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Network Positions and Processes: Evidence from U.S. Private Equity

by

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Abstract

This dissertation examines positions in inter-organizational networks and the processes that determine those positions. Chapter Two develops a theory of why some organizations, but not others, are represented by brokers. The findings reveal constraints of market social structures on brokers' efforts to capitalize on entrepreneurial opportunities. Chapter Three develops a theory of how inter-organizational relationships are embedded in the prior education and employment networks of organizational members. The findings reveal how social structures of non-market and market settings are reproduced in markets. By examining determinants of organizations' network positions this dissertation informs our understanding of network evolution.

Introduction

This dissertation is organized into two chapters that inform our understanding of network positions and processes by analyzing U.S. private equity fundraising and investing, respectively. Both chapters develop a theory of network positions and processes and then test the theory with extensive data from the U.S. private equity industry. The findings offer important contributions to our knowledge of the non-random ways by which actors arrive at network positions and how networks evolve via system-, dyad- and nodal-level processes.

Chapter 2

Constraint on the control benefits of brokerage: Evidence from U. S. private equity fundraising.

Chapter Two examines the most entrepreneurial of network positions – "brokers" who connect otherwise unconnected actors (Burt, 1976, 1992). The extant literature on brokerage predominantly examines actor-level returns to occupation of a brokerage position in a system of exchange but neglects the process by which brokered exchanges are negotiated. The result is that much is known about the benefits of occupying a brokerage position but little is known about the process of occupation. In other words, while the "revenues" of brokerage are well-documented neglect of the "costs" of connecting disconnected actors yields an incomplete understanding of broker's "profits" or "returns." This chapter examines constraint in the process of connecting two otherwise disconnected actors in order to better understand just how lucrative a brokerage position can be.

Drawing on Burt's (1992) theory of structural holes, a theory is developed to account for constraint on a broker's ability to facilitate connections among market actors. Brokers control exchanges by determining which actors they are willing to represent. The source of constraint on those control benefits is an actor's willingness to be represented. Both a broker's willingness to represent a focal actor and the value the actor places on a broker's representation are cast as functions of the actor's prominence, or visibility in a system of exchange (Knoke and Burt, 1983). Uncertainty about an actor's quality is cast as a declining function of the actor's prominence. It is predicted that because there is uncertainty about the quality of market actors that could potentially be included in a brokered exchange, neither those actors who value a broker's representation the most (i.e., the lease prominent) nor those actors whom brokers would most like to represent (i.e., the most prominent) are most likely to be represented by the broker. Consequently, brokers' control benefits are constrained by the social structure of the market and, by extension, so are the returns to brokerage. Moreover, it is proposed that a broker's reputation alleviates but does not eliminate constraint on a broker's ability to exercise the control benefits of bridging structural holes.

The theory developed in Chapter Two is supported by analyses of U. S. private equity fundraising. Analyses of 1,502 private equity funds raised by 881 U.S. private equity firms from 2001 to 2006 reveal a non-monotonic (first increasing and then decreasing) relationship between a firm's prominence in the industry co-investment network and the likelihood that a broker markets the firm's venture fund to institutional investors. Presumably because uncertainty is more characteristic of venture than non-venture fundraising, prominence does not similarly condition the likelihood that a broker markets a firm's non-venture fund. Dyadic analyses of firm-broker matching reveal that more reputable brokers tend to represent more prominent firms, indicating that reputation mitigates constraint on the control benefits of brokerage. In summary, these analyses support the counter-intuitive prediction that neither the actors that value representation the most (i.e., actors of low prominence) nor the actors that brokers would most like to represent (i.e., extremely prominent actors) are most likely to be represented by a broker. Chapter Two concludes with a discussion of this study's implications for the determinants of network positions and, more generally, network evolution.

Chapter 3

Embedding inter-organizational relationships in the prior education and employment networks of organizational members: Evidence from U. S. private equity investing.

Chapter Three examines the building block of inter-organizational networks – the formation of inter-organizational relationships. The extant literature on inter-organizational relationships either explicitly (e.g., Gulati, 1995a, 1995b; Gulati and Gargiulo, 1999) or implicitly (e.g., Podolny, 1994; Sorenson and Stuart, 2008) assumes that inter-organizational networks evolve out of existing industry networks. This chapter examines how the social structures of non-market (i.e., higher education) and market (e.g., labor markets) settings are reproduced in industry networks through the prior affiliation networks of organizational members.

Drawing on Feld's (1981, 1982) focus theory, a theory is developed to explain how inter-organizational relationships are embedded in the prior education and employment networks of organizational members. The theory predicts that because organizational members access information on potential partners through network contacts formed during prior education and employment experiences, two organizations will be more likely to form a relationship the more prior education and/or employment affiliations are shared by their members. The theory also predicts that the shared prior education and employment affiliations of two organizations' members are likely to serve as informational bridges when the two organizations are neither geographically proximate nor investing in similar industries – two factors that typically reduce the likelihood of an inter-organizational relationship forming.

