ABSTRACT

Title of dissertation: ESSAYS ON A DEMAND-SIDE DRIVER OF MARKET ENTRY

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In this three-essay dissertation, I explore the role of demand-pull in new market entry given repeated transactions with embedded prior transaction partners. I investigate a demand-side driver of entrepreneurial spin-outs and diversifying entrants into a new market through recurring transactions between buyers (clients) and suppliers (firms). In the first chapter, I examine the performance of diversification driven by embedded client ties, "client-led diversifiers." I focus on diversifications intended to cater to an existing client's needs and its adverse effect on firm performance. In doing so, I explore the potential tension embedded client ties create vis-à-vis firm capabilities. I find support for the negative impact of client-led diversifications on firm performance. In the second chapter, I further explore the new market performance of client-led entrants. I focus on the role of clients' selection in entering a new market and argue that such selection predicts firm and individual performance variations in the new market. The third essay explores how individuals become entrepreneurial entrepreneurs when they experience an increase in the value of relational capital. I examine how a discontinuous increase in the value of an employee's relational capital influences her mobility and entrepreneurship decisions.

Empirically, I exploit the reporting requirements mandated by the Lobbying Disclosure Act of 1995 to construct a unique transaction-level database between lobbyists and clients for lobbying service on lobbying issues in the United States federal lobbying industry between 1999 and 2008. In the first two chapters, I exploit the exogenous creation of the "Homeland Security" issue market after the 9/11 terrorist attack to identify the effect of client-led diversification on firm performance. In chapter three, I use a sample of revolving door lobbyists who are lobbyists-turned-ex-staffers of a politician in the U.S. federal lobbying industry between 1999 and 2008. I leverage plausibly exogenous and large shocks to the value of an employee's relational capital in testing the hypotheses.

ESSAYS ON A DEMAND-SIDE DRIVER OF MARKET ENTRY

By

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There were times when I complained that my way is hidden and my causes are disregarded. But now I know that the affliction was preparing me for much more and that the hand of the Lord has done this. I thought I had failed but the Lord had lifted me up in a way I could never imagine. I wish to give all the glory and the praise to God.

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INTRODUCTION

Despite the long-standing idea that demand can be an engine for market entry, there is still a limited understanding on the role demand plays in shaping market entry patterns (Di Stefano, Gambardella, & Verona, 2012). Since Schmookler (1966), scholars have embraced the "demand-pull" theory of innovation and have acknowledged that demand can stimulate innovations and new market entry. Reflected in the technology-push versus demand-pull debate, however, the demand account of new market entry has not been sufficiently advanced due to a common misinterpretation of the demand-pull as a need-pull, and also due to a broad conceptualization and even broader interpretation that leaves little room for falsification (Dosi, 1982; Mowery & Rosenberg, 1979). More recently, scholars have expanded the understanding on the role of demand by focusing on user-innovation (von Hippel, 1986), user-entrepreneurs (Agarwal & Shah, 2014), and demand-side diversifiers (Fontana & Malerba, 2010). Others have recently started to focus on demand heterogeneity and how it links with the technological life-cycle (Adner & Levinthal, 2001; Aversi et al., 1999). Nonetheless, a better understanding of how demand shapes the timing, rate of entry, and performance of diversifying and entrepreneurial entrants over the stages of the industry life-cycle is required (Agarwal & Bayus, 2002; de Figueiredo & Silverman, 2007).

Staying true to its economics heritage, an implicit assumption in the industry evolution literature is that buyers conduct arm's-length transactions with suppliers. Thus, interactions between buyers and suppliers are obscured behind the invisible hand, captured largely in the price mechanism. However, a parallel literature stream on embeddedness highlights the role of informal social structure in shaping economic actions (Granovetter, 1985). In this literature stream, markets are often composed of long-term relationships and repeated exchanges between embedded actors (Dyer & Chu, 2003; Uzzi, 1996). The

embeddedness perspective focuses on the quality of relationships between buyers and suppliers and on the benefits that repeated transactions bring to both parties such as trust and constraining malfeasance (Uzzi, 1996). Pertaining to this view of market exchange, the role that demand plays in shaping the evolutionary pattern of an industry may lie in the extent to which buyer-supplier relationships influence new market entry decisions and subsequent performances.

In this three-essay dissertation, I explore the role of demand-pull in market entry given repeated transactions with embedded prior transaction partners. This dissertation mainly focuses on investigating a demand-side driver of entrepreneurial spin-outs and diversifying entrants through recurring transactions between buyers (clients) and suppliers (firms). In particular, I model demand-pull through the role of clients using repeated transaction with embedded firms and individuals in driving both diversifying entry and entrepreneurial entry into a new market.

One of the most common ways to categorize market entrants is by the tenure since the legal establishment of a firm: diversifying entrant and *de novo* entrant (Helfat & Lieberman, 2002). In a setting where repeated transactions with embedded partners is prevalent, the use of repeated transactions as a mode of transaction in entering a new market could be considered as an additional dimension in classifying the types of market entrants. Thus, I overlay another dimension, mode of transaction, and propose a new taxonomy of new market entrants which may generate a new set of predictions on performance implications for each type and performance variations across these types.

Table 1 illustrates the four different types of entrants. The upper-left quadrant signifies diversifying entrant that enter the new market with existing clients through repeated transactions. I call this type "client-led diversifiers." Instead of relying on existing clients,

some diversifying entrants may attract new clients with demand in the new market. Because this type of entrants are likely to possess pre-entry capabilities transferrable to the new market, I call this type of entrants in the upper-right quadrant "capability diversifiers" or "non-client-led diversifiers." As individuals are responsible for maintaining the client-firm relationships (Seabright et al., 1992; Sorenson & Rogan, 2014), employees with direct contact with clients could enter the market by creating a start-up. These entrepreneurial entrants in the lower left-hand quadrant would be called "client-led spin-outs." Lastly, some entrepreneurs could enter the new market with a new client. These *de novo* entrants in the lower right-hand quadrant would be "entrepreneurial entrants."

In the first chapter, I examine the performance of diversification driven by embedded client ties, "client-led diversifiers." In contrast to existing models of diversification that focus on supply-side capabilities and implicitly assume arm's-length transaction, I focus on diversifications intended to cater to an existing client's needs and its adverse effect on firm performance. In doing so, I explore the potential tension embedded client ties create vis-à-vis firm capabilities and argue that client-led diversification may cause a) diseconomies of scope, b) an erosion of firm capabilities, and c) over-embeddedness to the client. I find support for the negative impact of client-led diversifications on firm performance. I also find that an unrelated diversification aggravates the negative effect of client-led diversification on performance. Furthermore, I provide extensive tests of underlying mechanisms that lead client-led diversifiers to underperform over time, both at the firm level and the dyad level.

In the second chapter, I further explore the new market performance variations across the four types of entrants. The prevalence of repeated transaction between embedded clients and firms implies that firms and individuals can enter a new market in order to fulfill

existing clients' needs. In doing so, clients can choose their partner in entering the new market. I focus on the role of clients' selection in entering a new market and argue that such selection predicts firm and individual performance variations in the new market. The clients' decision to select an existing partner or a new firm, to pick which firm among the existing partners, and choose which individual in the firm to work with for new products or services may have performance implications in the new market both at the firm and the individual level. I argue that client's selection force is stronger in a recurring exchange with an embedded partner than in an arm's-length transaction because embeddedness reduces information asymmetry between the client and the firm through first-hand experiences. I find that firms and individuals under stronger selection power in entering new market with the client have higher performance in the new market compared to other types of entrants.

The third essay explores how individuals become entrepreneurial entrepreneurs when they experience an increase in the value of relational capital. An increase in the clients demand in the new market would be a discontinuous increase in the value of an employee's relational capital. In this chapter, I examine how a discontinuous increase in the value of an employee's relational capital influences her mobility and entrepreneurship decisions. This essay develops a theory proposing that positive shocks to external relational capital will catalyze employees to consider alternative employment options, thereby resulting in an increased probability of exit. The essay further maintains that exit decisions in response to such shocks will be driven by a desire to appropriate more value, making these shocks particularly strong predictors of employee entrepreneurship, especially when the employee works in an area which is peripheral to the firm's core capabilities. The essay reports two main sets of findings. First, an increase in the value of an employee's relational capital has a positive effect on the likelihood of mobility to established firms and employee

entrepreneurship, with the effect for the latter stronger than the former. Second, the magnitude of the effect on employee entrepreneurship but not mobility to established firms becomes stronger when the employee is peripheral rather than central to the firm' core knowledge. Together, the results are consistent with a value creation-value appropriation rationale, where sudden increases in the value of an employee's relational capital drive exit as a means to appropriate a greater portion of the value the employee anticipates creating.

Empirically, I exploit the reporting requirements mandated by the Lobbying Disclosure Act of 1995 to construct a unique transaction-level database that tracks transaction between lobbyists of a lobbying firm and clients for lobbying service on issue markets in the United States federal lobbying industry between 1999 and 2008. Figure 1 provides a sample lobbying report which I compile to construct the database used in this dissertation. In this professional service industry, a "client" refers to an interest group that hires a lobbying firm to influence legislators and regulatory agencies in one or more issue domains, which correspond to markets. Client-led entry into a market in this context involves a lobbying firm filing a lobbying report in a new issue domain on behalf of an existing client. In the first two chapters, my empirical analysis lies in identifying lobbying firms that have clients who need to enter a new market and in tracking their entry and their subsequent performances. I study client-led diversifications and client-led spin-outs into a newly created market in U.S. federal lobbying industry. I exploit the exogenous creation of the "Homeland Security" issue market after the 9/11 terrorist attack to identify the effect of client-led diversification on firm performance. Figure 2 displays the number of firms entered Homeland Security Issue market by entrant types between 2002 and 2008. In chapter three, I use a sample of revolving door lobbyists who are lobbyists-turned-ex-staffers of a politician in the U.S. federal lobbying industry between 1999 and 2008. I leverage plausibly exogenous

and large shocks to the value of an employee's relational capital and a novel market-based measure of the employee's position in the firm's knowledge space in testing the hypotheses.

Together, this dissertation sheds a new light on the demand-side driver of new market entry. Drawing from insights from embeddedness perspective, this dissertation offers a new angle in a longstanding debate between technology-push versus demand-pull view of industry evolution (Dosi, 1982; Mowery & Rosenberg, 1979). I suggest that the role demand plays in shaping evolutionary pattern of an industry may lie in the extent to which buyer-supplier relationships influence new market entry decisions and subsequent performances. The results have important implications for industry evolution, embeddedness perspective, and entrepreneurship.

ESSAY 1. WHEN IS A CLIENT NOT RIGHT? PERFORMANCE IMPLICATION OF CLIENT-LED DIVERSIFICATION

Since Penrose's (1959) seminal work, corporate diversification has been a key dimension of corporate strategy and at the heart of the resource-based view (RBV) of the firm. Accordingly, a preponderance of evidence suggests that pre-entry resources and capabilities play a significant role in determining both the direction and performance implications of diversification choices (Helfat & Lieberman, 2002). Within the diversification literature, studies generally find evidence for the "relatedness hypothesis" which posits an inverse U-shaped relationship between the level of diversification and firm performance (Chatterjee & Wernerfelt, 1991; Wan *et al.*, 2011; Villalonga, 2004). To explain this relationship, the RBV argues that when a firm's resources and capabilities are "related" to market requirements, it can create economies of scope which play a role in determining which markets a firm should enter and that these choices will influence firm performance (King & Tucci, 2002; Markides & Williamson, 1994; Montgomery & Wernerfelt, 1988). In short, one of the key insights of the RBV is that the extent to which resources and capabilities are fungible across market boundaries predict market choice as well as subsequence performance (Helfat & Lieberman, 2002; Levinthal & Wu, 2010).

The significance of the repeated transactions in strategy echoes the notion that economic transactions are often embedded in social relations (Granovetter, 1985). To that end, the RBV has increasingly attempted to incorporate the importance of social relations by conceptualizing both structural properties of relationships and relational embeddedness, as sources of firm heterogeneity (Dyer & Singh, 1998; Gulati, Nohria, & Zaheer, 2000; Lavie, 2006). This embeddedness perspective has expanded the theoretical and empirical purview of the RBV to suggest that relational factors external to the firm, particularly embedded

market ties, can be conceptualized as key resources and therefore be a potential source of competitive advantage (Lavie, 2006; McEvily & Marcus, 2005). With the notion that embedded market ties can be conceptualized as a firm resource and/or capability, the resource-based approach to diversification would suggest that embedded ties will influence a firm's diversification strategy. Yet unlike typical firm resources and capabilities, diversification driven by relational ties poses a unique set of opportunities as well as challenges. As a result, although research suggests that market ties tend to be transferable across market boundaries (Hoetker, 2005; Jensen, 2003), it remains unclear how firm diversification decisions driven by embedded ties will translate into firm performance.

In this paper, I examine the performance implications of diversification decisions driven by embedded market ties, a phenomenon I label "client-led diversification." In contrast to existing models of diversification that either focus on supply-side capabilities or implicitly assume arm's-length demand, I investigate the role of an existing client's demand in a new market in driving diversification decisions and firm performance. While diversification decisions driven by the needs of clients have not been extensively studied in the prior literature, anecdotal evidence suggests that such decisions may benefit firms. For example, law firms may pursue geographical expansions and acquire "boutique" firms specialized in a single practice area in order to better serve existing clients (Baker & Parkin, 2005; Garicano & Hubbard, 2009). Indeed, studies have posited that by offering a broader range of services or "one-stop shopping" opportunities for existing clients, firms may reduce transaction costs and maintain a stronger buyer-supplier relationships (Chatain, 2011; Chatain & Zemsky, 2007; Ye, Priem, & Alshwer, 2012). While existing work has highlighted the upside of client-led diversification, the opportunity to capture value by fulfilling unmet needs of existing clients, I argue that such strategies could backfire and generate

diseconomies of scope, an erosion of firm capabilities, and over-embeddedness to the client. This, in turn, could have negative implications for firm performance over time.

Empirically, I study client-led diversifications into a newly created market in the U.S. federal lobbying industry between 1999 and 2008. Client-led diversification in this context is defined as lobbying firms entering a new issue market in order to meet an existing client's needs. My empirical strategy exploits the exogenous creation of the Homeland Security issue following the 9/11 terrorist attack in 2001. Using firm-client-market level transaction data, I track client ties that formed before 2001 to identify client-led diversifiers that started to lobby in the Homeland Security issue with existing clients. To briefly preview the findings, I first find that, controlling for market relatedness, client-led diversification has had an adverse effect on firm performance. The negative effect appears to be stronger over time. Second, the negative effect of client-led diversification on firm performance is exacerbated when diversification is unrelated to the firm's portfolio of issues.

This paper aims to contribute to several strands of literature. First, this paper contributes to the literature on diversification by highlighting a demand-side driver of diversification (Priem, Li, & Carr, 2012; Wu, 2013; Ye *et al.*, 2012). While the existing literature has focused primarily on supply-side efficiency-based arguments for diversification (Teece, 1980), I propose an alternative demand-side rationale for diversification that is driven by the needs of a firm's existing clients. Studies on diversification-performance relationship suggest that an optimal direction of diversification that exploits economies of scope would lead to superior performance (Chatterjee & Wernerfelt, 1991; Christensen & Montgomery, 1981; Prahalad & Bettis, 1986). Although a firm can benefit from client-specific economies of scope (Chatain, 2011), I suggest that benefits of embedded ties may

not be realized when diversification decisons are driven by clients as such decisions can create tension with the firm's existing resources and capabilities.

This study also contributes to the RBV which has increasingly recognized relational embeddedness as potential resources and capabilities (Dyer & Singh, 1998). While most studies show the embedded ties contribute to the stability of business relationships (Bermiss & Greenbaum, 2015; Broschak, 2004; Rogan, 2014; Seabright, Levinthal, & Fichman, 1992) and have a positive impact on firm performance (McEvily & Marcus, 2005; Mesquita, Anand, & Brush, 2008; Uzzi, 1996), my findings raise awareness to the possibility that relational embednedness can become a liabiality rather than asset. As such, this paper assesses the ramifications of the "paradox of embeddedness" vis-à-vis resources and capabilities of the firm (Uzzi, 1997).

Lastly, this paper is one of few studies to empirically examine the "dark-side" of relational embeddedness (Lee, 2013; Maurer & Ebers, 2006; Uzzi, 1997). Empirical challenges may have skewed the empirics in prior work towards the bright side of embedded ties because a researcher rarely observes both the creation and the performance of embedded ties and omitted variables regarding selection and matching (Sorenson & Waguespack, 2006). My research design which exploits exogenous creation of new markets and utilizes an instrumental variables approach contributes to the literature by strengthening causal inferences in the performance implications of client-led diversification.

THEORY AND HYPOTHESES

Relational Embeddedness and Firm Diversification

The field of strategic management has witnessed a rapid expansion of the embeddedness perspective. Studies on relational embeddedness in particular focus on the history of repeated exchanges between partners and have theorized that such transactions bring

benefits to each party. The dominant view in this line of research is that embedded transactions provide access to fine-grained information (Uzzi, 1997), facilitate joint problem solving (McEvily & Marcus, 2005; Uzzi, 1996), foster trust that reduces transaction costs (Dyer & Chu, 2002), allow for a better evaluation or quality (Sorenson & Waguespack, 2006), and engender social attachment and norms (Dyer & Singh, 1998; Levinthal & Fichman, 1988). Scholars have made substantial progress in investigating the benefits of relational embeddedness in terms of acquisition of capabilities (McEvily & Marcus, 2005), managerial performance (Moran, 2005), access to financial resources (Mizruchi & Stearns, 2001), M&A target selection and performance (Rogan & Sorenson, 2014), new ventures performance (Lee, Lee, & Pennings, 2000), and continuity of market ties (Baker, Faulkner, & Fisher, 1998; Broschak, 2004). Positive returns to relational embeddedness has been particularly relevant in market ties and vertical inter-firm relationship such as client-auditor relationships (Levinthal & Fichman, 1988), client-law firm relationships (Somaya, Williamson, & Lorinkova, 2008), client-advertising agency (Baker *et al.*, 1998; Rogan & Sorenson, 2014), and buyer-supplier relationship (Dyer & Chu, 2002; Sleptsov, Anand, & Vasudeva, 2013). In many industries, ongoing transactions between the two parties are a major source of value creation and client ties are regarded as one of the critical resources (Broschak, 2004). Such accumulation of evidence provides support for conceptualizing embedded ties as a source of variation in performance, namely relational capital (Kale, Singh, & Perlmutter, 2000; Nahapiet & Ghoshal, 1998).

The idea that resources predict diversification and its performance rests on the extent to which resources are fungible across market boundaries (Helfat & Lieberman, 2002; Levinthal & Wu, 2010). Consistent with the view that conceptualizes embeddedness as resources (Dyer & Singh, 1998), studies have found evidence on the fungibility of embedded

ties across markets. In the context of the banking industry, Jensen (2003) finds that market ties and status in commercial banking are transferable into investment banking, showing that embedded client ties could be valuable across market boundaries. Hoetker (2005) investigated whether buyers' past transactions with suppliers in old technology predict supplier choice when entering a new technological domain. Lee (2007) has examined the role of network resources and the mechanisms through which informational benefits enables and constrains firm in the timing of new market entry. In sum, evidence suggests that relational embeddedness is transferable across market boundaries: a firm could deploy and leverage market ties in one market to other markets.

Implicit in the prior studies is the assumption that both parties in the firm-client dyad are interested in diversifying into a new market. Studies either depict a client as a follower into a new market (Jensen, 2003) or a firm as a passive partner in innovation (Hoetker, 2005). While bilateral transactions involve negotiation and agreement between two participants, studies offer only a partial account by abstracting away from firm and client heterogeneity in diversification decisions. Given that embedded transactions are common as coordinated efforts are required in co-production processes in firm-client relationships (Broschak, 2004; Raffiee, 2017), clients may rely more on embedded ties rather than looking for a new partner when there is a demand for a new product or service. Thus, clients may actively pull firms to diversify into a market. In response, firms may make strategic decisions to diversify along with the clients. In the next section, I relax the assumption that clients and firms are passive followers and provide a theory of diversification allowing for both supply-side and demand-side heterogeneity in the needs to diversify into a certain market.

A Theory of Client-led Diversification

In this section, I present a theory of how a client may lead a firm into a new market accounting for the incentives of both parties in a firm-client (or buyer-supplier) relationship. Although embedded ties enable a firm to leverage the relationship across markets, I argue that client-led diversification may create tension between embedded ties and firm capabilities as the firm may have less control over the direction of the diversification vis-à-vis its client.

Consider a client and a firm that have a history of repeated transaction. Suppose the client suddenly discovers a needs for a service which is not included in the firm's service offerings. In a friction-less market where arm's-length transactions constitute the majority of the market exchange, a client would select a supplier based on the firm's capabilities, its potential performance in the new market, and the cost of hiring the firm. However, in a market where embeddedness logics of exchange apply, entering a new market with an existing firm, in general, has clear advantages over finding a new firm for the market. From the perspective of the client, an entry with the existing firm will lower the transaction cost compared to an arm's-length transaction. Embedded transaction engenders familiarity-based trust that avoids risks of opportunistic actions (Dyer & Singh, 1998), develops communication and coordination routines (Uzzi, 1996), and enables the client to better assess the firm capabilities (Levinthal & Fichman, 1988). Compared to multiple suppliers providing different products and services to the same client through series of arm's length transactions, conducting embedded transaction with one supplier may also lower the cost of coordination. More importantly, the presence of switching cost may make the client even more reluctant to switch firms. First, finding a new supplier incurs switching costs associated with searching for and contracting with a new supplier (Brush, Dangol, & O'Brien, 2012; Klemperer, 1987). Second, switching cost may arise as it requires the client to make relation-specific investments to a new firm, but also because embedded firms are likely to have a tacit

understanding of the client's specific business needs, preferences, and business norms (Raffiee, 2017). Repeated transactions over time would be needed before the client can reap the benefits of embedded transactions with the new firm. Thus, the client may prefer embedded transaction with an existing supplier over a new supplier to fulfill its need for a new product or a service.

In response to the client's unmet demand in a new market, suppliers may weigh the costs and benefits of diversification following the client. From the firm's perspective, there are at least two reasons as to why client-led diversification may benefit the firm. First, Chatain & Zemsky (2007) argue that offering a broader range of service strengthens the relationship with clients, which may create so-called, "client-specific scope economies." The presence of client-specific scope economies rests on the idea that a) client-specific knowledge can be shared across multiple products and services and b) coordination cost for offering a broader selection to the same client would be reduced across products and services. In the context of client-law firm relationships, Chatain (2011) finds that suppliers offering broader services to existing clients are more likely to retain clients and have higher performance. In a similar vein, Rogan (2014) shows that advertising agencies that hold multiple accounts with a client are more likely to remain stable. Second, Uzzi (1997) suggests that embedded ties engender economies of time, which allows the firm to swiftly capitalize market opportunities without worrying about searching for and contracting with new clients. Again, the presence of client's switching cost provides firms with an opportunity to exploit the economies of time even further (Brush *et al.*, 2012). In summary, embedded transaction in a new market may benefit the both parties in firm-client relationships. Clients reduce cost

through embedded transaction and suppliers generate additional business that could have gone to other firms.[1]

Client-led diversification, although seemingly beneficial for both parties, may incur a significant cost to the supplier. Granted that the client can be a demand-side driver of diversification, a diversification led by clients may create a new tension: a misfit between the firm's economies of scope and client's desired direction of diversification. A firm's scope decision is a function of the firm's ability to exploit scope economies across markets and the cost of diversification (Teece, 1980). Scholars have shown that a firm's resources and capabilities affect the choice of the market into which the firm diversifies (Farjoun, 1994; Silverman, 1999) and determines the firm performance (Markides & Williamson, 1994; Robins & Wiersema, 1995). However, demand-side synergies derived from consumptions of bundle of products or services that increase consumer utilities may not be identical to supply-side scope economies (Ye *et al.*, 2012). Due to the misfit between the client's demand in a certain market and the firm's resource relatedness to the market, clients may pull firms into unrelated diversification. That is, clients may lead the firm into an unfamiliar market where their other capabilities would be of little use or even where their capabilities may erode over time. Some diversifications are in directions where firms may not capture scope economies. That is, resources and capabilities the firm possess may not be fungible in the market into which the firm is diversifying (Levinthal & Wu, 2010). The cost of diversification may be substantial for other diversifications: a business in the new market may interfere with the existing businesses, creating diseconomies of scope (Rawley & Simcoe, 2010). Firms may need to cope with the interdependencies across different

[1] For the aforementioned reasons, one would expect that a firm could elicit diversification from client through cross-selling marketing efforts. For the simplicity of the argument, however, I assume that the demand is exogenously driven by clients and cannot be created by a marketing effort.

businesses (Zhou, 2011). Factors such as organizational rigidity may increase the cost of coordination, further offsetting economies of scope (Rawley, 2009).

If client-led diversification is sometimes detrimental to firm performance, why would the firm cater to client's needs through the diversification regardless of the firm's cost-benefit? Relational embeddedness is inherently co-specialized in the sense that it is not fully owned or controlled by one party (Amit & Schoemaker, 1993; Teece, 1986) and that the value of embeddedness is contingent on the commitment of both parties (Dyer, 1996). Accordingly, the value created through embedded transactions and relationship-specific investments is bilaterally dependent on transacting partners (Lavie, 2006). In addition, relational rents rarely accrue to both parties equally (Dyer, Singh, & Kale, 2008; Lavie, 2007). Client-led diversification generates relational rents as it exploits the client-specific scope economies and reduced transaction cost through embedded exchanges. However, the performance implication of client-led diversification would manifest with a better understanding of how the relational rents are appropriated and distributed between the client and the firm.

The basis of client-firm relationships is often asymmetric (Baker *et al.*, 1998; Levinthal & Fichman, 1988). Such asymmetry is easily carried over to asymmetric bargaining power. One party may leverage their bargaining power to extract the lion's share of relational rents. Although stated differently, scholars commonly point out the following determinants of bargaining power: a) access to key information, b) low replacement cost for the focal firm, and c) high switching cost for the other party (Coff, 1999; Gulati & Sytch, 2007; Lavie, 2007; Yan & Gray, 1994). First, firms that are often cognitively or physically constrained to search for other clients and to have information on opportunities when they are deeply embedded in relationships, which weaken the firm's bargaining power (Uzzi, 1997). Firms may be

myopic, excessively focusing on exploitation of current client ties instead of searching for other options (Levinthal & March, 1993). Myopia may also sacrifice long-term performance for short-term performance as adding a line of business with an existing client implies an increase in revenue. Also, embedded transactions may increase the cost of replacement for the focal firm by making the firm more dependent upon the client over time. Asymmetry in bargaining power will be stronger if the focal firm devotes more resources catering to the client's need and have fewer alternative options. Lastly, with low switching costs, clients may pose a credible threat to exit the relationship if multiple firms vie for their business. From the firm's perspective, the competitive pressure that the firm may lose business to other firms would constrain the firm from turning down the client's request to diversify (Lavie, 2007; Yan & Gray, 1994). Thus, over-embeddedness to a single partner and low bargaining power vis-à-vis the client may result in a weaker appropriation of relational rent. Thus, clients may lead the firms to engage in diversifications, which may not be necessarily beneficial for the firms.

Client-led Diversification and Performance

Theory in the previous section conjectures that firms may engage in client-led diversification. In the short run, client-led diversification may increase the revenue as it adds more transactions from the client. However, I propose that the negative effect of client-led diversification would manifest over recurring transactions in the market. This is not only because client-led diversification is often a diversification into an unrelated market but also because it creates inefficiencies and generates tension with the firm's capabilities. I first theorize the effect of client-led diversification on firm performance, controlling for the level of relatedness.

At least three mechanisms predict that client-led diversification will result in negative performance for the focal firm: a) diseconomies of scope, b) an erosion of capabilities, and c) over-embeddedness to the client. First, client-led diversification may produce diseconomies of scope due to increased governance costs of coordinating activities across multiple markets (Bresnahan, Greenstein, & Henderson, 2011; Rawley & Simcoe, 2010). Even if the target market is related, a client-led diversification is more than combining operations. Client-led diversification forces the firm not only to coordinate a bundle of transactions across markets but also do it with the same client. For example, in professional service firms where a single team usually takes a full charge of a single client, diversifying into a new market to fulfill a client's needs would require the team to change its members and routines related to the services. Indeed, such increases in internal governance costs would undermine performance.

Second, client-led diversifications may generate tension with firm capabilities. Specifically, the trade-off between embedded ties and firm capabilities may manifest itself as it impacts the dynamic aspect of capability accumulation. There are at least two reasons why a client-led diversification may undermine firm capabilities. First, embedded ties preoccupy scarce resources (Sorenson & Waguespack, 2006) that would otherwise have been allocated to activities that enhance the firm's capabilities. Because using resources to serve the client is not always the firm's first-best use, client-led diversification may hold resources and capabilities hostage by deploying them in activities that hinder accumulation of capabilities. Thus, deploying resources and capabilities to other activities would forfeit the opportunity to constantly accumulate capabilities in the current market, incurring an opportunity cost. Moreover, a deprivation of the opportunity to update experience in the current market would also result in an erosion of existing capabilities.

The literature on the paradox of embeddedness offers the last mechanism: cognitive and relational lock-ins (Maurer & Ebers, 2006; Uzzi, 1997). Scholars have highlighted the path-dependent nature of relational embeddedness (Kim, Oh, & Swaminathan, 2006). Deeply embedded relationships with a limited number of partners constrain the cognitive flexibility necessary to develop new ties (Maurer & Ebers, 2006) and create bias in favor of the current partners (Sorenson & Waguespack, 2006). In addition, over-embeddedness also creates rigidity in network configuration (Kim *et al.*, 2006) and limited access to new information (Gargiulo & Benassi, 2000), which in turn, deprives the firm of opportunity to search new clients. Another mechanism focuses on the lock-in effect of over-embedded ties (Uzzi, 1997). A single partner preoccupying a large portion of a firm's resources would not only constrain access to information and new opportunities but also create relational obligations and dependence towards the partner (Maurer & Ebers, 2006; Uzzi, 1997). Uzzi (1997) argues that dependence makes an actor vulnerable to an unexpected exit of the other party. An increased dependence on a single client may also incur envy cost across existing clients. Similar to Nickerson and Zenger's (2008) theory that employee's social comparison and envy being a source of diseconomies of scope, preferential treatment to a certain client may create inefficiencies and conflict of interest in managing clientele (Hayward & Boeker, 1998; Rogan, 2014). For example, assigning an "A-team" of its best employees to one client may result in a decrease in both absolute and relative quality of services provided to other clients. This may in turn create dissatisfaction of other clients. Thus, through client-led diversification, firms may cater to the client's need at the expense of the firm's economies of scope, capabilities, and other existing and potential clients. I therefore conjecture:

Hypothesis 1. *Controlling for market relatedness, the firm's diversification into a market following an existing client leads to negative performance.*

Level of Relatedness and Client-led Diversification

Hypothesis 1 predicts that client-led diversification leads to negative performance as it involves the trade-off between embedded ties and firm capabilities. Although the theory implies that client-led diversification tends to become an unrelated diversification compared to diversifications driven by resources and capabilities, Hypothesis 1 does not rely on the level of relatedness as the key mechanism why inefficiencies arise. To further refine the understanding of the underlying mechanisms, I build on the insight of the RBV and link the notion of relatedness with the mechanisms in the previous section. The RBV suggests that a firm's resources and capabilities create economies of scope in related markets (Helfat & Lieberman, 2002). Scholars have conceptualized and measured the degree of relatedness in terms of proximity or fungibility of a firm's resources and capabilities to the target market (Levinthal & Wu, 2010; Robins & Wiersema, 1995; Silverman, 1999; Wu, 2013).

