

Social networks and the adverse selection problem in agency relationships

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Abstract

Agent selection is one of the most challenging decisions faced in the implementation of organizational strategy. Despite the central importance of this decision, limited research has addressed pre-contractual evaluation of agents. The purpose of this study is to illustrate how the examination of a potential partner's network of relationships alleviates costs associated with the adverse selection problem. Propositions that underscore the influence of network quality and structure on pre-contractual uncertainty are developed.

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1. Introduction

Agency theory addresses situations in which one party (i.e., the principal) seeks to establish an exchange relationship with another party (i.e., the agent) to perform some organizational tasks on the principal's behalf. Principals and agents pursue cooperative relationships, yet they have differing goals and attitudes toward risk. Agency theory outlines factors that enable principal and agent to align incentives and establish efficient exchange relationships (Eisenhardt, 1989).

Adverse selection is an aspect of the agency problem that refers to information asymmetry between principal and agent (Akerlof, 1970). Trading partners that encounter asymmetrical information experience pre-contractual uncertainty that jeopardizes efforts to establish efficient exchange relationships. Prior research recognizes the potential for an agent's capabilities to be misrepresented, yet few studies identify means by which to overcome pre-contractual asymmetries. Harrison and Harrell (1993) address adverse selection, but they focus on previously established relationships. Coff (1997) also recognizes the need to manage information, yet his prescriptions to access competitive information or maintain internal labor markets are infeasible in many industries.

Relational contract theory (Macneil, 1980) characterizes the uncertainty that arises *before* establishing a relationship and the mechanisms employed to incorporate flexibility into

contracts. Consistent with this perspective, Balakrishnan and Koza (1993) illustrate how joint ventures provide vehicles for learning about trading partners. Contracts that incorporate market and corporate governance mechanisms can also quell selection problems (Shane, 1996). Qualified agents view these hybrid arrangements as worthwhile, yet unqualified agents are reluctant to invest in hybrid contracts. These studies underscore the potential to alleviate uncertainty through contracts, but they are tacit with respect to the pre-contractual screening of agents. Moreover, many industries that employ hybrid contracts continue to experience substantial agency costs. Consequently, research that identifies other means to constrain adverse selection problems is needed.

The purpose of this study is to illustrate how examination of an agent's network of relationships influences the principal's costs of reducing pre-contractual uncertainty. Problems that occur before establishing the contractual arrangement lack formality and leave much of the exchange relationship unexplained (Granovetter, 1985) and opened to uncertainty (Williamson, 1985). In establishing agency relationships, one must weigh the costs associated with acquiring pre-contractual information against the losses associated with foregoing screening. Substantial research has addressed the liabilities incurred after an alliance is established, yet relatively little is known about the principal's a priori efforts to qualify agents. Nevertheless, the trade-off between pre- and post-contractual liabilities cannot be effectively assessed until the expenditures associated with both periods are identified. Our study seeks to augment research on the trade-off between pre- and post-contractual agency costs by identifying screening activities undertaken by principals.

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We develop a theoretical framework relevant to situations in which an agent establishes an organization that is embedded in a network of interfirm relationships. These agency relationships are manifest in a variety of marketing settings such as franchises, advertising agencies, manufacturer representatives and contractors. The principal alleviates pre-contractual uncertainty through analysis of the prospective agent's existing relationships with organizations important to the distribution system. First, we suggest that the structure of an agent's network influences costs incurred to reduce uncertainty. Second, we characterize qualities of relationships within an agent's network that influence pre-contractual costs. Finally, we address interactions between structure and process and their influences on expenditures to reduce pre-contractual information asymmetries.

2. Conceptual framework

Adverse selection problems evolve from the principal's uncertainty regarding the agent's willingness and ability to perform tasks associated with system performance. For example, a machine tool producer has limited ability to assess whether a prospective representative has the ability to make cold calls and close sales. According to agency theory (Bergen et al., 1992), principals reduce adverse selection problems by screening agents before forging an alliance. Screening is performed via assessment of a broad spectrum of an agent's abilities gleaned from existing relationships as well as aptitudes to perform tasks endemic to an agent's success. Screening provides efficient solutions to adverse selection when the costs of obtaining information are low. When these costs are exorbitant, however, principals forego them for contracts that shift risk to the agent and mechanisms that monitor the agent's behavior. These policies reduce the principal's risk, yet they do not ensure that the agent is representing the principal in an acceptable manner (Ghoshal and Moran, 1996). Thus, research that examines the principal's pre-contractual costs is needed.

