relationships to become distorted. While repeated interaction aids in the development of trust between partners, it may also lead them to become overly embedded in established relationships. Forming relationships with new partners outside of the existing network may be difficult to achieve, as this behavior is socially constrained by the expectation of reciprocity. Moreover, firms may be locked into unproductive relationships, therefore being excluded from partnering with other more viable firms (Gulati et al., 2000).

The potential for social capital to ultimately distort the quality of executive decision making has been illustrated by Mizruchi and Stearns (2001). They found that while social capital between executives eases communications, when executives rely too heavily on their social capital connections, they often receive less constructive input and unique information, which generally improve decision quality (Mizruchi & Stearns, 2001). Moreover, executives can become complacent (Gargiulo & Bernassi, 2000, 1999) and so committed to existing relationships that they fail to search beyond existing contacts for new knowledge (Kern, 1998). Thus, when firms possess extremely high levels of social capital resources, the behavioral obligations associated with social capital resources hold the potential to distort the decision-making process and diminish the value of its social capital resources.

It is a commonly-held view in social cognition psychology that “social behavior often operates in an implicit or unconscious fashion” (Greenwald & Banaji, 1995: 4). Social connections can frequently lead to reciprocity in which a person will behave in a manner consistent with expectations without receiving any direct benefit in return (Bubolz, 2001). Institutional theorists have long recognized that social obligations



provide strong pressures on individual behavior. Decisions of executives therefore are also likely to be influenced by the social obligations they feel towards their counterparts.

If social obligations exist between executives, the risk of engaging in opportunistic behavior is lowered significantly, transaction costs are reduced and the efficacy of cooperation is generally enhanced. However, an often overlooked consequence of reciprocity between partners is the potential to lead to the exclusion of economically attractive alternatives. The greater the level of reciprocity which exists between two partner firms, the more each partner's behavior is constrained. While this is likely to be a positive situation initially, firms can become overly constrained in that they fail to acquire knowledge residing beyond their current network of social capital connections.

As a firm's strategic alternatives become increasingly constrained by the behavioral expectations associated with reciprocity, the likelihood of a given firm ultimately engaging in undesirable behavior is expected to increase. When the competitive environment is characterized by very low operating margins, a large number of competitors and/or rapid customer and technological changes, the incentive to engage in questionable behavior may be particularly intense. This is because as firms are excluded from an ever increasing number of economically attractive alternatives due to norms of reciprocity, firms that do not respond to competitive pressures can quickly be negatively impacted by their inability to respond. For example, whenever competing groups of firms work on alternative technology platforms, these groups often compete fiercely with one another. However, as one of the designs begins to establish a dominant presence on the market, firms involved in the losing partnership(s) are expected to begin

actively considering options for maintaining their competitiveness, and to be more likely to engage in undesirable behavior than firms in the winning partnership(s). Although they may be constrained by behavioral constraints within their network of firm-to-firm connections, this competitive pressure is expected to eventually lead to firms from the losing group to taking shortcuts, including potentially violating agreements and regulations in order to maintain a desirable level of competitiveness (Bernard, 2006; Buchan, 2005; Trevino & Brown, 2004). Whereas a firm not constrained by high levels of reciprocity can maintain competitiveness via engaging in economically attractive economic opportunities, reciprocity forces some firms to forgo those opportunities and, in turn, find other avenues for maintaining short-term competitiveness.

*Hypothesis 3c: The relationship between the number of social capital connections and the likelihood of firm-level undesirable behaviors is mediated by the level of reciprocity involved in the joint venture network.*

*Hypothesis 3d: The relationship between the strength of the social capital connections and the likelihood of firm-level undesirable behaviors is mediated by the level of reciprocity involved in the joint venture network.*

### **Manifestations of Social Capital's Dark Side**

Multiple researchers have called for a closer examination of the circumstances under which strategic alliances, including joint ventures, are beneficial or detrimental to firm performance (Gulati, 1998; Hagedoorn & Schakenraad, 1994; Houston & Johnson, 2000). Although the potential benefits associated with collaborative arrangements are numerous, partnerships are frequently plagued with difficulties and poor performance.

Partnerships often fail due to conflicts between the partners (Arino & de la Torre, 1998; Hutt et al., 2000). Various risks existing in collaborations often undermine their economic effects (Hagedoorn & Schakenraad, 1994). Further, firms may lose autonomy as the commitment to relationships grows and the ability of adaptation to external environments may be seriously affected (Powell & Smith-Doerr, 1994; Uzzi, 1997b). The above noted difficulties highlight the need to develop firm capabilities of both establishing and managing partnerships (Dyer et al., 2001; Kale et al., 2000). Whether or not these potential benefits can be fully realized depends, at least in part, on whether or not partner firms engage in undesirable behaviors towards one another and in regards to the external expectations. The extent to which partners fail to behave in a desirable manner towards each other is likely highly correlated with the amount and intensity of partner-to-partner conflict and inter-firm rivalry. In addition, undesirable behavior towards external constituents is likely negatively related to a partnership's ability to gain access to valuable resources needed to meet customer expectations, maintain firm reputation and prestige, and ultimately, for firm survival.

### **Reputation and Status**

Research regarding reputation and firm-level status is especially useful in social capital resources and the consequences associated with them. Podolny (1999) argued that firm reputation and status are complementary concepts with a positive relationship existing between firm reputation and firm status. Podolny (1994, 2001), Benjamin and Podolny (1999) and Podolny and Baron (1997) have demonstrated that firms are more likely to engage in transactions with those organizations that have established good

reputations and enjoy a similar status. The status of an organization, which is determined by the patterns of affiliations and previous exchanges, is argued to be a very strong predictor of which firms engage in exchange with each other. Overall, the firm's status and the status of its exchange partners strongly influence the perception developed by potential exchange partners of the firm's capabilities and product/service quality.

When the capabilities of a potential exchange partner are difficult to discern, organizations instead rely on the status of the potential partner to choose among their alternatives (Benjamin & Podolny, 1999; Podolny, 1994). A firm's status is an indicator of the quality of that firm's products or services. In addition, a firm's status is derived from past demonstrations of quality as well as the status of the firm's exchange partners. Patterns of affiliations and previous exchanges with network firms become the basis on which the potential exchange partner is evaluated (Benjamin & Podolny, 1999; Podolny, 1993).

Reputation, both of individuals and their respective organizations, is crucial to the development of exchange relationships between firms (Larson, 1992). Firm reputation is a manifestation of the level of trust developed by a firm and may be conceptualized as the cumulative effect of a partner's past behaviors (Parkhe, 1998). Firms with better reputations (and thus, have been demonstrated to be trustworthy) tend to be favorable exchange partners (Dollinger et al., 1997; Blois, 1999). This is due to the desire of reputed firms to protect their reputation (Houston & Johnson, 2000). A common sociological perspective is that potential exchange partners reduce uncertainty in market-related behavior by interpreting others' potential future behavior, based on their prior behavior (Podolny, 1994; Stuart, 1998). By providing a shared context for

interactions, social capital alleviates uncertainty among existing partners and facilitates the creation of new linkages (Tsai, 2000).

Prior research has also found that organizations which have more overall collaborative experience are more desirable as partners (Gulati, 1995b; Mitchell & Singh, 1996). Further, inter-firm linkages become stronger as partners learn more about each other and build trust (Dyer & Singh, 1998). Zaheer and colleagues (Zaheer et al., 1998; Zaheer & Venkatraman, 1995) define trust as the expectation of a partner's reliability in regard to obligations, predictability of behavior, and fairness in actions and negotiations. Such trust is based on predictability due to knowing the exchange partner's tendencies and is rooted in repeated interactions between partners. Moreover, trust diminishes the probability of opportunism (Gulati, 1995b; Nahapiet & Ghoshal, 1998). Relationships built upon repeated interactions between firm representatives and in which mutual trust exists tend to produce social capital for partner firms (Kale et al., 2000).

Only after a period of relationship development, in which partners' behaviors are observed do companies develop trust and become able to take the relationship for granted (Larson, 1992). As new network member firms accumulate a history of transactions with existing network member firms, trust builds between these firms. As trust builds between these firms, partner firms' reputations are enhanced and the likelihood that a member firm will benefit from intra-network referrals also increases (Uzzi, 1996). Further, research has shown that information shared among network members is more influential than acquiring information via publicly available means (Haunschild & Beckman, 2002).

A major challenge to establishing inter-firm collaborations is the uncertainty which often exists regarding potential partners' capabilities, knowledge base and product/service quality (Gulati, 1995a; Walker et al., 1997). Multiple authors have argued that firm reputation is an antecedent for inter-firm relationships. Most notable among these is Podolny (Benjamin & Podolny, 1999; Podolny, 1994, 2001; Podolny & Baron, 1997) whose work has demonstrated that firms are more likely to engage in transactions with those organizations that have established good reputations and enjoy a similar status. The status of an organization, which is determined by the patterns of affiliations and previous exchanges, is argued to be a very strong predictor of which firms engage in exchange with each other. Overall, the firm's status and the status of its exchange partners strongly influence the perception developed by potential exchange partners of the firm's capabilities and product/service quality. When the capabilities of a potential exchange partner are difficult to discern, organizations instead rely on the status of the potential partner to choose among their alternatives (Benjamin & Podolny, 1999; Podolny, 1994). A firm's status is an indicator of the quality of that firm's products or services. In addition, a firm's status is derived from past demonstrations of quality as well as the status of the firm's exchange partners. Furthermore, a firm's pattern of behavior in prior network relationships influences their subsequent status in the network. As firms develop a reputation for trustworthy behavior and as they interact with high status firms in the network, a focal firm's status can improve. Thus, patterns of affiliations and previous exchanges with network firms become the basis on which the potential exchange partner is evaluated (Benjamin & Podolny, 1999; Podolny, 1994).

The potential for undesirable behavior within inter-firm relationships is likely moderated by the status similarity of the partners involved. According to Brass and colleagues (1998) the status differences between partners are reflective of the relative power of one actor over the other. This suggests that whenever exchange occurs between firms of unequal status, one party has less to lose (by acting unethically) than the other (Brass et al., 1998). Firms which are connected to relatively few others have little to lose in terms of reputation. Instead, as the size of the focal network increases, and a firm's status correspondingly increases, the importance of reputation and status increase. Firms with better reputation and higher status have more to lose from undesirable behavior, but are less likely to experience a loss of status. Paradoxically, knowledge from those firms with a lower status position may not be trusted and/or believed by others in the network. For example, should a conflict occur between an exchange partner with a high status position and a partner without an equally desirable status, all else equal, others are more likely to believe the partner with a higher status than the partner without such status (Brass et al., 1998; Westphal & Zajac, 1997). This suggests that status similarities further enhance the influence of reciprocity in network relationships. Thus, exchange partners of equal status are unlikely to behave undesirably towards each other, whereas the status differences may lead to conflict between partners and increase the changes of undesirable behavior in a partnership.

Interestingly, because partners tend to be more trusting of others with a higher status position, the greater the status difference between partners, the potential exists for intentional engagement in unethical or undesirable behavior by the higher status partner, as well as misinterpretation of knowledge exchanged between partner firms. Although

social capital and its behavioral expectations serve as alternatives to formalized monitoring mechanisms between partners, enforcement can be especially cumbersome when firms engage in large numbers of relationships. Furthermore, status similarity between partners tends to cause partners to automatically assume that knowledge acquired from a partner is accurate and relevant. As partners become more similar to each other, they each face substantial potential losses of status from undesirable behavior and tend to rely on informal behavioral enforcement mechanisms to the exclusion of formal monitoring mechanisms. In situations where partners are of unequal status position, the lower status partner is likely more exposed to opportunistic behavior. Low status firms engaged in multiple collaborations are likely to be most exposed to undesirable behavior by their high status partners. Thus, status similarity moderates the relationship between reciprocity and firms engaging in undesirable behavior.

*Hypothesis 4: Status similarity moderates the relationship between the level of reciprocity involved a firm's joint venture network and the likelihood of firm-level undesirable behaviors.*



## **CHAPTER IV**

### **METHODOLOGY**

This chapter describes the methodology utilized to test the hypotheses developed in the prior chapter. The sample selection process and data collection procedures are outlined first. Next the operationalization and measurement of independent variables, the dependent variable, moderating and control variables are detailed. Then the statistical methods and analytical approaches used to test the hypotheses in this study are explained.

#### **Sample**

The sample for this study consists of randomly selected Standard & Poor's 500 firms involved in joint ventures between 2000 and 2004. Firms in several industries rely extensively on collaborative relationships with other firms in order to spread the cost of technological development and to speed the rate at which products are commercialized. Data were collected for 300 of the S&P 500 firms. Equality-of-means tests were conducted to assess the representativeness of the randomly selected 300 firms. The t-test for firm sales, firm performance and firm age were 1.20, 1.39, and 1.48 respectively; these tests indicate that the randomly selected firms are not significantly different from the S&P 500 firms not included in the sample. Appendix A contains a listing of the firms included in this sample.

A brief discussion of sample size calculation and power is merited. Sample size is a key concern in assuring sufficient between-unit variability (Klein & Kozlowski, 2000). Inadequate sample size may lead to a lack of sufficient statistical power to detect the relationships of interest in a given study, or cause a misestimate of the magnitude of the relationships (Chueng & Rensvold, 2001; Hitt et al., 2004). Statistical power is the extent to which the potential exists to yield a significant result, given the sample utilized, data quality, true population correlation between the variables and the significance level selected to control for Type I errors (Cohen, 1988, 1992). Thus, power represents the ability to avoid a false finding of no significant relationship among variables in the model. The recommended minimum threshold for statistical power is 0.80 (Cohen, 1988). Assuming that the true population relationship between executive social capital and a firm's likelihood of engaging in undesirable behavior is moderate ( $r = 0.30$ ), the alpha for controlling Type I errors is set at the commonly-accepted 5 percent level ( $p < 0.05$ ), and a power level of 0.90 is selected, the sample size needed to achieve these criteria is less than 100 observations (Boyd et al., 2005; Cohen, 1988). Given that this study includes data for 300 firms and their joint venture partnerships during the 5-year study period, adequate power is achieved in the sample.

The Securities Data Corporation (SDC) Database on Alliances and Joint Ventures is the primary source for the basic information regarding the joint ventures in this study. A joint venture exists whenever at least two parent firms contribute resources to establish a partnership which operates with its own identity, although this identity may be in part derived from parent firms (Harrigan, 1986, 1988; Inkpen, 1998). This database contains information compiled from publicly available sources such as SEC

filings and their international counterparts, trade publications, wires, and news sources. This database currently represents one of the most comprehensive sources of information on strategic alliances and joint ventures. A summary of the number of JV partnerships formed by the firms in this sample during the study period can be found in Appendix B.

Data pertaining to executive-level relationships and firm-level undesirable behavior will come from multiple archival sources. Although the Chief Executive Officer (CEO) generally has the highest degree of discretion within the firm, and presumably influence on firm outcomes, he/she is not the sole representative of his/her firm in this study. Instead, data were collected on the entire top management team (TMT) for each firm. In order to be considered a member of the TMT, an executive had to be identified by the Investor Responsibility Research Center as occupying one or more of the following positions at his/her firm: Chief Executive Officer, President, Chief Financial Officer, Chief Operational Officer, Executive Vice President, Senior Vice President, or Secretary.

A panel of executives, scholars, consultants and attorneys was asked to rank the extent to which each of the actions (legal actions by federal agencies and lawsuits involving partner firms) represent manifestations of undesirable firm-level behavior. The responses from the panelists were analyzed for inter-rater agreement (Bliese, 2000; Chen et al., 2004). According to Simsek and Veiga (2001), electronic (email) surveys can be a more effective and efficient method of collecting data than traditional surveys. They argue that electronic surveys provide a better means of sample control since the survey can be sent directly to a targeted individual. Hitt and colleagues (2001b, 2006) successfully utilized this approach to survey partners at the largest law firms in the

United States. Following Hitt et al.'s (2001b, 2006) approach, potential panelists were identified prior to distributing the survey and asked to participate in the panel via electronic mail. Dillman's (2000) methodology was utilized, as he provides a detailed guide for conducting survey research. He calls his approach a 'tailored design method,' which has its roots in a desire "to solve the immediate problem of how to collect meaningful survey data inexpensively" (Dillman, 2000: ix).

Several prior studies involving firm-to-firm collaborative partnerships have demonstrated the value in collecting a combination of primary and secondary data for this area of research (Inkpen & Beamish, 1997; Kale et al., 2002; Zollo et al., 2002; Zollo & Singh, 2004). Further, a number of public datasets exist which contain archival data regarding various types of undesirable firm-level behavior. Publicly-traded firms are required by the Code of Federal Regulations (17 CFR 229.103) to disclose to the Securities and Exchange Commission any material pending legal proceedings, other than ordinary routine litigation incidental to the business, to which the firm or any of its subsidiaries is a party or of which any of their property is the subject. They must also include similar information as to any such proceedings known to be contemplated by governmental authorities. In regards to pending and/or contemplated governmental action, firms are required to report any proceeding which may result in a fine of one hundred thousand dollars or more.

Public datasets from the Federal Trade Commission (FTC), Securities and Exchange Commission (SEC), Internal Revenue Service (IRS), Occupational Safety and Health Administration (OSHA), and the Environmental Protection Agency (EPA) also were utilized to acquire supplemental data related to regulatory sanctions imposed

against firms in this sample. In addition, because the most severe violations of federal regulations often lead to lawsuits being filed in federal courts against alleged violating firms, the Lexis-Nexis legal database was used to collect information pertaining to this form of sanction. Lexis-Nexis also was used to collect data regarding lawsuits involving disputes between (former) partner firms.

### **Measures**

Whereas this study is focused on one key dependent variable, it is a cross-level study in that it examines the influence of independent variables at both the executive- and firm-level. Therefore, measures used for testing relevant hypotheses are discussed for both executive-level and firm-level social capital. In addition, the moderating and control variables in the model are discussed in the following sections. The approach utilized in this study is consistent with earlier network research (Carrington et al., 2005; Wasserman & Faust, 1994).

#### **Dependent Variable – Undesirable Firm Behavior**

*Undesirable behavior* is the dependent variable of interest in this study and is operationalized in two separate measures. The first is a count variable representing the number of legal actions taken against a joint venture firm by selected federal agencies with regulatory authority over U.S. firms and the number of lawsuits filed and/or adjudicated against the firm by other firms in each year of the study. The second is a count variable representing the number of lawsuits brought against a focal firm by one of

its current or former joint venture partners during the period of this study. For illustration purposes, Appendix C lists a count of legal actions listed in each sample firm's 10-K filings with the SEC during the final year of the study period.

Each of these measures were validated via a panel of executives, scholars and attorneys with business law backgrounds. A total of 14 experts participated in validating the proposed measures of the dependent variable. Appendix D lists the panel members, their respective organizations and primary industry. The panel members were asked to rank the extent to which each of the actions (legal actions by federal agencies, lawsuits involving partner firms, lawsuits by non-partner firms) represent manifestations of undesirable firm-level behavior. Each item was ranked on a 5-point Likert scale.