The degree of market relatedness between the target market and the firm's current market decreases the intensity of two of the three mechanisms: diseconomies of scope and an erosion of capabilities. Scope-induced coordination costs of bundling transactions across multiple markets are amplified when the markets are unrelated (Nesta & Saviotti, 2005; Teece, Rumelt, Dosi, & Winter, 1994). For example, if the client leads the firm into an unrelated market where bundling transactions in the market with other markets is unfamiliar to the firm, coordination costs will surge as it requires a drastic change in its members and a development of new routines. In addition, deploying valuable resources and capabilities to unrelated activities aggravates the erosion of capabilities in the related markets by a) deterring an accumulation of related experience and b) depreciating the core capabilities. Accordingly, the more proximate the firm's resources and capabilities are with the focal

market that the client-led diversification is taking place, the less decay of capabilities the firm needs to suffer. Thus,

Hypothesis 2. *The negative association between client-led diversification and performance will be weaker if the firm is more related to the market.*

METHODS

Empirical Context: The U.S. Federal Lobbying Industry

I investigate the performance implications of client-led diversification in the context of U.S. federal lobbying firms between 1998 and 2008. Under the Lobbying Disclosure Act of 1995 (hereafter, LDA), all of lobbyists engaged in lobbying activity are required to be registered and to file a lobbying disclosure report for each client. The lobbying reports require a lobbyist to report the revenue generated by the client on each issue during a six-month period. Based on the filings of lobbying transactions between firms and clients, I compile data on lobbying firms, lobbyists, clients, and issues covered through which I examine firms' client-led entry into issue markets. The data is publicly available through the Senate Office of Public Records (SOPR), on which I primarily rely in the analysis. The pooled sample includes 3,703 unique lobbying firms and 23,932 clients between 1999 and 2008.

The U.S. lobbying industry provides a favorable setting to study client-led diversification for several reasons. First, the reporting requirements of the LDA enable me to observe the full universe of reported transactions between firms and clients, including the size of the contract and the issue areas lobbied.[2] This enables me to not only identify every firm-client dyads for each semiannual period, but also observe supply and demand in each issue. Second, lobbying is a relationship-intensive professional service industry where client

[2] I am unable to observe lobbying transactions for lobbyists who do not meet the minimum threshold to register as lobbyists and for transactions that go unreported (Drutman, 2015).

ties are a key source of value creation and where embedded exchanges are common (Raffiee, 2017). More importantly, the lobbying context allows a clean and reliable demarcation of market boundaries. 78 pre-defined lobbying issues are enacted by SOPR based on issue coverage by congressional committees in the Senate and the House. Each issue area represents a distinct policy market where supply and demand set the price and the quantity for each lobbying service. Corresponding with the common definition of a market, each market has a very limited substitutes for consumers. In addition, supply-side substitution is also limited because a distinctive set of assets is needed to participate in each issue market: technical knowledge of legislative issues (what you know) and personal connections to relevant congressional committee or personnel in federal agencies (who you know, Bertrand, Bombardini, & Trebbi, 2014). Table 1-1 lists the 78 general issue areas and the size of each market between 2002 and 2008. As seen in Table 1-2, for example, the Homeland Security issue market consists of 525 suppliers and 1,520 customers and the total amount of transactions was $313,314,272 between 2002 and 2008. As an illustration of a market transaction, a defense contractor such as Lockheed Martin is one of the major clients of the Podesta Group in the Defense issue. Lobbyists in the Podesta Group who are experts in defense policy and have access to senators, representatives, and federal government officials in defense-related committees and federal agencies lobby on behalf of Lockheed Martin. The size of the lobbying deal reflects the quantity and price of Podesta's lobbying service in the Defense issue. In this example, a client-led diversification into the Homeland Security market would be Lockheed Martin's lobbying on the Homeland Security issue with the Podesta Group who are new to the issue. Lastly, as described in a greater detail below, the lobbying industry features exogenous regime changes that allow a research design that will increase the strengths of causal inference.

Research Design: Creation of the Homeland Security Issue after 9/11 Terrorist Attack

To assess the performance implications of client-led diversifiers, an ideal research design should randomly assign client-firms and compare the performance with other group of firms. However, investigating the performance of client-led diversification with panel data on existing markets may suffer from serious selection issues. There are three stages where selections may occur: a) matching between the firm and the client in the formation of a tie, b) client's selection, and c) firm's selection. First, if a client's demand in a new market is not exogenous and can be anticipated, clients may pick firms with an expectation to diversify in the future in the initial tie formation (matching). As a result, the clients that are more likely to diversify may be matched with high-quality firms that may perform well in new markets. Second, with the demand in a new market, the client may decide whether she will make an offer to diversify with an existing lobbying firm based on the experience with the firm and the firm quality (client's selection). Lastly, when the firm receives the offer, the firm will decide whether she will accept the offer and diversify (firm's selection). Because the firm can decline the offer, the likelihood of client-led diversification is also correlated with the firm quality at this stage. Thus, failing to control for the three sources of selection in testing the performance of client-led diversification may significantly bias the estimation.

My empirical strategy exploits an exogenous creation of a new market, the Homeland Security issue area after the 9/11 terrorist attack, as a way to control for the potential endogeneity (LaPira, 2014). The 9/11 terrorist attack stimulated one of the largest expansion of the federal government since World War II, bringing a "gold rush" to K Street (Politico, 2007). In June 2002, the House Select Committee on Homeland Security was created. Shortly after, Congress and the President enacted the Homeland Security Act of 2002, which

involved reorganization of 22 different federal departments and agencies into the Department of Homeland Security. In accordance with the series of changes, SOPR added a new issue area code of Homeland Security (HOM) in lobbying reports for lobbying activities targeted to Congressional committees on Homeland Security (the House Committee on Homeland Security and the Senate Committee on Homeland Security and Governmental Affairs) and the Department of Homeland Security.

Exploiting the creation of the Homeland Security issue market addresses the selection bias in the following ways. First, I use the client-firm ties that have formed before 2001 to identify 125 client-led diversifiers. By focusing only on client ties that experience exogenous demand in the Homeland Security issue, I account for endogeneity associated with matching between the firm and the client in the formation of a client tie. However, this does not address the other two sources of selections. Thus, I employ an instrumental variable (IV) approach and instrument client-led diversifiers with the maximum value of a client's proximity to Homeland Security. As clients would not have expected where and when the new market would appear, the creation of the Homeland Security issue in 2001 exogenously generates variations in clients' proximity to the new market which is a proxy for the client's likelihood of having a demand in the new market. For example, clients who had lobbied intensively on the Defense issue or the Transportation issue (two issues that are proximate to Homeland Security) before 2002 may have a higher likelihood of entering a new market compared to clients who had lobbied in Health-related issues. The Podesta Group, with Lockheed Martin who heavily lobbies in Defense issue as a client, would be more likely to diversify into Homeland Security than a lobbying firm with Pfizer, one of the largest spender in Health issue, as a client. I argue that proximity of a client most proximate to Homeland Security is a valid instrument for client-led diversification. Client's proximity to

Homeland Security prior to the creation of the market is reasonably randomly assigned (independent assumption). In addition, having a client who potentially has a high demand in the Homeland Security issue would not be correlated with firm performance unless the firm enters the market to exploit the demand. Thus, a client's distance to Homeland Security may causally affect the performance only through the endogenous variable, the firm's entry into Homeland Security (exclusion restriction).

Measures

Firm performance. Firm performance, a key dependent variable in testing the hypotheses, is measured in terms of the firm's semiannual revenue aggregated from the dollar amount of lobbying deals. In the sample of Homeland Security market entrants, the mean revenue is $1,132,149. Given the highly skewed nature of revenue (the top decile revenue in the sample is $35,900,000), I use a natural log scale. Thus, *LN Revenue* is measured as a natural log of the lobbying firm's semiannual revenue reported in lobbying disclosure reports.

Types of diversifying entrants. Types of diversifying entrants are key independent variables in this study. *Client-led Diversifier* is coded 1 if a firm enters the Homeland Security market along an existing client in the first period of diversification and subsequent periods, 0 otherwise. Among 525 entrants in the Homeland Security issue market between 2001 and 2008, 230 are client-led diversifiers. *Non-client-led Diversifier* is coded 1 if a firm diversifies into the Homeland Security market with a new client and subsequent periods, 0 otherwise. A diversifying entrants may have both an existing client and new clients in the first period entering the market. Because it is not clear whether these diversifiers are primarily led by clients, I classify them as non-client-led diversifiers, resulting in a total of 183 client-led diversifiers in the sample. To address the selection issue, I use 125 client-led diversifiers who entered the market with clients who had been with the firm before 2002. Table 1-2 presents

the number of lobbyists, firms, and clients entered the Homeland Security issue market and used in the analysis.

Measures of market proximity. To measure relatedness between issues, I follow Lee & Lieberman (2010) to create a similarity index for each issue market dyads based on issue co-occurrence patterns in lobbying reports. A lobbying report is filed by a lobbying firm per client in each semi-annual period. As a client may purchase lobbying services in a bundle of issues, each report may contain multiple issues. I use the pattern of issue co-occurrences to construct issue similarity matrix for each year. The similarity index, S_{ijt}, is a measure of issue market i and issue market j's co-occurrence within a client's lobbying report in year *t*.

$$S_{ijt} = \frac{M_{it} \cap M_{jt}}{M_{it} * M_{jt}} = \frac{\sum_{r=1}^{R} M_{irt} M_{jrt}}{\sqrt{\sum_{r=1}^{R} M_{irt}^2} \sqrt{\sum_{r=1}^{R} M_{jrt}^2}}$$

where, M represents an issue market and r denotes a report in a population of R reports in year t. In essence, this measure captures the normalized count of clients that lobby both issue i and issue j. This matrix allows me to calculate each issue market's proximity to Homeland Security. For example, Defense issue has a total of 19,793 reports and Homeland Security has 6,059 reports in total between 2002 and 2008. As 1,749 reports filed both Defense and Homeland Security, the Defense issue's market proximity to the Homeland Security market is calculated in the equation as 0.1597 (See Table 1-2). Because co-occurrence pattern may change over the year, I use co-occurrence pattern in three subsequent years to calculate the similarity index at time *t*. To provide a visualized representation of market proximity, I created a two-dimensional map of lobbying issues with multidimensional scaling (MDS) algorithm using the pairwise similarity index (see Figure 1-1). The map reflects the relative distance among lobbying issues in a two-dimensional plane.

As seen in Figure 1-1, Homeland Security, with the coordinates of (-0.05, -0.05), is located close to Defense at (-0.01, -0.08).

In assessing the performance of client-led entrants, I use *Pre-2002 Client's Market Proximity to Homeland Security* as an instrument for client-led diversifiers. By definition, client-led diversification is likely to occur upon the request of a client among the clientele. Thus, I measure the value of the client's maximum tendency to lobby Homeland Security rather than the average proximity of the clientele. To avoid endogeneity in the Homeland Security issue demand, I only use cumulative lobbying deals made by the clients before 2001 to construct the proximity measure. *Client's Market Proximity to Homeland Security* is defined as the maximum value of client's similarity index to Homeland Security for clients who had been with the firm since pre-2002.

Similarly, I construct the firm's relatedness to Homeland Security based on issues the firm had lobbied in the previous period using the relatedness index that captures the distance to Homeland Security from the firm's perspective. The relatedness index, R_{ijt}, is a measure of issue market i and issue market j's co-occurrence within a firm instead of a report.

$$R_{ijt} = \frac{M_{it} \cap M_{jt}}{M_{it} * M_{jt}} = \frac{\sum_{f=1}^{F} M_{ift} M_{jft}}{\sqrt{\sum_{f=1}^{F} M_{ift}^2} \sqrt{\sum_{f=1}^{F} M_{jft}^2}}$$

where, M represents an issue market and f denotes a firm in a population of F lobbying firm in year t. *Firm's Relatedness to Homeland Security i*s measured as an average relatedness index to Homeland Security multiplied by the firm's lobbying issue at *t-1*.[3] To

[3] Correlation between (Pre-2002) Client's Market Proximity to Homeland Security and Firm's Relatedness to Homeland Security is low, with a value of 0.0586. This is primarily because of the following reasons. First, there is a difference in the way these two variables are constructed. Whereas client's proximity is the maximum value among many client's proximity a firm has based on the similarity index, firm relatedness is an average of all deals covered by the firm weighted by the relatedness index. A single client proximate to Homeland Security will more likely to drive a client-led diversification than the mean proximity of clients. Second, clients often have multiple lobbying firms servicing them. In the sample, a client has an average of 3.05 lobbying firms

test Hypothesis 2, I created interaction terms, *Client-led Diversifier × Relatedness* and *Non-client-led Diversifier × Relatedness,* by multiplying the relatedness to Homeland Security variable with the two types of diversifying entrants.

Control variables. Prior research on lobbyists highlight that supply-side relational capital such as connections to politicians (i.e., "who you know") play a key role in determining lobbyists' lobbying revenues, along with human capital (e.g., Bertrand *et al.*, 2014; Blanes i Vidal *et al.*, 2012: Byun, Frake, & Agarwal, 2017). Similarly, for a lobbying firm, supply-side relational capital its employees possess is a major asset that could be deployed in the new market. Following Bertrand *et al.* (2014), I measure a lobbying firm's preferential access to politicians using data on campaign contributions (Ansolabehere, Snyder, & Tripathi, 2002). *Political Connections* equals to 1 if one of the employees of the firm has made a campaign contribution to a politician seated in the Senate Committee on Homeland Security and Governmental Affairs and the House Committee on Homeland Security prior to the committee assignment at time *t-1*, and equals to 0 otherwise. In addition to political connections of existing employees, diversifying entrants may also acquire lobbyists with political connection to address the capability gaps. *Lobbyists Acquired* is defined as the count of lobbyists who have political connection to Homeland Security-related congressional committees hired at time *t*.

I use *Entropy* measure to account for the level of diversification (Wan *et al.*, 2011). Following Hitt, Hoskisson, and Kim (1997), entropy is gauged as follows:

$$Entropy = \sum_{m=1}^{78} \left[P_m \times \ln(\frac{1}{P_m}) \right]$$

offering lobbying service at a given time. Third, firms also have an average of 7.79 clients at a given time (Homeland Security market entrants have 18.04 clients on average).

where P_m denotes the proportion of revenue attributed to the issue market *m* at time *t-1*. The size of employees and the size of the client base, both strong indicators of performance in professional service firms, are included as controls (Somaya *et al.*, 2008). *Firm Size* is measured as the total number of lobbyists that appear in lobbying report filed by a lobbying firm at time *t-1*. *Cumulative of Client Tie* is gauged as the cumulative number of different clients a lobbying firm until *t-1*. I also control for *Firm Age,* measured as the years of operation in lobbying industry.

Measures for testing the mechanisms. I use four different dependent variables to test the three mechanisms that potentially drive both Hypotheses. To test the presence of diseconomies of scope, I use strategic coherence as a proxy for the level of coordination among lobbying activities across markets (Breschi, Lissoni, & Malerba, 2003; Karim & Kaul, 2015; Nesta & Saviotti, 2005; Teece *et al.*, 1994). If a client-led diversification creates diseconomies of scope, coherence in lobbying activities will decrease over time along with an increase in the cost of coordination across a bundle of transactions (Rawley & Simcoe, 2010). To measure *Strategic Coherence*, I use issue co-occurrence patterns to calculate an aggregate measure of similarity index at the firm level by adding the similarity index for all lobbying cases that the firm assumes and divide it by the number of the firm's lobbying deals at time *t-1*. This approach is similar to Nesta & Saviotti (2005)'s measure of corporate coherence. Strategic coherence is a reasonable proxy for (dis)economies of scope because a smaller value of strategic coherence means that the firm conducts an odd combination of lobbying activities compared to an average bundle of issues purchased by a client.

I use the number of deals in the firm's core business before entering the Homeland Security market as a proxy for capabilities prior to client-led diversification. If client-led diversifiers suffer an erosion of capabilities in the core business, the firm would struggle to

secure business and also to accumulate capabilities in the market. The # *of Deals in Core Market* is defined as the count of deals the firm assumes in an issue area that the firm has the most number of deals in the period prior to entering the Homeland Security issue market.

The third mechanism posits that client-led diversifiers may suffer in terms of business opportunity as they become more dependent on existing clients. I use two dependent variables to capture a decrease in the number of clients and a concentration of revenue stream. The # *of Clients* is a count measure of the total number of clients the firm is serving at time *t*. *Client Entropy* is an entropy measure that captures the diversification of revenue among the firm's existing clientele. A higher value reflects that the firm is less dependent on a small number of clients for revenue.

Across all models in the main and the supplementary analyses, I run panel regression with firm fixed-effects and year fixed-effects. Year fixed-effects are included in all analyses to control for electoral cycles and time-varying issue effects. To account for time-invariant firm characteristics, analyses that do not examine between-firm differences include firm fixed-effects. In the supplementary analyses where the dependent variables are the number of deals in core market and the number of client ties, I run panel negative binomial regression. I run OLS regression for the rest of the analyses.

Measures for dyadic analyses. I conduct firm-client dyadic analyses with the sample of all client ties of firms in the sample. The purpose of the analyses is to track changes in the relationship between client-led diversifiers and clients and provide an additional test of the proposed mechanisms. In doing so, I focus on changes a client-led diversification bring to the relationship between the firm and the rest of the clients (who did not led the diversification). I compare the estimated coefficients of *Client-led Diversification Dyad*, a dummy variable that takes the value 1 for the periods after the focal client enters Homeland

Security along with the firm, and *Other Dyads of Client-led Diversifier*, a dummy variable coded 1 for the firm's other existing client ties after the client-led diversification, on various dependent variables that capture the quality of relationship and the amount of resources allocated to each client.

The first two dependent variables capture firm-client relationship performance. *LN Size of Contract*, is measured as a natural log of the dollar amount of contract between a client and a firm in a given semiannual period. *Tie Dissolution* is coded 1 if the client no longer give lobbying business to the firm, 0 otherwise. Next set of dependent variables aim to measure organizational changes that may increase internal governance costs. *Firm-Client Similarity* is constructed using Jaffe's (1986) measure of proximity by computing the degree of overlap between issue portfolio of the focal client and that of the rest of the clients. This measure captures the extent to which issues the focal client lobby is similar to what other clients of the firm is lobbying. The *# of Hires for Client* is a count measure of the number of newly hired lobbyists assigned to work for a client. Next, I test whether a client-led diversification changes the amount of resource allocated to serve each client. *Team Size* is calculated as the number of lobbyists working for the focal client at the given period. To test whether client-led diversification may be associated with preferential treatment to one client over another, the last set of dependent variables capture the quality of the team assigned to the focal client. *Avg Tenure of Lobbyists in a Team* is measured as the average of lobbyists' tenure in the firm for lobbyists working for the focal client. The *# of Revolvers for Client* is gauged as the number of revolving door lobbyists, who are considered as valuable and scarce resources within a lobbying firm, working for each client at a given period.

In addition, I include a number of client-level and dyad-level controls. To control for client's bargaining power, I measure *Client # of Suppliers* as the total number of lobbying firms

working on behalf of the client at a given semiannual period. To account for variation in a client's level of diversification across issue markets, I include *Entropy – Client*, an entropy measure calculated at the client level. As a dyad-level control, *Tie Duration* is included, measured as the duration of the firm-client relationship in the number of semiannual periods. Lastly, dyad fixed-effects are included to account for unobserved time-invariant relational characteristics and time fixed-effects are included to control for the cyclical nature of lobbying.

RESULTS

Table 1-4 reports descriptive statistics for variables included in the main and the supplementary analyses. Table 1-6 presents results of the main analysis. Model 1 is a baseline regression of firm revenue with control variables. All models consistently show that political connections, the level of diversification, firm size, firm age, and the size of client base are positively and statistically significantly correlated with firm revenue. Models 2 and 3 test Hypothesis 1. Model 3 demonstrates that client-led diversifiers suffer 12 percent decrease in revenue after the diversification. With a standard error of 0.0566, the coefficient estimate is statistically significant at the 95 percent confidence level. On the other hand, the positive and statistically significant coefficient indicates that non-client-led diversifiers witness an increase in revenue by approximately 17 percent after the diversification (Model 3). To investigate the inter-temporal effect of client-led diversification on revenue, I plot revenue trends of client-led diversifiers and non-client-led diversifiers calculated from Model 3 (Figure 1-2). Interestingly, client-led diversifiers enjoy an increase in revenue in the short-run, but the positive performance starts to decay after 3 to 4 years. In contrast, non-client-led diversifiers slowly catch up, eventually having a higher revenue in the long-run.

Consistent with Hypothesis 2, Models 4 and 5 indicate that negative relationship between client-led diversifiers and revenue is mitigated as the level of the firm's relatedness to Homeland Security increases. Model 5 implies that client-led diversifiers whose level of relatedness is one standard deviation higher experience a 7.4 percentage point increase in revenue. The coefficient for the interaction term is statistically significant at the 95 percent confidence level. Similarly, Model 5 also demonstrates that non-client-led diversifiers with one standard deviation higher relatedness would be associated with 11 percentage point increase in revenue after the diversification. Figure 1-3 plots the percentage change in revenue after a client-led diversification for each level of the firm's relatedness to Homeland Security. The marginal plot shows that the percentage change in revenue ranges from -25 to 30 percent as relatedness increases. As the level of relatedness exceeds 0.1, the marginal effect loses its statistical significance at the 95 percent confidence level.

Because a client-led diversification decision is endogenously determined between the firm and the client, coefficient estimates in Table 1-5 can only be interpreted as correlations. To estimate the effect of client-led diversification on revenue, I run two-stage least squared regression which controls for the potential selections the of client-led diversification decision by using *Client's Market Proximity to Homeland Security* as an instrument. Table 1-7 presents results for both stages in 2SLS regressions. In the first stage regressions in both Models 1 and 2, the relationship between client's proximity to Homeland Security and client-led diversification is strongly positive with *F*-statistics above 17. In the second stage, the coefficient estimate for client-led diversification is 0.266, which is statistically significant at the 99 percent confidence level (Model 1). Compared to the OLS estimates in Table 1-5, the negative effect of client-led diversification has more than doubled to approximately 26% (Model 1). These results collectively provide support for Hypothesis 1.

Test of Mechanisms

To test the underlying mechanisms that drive the hypotheses, I turn to evidence from alternative dependent variables. In Models 1 and 2 in Table 1-8, I investigate whether client-led diversifiers are associated with a decrease in corporate coherence among the set of lobbying activities. Model 2 demonstrate that client-led diversifiers have lower strategic coherence after the diversification with a statistically significant coefficient at the 99.9 percent confidence level. However, as positive and statistically significant interaction term suggests, client-led diversifiers who operated in the related market prior to entering the Homeland Security market would not suffer as much. Models 3 and 4 tracks the changes in the number of deals in the core business prior to entering the Homeland Security market. Similarly, the negative binomial regression results confirm that not only do client-led diversifiers have fewer lobbying deals in the core market after the diversification, but also the loss of lobbying deals will be smaller if the firm operates proximate to Homeland Security. The results suggest that capabilities that enabled the firm to be competitive in the core market would not be accumulated and be translated into performance in the market after the client-led diversification.

Turning to the last mechanism, I investigate whether client-led diversification is associated with over-embeddedness to existing clients. Negative binomial models in Models 5 and 6 examine the relationship between client-led diversification and the number of client ties. Model 5 shows that, on average, there is a statistically significant decrease in the size of client base after a firm makes a client-led diversification (approximately an 8 percent decrease). In addition, based on Model 6, a one standard deviation increase in the level of relatedness leads to approximately a 5 percentage point increase in client ties after client-led diversification. Supporting the idea of over-embeddedness, Models 7 and 8 show that client-

led diversifiers depend more on a small number of clients for revenue after the diversification, as the coefficient estimate of client-led diversification for client entropy is negative and statistically significant at 95 percent confidence level. However, I do not find evidence that this relationship is moderated by the level of relatedness.

The positive and statistically significant coefficient of client-led diversifiers in Models 1, 3, 5, and 7 are replicated with 2SLS models with the same instrument used in the main analysis. Dependent variables in Table 1-8 are positively and statistically significantly correlated with firm revenue.[4] To summarize, consistent with Hypotheses 1 and 2, I find evidence supporting the mechanisms as to why client-led diversifiers suffer after the diversifications: a) a decrease in strategic coherence, b) a decay of firm capabilities related to the firm's core business, and c) over-embeddedness to the client.

Firm-Client Dyadic Analyses

Although the analyses focus primarily on a firm-level client-led diversification decision and its outcomes, it is informative to explore the dynamics of firm-client relationships for additional evidence of the proposed mechanisms. Descriptive statistics for variables included in the dyadic analyses are reported in Table 1-5. Models 1 and 2 in Table 1-9 examine the performance of firm-client relationship after client-led diversifications. Model 1 suggests that clients who led the diversifications increase the size of the contract whereas other existing clients reduce the amount of lobbying after the diversifications. In Model 2, the positive and statistically significant coefficient indicates that other client ties are more likely to dissolve if the firm engages in a client-led diversification. Consistent with the theory, these results suggest that client-led diversifications may endanger otherwise strong relationships with

[4] The mechanisms can be tested for mediation. In an additional analysis, I find that the relationship between client-led diversification and revenue is explained by inclusion of four variables that test the mechanisms, satisfying conditions for mediation (Barron & Kenny, 1986).

other clients. Models 3 and 4 test whether a client-led diversification brings significant changes to the firm which may increase the cost of governance. As seen in Model 3, firms lobby for clients who led the diversification on issues that are significantly different from the issues the rest of the existing clients lobby. In addition, Model 4 shows that client-led diversifiers make significantly more human capital acquisitions to cater to the client's needs after the diversification. Model 5 tests the resource allocation implications of client-led diversification. The negative and statistically significant coefficient of the other dyads of client-led diversifiers indicates that firms reduce the number of lobbyists assigned to other clients after a client-led diversification. Consistent with the over-embeddedness mechanism, Models 6 and 7 suggest that client-led diversifiers significantly reduce the quality of lobbyists working for other clients by assigning less senior lobbyists (Model 6) and less revolving door lobbyists (Model 7) than before. In sum, the results of dyadic analyses are supportive of the proposed mechanisms.

Supplementary Analyses

To further validate the theory, I conduct a battery of supplementary analyses and explore the dynamics of the performance implications of client-led diversification. Table 1-10 presents the test of interaction terms to explore boundary conditions of the negative impact of client-led diversification. In Hypothesis 1, I argue that the negative effect of client-led diversification would manifest over time after the entry. Model 1 uses *Time Since Entry* into Homeland Security as a moderator and shows that the negative impact of client-led diversification is aggravated over time. Next, I test whether allocating more resource in catering to the client's needs in the Homeland Security market intensify the negative impact of client-led diversification. Model 2 shows that the coefficient of the interaction term between client-led diversifiers and *HOM Revenue*, the dollar amount of revenue from the

Homeland Security market, is negative and statistically significant at 99 percent confidence level.

According to the theoretical arguments, firms are more likely to engage in harmful client-led diversification when they lack bargaining power vis-à-vis its client. Specifically, a) high replacement cost for the focal firm, and b) low switching cost for the client, and c) limited access to key information would lower the firm's bargaining power (Coff, 1999). First, I investigate whether the duration of the client tie, which may be associated with high replacement cost for the firm, can exacerbate the negative effect of client-led diversification. Model 3 indicates that the interaction between *Tie Duration* and client-led diversification is significantly negative at 99 percent confidence level. Turning to the second factor, I test whether the presence of alternative options for the client moderates the negative association between client-led diversification and performance (Lavie, 2007; Dyer *et al.*, 2008). When multiple firms are servicing a client, the cost of switching from one firm to another would be low with the threat of exit is becoming more credible (Chatain, 2011; Coff, 1999). In Model 4, I find that # *of competitors*, the number of average direct competitors hired by the firm's clients, aggravates the negative impact of client-led diversification on performance.

Because a good proxy for limited access to key information is difficult to find in the data, I use two criteria that are correlated with the level of uncertainty and split the client-led diversifiers: timing of entry and the size of entry wave. The idea is that diversifiers who enter in the early stage of the industry and enter along a large wave of entrants may be facing a larger uncertainty. In Model 5, I split the client-led diversifiers into diversifiers who have entered in the first two years and diversifiers who entered later. Contrary to my expectation, I find that later entrants suffer more from client-led diversification. One explanation would be that the early entrants may enjoy the first-mover advantage and another would be that

high-quality firms are selected into being early entrants. However, in Model 6, I find that client-led diversifiers who enter the market with larger cohort suffer more than firms that enter in a smaller wave. Together, Table 1-10 shows a lower bargaining power for the firm would be associated with a lower return from client-led diversification.

DISCUSSION AND CONCLUSION

This study examines the performance implications of client-led diversification. By taking into account for embeddedness and repeated transactions between the firm and the existing client across multiple markets, this study offers a demand-side driver of diversification. I theorize how embedded ties drive the direction of diversification and influence subsequent performance. I argue and find that client-led diversification may result in negative firm performance as it may cause a) diseconomies of scope, b) an erosion of capabilities, and c) over-embeddedness to the client, holding the level of market relatedness constant. I also find that an unrelated diversification aggravates the negative effect of client-led diversification on performance. With the empirical design, the results can be interpreted as an evidence of a causal relationship between client-led diversification and revenue. Furthermore, I provide extensive tests of underlying mechanisms that lead client-led diversifiers to underperform over time, both at the firm level and the dyad level. Finally, I conduct a battery of supplementary analyses and robustness tests to investigate the boundary conditions that further support the theory and rule out alternative explanations.

Exploiting an exogenous creation of a new market, I use an IV approach to identify the effect of client-led diversification on performance. The research design follows a typical "encouragement design" where subjects are randomly assigned to the treatment group to participate but are allowed to self-select into treatment (Angrist, Imbens, & Rubin, 1996). While firms are randomly assigned with a client's maximum proximity to Homeland Security,

firms can still self-select into and out of client-led diversification. With the monotonicity assumption that no firm becomes a client-led diversifier if and only if clients are distant from the Homeland Security market, it is reasonable to believe that the 2SLS models generate a consistent estimation of Local Average Treatment Effect (LATE; Inbens & Angrist, 1994). Thus, the IV estimation informs that, for firms that respond to clients' increased propensity to enter a new market, the average effect of client-led diversification on performance is a decrease in revenue of approximately 25 percent.