Our conceptual framework suggests that analysis of the agent's social network is one element of the principal's screening process. The parties to relational exchange engage in social interaction, and analysis of a potential partner's existing relationships provides information regarding the viability of an agreement with the partner (cf. Macneil, 1978; Iacobucci, 1996). The principal, by focusing on the agent's social network, reduces uncertainty before dedicating additional costly resources to an exchange. Evaluation of an agent's network of relationships augments the dyadic interaction between principal and agent (cf. Iacobucci and Zerrillo, 1996). The dyad remains the relevant level of analysis for decision making, yet the network in which the dyad is embedded affects the sentiments, behavior and performance of members of the dyad (Granovetter, 1973). As a means for illustrating the merits of network analysis to

agent selection, we provide a brief overview of relevant network properties.

Networks have been defined in a variety of ways. Generally, networks are described as a set of two or more connected relationships (Cook and Emerson, 1978); some direct, others indirect. Thorelli (1986) refers to networks as consisting of nodes and links manifest in interaction between the nodes. For example, a sales representative has a strategic network of relationships. Individuals in the network serve as nodes with links between them characterized by the nature of the interaction between parties.

Analysts of networks must specify the *level of analysis* as well as the *limits on the network* (Knoke and Kuklinski, 1982). The definition of the problem prescribes the level of analysis, and this level ranges from individuals to clusters of organizations (Burt, 1980). When an organization is the focus of analysis, the set of relationships surrounding the firm is germane. This network includes the firms with which the organization has direct linkages as well as firms that are not directly linked to the focal organization (Aldrich and Whetten, 1981). By contrast, when an individual is the focus of analysis, the relevant network is the set of relationships the individual has with other persons. The problem definition also influences the size of the network under investigation. Bergen et al. (1992) suggest that principals know the nature of the tasks that agents must perform as well as the personal characteristics endemic to an agent's success. Similarly, the principal is likely to know the kinds of pre-contractual relationships that foreshadow successful agency agreements.

Our research focuses on pre-contractual costs incurred by a principal to evaluate a prospective agent in some pre-determined context. These agency relationships are manifest in franchise agreements (Brickley and Dark, 1987) and manufacturer representative contracts (Anderson, 1985). Pre-contractual costs reflect expenditures associated with a principal's efforts to evaluate a prospective agent. These costs include agent observation, interviews, reference checks and other aptitude assessments. Principals lower pre-contractual costs by assessing the structure and character of relationships in an agent's personal network. The structure of the network describes the pattern of relationships that define an agent's position in a network, and the character of the network reflects the intensity of relationships between actors in a network (Burt, 1980). The information gained in an agent's network can be quantified and qualified. The structure of the network is more highly related to the quantity of available information, yet the nature of the network ties is more closely associated with the quality of information. Consider first how network structure influences pre-contractual costs.

2.1. Network structure and pre-contractual costs

Principals that apply a network perspective to address pre-contractual agency problems evaluate a prospective partner as a member of a local network. For example, suppose that a

franchisor is searching for a franchisee that will be responsible for establishing new restaurants in a metropolitan area. The company augments the franchisee's self-reports with an examination of the relationships the franchisee has with food suppliers and other vendors in the territory. This perspective requires that the principal compare selected elements of the network as a means for gaining an understanding of the entire network of relationships (Aldrich and Whetten, 1981; Provan, 1993). The network positions and links established in a prospective agent's personal network help reduce the costs incurred to lower pre-contractual uncertainty.

A network approach focuses on multiple types of bonds or ties within which relationships are embedded (Granovetter, 1985). For example, Uzzi (1997) characterizes buyer–supplier relationships in the fashion industry as highly personal. *Density* is a structural property that addresses the number of relationships an agent has developed within a network in proportion to number of possible links within the network (Granovetter, 1973). Suppose that a quick service restaurant franchisor has received an inquiry from a prospective franchisee. The franchisor may recognize that a banker, equipment supplier, food supplier and real estate broker are important elements of the supply network. Because franchisors have established relationships with many of these groups, they can screen prospective franchisees with similar ties efficiently. The franchisor may wish to identify the franchisee's relationships with members of the business community, and density may be informative to this assessment. For example McDonald's values franchisees that have established ties with the chamber of commerce, educational institutions and other community groups (Shook and Shook, 1993).