The responses from the panel of experts were analyzed for inter-rater agreement, which is the degree to which ratings from individuals are interchangeable. The specific measure of inter-rater agreement utilized here is  $r_{wg}$ , which calculated by comparing observed group variance to an expected random variance. A generally accepted cutoff for minimum inter-rater agreement is .70 or higher (Bliese, 2000; Chen et al., 2004). The panel generally assessed litigation between partner firms as a more likely manifestation of undesirable behavior within the context of a JV ( $r_{wg} = .8402$ ) than legal action taken against a firm by a federal regulatory agency or non-partner firm ( $r_{wg} = .7672$ ). Both of these measures exceed the critical .70 level for inter-rater agreement. Each of these measures of the dependent variable were tested separately.

## Independent Variables

*Parent firm social capital* is operationalized with two measures, the first representing number of connections held by parent firms involved in the joint ventures in this study, the second measure captures the strength of those connections. The number of connections is first operationalized as a count of the joint ventures in which the parent firms are involved plus the number of joint ventures of each of the parent firm's partners. The number of joint ventures of the parent firms represents a measure of direct ties, whereas the measure of partners' joint ventures assesses indirect ties. The direct ties are weighted more heavily than the indirect ties to account for their greater influence on a focal firm (Lin, 1999; Vanhaverbeke et al., 2002). A higher number of ties held by a particular firm suggests that firm has a higher degree of embeddedness within the overall network of firms.

Tie strength captures the influence of the duration of each joint venture partnership in which the parent holds an interest. Long-term ties among firms enhance trust and the development of mutual understanding (Gulati, 1995a, 1995b). The longer the tenure of a joint venture, the greater the likelihood that partner firms hold a strong commitment to each particular joint venture. Thus, the resulting measures equal:

- a) number of ties (with direct ties being weighted twice as heavily as indirect ties) and
- b) tie strength, as indicated by the total length of each firm's involvement in joint venture partnerships. For example, a firm which has been involved in two joint ventures with partner firms which are each involved in 1 other joint venture, with each of the joint ventures having a duration of 3 years has a "number of ties" measure equal to 6 (2 direct

ties \* 2 (weight) + 2 indirect ties \* 1 (weight)). This firm has a “tie strength” measure equal to 18 (2 direct ties \* 2 (weight) \* 3 years + 2 indirect ties \* 1 (weight) \* 3 years).

*Executive social capital* is also measured in terms of number of ties as well as the strength of those ties. These data come from a variety of sources. Executive level data for these firms comes from the firms’ proxy statements filed with the SEC. These data were collected in the aggregate from the Investor Responsibility Research Center’s Directors Dataset. To the extent additional data were required, the websites of joint venture firms in this sample were a supplemental source of information. In addition, Dun & Bradstreet’s Million Dollar Database provides this type of biographical data for a large number of executives. The number of ties for a given executive is count variable representing the sum of that executive’s memberships on boards of directors.

The strength of each executive’s social capital ties is a composite count measure of number of years the executive has been on the board of directors of other firms. The appropriateness of this measure is found in the concept of multiplexity. This concept is essentially that the greater the number of dimensions involved in each social capital relationship, the stronger the connection (Granovetter, 1973; Knoke, 1999; Koka & Prescott, 2002).

*Reciprocity* is operationalized using a proxy of the overall level of reciprocity facing each firm, based on the density of the firm’s network connections (Freeman, 1979; Wasserman & Faust, 1994). The density of each firm’s connections is the ratio of its total number of connections to the total possible connections. The total possible connections for each firm will represent the total number of connections which would exist if all firms in the sample were uniformly connected with all other firms via one



direct connection. Thus, the total number of ties is calculated (with multiplex ties counting as only one relationship) and then divided by the total possible connections. Given the difficulty of establishing boundaries for network studies (Carrington et al., 2005), the total number of possible connections will be defined as the number of connections required to connect all parent firms in this study via direct ties. This measure is appropriate given “greater density makes ideas about proper behavior more likely to be encountered repeatedly, discussed and fixed; it also renders deviance from resulting norms harder to hide and, thus, more likely to be punished” (Granovetter, 2005: 34).

*Knowledge quality* is assessed by using archival data to calculate a heterogeneity index (Blau, 1977; Blau et al., 1982; Smith et al., 1994) related to the 4-digit SIC codes of each firm with which a focal firm has an existing JV relationship. A high heterogeneity index score indicates a high degree of diverse potential knowledge which can be exchanged between partner firms. Such diverse sources of knowledge enable firms to take advantage of any complementarities existing between their existing knowledge stocks and the knowledge held by partners (Harrison et al., 2001; Hitt et al., 2000).

### **Moderating Variable**

*Status similarity* is measured by first calculating each partner firm’s centrality in the network, which is a frequently used measure of firm status (Bonacich, 1987; Salk & Brannen, 2000). Then the ratio of the smaller to the larger centrality score of the two firms is computed. The closer this ratio is to 1.0, the more similar the two organizations’

positions in the network (Gulati & Gargiulo, 1999; Podolny, 1994). This score represents the difference in status similarity for any given pairing of firms in the sample.

Centrality indexes measure the degree to which an actor is close to all other actors in a network, either directly, or indirectly. A firm that is maximally close is directly related to all other network members. Mediated relationships are accorded increasingly less weight than direct relationships with each intervening node. Numerous approaches to measuring centrality exist in the literature (see Bonacich, 1987 and Freeman, 1979 for thorough reviews). The primary interest for this study are ‘betweenness centrality,’ a measure of the degree to which an actor mediates flows of information between others and ‘closeness centrality,’ which refers to the extent to which an actor can reach all others in the network in the fewest number of direct and indirect links (direct links being weighted as “closer” than indirect links; Freeman, 1979; Wasserman & Faust, 1994). Whereas, having a large number of direct connections increases the surveillance to which a firm is exposed, indirect connections determine the number of others who may learn about unethical behavior. Thus, high closeness centrality suggests extensive potential loss of reputation by acting unethically (Brass et al., 1998).

The closeness measure of centrality is calculated for each firm in the sample by adding the minimum number of links between the focal firm and all other firms in the sample (Carrington et al., 2005; Freeman, 1979). Direct contact is counted as one link, indirect contact through one other individual as two links, indirect contact through two others as three links, and so forth. This sum of direct and indirect links is then divided

by  $n - 1$ , with  $n$  equal to the number of firms in the sample. Further, these scores are transformed using the formula

$$1 - [(d - 1)/d_{\max}]$$

In the preceding formula,  $d$  equals the shortest path distance and  $d_{\max}$  equals the largest observed value of  $d$ .

The betweenness measure of centrality used in this study is also based on Freeman's (1979) formula (Carrington et al., 2005). This formula sums the probability of a firm falling on the shortest path between any two pairs of firms over all unordered pairs of firms. This value is then divided by  $(n^2 - 3n + 2)/2$ , where  $n$  equals the number of firms in the sample. The measure reflects the extent to which a focal firm mediates the relationship between any two other firms.

### **Control Variables**

I propose that while executive discretion can indeed enhance trust between partners, the combination of trust, which lowers each party's perceived need for oversight, and executive discretion can lead to undesirable behavior at both the executive level and the firm level. Executives empowered with a great deal of discretion can develop trusting relationships with other executives. However, due to the lack of visibility into their activities, they can also engage in actions such as behaving opportunistically towards partner firms, violating terms of agreements, violating federal regulations, etc. Thus, the discretion held by key executives is expected to directly influence the likelihood of undesirable or maladaptive firm-level behavior. Therefore, executive discretion is a key control variable in this study.

*Executive discretion* is assessed by using the widely-cited construct of managerial discretion developed by Hambrick and Finkelstein (1987). In their original formulation of the construct, Hambrick and Finkelstein (1987) argue that discretion is a multi-faceted construct and is influenced by executive-level factors, firm-specific factors and industry factors. Although the notion of managerial discretion has been widely cited, a common approach to measuring the construct is lacking. According to Finkelstein and Boyd (1998), it is preferable to use multiple indicators of executive discretion, rather than to aggregate discretion variables into an index score or treat them as separate variables in a regression model. They argue that this multi-indicator design is superior because it is more efficient and is less biased than the alternatives. They measured managerial discretion using several firm-level, financial-based indicators (such as standardized market growth at the firm level, R&D intensity, advertising intensity, demand instability and capital intensity) (Finkelstein & Boyd, 1998). I followed Hambrick and Abrahamson (1995) and focus on multiple indicators of executive discretion. First, I rely on the following industry-level indicator of executive discretion: a) Industry Sales Growth—measured as the average level of revenue growth for firms in each industry represented in the sample, and b) Industry Capital intensity—measured as the average level of property, plant, and equipment held by firms within each industry. In addition, I followed Finkelstein and Boyd's (1998) approach by also including the following measures of executive discretion: firm sales growth and firm capital intensity.

Several other control variables are also included to eliminate alternative explanations to the hypotheses. These data were collected from multiple sources including SDC's Platinum Database, the IRRC Director's Database, firm websites, and

SEC filings (10-K and proxy statements), among others. *Firm size* is measured by the natural log of the firm's annual revenues. This information was collected from CompuStat. SDC was the primary source for the industry classification data for the firms in this sample. *Firm age* is operationalized as the natural log of the number of years since the initial founding of each firm in the study. SEC filings were the primary source of this information, with each firm's website and SDC Platinum serving as supplemental sources for the information. *Year* is also a control variable in this study. It is expected that firms will report a larger number of legal actions against them following the passage of the Sarbanes-Oxley Act of 2002. This act was the legislative response by the United States Congress to a number of corporate scandals in America. The act requires enhanced reporting practices and higher levels of scrutiny for top executives at publicly-traded firms (Rockness & Rockness, 2005).

### **Analytical Methods**

It makes sense theoretically to hold that the relationship between behavioral constraints and firm-level outcomes of interest in this study would manifest only after some period of relationship development. Therefore all independent and control variables were lagged for one- and two-year periods following the dependent variable. This allows their effects (if any) on the dependent variable enough elapsed time to be manifested. It also helps control for unobserved variables.

Several specific steps were taken to test for non-linear and interactive effects, as well as to enhance confidence in the results of the statistical analyses. Given the use of count (non-negative integer) dependent variables in this study, the use of linear

regression models would be inappropriate. In order to assure the models used are efficient, consistent and unbiased, nonlinear models are utilized to estimate the likelihood of the outcomes of interest. Due to the low likelihood of the count outcomes being independently and identically distributed, and likelihood for overdispersion among the data, a Negative Binomial regression model is used in this study (Greene, 2000). This model predicts the number of times, represented by  $\mu$ , that the predicted event has occurred. The analyses in this study are based on a fixed-effects approach to controlling for omitted variables. Moreover, since the data for this study are panel data, cross-sectional time-series analysis are required to control for heteroskedasticity, autocorrelation among error terms and contemporaneous correlation among residuals (Certo & Semadeni, 2006). It is important to note that in cases where no overdispersion (variance of the count data greater than the mean) exists, a Negative Binomial model reduces to the Poisson regression model. The Negative Binomial structural model is:

$$\mu_i = \exp(a + X_{1i}b_1 + X_{2i}b_2 + \dots + X_{ki}b_k + \varepsilon_i)$$

To test for the hypothesized curvilinear relationships, squared terms for each of the appropriate measures are included in the models. First the normal terms are tested for statistical significant and then the squared terms are added individually to isolate their influence (if any) on the model. Moreover, adding the squared terms one at a time helps control potential multicollinearity among the variables in the model.

Mediating effects were tested using Baron and Kenny's (1986) procedures. The first step in testing mediation effects is to regress the independent variables against the dependent variable. Following this, the independent variables and controls are regressed on the mediating variable. The third step in testing mediation is to regress both the

independent variable and the mediator, along with controls, on the dependent variable. If an independent variable which was previously found to be significantly related to the dependent variable and to the mediating variable becomes non-significant by including the mediating variable in the third step, that independent variable is fully mediated.

Due to likely multicollinearity concerns with interaction terms, the variables used for testing the proposed moderating effect were centered. Then the centered variables were tested by first running a regression including the independent, dependent and proposed moderating variable. Then a new variable (the “interaction term”) was calculated as the product of multiplying the centered independent variable by the centered moderating variable. Next a second model was run which included the interaction term in addition to the independent, dependent and proposed moderating variable. This process can be represented by the following:

$$\text{Step\#1: } Y = a + b_1X + b_2Z$$

$$\text{Step\#2: } Y = a + b_1X + b_2Z + b_3XZ$$

### **Summary**

This chapter has provided a roadmap regarding the methodologies used to test hypotheses presented in Chapter III. Data sources, sampling procedures, and analytical techniques utilized in this study are detailed in prior sections. Thus, data were collected according to the procedures described above. Table 1 provides a summary of the hypotheses, variables, measures, data sources and methods used to test the hypotheses. The following chapter presents the results from the hypothesis testing via Cross-

Sectional Time-Series Negative Binomial regression (for count outcomes) and Cross-Sectional Time-Series regression models (for continuous outcomes) in STATA.



**TABLE 1**  
**Summary of Hypotheses**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H1a</b> Curvilinear relationship exists between the number of social capital connections of key executives and firm-level undesirable behavior.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital	# of board memberships	
	Exec Social Capital <sup>2</sup>	# of board memberships <sup>2</sup>	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Legal actions against firm	Count of legal actions JV lawsuits	Negative Binomial Regression Logistic Regression

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H1b</b> Curvilinear relationship exists between strength of social capital connections of key executives and firm-level undesirable behavior.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital Strength	# of board-years	
	Exec Social Capital Strength <sup>2</sup>	# of board-years <sup>2</sup>	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
Legal actions against firm	Count of legal actions	Negative Binomial Regression	
	JV lawsuits	Logistic Regression	

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H1c</b> Curvilinear relationship exists between the number of social capital connections of JV parent firms and firm-level undesirable behavior.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Firm Social Capital	# of joint ventures (weighted)	
	Firm Social Capital <sup>2</sup>	# of joint ventures (weighted) <sup>2</sup>	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Legal actions against firm	Count of legal actions JV lawsuits	Negative Binomial Regression Logistic Regression

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H1d</b> Curvilinear relationship exists between strength of social capital connections of JV parents firms and firm-level undesirable behavior.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Firm Social Capital Strength	# of JV partner-years	
	Firm Social Capital Strength <sup>2</sup>	# of JV partner-years <sup>2</sup>	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Legal actions against firm	Count of legal actions JV lawsuits	Negative Binomial Regression Logistic Regression

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H2a</b> The number of social capital connections held by a firm and its key executives is positively related to the quality of knowledge available to the firm via its JV network.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital Firm Social Capital	# of board memberships # of joint ventures (weighted)	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Knowledge Quality	Heterogeneity index	Cross-Sectional Time-Series Regression

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H2b</b> The strength of social capital connections held by a firm and its key executives is positively related to quality of knowledge available to the firm via its JV network.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital Strength	# of board-years	
	Firm Social Capital Strength	# of JV partner-years	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
Knowledge Quality	Heterogeneity index	Cross-Sectional Time-Series Regression	

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H2c</b> The relationship between the number of social capital connections and likelihood of firm-level undesirable behavior is mediated by knowledge quality.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital Firm Social Capital	# of board memberships # of joint ventures (weighted)	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Knowledge Quality	Heterogeneity index	
	Legal actions against firm	Count of legal actions JV lawsuits	Negative Binomial Regression Logistic Regression

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H2d</b> The relationship between strength of social capital connections and likelihood of firm-level undesirable behavior is mediated by knowledge quality.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital Strength	# of board-years	
	Firm Social Capital Strength	# of JV partner-years	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Knowledge Quality	Heterogeneity index	
	Legal actions against firm	Count of legal actions JV lawsuits	Negative Binomial Regression Logistic Regression



**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H3a</b> The number of social capital connections held by firm and its key executives is positively related to reciprocity within a firm's network of JV partnerships.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital	# of board memberships	
	Firm Social Capital	# of joint ventures (weighted)	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Firm-Level Reciprocity	Weighted Network Density (# direct ties/# total ties)	Cross-Sectional Time-Series Regression

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H3b</b> The strength of social capital connections held by a firm and its key executives is positively related to reciprocity within a firm's network of JV partnerships.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital Strength	# of board-years	
	Firm Social Capital Strength	# of JV partner-years	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
Firm-Level Reciprocity	Weighted Network Density (# direct ties/# total ties)	Cross-Sectional Time-Series Regression	

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H3c</b> The relationship between the number of social capital connections and likelihood of firm-level undesirable behavior is mediated by reciprocity.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital Firm Social Capital	# of board memberships # of joint ventures (weighted)	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Firm-Level Reciprocity	Weighted Network Density (# direct ties/# total ties)	
	Legal actions against firm	Count of legal actions JV lawsuits	Negative Binomial Regression Logistic Regression

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H3d</b> The relationship between strength of social capital connections and likelihood of firm-level undesirable behavior is mediated by reciprocity.	Firm size	Log sales	
	Firm age	Log of # of yrs since founded	
	Profitability	ROA	
	Exec Social Capital Strength	# of board-years	
	Firm Social Capital Strength	# of JV partner-years	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Firm-Level Reciprocity	Weighted Network Density (# direct ties/# total ties)	
	Legal actions against firm	Count of legal actions	Negative Binomial Regression
		JV lawsuits	Logistic Regression

**TABLE 1**  
**Continued**

<b>Hypothesis</b>	<b>Variable</b>	<b>Measure</b>	<b>Statistical Method</b>
<b>H4</b> Status similarity moderates the relationship between level of reciprocity and likelihood of firm-level undesirable behavior.	Firm size	Log sales	
	Firm age	# of yrs since founded	
	Profitability	ROA	
	Exec Social Capital	# of board memberships	
	Firm Social Capital	# of joint ventures (weighted)	
	Exec Social Capital Strength	# of board-years	
	Firm Social Capital Strength	# of JV partner-years	
	Discretion - industry-level	Industry Sales Growth Industry Capital Intensity	
	Discretion - firm-level	Firm Sales Growth Firm Capital Intensity	
	Firm-Level Reciprocity	Weighted Network Density (# direct ties/# total ties)	
	Status similarity	Network Centrality (closeness & betweenness)	
	Legal actions against firm	Count of legal actions JV lawsuits	Negative Binomial Regression Logistic Regression

## CHAPTER V

### RESULTS

This chapter presents the results of the analysis conducted to test the hypotheses developed in Chapter III. In addition to a table providing summary statistics and a correlation matrix containing the relevant variables used in the analyses, detailed results for each hypothesis are also provided. The main effects relationships are discussed, followed by a discussion of the hypothesized mediating and moderating relationships.

#### Sample 1

The first of two samples collected for this study involves lawsuits between current or former joint venture partners in the sample. This sample was constructed in order to test the likelihood of joint-venture partner firms reaching a point in their relationship at which one or more of the partners find legal remedies the appropriate means for resolving conflicts. The panel of experts evaluating potential manifestations of firm-level undesirable behavior had a high level of agreement ( $r_{wg} = .8402$ ) with the notion that lawsuits between partner firms were likely indicators that undesirable behavior by a partner had led to such a lawsuit.