This paper is not free from limitations. Although the quasi-experimental design enhances the validity of the findings, a single industry context raises concerns regarding the generalizability of the findings. However, the results are consistent with some of the qualitative findings in professional services (Garicano & Hubbard, 2009; Phillips, Turco, & Zuckerman, 2013). Thus, I believe the mechanisms in this paper should hold at least in professional services, if not in all buyer-supplier relationships. Future research might replicate this study to non-service industries which may result in additional insights.

Second, exploiting an exogenous variation in the likelihood of client-led diversification, the research design limits the scope of this study to diversification into a new market. Investigating diversifications into a new market entails additional assumptions regarding market uncertainties and limited supply in a strategic factor market. Future work could relax assumptions by expanding the context to diversifications in established markets.

Finally, a significant limitation of this paper is that the process of client-led diversification decisions are not observed directly. Due to the inability to observe who initiated the diversification, this paper does not distinguish between client-pull and firm-push in the use of embedded exchange to diversify. Instead, this paper addresses the issue by leveraging an exogenous variation in the likelihood of client-led diversification. Although the

empirical strategy enables me to estimate the effect of diversification on performance, boundary conditions of the effect of client-led diversification including bargaining power of both parties cannot be rigorously tested. A direct observation of client-led diversification processes and an exploration of the "power dynamics" between the client and the firm represent additional opportunities for future research.

Notwithstanding the limitations, this paper makes several contributions. First, this paper contributes to the literature on diversification. This paper departs from the notion that diversification decisions are rational choices based on strategic considerations (Teece, 1980) and highlights a demand-side driver of diversification (Adner & Levinthal, 2001; de Figueiredo & Silverman, 2007; Fontana & Malerba, 2010; Wu, 2013; Ye *et al.*, 2012). Perhaps staying true to its economics heritage, an implicit assumption in the diversification literature is that consumers conduct arm's length transactions with producers. Interactions between consumers and suppliers are often obscured behind an invisible hand, captured largely in the price mechanism. In reality, however, markets are often composed of long-term relationships, and embedded exchange between actors as repeated transactions generate trust and constrain malfeasance (Dyer & Chu, 2002; Uzzi, 1996). In contrast to existing models of diversification that either focus on supply-side capabilities or implicitly assume arm's-length demand, this paper models demand through repeated transactions in buyer-supplier relationships and suggests an alternate driver of diversification (Priem *et al.*, 2012).

Scholars have noted that it is empirically challenging not only to tease out the underlying motives of diversification but also to address the self-selection: unobserved firm quality driving both the decision to diversify and the subsequent performance (Miller, 2004; 2006; Wan *et at.*, 2011). Scholars have attempted to address this issue with empirical methods that account for the selection such as Heckman's two stage models (King & Tucci, 2002;

Villalonga, 2004). This paper attends to the difficulty by exploiting an exogenous demand as a driver of diversification (Rawley & Simcoe, 2010). While client-led diversification may realize client-specific economies of scope (Chatain & Zemsky, 2007), the findings suggest that it not only is in a direction that creates diseconomies of scope but also causes the problem of over-embeddedness. In sum, theoretical and empirical contributions of this paper lie in providing an additional account of why firms engage in unrelated diversification and in exploring why we might see a diversification discount.

The findings also speak to the literature on relational embeddedness. Although scholars have warned about the dark-side of relational embeddedness since the outset of the embeddedness perspective (Baker & Falkner, 1993; Uzzi, 1997), conditions under which embedded ties turn into a liability have not received due scholarly attention (Burt, 2000; Gargiulo & Benassi, 2000; Uzzi, 1997). Perhaps, the paucity of research investigating the potential negative aspect of relational embeddedness is driven by two factors: practical implications and empirical challenges. The common belief about business relationships that a healthy relationship with clients is a foundation of a good business, overshadows the idea that client ties may hurt the firm. With regard to the empirical challenge, there is an endogeneity issue as the initiation of network ties are not independent of anticipated consequences (Mizruchi & Stearns, 2001; Sorenson & Waguespack, 2006). Positive assortative matching between high-quality partners makes an adverse consequence of embeddedness is difficult to observe (Mindruta, Moeen, & Agarwal, 2016). Given the potential drawbacks of embedded ties, conceptualizing relational embeddedness as resources without a better understanding of its dark-side may be misleading. The current study offers a boundary condition to the applicability of relational embeddedness and contributes to this literature by facilitating a balanced view in assessing the implications of embeddedness.

Equally important in the literature is the issue of value appropriation between embedded parties. As the relationship-specific investments accumulate co-specialized assets that are not fully owned or controlled by the firm (Amit & Schoemaker, 1993; Teece, 1986), returns to relational embeddedness are often contingent on the relative bargaining power of each party (Coff, 1999; Dyer *et al.*, 2008; Lavie, 2007). One of the key conflicts that often arise in business relationships is when a client demands something costly for the firm to deliver. Thus, the issue of capturing value through embedded transaction is particularly salient when there is a tension between the client's demand and the firm's capabilities. This paper enriches the understanding of the tension embedded ties may bring to the firm and emphasizes the importance of value appropriation dynamics between the client and the firm.

This paper seeks to enhance the understanding of the potential tension between embedded ties and firm capabilities (Kale *et al.*, 2000; Rothaermel, 2001). Practical implications for managers flow naturally from this. Managers are often tempted to focus on addressing the current clients' needs and allocate the firm's resources accordingly. This paper suggests, paradoxical as it may seem, clients should not drive the firm's allocation of resources and capabilities. Although fulfilling the needs of an established client base to whom the firm holds accountable may promise higher revenue in the short-run, neglecting the long-term consequences to the firm capabilities would be detrimental to the firm. Put differently, firms may allocate resources and capabilities to accommodate the current client at the expense of the ability and opportunity to attract potential clients. This resembles the implications of Christensen's (1997) *Innovators Dilemma* where he argues that technological strategies that target the current customers could be harmful to the firm in the face of disruptive innovations.

ESSAY 2. EMBEDDED ENTRY, SELECTION FORCES, AND PERFORMANCE IN THE NEW MARKET

Since Schmookler's (1966) work on "demand-pull" theory of innovation, scholars have embraced the idea that demand can stimulate innovations and industry evolution as opposed to the technology-push theories of industry evolution. However, the demand-side driver of industry evolution has not been sufficiently pursued (Dosi, 1982; Mowery & Rosenberg, 1979). To model demand-pull, scholars have mostly focused on user-innovation (von Hippel, 1986), user-entrepreneurs (Agarwal & Shah, 2014), and demand heterogeneity and how it links with the technological life-cycle (Adner & Levinthal, 2001; Aversi et al., 1999; Fontana & Malerba, 2010). Despite these efforts, how demand-pull shapes the timing, rate of entry, and performance variations across different types of entrants over the stages of the industry life-cycle is still understudied (Agarwal & Bayus, 2002; de Figueiredo & Silverman, 2007).

Perhaps due to its economics heritage, the industry evolution literature implicitly assumes that all transactions between buyers and suppliers are arm's-length transactions. Thus, interactions between buyers and suppliers are captured largely through the price mechanism. A parallel literature that highlights the role of social structure in shaping economic actions (Granovetter, 1985), however, focus on the prevalence of repeated economic interactions with embedded partners. In this literature, economic transactions are viewed as often conducted through long-term relationships and exchanges between embedded actors (Dyer & Chu, 2003; Uzzi, 1996). According to embeddedness perspective, the role of demand-pull in shaping industry evolutionary patterns may lie in the extent to which ongoing buyer-supplier relationships drive new market entry decisions and subsequent new market performances.

In this paper, I explore the role of demand-pull in industry evolution given embedded exchange with prior transaction partners. I investigate a demand-side driver of new market entry through recurring transactions between buyers (clients) and suppliers (firms). In particular, I model demand-pull with regard to the role of clients in driving both diversifying entry and entrepreneurial entry in two following ways. First, I allow for embedded exchange as an option a client can choose to enter a new market; clients can either use embedded ties to enter a new market or can conduct an arm's-length transaction with a new firm. Given the transaction-cost-saving benefits of repeated transactions, firms and their existing clients may choose to enter the new market with each other, rather than with a new partner. I focus on the role of embedded existing clients in determining entry by diversifying entry at the firm-level and entry by employee entrepreneurship at the individual level. Second, I consider the active role of the client in the selection of firms. When a client chooses to enter a new market with an existing supplier, the client may have a) multiple embedded suppliers and b) multiple employees working for the client within each firm. Among the set of its embedded partners, the client may actively select firms and individuals with the best fit and credentials in entering a new market. Therefore, I predict that the firm and the individual entrants who were selected by the clients tend to be high performers in the new market compared to other types of entrants. I illustrate this by focusing on factors that increase the client's selection force and hypothesize that these factors strengthen the association between client-led entry and new market performance.

Empirically, I test the theory in an exogenous creation of a market in the US lobbying industry: the creation of Homeland Security issue market after the 9/11 terrorist attack. The U.S. federal lobbying industry is composed of multiple issue markets including the newly created Homeland Security issue. In the wake of 9/11 terrorist attack, a new policy

regime and a lobbying issue, Homeland Security, has emerged. Such disruption in the industry created new demand for clients (interest groups) and opened up new opportunities for lobbying firms (LaPira, 2014). As clients seek lobbying firms to provide lobbying service in Homeland Security, some firms enter the market to cater to existing clients (client-led entrants) and others start the service in the market by attracting new clients (non-client-led entrants). The central argument is that the firm's entry in Homeland Security in order to cater to existing client's needs are likely to be high performers in the Homeland Security issue market as they are an outcome of demand-side selection. In the analysis of lobbying firm revenue in Homeland Security, I do not find evidence that client-led entrants have higher performance than other types of entrants. Consistent with the hypotheses, however, I find evidence that client-led entrants are positively associated with the market performance when clients are more selective in choosing the partner. I also identify conditions where clients' selection forces at the individual level are associated with individual revenue in the new market.

This paper aims to contribute to the literature in a number of ways. First, I contribute to the industry evolution literature by responding the call to look into the demand dynamics (Di Stefano et al., 2012; Fontana & Malerba, 2010; Wu, 2013). By focusing on the repeated transaction in existing firm-client dyadic relationships, I model how clients' new market demand can drive the supplier's new market entry. The findings suggest that client's choice to conduct a repeated transaction with the same firm shape the evolutionary pattern and the performance variation across different types of entrants. Within the industry evolution literature, the opportunity to analyze firm-level performance and individual-level performance variations at the same time is very rare. This paper contributes by showing firm and individual performance variations in the new market may be linked by the demand of

embedded clients that they jointly own. Third, this paper adds to embeddedness perspective by highlighting the role of embedded client ties in the selection of a partner. In doing so, this paper suggests an additional mechanism through which embedded client ties impact performance: client's selection.

This paper contributes empirically by responding to the call to acknowledge industry evolutions in the service sector (Cusumano, Kahl, & Suarez, 2015). This paper provides rare evidence of an industry evolution and performance variations in a service industry setting. Often, a market creation is an outcome of an endogenous process: firms' R&D investment and innovations endogenously invoke the Schumpeter's gale (Paruchuri & Ingram, 2012). By exploiting an exogenous creation of a market in the U.S. federal lobbying industry after an exogenous event, this paper aims to unpack the effect of technological changes and the effect of market creation often confounded in the literature.

THEORY AND HYPOTHESES

Embeddedness and New Market Entry

The embeddedness logic of transaction prevails when the relationship can constrain the opportunistic behavior (Granovetter 1985). A client may prefer transactions through embedded ties over arm's-length transactions when the benefits of embedded transactions, such as low transaction costs (Dyer & Chu, 2003), low switching costs (Brush, Dangol, & O'Brien, 2012; Klemperer, 1987), and a better assessment of the partner firm capabilities, are salient. From the firm's perspective, offering a broader range of service that caters to client's needs generates client-specific scope economies (Chatain & Zemsky, 2007). Several scholars have also found that the value of embedded ties is transferable across market boundaries: a firm could deploy and leverage embedded ties in one market to other markets (Hoetker, 2005; Jensen, 2003; Lee, 2007). With the notion that embedded ties are resources and

capabilities and if embedded ties are fungible across markets, one would naturally expect that embedded ties may predict the direction of diversification and lead to positive diversification performance. However, if the quality of product or service varies depending on the supplier, clients may look for other suppliers that can provide a better quality product or service with the same price. Taken together, clients and firms may pursue an embedded exchange in entering a new market if the amount saved in transaction cost is larger than the opportunity cost of having another vendor.

I argue that the tendency to continue transactions with embedded partners would make the clients' new demand to shape the evolutionary pattern of the new market by inducing both diversifying entry and entrepreneurial entry. Repeated transactions with embedded clients, either through existing ties to firms or existing ties to employees in the firm, may create different types of new market entrants. The former would lead the firm to diversify into the new market, whereas the latter would induce the employee to start a venture. These entrants led by clients may often vary with regards to resources and capabilities and subsequent mode of conducting a transaction in the new market which may have a lasting effect on performance in the new market. Thus, the mode of transaction in entering a new market whether through repeated transactions with existing clients or through arm's-length transactions with new clients may be a useful dimension in understanding heterogeneity in new market performance both at the firm level and at the individual level of analysis. In the following sections, I first develop a taxonomy based on the interaction of client embeddedness and type of firm. Next, I discuss how this new taxonomy may generate a new set of predictions on the new market performance variation across different types of entrants.

Repeated Transaction as a Mode of New Market Entry

Helfat & Lieberman (2002) provides a classic taxonomy of market entrants, distinguishing based on the tenure since the legal establishment of a firm: diversifying entrant and *de novo* entrant. Studies have generally shown that diversifying entrants outperform start-ups in the new market due to stronger resource base and pre-entry capabilities (Dunne, Roberts, & Samuelson, 1988; Helfat & Lieberman, 2002). If the use of repeated transaction with embedded partners is prevalent, considering the mode of transaction in entering the market in addition to the classic taxonomy would allow us to create new segments of new market entrants and generate a new set of predictions in the performance variation among these types. Thus, I overlay another dimension that distinguishes between an entry with an existing client and an entry with a new client.

Table 1 illustrates the four different types of entrants. The upper left quadrant signifies diversifying entrant that rely on existing clients in entering the market. If a firm's marketing effort has a limited role in persuading a client into the new market, these type of entries are driven by client's demand for product or service in the new market. If so, the client may have selected the firm over other options to meet the demand. I call this type "client-led diversifiers." On the other hand, instead of depending on existing clients, some diversifying entrants may locate new clients who have demand in the new market. Because this type of firms may have related pre-entry capabilities transferrable in the new market, they may have better odds of attracting new clients in entering the new market. I call this type of entrants in the upper right quadrant "capability diversifiers" or "non-client-led diversifiers."

Note that entry with an existing client can occur both at a firm and at an individual level, as individuals in both parties are responsible for maintaining the client-firm relationships (Broschak, 2004; Seabright et al., 1992; Sorenson & Rogan, 2014). That said,

employees who have direct contact with clients who have a need to enter the new market may cater to the client's needs through creating a new venture. These entrepreneurs in the lower left-hand quadrant would become "client-led spin-outs." However, some entrepreneurs, regardless of their background, could enter the new market by finding a new client. These "entrepreneurial entrants" in the lower right-hand quadrant are *de novo* entrants who enter the new market by attracting a new client without a prior client-firm relationship with any of the founder. Entrepreneurial entrants include both non-spin-out start-ups started by new-to-the-industry founders and employee entrepreneurs who created a spin-out without transferring a client from the parent firms in entering the new market.

Client-led Entry and Client's Selection Forces

This paper seeks to compare performance across different types of entrants, aiming to answer the question of what role do clients and repeated transactions play in shaping performance variation in the new market. I argue that client-led entrants have higher performance than non-client-led entrants as they are a result of existing clients' selection.

The idea of selection forces determining firm survival and profitability was generally discussed conceptually and described at a macro level (Di Stefano et al., 2012). Evolutionary perspectives underscore the role of selection environment that renders a certain firm and organizational structure prevail in a market (Aldrich, 1999; de Figueiredo & Silverman, 2007; Levinthal, 1991). Studies on technological cycles also focus on the role of macro-level demand in a selection of technology (Dosi, 1982; Mowery & Rosenberg, 1979) and dominance processes (Abernathy & Utterback, 1978; Suarez, 2004). While the literature provides important insights, they generally abstract away from what constitutes the selection environment without specifying the selection mechanisms. However, pinning down the level

of analysis to a dyadic relationship between the firm and the client allows us to examine the role of demand in the selection of firms that predicts firm performance in the new market. Embeddedness perspective suggests that repeated transaction with an embedded partner allows access to fine-grained first-hand information on the quality of the partner and reduce information asymmetry which often plagues arm's length transactions (DiMaggio & Louch, 1998; Uzzi, 1997). Due to the information benefits, existing clients are in a good position to evaluate the quality of firms when selecting a firm to give business. Thus, client-led entrants could be a mechanism through which demand-side selection operates. That is, clients may actively select partners that best meet their needs in the new market, and as a result, the selected firms would have high performance in the new market.

There are three ways through which a client's selection force could operate. Clients can choose to 1) stay with the current partner or find a new firm (new firm vs. existing firm), 2) pick one firm among multiple existing partners (one vs. other existing firms), and 3) choose an individual who decides to become an entrepreneur entering the market. I first focus on the first case which serves as a baseline for other mechanisms. When a client has a demand for a new product or service, the client could choose between existing vendor and other vendors. For a new demand, the likelihood of finding a firm that could offer high-quality product or service elsewhere would be high. However, due to transaction costs associated with switching a vendor such as search costs and switching costs (Brush et al., 2012; Klemperer, 1987), clients would compare the amount of transaction cost saved through using the same vendor with the opportunity cost of not searching for the firm that could offer the best quality product or service. If the transaction costs are not high, the client would only give the new business the current vendor when the partner has potential to sufficiently deliver the product or the service. Therefore, client-led entrant selected by the

client would have a higher likelihood of success in the new market. Accordingly, I expect that:

Hypothesis 1. *Client-led entry into a new market is positively associated with the firm's performance in the new market.*

Client's selection based on the firm's pre-entry capabilities. If embedded clients are selecting firms to enter a new market, what do the clients select upon? I argue that clients would select the firm's ability to successfully cater to the clients' needs in the new market. Choosing a firm with strong pre-entry capabilities that are transferable to the new market would increase the quality of the selection in the new market. From the client's perspective, they would select the partner whose pre-entry resources and capabilities match the required resource profile of the new market (Helfat & Lieberman, 2002). Studies on pre-entry capabilities provide evidence that the same pre-entry capabilities that predict the likelihood of entry also are transferable as superior performance in the new market (Chatterjee & Wernerfelt, 1991; King & Tucci, 2001; Klepper & Simons, 2000). Because entering a market with an existing client would help the firm in generating additional revenue (Chatain & Zemsky, 2007; Ye *et al.*, 2012), firms with stronger pre-entry capabilities that match the market requirement not only are more likely to be selected from the client but also would actively try to diversify into the new market. Thus, firms with strong pre-entry capabilities would facilitate client's selection by making the association between pre-entry capabilities and the new market performance stronger. Thus, I hypothesize the following:

Hypothesis 2. *Client-led entry into a new market is more strongly associated with the firm's performance in the new market as the level of pre-entry capabilities increases.*

Strength of selection forces. Next, I hypothesize about factors that strengthen selection force of embedded clients in entering a new market: the number of options the client has to

choose from. Often, buyer-supplier relationships are not exclusive. If multiple firms are servicing one client, clients can compare the quality of products and services across multiple vendors may facilitate a better selection of one firm with higher potential to do well in the new market. Thus, availability of selections to compare could strengthen the client's selection force in client-led entry into a new market.

One potential countervailing force to client's selection is that firms also have an option to refuse to enter the new market with the client. Client-firm relationships are often asymmetric with asymmetric bargaining power (Baker et al., 1998; Dyer et al., 2008; Levinthal & Fichman, 1988). Thus, high-quality firms who are more likely to be selected by clients would also have more bargaining power vis-à-vis the clients to have discretion over the new market entry. When multiple firms are servicing and competing over a single client, however, the client has more bargaining power over the firms as the cost of switching from one firm to another among them would be low with more credible threat of exit (Chatain, 2011; Coff, 1999). If the firm faces high competition over the focal client, the odds of taking the business to enter the new market would be higher even holding the quality of firm constant. Taken together, the client's selection force would be stronger when the client has multiple firms catering to the focal client. Hence, I expect that:

> ***Hypothesis 3.*** *Client-led entry into a new market is more strongly associated with the firm's performance in the new market as the number of client's suppliers prior to the entry increases.*

Selection quality. Access to information on the selection partner and the required resource profile of the new market are two of the key information that facilitates a better selection of a partner in entering a new market. Client's selection quality in choosing the client would depend on the extent to which the client has access to information on the new market and the firm. The first-hand experience of the focal market would give the client an opportunity

to have a better sense of the market requirements in the new market. In addition, the access to key information is another factor that scholars commonly point out as one of the key determinants of bargaining power (Coff, 1999; Lavie, 2007; Yan & Gray, 1994). A client with better access to information on the market and the partner would have a higher likelihood of convincing high-quality firms with potentials to succeed in the new market to enter the market. In entering a new market through choosing a partner, the value of information on the partner becomes high. Thus, a better knowledge of the partner not only increases the chances of identifying the high-quality firm but also increases the likelihood of entering the market with the firm. In sum, given greater knowledge about the required resource profile of the new market and greater access to information on the partner associated with higher levels of selection quality, I predict the following:

> ***Hypothesis 4a.*** *Client-led entry into a new market is more strongly associated with the firm's performance in the new market as client's new market experience increases.*
>
> ***Hypothesis 4b.*** *Client-led entry into a new market is more strongly associated with the firm's performance in the new market as client's tie duration with the firm increases.*

Client's selection and employee entrepreneurship. Client-firm relationships rely on individuals who become points of contact and engage in diverse types of interactions (Seabright et al., 1992; Sorenson & Rogan, 2014). Studies show that employee's departure often results in the loss of clients (Broschak, 2004; Rogan, 2014) and transfer of clients to the employees' new destination (Raffiee, 2017). Thus, clients' selection forces in choosing the vendor in the new market may occur at the individual level not only through the selection of individuals within the firm but also through the mobility of individuals. That is, as some client-firm relationships are embedded in interpersonal relationships, an individual

could become an employee entrepreneur and enter the new market with the client transferred from the parent firm.

I argue that client-led spin-outs entrants, an employee entrepreneur with clients from the parent firm, may outperform other types of entrants in the new market due to the client's selection forces. First, client-led spin-outs are results of client's stronger selection of employees than the selection of the parent firm. Client-led spin-outs incur additional cost for both parties. Employee entrepreneurs would have to bear the cost of entrepreneurship and clients would also experience switching costs. Thus, clients choosing to enter the new market with the same individual with a new firm would require a selection of high-quality individual where the benefit of the spin-out offsets the costs.

It is also possible that the employee may have initiated the entrepreneurial attempt with the client agreeing to give business in the new market. From the employee's perspective, a spin-out provides a means through which the employee can appropriate more value from the client's new demand. Agarwal and colleagues (2004) find that spin-outs have high levels of both technological and market-related knowledge compared to other types of entrants. Scholars have found that founder's access to key resources through embedded ties to venture investors has been positively correlated with performance (Lee et al., 2000; Shane & Stuart, 2002). In addition to technological and market knowledge, client-led spin-outs have embedded ties that could be exploited to overcome liabilities of newness (Phillips, 2002).

Lastly, client-led spin-outs allows the firm to focus on the new market by organizing the firm with capabilities that fit the market requirements. Engaging in diversification through embedded ties may increase the odds of unrelated diversification as clients are less conscious about potential diseconomies of scope the diversification will bring to the firm

with regards to the existing line of businesses. However, catering to the client's needs through a new venture may circumvent such problem by organizing a new firm around the new market. Client-led spin-outs may not only provide an opportunity for an employee to exploit knowledge through a new venture but also provide a means through which they can best leverage the client's demand in the new market. Thus, the selection forces, combined with focus and fit the new market, may result in client-led spin-outs to outperform the others. Thus, I hypothesize the following:

Hypothesis 5. *Client-led entry into a new market is more strongly associated with the firm's performance in the new market for employee entrepreneurs.*

If client's selection actively occurs at the individual level, it is natural to explore the factors that affect the strength of selection imposed by the client at the individual level. Client's selection predicts not only the firm performance in the new market but also individual level performance. In entering a new market, the client may have selected the employees based on various factors including fit, capabilities, and interpersonal attachment. Similar to the logic in Hypothesis 3, having multiple options to choose from enables a direct comparison and facilitates selection. Thus, I argue that the number of individuals working with the client prior to the entry increases the selection force for an individual led by a client to a new market. Such selection force at the individual level would result in variations in individual performances in the new market. Hence, I expect that:

Hypothesis 6. *Client-led entry into a new market is more strongly associated with the individual's performance in the new market as the number of individuals working with the client prior to the entry increases.*

METHODS

Data and Sample

I examine the role of client's selection force in performance variation among entrants in the context of U.S. federal lobbying firms and lobbyists from 1999 to 2008. The data used in this study is compiled from lobbying reports filed by lobbying firms which were mandated by the Lobbying Disclosure Act (hereafter, LDA) of 1995. I use a database that was made publicly available through the Senate Office of Public Records (SOPR). Each lobbying report contains transaction-level data for the separate client. Specifically, each report allows me to observe lobbyist-firm-client-issue-period level data with information on names of individual lobbyist, the lobbying firm, a name of the client, lobbying issue that the lobbying firm lobbied on, and the amount of lobbying deal. Combining such granular transaction level data with data on congressional committee changes and individual political campaign contribution enables me to construct a rich array of individual and firm-level variables. Another benefit that the lobbying context provides in testing the theory is that the lobbying context provides a clean pre-defined demarcation of 78 issue areas set by Congress which enables me to observe entries and exits to new markets. These lobbying issues correspond to submarkets which constitute lobbying industry as a whole. I study an addition of Homeland Security issue in 2002 and track the evolutionary pattern of the issue by exploring the entry and exit of firms and individuals and their performances in the market.

Each lobbying issue represents a set of policy agenda where lobbying supply (lobbying firms) and demand (interest group clients) interact to set a price and quantity of lobbying service in each issue. One of the most common ways to define market boundaries is by looking at the availability of substitutes. Consistent with the definition, each lobbying issue has an imperfect set of substitute issues both from the standpoint of consumers as well as suppliers. For example, a defense contractor such as Northrop Grumman is one of the major clients in defense issue for lobbyists in DLA Piper. If Northrop Grumman wishes to

influence defense-related lawmaking, there is no way other than to lobby on defense issue. Similarly, DLA Piper would have to hire lobbyists with personal connections to senators and representatives in defense-related committees in Congress to provide lobbying service in the defense issue market. In this example, let's say that Northrop Grumman has a needs to lobby on Homeland Security issue after 9/11 terrorist attack. DLA Piper starting to lobby on Homeland Security issue in order to cater to Northrop Grumman's demand would be an example of a client-led entry from DLA Piper's standpoint. In doing so, DLA Piper would have to have one or more lobbyists with access to members of Homeland Security-related Congressional committee in providing the lobbying service.

The pooled sample includes 25,393 unique lobbyists, 2,965 unique lobbying firms, and 20,121 unique clients between 2002 and 2008. Since the theory focuses on performance variations in the new market among different types of entrants, I restrict the sample to firms and lobbyists participate in Homeland Security issue market. That is, I use the panel of the focal market participants after the entry and before the exit from the Homeland Security issue market. Thus, the entrant sample includes 5,466 lobbyists, 525 firms, and 1,520 clients between 2002 and 2008. I measure each variable on the semiannual basis. In the firm-level analysis, my estimation sample size is 3,054 firm-period observations whereas, in the individual-level analysis, I use 19,639 lobbyist-period observations. The number of unique firms and lobbyists used in the analysis is reported in Table 2-1.

Research Design

Note that I am not making a causal claim on the effect of client-led entry on performance. Rather, I aim to model client's selection through the repeated transaction between the firm and the client and theorize about the endogenous processes of the selection-performance relationship. Because I am interested in exploring client's selection among the choice set of

existing firms servicing them when the client has new needs, an ideal design would be a random assignment of a set of existing firms with different pre-entry capabilities related to the client's new demand to clients to choose from. In another word, an ideal design would require an exogenous demand for clients as it would create a random variation in pre-entry capabilities among the set of existing firms. If clients knew that they would have a new demand in the future, they would try to select firms with superior capabilities in the new market in the initial matching process between the firm and the client. Thus, allowing for assortative matching between a firm and a client poses a threat to my interpretation of the coefficient as the selection would have already occurred before the client has a set of existing firms to choose from. To separate initial matching from selection, I use an exogenous demand that would randomly assign needs to lobby on an issue among clients. I exploit an exogenous demand after the creation of Homeland Security issue market in 2002. In the wake of 9/11 terrorist attacks in 2001, Bush administration created a new cabinet-level department, the Department of Homeland Security (DHS). Shortly after, both chambers of Congress established committees related to Homeland Security which eventually led to a new addition of lobbying issue area for lobbying activities targeted towards these committees. As the creation of Homeland Security issue generated new lobbying needs for clients, it induced clients to choose lobbying firms to start lobbying on the issue. I use the client-firm ties that have formed prior to 2002 and track these ties to see which of these ties jointly enter Homeland Security after the creation of Homeland Security issue.

Variables for Firm-level Analysis

Dependent variable. A key dependent variable for testing the hypotheses are *Firm's LN Revenue in Homeland Security*. To capture the firm level performance in the new market, I use the natural log of firm's semiannual revenue in Homeland Security issue calculated by

aggregating the dollar amount of lobbying reports that include Homeland Security issue at period *t*.

Independent variables. To test Hypothesis 1, I use *Client-led Entrant* to capture a group of entrants into Homeland Security along an existing client. *Client-led Entrant* is coded 1 if the firm enters Homeland Security issue market with any of the firm's existing clients to lobby in Homeland Security and coded 0 otherwise. I use client-firm ties that have started prior to 9/11 terrorist attack to control for potential assortative matching between the two. Hypothesis 2 is tested through the interaction term *Client-led X Pre-entry Capabilities,* a multiplication of *Client-led Entrant* and *Pre-entry Capabilities*. To calculate *Pre-entry Capabilities*, I take the following steps. First, a similarity index among issues is calculated based on issue co-occurrence patterns displayed in each lobbying report. A lobbying report which reflects a contract made between a client and a firm contains information on bundling of issues. Using the revealed preferences of issue bundling data collected from all transaction in the industry, I construct issue similarity matrix, S_{ijt}, which reflects a proximity between issues for each year (Breschi, Lissoni, & Malerba, 2003; Lee & Lieberman, 2010). The similarity matrix is calculated as a normalized count of lobbying reports that lobby both issue i and issue j.

$$S_{ijt} = \frac{M_{it} \cap M_{jt}}{M_{it} * M_{jt}} = \frac{\sum_{r=1}^{R} M_{irt} M_{jrt}}{\sqrt{\sum_{r=1}^{R} M_{irt}^2} \sqrt{\sum_{r=1}^{R} M_{jrt}^2}}$$

where, M denotes an issue and r denotes a lobbying report in a population of R lobbying reports for year *t*. Next, I use the similarity matrix, specifically the similarity to Homeland Security issue, as a weight in calculating the level of experience based on issues lobbied by the firm before the entry into Homeland Security. *Pre-entry Capabilities* is measured as a cumulative sum of lobbying issues weighted by the similarity to Homeland Security at the point of entry into Homeland Security.