Assessing network density involves measuring the number of links within a network. To simplify our presentation, we presume that both nodes in the network report the same set of linkages with other members of the network. Thus, if the prospective franchisee claims a relationship with the real estate broker, then the broker reports the same. These links signal the looseness or richness of a network. For example, Fig. 1A could be viewed as a tightly joined network since five links out of a possible 10 exist, representing a density of 50%. Comparing various prospective agents' density is suggested before labeling the ties as either loose or tight because distinct industries could consist of different network structures (Aldrich and Whetten, 1981). When the density of the prospect's network is close to one, then the agent is considered deeply embedded within the network. The closer the calculation is to zero, the less stable the individual's position within the network.

One can distinguish between the overall network density and the density associated with a specific member of the network (Scott, 1991). The overall network in Fig. 1A may be contrasted with the number of relationships associated with the potential franchisee. The individual's set of direct relationships is used to estimate the egocentric network (Fig. 1B). The potential franchisee has a relationship with the local banker, food supplier and real estate broker, but no

relationship exists with the equipment seller. Thus, the density of the potential franchisee's egocentric network is 75% (three of four links). The sociocentric network consists of the indirect links surrounding an agent (Fig. 1C). Although six links are possible in the franchisee's sociocentric network, the only linkages are between the banker and equipment seller and the equipment seller and the food supplier. Thus, the sociocentric density is 33% (two of six possible links surrounding the franchisee).

Although network researchers often investigate the sociocentric network, we maintain that the egocentric network is germane to the principal's screening process. Our focus on the ego-centered group is consistent with Birley et al.'s (1991) analysis of entrepreneurial networks. His study underscores the influence that an owner–manager's social network has in framing objectives and outlining boundaries of acceptable action. Similarly, Brickson (2000) recognizes that dense interpersonal networks promote interpersonal cooperation. The principal is likely to have greater confidence in an agent that has interacted with other organizations associated with interfirm operations, and the principal can survey parties with whom the agent has relationships to gauge the agent's likelihood of success. Agents with looser personal networks should foster less confidence in their abilities to represent the principal, and they have fewer relationships that can be used to assess the agent. Moreover, network density increases the flow of information, and the efficient flow of information offers enhanced opportunity to gain information from a variety of sources (Rowley, 1997). The interconnected individuals develop shared norms and behavioral expectations, and tacit coordination emerges within the network that places strong constraints on the agent. Thus, density facilitates the flow of information, and it also signals that norms, which raise the likelihood that agents will fulfill contractual obligations, are present. Therefore, the following is proposed:

Proposition 1: Network density influences the costs incurred to lower pre-contractual uncertainty. As the egocentric density of a prospective agent's network increases, the principal's costs to reduce pre-contractual uncertainty decrease.

Although a linear, negative relationship between density and pre-contractual uncertainty is anticipated, this relationship is likely to be manifest within a limited region. Beyond some threshold, density may constrict the flow of information beyond an agent's egocentric network (Brass et al., 1998). The likelihood of this contingency, however, is related to other properties of the network. Consider, therefore, the influence of a network's qualities on information asymmetry.

2.2. Qualities of network linkages and pre-contractual costs

In the previous example, the potential set of relationships between an agent and other persons was identified, but the nature of the links was not established. Principals gain