Lexis-Nexis was used to collect data relating to legal proceedings involving any firm in the sample and one or more of its current (former) joint venture partners. Interestingly, very few incidences of legal action between joint venture partners in the

sample were identified. Out of a total 1,394 firm-joint venture combinations in the study, only 9 lawsuits were identified in Lexis-Nexis. Therefore, obtaining meaningful statistical results from this sample was somewhat challenging. Several iterations of models were run using Poisson, Negative Binomial and Logistic regression. None of the models having joint venture lawsuits as a dependent variable produced any significant results. Furthermore, statisticians have argued that logistic regression to analyze datasets with rare events (e.g., the ratio of 0s to 1s particularly high) will likely provide biased results (Gelman et al., 1998; King & Zeng, 2001). King and Zeng developed a modified logistic regression algorithm to account for event rarity. A software add-on for Stata was downloaded and utilized in a further attempt to determine if meaningful analysis could be conducted with this dataset (King & Zeng, 1999; Tomz et al., 1999). The results of several iterations using this modified algorithm repeatedly suggested that firm profitability and sales growth were statistically significant and positively related to the likelihood of joint venture partners filing suit against one another ( $p < .01$  for both variables). None of the other variables were significant in these models. These results indicate that successful firms (profitable firms and fast-growing firms) are more likely to have lawsuits filed against them. Thus, their relative success at increasing sales and/or profitability may ironically make them more exposed to legal actions. Given the small number of observed lawsuits in this sample, the results generated via this modified approach are not reported in detail. The remainder of this chapter will focus on the results from Sample 2.

## Sample 2

The second sample data set constructed for this study consists of all material legal actions taken against a firm in each year of the study. The panel of experts participating in this research had a fairly consistent view that any legal action taken against a firm and reported in the firm's SEC filings likely represented a manifestation of undesirable behavior by the firm ( $r_{wg} = .7672$ ). Publicly-traded firms are required by the Securities & Exchange Commission to disclose all material legal proceedings to which they are a party, as well as all known likely actions by federal regulatory agencies. It is important to note that the data collected for this sample involve only actions taken against the firm, not actions initiated by the firm. Furthermore, there was a lack of consistency among the panel assessing this study's measures regarding how to interpret legal actions taken by individuals against a firm. Several panel members suggested that large publicly-traded firms are more exposed to potentially frivolous legal actions by individuals than smaller firms and/or private firms which have less public visibility. Therefore, legal actions initiated by individuals against firms in the sample were excluded from the study.

The analysis reported herein was conducted at firm-year level, with a total sample size of 1,405, after aggregating relevant data and accounting for missing observations. The total number of observations at the firm-year-legal action level of analysis was 5,689. This includes data for years 2000 through 2004 for the 300 randomly S&P 500 firms. There were a total of 1,394 firm-joint venture observations



during this period. Out of the 300 sample firms, 261 of the firms entered into new joint venture partnerships during the study period. Further, I collected data for 35,567 observations at the executive-firm-year level of analysis. The descriptive statistics and correlation matrix for variables in this sample are reported in Tables 2 and 3, respectively.

The overdispersion of the dependent variable, count of legal actions against the firm, is notable as this variable's mean is 3.23, and its variance is 23.32. This confirms the necessity of utilizing Negative Binomial Regression analysis for models containing this dependent variable. A zero-inflated analysis method was not required, as zeros in the model were the same (i.e., all firms in each year of the study had the same exposure to potential legal action). Tests for multicollinearity indicated that no variable used for direct effect or mediation effects hypothesis testing had a Variance Inflation Factor (VIF) higher than 2.80, which is below generally accepted limits for the VIF. The average VIF for these variables was 1.82. However, one of the measures of status similarity utilized for testing moderation in Hypothesis 4 had high multicollinearity with other variables. This measure of status similarity is based upon the 'closeness' network centrality measure and had a VIF of 9.71. Therefore, this variable was not used in any of the models reported below. The status similarity measure derived from the 'betweenness' network centrality measure was used instead.

**TABLE 2**  
**Descriptive Statistics**

	<b>Mean</b>	<b>Standard Deviation</b>
1. Legal Action Against Firm	3.23	4.83
2. Year (Sarbanes-Oxley Act)	0.30	0.46
3. Firm Performance	0.03	0.62
4. Firm Age	3.99	0.89
5. Firm Sales Growth	0.49	6.70
6. Firm Capital Intensity	8.21	1.37
7. Industry Sales Growth	0.02	0.06
8. Industry Capital Intensity	6.25	1.57
9. TMT Board Count	1.26	0.41
10. TMT Board Years	2.20	1.41
11. Firm Social Capital Ties	1.67	1.88
12. Firm Social Capital Strength	1.42	1.70
13. Reciprocity	0.15	0.26
14. Knowledge Quality	0.64	0.18
15. Status Similarity	0.33	0.58

The results of the hypothesis testing are reported in Tables 4, 5, 6, and 7. All regression models utilized fixed effects to control for potential omitted variables. First the direct effects models are presented in Table 4, with the count of legal actions against the firm being the dependent variable. Then Table 5 reports the results of the hypothesized relationships between social capital and knowledge quality. Table 6 presents the results of the tests involving social capital's relationship to reciprocity. The tests for mediation are presented in Table 7. The tests for the proposed moderating influence of status similarity are reported in Table 8. Table 9 details a simple comparison of the influence of executives' social capital during the pre-SOX Act period versus the post-SOX Act period.

**TABLE 3**  
**Correlation Matrix**

	1	2	3	4	5	6	7	8	9							
1. Legal Action Against Firm	1.00															
2. Year (SOX Act)	0.11	*	1.00													
3. Firm Performance	-0.03		-0.01	1.00												
4. Firm Age	0.03		0.06	*	0.06	*	1.00									
5. Firm Sales Growth	0.01		-0.04	*	0.01		-0.04	*	1.00							
6. Firm Capital Intensity	0.26	*	0.17	*	0.05	*	0.33	*	-0.01	1.00						
7. Industry Sales Growth	-0.05		-0.05		0.04		-0.05	*	0.00	0.01	1.00					
8. Industry Capital Intensity	0.18	*	0.10	*	0.00		0.29	*	0.00	0.42	*	-0.01	1.00			
9. TMT Board Count	-0.04		-0.10	*	0.03		0.07	*	0.02	0.19	*	0.04	0.02	1.00		
10. TMT Board Years	-0.05		0.21	*	0.01		-0.01		0.02	0.18	*	0.02	0.01	0.31	*	
11. Firm Social Capital Ties	0.14	*	0.02		0.03		0.20	*	0.04	0.41	*	0.01	0.17	*	0.13	*
12. Firm Social Capital Strength	0.12	*	0.21	*	0.03		0.22	*	0.02	0.39	*	-0.01	0.21	*	0.11	*
13. Reciprocity	0.03		0.11	*	0.01		0.16	*	0.02	0.09	*	-0.02	0.09	*	0.10	*

	10	11	12	13	14	15					
10. TMT Board Years	1.00										
11. Firm Social Capital Ties	0.00	1.00									
12. Firm Social Capital Strength	0.00	0.49	*	1.00							
13. Reciprocity	0.00	0.40		0.65	*	1.00					
14. Knowledge Quality	-0.10	*	0.43	*	0.48	*	0.01	1.00			
15. Status Similarity	0.02		0.53	*	0.41	*	-0.20	*	0.30	*	1.00

Notes: N=1405; \*  $p < .05$

**TABLE 4**  
**Main Effects Regression Models**  
(Cross-Sectional Time-Series Negative Binomial Regression)

Dependent Variable = Legal Action Against Firm	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
Year (Sarbanes-Oxley Act)	1.296	***	1.222	***	1.222	***	1.223	***	1.225	***	1.223	***
Firm Performance	0.930		0.968	†	0.969	†	0.968	†	0.968	†	0.968	†
Firm Age	1.882	**	1.622	*	1.626	*	1.624	*	1.371		1.618	*
Firm Sales Growth	1.021		1.013		1.013		1.013		1.011		1.013	
Firm Capital Intensity	1.399	***	1.063		1.060		1.064		1.118		1.063	
Industry Sales Growth	0.146		0.725		0.725		0.726		0.796		0.724	
Industry Capital Intensity	1.092	***	0.743	***	0.746	***	0.741	***	0.709	***	0.744	***
TMT Board Count			0.912		1.133		0.902		0.918		0.913	
TMT Board-Years			1.044		1.040		1.006		1.047		1.044	
Firm Social Capital Ties			0.606	***	0.607	***	0.603	***	2.097	*	0.606	***
Firm Social Capital Strength			1.328	***	1.327	***	1.331	***	1.364	***	1.339	**
TMT Board Count <sup>2</sup>					0.918							
TMT Board-Years <sup>2</sup>							1.009					
Firm Social Capital Ties <sup>2</sup>									0.797	***		
Firm Social Capital Strength <sup>2</sup>											0.999	
Wald chi <sup>2</sup>	107.18	***	110.81	***	110.81	***	111.06	***	138.61	***	110.80	***

Notes: N=1405; † p< .10; \* p< .05; \*\* p< .01; \*\*\* p< .001

**TABLE 5**  
**Knowledge Quality Regression Models**  
 (Cross-Sectional Time-Series Regression)

<b>Dependent Variable = Knowledge Quality</b>	<b>Model 7a</b>		<b>Model 7b</b>		<b>Model 7c</b>	
Year (Sarbanes-Oxley Act)	0.521	***	0.027		0.047	
Firm Performance	-0.290		-0.246	**	-0.129	
Firm Age	-0.051		-0.341	*	-0.446	**
Firm Sales Growth	-0.004		0.170	***	0.056	
Firm Capital Intensity	0.343	***	0.094	†	0.055	
Industry Sales Growth	-0.362		0.045		-0.054	
Industry Capital Intensity	0.140	*	0.000		0.022	
TMT Board Count	0.483	***			0.316	***
TMT Board-Years	0.285	***			0.194	***
Firm Social Capital Ties			1.615	***	1.153	***
Firm Social Capital Strength			0.425	***	0.369	***
Wald chi <sup>2</sup>	102.10	***	162.08	***	217.15	***

Notes: N=1654; † p< .10; \* p< .05; \*\* p< .01; \*\*\* p< .001

**TABLE 6**  
**Reciprocity Regression Models**  
 (Cross-Sectional Time-Series Regression)

<b>Dependent Variable = Reciprocity</b>	<b>Model 8a</b>		<b>Model 8b</b>		<b>Model 8c</b>	
Year (Sarbanes-Oxley Act)	0.399	***	0.002		0.022	
Firm Performance	0.000		0.001		-0.004	
Firm Age	0.431	**	-0.196		-0.284	
Firm Sales Growth	-0.030		-0.071	†	0.057	
Firm Capital Intensity	0.214	*	0.037		0.036	
Industry Sales Growth	-0.480		-0.108		-0.022	
Industry Capital Intensity	0.152	*	0.028		0.018	
TMT Board Count	0.482	***			0.360	***
TMT Board-Years	0.151	**			0.107	**
Firm Social Capital Ties			1.128	***	1.609	***
Firm Social Capital Strength			0.501	***	0.578	***
Wald chi <sup>2</sup>	151.02	***	281.97	***	383.42	***

Notes: N=1654; † p< .10; \* p< .05; \*\* p< .01; \*\*\* p< .001

**TABLE 7**  
**Mediation Models**

(Cross-Sectional Time-Series Negative Binomial Regression)

<b>Dependent Variable = Legal Action Against Firm</b>	<b>Model 9a</b>		<b>Model 9b</b>		<b>Model 9c</b>		<b>Model 10a</b>		<b>Model 10b</b>		<b>Model 10c</b>	
Year (Sarbanes-Oxley Act)	1.447	***	1.264	**	1.198	**	1.350	***	1.269	***	1.225	***
Firm Performance	0.765		0.798		0.787		0.967	†	0.968		0.968	†
Firm Age	1.265		1.400		1.140		1.438		1.369		1.639	*
Firm Sales Growth	1.009		1.023		1.018		1.007		1.014		1.011	
Firm Capital Intensity	1.143		1.138		1.211	*	1.047		1.042		1.065	
Industry Sales Growth	1.089		0.867		0.851		0.840		0.651		0.742	
Industry Capital Intensity	0.752	**	0.746	**	0.645	***	0.785	**	0.773	**	0.735	***
TMT Board Count	0.968				0.930		0.933				0.893	
TMT Board-Years			1.025		1.086				1.019		1.050	
Firm Social Capital Ties	0.286	***			0.138	***	0.727	**			0.583	***
Firm Social Capital Strength			1.230	**	1.408	***			1.203	**	1.276	**
Knowledge Quality	1.772	***	0.780		1.322	**						
Reciprocity							0.835		1.072		0.945	
Wald chi <sup>2</sup>	97.74	***	90.55	***	121.74	***	102.05	***	105.56	***	113.85	***

Notes: N=1405; † p< .10; \* p< .05; \*\* p< .01; \*\*\* p< .001

**TABLE 8**  
**Moderation Models**

(Cross-Sectional Time-Series Negative Binomial Regression)

<b>Dependent Variable = Legal Action Against Firm</b>	<b>Model 11a</b>		<b>Model 11b</b>	
Year (Sarbanes-Oxley Act)	1.155	*	1.133	†
Firm Performance	1.169		1.205	
Firm Age	1.441		1.476	
Firm Sales Growth	0.998		0.997	
Firm Capital Intensity	1.179	*	1.183	*
Industry Sales Growth	1.925	***	1.797	**
Industry Capital Intensity	0.611	***	0.656	***
TMT Board Count	1.377	*	1.426	*
TMT Board-Years	0.846	**	0.835	**
Firm Social Capital Ties	0.351	***	0.365	***
Firm Social Capital Strength	1.400	***	1.442	***
Reciprocity	3.268	**	1.968	
Status Similarity	0.529	*	0.488	**
ReciprocityXStatus Similarity			0.106	*
Wald chi <sup>2</sup>	122.36	***	127.32	***

**TABLE 9**  
**Sarbanes-Oxley Effect - Pre-SOX Act versus Post-SOX Act**  
 (Cross-Sectional Time-Series Negative Binomial Regression)

<b>Dependent Variable = Legal Action Against Firm</b>	<b>Model 12a (Post-SOX Act)</b>		<b>Model 12b (Pre-SOX Act)</b>	
Firm Performance	1.002		0.955	†
Firm Age	0.864		0.904	
Firm Sales Growth	0.945		0.985	
Firm Capital Intensity	1.430	***	1.328	*
Industry Sales Growth	0.371		0.196	
Industry Capital Intensity	1.069		1.113	*
TMT Board Count	0.692	*	0.809	
TMT Board-Years	1.023		1.032	
Wald chi <sup>2</sup>	49.09	***	32.68	***
	<i>n</i> =562		<i>n</i> =843	



The results of the statistical analysis to evaluate my hypotheses are generally mixed. Each of the hypotheses developed in Chapter III is restated below. Then an overview of the results relating to each hypothesis is presented. A detailed discussion of these results and their implications follows in the next chapter. Whenever regression models included a count variable for an outcome (i.e., count of legal actions against the firm), the reported coefficients are odds ratios. Odds ratios of greater than 1 indicate that firms with higher scores on the focal independent variable have greater odds of having material legal action undertaken against them. Conversely, odds ratios of less than one indicate a negative relationship between the focal independent variable and the outcome variable.

### **Control Variables**

Model 1 presents the control variables utilized in this study. As expected, the control for year (pre-Sarbanes-Oxley Act versus post-Sarbanes-Oxley Act) is highly statistically significant ( $p < .001$ ). Firms in this study were significantly more likely to report material legal proceedings undertaken against them after the passage of Sarbanes-Oxley in 2002 than they were prior to this legislation taking force. Firm performance is not related to the likelihood of material legal actions being taken against the firm in the control model. Firm age is positively related to the count of legal actions against the focal firm ( $p < .01$ ). The sales growth of a firm's industry is not a statistically significant predictor in the controls-only model. Furthermore, capital intensity was used as a

control for executive discretion in this model and is statistically significant at the firm level ( $p < .001$ ) as well as at the industry level ( $p < .001$ ).

### **Hypothesis 1**

The results of the tests for linear and curvilinear relationships between social capital's dimensions and the likelihood of firm-level undesirable behavior are reported in Table 4. The coefficients reported in these models are odds ratios.

*Hypothesis 1a: A curvilinear (U-shape) relationship exists between the number of social capital connections held by a firm's key executives and the likelihood of firm-level undesirable behaviors.*

As indicated in Model 2 by an odds ratio of less than 1.0, a negative relationship seems to exist between the number of social capital relationships held by a firm's key executives (TMT Board Count) and the likelihood of material legal actions against the executives' firm. The coefficient was not statistically significant. Moreover, as shown in Model 3, adding the squared term does not result in support for the hypothesized curvilinear relationship. Thus, H1a failed to receive support. Subsequent test of the influence of executive level social capital was conducted on a pre- versus post-SOX Act basis. The results are in Table 10 and are discussed in detail in the next chapter.