The theory developed in Chapter Three is supported by empirical analyses of U.S. private equity investing. Analyses of over 7,000 co-investment relationships formed by 1,110 U.S. private equity firms reveal that the more prior education and/or employment affiliations shared by two organizations' members, the more likely the two organizations are to form a relationship. Moreover, shared prior affiliations attenuate two factors commonly found to reduce the likelihood of an inter-organizational relationship forming: geographic distance and strategic dissimilarity. These findings inform our understanding of how inter-organizational networks evolve out of the personal networks of organizational members. This chapter also offers a theoretical and empirical approach to studying the formation of initial inter-organizational relationships – something that studies grounded in theories of endogenous network processes struggle to do. More generally, this chapter offers strong support for the argument that economic exchange is often embedded in social relations (Granovetter, 1985) by demonstrating that social relationships formed prior to an individual's market entry influence future organizational behaviors.

Unlike prior research on networks that predominantly examines the effects of actors' network positions on important outcomes, this dissertation examined the processes that determine those positions. By doing so, this dissertation contributes important insights to organizational theory and economic sociology. The strongest support for the argument that social relations are critical to the functioning of markets (Granovetter, 1985; Uzzi, 1996) is likely to be found in studies that account for the non-random determinants of actors' network positions prior to identifying correlations between actors' network positions and important economic outcomes. This dissertation offers theoretical and empirical approaches to studying the processes that determine network positions.

Contributions

Chapter Two of this dissertation specifically focused on the network position of a broker and developed a theory of why some organizations, but not others, are represented by brokers. Brokerage was cast as a negotiated process. I proposed that in the presence of substantial altercentric uncertainty brokers prefer to represent prominent organizations, but the value an organization places on representation is inversely related to the organization's prominence. This line of theorizing led to the counter-intuitive prediction that neither those organizations that brokers would most like to represent nor those that most value representation are most likely to be represented by a broker. Empirical analyses of U. S. private equity fundraising supported the theory. The empirical findings of Chapter Two reveal significant constraints on the control benefits of brokerage. If it is fair to state that prior research on brokerage focused primarily on how well brokers do, then this study focused instead on how brokers do well. Moreover, this study revealed how brokers could probably do better were it not for the social structure of the market.

Future studies of the returns to brokerage that account for the negotiated process by which brokerage positions are determined are likely to provide even stronger support for the observation that brokerage is quite lucrative. To borrow language from economics, if brokerage is a production process then the process has costs. Further, our understanding of the returns to brokerage would likely be enriched by considering those costs (e.g., negotiation costs) along with the revenues (e.g., better outcomes for brokers than others) to produce more nuanced accounts of the returns to brokerage.

Chapter Three of this dissertation focused on the process by which two organizations form a relationship. A theory was developed of how inter-organizational relationships are embedded in the prior education and employment networks of organizational members. I proposed that if organizations access valuable information on potential partners via the prior education and employment contacts of organizational members, then two organizations will be more likely to form a relationship if their members share more prior education and/or employment affiliations. Moreover, it was argued that such networks would likely be most likely to facilitate relationship formation between two organizations that would otherwise be unlikely to form a relation (e.g., geographically distant and strategically dissimilar organizations). Empirical analyses of U.S. private equity investments supported the theory.

The empirical findings of Chapter Three offer strong support for the argument that economic exchange is often embedded in social relations (Granovetter, 1985) by demonstrating that social relationships formed prior to an individual's market entry influence future organizational behaviors. Although endogeneity is often a concern when studying the effects of social relations on economic outcomes, the fact that most of the social relations formed in this study were formed long before any co-investment relations should leave most critics comfortable with the idea that embeddedness facilitates exchange. Future studies might account for dyad-level determinants of relationship formation prior to constructing network matrices and identifying network positions. Doing so would likely enhance our understanding of how observed relationships between actors' network positions and economic outcomes are jointly attributable to structural position and the prior affiliations that enabled the actor to occupy that position.

In sum, this dissertation offers important contributions to organizational theory and economic sociology, in general, and, more specifically, to the study of network evolution. For example, Burt's (1992) insight that brokers enjoy both information and control benefits when bridging structural holes was leveraged to cast brokerage as a negotiated process. Theorizing on the market-level outcome of many such negotiations and testing formal hypotheses revealed substantial constraint on the returns to brokerage. Future research that directly examines successful and failed attempts of actors to secure a brokers' representation would substantially inform our understanding of how actors bridge structural holes and continue to occupy such profitable positions. Additionally, drawing on focus theory to study social networks that are formed prior to individual's participation in a market offered a novel empirical approach to studying how the social structures of non-market settings (e.g., higher education) are reproduced in markets and into how social structures are reproduced across markets (e.g., labor markets to investment markets). Explicit efforts to integrate large bodies of sociological research on stratification in higher education and labor markets with the emerging literature on network evolution would likely reveal further insights on how actors occupy network positions and how network structures evolve. In conclusion, this dissertation has contributed substantially to the emerging research program on network evolution and this research program appears to offer much promise for organizational theory and economic sociology.

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