For Hypothesis 3, I use *Client-led X Client's Suppliers*, an interaction term between *Client-led Entrant* and *# of Client's Suppliers at Entry*. *# of Client's Suppliers at Entry* is measured as the average of the number of different lobbying firms servicing each client the focal firm has. For Hypotheses 4a and 4b, I use the level of experience in the market and with the firm, respectively, as proxies for the level of information that increases the selection quality. *Years of Client's Market Experience* is measured as the number of periods in Homeland Security of the client with which the firm entered into the market at the period of entry. *Tie Duration at Entry* is measured as the number of periods the focal lobbying firm has lobbied for the client at the point of making the client-led entry. Interaction terms *Client-led X Client's Experience* and *Client-led X Tie Duration* are created by multiplying the two variables with *Client-led Entrant*.

De novo Entrant is a binary variable coded 1 if the entrant is a start-up at the point of entering Homeland Security issue market and 0 otherwise. For Hypothesis 5, I create an interaction term *Client-led X De novo* by multiplying *Client-led Entrant* and *De novo Entrant*. Firms that take the value of 1 for the interaction term are spin-outs founded by employee entrepreneurs who transferred their clients from their previous employers to enter Homeland Security market in the start-up. Note that *Client-led Entrant* and *De novo Entrant* variables correspond to the two dimensions in the taxonomy of new market entrants proposed in the theory section. Using the two binary variables, I create binary variables that represent each cell of the two-by-two matrix. *Client-led Spin-out (1 1)* takes the value 1 when *Client-led Entrant* equals 1 and *De novo Entrant* equals 1. *Client-led Diversifier (1 0)* equals 1 when *Client-led Entrant* equals 1 and *De novo Entrant* equals 0. *Non-client-led Entrepreneur (0 1)* variable is for cases where *Client-led Entrant* equals 0 while *De novo Entrant* equals 1. Lastly, *Non-client-led diversifier (0 0)* equals 1 if both the variables are 0.

Control variables. I control for a variety of firm-level characteristics. First, I control for the mode of entry through which the firm enters into Homeland Security market. *Mode of Entry – Acquisition* is coded 1 if a lobbying firm starts to lobby in Homeland Security by acquiring a team of more than three lobbyists with Homeland Security lobbying experience and 0 otherwise. To capture whether the firm has the relevant supply-side relational capital for servicing Homeland Security issue, I include a control that measures political connection to members of committees that cover Homeland Security issue. *Political Connections* is a binary variable coded 1 if the firm hires a lobbyist who had made a campaign contribution to a member of the Senate Committee on Homeland Security and Governmental Affairs and the House Committee on Homeland Security before the politician has been assigned to the committee, and equals to 0 otherwise. *Level of Specialization (HHI)* is calculated as Herfindahl-Hirschman Index (HHI) for cumulative firm-level lobbying revenue in each issue market.

$$HHI_{it} = \sum_{m=1}^{78} \left(\frac{s_{imt-1}}{s_{it-1}}\right)^2$$

where s_{imt-1} represents firm *i*'s cumulative lobbying revenue for issue *m* until period *t-1* and s_{it-1} denotes the cumulative lobbying revenue until period *t-1*. Whereas HHI captures the level of specialization based on cumulative experiences in issues, *Entropy* aims to gauge the cross-sectional level of diversification in issues. *Entropy* is calculated as follows following Hitt, Hoskisson, and Kim (1997).

$$Entropy = \sum_{m=1}^{78} \left[P_m \times \ln(\frac{1}{P_m})\right]$$

where P_m denotes the proportion of revenue in the issue *m* at time *t-1*. *Firm Size* is measured as the number of lobbyist hired by the firm at a given period *t-1*. *Hiring Size* is measured as a count of lobbyists newly hired at period *t-1*. *Firm Age* measured as the number of periods

since the firm appear in the data. # *of Client Ties* is measured by the cumulative number of unique clients a lobbying firm has at the period *t-1*.

Variables for Individual-level Analysis

Dependent variable. Similar to the firm level measure of performance, *Individual's LN Revenue in Homeland Security* captures lobbyist level measure of performance is calculated based on the aggregate value of lobbying reports on Homeland Security covered by each lobbyist at a semiannual period *t*.

Independent variables. Similar to the firm-level variables, *Client-led Entrant* is coded 1 if the individual enters Homeland Security market along with an existing client as a repeated transaction and 0 otherwise. To control for initial assortative matching between the client and an individual, I use client ties that formed prior to 9/11 terrorist attack. *Entrepreneur* is the individual version of the *de novo* entrant into Homeland Security issue. *Entrepreneur* is coded 1 when the individual is an entrepreneur upon the time of entry into Homeland Security. The interaction term, *Client-led X Entrepreneur (Spin-out)*, is the multiplication of the two variable which signifies employee entrepreneurs entering Homeland Security. # *of Client's Lobbyist at Entry* is measured as the count of the number of lobbyists servicing the client who entered Homeland Security with the lobbyist in the period prior to the entry. To test Hypothesis 6, I use the interaction term between *Client-led Entrant* and # *of Client's Lobbyist at Entry*, *Client-led X Client's Lobbyist*.

To test the robustness of the firm-level analysis, I check whether hypotheses also hold with individual-level counterparts to the independent variables of the firm-level analysis. I take the similar steps to measure *Pre-entry Capabilities* at the individual level by calculating a cumulative sum of lobbying issues the focal lobbyist participates weighted by the similarity to Homeland Security when entering the market. Similarly, *Years of Client's*

Market Experience is measured as the number of periods the client participated in Homeland Security at the point of entry. *Tie Duration at Entry* is gauged as the number of periods the focal lobbyist has worked with the client at the point of entry into Homeland Security.

Control variables. Variables that capture individual lobbyist characteristics are included in the analysis. Many of the controls are constructed in a similar way for controls in the firm-level analysis with the individual-level data counterpart. *Political Connections* is given a value 1 if the lobbyist had made a campaign contribution to one of the members of Homeland Security committees in the House or the Senate before the politician's assignment to the committee, and 0 otherwise. *Firm Size* is measured in terms of the number of lobbyists hired by the employer of the focal lobbyist at period *t*. *Level of Specialization (HHI)* is measured as Herfindahl-Hirschman Index (HHI) for cumulative individual-level lobbying revenue in each issue using the similar way for the firm-level HHI. # *of Years in Lobbying* measured by the number of periods in lobbying industry captures the level of experience in lobbying. *Tenure in Firm* is measured by the number of periods the lobbyist has been working in the firm. # *of Client Ties* is measured as the cumulative number of unique clients the focal lobbyist had worked with. Lastly, I control for the level of competition faced by each lobbyist in the market. *Competitive Overlap* is measured as the average number of participants in each issue the lobbyist covers.

Estimation Method

I estimate logged revenue in Homeland Security both at the firm-level and the individual-level using random-effect panel regression as I focus on between-group variations in performances within the panel data. For all models, year fixed effects are included to control for cyclical nature of lobbying and other time-varying issue effects (Byun et al., 2018). Standard errors are clustered by firms for the firm-level analysis and lobbyists for the

individual-level analysis to account for potential serial correlation. For the firm-level of analysis, I test the hypotheses by estimating a series of the following regressions:

$$LN\ HOM\ Revenue_{it} = \beta_0 + \beta_1 Client\text{-}led_{it-1} + \beta_2 Client\text{-}led \times Pre\text{-}entry\ Capabilities_{it-1} + \beta_3 Client\text{-}led \times Client's\ Suppliers_{it-1} + \beta_4 Client\text{-}led \times Client's\ Experience_{it-1} + \beta_5 Client\text{-}led \times Tie\ Duration_{it-1} + \beta_6 Client\text{-}led \times De\ novo_{it-1} + \beta_7 Controls_{it-1} + \varepsilon_{it}$$

where i indexes each firm, t indexes semiannual periods, and ε is the error term. I test Hypotheses 1 to 5 through the estimation of β_1 to β_6. These coefficients are hypothesized to be positive and statistically different from zero.

Similarly, the individual-level analysis estimates the following random-effect panel regression:

$$LN\ HOM\ Revenue_{jt} = \gamma_0 + \gamma_1 Client\text{-}led_{jt-1} + \gamma_2 Client\text{-}led \times Entrepreneur_{jt-1} + \gamma_3 Client\text{-}led \times Client's\ Lobbyists_{jt-1} + \gamma_4 Controls_{jt-1} + \delta_{jt}$$

where i indexes each lobbyist, t denotes each semiannual period, and δ indexes the error term. Hypothesis 6 is tested via the estimation of γ_3, which is expected to be negative and statistically different from zero. Multicollinearity is not a concern in both analyses as variance inflation factors (VIFs) for all variables fall below 10 even with interaction terms included in the analyses.

RESULTS

Results for market performance at the firm level. Descriptive statistics and pairwise correlations for the firm-level variables are presented in Table 2-2. Table 2-4 presents tests for hypotheses at the firm-level of analysis where the dependent variable is the firm's logged revenue in Homeland Security issue. Model 1 is the baseline model including all the control variables. Model 2 adds *Client-led Entrant* and provides a test of Hypothesis 1. Although the

variable has a positive coefficient, it is not statistically significant at conventional levels (β=0.4936; p >.1). Although client's selection in entering the new market may occur to a certain extent, there could be countervailing forces that offset the positive effect of selection on the new market performance. For example, a client-led entry into a new market would not benefit the firm if the diversification itself is an unrelated diversification. In addition, being heavily associated with one client may open the firm into a vulnerable position vis-à-vis other existing clients and potential clients. Model 3 includes the interaction term *Client-led X Pre-entry Capabilities* to test whether client's selection resulted in strengthening the positive association between pre-entry capabilities and performance. Consistent with Hypothesis 2, the coefficient for *Client-led X Pre-entry Capabilities* is positive and statistically significant (β=0.0055; p <.001).

Hypothesis 3 predicts a positive interaction between client-led entrants and the number of options the client had at the point of entry with respect to performance in the new market. Consistent with Hypothesis 3, the positive and statistically significant coefficient on the interaction term *Client-led X Client's Suppliers* suggests that client-led entrants who are selected by a client with a larger choice set are associated with high performance in the new market (β=0.0676; p <.1). Hypotheses 4a and 4b posit that client's selection quality in choosing the client would depend on the extent to which the client has access to information on the new market and the firm, respectively. In Model 5, I test whether entering the new market with a client who had experience in the market would strengthen the association between client-led entry and the market performance (Hypothesis 4a). The coefficient for the interaction term, *Client-led X Client's Experience,* is positive but not statistically significant at conventional levels (β=0.2340; p >.1). Thus, I do not find support for Hypothesis 4a. Consistent with Hypothesis 4b, however, *Client-led X Tie Duration* is positive and statistically

significant (β=0.1771; p <.1). This suggests that the longer the client had worked with the firm, the stronger the positive association between the client's selection and the firm's new market performance.

Hypothesis 5 posits that employee entrepreneurship serves as a mode of selection for clients and predicts that individual lobbyist entering the new market with the client in a start-up is associated with higher performance in the market compared to other entrants. General findings in the literature suggest that start-ups are less successful than diversifying entrants due to weaker resource base (Helfat & Lieberman, 2002). Across all models, *De novo Entrants* have negative coefficients, meaning established firms outperform *de novo* entrants. Consistent with Hypothesis 5, however, the positive and statistically significant coefficient on *Client-led X Entrepreneur (Spin-out)* indicates that client-led spin-outs are likely to be high-performers in the new market (β=2.8708; p <.001). Lastly, Model 8 compares the market performances across different types of entrants in Homeland Security market. The omitted group in this model is *Non-client-led diversifier (0 0)*. The coefficient for *Client-led Spin-out (1 1)* is positive and statistically significant whereas *Client-led Diversifier (1 0)* has statistically insignificant coefficient and *Non-client-led Entrepreneur (0 1)* displays a negative and statistically significant coefficient. Table 2-1 presents descriptive statistics for each type of entrants. *Client-led Diversifiers* takes up the largest number of entrants with 230 firms during the sample period followed by 183 *Non-client-led diversifiers*. There are 77 *Non-client-led Entrepreneurs* whereas *Client-led Spin-outs* are the smallest group with 33 entrants. Consistent with the results in Model 8, however, *Client-led Spin-outs* have the highest average Homeland Security revenue, even without controlling for any variables. These results are consistent with Hypothesis 5 that *Client-led Spin-outs* have the highest performance in the new market. The results in Model

8 also indicates that *Non-client-led Entrepreneurs (0 1)* have the lowest performance in the new market.

Results for market performance at the individual level. Hypotheses 5 and 6 posit that the selection force of existing client in entering a new market occurs at the individual level as client-firm relationships are embedded in interpersonal relationships. Thus, I test the hypotheses using an individual-level analysis of lobbyist's performance in the new market. Descriptive statistics and correlations for individual lobbyists are reported in Table 2-3. Table 2-5 shows the results of individual-level analysis of lobbyist performance in Homeland Security issue lobbying. First, I replicate the results in the firm-level analysis in Table 2-4 with the version of variables measured at the individual level. Model 1 is the baseline model only using control variables. Model 2 adds *Client-led Entrant* and resembles insignificant coefficient in the firm-level analysis in Model 2, Table 2-4. Model 4 indicates that client-led entry at the individual-level strengthens the positive association between individual-level pre-entry capabilities and performance in the new market with a positive and statistically significant coefficient for the interaction term *Client-led X Pre-entry Capabilities* (δ=0.3552; p <.1). This result is consistent with studies on spin-outs where founders of entrepreneurial spin-outs with relevant pre-entry capabilities perform better than other entrants (Klepper, 2002; Klepper & Sleeper, 2005). Model 6 demonstrates that client-led entrants into the new market would have higher performance when entering the market with a client who has experience in the new market (δ=0.2295; p <.1). The positive and statistically significant coefficient for the interaction term *Client-led X Tie Duration* in Model 7 further implies that the client's selection is stronger when the client has more experience with the individual (δ=0.1076; p <.1). These results suggest that Hypotheses 2 to 4 are supported even when the

theory is applied at the individual level. Both levels of analyses display a similar pattern of results in support of the hypotheses.

To confirm that the client's selection force is driving the performance in the new market for employees, I also test Hypotheses 5 and 6. Consistent with Hypothesis 5, Model 3 shows that the coefficient for the interaction term, *Client-led X De novo*, is positive and statistically significant (δ=1.0263; p <.05). The result provides additional support for Hypothesis 5 and shows that the client's selection power in also operates at the individual level. Model 5 provides a test of Hypothesis 6. A positive and statistically significant coefficient of the *Client-led X Client's Lobbyist* variable suggests that individuals who enter a new market with a client with more options have higher performance in the new market after the entry (δ=0.1590; p <.05). Thus, I find support for Hypothesis 6.

DISCUSSION AND CONCLUSION

Clients play a crucial role in the selection of firms and individuals in a new market. The prevalence of repeated transaction between embedded clients and firms implies that firms and individuals can enter a new market in order to fulfill existing clients' needs. In doing so, clients can choose their partner in entering the new market. Such client selections can occur at different levels. The clients' decision to select an existing partner or a new firm, to pick which firm among the existing partners, and choose which individual in the firm to work with for new products or services may have performance implications in the new market both at the firm and the individual level. In the paper, I develop a theoretical rationale for a new market entry through recurring transactions with an embedded partner in the client-firm relationship. I argue that client's selection force is stronger in a recurring exchange with an embedded partner than in an arm's-length transaction because embeddedness reduces information asymmetry between the client and the firm through first-hand experiences. I

predict that firms and individuals under stronger selection power in entering new market with the client are likely to have higher performance in the new market compared to other types of entrants without existing client's selection.

Using a database of all registered lobbying firms and individual lobbyists in the U.S. federal lobbying industry, this study provides evidence that the presence of client's selection power in new market entry shapes performance variations among entrants in the new market. While I expected that client-led entrants are associated with high performance in the new market, I do not find support for this hypothesis (Hypothesis 1). However, I find that client-led entrants are more strongly associated with the firm's performance in the new market as the level of pre-entry capabilities increases (Hypothesis 2). I also find that client-led entry into a new market is more strongly associated with the firm's new market performance as the client has more suppliers to choose from at the point of entry (Hypothesis 3). I find supportive evidence for entering the new market with a client with a longer relationship would strengthen the association between client-led entry and the market performance (Hypothesis 4b). The findings also suggest that client's selection force applies at the individual level. Clients can hand-pick individual employee and enter the new market through a client-led spin-out which are associated with high performance in the new market (Hypothesis 5). Consistent with the earlier argument at the firm level, I find that individual-level client-led entry into a new market is more strongly associated with the individual's new market performance as the number of client's options increases (Hypothesis 6). Taken together, this study advances prior work in industry evolution by taking into account for a repeated transaction with the same client in entering a new market and highlighting the role of the client as a selection force in firm's new market performance.

Limitations and Future Research

This paper is not without limitations. First, the theory makes assumptions on the existence of transaction costs in repeated transactions and oversimplifies the reason as to why clients choose existing firms to enter a new market. Future work could further develop a theory on the antecedents of client-led entry (Mawdsley & Somaya, 2018). Second, as client-led entrants variable is coded based on joint entry through a repeated transaction, the data prevents me from distinguishing between "client-led" or "firm-led" entry. Although that there are good reasons to believe that the context is dominated by client-led rather than firm-led, not being able to observe actual negotiation process of contracts made for the transaction poses a threat to the empirics. Despite this limitation, it is reasonable to believe that client's selection mechanisms are at play unless all joint entries are purely dominated by firms. Future work could use data where negotiation processes in client-led entries are observable. Third, because the theory I put forth models an endogenous process of clients choosing the partner in entering a new market, caution should be required in a causal interpretation of the results. Related the earlier point, it is also possible that firms could be selecting clients in entering a new market. Future work could devise a research design that could manipulate client's selection to precisely disentangle client's selection from firm's selection. Fourth, a concern may arise in the generalizability of the findings beyond the lobbying industry and within-industry new market entry setting. Although findings from the lobbying industry should be generalizable to other professional services (Byun et al., 2018; Raffiee 2017), it is worthwhile for future studies to replicate the results outside of lobbying industry and within-industry market entry settings.

Contributions and Conclusion

Notwithstanding the limitations, this study makes several theoretical and empirical contributions. This paper seeks to highlight the role of demand as selection forces in shaping

evolutionary pattern of an industry and performance variation within the industry (Adner & Levinthal, 2001). By focusing on the mode of transaction in entering a new market and embeddedness of clients and firms, this paper not only offers a novel taxonomy of market entrants but also sheds new light on the demand-pull theory of industry evolution. Drawing from insights from embeddedness perspective, this paper offers a new angle in a longstanding debate between technology-push versus demand-pull view of industry evolution (Dosi, 1982; Mowery & Rosenberg, 1979). Prior research has documented how demand may impact industry evolutionary patterns by focusing on user-innovation and entrepreneurship (Agarwal & Shah, 2014; von Hippel, 1986) or macro-level demand environment and preference heterogeneity (Adner & Snow, 2010; Fontana & Malerba, 2010). By narrowing the focus down dyadic client-firm relationships, this paper links demand with selection force in a substantive manner. Although limited, this is a meaningful way to conceptualize demand-pull in industry evolution literature as such selection forces strongly explains performance variations in the new market.

Although individual's choice to become an entrepreneurial entrant into a new market is a key driver of an industry evolution, there is a dearth of empirical study that links macro-level industry phenomena with micro-level individual entrepreneurship and individual performances. Because client ties sometimes reside in the firm and sometimes in the individual (Sorenson & Rogan, 2014), clients' selection forces could be imposed upon firms and/or individuals. By examining the role of selection at both levels, I contribute to the literature by providing an explicit link between firm and individual which jointly contribute to an evolutionary pattern of a new industry. In doing so, this paper also contributes to entrepreneurship literature by highlighting that client's selection could be a driver of employee entrepreneurship and predict their subsequent performance as they are an

outcome of client's active selection comprised of high-quality founders (Agarwal et al., 2004; Agarwal & Shah, 2014; Klepper, 2002).

Under Schumpeter's logic, innovations render markets obsolete and create new ones. The fact that resources and capabilities that are deemed useful in new markets are not randomly assigned to entrants creates empirical challenges in predicting the effect of pre-entry experiences on entry, exit, and performance. Thus, empirical research tends to conflate the effect of innovation and the effect of market creation and destruction on strategic decisions and outcomes. In order to deepen our understanding of industry evolution, a closer empirical assessment should be made on the effect of new market creation on strategic decisions and performance absent technological changes (Paruchuri & Ingram, 2012). This paper adds to the literature by leveraging an exogenous creation of a new market without technological change to tease apart the effect of market creation from the effect of innovation on firm entry decisions and outcomes. In addition, the exogenous creation of a market provides us with an opportunity to assess the value of pre-entry capabilities in new market entry and new market performance.

Service industries account for approximately 78 percent of U.S. economy in 2014 and professional services take up approximately 11 percent of the U.S GDP (2014). However, empirical evidence is skewed towards high-tech industry, leaving out a significant portion of industry evolution understudied (for an exception, see Suarez, Cusumano, & Kahl, 2013). This paper also adds to the industry evolution literature by responding to the call to study service industry evolution (Cusumano, Kahl, & Suarez, 2015).

To conclude, I hope this paper stimulates future research on demand-side drivers of industry evolution and their implications in various other settings.

ESSAY 3. DISCONTINUITIES IN THE VALUE OF RELATIONAL CAPITAL: THE EFFECT ON EMPLOYEE ENTREPRENEURSHIP AND MOBILITY[5]

Human assets are crucial components to the creation of value within organizations (Campbell, Coff, & Kryscynski, 2012a; Karim & Williams, 2012). However, unlike physical assets, human assets are not owned or under the strict control of firms. This creates two key strategic challenges. One, employees have an incentive to appropriate a portion of the value they create (Coff, 1999). Two, employees are free to quit at will and employee exit devoids the firm of valuable resources which may transfer with mobile employees to established or new competitors (Agarwal, Ganco, & Ziedonis, 2009; Raffiee, 2017). Accordingly, a key question for strategy scholars is how and when an employee's ability to create and appropriate value within and outside firm boundaries influences mobility and entrepreneurship decisions (Kaul, 2013).

Existing research has shown that employees create value through human capital and relational capital (Byun, Frake, & Agarwal, 2018). Human capital reflects the value rooted in an employee's accumulated knowledge and/or skills (Coff, 1997), whereas relational capital is the value associated with an employee's social relationships (Nahapiet & Ghoshal, 1998). Although these sources of value creation are conceptually distinct, they tend to "develop simultaneously over an individual's career" (Mawdsley & Somaya, 2016: 104), a process which creates challenges for researchers seeking to understand their effects on employee mobility and entrepreneurship. Thus, while prior work has frequently theorized that the ability to create and appropriate value from human and relational capital should influence

[5] This chapter is co-authored with Dr. Joseph Raffiee and Dr. Martin Ganco.

mobility and entrepreneurship decisions (see Agarwal, Gambardella, & Olson, 2016), existing research has rarely disaggregated and often conflated these two constructs (e.g., Campbell et al., 2012b; Phillips, 2002; Wezel, Cattani, & Pennings, 2006).[6]

In this paper, we disentangle relational capital from human capital and examine how increases in the value of an employee's relational capital impact her propensity to engage in mobility and entrepreneurship. Doing so is noteworthy, because, as Mawdsley and Somaya (2016: 104) note, the value associated with human and relational capital can be "accumulated through different mechanisms." Building on this assertion, we highlight how the nature of relational capital differs from human capital in that the former is more prone to sudden and discontinuous changes in its value – i.e., the value associated with the resources a relationship affords access to can shift abruptly and dramatically. Although rarely discussed in prior work, such discontinuous shocks are common in practice and have increased theoretical importance in contexts such as professional services where relational capital is central to the creation of value (Pennings, Lee, & van Witteloostuijn, 1998; Phillips 2002). For example, an attorney's established relational capital with a member of a client's in-house legal team can abruptly increase if the team member is promoted and given discretion over how (and to whom) the client's legal work is outsourced (Carnahan & Somaya, 2013; Somaya, Williamson, & Lorinkova, 2008), the benefits of knowing a Hollywood talent agent or manager can spike when the resources the agent controls access to – i.e., actors and actresses – appear in an unexpected blockbuster hit (Zelenski, 2002), or the value associated with a lobbyist's tie to an elected official can surge when the official accumulates additional

[6] The terms relational capital and social capital are frequently used interchangeably in the management literature. We follow Mawdsley and Somaya (2016) and use the term relational capital in our theorizing because it explicitly refers to the value associated with a relationship and is also more commonly used within the strategy literature.

legislative power and influence over policy (Byun et al., 2018). In contrast, the value associated with an employee's human capital is typically accumulated gradually through a series incremental investments (Becker, 1964), thereby making it less susceptible to large and abrupt changes in its value.[7]

Our central thesis is that an increase in the value of an employee's relational capital will elevate the likelihood of employee exit, particularly when the increase is large, discontinuous, and occurs to external relational capital. Our logic is rooted in the fact that: 1) external relational capital is a widely coveted "general purpose resource that has broad demand-side applications" (Byun et al., 2018), 2) employees are inherently motivated to appropriate value (Coff, 1999), and 3) the discontinuous nature of the surge will trigger employees to search for and/or consider alternative employment options (Lee & Mitchell, 1994). We further contend that the attractiveness of outside options and therefore the extent to which these shocks translate into exit will depend on how central the focal employee is for the firm's value creation (Leonard-Barton, 1992). We illustrate this mechanism by focusing on the location of the employee in the knowledge space of the focal firm as a contingency. Employees who are more central with respect to the firm's core knowledge may find it difficult to create relatively more value associated with the shock to their relational capital without the firm's complementary assets (Campbell et al., 2012b; Kaul, 2013; Toh & Polidoro, 2013). The contingency thus highlights the value creation and appropriation rationale that is connecting the shocks in the value of relational capital with exit decisions.

[7] Discontinuities in the value of human capital are also possible. For example, the value associated with a travel agent's deep understanding of Cuba likely spiked when the Obama administration lightened restrictions for U.S. citizens. While it is possible that such shocks to human capital value function in a way similar to shocks to the value of relational capital, events which trigger abrupt changes in the value of human capital are likely to be much more rare. Therefore, we focus our attention on discontinuities in the value of relational capital and leave the study of human capital to future work.

We test our theory using a longitudinal database of United States federal lobbyists and lobbying firms constructed from lobbying disclosure reports filed with the Senate Office of Public Records as stipulated by law in the Lobbying Disclosure Act of 1995. We leverage plausibly exogenous shocks to a lobbyist's political connections in power (Bertrand, Bombardini, & Trebbi, 2014; Blanes i Vidal, Draca, & Fons-Rosen, 2012; Byun et al., 2018; Liu & Srivastava, 2015) to proxy for discontinuous increases in the value of a lobbyist's relational capital. We find that increases are positively related to both employee mobility (defined as movements to established firms) and entrepreneurship. Consistent with our value appropriation arguments, we further find that the effect is stronger for entrepreneurship than for mobility.[8] To capture the contribution of the focal employee to the firm's core knowledge, we construct a novel market-based measure of firm-employee knowledge distance. Our measure is designed to capture similarity and co-occurrence of issues that are being lobbied between the firm and employee, two factors which jointly drive the importance of the focal employee for firm value creation and the relevance of the firm's complementary assets for the employee. While we theorize that knowledge distance will moderate the effect of relational capital discontinuities on both employee mobility and entrepreneurship, we find supportive evidence for employee entrepreneurship only. Our results are robust to a plethora of robustness checks, specifications, fixed effects, sub-samples, and additional controls, including the construction of a counterfactual control group which allows us to conclude that the discontinuous nature of relational capital accumulation plays an important role in the exit calculus.

[8] While our theory focuses on *increases* in the value of relational capital, we also empirically examine the effects of *decreases* – i.e., loss of valuable political connections. We show that the effects of negative shocks are qualitatively different. Negative shocks to a lobbyist's relational capital do not predict entrepreneurship or mobility. We revisit this issue below.

This paper makes several contributions. First, this study contributes to the employee mobility and entrepreneurship literatures by theoretically and empirically highlighting value creation through relational capital as a key driver of employee exit. Unlike prior studies which tend to conflate human and relational capital (Campbell et al., 2012b; Groysberg, Nanda, & Prats, 2009; Wezel et al., 2006), we disentangle and show that sudden increases in the value of relational capital have a direct and unambiguous positive effect on both mobility and entrepreneurship. Second, by introducing the notion of relational capital discontinuities, we add to the relational and social capital literature by highlighting how relational capital is particularly vulnerable to discontinuous shocks to its value (Adler & Kwon, 2002; Nahapiet & Ghoshal, 1998), and, by developing a theory about how these shocks differentially drive employee mobility and entrepreneurship, we add additional contribution by linking the relational capital literature with both the strategy literature on employee mobility and the unfolding model of turnover (Lee & Mitchell, 1994). Third, we show that the location of the employee in the firm's knowledge space and thus the importance of the employee to the firm's core capabilities is an important contingency driving the magnitude of the effect of relational capital shocks on employee entrepreneurship, a key departure from existing studies which tend to examine employee and firm characteristics in isolation (e.g., Agarwal et al., 2004; Ganco, 2013). Finally, we contribute empirically with a research design that exploits sudden changes in the value of relational capital and introduce a novel revealed preference measure of employee-firm knowledge distance that is market-based. This allows us to attach stronger predictive claims to our findings and begin to alleviate some of the longstanding empirical concerns related to omitted variable bias in the employee mobility and entrepreneurship literatures.

THEORY AND HYPOTHESES

Strategy scholars concerned with employee exit often point to the loss and transfer of *valuable* resources as a byproduct of employee movement (Agarwal et al., 2009; Raffiee, 2017). Thus, scholars are implicitly concerned with the movement of employees who have the ability to create value. In knowledge-intensive contexts such as professional services, the creation of value is primarily driven by the human and relational capital possessed by a firm's employees (Mawdsley & Somaya, 2016; Teece, 2003). Yet the question remains as to if and when employees with large endowments of these resources will be more or less likely to leave (Nyberg, 2010). Indeed, studies have found that greater employee "capabilities" relate positively (Palomeras and Melero, 2010) and negatively (Campbell et al., 2012b) to employee exit. Part of the ambiguity may stem from the difficulty of separating human capital from relational capital (Mawdsley & Somaya, 2016), the result of which has been a series of papers which "call on both dimensions, but many are not able to distinguish their individual effects" (Byun et al., 2017). As a result, the precise mechanisms driving the results in prior work remain unclear.