*Hypothesis 1b: A curvilinear (U-shape) relationship exists between the strength of social capital connections held by a firm's key executives and the likelihood of firm-level undesirable behaviors.*

**TABLE 10**  
**Summary of Results**

<b>Hypothesis</b>	<b>Result</b>
<b>H1a</b> Curvilinear relationship exists between the number of social capital connections of key executives and firm-level undesirable behavior.	Not Supported as stated; see pre- versus post-SOX Act analysis
<b>H1b</b> Curvilinear relationship exists between strength of social capital connections of key executives and firm-level undesirable behavior.	Not Supported
<b>H1c</b> Curvilinear relationship exists between the number of social capital connections of JV parent firms and firm-level undesirable behavior.	Opposite direction (inverted U shape)
<b>H1d</b> Curvilinear relationship exists between strength of social capital connections of JV parents firms and firm-level undesirable behavior.	Positive Relationship, no curvilinearity
<b>H2a</b> The number of social capital connections held by a firm and its key executives is positively related to the quality of knowledge available to the firm via its JV network.	Supported
<b>H2b</b> The strength of social capital connections held by a firm and its key executives is positively related to quality of knowledge available to the firm via its JV network.	Supported
<b>H2c</b> The relationship between the number of social capital connections and likelihood of firm-level undesirable behavior is mediated by knowledge quality.	Partial Support
<b>H2d</b> The relationship between strength of social capital connections and likelihood of firm-level undesirable behavior is mediated by knowledge quality.	Partial Support
<b>H3a</b> The number of social capital connections held by firm and its key executives is positively related to reciprocity within a firm's network of JV partnerships.	Supported
<b>H3b</b> The strength of social capital connections held by a firm and its key executives is positively related to reciprocity within a firm's network of JV partnerships.	Supported
<b>H3c</b> The relationship between the number of social capital connections and likelihood of firm-level undesirable behavior is mediated by reciprocity.	Not Supported initially; Supported after interaction effect considered
<b>H3d</b> The relationship between strength of social capital connections and likelihood of firm-level undesirable behavior is mediated by reciprocity.	Not Supported initially; Supported after interaction effect considered
<b>H4</b> Status similarity moderates the relationship between level of reciprocity and likelihood of firm-level undesirable behavior.	Supported

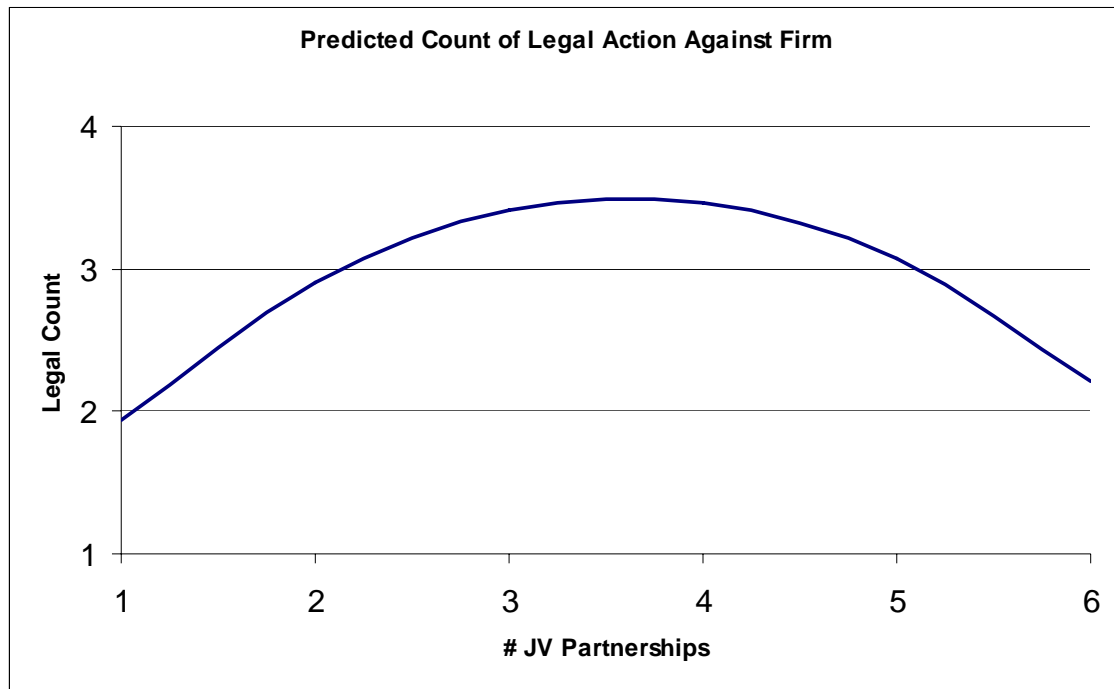
As indicated in Model 2, no statistically significant relationship was found to exist between the strength of the social capital of a firm's key executives (TMT Board Years) and the likelihood of legal action being taken against the firm. Given the lack of a linear effect, adding the squared term to test for curvilinearity in Model 4 produced no statistically significant result. Therefore, H1b did not receive support.

*Hypothesis 1c: A curvilinear (U-shape) relationship exists between the number of social capital connections held by a JV parent firm and the likelihood of firm-level undesirable behaviors.*

The results in Model 2 suggest a curvilinear relationship between the number of social capital connections of a firm and the likelihood of legal action being taken against the firm ( $p < .001$ ). The inclusion of the squared term changes the sign of the original term (odds ratio for firm social capital ties is less than 1 in Model 2 but becomes 2.097 in Model 5). Taken together these results support H1c. The curvilinear effect is depicted in Figure 2. The results indicate that firms with smaller social networks are more likely to experience legal actions. However, as firms build larger network of joint venture relationships, they tend to be less likely to engage in behavior leading to legal action being taken against the firm.

*Hypothesis 1d: A curvilinear (U-shape) relationship exists between the strength of social capital connections held by a JV parent firm and the likelihood of firm-level undesirable behaviors.*

**FIGURE 2**  
**Curvilinear Effect of Firm Social Capital Connections**



As indicated in Model 2, a positive relationship ( $p < .001$ ) was initially found between the strength of a firm's social capital connections and the likelihood of legal actions being taken against the firm. However, this effect is the opposite direction of the theorized relationship. The hypothesized curvilinear effect was not found. Thus, the results do not support hypothesis H1d. These results indicate that strong social capital connections between firms tend to increase the likelihood of undesirable firm-level behavior. This supports the notion that firms can become over-embedded in a network of relationships. It is at this point of over-embeddedness that the likelihood for undesirable firm-level behavior appears to become problematic.

## Hypothesis 2

The results for the hypotheses pertaining to knowledge quality are reported in Table 5. Each relevant hypothesis is listed below, followed by a brief summary of associated results. Because the dependent variable in this table is a continuous variable, the coefficients are not odds ratios. Cross-sectional time-series regression analysis was used to test Hypotheses 2a through 2d.

*Hypothesis 2a: The number of social capital connections held by a firm and its key executives is positively related to the quality of knowledge exchanged via firm-to-firm partnerships.*

A positive relationship is found between the number of social capital connections held by a firm's key executives (TMT Board Count) and knowledge quality in Model 7a and Model 7c ( $p < .001$  for both models) testing this relationship in Table 5. Taken together, the results support H2a. Thus, the larger the number of social capital connections held by a firm's key executives, the higher quality the knowledge exchanged in its network of joint ventures tends to be.

This hypothesis was also tested at the firm-level, with the results providing some interesting insight. Both firm-level models (Models 7b and 7c) indicate a strong positive relationship ( $p < .001$ ) between the number of firm-level social capital connections and the quality of knowledge available via the firm's JV network. This provides strong support for H2a. The results suggest that firms having a larger number of joint venture

partners also tend to generally have a more diverse group of partners, thereby enhancing the quality of knowledge available via its JV network.

*Hypothesis 2b: The strength of social capital connections held by a firm and its key executives is positively related to the quality of knowledge exchanged via firm-to-firm partnerships.*

Consistent with the hypothesized effects, a positive relationship was found to exist between the strength of executives' social capital connections (TMT Board Years) and the quality of knowledge exchange in the firm's joint venture network. This relationship was highly statistically significant ( $p < .001$ ) and present in both models (Models 7a and 7c) in Table 5 testing this hypothesis. Collectively these results indicate that because strong executive-to-executive relationships may be accompanied by high levels of trust between individuals, such relationships likely facilitate the acquisition of important complementary sources of knowledge for the firm.

Regarding the relationship between the strength of firm-level social capital connections and the quality of knowledge in the JV network, the results are also compelling. The expected results were found in both models testing this relationship in Table 5 (Models 7b and 7c). Moreover, these results were highly statistically significant ( $p < .001$ ) in both models. Taken together the results provide strong support for H2b.

*Hypothesis 2c: The relationship between the number of social capital connections and the likelihood of firm-level undesirable behaviors is mediated by the quality of knowledge available via the firm's joint venture network.*

The tests for mediating effects are presented in Table 7. Models 9a, 9b, and 9c involve the tests for the proposed mediating effects of knowledge quality on the relationship between social capital's dimensions and firm-level undesirable behavior. Knowledge quality is positively related to legal actions against the firm in Model 9a ( $p < .001$ ) and Model 9c ( $p < .01$ ). The results suggest that knowledge quality mediates the link between the number of executive-level social capital connections (TMT Board Count) and the likelihood of legal actions being taken against the firm. Nonetheless, the results of Model 9a and Model 9c indicate that knowledge quality does not mediate the relationship between number of firm-level social capital connections and the likelihood of firm-level undesirable behavior. Although the number of firm-level social capital connections is positively related to knowledge quality, and knowledge quality is positively related to undesirable firm behavior, no mediating effect was found at the firm level of analysis. Thus, H2c receives partial support.

*Hypothesis 2d: The relationship between the strength of the social capital connections and the likelihood of firm-level undesirable behaviors is mediated by the quality of knowledge available via the firm's joint venture network.*

The results reported in Model 9b and Model 9c suggest that knowledge quality mediates the link between the strength of executive-level social capital connections (TMT Board Years) and the likelihood of legal actions being taken against the firm. The results also seem to indicate that knowledge quality does not mediate the relationship between the strength of firm social capital connections and the likelihood of firm-level undesirable behavior. In Model 9b, knowledge quality is not statistically significant, the



strength of executives' social capital ties (TMT Board Years) becomes statistically non-significant, and the strength of firm social capital connections remains statistically significant ( $p < .01$ ). Although the strength of social capital connections is positively related to knowledge quality, and knowledge quality is positively related to undesirable firm behavior, no mediating effect was found at the firm level. Consequently, H2d also receives partial support.

### **Hypothesis 3**

The results for the hypotheses pertaining to reciprocity are reported in Table 6. Each relevant hypothesis is listed below, followed by a brief summary of associated results. As in Table 5, the coefficients reported are not odds ratios. Cross-sectional time-series regression analysis was used to test Hypotheses 2a through 2d. Since the dependent variable in this table is a continuous variable, the coefficients presented are typical regression coefficients.

*Hypothesis 3a: The number of social capital connections held by a firm and its key executives is positively related to the level of reciprocity involved in joint venture networks.*

The results for H3a and H3b suggest that executive level social capital and firm level social capital are accompanied by the behavioral norm of reciprocity having an influence on the firm. The results for this test are presented in Model 8a and Model 8c. A positive relationship is found between the number of social capital connections held by a firm's key executives (TMT Board Count) and reciprocity present in the firm's joint

venture network. The results are highly statistically significant ( $p < .001$ ) in both of these models. These results collectively provide strong support for H3a. Thus, the larger the number of social capital connections held by a firm's key executives, the higher the level of reciprocity present within its network of joint venture partnerships.

When tested at the firm level of analysis, the results also provided support for H3a. The results in Models 8b and 8c indicate a positive relationship between the number of firm-level social capital connections and the reciprocity present in the joint venture network ( $p < .001$  in both models). Taken together the evidence suggests a strong positive relationship, supporting H3a. The results suggest that firms having a larger number of joint venture partners tend to be more constrained by the behavioral norm of reciprocity than firms with fewer joint venture partnerships.

*Hypothesis 3b: The strength of the social capital connections held by a firm and its key executives is positively related to the level of reciprocity involved in joint venture networks.*

This hypothesis was also tested at the executive level as well as at the firm level, with the results suggesting a consistency between the influence of executives' social capital relationships and firm-level social capital relationships. When tested at the executive level, the strength of social capital connections was also found to be positively related to the level of reciprocity within a firm's network of joint ventures. This relationship was statistically significant ( $p < .01$ ) and present in both models (Model 8a and Model 8c) in Table 6 testing this hypothesis. Collectively these results indicate that strong executive-to-executive relationships are accompanied by the behavioral norm of

reciprocity for the executives' firms. Thus, strong executive level social capital positively influences the development of reciprocity within a joint venture network.

As expected, the strength of firm level social connections is also positively related to the reciprocity present within a firm's network of joint ventures. These results are reported in Models 8b and 8c, with a high level of statistical significance found to be present ( $p < .001$  for both models). These results collectively provide strong support for H3b. Thus, the stronger the social capital connections held by a firm, the higher the level of reciprocity within its network of joint venture partnerships.

*Hypothesis 3c: The relationship between the number of social capital connections and the likelihood of firm-level undesirable behaviors is mediated by the level of reciprocity involved in the joint venture network.*

The tests for mediating effects are presented in Table 7. Models 10a, 10b, and 10c involve the tests for the proposed mediating effects of network reciprocity on the relationship between social capital's dimensions and firm-level undesirable behavior. The results of Model 10a and Model 10c indicate that network reciprocity does not mediate the relationship between number of social capital connections and the likelihood of firm-level undesirable behavior. Reciprocity is not found to be statistically significant in either of these models. Although the number of social capital connections (at both the executive-level and the firm-level) is positively related to network reciprocity, no mediating effect was found. Moreover, the relationship between the number of firm-level social capital connections and the likelihood of legal actions against the firm remains statistically significant in Model 10a ( $p < .01$ ) and Model 10c ( $p < .001$ ). Thus,

H3c fails to receive support. However, the subsequent inclusion of the moderating variable (status similarity) improves the explanatory power of this mediating variable. This result is discussed relative to Hypothesis 4 below.

*Hypothesis 3d: The relationship between the strength of the social capital connections and the likelihood of firm-level undesirable behaviors is mediated by the level of reciprocity involved in the joint venture network.*

The results of Model 10b and Model 10c suggest that reciprocity does not mediate the relationship the strength of social capital connections and the likelihood of firm-level undesirable behavior. Although the strength of social capital connections (at both the executive-level and the firm-level) is positively related to network reciprocity, no mediating effect was found. Reciprocity is not found to be statistically significantly related to the likelihood of legal action against the firm in either of these models. Additionally, the relationship between the strength of firm-level social capital connections and the likelihood of legal actions against the firm remains statistically significant in Model 10b ( $p < .01$ ) and Model 10c ( $p < .01$ ). Thus, H3d also fails to receive support. Thus, no significant relationship was found in these models between the reciprocity present in a firm's network of joint venture partnerships and the likelihood of the firm engaging in behavior which would lead to legal action being taken against the firm. Although the strength of social capital connections is positively related to network reciprocity, reciprocity does not appear to be a mediating variable.

#### **Hypothesis 4**

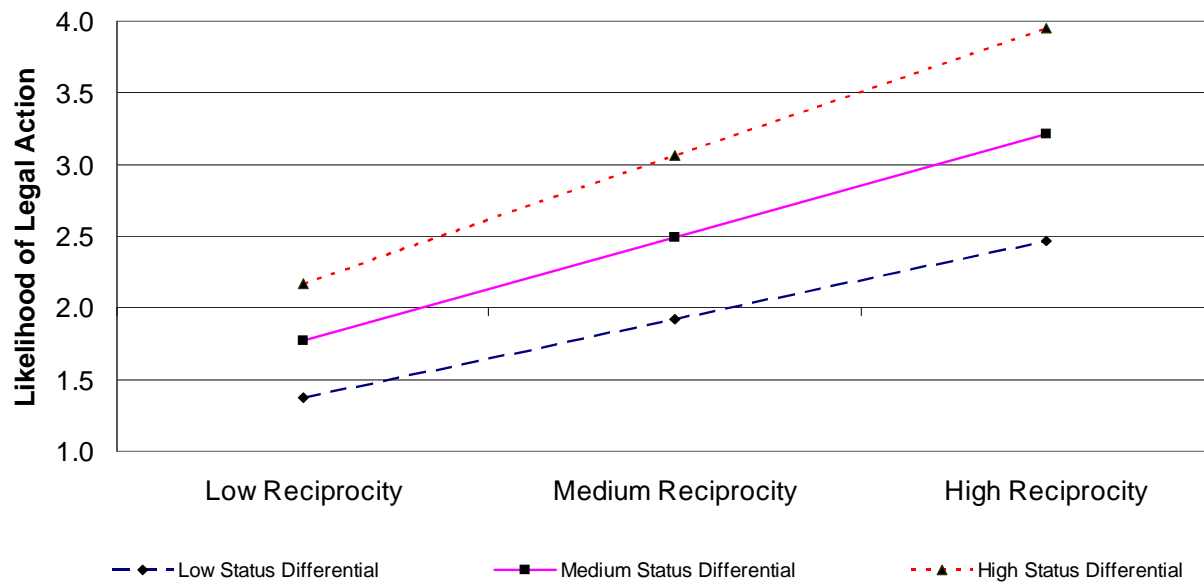
*Hypothesis 4: Status similarity moderates the relationship between the level of reciprocity involved a firm's joint venture network and the likelihood of firm-level undesirable behaviors.*

The results reported in Model 11a and Model 11b on Table 8 provide support for Hypothesis 4. In particular, the inclusion of the status similarity measure positively moderates the influence of reciprocity on the dependent variable. These results can be seen in Models 11a and 11b. After including this measure of status similarity, reciprocity becomes significant and partially mediates the relationship between the strength of social capital connections held by the firm and the likelihood of legal action being taken against the firm. Status similarity is statistically significant in Model 11a ( $p < .05$ ) and Model 11b ( $p < .01$ ). Moreover, the interaction term is significant in Model 11b ( $p < .05$ ). The inclusion of this moderating variable makes the relationship between the likelihood of legal action against the firm and executive-level social capital (TMT Board Count and TMT Board Years) become statistically significant ( $p < .05$  and  $p < .01$ , respectively). Thus, reciprocity is a moderated mediating variable. Furthermore, the Sobel (1982) test for indirect effects results in a Z-score of 3.29, which also indicates a significant interactive effect ( $p < .01$ ). This interaction is depicted in the graph presented in Figure 3. The likelihood of legal actions being taken against a firm is higher whenever status differentials between partner firms are high. This effect is magnified

whenever a high level of reciprocity exists within the network of firm-to-firm relationships.

**FIGURE 3**  
**Interaction Effects**

**Reciprocity--Status Interaction**



## CHAPTER VI

### DISCUSSION AND CONCLUSION

Given that social capital can provide a firm with a unique ability to gain access to resources from partner firms and economic opportunities, it is one of the important types of resources upon which firms can develop a competitive advantage (Barney, 1991; Wernerfelt, 1984). Although a wealth of empirical evidence exists to support this positive view of social capital, this study is among the first to explicitly investigate the relatively unexplored ‘dark side’ to this resource (Borgatti & Foster, 2003; Nahapiet & Ghoshal, 1998). Reciprocity-based behavioral expectations accompanying social capital may even lead to undesirable firm-level behavior.

The research question, literature review, theoretical development and methodology are detailed in earlier chapters of this dissertation. Further, the results of the empirical tests on the effects of social capital on the likelihood of firm-level undesirable behavior are reported in Chapter V. This chapter further expands upon the results with a discussion of the conceptual insights gained, as well as the implications of findings. The first portion of the discussion addresses the influence of executive discretion in the study. This is followed by a discussion of the relationship between executive-level social capital resources and firm-level undesirable behavior. Finally, a discussion of the link between firm-level social capital and firm-level undesirable behavior is presented. Theoretical, methodological and managerial implications of this study are

presented in subsequent sections of this chapter. Suggestions for future research, a discussion of the limitations of this study and the conclusion are presented at the end of the chapter.

### **Executive Discretion**

The role of a firm's executives in shaping outcomes for the firm is one of the important foundations of strategic leadership research (Certo et al., 2006; Hambrick & Abrahamson, 1995; Dalton et al., 1998). The view of executive discretion presented by several researchers (Hambrick & Finkelstein, 1987; Finkelstein & Boyd, 1998) is typically that executives with the greatest amount of discretion have the potential to have the greatest positive influence on firm performance. In this view, executives exercise the most positive influence when they are free from constraints that limit their ability to interpret and execute their roles. It is in exercising discretion to adjust to environmental constraints, customer demands and economic exchange opportunities that executives are most likely to influence firm behaviors, all else equal (Finkelstein, 1992; Perrone et al., 2003). This study takes an important step towards building a more complete picture of executive discretion in that it highlights the potential for discretion to lead to undesirable firm behaviors. Firms in this study at which executives are presented with the highest levels of discretion were significantly more likely to have material legal actions undertaken against them by federal regulatory agencies and non-partner firms. As a result, this study provides important empirical support to serve as a cautionary counter-



balance to the generally positive framing of executive discretion in the management literature.