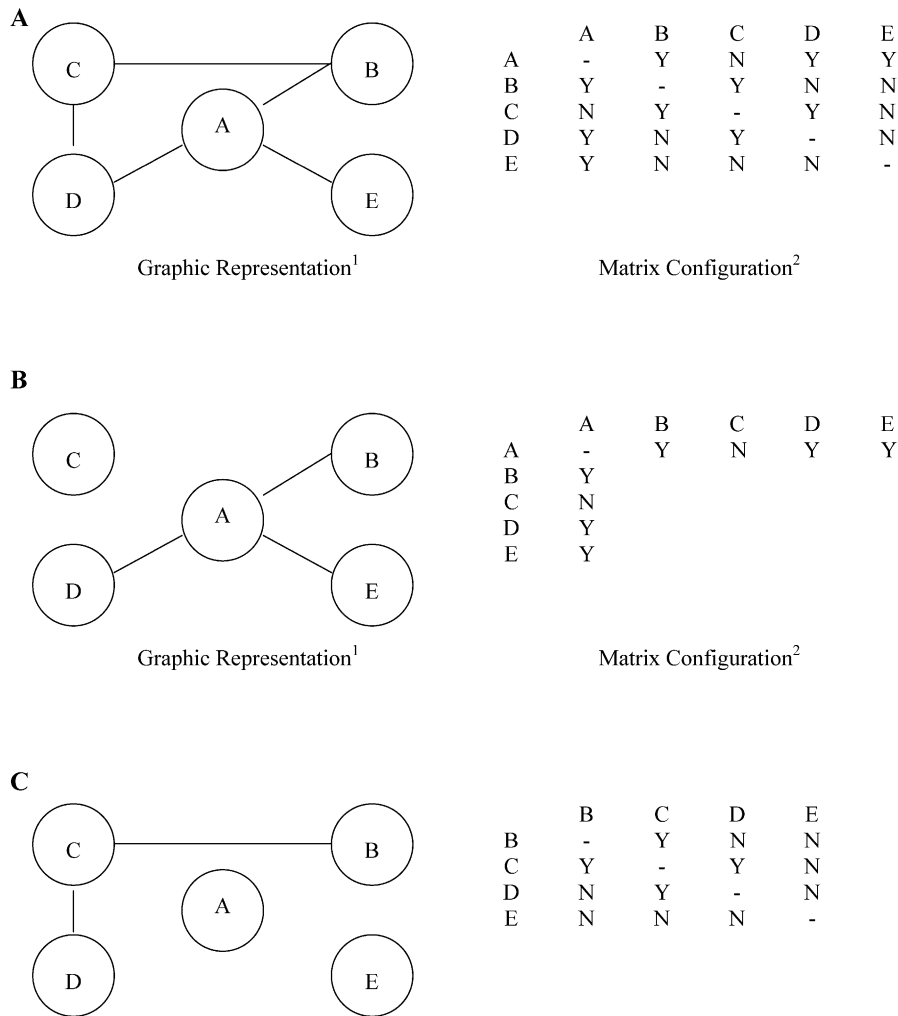


Fig. 1. (A) Overall network structure. (B) Egocentric network structure. (C) Social network structure. ¹Graphic representation: A=prospective franchisee; B=local banker; C=restaurant equipment supplier; D=institutional food distributor; E=real estate broker. ²Matrix configuration: Y=established relationship; N=no established relationship.

insight into the nature of these relationships by examining facets of the agent’s affiliation network. Affiliation networks consist of cohesive subgroups associated with the prospective agent (Wasserman and Faust, 1994). Germane qualities of these affiliation groups include tie strength and multiplexity (Brass et al., 1998).

2.2.1. Tie strength

Granovetter (1973) characterizes the strength of the ties between individuals as a combination of the amount of time, emotional intensity, intimacy and reciprocity associated with a relationship. Research by Tsai and Ghoshal (1998) in the electronics industry suggests that the strength of ties in a network is associated with higher levels of trustworthiness. Weak ties refer to interactions characterized by infrequent interaction and limited affect (Brass et al., 1998). A spot transaction involving minimal communication and narrow content reflects the weakest of ties (Macneil, 1978). For example, a franchisee may interact with a

real estate broker on one occasion during a property transfer meeting. The identity of the parties is documented, but the relationship does not reflect substantial investments of time and other resources.

Strong positive ties between individuals are characterized by reciprocal interactions over extended periods of time. For example, a prospective franchisee may have an enduring close working relationship with a food distributor. In relationships characterized by strong ties, transactions are viewed in light of the history and future of the relationship. Over time, social interaction and communication develop in conjunction with cooperation and reciprocity. As the relationship matures, there is less emphasis on ensuring the profitability of a single purchase, and the parties gain a greater appreciation of the challenges faced by the trading partner.

Weak ties are “the key to information benefits” (Burt, 1992, p. 20) because they enable parties to identify potential trading partners. Information about new market opportunities originates from outside an individual’s immediate circle

of close relationships because such networks yield redundant information (Granovetter, 1973). Weak ties offer advantages in the identification of potential trading partners, but identification does not enable one to screen potential partners. Principals seek substantial information regarding the ability to perform tasks associated with the agency relationship. Hansen (1999) indicates that weak ties provide access to novel information, but they do not afford the opportunity to transfer detailed information across groups. By contrast, strong ties are more effective in conveying complex information across groups. The principal seeking to forge a long-term relationship with an agent can lower pre-contractual uncertainty by obtaining rich descriptions of the agent's prior interactions in complementary relationships. Principals and agents have established relationships in an industrial network, and these relationships offer strategic insight into the construction of new relationships (Håkansson and Sharma, 1996). Consistent with this view, Uzzi (1997) reports that new relationships between two unconnected parties are established through intermediaries with strong ties to both persons. These mediators transfer expectations to the new relationship in a setting characterized by strong trust. Weak ties do not facilitate transfer of expectations and do not foster the same trustworthy climate.