Conceptually, the relationship between an employee's ability to create value through relational capital and mobility/entrepreneurship has received much less attention in the literature, perhaps because measures such as employee earnings or performance rankings are assumed to be acceptable proxies for human capital/ability and are more readily available for empirical tests (e.g., Åstebro, Chen, & Thompson, 2011; Campbell et al., 2012b; Carnahan, Agarwal, & Campbell, 2012; Groysberg et al., 2009). However, these proxies still conflate human capital with relational capital, particularly in professional services settings where an individual's relational capital and relationships with external stakeholders are crucial to the employee and firm's ability to create value (Carnahan & Somaya, 2013; Pennings et al., 1998; Phillips, 2002; Somaya et al., 2008). We, therefore, focus our attention on the relationship

between relational capital and employee mobility and entrepreneurship. As we will demonstrate in our theoretical arguments below, conceptually separating these two constructs reveals important distinctions regarding how the value of human and relational capital can accumulate. This theoretical distinction, in turn, will allow us to generate unambiguous predictions regarding the relationship between the value of relational capital and employee exit.

Discontinuities in the Value of Relational Capital

Relational capital is built through repeated interaction between parties that fosters the development of mutual trust and goodwill (Burt, 1992; Kale, Singh, & Perlmutter, 2000; Portes, 1998). One key distinction made in the literature has been between internal and external relational capital (Adler & Kwon, 2002). Internal relational capital refers to the relationships that form between employees within an organization whereas external relational capital refers to relationships with external constituents including suppliers, clients, and other resource providers. Our theory focuses on the value associated with external relational capital. External relational capital is a key resource underpinning value creation and competitive advantage in many service industries and is considered a relatively general purpose resource often not tied to a firm (Byun et al., 2018).[9]

The value and value creation potential of relational capital lies in the benefits associated with the resources through which the relationship affords access (Adler & Kwon, 2002; Nahapiet & Ghoshal, 1998). Thus, as Kwon and Adler (2014: 416-417) astutely observe, "if social capital is the resource provided by an actor's relationships, the magnitude

[9] Discontinuous increases to internal relational capital are possible as well. However, the value of internal relational capital is largely tied to the focal firm. Theoretically, this may increase the attractiveness of the current firm and therefore work to decrease the probability of employee exit. We leave this avenue of inquiry to future work.

of this resource is surely in part a function of those contacts' abilities to offer such resources." This observation underscores an important characteristic of relational capital – the value associated with the resources the relationship provides access to can change abruptly and dramatically, a process we refer to as *relational capital discontinuities*. That is, since the value of relational capital is tied to the resources the contact controls, then sudden changes in the contact's ability to deliver these resources, for example, a promotion which allows the contact increased discretion and authority, can provide a sudden shock to the value associated with the relationship and thereby the employee's ability to create value through their relational capital. As we will detail in the next section, the abrupt and discontinuous nature of relational capital shocks will play a central role in our theory which unambiguously links increases in relational capital with employee exit – both in terms of mobility to established firms and to entrepreneurship.

Relational Capital Discontinuities and Employee Exit

Relational capital with external constituents is a highly coveted resource in professional services (Pennings et al., 1998; Phillips, 2002). As Byun et al. (2018) describe, the nature of relational capital is akin to a general purpose resource which can be transferred and utilized to create value across firms within a professional services industry. As a result, employees with high stocks of relational capital are typically sought after by rival firms, and employees can leverage this demand to achieve preferred employment outcomes where both the ability for the employee to create and appropriate value are high (Krause, Handfield, & Tyler, 2007).

Although the value associated with relational capital means it can be leveraged by employees to generate employment options, it remains unclear whether higher levels of relational capital will lead to a higher probability of employee exit. Much like studies which

have examined the relationship between human capital and employee turnover, many other factors render the general linkage ambiguous (Carnahan et al., 2012; Nyberg, 2010). However, as we have outlined above, relational capital differs from human capital in that it is prone to discontinuous spikes in its value. Thus, while we are agnostic as to the relationship between absolute levels of relational capital and employee turnover, our argument is that sudden and discontinuous increases in the value of relational capital will be positively related to the likelihood of employee exit.

Our theoretical basis for this prediction builds on insights from the unfolding model of voluntary turnover, a key model of employee turnover in the human resource management (HRM) literature (Lee & Mitchell, 1994). While the early HRM literature suggested that employee exit is driven primarily by worker dissatisfaction (Mobley, 1977), the unfolding model differs in that it highlights a number of alternative voluntary turnover pathways. A central feature of the unfolding model is its emphasis on the importance of "shocks" to an otherwise relatively steady-state system of employment as key triggers that result in employee movement (Lee et al., 1996; Lee & Mitchell, 1994; Lee et al., 1999). The general idea is that turnover is frequently driven by discrete events or shocks which occur and lead employees to begin to consider and/or engage in a search for alternative employment options. While employment search and consideration of alternative employment opportunities are usually the first steps in the turnover process, search does not guarantee that employees will ultimately choose to exit. However, theoretical and empirical work has shown that the probability that employment search leads to actual turnover will increase dramatically when the availability of the employee's alternative job opportunities is high (Swider, Boswell, & Zimmerman, 2011).

Discontinuous increases in an employee's relational capital represent discrete events in which the employee experiences a sudden surge in their ability to create value. Thus, consistent with the unfolding model, these shocks should theoretically lead the employee to consider potential alternative work arrangements. Further, because relational capital is a fungible resource which can be readily deployed across firms, it should be widely valued by rival firms meaning that there should be no shortage of available job opportunities. Some of these opportunities are likely to allow the employee to appropriate more value from her relational capital and the abrupt nature of the shock will cause the employee to expend any search costs that may prevent the discovery of such opportunities otherwise. Taken together, this line of reasoning leads to our baseline hypothesis that is consistent with the logic in Lee and Mitchell's (1994) unfolding model:

> ***Hypothesis 1.*** *Discontinuous increases in the value of an employee's relational capital will be positively related to employee exit.*

The Relative Effect of Relational Capital Discontinuities: Mobility vs. Entrepreneurship

Thus far, we have treated employee exit as a "binary outcome of staying or quitting," consistent with the unfolding model (Lee et al., 1996: 7). However, there is variation with respect to where exiting employees go. The focus of our theory is on the employee's decision to join an established firm versus the creation of a new firm via employee entrepreneurship. Although the unfolding model is silent regarding the destination of where employees go once they exit (Lee & Mitchell, 1994), our contention is that employee exit in response to a discontinuous increase in the value of relational capital will disproportionately result in employee entrepreneurship relative to joining established firms, particularly in

settings in which startups costs are low relative to the potential for value creation associated with the relational capital shock.

Although employee employment choices may be motivated by a variety of pecuniary and non-pecuniary factors (Benz & Frey, 2008), we maintain that employees remain at least in part motivated to enter work arrangements where they can appropriate a larger portion of the value they create – an assumption which is consistent with prior theoretical (e.g., Blyler & Coff, 2003; Coff, 1999; 2010) and empirical (e.g., Campbell et al., 2012b; Carnahan et al., 2012; Groysberg et al., 2009) strategy research. Accordingly, an attractive feature of employee entrepreneurship is that entrepreneurs do not have to share any portion of the gains with an employer as they become residual claimant. Indeed, even under a strict "eat what you kill" compensation system that closely ties an employee's compensation with the value and profits they generate, a predetermined portion of such profits is typically shared with the firm (Aderant, 2015). Thus, if the employee can create the same amount of value in entrepreneurship and in established firms, and if exit is driven by a desire to capture value, then the higher marginal appropriation through entrepreneurship relative to employment should drive employees toward starting their own firms rather than joining an existing firm.

However, employees may be unable to create the same amount of value in a start-up as they would in an existing firm. This is because there are typically start-up costs associated with new ventures as employee entrepreneurs need to build, recruit, and develop complementary assets (Campbell et al., 2012b). That said, the appropriation upside of entrepreneurship is not fully contingent on the employee's ability to create an equal or greater amount of value in their start-up as could be generated as an employee in an established firm. Indeed, Coff (2010) underscores that entrepreneurial organizational forms may create less value than other modes of exploitation, but that entrepreneurship is often

preferred when significant new capabilities emerge because entrepreneurship can allow employees to maximize their individual gain even if this comes at the expense of maximizing overall total welfare. Contextually, situations where the net gains from employee entrepreneurship through greater appropriation following a positive shock to relational capital are likely to exceed value capture in employment are most likely to occur in settings where relational capital plays a central role in value creation, where startup costs tend to be low, and where non-human complementary assets are relatively inexpensive and readily available on the market. These characteristics tend to be satisfied in the context of many professional services industries (Teece, 2003), and, consistent with this observation, most empirical work linking a theory of value appropriation through entrepreneurship as the causal mechanism driving entrepreneurial entry have been conducted in service sectors (Campbell et al., 2012b; Carnahan et al., 2012; Groysberg et al., 2009). Moreover, if the shocks to the value of relational capital are sufficiently large, they will render the complementarity considerations and startup costs secondary and the value appropriation concerns will dominate the decision-making calculus. These shocks are most likely to occur in professional service settings where relational capital is a primary driver of value creation (Mawdsley & Somaya, 2016).

In sum, relational capital shocks should trigger employees to consider alternative employment options, including joining an established firm or starting a new firm. If the attractiveness of alternative employment options is driven by the employee's desire to appropriate more value, then the allure of entrepreneurship should increase as entrepreneurship allows the employee status as residual claimant and a higher marginal rate of appropriation with respect to current and expected future cash flows. While entrepreneurship does not come without some risk, the relative appropriation advantage of

entrepreneurship in terms of net gains to the employee entrepreneur is most likely to hold in professional services contexts where relational capital is a primary source of value creation, where there is low reliance on physical assets, and where other start-ups costs are minimal. Accordingly, these arguments lead to the following hypothesis:

> ***Hypothesis 2.*** *The positive effect of discontinuous increases in the value of an employee's relational capital on exit will be stronger for employee entrepreneurship relative to employee mobility to established firms.*

Heterogeneity of the Effects across the Core and Non-Core Employees

Thus far, we have argued that discontinuities in the value of relational capital will spur employee exit. Our theoretical arguments draw upon the unfolding model where employee turnover can be triggered by discrete shocks which catalyze employees to initiate search and/or consider alternative employment options (Lee & Mitchell, 1994). The high value of relational capital coupled with its ability to be applied across firms (Byun et al., 2018) means that triggered searches should result in a host of outside options, the volume of which increases the probability that the employee will exercise the choice to leave the focal firm (Swider et al., 2011).

However, while relational capital discontinuities should spike exit consideration, as we just highlighted, heterogeneity in the employee's ability to appropriate value in alternative work arrangements will play a role in the employee's ultimate exit decision. And so while the sheer volume of outside options should make it more likely the employee finds an outside option they perceive will allow them to generate net gains in terms of appropriated value, the relative attractiveness of such options and therefore likelihood the employee comes to such a conclusion should depend on the employee's location with respect to value creation at the focal firm (Kaul, 2012). Specifically, employees contributing significantly to the core

capability of the firm will respond differently to the shock in the value of their relational capital than the non-core employees. Our conceptualization of core capability is consistent with the definitions used in prior work - i.e., "the knowledge set that distinguishes and provides a competitive advantage" (Leonard-Barton, 1992: 113). If the employee operates in a space which is central to the focal firm's core capabilities, then the employee will benefit from the focal firm's complementary resources to create value (Kaul, 2013; Toh, 2014). This, in turn, will influence the relative amount of value the employee can create outside the focal firm, which is intrinsically linked to the employee's ability to appropriate additional value. That is, even if a competing firm offers a higher marginal share of the value the employee or the employee appropriates all the returns through entrepreneurship, the probability of achieving a net gain in terms of value appropriation through outside options will decrease as the gap between value creation at the focal firm and outside options increases.

This logic suggests that while relational capital discontinuities should trigger search and a host of alternative job opportunities for all employees regardless of their location in the focal firm, the attractiveness of these options for employees located more central to the firm's core capabilities should be weaker than the attractiveness perceived by employees who are less critical for value creation at the focal firm. To illustrate, a patent attorney (core employee) who experiences a discontinuous increase in the value of her relational capital while working in a large law firm that specializes in intellectual property law should be less likely to deem alternative work arrangements as more attractive than the focal firm, both in terms of value creation and appropriation, as would a similar attorney working in the same firm who happens to be the lone wolf in the firm who practices criminal defense (peripheral employee) and therefore benefits less from the focal firm's complementary assets (e.g. brand equity, etc.). This line of reasoning leads to the following hypothesis:

Hypothesis 3. *The positive effect of discontinuous increases in the value of an employee's relational capital on exit will become stronger as firm-employee knowledge distance increases.*

While the degree of distance between the employee and focal firm's core capability should influence the relative attractiveness of both mobility to established firms and to entrepreneurship, we contend that the distance will be particularly salient in determining the attractiveness of employee entrepreneurship. As we argued above, entrepreneurship is an attractive option because it typically affords the employee an opportunity to appropriate a greater share of created value, although it comes with start-up costs. In many professional services, these costs tend to be lower than in other settings but employee entrepreneurs still need to assemble relevant complementary assets in order for the firm to create value. As Campbell et al. (2012b) argue, the employee's perceived ability to replicate these assets is a crucial factor in the employee's decision to start a new firm. Likewise, Kaul (2013) models the probability that we observe entrepreneurial firm formation as a decreasing function of the employee's reliance on the firm's complementary assets. A higher reliance on the firm's complementary assets decreases the attractiveness of entrepreneurship as it increases the costs associated with firm formation, thereby decreasing the entrepreneur's ability to capture additional value.

This is not to say that similar concerns will not arise for employees who assess the relative attractiveness of alternative employment options within established firms. Rather, we suggest that the concern will be greater for employees considering entrepreneurship. Returning to our earlier example of the patent and criminal defense attorneys working in a law firm focused on intellectual property law, the criminal defense attorney (peripheral employee) should have an easier time than the patent attorney (core employee) in terms of replicating the complementary resources they utilized in the focal firm to create value should

they enter entrepreneurship. That is, by being located on the periphery of the firm with respect to its core knowledge and capabilities, the criminal defense attorney likely benefitted from some of the complementary resources the firm provided, but, in general, these benefits (e.g., brand equity, etc.) should be less than those enjoyed by the patent attorney. As we detailed above, the net gains in terms of greater appropriation through entrepreneurship are most likely when start-up costs are low. While such costs tend to be lower in professional services contexts relative to other settings, we contend that they are largely a function of the employee's location within the focal firm (Teece, 2003). As a result, when a peripheral employee experiences a discontinuous surge in the value of her relational capital, the attractiveness of employee entrepreneurship should increase with the distance between the employee and the focal firm's core capabilities. Thus, while we expect that, in general, the probability of exit following a positive relational capital shock will be weaker for core relative to peripheral employees, the location of the employee in the firm knowledge space should be especially relevant for employee entrepreneurs. Accordingly, this logic leads to our final hypothesis:

> ***Hypothesis 4.*** *The positive effect of discontinuous increases in the value of an employee's relational capital on employee entrepreneurship relative to mobility to established firms will become stronger as firm-employee knowledge distance increases.*

METHODS

Empirical Context and Data

The empirical context of our study is the United States federal lobbying industry. The lobbying industry exhibits characteristics which are typical of most professional service sectors – high in knowledge-intensity and low in capital-intensity – and has been used by researchers studying issues related to employee mobility (Raffiee, 2017) and employee

performance (Byun et al., 2018) in service contexts. Conceptualized at a broad level, lobbying refers to any activity conducted with the intent to influence public policy (Drutman, 2015). Federal lobbying firms are hired by clients to advance the client's business and political needs in Washington. Lobbyists do so by leveraging their expertise (i.e., what they know) and relational capital (i.e., who they know) (Bertrand et al., 2014). Given the service-based nature of lobbying, the primary value-add of lobbying firms is the cumulative human and relational capital of its roster of lobbyists (Levine, 2009).[10]

The data we use is assembled from lobbying disclosure reports filed with the Senate Office of Public Records (SOPR) as required by law and mandated by the Lobbying Disclosure Act of 1995 (LDA). These reports contain detailed information regarding lobbying activity, including the name of the lobbying firm, the name of the client which hired the lobbying firm, the individual lobbyists who lobbied for the client, the issues lobbied, and the dollar amount of lobbying revenue or expense. The LDA stipulates that lobbying reports need to be filed on a biannual basis. We use these reports to construct a unique employee-employer linked database containing the universe of registered lobbyists for the decade spanning from 1998 to 2008.

Sample

Lobbyists have various backgrounds, ranging from ex-politicians to congressional staffers to practicing lawyers (Leech, 2013). Two of the key dimensions which contribute to value creation in lobbying are expertise and relational capital (Bertrand et al., 2014). The value of relational capital with political connections is a function of the leverage the politician has in the legislative process. Accordingly, lobbyists may experience a discontinuous shift in the value associated with a connection if there is a change to the politician's committee and/or

[10] See Drutman (2015) for a detailed overview of the dynamics of the federal lobbying industry.

committee chair assignments. Prior work has documented that these changes, conditional on observables, are plausibly exogenous to the individual lobbyist (Byun et al., 2018).

Our key construct, discontinuous increase in relational capital, requires our sample of lobbyists to have a comparable chance of experiencing these surges. To that end, we limit our sample to lobbyists with: 1) a similar background so that the primary source of value creation is comparable, and 2) a similar chance of experiencing a discontinuous increase in their relational capital through changes in the value of their connections. One type of lobbyists who meet these requirements are revolving door lobbyists who were previously employed as congressional staffers. Connections to their former employers (e.g., Senators) are an important source of relational capital for ex-staffer lobbyists (Blanes i Vidal et al., 2012). Accordingly, changes to these connections may cause discontinuous shifts in the value of these relationships. In fact, Bertrand et al. (2014) showed that the amount of revenue a lobbyist earned was directly tied to the power of her political connections. A significant portion of lobbyists have an ex-staffer background – in 2008, approximately 21 percent of lobbyists were ex-staffers with active connections in Congress. Our sample consists of ex-staffer lobbyists who had active political connections through employment anytime during the sample period. In our dataset, we identify 1,108 ex-staffer lobbyists who are connected to one or more senators or representatives in office. Our final sample consists of 9,686 lobbyist-period (semi-annual) observations from 1999 to 2008.

Variables

Dependent variables

In testing Hypotheses 1 and 3, our binary dependent variable is *employee exit,* coded "1" if a lobbyist's primary employer had changed since the previous period and "0" otherwise. Among 1,108 revolving door lobbyists in our sample, the total number of exits is 555 in the

10-year sample period. To test Hypotheses 2 and 4, we use *employee entrepreneurship (i.e., spinout)* as the dependent variable. Following the conventional definition of employee entrepreneurship, we code this as "1" if a lobbyist either creates or joins a start-up after leaving a firm in the lobbying data in the previous period (Carnahan et al. 2012). Employee entrepreneurship is a subset of employee exit. We identify entrepreneurship when an employee joins a firm in the first period that the firm is observed in the data. Among the 555 exits, 156 are entrepreneurship. All mobility variables are measured at *t+1* and the rest of the variables are calculated at *t*, which for movers, is the period prior to mobility.

Independent variables

Discontinuous increase in the value of relational capital. We measure this variable by tracking changes in the power of politicians who are connected to lobbyists in our sample. Following prior work (Blanes i Vidal et al., 2012; Byun et al., 2018), we use appointments to committee chair and assignments to the four most powerful committees in Congress to capture connected politicians' power changes in the legislative process.[11] *Discontinuous increase* is a binary variable coded "1" for the first year a politician connected to a lobbyist is selected to be a chair of a congressional committee or is assigned to one of the powerful committees in Congress and "0" otherwise.

Our identifying assumption is consistent with prior work and rests on the assumption that the temporal change in power of connected politicians is exogenous, conditional on the observable characteristics of the lobbyists and their firms (Blanes i Vidal et al., 2012). For the power change of a connected politician to be plausibly exogenous, whether and when the connected politician will experience the advancement has to be

[11] The four powerful Congressional committees are: The Senate Committee on Finance, the Senate Committee on Appropriations, the House Committee on Ways and Means, and the House Committee on Appropriations (Duso, 2005).

difficult to predict by lobbyists and firms. In addition, the change in lobbyist's value creation due to a surge in the value of political connections should be uncorrelated with the accumulation of the lobbyist's expertise conditional on observables. Given the complicated and uncertain political process of chair selection and committee assignment, scholars have argued that committee and chair assignment satisfies these conditions with respect to lobbyists (Blanes i Vidal et al., 2012; Bertrand et al., 2014; Byun et al., 2018). In fact, others have gone as far as to argue that the timing and ascension of committee and chair appointments are exogenous even to the politician herself (Liu & Srivastava, 2015). Thus, it is reasonable to believe that using the power change of connected politician to capture discontinuous increases in lobbyist's relational capital would alleviate identification concerns due to potential omitted variable biases.[12] In our sample, there is a total of 176 discontinuous increase events, 115 of which are cases where the connected politicians are assigned as committee chair and 71 are events where revolving door lobbyists' prior employers are assigned to one of the four powerful committees in the Congress. Only 10 events occur at the same period.

Employee's distance from the firm's core knowledge. Our measure of employee-firm distance captures an employee's location vis-a-vis the firm's location in the knowledge space. We use a weighted measure of employee-firm distance based on the assumption that the knowledge distance between the firm and employee, measured in terms of overlap of lobbying issues, is proportional to knowledge-relatedness among issues. Our measure can be thought of as capturing both the overlap (lobbying on the same issue as those critical to the firm) and joint use between issues central to the firm and those covered by the lobbyist (e.g.,

[12] In addition, we confirm that out results are robust to the inclusion of lobbyist fixed effects which controls for time-invariant lobbyist quality, thereby further strengthening the confidence in our findings (Blanes i Vidal et al., 2012).

clients requesting issues A and B to be lobbied while firm covers A and the focal lobbyist covers B). This approach was chosen because we wanted to capture the importance of the individual lobbyist to the value creation at the firm (in the robustness tests, we show that both elements of the distance measure – joint use and overlap of issues affect the outcomes independently). Our approach is analogous to that of Bloom, Schankerman, and Van Reenen (2013) in that it considers knowledge complementarity across areas in computing a distance measure. We construct our measure according to the following steps. First, we create a knowledge-relatedness matrix among lobbying issues (i.e., issue co-occurrence). Second, we account for relatedness among issues in measuring the overlap of issues between the firm and the lobbyist (i.e., issue overlap). Lastly, we leverage temporal changes in the knowledge-relatedness matrix to extract temporal variation that likely represents an exogenous variation from the perspective of the lobbyist-firm relationship.

In a lobbying contract between a client and a lobbying firm, multiple issues are often bundled. Thus, from each lobbying report that has been filed for a lobbying contract, we identify a revealed preference of issue co-occurrence among 78 issues pre-defined in Congress. Using methods adapted from Breschi, Lissoni, and Malerba (2003) and Lee and Lieberman (2010), we first construct the knowledge-relatedness matrix from the issue co-occurrence pattern. Let R_{ik} indicate the presence or absence of issue *i* in a lobbying report *k* and let K be the total number of lobbying reports in a given year. The knowledge-relatedness matrix Ω_{ij} is a 78 by 78 matrix calculated as the angular separation of the co-occurrence vectors. The numerator in the equation below represents the total number of co-occurrences between issue *i* and issue *j* in a given year.

$$\Omega_{ij} = \frac{\sum_{k=1} R_{ik} R_{jk}}{\sqrt{\sum_{k=1} R_{ik}^2} \sqrt{\sum_{k=1} R_{jk}^2}}$$

Next, we calculate the degree of issue overlap between the firm and each employee using the method of Jaffe (1986), the most widely used measure of technological distance. However, we use the knowledge-relatedness matrix as weights in calculating the angular separation of the vectors of firms and employees. This approach was proposed by Bloom et al. (2013) to obtain a more relevant distance measure for capturing knowledge space differences. In our context, we calculate the distance between firm *m* and employee *n* as:

$$\text{Firm} - \text{Employee Distance}_{mn} = 1 - \frac{f_m \, \Omega \, e_n^{'}}{\sqrt{f_m \, \Omega \, f_m^{'}} \sqrt{e_n \, \Omega \, e_n^{'}}}$$

where the vector $f_m = (f_{m1}, f_{m2}, \ldots, f_{m78})$ is firm *m*'s share in each of 78 issue domains out the firm's total revenue and the vector $e_n = (e_{n1}, e_{n2}, \ldots, e_{n78})$ denotes employee *n*'s share in each issue domain out the lobbyist's total revenue.

The relatedness among issues can be affected by macro-level changes in the political agenda. Changes in the political agenda affect co-occurrence pattern in lobbying reports which aggregately determine yearly changes in the knowledge relatedness matrix. However, such aggregate changes in co-occurrence patterns are orthogonal to each firm-employee relationship. Thus, we can extract an exogenous component of firm-employee distance from changes in the knowledge-relatedness matrix. To demonstrate, the introduction of the Homeland Security issue after the 9/11 terrorist attack in 2001 drastically changed how some issues were bundled. For example, the transportation issue, an issue that was loosely related to the defense issue prior to 2001, co-occurs more frequently with defense after 2002. For a lobbyist specialized in transportation, although the actual overlap of issues between the

lobbyist's and the firm's issue portfolio may remain the same, the knowledge-relatedness weighted distance may increase (or decrease) after 2002. To capture such variations, we first set the distance variable at mean value and use the values only if the un-weighted angular separation distance measure stays the same compared to the previous year. This approach is equivalent to creating a demeaning variable that only leaves variability in the knowledge-relatedness matrix. The procedure enables us to capture variations in the firm-employee distance that are caused by macro changes in co-occurrence patterns, holding the actual difference between the firm and the employee constant.[13]

Control variables

Individual and firm characteristics have been shown to influence employee exit (Agarwal et al., 2016b), and so we include an extensive set of control variables and fixed effects. First, we include a set of lobbyist level controls. Client relationships are crucial in professional services context (Pennings et al., 1998), and so we control for # *of client ties* as the cumulative number of clients the lobbyist has in a given period. Studies have shown that employee performance may also influence exit (Carnahan et al., 2012). Thus, we control for lobbyist's performance with *lobbyist's revenue*, a continuous variable calculated by the total dollar amount of lobbying deals each lobbyist was involved in a given period of time (a lobbying deal can have more than one lobbyist involved). Firm-specific human capital may decrease turnover (Jovanovic, 1979). Therefore we include *tenure in firm* calculated as the number of periods a lobbyist worked in the current firm. We also control for the level of *Specialization* as measured using a Herfindahl-Hirschman Index (HHI) (Bertrand et al., 2014) based on the concentration of

[13] Note that our results hold without this de-meaning approach.

cumulative lobbying revenue share for each pre-defined issue areas. The HHI takes a value between 0 and 1, with higher values indicating a higher specialization.

Our key independent variable, *discontinuous increase in the value of relational capital*, captures abrupt changes in the value of political connections. To condition out gradual changes in the value of connections, we use a "stock" measure of political ties established before the lobbyist entered the lobbying industry. The *# of political connections* is measured as the number of active connections in Congress the lobbyist has. This count variable varies slowly over time as the connected politicians exit and re-enter Congress. While all lobbyists in our sample entered lobbying with connections to their previous employers as ex-staffers, they can also pursue access to politicians through making personal contributions to politicians (Bertrand et al., 2014). Thus, we control for such investments through *political contribution*, a binary variable coded "1" if the lobbyist has made an individual campaign contribution in the previous year, "0" otherwise. Finally, as a proxy for competitive pressure an individual lobbyist may face, we construct and include *competitive overlap* as the average number of lobbyists who participate in each issue the focal lobbyist covers.

We also incorporate several firm-level control variables in all models. *Firm age* is measured as the number of semi-annual periods in lobbying industry since 1998. We control for *Firm size* as measured in terms of the total number of lobbyists that register to lobby for the firm in each period. In the lobbying industry, a significant portion of lobbying is conducted by full-service law firms catering to varied needs of its existing client base. Often, a lobbying division is typically not the core division of a law firm. In addition, non-lawyer lobbyists in law firms often do not become equity partners (Becker 2011). Thus, lobbyists' mobility decisions in law firms may be systemically different from lobbyists in lobbying firms. *Law firm* is a binary variable coded "1" if the firm describes itself as a law firm and "0"

otherwise. We also control for in-house lobbyists who are employed directly by interest groups or clients. In-house lobbyists may also be different from lobbyists working in professional lobbying firms because they are largely constrained to a single client during their employment period. *Lobbying firm* is a binary variable coded "1" if the firm files a lobbying report on behalf of a client and "0" otherwise. Across all analyses, we control for numerous factors related to connected politicians including political party fixed-effects, chamber fixed-effects, and a dummy variable that indicates whether the connected politician is a member of the majority party. To capture whether the connection to a politician is redundant within the firm, we construct a variable that measures the number of lobbyists with the same politician contact within the firm. Because the lobbyists connected to the same politician within the same firm are very rare in the sample, the variable is dropped as it predict the dependent variable perfectly. Lastly, semi-annual period fixed effects are included in all models to account for the cyclical nature of the economy, politics, and lobbying.

Estimation Methodology

We test our hypotheses by estimating a series of logit regressions. For hypotheses 1 and 3, we estimate variations of the following logit model to test the main and moderating effects of our independent variables on the likelihood of general exit (mobility to established firms and entrepreneurship):

$$logit(Exit_{it+1}) = \beta_0 + \beta_1 Discontinuous_{it} + \beta_2 Distance_{it} + \beta_3 Discontinuous \times Distance_{it} + \beta_4 Controls_{it} + \varepsilon_{it}$$

where *i* indexes lobbyists and *t* indexes semi-annual periods. In this equation, we test hypotheses 1 and 3 through the estimation of β_1 and β_3, respectively. For hypotheses 2 and 4, we compare the magnitudes of our hypothesized main and moderating effect across entrepreneurship and mobility. To do so, we first estimate the equation above with

entrepreneurship rather than general exit as the dependent variable. Next, we estimate the following logit, to examine the likelihood of entrepreneurship conditional on employee exit:

$$logit(Spinout|Exit_{it+1}) = \delta_0 + \delta_1 Discontinuous_{it} + \delta_2 Distance_{it} + \delta_3 Discontinuous \times Distance_{it} + \delta_4 Controls_{it} + \eta_{it}$$

Here, we test hypotheses 2 and 4 though the estimation of δ_1 and δ_3, both of which we predict will be positive and significant. All specifications include robust standard errors clustered by lobbyists' connected politicians to account for non-independence. For lobbyists with multiple connected politicians, we assign a politician with the most number of lobbyists connected in the sample. In our robustness checks, we confirm that our results hold with the inclusion of lobbyist fixed effects and various levels of standard error clustering.