### **Executive-Level Social Capital**

The social capital resources held by a firm's key executives are considered by many to be a source of potential value for the firm (Hitt et al., 2006; Sirmon et al., 2007). Of particular interest for this study was how the board memberships of a given firm's executives affect important firm-level outcomes. The outcomes tested here include the quality of knowledge existent within a joint venture network, the level of reciprocity developed between partnering firms and the likelihood of a focal firm engaging in behavior which leads to legal action being taken against it by important organizational stakeholders.

#### *Knowledge Quality*

One of the important insights garnered via this study is the positive influence exerted by executive-to-executive relationships on the quality of knowledge within a network of partnering firms. The results support the view that firms exposed to the highest quality knowledge within their joint venture networks are those whose executives hold the largest number of board seats. Executives with higher levels of social capital via board memberships are exposed to a broader array of knowledge than executives without such memberships. Having insights regarding decision making across firms enhances the ability of an executive to recognize parallel situations and

learn from others' experiences. Thus, executives with multiple board memberships are expected to be better equipped to provide their employing firms with a greater variety of comprehension and knowledge, which likely enhance the quality of firm decisions.

Furthermore, the strength of each individual executive-to-executive social capital relationship also influences the quality of knowledge within the joint venture network. Stronger executive-level social capital relationships are found to be associated with greater knowledge quality. This is consistent with the view that repeated interaction between executives builds trust between them and that such trust between partners serves as a governance mechanism which promotes voluntary exchanges of resources (Luo, 2002a, 2002b; Uzzi & Lancaster, 2004).

The extent to which a firm gains access to and utilizes high quality knowledge has been argued to be a potential source of firm-level competitive advantage (Collins & Hitt, 2006; Grant, 1996; Spender & Grant, 1996). Thus, firms capable of effectively leveraging knowledge resources internally and between partner firms are much more likely able to integrate complementary resources to achieve a sustained competitive advantage (Harrison et al., 2001; Ireland et al., 2002). Evidence is presented herein that the number of executive-level social capital connections and the strength of these connections are both significant antecedents to the development of high quality knowledge within a firm's network of joint venture relationships.

### *Reciprocity*

Evidence is also found to support the idea that executive-level social capital resources are significantly related to the development of the social norm of reciprocity within a network of joint venture partner firms. Reciprocity exists not only between actors with a history of direct interactions, but also with each actor's other partners in the network (Westphal & Zajac, 1997). The norm of reciprocity obligates actors to assist an actor connected indirectly to the focal actor, even if a direct exchange between the two parties is unlikely in the future (Hagen & Choe, 1998). By promoting cooperative behaviors and reducing opportunism among network member firms, reciprocity aids all firms within the network. It also promotes the development of new firm-to-firm connections and the exchange of resources among firms in the network not directly connected to one another. Thus, by promoting reciprocity, executive-level social capital resources are also an important mechanism for reducing opportunistic behavior between network firms and for gaining access to a variety of resources.

### *Undesirable Behavior*

One of the interesting results of this research is the failure to find a link between executive-level social capital and firm-level undesirable behavior in the fully-specified models. Although the social capital of executives is a significant predictor of the quality of knowledge within a firm's JV network and the level of reciprocity within that network, it was not found to be related to undesirable firm behavior. This lack of statistically significant findings to support the related hypotheses compels an

explanation. Based on prior research dealing with the positive value associated with social capital, it seems both intuitively appealing and logically-sound to conclude that executives' social capital relationships have an influence on the outcomes for their respective firms (Adler & Kwon, 2002; Kostova & Roth, 2003; Lin, 1999). A proposed explanation of this study's non-results in this area is offered below.

This study spans a period of years in which executives' responsibility for corporate behavior have been highly scrutinized (Bernard, 2006; Trevino & Brown, 2004). Further, the imposition of the Sarbanes-Oxley Act (SOX Act) was a direct effort to limit unwanted behavior by firms (Buchan, 2005; Rockness & Rockness, 2005). The results of subsequent analysis comparing the pre-Sarbanes-Oxley period versus the post-Sarbanes-Oxley period demonstrate a negative relationship between executive-level social capital (number of total board seats held by members of the firm's TMT) and the number of material legal actions in the years after this act took effect. Given that the number of observations in the pre-SOX Act period is significantly higher than the number of observations post-SOX Act, the effect of executive-level social capital appears to be muted in the overall sample. These results can be seen in Table 9. As can be seen in Model 12a, firms with TMT members holding a higher number of board seats in the post-SOX Act period are significantly less likely to have material legal action taken against them. This is demonstrated by the odds ratio of less than zero (0.692) being statistically significant at the  $p < .05$  level. Thus I expect that a sample including only post-SOX Act observations would also find this statistically significant effect. These data provide confirmation that the SOX Act has improved stakeholders' visibility

into important legal issues being faced by the firm. Furthermore, the results in Table 9 demonstrate that the improved transparency brought about by the Sarbanes-Oxley Act facilitates an improved understanding of the mechanisms at work within organizations.

Overall, these results suggest that executive-level social is an important predictor of the likelihood of undesirable firm-level behavior. More specifically, the odds of a given firm having material legal actions taken against it is inversely related to the number of social capital connections held by that firms' key executives. This result is consistent with the positive view of social capital typically presented in the management literature. Not only does social capital serve to ease the flow of high quality knowledge between actors within a network, but it also serves as an effective governance mechanism, limiting undesirable behaviors by firms. Simultaneously, the results reported in Table 9 also support the notion that executives can influence firm-level outcomes via their networks of social capital resources.

In tests not reported herein, no curvilinearity was found between the number of social capital connections held by executives and firm-level undesirable behavior for the post-SOX Act period. This result suggests that firms benefit as executives' networks of social capital connections grow ever larger. It also suggests that the larger society may be benefiting as the incidence of undesirable firm behavior decreases as executives' social capital networks increase in size.

## **Firm-Level Social Capital**

### *Knowledge Quality*

This study provides evidence supporting the position that the quality of knowledge exchanged between partners is affected by the quantity and nature of the firms' social capital resource portfolio. The number and strength of firm-level social capital resources are both found to be positive predictors of the quality of knowledge within a firm's joint venture network. As firms develop a larger group of relationships, they also tend to expand the breath of their joint venture relationships. Firms with the largest network of joint venture relationships were found to have the greatest diversity in partners' primary industries. Social capital portfolios with greater heterogeneity of partners provide increased levels of diversity in knowledge available to the focal firm. Such diverse sources of knowledge enable firms to take advantage of existing complementarities between their knowledge stocks and the knowledge held by partners (Harrison et al., 2001; Hitt et al., 2000). As demonstrated in earlier research (Currall & Inkpen, 2002; Kostova & Roth, 2003), a direct relationship exists between the levels of trust at the individual level and organizational-level trust. Through ongoing interactions, partner firms develop a willingness to share resources, which is necessary to ensure that both partners gain from the relationship (Hitt et al., 2000). As exchange partners engage in repeated interaction with each other, their relationships tend to strengthen and the partners become more willing and able to share knowledge with each other. Partners are better able to understand knowledge from each other in long-lasting partnerships, and

have more efficient exchange relationships, than those who have not developed long-term relationships (Bouty, 2000; McFadyen & Cannella, 2004).

### *Reciprocity*

Additionally, the number and strength of firms' social capital relationships were found to positively influence the development of reciprocity within a firm's joint venture network. As firms become increasingly embedded in their joint venture network, they are subject to increasing levels of reciprocity. This means that they are obligated to conform to behavioral expectations of the network. One common expectation accompanying reciprocity is that a firm will assist others in the network, even when no direct benefit to the firm is expected. A second common expectation of reciprocal relationships is that undesirable behavior will face potential sanction by others within the network. Therefore, as the social capital relationships of firms increase in number and strength, they are likely to become evermore constrained in their behavior within the network. Thus, they become less likely to behave undesirably towards a partner firm.

This result is tempered, however by the finding that status differentials between partner firms moderates the relationship between reciprocity and the likelihood of undesirable behavior. All else equal, firms are more likely to engage in behavior leading to legal action against them whenever their partners are of lower status in the network. This suggests that firms have less fear of reputational damage due to exposure of any undesirable behavior when they are of higher status than their partner firm(s). Firms of lower status position the network are likely to be more exposed by intra-network

undesirable behavior by a partner firm than are firms occupying higher status network positions. Undesirable behaviors towards stakeholders outside a focal firm's JV network are discussed below.

### *Undesirable Behavior*

Among the most interesting results from this study are the findings that: a) a curvilinear relationship exists between the number of firm-level social capital connections and firm-level undesirable behavior, and b) a positive relationship exists between the strength of the firm-level social capital connections and firm-level undesirable behavior. Although the first of these two was the theorized relationship, the results were the opposite of the hypothesis (i.e., the result was an inverted U-shaped curve). As the number of social capital connections held by a firm increases, the likelihood of undesirable behavior initially increases. In essence, having a larger portfolio of social capital (larger number of joint venture partners than held previously) apparently creates more "degrees of freedom" for a firm. Whereas the exposure of any undesirable behavior by the firm may hold the potential to damage individual firm-to-firm relationships, holding a larger number of social capital connections increases the likelihood that the firm can find an alternative partner.

Firms desire to maintain a positive reputation within its JV network and avoid collective sanction within the network, which effectively limits intra-network undesirable behavior. Conversely, stakeholders outside the firm's JV network are more exposed to undesirable behavior by the firm as they may not have direct visibility into



the firm's actions, and any potential reputational damage due to conflict with outsiders is likely to have less of a direct effect on the firm's ability to compete. For example, although regulatory agencies are certainly important stakeholders, these agencies typically do not have frequent, on-going contact with most firms over which they have regulatory responsibility. Contact between a given firm and a federal regulatory is likely more sporadic, with the information being exchanged on a structured, as-needed basis. JV partner firms tend to have frequent interactions with each other, and information exchanges can be quite informal and organic. Detection by non-JV partner stakeholders of any undesirable behavior on behalf of the firm is less likely than detection by a JV partner. Even if stakeholders outside the JV network detect undesirable behavior, their ability to effectively sanction the firm may be a less effective control mechanism than the influence of inter-network reputation and reciprocity. The loss of reputation within a network can have an immediate negative impact on a firm's ability to acquire resources and economic exchange opportunities via the network. Violators can be sanctioned quickly and effectively by others in the network. Whereas legal actions against the firm by a non-JV partner are never a positive for the firm, such actions can be time-consuming and expensive to implement. Thus, only the most egregious acts of undesirable behavior towards non-network members are likely to result in effective sanction against the firm.

Eventually, however, firms appear to reach a point at which they have a large enough network of relationships as to negate this effect, as the influence of reciprocity begins to be seen. Once a firm reaches the point at which the effects of reciprocity

within the network are stronger than the incentive to engage in undesirable behavior, the likelihood of such behavior begins to diminish. This non-monotonic relationship between the number of social capital connections held by a firm and the likelihood to engage in undesirable behavior leading to legal action against the firm is depicted in Figure 2.

The result listed in b) above is also somewhat surprising. There seems to be a linear positive relationship between the strength of the firm-level social capital connections and firm-level undesirable behavior. As relationships become stronger between firm partners, the number of legal actions taken against that firm by regulatory agencies and other firms also increases. Although very few legal actions could be identified in which joint venture partners in this sample were taking action against one another, nearly all of the legal actions against these firms were brought by federal regulatory agencies and other, non-partner firms. This suggests that while the constraints of reciprocity may be effective in controlling behavior within the network, network norms of reciprocity do not constrain joint venture firms in terms of their undesirable behaviors towards stakeholders outside the joint venture network. The evidence actually suggests that firms that have very strong social capital relationships with relatively few partner firms are the most likely to engage in behavior which leads to legal action by a stakeholder outside the JV network.

Although strong ties between firms enhance trust and facilitate the exchange of knowledge between partners, strong ties can be accompanied by a competitive myopia. This problem develops as firms become so committed to existing relationships that they

have very limited interactions with actors outside their existing network and, instead, develop an us-vs.-them mentality in regards to those within the network versus outside the network (Kern, 1998; Krackhardt & Stern, 1988). In this scenario, firms may become so committed to their existing relationships that they become disadvantaged vis-à-vis other firms in their respective markets. Being at such a competitive disadvantage can cause firms to engage in behavior they otherwise would not consider acceptable from their counterparts (Arino & de la Torre; 1998; Hutt et al., 2000). Combined with the insularity that can develop within highly cohesive networks (Coleman, 1988; Granovetter, 2005), this situation appears highly conducive to undesirable behavior by firms.

An important conclusion that can be drawn from this research is that the relative paucity of legal actions between joint venture partners suggests firms tend to be reluctant to sue their partners. Legal action appears to be a course of last resort, as evidenced by the extremely rare incidence of partners suing one another. Instead, relational norms of governing partnerships and contractual completeness tend to discourage legal actions between partners (Doz, 1996; Luo, 2002a, 2002b; Zaheer et al., 1998). Other researchers have found that partnerships tend to adapt to resolve conflict (Hutt et al., 2000; Kale & Puranam, 2004; Weber & Camerer, 2003), thus avoiding lawsuits between partners.

### **Theoretical and Methodological Implications**

This study holds implications for social capital theory and the outcomes associated with social capital resources. One of the clearest implications from this research is that social capital is a Janus-faced resource, holding the potential for creating value for the firm, while also holding the potential for unwanted outcomes. Empirical evidence is reported in this dissertation which illuminates both positive and negative aspects of social capital resources. This is an area in the field which seems ripe for development (Adler & Kwon, 2002; Borgatti & Foster, 2003). Researching the positive aspects of social capital without also considering the negative aspects limits the theoretical potential for this literature stream. Thus, the field of social capital research can be improved by a more explicit consideration of the dark side of social capital and its influence on firm strategies.

In a period characterized by heightened scrutiny of corporate behavior (Buchan, 2005; Trevino & Brown, 2004), a theoretically-driven assessment of factors influencing undesirable firm behavior seems much needed. Very few studies in the management literature have explicitly sought to explain why some firms engage in such unwanted behavior while others do not. Instead, more attention has tended to be given to the question of how to control these behaviors through existing governance mechanisms. This question of what types of governance mechanisms are most effective in controlling undesirable firm behavior has received significant attention, from a variety of theoretical perspectives (Daily et al., 2003; Hillman & Dalziel, 2003; Lane et al., 1998). I suggest a

contextualized perspective on undesirable firm behavior is needed. Firms behave differently towards different constituencies, based on different constraints and motivations. This research indicates that a more comprehensive understanding of causal reasons for such behavior is needed in order to develop effective governance mechanisms. Only by understanding the context in which firm behaviors occur can governance researchers develop theoretically-sound insights. Social capital is a unique type of resource in that it is generally accompanied by a range of behavioral constraints and expectations. By developing a better understanding on how these behavioral constraints and expectations of social capital resources influence firm-level behavior, governance theory can be improved.

More specifically, this study demonstrates a difference in the types of mechanisms appropriate for controlling undesirable behavior likely depends on whether those behaviors are directed within the firm's network, towards a firm's partners, other non-partner firms, or the larger society in general. As such, governance mechanisms can influence behavior in unexpected ways. For example, the behavioral norm of reciprocity and contracts appear to be effective deterrents of undesirable behavior within joint ventures. However, the norm of reciprocity may actually lead to a higher rate of undesirable behavior directed towards stakeholders outside a firm's joint venture network (i.e., non-partner firms and the larger society). More research is needed to better understand how the governance mechanisms which help JVs operate effectively influence a firm's behavior towards others outside the JV network. Further, the development of a thorough understanding of how to design and implement governance

mechanisms which operate as quickly and effectively as the network norm of reciprocity would be a significant contribution to the literature.

This study also has methodological implications for researchers interested in the non-traditional research relating to the dark side of firm strategies and behaviors. A challenge exists for organizational researchers to gain access to reliable, relevant data. This challenge is particularly acute when considering undesirable behaviors of firms, as firms have an incentive to actively limit public access to such data. A variety of options are available for collection of secondary data from the public record pertaining to undesirable firm behaviors, including article searches, Lexis-Nexis searches, and court filings. This study demonstrates the value in using SEC filings in such research. Admittedly, firms do have some latitude in how they interpret their legal obligations to disclose these data. However, the federal regulations pertaining to data disclosure provide assurance that the data reported are consistent in terms of the nature of the legal actions against a firm and the potential severity of those legal actions. Therefore, researchers interested in the topic of firms' undesirable behavior towards various constituencies can benefit from utilizing the data collection methods presented in this study.

### **Managerial Implications**

This study contains a number of important implications for the practice of managing joint ventures and for corporate governance in general. First, the influence of top executives in shaping firm-level outcomes has long been a topic of debate. Evidence

presented in earlier chapters of this dissertation indicates that a relationship exists between undesirable behaviors by firms and the level of discretion (industry-level and firm-level) with which executives operate. These results are important for three reasons: a) they demonstrate that executives can influence firm outcomes, b) they demonstrate specifically that executive discretion is associated with undesirable firm-level behavior, and c) they demonstrate that having a larger number of social capital connection at both the executive-level and firm-level reduces the likelihood of the firm engaging in undesirable behavior. The implications of these findings are a further call for a multi-faceted approach to corporate governance which takes industry level effects and firm level effects into consideration.

Secondly, social capital is demonstrated in this study to be a valuable resource which can be utilized to improve the quality of knowledge to which the firm has access. Others have made a thoroughly convincing argument that the ability of a firm to optimize its resource portfolio is directly related to its ability to build and maintain a competitive advantage (Berman et al., 2002; Sirmon et al., 2007; Wernerfelt, 1984). Collaborative strategies (such as strategic alliances and joint ventures) are one important approach for providing firms access to knowledge resources (Ireland et al., 2002; Luo, 2002b). Executives who can deliberately and effectively build a knowledge management capability likely have the potential to benefit the most from social capital resources (Collins & Hitt, 2006; Hitt et al., 2002).

Moreover, the extent to which executives can minimize undesirable firm actions within the context of collaborative ventures, and resulting from the reliance upon these

ventures, can be of significant benefit to the firm and society at large (Brass et al., 1998; Raab & Milward, 2003). Executives need to be cognizant of the potential highlighted in this study for social capital, and the associated behavioral norms of reciprocity, to lead to undesirable behavior by the firm. By being aware of this potential, firms can implement governance mechanisms to minimize this potential dark side of social capital. Firms are encouraged to embrace a comprehensive governance approach, based upon the use of a variety of governance mechanisms (relational, contractual, legal, incentive compensation, etc).