The costs incurred to acquire detailed information about a prospective agent should be lowest where the provider of information has a close working relationship with the agent. Agents with networks characterized by weak ties have limited evidence to support assertions about their commitments to the local market. The principal interacting with this agent has limited bases from which to evaluate whether the agent will serve as an appropriate representative of the firm. By contrast, agents that have strong ties in a community have illustrated an ability to engage in relational exchange. Principals can acquire rich information in the egocentric networks of agents with strong ties. These relationships should evince considerable empathy and psychological proximity (Brass et al., 1998) and should be less susceptible to opportunism (Provan, 1993). The principal that identifies an agent with strong ties should have lower costs to evaluate the agent.

Proposition 2: The strength of ties in an agent's egocentric network influences the costs incurred to alleviate pre-contractual uncertainty. As the strength of an agent's ties increases, the principal's costs to reduce pre-contractual uncertainty decrease.

Proposition 2 is grounded in the presumption that an agent's network ties are positive. Many researchers have explored positive interpersonal relationships, yet research has also considered negative links between entities. Iacobucci and Zerrillo (1996) recognize that reciprocal negative interaction may lead to confrontation between groups, and Gemünden (1985) examines buyer–seller efficiencies over a series of conflicts ranging from tacit episodes to open confrontation. Institutional economics also accentuates the need to safeguard against miscreant behavior by trading

partners (Williamson, 1985). The individual's proclivity to recount such negative episodes warrants empirical considerations. Although some trading partners may be forthright in their reflections on negative ties, others may be reluctant due to concerns for litigation, sanctions or other reprisals.

2.2.2. Multiplexity

Multiplexity refers to the kinds of relationships established between parties in a network. Multiplexity is present when two persons have relationships that operate in more than one dimension. For instance, a salesperson and buyer belonging to the same health club may develop a multiplex relationship. Interaction with members of local community on several dimensions can include financial transactions, friendship, advice, resource sharing and favor trading (Provan, 1993; Knoke and Kuklinski, 1982). Brass et al. (1998) recognize that strong ties may accompany multiplex relationships, yet neither relational quality is contingent on the other. Consequently, one must consider the independent effects of these qualities.

The merits of multiplexity in network research are underscored in Krackhardt's (1990) work on the political structure within an organization. In his analysis of networks in a high-technology company, Krackhardt illustrates the value in examining friendship and advice networks in addition to the formal organizational network. Although some relationships may be characterized by one dimension (e.g., formal network), other relationships will possess multiple qualities (e.g., formal friendship). When a relationship has multiple facets, one can acquire a larger quantity of information because informants have a broader base of knowledge about the agent. Furthermore, obtaining information about multiple aspects of the relationship provides the principal with a better appreciation of the agent's capabilities. Relationships characterized by one dimension are relatively unstable because a single facet of the relationship serves as the bond between persons. If this single bond is broken, then there is no reason for the relationship to continue. By contrast, relationships that develop along multiple dimensions offer greater durability. Multiplexity signals to the principal that the agent nurtures complex and durable relationships with trading partners. Durable relationships signal that this same type of relationship could be established with the principal.

Proposition 3: Multiplexity in an agent's egocentric networks influences the costs incurred to alleviate pre-contractual uncertainty. As the level of multiplexity in an agent's egocentric network increases, the costs incurred to reduce pre-contractual uncertainty decrease.

3. Interactive influences on pre-contractual uncertainty

The structure and quality of ties in an agent's egocentric network are likely to have noticeable independent effects on

pre-contractual uncertainty, yet principals must simultaneously assess both facets of the agent network (cf. Brass et al., 1998). Consider how structure and relationship quality influence costs incurred to reduce information asymmetries.