RESULTS

Table 3-1 presents descriptive statistics and correlations for all variables. In all analyses, variance inflation factors (VIFs) for all variables are below 10, implying that multicollinearity is not a concern. We provide tests of our hypotheses in Table 3-2, which displays results in three sets of regressions. The first set, Models 1 through 3, tests Hypotheses 1 and 3 by estimating the effect of the discontinuous increases in the value of relational capital and its interaction with firm-employee distance on the likelihood of general employee exit. Models 4 through 6 examine Hypotheses 2 and 4 by presenting coefficient estimates on the likelihood of employee entrepreneurship (spin-out) using the entire sample. Models 7 through 9 verify the main effect and the interaction effect on the likelihood of spinning out compared to the effects on mobility to established firms using the sample of employee exits (555 observations).

Model 1 is a baseline logit regression of the likelihood of exit with only our control variables. Among the controls, the number of political connections a lobbyist has is negatively related to the likelihood of employee exit. We also find that firm-employee distance positively affects the likelihood of employee exit. Models 4 and 7 are baseline logit models for the likelihood of employee entrepreneurship using the entire sample and the sub-sample of exits. Hypothesis 1 posits that the likelihood of employee exit increases when an employee experiences a discontinuous increase in the value of her political connections. Model 2 demonstrates that a discontinuous increase is positively related to employee exit (β= 1.5637; p<.001). As a lobbyist experiences a discontinuous increase in the value of her relational capital, the log odds of exit increase by 1.56. Holding all other variables at their means, the marginal effect indicates that lobbyists who experience a surge in relational capital are 9.44 percentage point higher in the predicted probability of exit than a lobbyist who did not experience such an increase. Thus, Hypothesis 1 is supported.

In Hypothesis 2, we predicted that the effect of a discontinuous increase in relational capital would be stronger for entrepreneurship than for mobility to established firms. Model 5 demonstrates that the main effect exists for the likelihood of employee entrepreneurship (β= 1.8033; p<.001) and Model 8 indicates that this relationship is stronger for entrepreneurship than for mobility (β= .6248; p<.05). As shown in Model 8, conditional of exit, the coefficient estimate indicates that the predicted probability of entrepreneurship following a discontinuous increase in relational capital is 13.21 percent higher than the predicted probability for mobility to established firms, holding all other variables at their means. Thus, Hypothesis 2 is supported.

Hypothesis 3 predicted a positive interaction between discontinuous increases in relational capital and firm-employee distance with respect to the likelihood of exit. In Model

3, the coefficient for the interaction term is not statistically significant at conventional levels (β= -.0138; p >.05). However, testing an interaction effect in a logit model requires more than an assessment of p-values because the interaction depends on the values of other variables (Hoetker 2007). Because our models only contain a single interaction term and no higher order term, we employ an approach recommended by Zelner (2009). Although the interaction term calculated as the mean cross-partial derivative of exit with respect to the two independent variables is positive (0.07), none of the observations fall outside of the 95 percent confidence interval when the interaction is calculated for each observation separately. Thus, we do not find support for Hypothesis 3.

Hypothesis 4 posits that the interaction between discontinuous increase and firm-employee distance will be stronger for employee entrepreneurship than for mobility to established firms. While we do not find statistical significance for interaction term in predicting exit in Model 3, Model 6 demonstrates that the interaction effect is statistically significant for the likelihood of employee entrepreneurship (β= 2.3637; p<.05). The positive coefficient for the interaction term in Model 9 entrepreneurship (β= 3.8411; p<.05) which estimates the likelihood of entrepreneurship conditional on exit, further implies that the interaction is stronger for employee entrepreneurship than that for mobility to established firms. When the interaction effect is computed as cross derivative, the interaction effects for all observations are above zero with most of them being statistically significant at 95 percent confidence interval. In addition, the magnitude and statistical significance of the coefficient for the interaction term are consistent across observations with a mean of 0.73. To demonstrate, Figure 3-1 plots the predicted likelihood of employee entrepreneurship for each level of firm-employee distance using estimates in Model 6. We also run the same model with the likelihood of mobility as the dependent variable and use the same approach

to plot in Figure 3-2. In both figures, the upper lines represent when discontinuous increases in employee relational capital equal to 1 whereas the lower lines denote no increase. No overlap between the 95 percent confidence intervals of the two lines in Figure 1 but a large overlap in Figure 3-2 graphically display that Hypothesis 2 is supported. In Figure 3-1, we also find that the slope of the upper line is positive while the slope of the lower line is relatively flat. Accordingly, the gap between the upper line and the lower line becomes wider as firm-employee distance increases. However, in Figure 3-2, the size of the gap decreases and starts to overlap as distance increases, displaying the opposite pattern. This suggests that the interaction between a surge in relational capital and firm-employee distance is larger for entrepreneurship than for mobility. Together, the marginal effects and graphical results support Hypothesis 4.

Supplementary Tests and Temporal Timing of Exit

While our theory predicts the effects of shocks to relational capital on exit, ceteris paribus, the theory implicitly implies that the effects of discontinuous increases will be larger relative to comparable gradual increases in the value of relational capital. We thus take steps to further examine whether the effect of discontinuous increases in relational capital on exit is greater than the effect of analogous gradual changes. It is important to note that very slow changes in the value of relational capital that are largely time-invariant during the observation period will be absorbed in the lobbyist fixed effect. However, it is possible that some gradual accumulation of relational capital occurs in the focal time frame. While there is no empirical counterpart to our exogenous variation in power changes of connected politicians, we use the number of political connections to proxy for gradual changes (in addition to our other control variables). To facilitate coefficient comparisons between discontinuous increases and gradual changes in political connections, we return to Models 2 and 5 in Table 3-2 and

calculate standardized coefficients of the two variables. The results show that the log odds of employee exit increase by 0.282 when one standard deviation increase in discontinuous change in relational capital, holding other variables constant. On the other hand, one standard deviation increase in the number of political connections is associated with 0.113 increase in the log odds of exit, approximately 40 percent of the size of the effect of discontinuous increase. We find similar results for the log odds of employee entrepreneurship. One standard deviation increase in discontinuous increases and gradual change lead to 0.325 and 0.108 increase of the log odds of spinning out, respectively. Wald test statistics confirm that the coefficient differences are statistically significant for both dependent variables.

We further investigate whether discontinuous changes and gradual changes in relational capital differ in their temporal effects on the likelihood of exit and spin-out. To contrast temporal effects of discontinuous versus gradual changes, we re-ran our main models in Table 3-2 with time dummies entered before and after capability surge events. We then plot the average predicted probability of exit for each time dummy. This is akin to estimating dynamic time effects in difference-in-difference specifications. As Figure 3-3 depicts, a strong spike in the probability of exit exists at time *t*, the period subsequent to discontinuous increases. In sharp contrast, we find almost no change in likelihood of exit in periods preceding and succeeding the gradual change. Figure 3-4 also shows that a spike only exists after discontinuous increases. Interestingly, we find that employee exit, both mobility to established firms and employee entrepreneurship, predominantly take place in time *t,* the period following the discontinuous increase. Empirically, this is consistent with the magnitude and exogenous nature of our measure of discontinuities. Spikes in relational

capital cause employees to consider alternative employment options and when attractive options are identified, they tend to be exercised quickly.

Test of Counterfactual using Coarsened Exact Matching

In addition to using the number of connected politicians to proxy for gradual changes in the value of relational capital, we also implemented coarsened exact matching (CEM) procedure to create a counterfactual to lobbyists who experienced shocks to the value of their relational capital. As a counterfactual, we identify lobbyists who experienced analogous increases in their ability to create value without experiencing the discontinuous increase in the value of relational capital. Comparing the matched sample of treated lobbyists with discontinuous increase and control lobbyists who experienced a similar amount of gradual change over a longer time window (which we vary as we discuss below), we test the effect of discontinuous increase on the cumulative exit and spin-out events during the focal time window.

Specifically, we applied the following steps to construct the matched sample. First, we estimate the amount of value creation gain associated with the discontinuous increase. We calculated the predicted post-shock individual revenue increase for each treated lobbyist by running a lobbyist fixed effect regression of individual revenue change at $t+1$ on the discontinuous increase. Second, we calculate the amount of revenue change within 1 year, 2 years, 3 years, and 4 years for lobbyists who do not experience a discontinuous increase. We use these variables to create a match with the predicted revenue change calculated in the first step. We also construct dependent variables for each of the time windows, coded "1" if a lobbyist's employer had changed during the given time window and "0" otherwise. We repeat the process to create spin-out variables for each time window. Next, we implement the CEM algorithm and create a matched sample based on the amount of revenue change and other variables used in our models. We allow for automated coarsening on the amount

of revenue change using Stata's CEM module (Blackwell et al., 2009; Iacus, King and Porro, 2012). In addition, we draw observations from the sample in the same revenue quartile, in the same client tie size quartile, in the same lobbyist tenure quartile, and in the same period.[14] We follow the same procedure for each time window (i.e., 1 year, 2 years, 3 years, and 4 years) and produce control lobbyists for each year. Table 3-3 provides descriptive statistics for the treated sample and control samples. Means from the control samples are not significantly different from the treated sample except for the coarsened variables.

Lastly, we replicate our tests of hypotheses 1 and 3 with CEM control sample for each time window in Table 3-4. Model 1 is identical to Models 2 in Table 3-2 and Model 6 is the same as Model 8 in Table 3-2. In the following columns, we estimate the coefficient for discontinuous increase with the CEM sample of lobbyists the similar amount of revenue change within 1 year, 2 years, 3 years, and 4 years. Model 2 indicates that lobbyists who experienced discontinuous increase still have a higher likelihood of exit during the two periods after the increase compared to lobbyists with the same amount of gradual increase for the two periods. The effect of discontinuous increase on employee exit persists when compared to the similar amount of gradual increase across two years (Model 3). The statistical significance disappears compared to the increase in the three-year window (Model 4) and the coefficient switches to negative when the time frame extends to four years (Model 5). This is natural because the average tenure of a lobbyist in the sample is just over three years. Models 7 to 10 indicate that the effect of discontinuous increase on the conditional probability of choosing employee entrepreneurship lasts when compared to the effect of the analogous amount of gradual increase over multiple periods. The results provide additional support to our Hypotheses 1 and 3.

[14] The results are robust to coarser matching and to finer-grained matching.

DISCUSSION AND CONCLUSION

Motivated by a growing body of work that suggests employee mobility and entrepreneurship can lead to the loss of valuable resources (e.g., Agarwal et al., 2004; Agarwal et al., 2009; Raffiee, 2017) and have competitive implications for firm performance (e.g., Campbell et al., 2012b; Mawdsley & Somaya, 2016; Wezel et al., 2006), strategy scholars have become increasingly interested in understanding individual and organizational factors that drive employee mobility and entrepreneurship decisions (Agarwal et al., 2016b). In this study, we parsed human capital from relational capital and developed a theory that integrates insights from the relational capital literature (Adler & Kwon, 2002), unfolding model of employee turnover (Lee & Mitchell, 1994), and the strategy literature on employee mobility (Agarwal et al., 2016b), to propose that discontinuous increases in the value of an employee's external relational capital will drive employee entrepreneurship and mobility, particularly when the employee is located on the periphery with respect to the firms core knowledge.

Using a novel employee-employer linked database consisting of all registered lobbyists in the U.S. federal lobbying industry, our study provides evidence that a discontinuous increase in the value of relational capital has a positive effect on the likelihood of mobility to established firms and to entrepreneurship (Hypothesis 1), with the effect stronger for employee entrepreneurship than for mobility to established firms (Hypothesis 2). While we expected that the relative magnitude of this effect would vary with the location of the employee in the firm's knowledge space for both mobility to established firms and entrepreneurship (Hypothesis 3), we found supportive evidence for employee entrepreneurship only (Hypothesis 4). Taken together, our study advances prior work by disaggregating relational capital from human capital and highlighting the nuanced relationships between relational capital, employee entrepreneurship, and mobility.

Limitations and future research

Our study is not without limitations. First, there may be a concern as to the generalizability of our findings beyond the lobbying industry. However, the context of lobbying shares a number of similarities with other services industries, meaning that our findings should be fairly generalizable to other professional services sectors (Byun et al., 2018; Raffiee, 2017). Replication in non-service industries will allow examination of how startup costs and complementary asset replication interact with the mechanisms discussed in our study.

Second, our theory makes assumptions about value appropriation but our data do not allow us to observe the actual details of the employment contracts, the level of renegotiation, or potential revenue splits. Therefore, while our research design allows us to make inferences about causality with respect to our explanatory variables, we are unable to fully test and confirm the specific mechanisms at play.

Third, our theory put forth knowledge distance as a key contingency which influences the magnitude of the effects of relational capital discontinuities on employee exit decisions. However, there may be other factors and interactions which influence mobility choices that are beyond the scope of this study. Future work can identify other moderators and their potential asymmetric effects on mobility versus entrepreneurship.

Fourth, while our theory focuses on the drivers of voluntary employee turnover to established firms and entrepreneurship, our data do not allow us to distinguish voluntary from involuntary exit events. While we believe the amount of involuntary turnover, particularly in response to a discontinuous increase in the value of relational capital is likely to be low, future research which differentiates and compares voluntary from involuntary exit as it relates to relational capital would add to the literature (Mawdsley & Somaya, 2016).

Fifth, the use of lobbying disclosure reports to track lobbyist employment means that we do not observe lobbyists who fail to meet the requirements to formally register or who simply opt not to comply with federal law (Drutman, 2015). Despite this limitation, however, scholars have noted that the use of lobbying reports to study mobility compares favorably to other methods frequently used in strategy research (i.e., patents) to track employee mobility and infer employee entrepreneurship (Raffiee, 2017).

Contributions and conclusion

The limitations notwithstanding, this study makes several contributions. First, by developing a theory about how increases in relational capital can drive employee exit decisions, we contribute to the employee mobility and entrepreneurship literature by disaggregating relational capital from human capital (Mawdsley & Somaya, 2016). Doing so is notable for several reasons. One, although the relationship between relational capital and employee mobility and entrepreneurship has received much less attention in the strategy and HRM literatures relative to human capital (e.g., Agarwal et al., 2016b), existing studies with theoretical emphasis on employees' levels of human capital have rarely been able to empirically purge relational from human capital proxies (e.g., Wezel et al., 2006). Indeed, given that the majority of measures employed in prior work potentially reflect both dimensions (Byun et al., 2018), it is perhaps not surprising that the literature has failed to systematically link levels of human capital (or relational capital for that matter) with employee exit – the mixed results in prior work render the relationships ambiguous (e.g., Campbell et al., 2012b; Palomeras & Melero, 2010). By shifting our focus to relational capital, we highlight that the value of relational capital is prone to abrupt and discontinuous increases in value. The value of relational capital is rooted in the contacts ability to deliver resources (Kwon & Adler, 2014), an ability we argue and show can change suddenly and

dramatically. Incorporating this distinction into the theoretical framework of the unfolding model of voluntary turnover (Lee & Mitchell, 1994) allowed us to generate unambiguous predictions regarding relational capital and employee exit: discontinuous increases in an employee's relational capital are positively related to exit, irrespective of the employee's absolute level of relational capital. While this result advances the mobility and entrepreneurship literatures, it also allows us to add to the extensive literature on relational and social capital (Adler & Kwon, 2002; Nahapiet & Ghoshal, 1998). Within this literature, a great deal of emphasis has been placed on the importance of repeated interactions in the development of relationships which result in the generation of mutual trust and goodwill (Portes, 1998). However, once relationships are established, the true value of the relationship is rooted in the ability of the contact to deliver resources (Kwon & Adler, 2014), and, as our theory and empirical context demonstrate, the ability for a contact to deliver such resources may be prone to sudden and discontinuous changes in its value. This is a unique feature of relational capital, as the value associated with human capital, in contrast, is much less susceptible to large and discontinuous shifts.

Second, we advance Lee and Mitchell's (1994) unfolding model and contribute to the HRM literature on turnover by showing how shocks to relational capital can generate heterogeneity in effects with respect to where exiting employees go (i.e., mobility to established firms versus employee entrepreneurship). To date, the unfolding model has treated voluntary turnover as a homogeneous binary outcome of quit versus stay (Lee et al., 1996; Lee & Mitchell, 1994; Lee et al., 1999) and the broader HRM literature "has rarely examined where leavers go" (Hancock et al., 2013: 597). Thus, our study adds to the employee turnover and HRM literature by responding to the recent call of Lee et al. (2017: 211) who "prescribe that scholars track turnover destinations" and "also suggest more

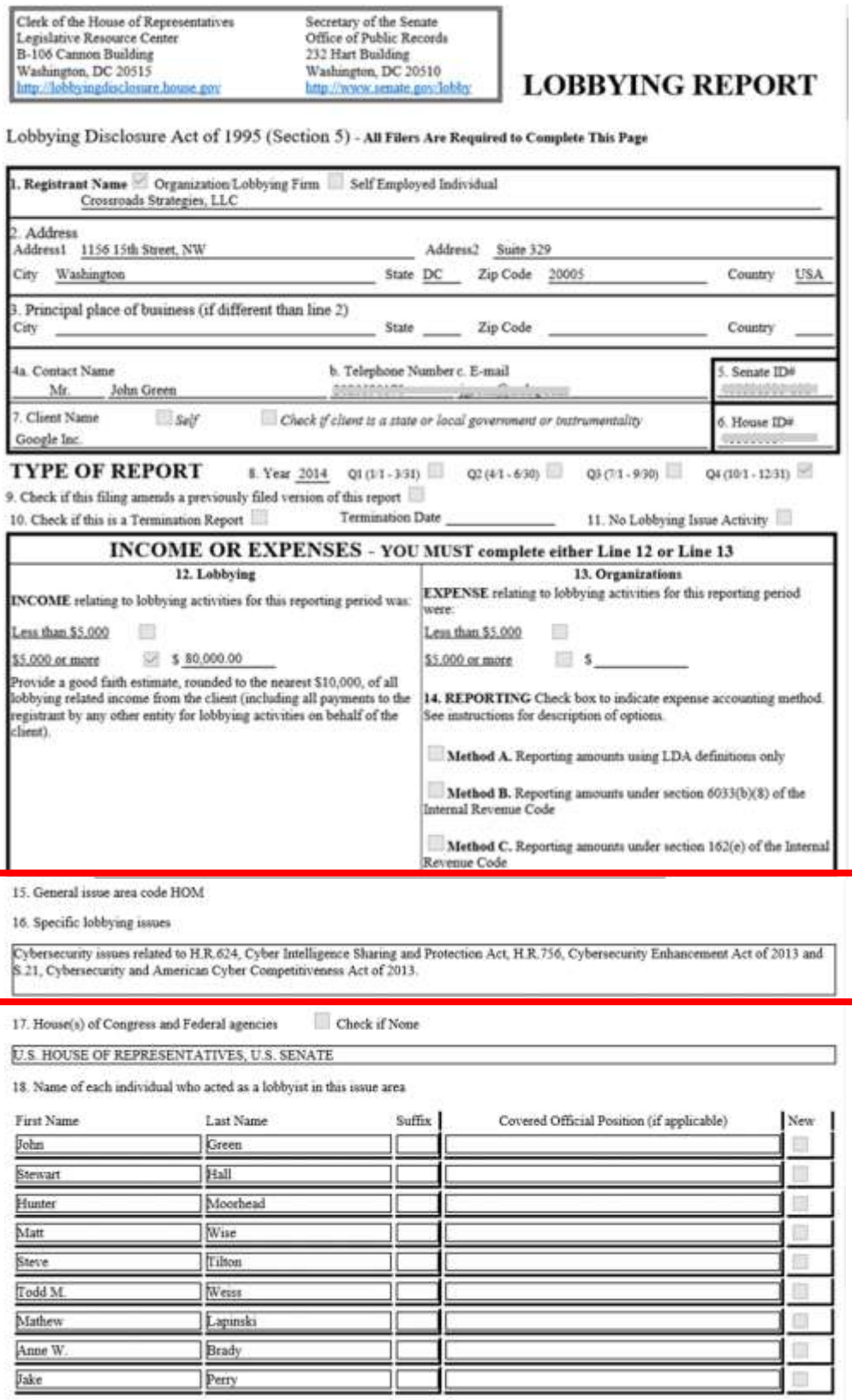
inquiry into the reasons why employees might choose certain turnover destinations" rather than others. By highlighting how relational capital discontinuities have a stronger effect on the probability of employee entrepreneurship than mobility to established firms, we demonstrate how entrepreneurship becomes more likely when exit is driven by 1) shocks that increase the employee's ability to create value across firms, 2) when exit is driven at least in part by an incentive to appropriate value, and 3) when employees operate in contexts where start-up costs are low and where the source of the shock (relational capital in our context) plays a central role in the creation of value. Further, by linking relational capital shocks with a value creation-value appropriation logic, we are able to connect the HRM's unfolding model of voluntary turnover with the strategy literature on employee mobility and entrepreneurship, thereby responding to recent calls to integrate these complementary but mainly separate research streams (Nyberg & Wright, 2015). While our theory focused on discontinuities in the value of relational capital, other types of shocks may generate different relative effects, and future researchers should investigate these possibilities. We encourage future research to take advantage of these rich and complementary literatures and consider how applications of the unfolding model can generate further insights regarding exit heterogeneity. Indeed, understanding where employees go has important strategic implications as it may provide insight on how mobility influences firm-level outcomes (Hancock et al., 2013) and when employee turnover may be more or less detrimental to firm performance (Agarwal et al., 2016a; Campbell et al., 2012b; Wezel et al., 2006).

Third, this paper demonstrates that the magnitude of the effect of relational capital shocks on employee entrepreneurship depends on the proximity of the employee to the core of the firm. In doing so, our study simultaneously addresses the recent calls of Lee et al. (2017: 212) who stress that future work on employee turnover and the unfolding model

should more fully account for context, speculating that "destination profiles and preceding states may help inform us not only *who* will leave but also *where* they will go", as well as calls in the strategy literature which have stressed "the need for a better understanding of the links across different levels" as they pertain to the causes of employee mobility and entrepreneurship (Agarwal et al., 2016b). Our finding that the magnitude of the effect of relational capital discontinuities on employee entrepreneurship but not mobility to established firms increases when the employee is peripheral rather than core to the firm's capabilities suggests that the ease of replicability of complementary assets is particularly salient for decisions to enter entrepreneurship but potentially less important when employees consider joining established firms (Campbell et al., 2012b; Kaul, 2013). More broadly, this result points to the fact that boundary conditions with respect to predictions generated through the unfolding model's theoretical framework may differ based on the destination of where the model predicts employees will go. Importantly, the identification of potentially critical moderators, in our case knowledge distance, would go unnoticed in standard applications of the unfolding model where all quits and mobility events are treated homogenously.

Finally, we make an empirical contribution to the employee mobility, entrepreneurship, and HRM literatures with our research design that exploits plausibly exogenous increases in the value of relational capital and our development of a novel measure of firm-employee knowledge distance that is derived from the evolution of demand-side client preferences. These features allow us to attach a stronger predictive interpretation to our findings and minimize the potential bias arising from omitted variables, thereby adding to the literature by providing causal evidence in research areas that typically rely on correlational analyses.

Figure 1. Sample of Lobbying Report on Homeland Security Issue



Clerk of the House of Representatives
Legislative Resource Center
B-106 Cannon Building
Washington, DC 20515
http://lobbyingdisclosure.house.gov

Secretary of the Senate
Office of Public Records
232 Hart Building
Washington, DC 20510
http://www.senate.gov/lobby

LOBBYING REPORT

Lobbying Disclosure Act of 1995 (Section 5) - **All Filers Are Required to Complete This Page**

1. Registrant Name ☑ Organization/Lobbying Firm ☐ Self Employed Individual
Crossroads Strategies, LLC

2. Address
Address1 1156 15th Street, NW Address2 Suite 329
City Washington State DC Zip Code 20005 Country USA

3. Principal place of business (if different than line 2)
City ____ State ____ Zip Code ____ Country ____

4a. Contact Name
Mr. John Green
b. Telephone Number c. E-mail
5. Senate ID#

7. Client Name ☐ *Self* ☐ *Check if client is a state or local government or instrumentality*
Google Inc.
6. House ID#

TYPE OF REPORT 8. Year 2014 Q1 (1/1 - 3/31) ☐ Q2 (4/1 - 6/30) ☐ Q3 (7/1 - 9/30) ☐ Q4 (10/1 - 12/31) ☑

9. Check if this filing amends a previously filed version of this report ☐
10. Check if this is a Termination Report ☐ Termination Date ____ 11. No Lobbying Issue Activity ☐

INCOME OR EXPENSES - YOU MUST complete either Line 12 or Line 13

12. Lobbying

INCOME relating to lobbying activities for this reporting period was:

Less than $5,000 ☐

$5,000 or more ☑ $ 80,000.00

Provide a good faith estimate, rounded to the nearest $10,000, of all lobbying related income from the client (including all payments to the registrant by any other entity for lobbying activities on behalf of the client).

13. Organizations

EXPENSE relating to lobbying activities for this reporting period were:

Less than $5,000 ☐

$5,000 or more ☐ $ ____

14. REPORTING Check box to indicate expense accounting method. See instructions for description of options.

☐ **Method A.** Reporting amounts using LDA definitions only

☐ **Method B.** Reporting amounts under section 6033(b)(8) of the Internal Revenue Code

☐ **Method C.** Reporting amounts under section 162(e) of the Internal Revenue Code

15. General issue area code HOM

16. Specific lobbying issues

Cybersecurity issues related to H.R.624, Cyber Intelligence Sharing and Protection Act, H.R.756, Cybersecurity Enhancement Act of 2013 and S.21, Cybersecurity and American Cyber Competitiveness Act of 2013.

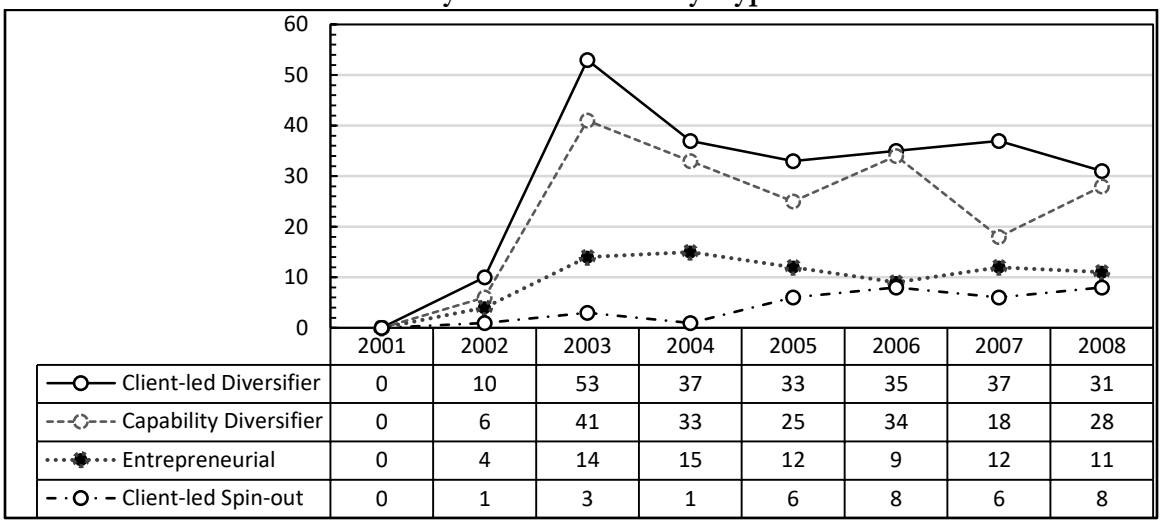
17. House(s) of Congress and Federal agencies ☐ Check if None

U.S. HOUSE OF REPRESENTATIVES, U.S. SENATE

18. Name of each individual who acted as a lobbyist in this issue area

First Name	Last Name	Suffix	Covered Official Position (if applicable)	New
John	Green			☐
Stewart	Hall			☐
Hunter	Moorhead			☐
Matt	Wise			☐
Steve	Tilton			☐
Todd M.	Weiss			☐
Mathew	Lapinski			☐
Anne W.	Brady			☐
Jake	Perry			☐

Figure 2. Number of Homeland Security Issue Entrants by Type



	2001	2002	2003	2004	2005	2006	2007	2008
Client-led Diversifier	0	10	53	37	33	35	37	31
Capability Diversifier	0	6	41	33	25	34	18	28
Entrepreneurial	0	4	14	15	12	9	12	11
Client-led Spin-out	0	1	3	1	6	8	6	8