Lastly, this study suggests a balance is needed between the use of social capital resources at the executive- and firm-level versus the use of arms-length relationships. Firms that rely heavily on existing social capital relationships are exposed to the risk of becoming overly embedded within their existing network. In addition to problems highlighted by other researchers including slower decision speed, lower profit margins and reduced rates of innovation (Hitt et al., 2006; Uzzi & Gillespie, 2002; Uzzi & Lancaster, 2004), embeddedness is demonstrated herein to be associated with the likelihood of engaging in firm-level undesirable behaviors. Firms in this study with the strongest social capital connections in their joint venture networks are significantly more likely to have material legal action taken against them by non-network firms or regulatory agencies than firms with weaker ties within their networks. Firms with fairly weak ties are generally more exposed to potential sanction by others in the network should an undesirable behavior be detected. Relatedly, the inverted U-shaped relationship between the number of firm-level social capital connections and legal



actions against the firm indicates a lower risk of legal action for firms with the largest number of JV partners. The test of executive-level social capital in the post-Sox Act period also demonstrates that having a larger number of social capital connections reduces the likelihood of legal action being taken against the firm. Collectively these findings indicate that firms wishing to limit their exposure to legal actions should not become overly reliant upon strong network ties, and instead should maintain a portfolio of social capital resources comprised of a relatively large number of weaker ties.

### **Limitations**

It is prudent to explore some of the important limitations of this study. Ideally this type of research would include insight into the actual undesirable behaviors in which firms engage. However, due to a general lack of transparency into individual firm behaviors such as taking advantage of partner firms, violating federal regulations and infringement on contractual rights of non-partner firms, proxies for such behavior are necessary. At best we have to rely upon publicly-reported incidences of undesirable behavior. It is likely that a large number of undesirable behaviors go unreported. The measures utilized in this study were developed specifically for this research, and thus, merit additional validation via future research. Although the panel assembled to assess these measures represents a broad cross-section of industries and the average member has significant corporate experience, the potential exists conceptually for sampling error in panel member selection. By utilizing these measures repeatedly in a multiple of settings, their validity can be confirmed.

In addition, the measure used to capture firm-level undesirable behavior is admittedly course-grained. The outcome of interest in this study was the count of legal actions taken against the firm by federal regulatory agencies and other non-partner firms. A couple of issues merit caution in regards to this measure. First, firms have much latitude in what they interpret to be “material” legal proceedings. The exact same type of legal action could be interpreted as material by the executives of one firm, yet deemed immaterial by the executives of a similar firm. This is an instance in which discretion is available to firms’ executives in regards to what legal actions are reported in the firms’ SEC filings. Thus, firms vary significantly in the level of detail provided for legal proceedings in the reports they file with the SEC.

Secondly, legal proceedings initiated against sample firms by individuals had to be excluded from the sample. As mentioned earlier in this dissertation, panel members generally believed that large publicly-traded firms were often targets for legal action by individuals due to their size, profitability and visibility. Thus, they are unlikely to represent undesirable behavior on the part of the firm. The net effect of this decision was to reduce the number of legal actions considered in the hypothesis testing. Attorneys consulted for this research agreed that legal action initiated by individuals often can be highly important indicators of undesirable firm-level behavior. However, we could not sort out the frivolous lawsuits. Thus, the cumulative impact of these limitations is an enhanced confidence in the results, as the data collected are expected to be a conservative representation of the actual state of legal actions taken against sample firms.

This study is limited insofar as factors having an influence on the likelihood to engage in undesirable behavior may not have been included in the models. As has been suggested by earlier research (Finkelstein & Boyd, 1998; Hambrick & Finkelstein, 1987; Salk & Brannen, 2000), characteristics of individual executives are likely to be influential in determining actions by the firm. However, no individual characteristics of top management team members were considered in this research. The data available for each executive were limited to demographic characteristics (age and race), which have been criticized as imperfect measures of cognitive processes among TMT members (Certo et al., 2006). Thus, demographic data were excluded from the model. A more fully specified model could have been developed with data relating to the executives' experiences (Carpenter et al., 2001), the functional and tenure heterogeneity of TMT members (Certo et al., 2006), and/or personality and psychological characteristics (Trevino & Brown, 2004; Trevino & Youngblood, 1990). Further, this study could likely have been improved by the inclusion of measures of corporate culture and industry culture. Some firms are more prone to unethical or unwanted behavior as a result of the culture developed within the firm and across its industry over a long period of time (Bernard, 2006; Buchan, 2005; Trevino & Youngblood, 1990).

Another limitation of this research is the focus on sample firms' joint venture network, without also considering their multitude of other external relationships such as supplier relationships, customer relationships, non-JV partnerships with other firms, as well as their relationships with unions and other stakeholder groups. The nature of social capital and social network research is such that it is nearly impossible to develop

an accurate, holistic view of all the networks in which firms operate (Carrington et al., 2005; Wasserman & Faust, 1994). As a result, researchers are forced to draw boundaries around the portion of a firm's social network to be examined. The multiple levels of complexity in this research necessitate simplifying assumptions which potentially mute the effects of causal relationships. There are almost certainly interactions between social constraints across levels of a network and between different types of firm networks (joint ventures, alliances, supplier-vendor relationships, etc.). A broader sample of firms' networks of relationships is encouraged in future research in this area.

### **Conclusion**

The research presented in this dissertation is an important, if incremental, step in developing a richer understanding of factors influencing firm-level undesirable behaviors. Currently a relative dearth of empirical research exists which specifically takes into consideration both organization-level and individual-level social capital influences on undesirable outcomes for the firm. Empirical results from this study reveal that social capital does indeed have a 'dark side.' Social capital is found to be predictive of the likelihood of firms engaging in behavior which leads to material legal action by stakeholders. Results also demonstrate that executive discretion is associated with undesirable firm behaviors.

On a positive note, results reported here also support the link between the quality of knowledge found in a firm's JV network and social capital at both the executive- and firm-levels. Social capital at both of these levels is also found to enhance the reciprocity

found within a firm's JV network. Both of these results reinforce the typically positive view held of social capital as a resource for the firm. Taken collectively, the results of this study highlight the need for a broader recognition that social capital is not universally beneficial. The characteristics of social capital can be the catalyst for detrimental firm-level behavior. Researchers and executives alike are encouraged to take note of this dark side of social capital when considering questions of corporate governance and the development of resource portfolios.

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**APPENDIX A**  
**FIRMS IN SAMPLE**

<b>CNUM</b>	<b>COMPANY</b>	<b>PERMNO</b>	<b>SIC</b>	<b>FOUNDED</b>
002824	ABBOTT LABORATORIES	20482	2834	1888
000886	ADC TELECOMMUNICATIONS INC	50906	3661	1935
00724F	ADOBE SYSTEMS INC.	75510	7372	1982
025537	AEP TEXAS CENTRAL CO	24109	4911	1906
00130H	AES CORP. (THE)	76712	4991	1981
00817Y	AETNA INC	88845	6324	1850
00846U	AGILENT TECHNOLOGIES INC	87432	3825	1966
009158	AIR PRODUCTS & CHEMICALS INC	28222	2810	1940
013104	ALBERTSONS INC	50032	5411	1939
013716	ALCAN INC	24264	3350	1902
017361	ALLEGHENY ENERGY INC	10137	4911	1925
01741R	ALLEGHENY TECHNOLOGIES INC	43123	3312	1996
018490	ALLERGAN INC	75646	2834	1950
019589	ALLIED WASTE INDUSTRIES INC	76887	4953	1987
020002	ALLSTATE CORP	79323	6331	1931
020039	ALLTEL CORP	41443	4812	1943
021441	ALTERA CORP	75577	3674	1983
023139	AMBAC FINANCIAL GP	76757	6351	1971
023551	AMERADA HESS CORP	28484	2911	1919
023608	AMERENENERGY GENERATING CO	24985	4911	1922
023608	AMERENENERGY GENERATING CO	24985	4911	1922
025537	AMERICAN ELECTRIC POWER	24109	4911	1906
025816	AMERICAN EXPRESS	59176	6199	1850
026375	AMERICAN GREETINGS	13059	2771	1906
026874	AMERICAN INTERNATIONAL GROUP	66800	6311	1919
029066	AMERICAN POWER CONVERSION CP	11970	3620	1981
031162	AMGEN INC	14008	2836	1980
001765	AMR CORP/DE	21020	4512	1934
032165	AMSOUTH BANCORPORATION	62770	6020	1970
032511	ANADARKO PETROLEUM CORP	70332	1311	1959
032654	ANALOG DEVICES	60871	3674	1965
034425	ANDREW CORP	14323	3357	1937
035229	ANHEUSER-BUSCH COS INC	59184	2082	1852
037389	AON CORP	61735	6411	1947
037411	APACHE CORP	39490	1311	1954
037833	APPLE COMPUTER INC	14593	3571	1976
038020	APPLERA CORP CELERA GENOMICS	86806	3826	1981
038222	APPLIED MATERIALS INC	14702	3559	1967
03822W	APPLIED MICRO CIRCUITS CORP	85522	3674	1979
039483	ARCHER-DANIELS-MIDLAND CO	10516	2070	1902
044204	ASHLAND INC	24272	5160	1924

<b>CNUM</b>	<b>COMPANY</b>	<b>PERMNO</b>	<b>SIC</b>	<b>FOUNDED</b>
001957	AT&T CORP	10401	4813	1885
052769	AUTODESK INC	85631	7372	1982
053015	AUTOMATIC DATA PROCESSING	44644	7374	1949
053332	AUTOZONE INC	76605	5531	1979
053499	AVAYA INC	88587	3663	2000
053611	AVERY DENNISON CORP	44601	2670	1935
054303	AVON PRODUCTS	40416	2844	1886
057224	BAKER HUGHES INC	75034	3533	1907
058498	BALL CORP	57568	3411	1880
060505	BANK OF AMERICA CORP	59408	6020	1784
064057	BANK OF NEW YORK CO INC	49656	6020	1784
06423A	BANK ONE CORP	65138	6020	1874
067383	BARD (C.R.) INC	46877	3841	1907
067901	BARRICK GOLD CORP	71298	1040	1983
071707	BAUSCH & LOMB INC	26518	2834	1853
071813	BAXTER INTERNATIONAL INC	27887	3841	1931
054937	BB&T CORP	71563	6020	1872
073902	BEAR STEARNS COMPANIES INC	68304	6211	1923
075887	BECTON DICKINSON & CO	39642	3841	1897
075896	BED BATH & BEYOND INC	77659	5700	1971
079860	BELLSOUTH CORP	65883	4813	1879
081437	BEMIS CO INC	43772	2670	1858
086516	BEST BUY CO INC	85914	5731	1966
090597	BIOGEN INC	11983	2836	1978
090613	BIOMET INC	18092	3842	1977
091797	BLACK & DECKER CORP	20220	3540	1917
055921	BMC SOFTWARE INC	11976	7372	1980
097023	BOEING CO	19561	3721	1916
101137	BOSTON SCIENTIFIC CORP	77605	3841	1979
109043	BRIGGS & STRATTON	17961	3510	1908
111320	BROADCOM CORP	85963	3674	1991
111412	BROADVISION INC	83630	7373	1993
117043	BRUNSWICK CORP	10874	3510	1845
12189T	BURLINGTON NORTHERN SANTA FE	50227	4011	1850
122014	BURLINGTON RESOURCES INC	75333	1311	1988
131347	CALPINE CORP	83981	4991	1984
134429	CAMPBELL SOUP CO	25320	2030	1869
14040H	CAPITAL ONE FINANCIAL CORP	81055	6141	1995
14149Y	CARDINAL HEALTH INC	21371	5122	1971
143658	CARNIVAL CORP	75154	4400	1972
149123	CATERPILLAR INC	18542	3531	1925
151313	CENDANT CORP	25487	6500	1971
152312	CENTEX CORP	53831	1531	1950
156700	CENTURYTEL INC	60599	4813	1930

<b>CNUM</b>	<b>COMPANY</b>	<b>PERMNO</b>	<b>SIC</b>	<b>FOUNDED</b>
160903	CHARTER ONE FINANCIAL INC	10725	6020	1828
170040	CHIRON CORP	23318	2834	1981
171232	CHUBB CORP	59192	6331	1882
125509	CIGNA CORP	64186	6324	1792
172062	CINCINNATI FINANCIAL CORP	23473	6331	1950
172474	CINERGY CORP	22947	4911	1904
172737	CIRCUIT CITY STORES INC	84577	5731	1949
17275R	CISCO SYSTEMS INC	76076	3576	1984
125577	CIT GROUP INC-OLD	85599	6172	1972
172967	CITIGROUP INC	70519	6199	1812
177376	CITRIX SYSTEMS INC	82686	7372	1989
184502	CLEAR CHANNEL COMMUNICATIONS	24046	4832	1972
189054	CLOROX CO/DE	46578	2842	1913
191216	COCA-COLA CO	11308	2080	1894
191219	COCA-COLA ENTERPRISES	70500	2086	1986
194162	COLGATE-PALMOLIVE CO	18729	2844	1806
200340	COMERICA INC.	25081	6020	1849
204912	COMPUTER ASSOCIATES INTL INC	25778	7372	1976
205363	COMPUTER SCIENCES CORP	40125	7370	1959
205638	COMPUWARE CORP	78139	7372	1973
205862	COMVERSE TECHNOLOGY INC	10942	3661	1984
205887	CONAGRA FOODS INC	56274	2000	1861
207142	CONEXANT SYSTEMS INC	86496	3674	1880
208251	CONOCOPHILLIPS	87029	2911	1875
208464	CONSECO INC	89841	6321	1979
210371	CONSTELLATION ENERGY GRP INC	24221	4931	1816
212485	CONVERGYS CORP	86305	7389	1984
216831	COOPER TIRE & RUBBER CO	27430	3011	1914
222372	COUNTRYWIDE FINANCIAL CORP	64565	6162	1969
126408	CSX CORP	62148	4011	1805
231021	CUMMINS INC	41080	3510	1919
126650	CVS CORP	17005	5912	1963
235811	DANA CORP	11607	3714	1904
235851	DANAHER CORP	49680	3823	1982
244199	DEERE & CO	19350	3523	1804
24702R	DELL INC	11081	3571	1987
247361	DELTA AIR LINES INC	26112	4512	1928
248019	DELUXE CORP	61743	2780	1915
25179M	DEVON ENERGY CORP	87137	1311	1971
254067	DILLARDS INC -CL A	49429	5311	1938
254687	DISNEY (WALT) CO	26403	7370	1923
256669	DOLLAR GENERAL CORP	30382	5331	1939
257867	DONNELLEY (R R) & SONS CO	38682	2750	1870
260003	DOVER CORP	25953	3559	1888

<b>CNUM</b>	<b>COMPANY</b>	<b>PERMNO</b>	<b>SIC</b>	<b>FOUNDED</b>
260561	DOW JONES & CO INC	58990	2711	1882
233331	DTE ENERGY CO	11674	4911	1903
264399	DUKE ENERGY CORP	27959	4931	1904
26816Q	DYNEGY INC	23720	1311	1970
277461	EASTMAN KODAK CO	11754	3861	1881
278058	EATON CORP	11762	3714	1911
281020	EDISON INTERNATIONAL	15720	4911	1886
28336L	EL PASO CORP	77481	4922	1928
268648	EMC CORP/MA	10147	3572	1979
292845	ENGELHARD CORP	62834	2810	1938
293561	ENRON CORP	23317	5172	1985
26875P	EOG RESOURCES INC	75825	1311	1999
294429	EQUIFAX INC	52476	7320	1899
30161N	EXELON CORP	21776	4911	1880
313586	FANNIE MAE	51043	6111	1938
31410H	FEDERATED DEPT STORES	77462	5311	1929
31428X	FEDEX CORP	60628	4513	1971
343412	FLUOR CORP	88853	1600	1924
302491	FMC CORP	19166	2800	1883
345838	FOREST LABORATORIES	45241	2834	1954
349631	FORTUNE BRANDS INC	10225	3490	1969
354613	FRANKLIN RESOURCES INC	37584	6282	1947
35671D	FREEPRT MCMOR COP&GLD	75294	1000	1987
364760	GAP INC	59010	5651	1969
367626	GATEWAY INC	79973	3571	1985
369604	GENERAL ELECTRIC CO	12060	9997	1892
370334	GENERAL MILLS INC	17144	2040	1866
370442	GENERAL MOTORS CORP	12079	3711	1908
372460	GENUINE PARTS CO	46674	5013	1928
373298	GEORGIA-PACIFIC CORP	23915	2600	1927
375766	GILLETTE CO	16424	3420	1901
382550	GOODYEAR TIRE & RUBBER CO	16432	3011	1898
384802	GRAINGER (W W) INC	52695	5000	1927
390568	GREAT LAKES CHEMICAL CORP	32379	2890	1936
401698	GUIDANT CORP	81126	3841	1994
41163G	HARCOURT GENERAL INC	40838	2731	1919
412822	HARLEY-DAVIDSON INC	70033	3751	1903
416515	HARTFORD FINL SVCS GRP INC	82775	6331	1810
418056	HASBRO INC	52978	3944	1928
421924	HEALTHSOUTH CORP	10693	8093	1984
423074	HEINZ (H J) CO	23077	2030	1869
427866	HERSHEY CO	16600	2060	1894
432848	HILTON HOTELS CORP	23309	7011	1919
437076	HOME DEPOT INC	66181	5211	1978

<b>CNUM</b>	<b>COMPANY</b>	<b>PERMNO</b>	<b>SIC</b>	<b>FOUNDED</b>
437614	HOMESTAKE MINING	12319	1040	1880
441815	HOUSEHOLD INTERNATIONAL INC	20124	6141	1865
444859	HUMANA INC	48653	6324	1961
446150	HUNTINGTON BANCSHARES	42906	6020	1866
452308	ILLINOIS TOOL WORKS	56573	3540	1912
453258	INCO LTD	12546	3330	1902
G4776G	INGERSOLL-RAND CO LTD	12431	3560	1871
458140	INTEL CORP	59328	3674	1968
460690	INTERPUBLIC GROUP OF COS	53065	7311	1873
459506	INTL FLAVORS & FRAGRANCES	40272	2860	1958
461202	INTUIT INC	78975	7372	1983
46612J	JDS UNIPHASE CORP	79879	3663	1981
475070	JEFFERSON-PILOT CORP	48485	6311	1907
478366	JOHNSON CONTROLS INC	42534	2531	1885
487836	KELLOGG CO	26825	2040	1906
492386	KERR-MCGEE CORP	25769	1311	1929
49337W	KEYSPAN CORP	24360	4931	1880
494368	KIMBERLY-CLARK CORP	17750	2621	1872
495582	KING PHARMACEUTICALS INC	86176	2834	1994
482480	KLA-TENCOR CORP	46886	3827	1976
500255	KOHL'S CORP	77606	5311	1962
501044	KROGER CO	16678	5411	1883
524908	LEHMAN BROTHERS HOLDINGS INC	80599	6211	1850
529771	LEXMARK INTL INC	82643	3577	1991
532716	LIMITED BRANDS INC	64282	5621	1963
534187	LINCOLN NATIONAL CORP	49015	6311	1968
539320	LIZ CLAIBORNE INC	49905	2330	1976
539830	LOCKHEED MARTIN CORP	21178	3760	1909
543162	LONGS DRUG STORES CORP	53612	5912	1938
546347	LOUISIANA-PACIFIC CORP	56223	2400	1973
548661	LOWE'S COMPANIES INC	61399	5211	1946
502161	LSI LOGIC CORP	48267	3674	1981
571903	MARRIOTT INTL INC	85913	7011	1927
571748	MARSH & MCLENNAN COS	45750	6411	1871
577081	MATTEL INC	39538	3942	1945
578592	MAYTAG CORP	13119	3630	1893
580033	MCDERMOTT INC	26534	3510	1923
58155Q	MCKESSON CORP	81061	5122	1833
585055	MEDTRONIC INC	60097	3845	1949
589405	MERCURY INTERACTIVE CORP	79718	7372	1989
59156R	METLIFE INC	87842	6311	1863
594918	MICROSOFT CORP	10107	7372	1975
608554	MOLEX INC	76234	3678	1938
620076	MOTOROLA INC	22779	3663	1928