3.1. Density and tie strength

The number and strength of ties in an individual's network should influence the costs incurred to assess whether the agent can successfully represent the principal. The interactive influence of these factors, however, is not well established. Fig. 2 outlines four supply network prototypes from the franchise example. Prospective agents with loose networks and weak ties provide limited opportunity to assess the agent's ability, and they also signal that the agent has not established many significant alliances. Consequently, these networks foster considerable pre-contractual uncertainty. Loose networks with strong ties, by contrast, signal that an agent has the ability to forge long-lasting alliances valued by the principal. Dense networks of weak ties do not signal an ability to establish relational exchanges, yet they provide an opportunity to interact with multiple persons as means for qualifying the agent. Thus, loose

networks with strong ties and dense networks with weak ties should foster lower costs to reduce uncertainty.

Dense networks of strong ties stand in contrast to loose networks with weak relationships. Although dense networks offer greater potential to qualify the agent, the strength of the ties complicates the evaluation. Thus, in his analysis of social structure in the fashion industry, Uzzi (1997) finds that rich networks of strong ties are less informative than networks that combine strong and weak ties. Dense networks of strong ties constrict the flow of information into the group (Burt, 1992), and they also foster an environment in which persons within the group minimize counterarguments, conform to majority views and shield the group from adverse information (Janis, 1983).

The combination of strong ties in dense networks provides a contrasting reference point that yields appreciably high costs to control uncertainty. Individuals in dense networks with strong ties are deeply embedded in a set of relationships, and in such groups, there is great potential to separate the local group from outsiders. For example, Fig. 2d evinces strong alliances between the prospective agent and between the banker and real estate broker. Granovetter (1973) maintains that in this set of relationships, the banker

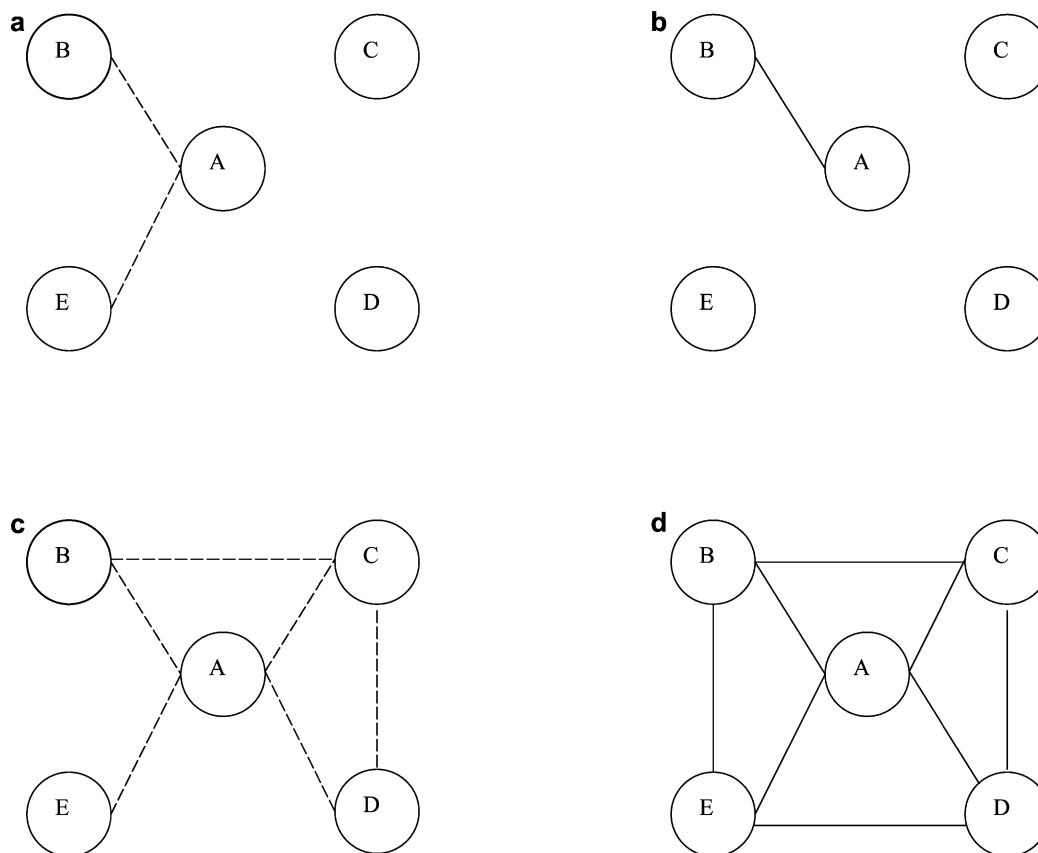


Fig. 2. Density and network strength: (a) loose networks with weak ties; (b) loose networks with strong ties; (c) dense networks with weak ties; (d) dense networks with strong ties. A=prospective franchisee; B=local banker; C=restaurant equipment supplier; D=institutional food distributor; E=real estate broker. Solid line=strong tie; broken line=weak tie.