Figure 1-1. Multidimensional Scaling (MDS) Map of Lobbying Issues

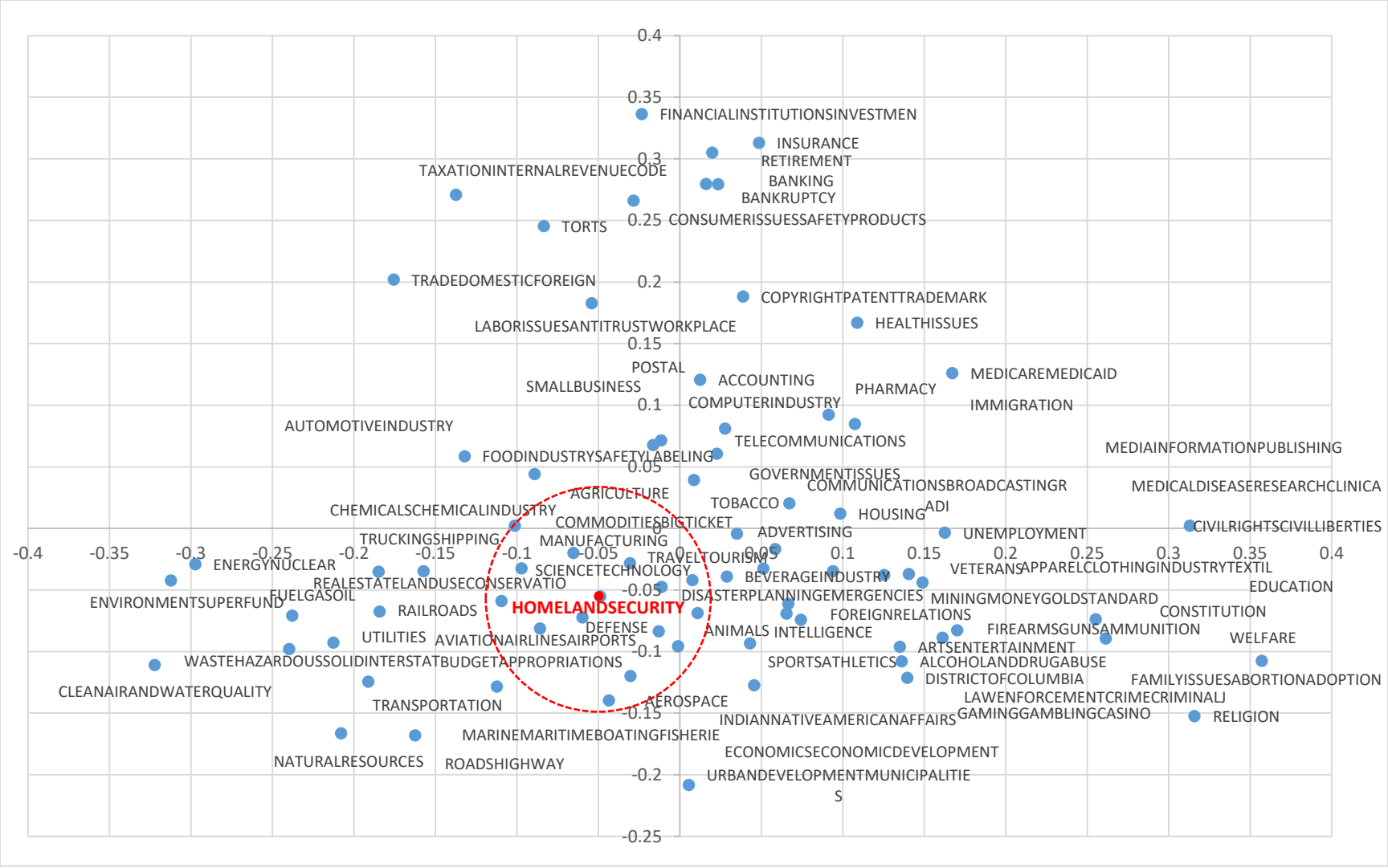


Figure 1-2. Pre- and Post- Diversification Revenue Trend

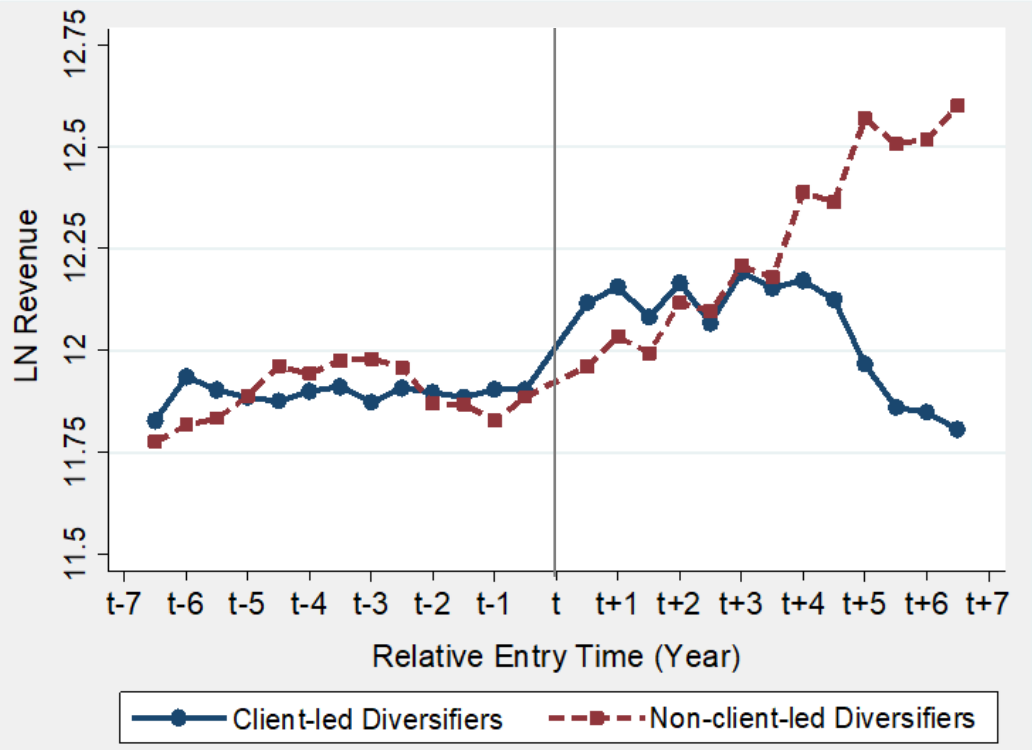


Figure 1-3. Percentage Change in Revenue after Client-led Diversification by Relatedness

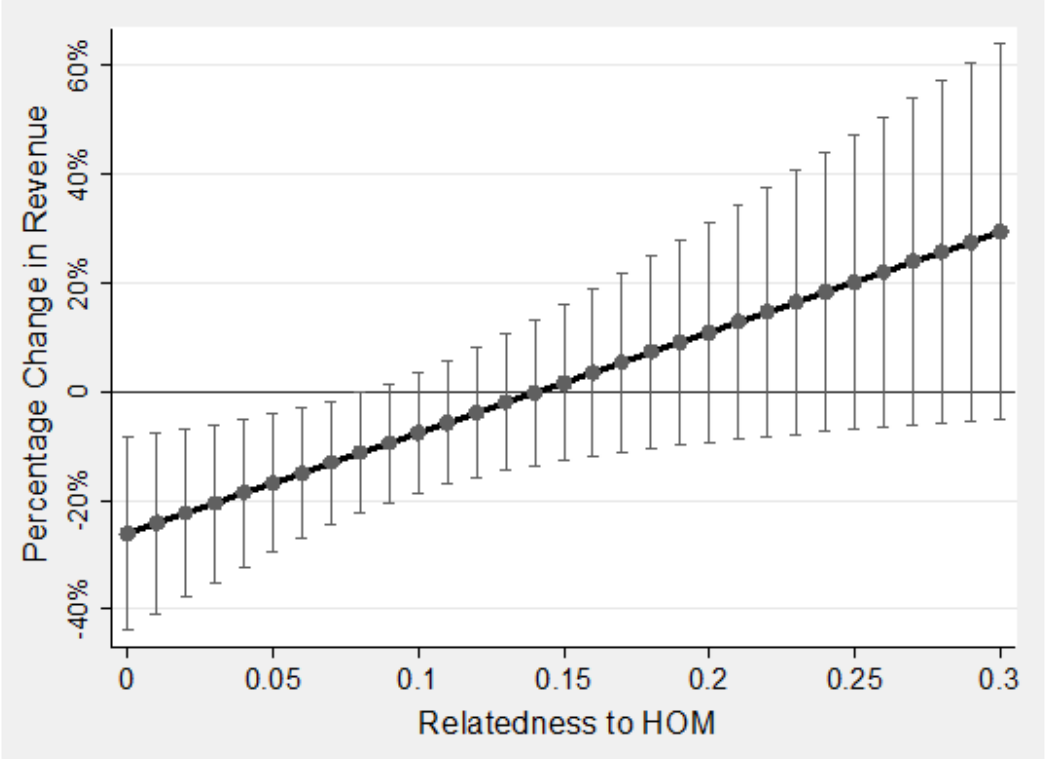
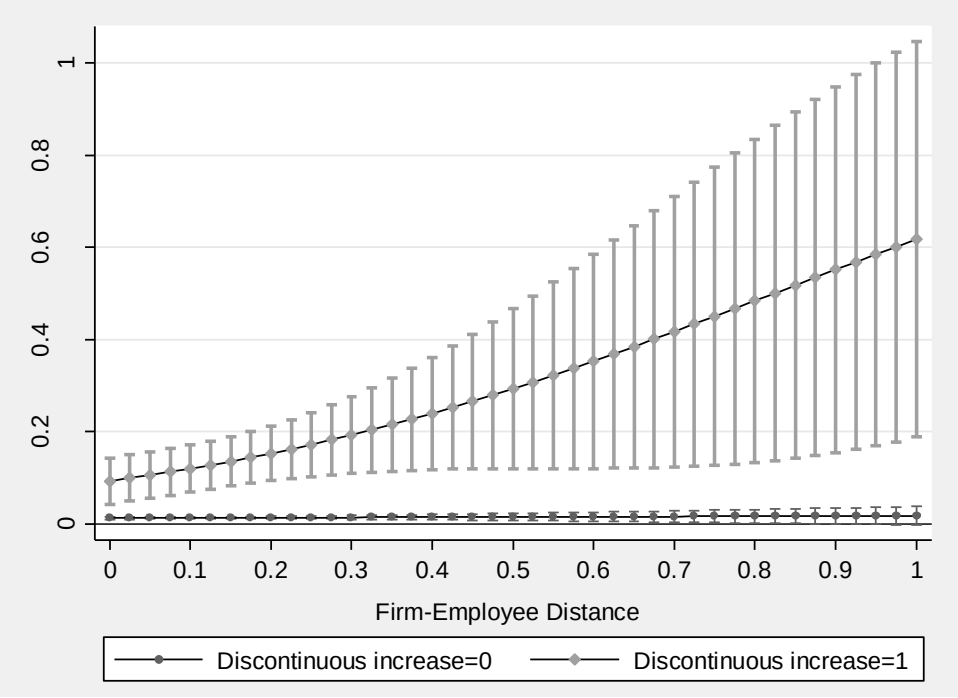
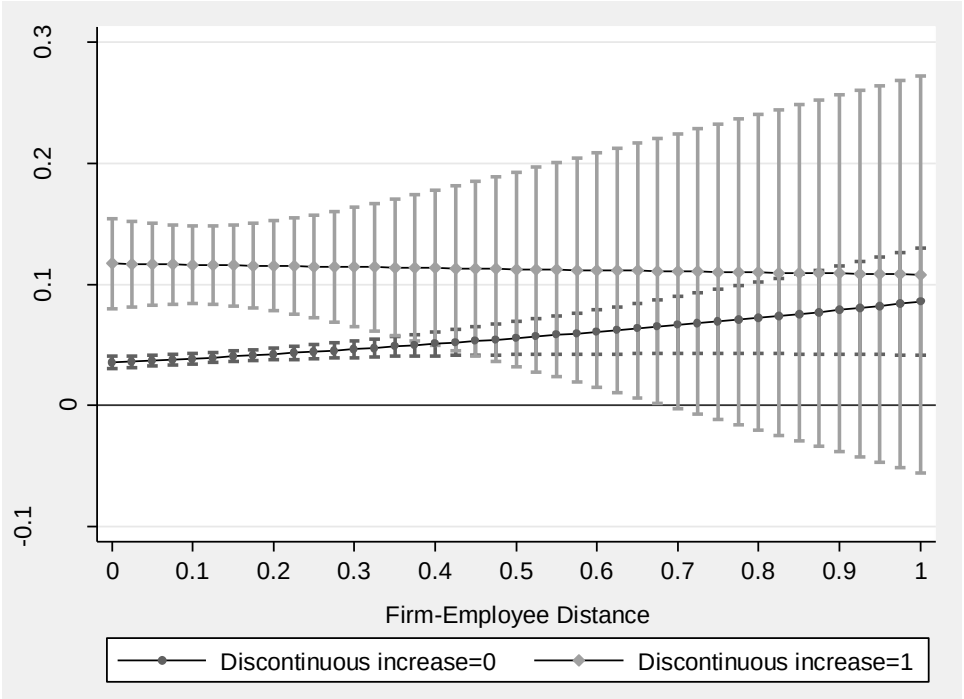


Figure 3-1. Discontinuous Increase X Distance on Likelihood of Spin-out



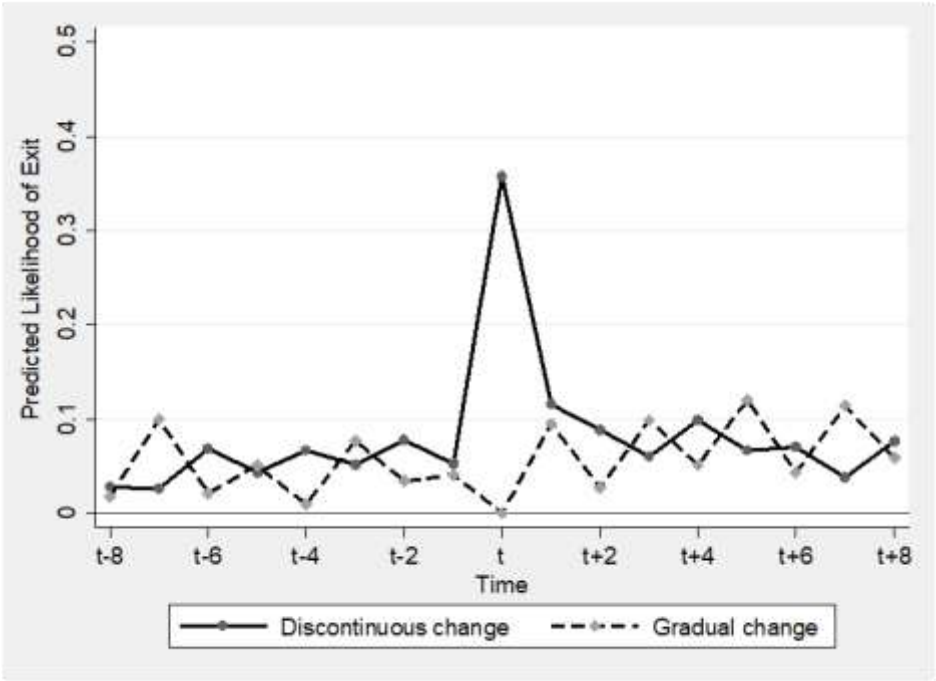
Note. This figure plots the marginal effect of discontinuous increase by firm-employee distance calculated from Model 5 in Table 3-2.

Figure 3-2. Discontinuous Increase X Distance on Likelihood of Mobility to Competitors



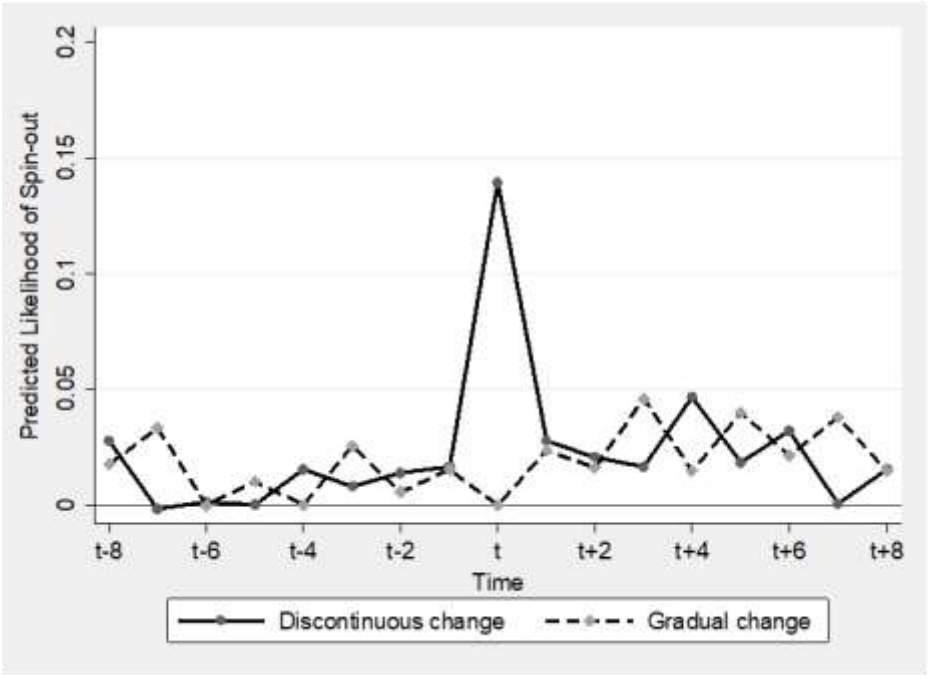
Note. This figure plots the marginal effect of discontinuous increase by firm-employee distance calculated from the same model with Figure 3-1 but with mobility to established firms as a dependent variable.

Figure 3-3. Effects of Change in the Value of Relational Capital on Likelihood of Exit



Note. The figure plots the average predicted probability of employee exit for each time dummy pre- and post-discontinuous increases and gradual increases added to Model 2 in Table 3-2.

Figure 3-4. Effects of Change in the Value of Relational Capital on Likelihood of Spin-out



Note. The figure plots the average predicted probability of employee exit for each time dummy pre- and post-discontinuous increases and gradual increases added to Model 5 in Table 3-2.

Table 1. Type of Entrants and Client Ties

Client Type / Entrant Type	Entry w/ Existing Client	Entry w/ New Client
Diversifying Entrant	**Client-led Diversifier**	**Capability Diversifier**
De novo Entrant	**Client-led Spin-out**	**Entrepreneurial Entrant**

Table 1-1. List of Lobbying Issue Market and Market Size, 2002-2008

Issue Area	Revenue ($)	Issue Area	Revenue ($)
Budget/Appropriations	2,105,652,480	Indian/Native American Affairs	152,354,352
Taxation/Internal Revenue Code	2,065,629,568	Fuel/Gas/Oil	149,052,704
Health Issues	1,529,924,096	Food Industry (Safety, Labeling, etc.)	135,752,272
Trade (Domestic & Foreign)	1,014,742,592	Small Business	127,216,400
Defense	1,003,723,072	Automotive Industry	122,655,880
Medicare/Medicaid	969,045,952	Civil Rights/Civil Liberties	99,089,976
Energy/Nuclear	846,322,432	Economics/Economic Development	99,038,672
Telecommunications	758,494,080	Gaming/Gambling/Casino	98,104,736
Transportation	716,263,232	Chemicals/Chemical Industry	94,183,960
Financial Institutions/Investments/Securities	626,096,384	Postal	93,901,512
Environmental/Superfund	617,623,936	Aerospace	90,954,576
Copyright/Patent/Trademark	545,974,144	Real Estate/Land Use/Conservation	87,492,000
Banking	473,126,496	Disaster Planning/Emergencies	82,028,960
Education	470,359,808	Accounting	77,765,720
Intelligence	453,800,960	Waste (hazardous/solid/interstate/nuclear)	76,220,096
Insurance	418,937,056	Veterans	67,690,304
Government Issues	400,526,048	Manufacturing	66,522,112
Communications/Broadcasting/Radio/TV	372,816,736	Roads/Highway	63,268,824
Aviation/Aircraft/Airlines	363,551,456	Advertising	60,162,624
Agriculture	361,651,552	Urban Development/Municipalities	45,897,756
Retirement	324,903,136	Constitution	41,392,736
Torts	323,175,776	Alcohol & Drug Abuse	41,321,204
Homeland Security	**313,314,272**	Trucking/Shipping	40,356,032
Consumer Issues/Safety/Protection	310,175,616	Beverage Industry	40,219,828
Utilities	280,367,744	Animals	39,788,504
Clean Air & Water (Quality)	275,492,576	Arts/Entertainment	39,208,860
Housing	262,124,704	Firearms/Guns/Ammunition	38,360,704
Foreign Relations	246,331,056	Media (Information/Publishing)	37,861,888
Natural Resources	215,304,896	Travel/Tourism	32,057,050
Science/Technology	215,301,168	Family Issues/Abortion/Adoption	32,050,768
Immigration	214,227,792	Welfare	27,962,344
Law Enforcement/Crime/Criminal Justice	200,119,904	Apparel/Clothing Industry/Textiles	23,548,806
Computer Industry	190,583,376	Commodities (Big Ticket)	22,348,122
Pharmacy	184,096,688	Sports/Athletics	15,882,182
Marine/Maritime/Boating/Fisheries	179,647,216	District of Columbia	13,576,334
Medical/Disease Research/Clinical Labs	175,116,416	Minting/Money/Gold Standard	12,652,058
Bankruptcy	171,034,976	Labor Issues/Antitrust/Workplace	6,990,623
Tobacco	170,170,768	Religion	6,517,653
Railroads	154,136,208	Unemployment	5,910,108

Note. Market size is calculated by an aggregate dollar amount of lobbying reports for each issue. For reports with multiple issues, I divide the amount by the number of co-occurring issues.

Table 1-2. Number of Lobbyists, Firms, and Clients in the Sample, 1999-2008

Type		Industry Total	Homeland Security
Lobbyist		32,812	5,466
Lobbying Firm		3,556	525
	Entrepreneurial Entrant	-	110
	Non-client-led Diversifier	-	183
	Client-led Diversifier	-	230
Client		23,932	1,520

Table 1-3. Market Proximity to Homeland Security, 2002-2008

Issues most related to Homeland Security	# of Reports	# of Co-occurrences	Similarity score to Homeland Security
Defense	19,793	1,749	0.1597
Budget/Appropriations	45,318	2,606	0.1573
Transportation	14,599	1,404	0.1493
Taxation/Internal Revenue Code	22,528	1,565	0.1340
Immigration	3,773	632	0.1322
Law Enforcement/Crime/Criminal Justice	4,055	653	0.1317
Aviation/Aircraft/Airlines	4,199	659	0.1307
Science/Technology	4,512	648	0.1239
Energy/Nuclear	13,363	1,009	0.1121

a. Homeland Security has a total of 6,059 reports between 2002 and 2008.

Table 1-4. Descriptive Statistics and Pearson Correlations for Firm Level Analyses

Variable	Obs	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. LN Revenue	18,390	11.78	1.46	1														
2. Client-led Diversifier	18,390	0.05	0.22	0.23	1													
3. Non-client-led Diversifier	18,390	0.05	0.21	0.18	-0.05	1												
4. Client's Proximity to HOM	18,390	0.19	0.30	0.38	0.62	-0.02	1											
5. Political Connections	18,390	0.13	0.34	0.37	0.16	0.07	0.22	1										
6. Lobbyists Acquired	18,390	0.08	0.40	0.25	0.07	0.08	0.08	0.27	1									
7. Entropy	18,390	0.91	0.81	0.63	0.26	0.18	0.41	0.29	0.21	1								
8. Firm Size	18,390	3.63	7.03	0.57	0.26	0.11	0.42	0.34	0.36	0.45	1							
9. Firm Age	18,390	9.71	5.70	0.25	0.22	0.11	0.37	0.10	0.02	0.19	0.20	1						
10. Cumulative Client Ties	18,390	17.76	39.48	0.63	0.33	0.15	0.50	0.35	0.30	0.47	0.84	0.30	1					
11. Relatedness to HOM	18,390	0.09	0.04	0.04	-0.02	-0.04	0.06	0.03	-0.01	-0.06	0.03	0.04	0.05	1				
12. Competitive Overlap	18,390	403.7	232.2	0.09	0.05	0.03	0.05	0.03	0.03	0.00	0.05	0.11	0.10	0.69	1			
13. Strategic Coherence	17,559	0.05	0.05	0.44	0.14	0.10	0.29	0.16	0.09	0.74	0.24	0.11	0.25	0.01	0.12	1		
14. Deals in Core Market	3,329	5.71	9.57	0.50	-0.05	0.01	0.08	0.22	0.22	0.10	0.40	0.11	0.58	0.26	0.26	-0.02	1	
15. # of Client Ties	18,390	7.78	15.89	0.68	0.28	0.14	0.47	0.38	0.34	0.49	0.82	0.20	0.91	0.07	0.10	-0.35	0.74	1
16. Client Entropy	18,387	1.12	1.12	0.89	0.24	0.20	0.40	0.38	0.26	0.65	0.58	0.26	0.66	0.09	0.12	-0.57	0.60	0.74

Table 1-5. Descriptive Statistics and Pearson Correlations for Dyadic Analyses

Variable	Obs	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. LN Size of Contract	174,592	10.6	0.76	1																	
2. Tie Dissolution	162,037	0.17	0.37	-0.13	1																
3. Firm-Client Similarity	158,947	0.53	0.34	-0.10	-0.07	1															
4. # of Hires for Client	174,592	0.22	0.70	0.10	-0.06	-0.07	1														
5. Team Size	174,592	3.18	3.08	0.29	-0.02	-0.06	0.31	1													
6. Avg Tenure of Lobbyists in a Team	174,592	8.59	4.62	-0.01	-0.02	0.04	-0.25	-0.10	1												
7. # of Revolvers for Client	174,592	1.83	2.19	0.29	-0.03	-0.07	0.24	0.87	-0.05	1											
8. Client-led Diversification Dyad	174,592	0.01	0.10	0.03	-0.01	0.00	-0.01	-0.01	0.05	-0.01	1										
9. Other Dyads of Client-led Diversifier	174,592	0.05	0.21	0.08	-0.05	-0.03	-0.02	0.04	0.17	0.04	-0.01	1									
10. Tie Duration	174,592	6.00	4.80	0.11	-0.11	0.16	-0.12	0.01	0.52	0.01	0.09	0.36	1								
11. Client # of Suppliers	174,592	3.24	5.03	0.19	-0.03	-0.04	0.00	0.05	0.00	0.08	0.02	0.04	0.07	1							
12. Entropy - Client	174,592	0.68	0.77	0.20	-0.07	-0.03	0.02	0.15	0.00	0.15	0.06	0.06	0.11	0.51	1						
13. Political Connections	174,592	0.34	0.47	0.16	-0.02	-0.16	0.06	0.19	0.11	0.22	0.00	0.15	0.05	0.02	0.02	1					
14. Lobbyists Acquired	174,592	0.29	0.91	0.11	0.01	-0.12	0.19	0.11	-0.03	0.12	-0.01	0.05	-0.04	0.00	0.00	0.32	1				
15. Entropy	174,592	1.71	0.93	0.22	-0.02	-0.57	0.07	0.27	0.02	0.28	0.00	0.16	-0.03	0.03	0.17	0.36	0.23	1			
16. Firm Size	174,592	15.5	21.6	0.18	0.01	-0.23	0.02	0.23	0.05	0.22	-0.03	0.18	0.00	-0.05	0.01	0.40	0.33	0.54	1		
17. Firm Age	174,592	10.8	5.69	0.07	-0.01	-0.09	-0.04	0.06	0.71	0.08	0.04	0.16	0.40	-0.01	0.00	0.28	0.12	0.21	0.2	1	
18. # of Client Ties	174,592	38.1	46.3	0.17	-0.02	-0.16	0.03	0.23	0.13	0.25	-0.03	0.22	0.04	-0.05	0.00	0.48	0.32	0.50	0.83	0.30	1
19. Competitive Overlap	174,592	427.3	193.5	-0.02	-0.06	0.19	-0.02	0.03	0.19	0.06	0.01	0.06	0.12	-0.05	-0.04	0.12	0.07	-0.10	0.07	0.28	0.18

Table 1-6. Regression Result of Firm Performance[a]

DV: LN Revenue	Model 1	Model 2	Model 3	Model 4	Model 5
Political Connections	0.1119***	0.1142***	0.1147***	0.1183***	0.1171***
	(0.0243)	(0.0243)	(0.0241)	(0.0240)	(0.0239)
Lobbyists Acquired	0.0095	0.0096	0.0091	0.0170	0.0167
	(0.0139)	(0.0138)	(0.0139)	(0.0144)	(0.0144)
Entropy	0.4853***	0.4873***	0.4818***	0.4840***	0.4842***
	(0.0272)	(0.0272)	(0.0269)	(0.0268)	(0.0267)
Firm Size	0.0274***	0.0273***	0.0274***	0.0309***	0.0309***
	(0.0040)	(0.0039)	(0.0039)	(0.0039)	(0.0039)
Firm Age	0.0274**	0.0272**	0.0276**	0.0276**	0.0273**
	(0.0094)	(0.0094)	(0.0094)	(0.0095)	(0.0095)
Cumulative Client Ties	0.0047***	0.0049***	0.0046***	0.0020**	0.0019*
	(0.0012)	(0.0012)	(0.0012)	(0.0008)	(0.0008)
Relatedness to HOM	0.1042	0.0133	0.1022	-0.0910	-0.3578
	(0.3414)	(0.3434)	(0.3426)	(0.3609)	(0.3512)
Competitive Overlap	0.0000	0.0000	0.0000	0.0001	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Non-client-led Diversifier			0.1619*	0.1891**	-0.0500
			(0.0683)	(0.0679)	(0.1200)
Client-led Diversifier		-0.1363*	-0.1205*	-0.2393**	-0.2598**
		(0.0568)	(0.0566)	(0.0914)	(0.0912)
Client-led Diversifier × Relatedness				1.6383*	1.8467*
				(0.7982)	(0.7957)
Non-client-led Diversifier × Relatedness					2.7960**
					(1.0040)
Constant	10.6188***	10.6273***	10.6152***	10.6603***	10.6818***
	(0.1527)	(0.1525)	(0.1529)	(0.1531)	(0.1528)
Year Fixed-effects	Y	Y	Y	Y	Y
Firm Fixed-effects	Y	Y	Y	Y	Y
N	18390	18390	18390	18390	18390
R squared	0.1362	0.1370	0.1383	0.1331	0.1344

a. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10. Standard errors clustered by firms.

Table 1-7. 2SLS Regression Result of Firm Performance[a]

DVs	Model 1		Model 2	
	First-Stage	Second-Stage	First-Stage	Second-Stage
	Client-led Diversification	LN Revenue	Client-led Diversification	LN Revenue
Political Connections	0.0132	0.1163***	0.0136	0.1168***
	(0.0120)	(0.0244)	(0.0120)	(0.0242)
Lobbyists Acquired	0.0037	0.0096	0.0045	0.0092
	(0.0061)	(0.0138)	(0.0061)	(0.0139)
Entropy	-0.0013	0.4893***	0.0017	0.4841***
	(0.0056)	(0.0272)	(0.0057)	(0.0269)
Firm Size	-0.0012	0.0273***	-0.0013	0.0274***
	(0.0013)	(0.0039)	(0.0013)	(0.0039)
Firm Age	-0.0034***	0.0270**	-0.0032***	0.0273**
	(0.0006)	(0.0094)	(0.0006)	(0.0094)
Cumulative Client Ties	0.0002	0.0051***	0.0002	0.0049***
	(0.0003)	(0.0012)	(0.0003)	(0.0012)
Relatedness to HOM	-0.4460***	-0.0729	-0.4687***	0.0105
	(0.1057)	(0.3443)	(0.1056)	(0.3432)
Competitive Overlap	0.0000*	0.0001	0.0000*	0.0000
	(0.0000)	(0.0001)	(0.0000)	(0.0001)
Non-client-led Diversifier			-0.0658***	0.1505*
			(0.0109)	(0.0686)
Client-led Diversifier		-0.2655**		-0.2497*
		(0.1025)		(0.1025)
Client's Proximity to HOM	0.4956***		0.4878***	
	(0.0265)		(0.0262)	
Constant	0.0513***	10.6353***	0.0514***	10.6240***
	(0.0088)	(0.1078)	(0.0088)	(0.1078)
Year Fixed-effects	Y	Y	Y	Y
Firm Fixed-effects	Y	Y	Y	Y
N	18390	18390	18390	18390
F statistic	18.86	-	18.26	-
R squared	0.4156	0.1363	0.4192	0.1375

a. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10. Standard errors clustered by firms.