<b>CNUM</b>	<b>COMPANY</b>	<b>PERMNO</b>	<b>SIC</b>	<b>FOUNDED</b>
637640	NATIONAL SEMICONDUCTOR CORP	51377	3674	1959
650111	NEW YORK TIMES CO	47466	2711	1851
651229	NEWELL RUBBERMAID INC	60986	3089	1902
654106	NIKE INC	57665	3021	1971
65473P	NISOURCE INC	38762	4931	1853
656568	NORTEL NETWORKS CORP	58640	3661	1895
670006	NOVELL INC	90609	7370	1981
674599	OCCIDENTAL PETROLEUM CORP	34833	1311	1920
681919	OMNICOM GROUP	30681	7311	1986
693718	PACCAR INC	60506	3711	1905
704326	PAYCHEX INC	61621	8721	1971
712713	PEOPLESOFT INC	78083	7372	1987
723484	PINNACLE WEST CAPITAL CORP	27991	4911	1885
693475	PNC FINANCIAL SVCS GROUP INC	60442	6020	1969
69351T	PPL CORP	22517	4911	1920
74144T	PRICE (T. ROWE) GROUP	10138	6282	1937
742718	PROCTER & GAMBLE CO	18163	2840	1837
747277	QLOGIC CORP	80266	3674	1987
758110	REEBOK INTERNATIONAL LTD	91380	3021	1895
803062	SAPIENT CORP	83413	7372	1991
808513	SCHWAB (CHARLES) CORP	75186	6211	1974
833034	SNAP-ON INC	60206	3420	1920
844730	SOUTHTRUST CORP	71686	6020	1887
852061	SPRINT CORP	86414	4813	1899
852061	SPRINT CORP	86414	4812	1899
854616	STANLEY WORKS	43350	3420	1843
855030	STAPLES INC	75489	5940	1986
855244	STARBUCKS CORP	77702	5812	1971
85590A	STARWOOD HOTELS&RESORTS	54690	7011	1969
857477	STATE STREET CORP	72726	6020	1792
866005	SUMMIT BANCORP	51588	6020	1784
866810	SUN MICROSYSTEMS INC	10078	3571	1982
86764P	SUNOCO INC	14656	2911	1886
867914	SUNTRUST BANKS INC	68144	6020	1811
868536	SUPERVALU INC	44951	5411	1926
871508	SYMBOL TECHNOLOGIES	73940	3577	1975
87161C	SYNOVUS FINANCIAL CP	20053	6020	1885
871829	SYSCO CORP	52038	5140	1970
879131	TEKTRONIX INC	40061	3825	1946
879664	TELLABS INC	75257	3661	1974
879868	TEMPLE-INLAND INC	66114	2631	1925
880770	TERADYNE INC	51369	3825	1960
881694	TEXACO INC	14736	2911	1901
882508	TEXAS INSTRUMENTS INC	15579	3674	1930



<b>CNUM</b>	<b>COMPANY</b>	<b>PERMNO</b>	<b>SIC</b>	<b>FOUNDED</b>
883203	TEXTRON INC	23579	9997	1923
88355R	THERMO ECOTEK CORP	81192	4991	1956
884315	THOMAS & BETTS CORP	38578	3640	1912
886547	TIFFANY & CO	75100	5944	1837
887389	TIMKEN CO	14795	3562	1899
872540	TJX COMPANIES INC	40539	5651	1976
891027	TORCHMARK CORP	62308	6311	1900
891490	TOSCO CORP	61663	2911	1955
892335	TOYS R US INC	61065	5945	1948
G90078	TRANSOCEAN INC	79237	1381	1960
896047	TRIBUNE CO	65787	2711	1847
872649	TRW INC	18681	3714	1901
899896	TUPPERWARE CORP	83462	3089	1945
907818	UNION PACIFIC CORP	48725	4011	1848
908068	UNION PLANTERS CORP	78263	6020	1971
909214	UNISYS CORP	10890	7373	1873
913017	UNITED TECHNOLOGIES CORP	17830	3720	1929
91529Y	UNUMPROVIDENT CORP	71175	6321	1970
911905	US AIRWAYS GROUP INC	28847	4512	1939
902911	UST INC	15077	2100	1822
923436	VERITAS SOFTWARE CORP	80055	7372	1983
92343V	VERIZON COMMUNICATIONS INC	65875	4813	1984
918204	VF CORP	43553	2300	1899
925524	VIACOM INC	76226	4833	1971
92839U	VISTEON CORP	88319	3714	1920
928497	VITESSE SEMICONDUCTOR CORP	77173	3674	1987
929160	VULCAN MATERIALS CO	15202	1400	1909
929771	WACHOVIA CORP	68443	6020	1879
931142	WAL-MART STORES	55976	5331	1962
938864	WASHINGTON HOMES INC	78920	1531	1889
94106L	WASTE MANAGEMENT INC	11955	4953	1968
942683	WATSON PHARMACEUTICALS INC	78916	2834	1984
949746	WELLS FARGO & CO	38703	6020	1852
950590	WENDY'S INTERNATIONAL INC	63060	5812	1969
962166	WEYERHAEUSER CO	39917	2400	1900
963320	WHIRLPOOL CORP	25419	3630	1911
969133	WILLAMETTE INDUSTRIES	82959	2621	1900
969457	WILLIAMS COS INC	38156	4922	1909
974280	WINN-DIXIE STORES INC	24803	5411	1914
981811	WORTHINGTON INDUSTRIES	83601	3310	1955
982526	WRIGLEY (WM) JR CO	15472	2060	1891
983024	WYETH	15667	2834	1926
98389B	XCEL ENERGY INC	23931	4931	1944
984121	XEROX CORP	27983	3577	1906

<b>CNUM</b>	<b>COMPANY</b>	<b>PERMNO</b>	<b>SIC</b>	<b>FOUNDED</b>
983919	XILINX INC	76201	3674	1984
984332	YAHOO INC	83435	7370	1994

**APPENDIX B**

**PARTNERSHIPS FORMED DURING STUDY PERIOD**

<b>COMPANY</b>	<b>CNUM</b>	<b>PERMNO</b>	<b>PARTNERSHIPS FORMED</b>
ADC Telecommunications	000886	50906	1
AMR Corp.	001765	21020	4
AOL Time Warner Inc.	00184A	77418	14
AT&T Corp.	001957	10401	19
Advanced Micro Devices	007903	61241	3
Air Products & Chemicals	009158	28222	7
Albertson's	013104	50032	2
Alcan Inc.	013716	24264	1
Alcoa Inc	013817	24643	9
Allegheny Technologies Inc	01741R	43123	2
ALLTEL Corp.	020039	41443	3
ALZA Corp.	022615	64856	1
Amerada Hess	023551	28484	6
American Electric Power	025537	24109	4
American Express	025816	59176	16
American Int'l. Group	026874	66800	18
Anheuser-Busch	035229	59184	1
Aon Corp.	037389	61735	3
Apache Corp.	037411	39490	3
Apple Computer	037833	14593	1
Applera Corp-Applied Biosystems Group	038020	86806	3
Archer-Daniels-Midland	039483	10516	4
Ashland Inc.	044204	24272	3
Automatic Data Processing Inc.	053015	44644	1
Avery Dennison Corp.	053611	44601	2
Baker Hughes	057224	75034	3
Ball Corp.	058498	57568	1
Bank of America Corp.	060505	59408	5
Bank of New York	064057	49656	4
Bank One Corp.	06423A	65138	5
Barrick Gold Corp.	067901	71298	2
Baxter International Inc.	071813	27887	4
Becton, Dickinson	075887	39642	1
BellSouth	079860	65883	8
Best Buy Co., Inc.	086516	85914	1
Biomet, Inc.	090613	18092	1
Block H&R	093671	49373	1
Boeing Company	097023	19561	9
Briggs & Stratton	109043	17961	1
Bristol-Myers Squibb	110122	19393	1
Broadvision Inc	111412	83630	4
Brown-Forman Corp.	115637	29946	1

<b>COMPANY</b>	<b>CNUM</b>	<b>PERMNO</b>	<b>PARTNERSHIPS FORMED</b>
Brunswick Corp.	117043	10874	1
Burlington Northern Santa Fe	12189T	50227	1
Burlington Resources	122014	75333	1
CIGNA Corp.	125509	64186	3
CIT Group	125577	85599	1
CMS Energy	125896	81770	6
CSX Corp.	126408	62148	6
CVS Corp.	126650	17005	2
Cardinal Health, Inc.	14149Y	21371	4
Caterpillar Inc.	149123	18542	4
Cendant Corporation	151313	25487	3
CINergy Corp.	172474	22947	2
Cisco Systems	17275R	76076	18
Citigroup Inc.	172967	70519	19
Clear Channel Communications	184502	24046	3
Clorox Co.	189054	46578	1
Coastal Corp.	190441	38893	6
Coca Cola Co.	191216	11308	4
Colgate-Palmolive	194162	18729	1
Comcast	200300	25022	3
COMPAQ Computer	204493	68347	14
Computer Associates Intl.	204912	25778	15
Computer Sciences Corp.	205363	40125	4
Compuware Corp.	205638	78139	1
Comverse Technology	205862	10942	1
ConAgra Foods, Inc.	205887	56274	5
Conoco Inc.	208251	87029	2
Phillips Petroleum	20825C	13928	1
Cooper Tire & Rubber	216831	27430	1
Coors (Adolph)	217016	59248	2
Corning Inc.	219350	22293	5
Countrywide Credit Industries	222372	64565	1
Cummins Inc.	231021	41080	5
DTE Energy Co.	233331	11674	5
Dana Corp.	235811	11607	5
Deere & Co.	244199	19350	6
Delphi Automotive Systems	247126	86591	6
Delta Air Lines	247361	26112	2
Walt Disney Co.	254687	26403	12
Donnelley (R.R.) & Sons	257867	38682	2
Dow Chemical	260543	20626	18
Dow Jones & Co.	260561	58990	10
Du Pont (E.I.)	263534	11703	28
Duke Energy	264399	27959	9
Dynegy Inc.	26816Q	23720	3

<b>COMPANY</b>	<b>CNUM</b>	<b>PERMNO</b>	<b>PARTNERSHIPS FORMED</b>
EMC Corp.	268648	10147	1
Eastman Chemical	277432	80080	6
Eastman Kodak	277461	11754	9
Eaton Corp.	278058	11762	6
El Paso Corp.	28336L	77481	3
Electronic Data Systems	285661	83596	5
Emerson Electric	291011	22103	2
Engelhard Corp.	292845	62834	2
Enron Corp.	293561	23317	16
Entergy Corp.	29364G	24010	5
Equifax Inc.	294429	52476	1
Exelon Corp.	30161N	21776	2
Exxon Mobil Corp.	30231G	11850	19
FMC Corp.	302491	19166	3
First Data	319963	77546	7
FirstEnergy Corp.	337932	23026	2
Ford Motor	345370	88394	24
Fortune Brands, Inc.	349631	10225	1
Freeport-McMoran Cp & Gld	35671D	75294	2
GPU Inc.	36225X	22541	1
General Dynamics	369550	12052	1
General Electric	369604	12060	95
General Mills	370334	17144	1
General Motors	370442	12079	41
Georgia-Pacific Group	373298	23915	4
Gillette Co.	375766	16424	3
Goodrich Corporation	382388	12140	1
Goodyear Tire & Rubber	382550	16432	2
Grainger (W.W.) Inc.	384802	52695	1
Great Lakes Chemical	390568	32379	2
Guidant Corp.	401698	81126	1
HCA - The Health Co	404119	76171	4
Halliburton Co.	406216	23819	6
Harley-Davidson	412822	70033	1
Hasbro Inc.	418056	52978	1
Heinz (H.J.)	423074	23077	6
Hercules, Inc.	427056	18016	3
Hewlett-Packard	428236	27828	14
Hilton Hotels	432848	23309	3
Homestake Mining	437614	12319	4
Honeywell Int'l Inc.	438516	10145	11
IMS Health Inc.	449934	84020	1
ITT Industries, Inc.	450911	12570	5
Inco, Ltd.	453258	12546	1
Intel Corp.	458140	59328	14

<b>COMPANY</b>	<b>CNUM</b>	<b>PERMNO</b>	<b>PARTNERSHIPS FORMED</b>
International Bus. Machines	459200	12490	34
International Paper	460146	21573	3
Interpublic Group	460690	53065	8
J.P. Morgan Chase & Co.	46625H	47896	14
Johnson & Johnson	478160	22111	1
Johnson Controls	478366	42534	6
K mart	482584	12749	3
Kellogg Co.	487836	26825	2
Kerr-McGee	492386	25769	2
KeyCorp	493267	64995	3
Kimberly-Clark	494368	17750	2
Kroger Co.	501044	16678	1
Lehman Bros.	524908	80599	9
Lilly (Eli) & Co.	532457	50876	6
Lockheed Martin Corp.	539830	21178	16
Loews Corp.	540424	26710	2
Longs Drug Stores	543162	53612	1
Louisiana Pacific	546347	56223	3
Lucent Technologies	549463	83332	15
USX-Marathon Group	565849	15069	1
Marsh & McLennan	571748	45750	5
Marriott Int'l.	571903	85913	4
Mattel, Inc.	577081	39538	2
McDonald's Corp.	580135	43449	2
McGraw-Hill	580645	17478	1
McKesson Corp.	58155Q	81061	2
Medtronic Inc.	585055	60097	1
Mellon Bank Corp.	58551A	59379	6
Merck & Co.	589331	22752	5
Merrill Lynch	590188	52919	9
MetLife Inc.	59156R	87842	9
Microsoft Corp.	594918	10107	40
Micron Technology	595112	53613	1
Morgan Stanley, Dean Witter	617446	69032	15
Motorola Inc.	620076	22779	17
NCR Corp.	62886E	84372	4
National City Corp.	635405	56232	1
National Semiconductor	637640	51377	1
Navistar International Corp.	63934E	12503	3
Newmont Mining	651639	21207	6
Nextel Communications	65332V	77284	2
NICOR Inc.	654086	48274	1
Nortel Networks Corp Hldg Co.	656568	58640	1
Northern Trust Corp.	665859	58246	1
Northrop Grumman Corp.	666807	24766	4

<b>COMPANY</b>	<b>CNUM</b>	<b>PERMNO</b>	<b>PARTNERSHIPS FORMED</b>
Novell Inc.	670006	90609	2
Nucor Corp.	670346	34817	1
Occidental Petroleum	674599	34833	6
Omnicom Group	681919	30681	5
Oracle Corp.	68389X	10104	11
PPG Industries	693506	22509	2
Pall Corp.	696429	35051	1
Peoples Energy	711030	13821	1
PepsiCo Inc.	713448	13856	7
Pfizer, Inc.	717081	21936	1
Pharmacia Corp	71713U	18382	1
Phelps Dodge	717265	17806	7
Philip Morris	718154	13901	1
Praxair, Inc.	74005P	77768	7
Procter & Gamble	742718	18163	1
Public Serv. Enterprise Inc.	744573	23712	3
Pulte Homes, Inc.	745867	54148	3
QUALCOMM Inc.	747525	77178	6
Quintiles Transnational	748767	80470	2
Qwest Communications Int	749121	85032	3
Raytheon Co.	755111	24942	8
Rohm & Haas	775371	23990	4
Royal Dutch Petroleum	780257	25267	28
Ryder System	783549	27633	1
SBC Communications Inc.	78387G	66093	2
Safeway Inc.	786514	76149	1
St. Paul Cos.	792860	59459	2
Sapient Corp	803062	83413	1
Sara Lee Corp.	803111	22840	2
Schlumberger Ltd.	806857	14277	2
Charles Schwab	808513	75186	5
Scientific-Atlanta	808655	45671	1
Sempra Energy	816851	86136	4
Siebel Systems Inc	826170	83693	1
Solectron	834182	75857	1
Southern Co.	842587	18411	2
Sprint Corp. FON	852061	39087	4
Starbucks Corp.	855244	77702	14
Starwood Hotels & Resorts	85590A	54690	1
State Street Corp.	857477	72726	8
Sun Microsystems	866810	10078	10
Sunoco., Inc.	86764P	14656	2
SunTrust Banks	867914	68144	1
TRW Inc.	872649	18681	9
Tektronix Inc.	879131	40061	1



<b>COMPANY</b>	<b>CNUM</b>	<b>PERMNO</b>	<b>PARTNERSHIPS FORMED</b>
Temple-Inland	879868	66114	1
Tenet Healthcare Corp.	88033G	52337	5
Texaco Inc.	881694	14736	27
Texas Instruments	882508	15579	2
Textron Inc.	883203	23579	3
Thomas & Betts	884315	38578	1
Minn. Mining & Mfg.	88579Y	22592	1
Time Warner Inc.	887317	77418	4
Timken Co.	887389	14795	5
Tribune Co.	896047	65787	2
UST Inc.	902911	15077	2
U.S. Bancorp	902973	66157	1
Unilever N.V.	904784	28310	2
Union Pacific	907818	48725	1
Unisys Corp.	909214	10890	2
United Technologies	913017	17830	26
Unocal Corp.	915289	14891	14
V.F. Corp.	918204	43553	1
Veritas Software	923436	80055	1
Verizon Communications	92343V	65875	5
Viacom Inc.	925524	76226	3
Visteon Corp.	92839U	88319	2
Vulcan Materials	929160	15202	1
Wal-Mart Stores	931142	55976	5
Washington Mutual	938864	78920	1
Watson Pharmaceuticals	942683	78916	1
Wells Fargo	949746	38703	6
Westvaco Corp.	961548	21186	1
Weyerhaeuser Corp.	962166	39917	3
Williams Cos.	969457	38156	11
WorldCom Inc.	98157D	11042	2
Worthington Ind.	981811	83601	3
Xcel Energy Inc	98389B	23931	1
Xilinx, Inc	983919	76201	1
Xerox Corp.	984121	27983	2
Yahoo Inc.	984332	83435	3
Cooper Industries	G24182	21979	1
Ingersoll-Rand	G4776G	12431	1