and broker are also highly likely to report a strong relationship. Strong links within a subset of a network foster separation between in-group and out-group members (Brass et al., 1998), and this separation should influence evaluation of the prospective agent. Although this configuration enables the principal to acquire information in an efficient manner, the participants to the ties have limited motivation to present frank evaluations of network members to non-members (cf. Suzuki, 1998). Principals presented with evaluations that are less than candid do not alleviate their uncertainties about potential trading partners. The network outlined in Fig. 2b has properties that are quite different from the strong-tie, dense network (Fig. 2d). The principal can identify that the agent has the ability to establish close working relationships, but the parties to the relationship are not locked into other strong intragroup alliances. Because the prospective agent's partner is not strongly linked to other members of the supply group, there is limited group pressure to cloud evaluations.

Weak ties in loose networks and strong ties in dense networks constrain efforts to control pre-contractual uncertainties. Networks with other levels of density and tie strength enable the principal to alleviate information asymmetries more efficiently. Loose networks with strong ties inform the principal of long-lasting alliances, and dense networks of weak ties provide the opportunity to alleviate uncertainty through interaction with multiple trading partners of the prospective agent.

Proposition 4: Network density and tie strength influence costs incurred to reduce pre-contractual uncertainty. Loose networks with weak ties and dense networks with strong ties are associated with greater costs to lower pre-contractual uncertainty than loose networks with strong ties and dense networks with weak ties.

3.2. Density and multiplexity

The number of ties and dimensions of those linkages should also affect perceptions of pre-contractual uncertainty. Loose networks with unidimensional relationships are relatively unstable. For example, a prospective franchisee that interacts with one distributor has a volatile network. Evaluation of this agent is subject to high levels of pre-contractual uncertainty. Multiplexity and density should interactively lead to lower uncertainty for the principal. As relationships in a network shift from a single element to a broader range of interactions, the relationships become more impervious. For example, franchisee advisory councils enable the franchisors, franchisees and suppliers to cooperate in the development of promotional campaigns (Keating, 1991). These councils and their industry-level counterparts facilitate broadened interaction and understanding of the challenges faced by both parties to the franchised agreement. Thus, if the prospective franchisee and a supplier are members of the same trade organization and begin to reciprocate in the offering of

advice, the relationship becomes multidimensional and more stable. The principal investigating this relationship can efficiently gain an understanding of the alliance because the prospective franchisee's trading partner can elaborate on multiple facets of the relationship. As multidimensional links are established with more network members, more viewpoints are accessible about a variety of aspects of relationships with an agent.

Proposition 5: Network density and multiplexity influence costs incurred to lower pre-contractual uncertainty. Principals encounter lower (higher) costs to contain pre-contractual uncertainty in agent egocentric networks characterized by dense (loose) networks with multiple (unidimensional) links among members.

4. Discussion

Our goal in this study has been to illustrate how social network analysis is informative to principals in their efforts to evaluate agents before forging interfirm alliances. Network analysis has potential to reduce costs incurred to reduce pre-contractual uncertainties, yet this analytical procedure also has some limitations. The principal should weigh the costs of network analysis against other ways to reduce pre-contractual uncertainty. In addition to evaluating the agent's network, the principal will rely on dyadic interaction with the agent. The relative value of network analysis versus other forms of screening is an empirical issue, yet we speculate that the utility of network analysis is likely to be related to the quality of the agent's network. As agents' networks increase in density, strength and multiplexity, the principal's ability to augment interviews with other sources of information changes substantially. Furthermore, the agent has the capability to quell uncertainty by signaling to the principal (Bergen et al., 1992). Signaling is manifest in the agent's pre-contractual efforts to acquire skills relevant to the agency relationship. Screening (via network analysis and dyadic interaction) and signaling serve as pre-contractual actions undertaken to ensure productivity by the agent. Research should examine the degree to which these pre-contractual judgments are weighed against the post-hoc costs incurred to ensure performance.