**APPENDIX C**  
**LEGAL ACTIONS AGAINST SAMPLE FIRMS**  
**FINAL YEAR OF STUDY PERIOD**

<b>CNUM</b>	<b>COMPANY</b>	<b>YEAR</b>	<b>LEGAL ACTIONS</b>
002824	ABBOTT LABORATORIES	2004	21
000886	ADC TELECOMMUNICATIONS INC	2004	2
00724F	ADOBE SYSTEMS INC.	2004	3
00130H	AES CORP. (THE)	2004	20
00817Y	AETNA INC	2004	1
00846U	AGILENT TECHNOLOGIES INC	2004	1
009158	AIR PRODUCTS & CHEMICALS INC	2004	3
013104	ALBERTSONS INC	2004	6
013716	ALCAN INC	2004	16
017361	ALLEGHENY ENERGY INC	2004	12
01741R	ALLEGHENY TECHNOLOGIES INC	2004	1
018490	ALLERGAN INC	2004	3
019589	ALLIED WASTE INDUSTRIES INC	2004	3
020002	ALLSTATE CORP	2004	8
020039	ALLTEL CORP	2004	0
021441	ALTERA CORP	2004	0
023139	AMBAC FINANCIAL GP	2004	0
023551	AMERADA HESS CORP	2004	7
023608	AMERENENERGY GENERATING CO	2004	0
025537	AMERICAN ELECTRIC POWER	2004	12
025816	AMERICAN EXPRESS	2004	15
026375	AMERICAN GREETINGS	2004	0
026874	AMERICAN INTERNATIONAL GROUP	2004	8
029066	AMERICAN POWER CONVERSION CP	2004	2
031162	AMGEN INC	2004	7
001765	AMR CORP/DE	2004	14
032165	AMSOUTH BANCORPORATION	2004	0
032511	ANADARKO PETROLEUM CORP	2004	6
032654	ANALOG DEVICES	2004	3
034425	ANDREW CORP	2004	2
035229	ANHEUSER-BUSCH COS INC	2004	3
037389	AON CORP	2004	3
037411	APACHE CORP	2004	3
037833	APPLE COMPUTER INC	2004	8
038020	APPLERA CORP CELERA GENOMICS	2004	15
038222	APPLIED MATERIALS INC	2004	9
03822W	APPLIED MICRO CIRCUITS CORP	2004	5
039483	ARCHER-DANIELS-MIDLAND CO	2004	2
044204	ASHLAND INC	2004	4
001957	AT&T CORP	2004	7

<b>CNUM</b>	<b>COMPANY</b>	<b>YEAR</b>	<b>LEGAL ACTIONS</b>
052769	AUTODESK INC	2004	3
053015	AUTOMATIC DATA PROCESSING	2004	1
053332	AUTOZONE INC	2004	1
053499	AVAYA INC	2004	5
053611	AVERY DENNISON CORP	2004	8
054303	AVON PRODUCTS	2004	6
057224	BAKER HUGHES INC	2004	7
058498	BALL CORP	2004	7
060505	BANK OF AMERICA CORP	2004	7
064057	BANK OF NEW YORK CO INC	2004	1
06423A	BANK ONE CORP	2004	0
067383	BARD (C.R.) INC	2004	1
067901	BARRICK GOLD CORP	2004	3
071707	BAUSCH & LOMB INC	2004	1
071813	BAXTER INTERNATIONAL INC	2004	2
054937	BB&T CORP	2004	0
073902	BEAR STEARNS COMPANIES INC	2004	15
075887	BECTON DICKINSON & CO	2004	5
075896	BED BATH & BEYOND INC	2004	0
079860	BELLSOUTH CORP	2004	6
081437	BEMIS CO INC	2004	2
086516	BEST BUY CO INC	2004	1
090597	BIOGEN INC	2004	4
090613	BIOMET INC	2004	0
091797	BLACK & DECKER CORP	2004	0
055921	BMC SOFTWARE INC	2004	2
097023	BOEING CO	2004	10
101137	BOSTON SCIENTIFIC CORP	2004	12
109043	BRIGGS & STRATTON	2004	1
111320	BROADCOM CORP	2004	2
111412	BROADVISION INC	2004	2
117043	BRUNSWICK CORP	2004	5
12189T	BURLINGTON NORTHERN SANTA FE	2004	2
122014	BURLINGTON RESOURCES INC	2004	0
131347	CALPINE CORP	2004	15
134429	CAMPBELL SOUP CO	2004	3
14040H	CAPITAL ONE FINANCIAL CORP	2004	2
14149Y	CARDINAL HEALTH INC	2004	19
143658	CARNIVAL CORP	2004	5
149123	CATERPILLAR INC	2004	2
151313	CENDANT CORP	2004	5
152312	CENTEX CORP	2004	2
156700	CENTURYTEL INC	2004	0
160903	CHARTER ONE FINANCIAL INC	2004	0

<b>CNUM</b>	<b>COMPANY</b>	<b>YEAR</b>	<b>LEGAL ACTIONS</b>
170040	CHIRON CORP	2004	7
171232	CHUBB CORP	2004	3
125509	CIGNA CORP	2004	12
172062	CINCINNATI FINANCIAL CORP	2004	0
172474	CINERGY CORP	2004	6
172737	CIRCUIT CITY STORES INC	2004	0
17275R	CISCO SYSTEMS INC	2004	2
125577	CIT GROUP INC-OLD	2004	3
172967	CITIGROUP INC	2004	13
177376	CITRIX SYSTEMS INC	2004	0
184502	CLEAR CHANNEL COMMUNICATIONS	2004	0
189054	CLOROX CO/DE	2004	0
191216	COCA-COLA CO	2004	8
191219	COCA-COLA ENTERPRISES	2004	6
194162	COLGATE-PALMOLIVE CO	2004	2
200340	COMERICA INC.	2004	0
204912	COMPUTER ASSOCIATES INTL INC	2004	5
205363	COMPUTER SCIENCES CORP	2004	0
205638	COMPUWARE CORP	2004	3
205862	COMVERSE TECHNOLOGY INC	2004	1
205887	CONAGRA FOODS INC	2004	2
207142	CONEXANT SYSTEMS INC	2004	3
208251	CONOCOPHILLIPS	2004	12
208464	CONSECO INC	2004	4
210371	CONSTELLATION ENERGY GRP INC	2004	7
212485	CONVERGYS CORP	2004	0
216831	COOPER TIRE & RUBBER CO	2004	0
222372	COUNTRYWIDE FINANCIAL CORP	2004	0
126408	CSX CORP	2004	2
231021	CUMMINS INC	2004	0
126650	CVS CORP	2004	2
235811	DANA CORP	2004	5
235851	DANAHER CORP	2004	2
237194	DARDEN RESTAURANTS INC	2004	3
244199	DEERE & CO	2004	1
24702R	DELL INC	2004	0
247361	DELTA AIR LINES INC	2004	8
248019	DELUXE CORP	2004	0
25179M	DEVON ENERGY CORP	2004	1
254067	DILLARDS INC	2004	0
254687	DISNEY (WALT) CO	2004	3
256669	DOLLAR GENERAL CORP	2004	2
257867	DONNELLEY (R R) & SONS CO	2004	1
260003	DOVER CORP	2004	0

<b>CNUM</b>	<b>COMPANY</b>	<b>YEAR</b>	<b>LEGAL ACTIONS</b>
260561	DOW JONES & CO INC	2004	2
233331	DTE ENERGY CO	2004	0
264399	DUKE ENERGY CORP	2004	11
26816Q	DYNEGY INC	2004	11
277461	EASTMAN KODAK CO	2004	3
278058	EATON CORP	2004	0
281020	EDISON INTERNATIONAL	2004	1
28336L	EL PASO CORP	2004	0
268648	EMC CORP/MA	2004	1
292845	ENGELHARD CORP	2004	1
293561	ENRON CORP	2004	0
26875P	EOG RESOURCES INC	2004	0
294429	EQUIFAX INC	2004	4
30161N	EXELON CORP	2004	4
313586	FANNIE MAE	2004	0
31410H	FEDERATED DEPT STORES	2004	1
31428X	FEDEX CORP	2004	2
343412	FLUOR CORP	2004	1
302491	FMC CORP	2004	2
345838	FOREST LABORATORIES	2004	5
349631	FORTUNE BRANDS INC	2004	2
354613	FRANKLIN RESOURCES INC	2004	9
35671D	FREERT MCMOR COP&GLD	2004	0
364760	GAP INC	2004	0
367626	GATEWAY INC	2004	8
369604	GENERAL ELECTRIC CO	2004	2
370334	GENERAL MILLS INC	2004	0
370442	GENERAL MOTORS CORP	2004	6
372460	GENUINE PARTS CO	2004	0
373298	GEORGIA-PACIFIC CORP	2004	3
375766	GILLETTE CO	2004	0
382550	GOODYEAR TIRE & RUBBER CO	2004	9
384802	GRAINGER (W W) INC	2004	2
390568	GREAT LAKES CHEMICAL CORP	2004	6
401698	GUIDANT CORP	2004	12
41163G	HARCOURT GENERAL INC	2004	0
412822	HARLEY-DAVIDSON INC	2004	1
416515	HARTFORD FINL SVCS GRP INC	2004	4
418056	HASBRO INC	2004	0
421924	HEALTHSOUTH CORP	2004	17
423074	HEINZ (H J) CO	2004	0
427866	HERSHEY CO	2004	0
432848	HILTON HOTELS CORP	2004	0
437076	HOME DEPOT INC	2004	0

<b>CNUM</b>	<b>COMPANY</b>	<b>YEAR</b>	<b>LEGAL ACTIONS</b>
437614	HOMESTAKE MINING	2004	0
441815	HOUSEHOLD INTERNATIONAL INC	2004	7
444859	HUMANA INC	2004	1
446150	HUNTINGTON BANCSHARES	2004	0
452308	ILLINOIS TOOL WORKS	2004	2
453258	INCO LTD	2004	0
G4776G	INGERSOLL-RAND CO LTD	2004	2
458140	INTEL CORP	2004	1
460690	INTERPUBLIC GROUP OF COS	2004	0
459506	INTL FLAVORS & FRAGRANCES	2004	2
461202	INTUIT INC	2004	3
46612J	JDS UNIPHASE CORP	2004	8
475070	JEFFERSON-PILOT CORP	2004	1
478366	JOHNSON CONTROLS INC	2004	2
487836	KELLOGG CO	2004	0
492386	KERR-MCGEE CORP	2004	5
49337W	KEYSPAN CORP	2004	9
494368	KIMBERLY-CLARK CORP	2004	1
495582	KING PHARMACEUTICALS INC	2004	14
482480	KLA-TENCOR CORP	2004	1
500255	KOHL'S CORP	2004	0
501044	KROGER CO	2004	2
524908	LEHMAN BROTHERS HOLDINGS INC	2004	17
529771	LEXMARK INTL INC	2004	2
532716	LIMITED BRANDS INC	2004	1
534187	LINCOLN NATIONAL CORP	2004	1
539320	LIZ CLAIBORNE INC	2004	1
539830	LOCKHEED MARTIN CORP	2004	4
543162	LONGS DRUG STORES CORP	2004	2
546347	LOUISIANA-PACIFIC CORP	2004	3
548661	LOWE'S COMPANIES INC	2004	0
502161	LSI LOGIC CORP	2004	3
571903	MARRIOTT INTL INC	2004	1
571748	MARSH & MCLENNAN COS	2004	5
577081	MATTEL INC	2004	6
578592	MAYTAG CORP	2004	0
580033	MCDERMOTT INC	2004	13
58155Q	MCKESSON CORP	2004	8
585055	MEDTRONIC INC	2004	13
589405	MERCURY INTERACTIVE CORP	2004	0
59156R	METLIFE INC	2004	17
594918	MICROSOFT CORP	2004	10
608554	MOLEX INC	2004	0
620076	MOTOROLA INC	2004	15

<b>CNUM</b>	<b>COMPANY</b>	<b>YEAR</b>	<b>LEGAL ACTIONS</b>
637640	NATIONAL SEMICONDUCTOR CORP	2004	5
650111	NEW YORK TIMES CO	2004	0
651229	NEWELL RUBBERMAID INC	2004	1
654106	NIKE INC	2004	0
65473P	NISOURCE INC	2004	6
656568	NORTEL NETWORKS CORP	2004	13
670006	NOVELL INC	2004	5
674599	OCCIDENTAL PETROLEUM CORP	2004	2
681919	OMNICOM GROUP	2004	1
693718	PACCAR INC	2004	0
704326	PAYCHEX INC	2004	2
712713	PEOPLESOFT INC	2004	0
723484	PINNACLE WEST CAPITAL CORP	2004	0
693475	PNC FINANCIAL SVCS GROUP INC	2004	5
69351T	PPL CORP	2004	11
74144T	PRICE (T. ROWE) GROUP	2004	1
742718	PROCTER & GAMBLE CO	2004	1
747277	QLOGIC CORP	2004	3
758110	REEBOK INTERNATIONAL LTD	2004	0
803062	SAPIENT CORP	2004	0
808513	SCHWAB (CHARLES) CORP	2004	4
833034	SNAP-ON INC	2004	1
844730	SOUTHTRUST CORP	2004	0
852061	SPRINT CORP	2004	3
854616	STANLEY WORKS	2004	0
855030	STAPLES INC	2004	0
855244	STARBUCKS CORP	2004	1
85590A	STARWOOD HOTELS&RESORTS	2004	5
857477	STATE STREET CORP	2004	2
866005	SUMMIT BANCORP	2004	0
866810	SUN MICROSYSTEMS INC	2004	3
86764P	SUNOCO INC	2004	3
867914	SUNTRUST BANKS INC	2004	0
868536	SUPERVALU INC	2004	0
871508	SYMBOL TECHNOLOGIES	2004	4
87161C	SYNOVUS FINANCIAL CP	2004	1
871829	SYSCO CORP	2004	0
879131	TEKTRONIX INC	2004	2
879664	TELLABS INC	2004	2
879868	TEMPLE-INLAND INC	2004	1
880770	TERADYNE INC	2004	2
881694	TEXACO INC	2004	0
882508	TEXAS INSTRUMENTS INC	2004	3
883203	TEXTRON INC	2004	1



<b>CNUM</b>	<b>COMPANY</b>	<b>YEAR</b>	<b>LEGAL ACTIONS</b>
88355R	THERMO ECOTEK CORP	2004	1
884315	THOMAS & BETTS CORP	2004	4
886547	TIFFANY & CO	2004	1
887389	TIMKEN CO	2004	1
872540	TJX COMPANIES INC	2004	0
891027	TORCHMARK CORP	2004	3
891490	TOSCO CORP	2004	0
892335	TOYS R US INC	2004	1
G90078	TRANSOCEAN INC	2004	7
896047	TRIBUNE CO	2004	3
872649	TRW INC	2004	2
899896	TUPPERWARE CORP	2004	0
907818	UNION PACIFIC CORP	2004	7
908068	UNION PLANTERS CORP	2004	0
909214	UNISYS CORP	2004	0
913017	UNITED TECHNOLOGIES CORP	2004	0
91529Y	UNUMPROVIDENT CORP	2004	19
911905	US AIRWAYS GROUP INC	2004	8
902911	UST INC	2004	12
923436	VERITAS SOFTWARE CORP	2004	2
92343V	VERIZON COMMUNICATIONS INC	2004	0
92343V	VERIZON COMMUNICATIONS INC	2004	0
918204	VF CORP	2004	0
925524	VIACOM INC -CL B	2004	2
92839U	VISTEON CORP	2004	0
928497	VITESSE SEMICONDUCTOR CORP	2004	0
929160	VULCAN MATERIALS CO	2004	6
929771	WACHOVIA CORP-OLD	2004	4
931142	WAL-MART STORES	2004	58
938864	WASHINGTON HOMES INC	2004	1
94106L	WASTE MANAGEMENT INC	2004	12
942683	WATSON PHARMACEUTICALS INC	2004	7
949746	WELLS FARGO & CO	2004	0
950590	WENDY'S INTERNATIONAL INC	2004	0
962166	WEYERHAEUSER CO	2004	9
963320	WHIRLPOOL CORP	2004	4
969133	WILLAMETTE INDUSTRIES	2004	0
969457	WILLIAMS COS INC	2004	17
974280	WINN-DIXIE STORES INC	2004	2
981811	WORTHINGTON INDUSTRIES	2004	0
982526	WRIGLEY (WM) JR CO	2004	0
983024	WYETH	2004	24
98389B	XCEL ENERGY INC	2004	14
984121	XEROX CORP	2004	13

<b>CNUM</b>	<b>COMPANY</b>	<b>YEAR</b>	<b>LEGAL ACTIONS</b>
983919	XILINX INC	2004	7
984332	YAHOO INC	2004	7
988498	YUM BRANDS INC	2004	3

**APPENDIX D**  
**PANEL MEMBERS**

<b>Member</b>	<b>Firm</b>	<b>Industry</b>
Chris Williams	Accenture	Consulting
Blake Steward	AT&T	Telecommunications
Joe Alapat	Channel Dynamix	Software Design
Jeff Cannon	Cingular	Telecommunications
Sean Foley	Cingular	Telecommunications
Dan Watkins	DFJ Mercury	Venture Capital
Howard Green	Green & Associates	Private Equity
Kapil Nanda	Infogain Corp.	Consulting
James Baumuel	Jones Day	Legal
Keven Richardson	Reliant Energy	Energy
Richard Scruggs	Texas A&M University	Education
Ricky Griffin	Texas A&M University	Education
Robert Ulrich	Vanguard Ventures	Venture Capital
Christine Collins	Viewpointe Archive	Banking Services

## VITA

### JAMIE D. COLLINS

#### EDUCATION

**Ph.D., Mays Business School, 2006**

Texas A&M University, College Station, TX

Emphasis: Strategic Management

**Master of Business Administration, May 1997**

Texas A&M University, College Station, TX

**Bachelor of Science in Finance, May 1994**

- Honors Graduate: *Magna cum laude*, Missouri State University, Springfield, MO

#### TEACHING/WORK EXPERIENCE

**Assistant Professor**, Management & Entrepreneurship – Hankamer School of Business, Baylor University, Waco, TX – Beginning Fall 2006

**Instructor** – Mays Business School, Texas A&M University, *Fall 2004 – Spring 2006*

- Strategic Management; International Management

**Product Marketing & Strategy Manager** – iVita Corp, Houston, TX, *2000 – 2001*

**Director of Strategy** – Bresina-Hawkins & Willis, LLC, Houston, TX, *1999 – 2000*

**Business Development Manager** – Koch Industries, Houston, TX, *1997 - 1999*

**Consultant** – Texas Engineering Extension Service, College Station, TX, *1996 – 1997*

**Financial Controls Analyst** – McDonnell Douglas, St. Louis, MO, *1994 – 1995*

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- Collins, J.D. and Hitt, M.A. 2006. Leveraging tacit knowledge in alliances: The importance of using relational capabilities to build and leverage relational capital. *Journal of Engineering & Technology Management*, (in press).
- Hitt, M.A., Bierman, L. and Collins, J.D. 2006. The strategic evolution of professional service firms: The case of large U.S. law firms. *Business Horizons*, (forthcoming).
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