Our investigation of network qualities emphasizes the positive relationships established by a prospective agent (cf. Granovetter, 1973). This treatment of the affiliation network of an agent is analogous to Breiger's (1990) treatment of the affiliation networks of oil-producing countries. Insight is gained from analysis of existing commercial exchange relationships, yet our research is limited by the exclusion of negative ties from the analysis. Future analyses of adverse selection would benefit by considering the extent to which prospective agents have established negative links within a network. Although collection of data pertaining to negative relationships may be difficult to identify and

collect, these data would augment managerial decision making and agency research.

Analyses of positive and negative ties must also attend to the motivational orientations of the informants. Insight gleaned from interaction with actors embedded in a prospective agent's network must take into account the socio-economic nature of the actor–agent relationship. Social relationships within the network may evince cooperation, yet economic constraints may heighten competitive aspects of the relationship (Burt, 1992). Thus, the evaluation of a prospective agent by a food broker should be tempered by the broker's latent interest in becoming an agent. Similarly, Hertz (1996) discusses the dissolution of ASG's relationship with Emery in light of the former's development of wholly owned subsidiaries to provide freight-forwarding services. In other circumstances, the current trading partners of the agent may view the principal as competition for scarce resources and a threat to transaction-specific investments (Zerrillo and Raina, 1996). Thus, an equipment supplier may find it advantageous to understate the capabilities or account history of the agent. The principal's analysis of the agent's network affects the manner in which aspects of the relationship are circulated, and strict attention to social facets of the relationships may accentuate this bias. The principal must recognize that informant reports about the viability of an agent must take into account economic constraints operating within the network.

Our treatment of facets of network structure and character illustrates the role that network analysis can play as means for reducing pre-contractual uncertainty, yet it does not consider other process dimensions. Gemünden et al. (1996) illustrate how the importance and intensity of network relationships influence process and product innovation success for high-technology new product developments. The importance of existing relationships may be highly informative to pre-contractual decisions making. Identification of important relationship qualities of existing relationships enables researchers to gain insight into an agent's likelihood for success while simultaneously economizing on data collection costs. Although evidence (e.g., Uzzi, 1997) indicates that these factors are correlated with trustworthiness, observation of these properties does not obviate the need to evaluate trust and other factors endemic to quality relationships.

Agency theory emphasizes that information is accessible in a market, yet the principal bears the cost to acquire this information. Network analysis and other screening measures enable managers to alleviate pre-contractual uncertainties and gauge the costs of acquiring pre-contractual information. In the absence of a priori information, managers must develop contracts that shift risk to agents or invest in programs that monitor the agent's fulfillment of obligations. These monitoring costs are significant, yet may not ensure that performance is derived from the agency relationship. Our discussion of social network analysis identifies some of the procedures managers can undertake to screen agents. Consequently, managers are better positioned to compare

the costs of a priori screening against ex post enforcement of contracts.

Managers can also use information generated through one relationship to identify new opportunities (cf. Håkansson and Sharma, 1996). For instance, Sud Composants' relationship with a French customer served as the basis for a product design that they subsequently marketed internationally (Marcel and Perrin, 1982). Similarly, a prospective franchisee may have direct ties with a financial institution that the principal is interested in doing business with, and this relationship should make the agent more attractive. In both settings, the knowledge gleaned from one agreement enables one party to broaden its embeddedness within the network.

The selection of trading partners based on low pre-contractual uncertainty does not ensure that appropriate returns are derived throughout the life of the relationship. Agents may be selected due to the nature of their networks, but these relationships change over the course of the agency agreement. After a contract is established between principal and agent, the strength and quality of ties in the supply network may become pronounced. Brass et al. (1998) suggest that the strength of ties and density within a group influence the likelihood that the group will act unethically toward other groups. Consequently, dense networks of strong ties may lead to a heightened moral hazard problem for the principal. Research that examines agency problems throughout the life of a long-term agreement is needed, and facets of the social network should prove illuminating to these issues.

Agency theory underscores efforts to achieve efficient principal–agent alliances. Pursuit of this objective necessitates comparison of pre-contractual expenditures with ex post enforcement costs. Important contributions have been made in the analysis of post-contractual moral hazard (e.g., Eisenhardt, 1985), yet few efforts have addressed pre-contractual efforts to alleviate uncertainty. Our identification of factors that influence pre-contractual uncertainty facilitates evaluation of the trade-off between pre-contractual screening and post-contractual control. We hope the conceptual framework is informative to practitioners and analysts of principal–agent relationships.

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