Table 1-8. Test of Mechanisms[a]

Specification	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	OLS		Negative Binomial		Negative Binomial		OLS	
DVs	Strategic Coherence	Strategic Coherence	# of Deals in Core Market	# of Deals in Core Market	# of Client Ties	# of Client Ties	Client Entropy	Client Entropy
Political Connections	-0.0016	-0.0016	0.0575*	0.0559*	0.0715***	0.0709***	0.0890***	0.0888***
	(0.0010)	(0.0010)	(0.0265)	(0.0263)	(0.0098)	(0.0098)	(0.0188)	(0.0188)
Lobbyists Acquired	-0.0011*	-0.0011*	0.0427**	0.0426**	0.0098**	0.0102**	0.0108	0.0108
	(0.0004)	(0.0004)	(0.0160)	(0.0159)	(0.0038)	(0.0038)	(0.0111)	(0.0111)
Entropy	0.0439***	0.0439***	0.1510***	0.1517***	0.3462***	0.3463***	0.4040***	0.4042***
	(0.0012)	(0.0012)	(0.0316)	(0.0315)	(0.0106)	(0.0106)	(0.0209)	(0.0209)
Firm Size	-0.0005***	-0.0005***	0.0154***	0.0150***	0.0119***	0.0119***	0.0222***	0.0222***
	(0.0001)	(0.0001)	(0.0029)	(0.0029)	(0.0008)	(0.0008)	(0.0030)	(0.0030)
Firm Age	-0.0005+	-0.0005	0.0917***	0.0949***	0.0020	0.0025	0.0113*	0.0113*
	(0.0003)	(0.0003)	(0.0177)	(0.0178)	(0.0073)	(0.0073)	(0.0049)	(0.0049)
Cumulative Client Ties	-0.0001*	-0.0001*	0.0022***	0.0022***	0.0008***	0.0007***	0.0047***	0.0047***
	(0.0000)	(0.0000)	(0.0006)	(0.0006)	(0.0001)	(0.0001)	(0.0010)	(0.0010)
Relatedness to HOM	-0.0473***	-0.5551***	0.3501	0.4301	-0.5413*	-0.7113**	-0.1117	-0.1908
	(0.0137)	(0.0143)	(0.6774)	(0.7184)	(0.2431)	(0.2499)	(0.2145)	(0.2275)
Competitive Overlap	0.0000***	0.0000***	0.0005***	0.0006***	0.0002***	0.0002***	0.0001	0.0001
	(0.0000)	(0.0000)	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Non-client-led Diversifier	-0.0024	-0.0024	0.0106	0.0076	0.1007***	0.1005***	0.1563**	0.1559**
	(0.0024)	(0.0024)	(0.0415)	(0.0413)	(0.0188)	(0.0188)	(0.0525)	(0.0525)
Client-led Diversifier	-0.0070**	-0.0133***	-0.2131***	-0.5550***	-0.0753***	-0.1943***	-0.0955*	-0.1612**
	(0.0023)	(0.0039)	(0.0452)	(0.1128)	(0.0174)	(0.0437)	(0.0438)	(0.0569)
Client-led Diversifier × Relatedness		0.0705*		3.5089***		1.2228**		0.7409
		(0.0317)		(1.0556)		(0.4107)		(0.5080)
Constant	0.0156***	0.0159***	0.5845+	0.6145+	3.6998***	3.7063***	0.3921***	0.3952***
	(0.0046)	(0.0046)	(0.3163)	(0.3167)	(0.1454)	(0.1456)	(0.0817)	(0.0818)
Year Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y
Firm Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y
N	17559	17559	3285	3285	17943	17943	18387	18387
Log Likelihood	-	-	-5574.2406	-5568.7049	-28231.4462	-28227.0454	-	-
R squared	0.3453	0.3457	-	-	-	-	0.2129	0.2130

a. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10. Standard errors clustered by firms.

Table 1-9. Firm-Client Dyadic Analysis[a]

Specifications	Model 1 OLS	Model 2 Cox	Model 3 OLS	Model 4 Neg. Binomial	Model 5 Neg. Binomial	Model 6 OLS	Model 7 Neg. Binomial
DVs	**LN Size of Contract**	**Tie Dissolution**	**Firm-Client Similarity**	**# of Hires for Client**	**Team Size**	**Avg Tenure of Lobbyists in a Team**	**# of Revolvers for Client**
Political Connections	0.0067	-0.1501***	0.0003	0.0461+	-0.0030	-0.1945**	-0.0007
	(0.0081)	(0.0158)	(0.0031)	(0.0238)	(0.0051)	(0.0750)	(0.0066)
Lobbyists Acquired	-0.0026	-0.0988***	-0.0004	0.2630***	0.0080***	-0.1068**	0.0078***
	(0.0037)	(0.0074)	(0.0008)	(0.0074)	(0.0018)	(0.0329)	(0.0022)
Entropy	0.0436***	-0.0469***	-0.0718***	-0.1231***	0.1086***	-0.0917	0.1348***
	(0.0099)	(0.0082)	(0.0058)	(0.0264)	(0.0064)	(0.0715)	(0.0087)
Firm Size	0.0004	0.0137***	0.0004**	-0.0217***	0.0019***	-0.0099*	0.0029***
	(0.0006)	(0.0005)	(0.0002)	(0.0013)	(0.0003)	(0.0046)	(0.0004)
Firm Age	0.0039	-	0.0227***	-0.0202*	-0.0027	0.0407+	-0.0017
	(0.0044)		(0.0034)	(0.0096)	(0.0062)	(0.0243)	(0.0097)
# of Client Ties	0.0018***	-0.0024***	0.0001	0.0036***	0.0014***	-0.0071+	0.0013***
	(0.0004)	(0.0003)	(0.0001)	(0.0007)	(0.0002)	(0.0043)	(0.0002)
Competitive Overlap	0.0000	-0.0016***	0.0000***	0.0002*	-0.0000	-0.0006**	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0002)	(0.0000)
Tie Duration	-0.0007	-	-0.0194***	-0.0264***	-0.0651	0.7553***	-0.0089
	(0.0045)		(0.0034)	(0.0077)	(0.0618)	(0.0265)	(0.0789)
Client # of Suppliers	0.0082***	-0.0039*	-0.0016**	-0.0090+	-0.0020	-0.0133	-0.0015
	(0.0020)	(0.0016)	(0.0006)	(0.0050)	(0.0012)	(0.0092)	(0.0016)
Entropy - Client	0.0317***	-0.0782***	0.0414***	0.1862***	0.1987***	-0.0864***	0.1879***
	(0.0039)	(0.0099)	(0.0049)	(0.0203)	(0.0040)	(0.0232)	(0.0052)
Client-led Diversification Dyad	0.0460+	0.1105	-0.0653***	0.2852*	-0.0288	0.0391	-0.0362
	(0.0257)	(0.0791)	(0.0149)	(0.1421)	(0.0245)	(0.1693)	(0.0336)
Other Dyads of Client-led Diversifier	-0.0312+	0.1149**	-0.0093	0.0776	-0.1575***	-0.2982+	-0.1478***
	(0.0181)	(0.0403)	(0.0081)	(0.0521)	(0.0102)	(0.1705)	(0.0132)
Constant	10.3644***	-	0.4733***	-0.0712	9.5323***	4.4384***	9.1543***
	(0.0313)		(0.0191)	(0.1880)	(0.8756)	(0.1962)	(1.1518)
Year Fixed-effects	Y	N	Y	Y	Y	Y	Y
Dyad Fixed-effects	Y	N	Y	Y	Y	Y	Y
N	174592	174592	158947	91196	164567	174592	133874
Log Likelihood	-	-272808	-	-31538	-194032	-	-137640
R squared	0.0150	-	0.0520	-	-	0.7647	-

a. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10. Standard errors clustered by firms.

Table 1-10. Supplementary Analysis[a]

DV: LN Revenue	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Political Connections	0.1142***	0.1161***	0.1061***	0.1137***	0.1148***	0.1147***
	(0.0240)	(0.0240)	(0.0239)	(0.0237)	(0.0240)	(0.0241)
Lobbyists Acquired	0.0076	0.0106	0.0157	0.0089	0.0091	0.0095
	(0.0136)	(0.0143)	(0.0144)	(0.0139)	(0.0139)	(0.0139)
Entropy	0.4832***	0.4754***	0.4596***	0.4750***	0.4819***	0.4819***
	(0.0267)	(0.0271)	(0.0265)	(0.0255)	(0.0270)	(0.0269)
Firm Size	0.0271***	0.0270***	0.0264***	0.0267***	0.0274***	0.0273***
	(0.0039)	(0.0040)	(0.0038)	(0.0039)	(0.0039)	(0.0039)
Firm Age	-	0.0279**	0.0180+	0.0278**	0.0276**	0.0276**
		(0.0094)	(0.0094)	(0.0094)	(0.0094)	(0.0094)
Cumulative Client Ties	0.0049***	0.0047***	0.0045***	0.0046***	0.0046***	0.0047***
	(0.0011)	(0.0010)	(0.0011)	(0.0012)	(0.0012)	(0.0012)
Relatedness to HOM	0.0516	0.1219	-0.0248	0.1258	0.1003	0.0885
	(0.3427)	(0.3417)	(0.3265)	(0.3424)	(0.3421)	(0.3427)
Competitive Overlap	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Non-client-led Diversifier	0.1351*	0.1199+	0.1823**	0.1633*	0.1620*	0.1610*
	(0.0672)	(0.0665)	(0.0643)	(0.0686)	(0.0684)	(0.0683)
Client-led Diversifier	-0.0516	-0.0772	0.2005	0.0920	-	-
	(0.0578)	(0.0623)	(0.1295)	(0.1188)		
Time Since Entry	-0.0085					
	(0.0089)					
Client-led × Time Since Entry	-0.0199*					
	(0.0100)					
HOM Revenue		7.6×10^{6}**				
		(2.8×10^{7})				
Client-led × HOM Revenue		-1.1×10^{6}**				
		(4.0×10^{7})				
Tie Duration			0.0447***			
			(0.0044)			
Client-led × Tie Duration			-0.0218**			
			(0.0076)			
# of Competitors				-0.0087+		
				(0.0045)		
Client-led × Competitors				-0.0622*		
				(0.0312)		
Client-led Diversifier - Early					-0.0807	
					(0.0962)	
Client-led Diversifier - Late					-0.1417*	
					(0.0686)	
Client-led Diversifier - Large Wave						-0.1652**
						(0.0637)
Client-led Diversifier - Small Wave						-0.0024
						(0.1121)
Constant	11.1696***	10.6143***	10.6603***	10.6520***	10.6145***	10.6146***
	(0.1313)	(0.1526)	(0.1531)	(0.1538)	(0.1530)	(0.1528)
Year Fixed-effects	Y	Y	Y	Y	Y	Y
Firm Fixed-effects	Y	Y	Y	Y	Y	Y
N	18390	18390	18390	18390	18390	18390
R squared	0.1383	0.1403	0.1627	0.1428	0.1383	0.1385

a. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10. Standard errors clustered by firms.

Table 2-1. Types of Homeland Security Entrants and Revenue, 2001-2008

Type		Industry Total	Homeland Security	Total Revenue	HOM Revenue[a]
Lobbyist		25,393	5,466	-	-
Lobbying Firm		2,965	525	-	-
	Non-client-led Entrepreneur	-	77	176,686	38,679
	Client-led Spin-out	-	33	1,130,641	117,007
	Non-client-led Diversifier	-	183	1,732,538	94,904
	Client-led Diversifier	-	230	948,262	68,558
In-House Lobbying Client		2,684	470	-	-
Client		20,121	1,520	-	-

a. Average semi-annual lobbying revenue after Homeland Security market entry (in USD).

Table 2-2. Descriptive Statistics and Pearson Correlations: Firm-level Analysis[a]

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. LN Revenue in HOM	6.33	5.62	1													
2. Client-led Entrant	0.28	0.45	0.011	1												
3. *De novo* Entrant	0.16	0.37	-0.066	-0.202	1											
4. # of Client's Suppliers at Entry	5.04	7.84	0.179	0.167	-0.182	1										
5. # of Firm's Buyers at Entry	8.21	11.87	0.188	0.045	-0.178	0.325	1									
6. Years of Client's Market Experience	1.71	1.7	0.054	-0.089	-0.022	0.155	0.067	1								
7. Mode of Entry - Acquisition	0	0.06	0.054	-0.036	-0.025	-0.002	-0.002	0.03	1							
8. Political Connections	0.57	0.49	0.157	-0.025	-0.131	0.188	0.291	0.092	0.049	1						
9. Firm Market Proximity	35.19	70.19	0.246	-0.037	-0.181	0.355	0.607	-0.012	-0.011	0.303	1					
10. Level of Specialization (HHI)	0.24	0.21	-0.081	-0.101	0.158	-0.207	-0.2	0.022	-0.037	-0.186	-0.229	1				
11. Entropy	1.48	0.86	0.273	0.074	-0.219	0.32	0.365	0.065	0.046	0.337	0.408	-0.697	1			
12. Firm Size	8.02	12.93	0.282	-0.047	-0.138	0.461	0.388	0.014	0.05	0.346	0.696	-0.287	0.48	1		
13. Hiring Size	0.06	3.03	0.076	-0.013	-0.006	-0.01	0.024	-0.015	0.063	0.042	-0.026	0.016	-0.043	0.119	1	
14. Firm Tenure	13.15	5.94	-0.036	0.225	-0.572	0.187	0.206	-0.019	0.05	0.229	0.33	-0.232	0.264	0.21	-0.059	1
15. # of Client Ties	51.87	79.71	0.258	-0.063	-0.207	0.47	0.554	0.011	0.001	0.379	0.887	-0.288	0.489	0.853	-0.031	0.349

a. n=3,054.

Table 2-3. Descriptive Statistics and Pearson Correlations: Lobbyist-level Analysis[a]

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. LN Revenue in HOM	9.47	4.42	1													
2. Client-led Entrant	0.05	0.21	0.024	1												
3. Entrepreneur	0.07	0.26	-0.055	0.002	1											
4. # of Client's Suppliers at Entry	2.17	5.12	-0.007	0.111	-0.082	1										
5. # of Client's Lobbyist at Entry	2.9	5.35	0.043	0.173	-0.077	0.386	1									
6. # of Lobbyist's Buyers at Entry	7.05	14.02	0.038	0.22	-0.083	0.317	0.642	1								
7. Years of Client's Market Experience	1	1.87	0.022	0.098	-0.1	0.511	0.42	0.343	1							
8. Political Connections	0.53	0.5	0.081	0.002	-0.129	0.02	0.137	0.138	0.006	1						
9. Lobbyist Market Proximity	26.1	44.04	0.097	0.163	-0.081	0.12	0.347	0.66	0.119	0.168	1					
10. Firm Size	22.72	26.83	0.072	-0.07	-0.104	-0.036	0.114	0.038	-0.022	0.421	0.119	1				
11. Level of Specialization (HHI)	0.19	0.18	-0.014	-0.016	0.063	-0.063	-0.156	-0.144	-0.054	-0.09	-0.186	-0.117	1			
12. # of Years in Lobbying	11.81	5.96	0.023	0.114	-0.095	0.178	0.215	0.222	0.198	0.012	0.327	0.034	-0.224	1		
13. Tenure in Firm	8.33	5.77	0.047	0.102	-0.174	0.171	0.227	0.25	0.183	0.028	0.327	0.07	-0.138	0.719	1	
14. # of Client Ties	13.39	15.61	0.092	0.126	-0.101	0.124	0.316	0.631	0.098	0.183	0.684	0.049	-0.157	0.122	0.131	1
15. Competitive Overlap	1922.47	751.13	0.042	0.035	-0.075	-0.023	0.028	0.08	0.075	0.062	0.167	0.068	0.083	0.102	0.114	0.145

a. *n*= 19,639.

Table 2-4. Analysis of Firm Performance: Revenue in Homeland Security[a]

DV: LN Revenue in HOM	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Mode of Entry - Acquisition	3.8269*	4.0176*	4.1500*	4.0193*	3.9085*	3.8099+	3.9868*	3.9147*
	(1.8033)	(1.8252)	(1.7040)	(1.7612)	(1.9560)	(1.9805)	(1.8201)	(1.8455)
Political Connections	0.4171	0.4286	0.4086	0.4216	0.4070	0.4590	0.4286	0.4497
	(0.3135)	(0.3132)	(0.3119)	(0.3133)	(0.3137)	(0.3124)	(0.3129)	(0.3132)
Level of Specialization (HHI)	3.4793***	3.5129***	3.4319***	3.4074***	3.4481***	3.4127***	3.5459***	3.5575***
	(0.7811)	(0.7801)	(0.7783)	(0.7862)	(0.7833)	(0.7727)	(0.7809)	(0.7907)
Entropy	0.9943***	0.9873***	0.9683***	0.9817***	0.9735***	0.9231***	0.9800***	0.9635***
	(0.1884)	(0.1890)	(0.1880)	(0.1887)	(0.1894)	(0.1895)	(0.1894)	(0.1892)
Firm Size	0.0406+	0.0405+	0.0365	0.0432+	0.0389	0.0392	0.0407+	0.0370
	(0.0245)	(0.0243)	(0.0242)	(0.0237)	(0.0243)	(0.0251)	(0.0244)	(0.0241)
Hiring Size	0.0674**	0.0680**	0.0730**	0.0673**	0.0702**	0.0667**	0.0673**	0.0691**
	(0.0248)	(0.0247)	(0.0243)	(0.0247)	(0.0249)	(0.0250)	(0.0248)	(0.0247)
Firm Age	-0.1661***	-0.1797***	-0.1801***	-0.1790***	-0.1731***	-0.1955***	-0.1788***	-0.1599***
	(0.0346)	(0.0364)	(0.0363)	(0.0363)	(0.0365)	(0.0360)	(0.0364)	(0.0340)
# of Client Ties	0.0054	0.0060	0.0075+	0.0060	0.0063	0.0062	0.0057	0.0060
	(0.0043)	(0.0043)	(0.0042)	(0.0043)	(0.0044)	(0.0043)	(0.0043)	(0.0043)
Pre-entry Capabilities	0.0044***	0.0043***	0.0030*	0.0043***	0.0042***	0.0043***	0.0043***	0.0043***
	(0.0012)	(0.0012)	(0.0013)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)
***De novo* Entrant (0/1)**	-1.2799*	-1.2873*	-1.3606**	-1.3478*	-1.2156*	-1.2787*	-1.4750**	
	(0.5273)	(0.5238)	(0.5272)	(0.5290)	(0.5302)	(0.5252)	(0.5358)	
Client-led Entrant (0/1)		0.4936	-0.1254	0.0743	0.1094	-1.6088+	0.3440	
		(0.4227)	(0.4520)	(0.5167)	(0.5468)	(0.8848)	(0.4348)	
Client-led X Pre-entry Capabilities			0.0055***					
			(0.0016)					
# of Client's Suppliers at Entry				-0.0234				
				(0.0269)				
Client-led X Client's Suppliers				0.0676+				
				(0.0401)				
Years of Client's Market Experience					0.0590			
					(0.0854)			
Client-led X Client's Experience					0.2340			
					(0.1688)			
Tie Duration at Entry						0.0929		
						(0.0642)		
Client-led X Tie Duration						0.1771+		
						(0.1001)		
Client-led X *De novo* (Spin-out)							2.8708***	
							(0.8528)	
Client-led Spin-out (1 1)								1.8924**
								(0.6697)
Client-led Diversifier (1 0)								0.2218
								(0.3683)
Non-client-led Entrepreneur (0 1)								-1.4504**
								(0.5598)
Constant	4.3687***	4.4487***	4.6012***	4.5681***	4.2723***	4.4526***	4.4941***	4.1428***
	(0.7789)	(0.7828)	(0.7824)	(0.7931)	(0.8157)	(0.7794)	(0.7829)	(0.7532)
Year Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y
N	3054	3054	3054	3054	3054	3054	3054	3054
R squared	0.1243	0.1247	0.1276	0.1247	0.1247	0.1259	0.1247	0.1249

a. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10. Standard errors clustered by firms. In Model 8, the omitted group is Non-client-led diversifier (0 0).

Table 2-5. Analysis of Lobbyist Performance: Revenue in Homeland Security[a]

DV: LN Revenue in HOM	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Political Connections	0.7548***	0.7551***	0.7567***	0.6641***	0.6632***	0.7444***	0.7787***
	(0.0991)	(0.0991)	(0.0992)	(0.1001)	(0.0999)	(0.0989)	(0.0986)
Pre-entry Capabilities	0.2142*	0.2158*	0.2089+	0.1685	0.1900+	0.1726	0.1552
	(0.1084)	(0.1090)	(0.1100)	(0.1149)	(0.1097)	(0.1141)	(0.1094)
Firm Size	0.0102***	0.0101***	0.0101***	0.0068**	0.0068**	0.0102***	0.0100***
	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0022)	(0.0022)
Level of Specialization (HHI)	-0.4733+	-0.4741+	-0.4691+	-0.3166	-0.3383	-0.5146*	-0.4538+
	(0.2514)	(0.2514)	(0.2518)	(0.2513)	(0.2516)	(0.2510)	(0.2526)
# of Years in Lobbying	-0.0168*	-0.0166*	-0.0165*	-0.0287***	-0.0285***	-0.0215**	-0.0382***
	(0.0072)	(0.0071)	(0.0071)	(0.0074)	(0.0074)	(0.0072)	(0.0091)
Tenure in Firm	-0.0005	-0.0005	-0.0004	-0.0001	-0.0004	-0.0003	0.0012
	(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0024)
# of Client Ties	-0.0001+	-0.0001+	-0.0001+	-0.0001	-0.0001	-0.0001+	-0.0001*
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Competitive Overlap	-2.4286***	-2.4239***	-2.4246***	-2.1724***	-2.1698***	-2.3759***	-2.3243***
	(0.1134)	(0.1138)	(0.1138)	(0.1208)	(0.1206)	(0.1143)	(0.1145)
Entrepreneur	-0.6754**	-0.6789**	-0.6946**	-0.6893**	-0.6916**	-0.6062*	-0.6222*
	(0.2585)	(0.2584)	(0.2616)	(0.2561)	(0.2560)	(0.2577)	(0.2585)
Client-led Entrant		-0.1169	-0.1404	-0.4247	-0.8430	-0.5800	-0.9918
		(0.3708)	(0.3775)	(0.4511)	(0.6002)	(0.4959)	(0.6835)
Client-led X Entrepreneur (Spin-out)			1.0263*				
			(0.4760)				
Client-led X Pre-entry Capabilities				0.3552+			
				(0.2113)			
# of Client's Lobbyist at Entry					0.0358***		
					(0.0052)		
Client-led X Client's Lobbyist					0.1590*		
					(0.0780)		
Years of Client's Market Experience						0.1210***	
						(0.0183)	
Client-led X Client's Experience						0.2295+	
						(0.1335)	
Tie Duration at Entry							0.0411***
							(0.0105)
Client-led X Tie Duration							0.1076+
							(0.0625)
Constant	13.6518***	13.6493***	13.6460***	13.5375***	13.5442***	13.5145***	13.6827***
	(0.1608)	(0.1606)	(0.1607)	(0.1597)	(0.1595)	(0.1614)	(0.1603)
Year Fixed-effects	Y	Y	Y	Y	Y	Y	Y
N	19639	19639	19639	19639	19639	19639	19639
R squared	0.0595	0.0595	0.0595	0.0604	0.0604	0.0595	0.0597

a. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10. Standard errors clustered by lobbyists.

Table 3-1. Descriptive Statistics and Pearson Correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Employee Exit	0.06	0.23	1													
2. Spin-out	0.02	0.13	0.503	1												
3. Discontinuous Increase	0.03	0.18	0.119	0.091	1											
4. Firm-Employee Distance	0.13	0.16	0.017	0.004	-0.006	1										
5. # of Client Ties	24.18	28.18	-0.049	-0.009	-0.056	-0.175	1									
6. Lobbyist's Revenue	$88.3*10^4$	$12.0*10^5$	-0.016	0.000	-0.006	-0.208	0.602	1								
7. Tenure in Lobbying Firm	6.18	4.66	-0.023	-0.019	-0.069	-0.041	0.331	0.097	1							
8. Specialization	0.29	0.26	0.010	0.003	0.023	0.047	-0.277	-0.262	-0.152	1						
9. # of Political Connections	1.03	0.58	0.048	0.030	0.090	-0.026	-0.066	0.049	-0.211	0.008	1					
10. Political Contribution	0.47	0.50	-0.003	0.023	-0.055	-0.047	0.166	0.143	0.040	-0.125	0.013	1				
11. Competitive Overlap	1932	884.11	-0.018	0.002	-0.030	-0.213	0.162	0.028	0.085	0.086	-0.043	-0.011	1			
12. Firm Size	17.35	21.93	-0.010	-0.002	-0.004	0.340	0.167	0.190	0.069	-0.173	-0.002	-0.001	0.047	1		
13. Firm Age	11.01	5.67	-0.003	0.001	-0.032	0.128	0.199	0.158	0.476	-0.174	-0.075	0.002	0.184	0.182	1	
14. Law Firm	0.29	0.45	-0.007	0.015	-0.014	-0.011	-0.004	-0.027	0.023	0.026	-0.025	0.009	0.007	-0.037	0.016	1
15. Lobbying Firm	0.90	0.30	-0.115	-0.053	-0.033	0.180	0.179	-0.084	0.093	0.008	-0.079	0.073	0.071	0.139	0.039	-0.002

Note. The level of analysis is lobbyist-semi-annual period. The sample size used in the analyses is 9,686. Exit and Spin-out variables are measured at the period $t+1$, and all other variables are measured at the period t.

Table 3-2. Logistic Regression Results of Likelihood of Exit and Entrepreneurship[a]

DVs	Logit Exit			Logit Spin-out			Logit Spin-out|Exit		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
# of Client Ties	-0.0032	-0.0022	-0.0022	0.0036	0.0052+	0.0050	0.0137*	0.0140**	0.0137*
	(0.0027)	(0.0027)	(0.0027)	(0.0032)	(0.0031)	(0.0032)	(0.0054)	(0.0053)	(0.0054)
Lobbyist's Revenue	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Tenure in Lobbying Firm	-0.0130	-0.0088	-0.0088	-0.0469*	-0.0404+	-0.0421+	-0.0398	-0.0452	-0.0489
	(0.0121)	(0.0121)	(0.0121)	(0.0222)	(0.0221)	(0.0223)	(0.0300)	(0.0301)	(0.0307)
Specialization	-0.0183	-0.0569	-0.0569	0.0346	-0.0497	-0.0523	0.1096	0.0881	0.0885
	(0.1770)	(0.1816)	(0.1815)	(0.2885)	(0.3129)	(0.3135)	(0.4090)	(0.4184)	(0.4125)
# of Political Connections	0.2480***	0.1938**	0.1938**	0.2603*	0.1855+	0.1854+	0.1596	0.1571	0.1735
	(0.0657)	(0.0661)	(0.0661)	(0.1038)	(0.1064)	(0.1069)	(0.1512)	(0.1570)	(0.1558)
Political Contribution	0.0543	0.1123	0.1123	0.4267*	0.5196**	0.5221**	0.6426**	0.7532***	0.7781***
	(0.0943)	(0.0935)	(0.0936)	(0.1724)	(0.1739)	(0.1741)	(0.1977)	(0.2080)	(0.2122)
Competitive Overlap	-0.0000	-0.0000	-0.0000	0.0001	0.0001	0.0001	0.0002+	0.0002+	0.0002+
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Firm Age	-0.0099	-0.0123	-0.0124	0.0041	-0.0011	-0.0004	0.0151	0.0201	0.0228
	(0.0112)	(0.0109)	(0.0109)	(0.0213)	(0.0208)	(0.0207)	(0.0281)	(0.0278)	(0.0273)
Firm Size	0.0006	0.0005	0.0005	0.0012	0.0009	0.0015	0.0005	0.0008	0.0010
	(0.0025)	(0.0025)	(0.0025)	(0.0044)	(0.0045)	(0.0046)	(0.0061)	(0.0060)	(0.0061)
Law Firm	-0.0795	-0.0676	-0.0676	0.2512	0.2698	0.2792+	0.4383*	0.4374*	0.4447*
	(0.1077)	(0.1093)	(0.1093)	(0.1638)	(0.1663)	(0.1664)	(0.2128)	(0.2129)	(0.2145)
Lobbying Firm	-1.1689***	-1.1800***	-1.1800***	-1.1388***	-1.1257***	-1.1421***	-0.1524	-0.1647	-0.1760
	(0.1297)	(0.1283)	(0.1282)	(0.2292)	(0.2358)	(0.2336)	(0.2764)	(0.2796)	(0.2735)
Firm-Employee Distance	0.8495**	0.9116**	0.9129**	0.6627	0.7857	0.3906	-0.0676	-0.0660	-0.5851
	(0.3000)	(0.3016)	(0.3125)	(0.5125)	(0.5208)	(0.6000)	(0.5509)	(0.5569)	(0.6205)
Discontinuous Increase		1.5637***	1.5656***		1.8033***	1.4533***		0.6248*	0.0878
		(0.1655)	(0.2084)		(0.2445)	(0.3083)		(0.2958)	(0.3734)
Discontinuous X Distance			-0.0138			2.3637*			3.8411*
			(0.9784)			(1.1995)			(1.7244)
Constant	-2.0667***	-2.1100***	-2.1102***	-4.1061***	-4.1820***	-4.1263***	-2.0955***	-2.1813***	-2.1171***
	(0.2052)	(0.2062)	(0.2051)	(0.4044)	(0.4209)	(0.4155)	(0.5320)	(0.5366)	(0.5368)
Period Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Party Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Chamber Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Party Majority Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Log pseudolikelihood	-1848.87	-1810.95	-1810.95	-694.07	-674.22	-672.52	-305.86	-303.74	-301.17
N	9686	9686	9686	9686	9686	9686	555	555	555

a. Standard errors clustered by lobbyists. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Table 3-3. Descriptive Statistics: Treated Sample vs. Coarsened Exact Matched Sample

Variables	Treated	Control (1 year)	Control (2 years)	Control (3 years)	Control (4 years)
# of Client Ties	15.9261	17.7582	17.3377	17.0467	17.0086
	(19.0233)	(16.26)	(15.9131)	(15.7873)	(15.6751)
Lobbyist's Revenue	838343.2	595681.5	584660.7	587698	583917.7
	(1167084)	(641749.6)	(626569.3)	(624583.6)	(618939.8)
Tenure in Lobbying Firm	4.7727	5.8825	5.7975	5.4463	5.6719
	(3.6621)	(4.3253)	(4.3049)	(3.9493)	(4.3156)
Specialization	0.3184	0.3031	0.3047	0.3051	0.3066
	(0.2889)	(0.2616)	(0.2631)	(0.2635)	(0.2645)
# of Political Connections	1.3239	1.0233	1.0249	1.0321	1.0294
	(0.5784)	(0.5659)	(0.5644)	(0.5548)	(0.5615)
Political Contribution	0.3125	0.4497	0.4448	0.4405	0.4429
	(0.4648)	(0.4975)	(0.497)	(0.4965)	(0.4968)
Competitive Overlap	1872.892	1936.805	1933.58	1904.612	1913.20
	(818.4418)	(905.5303)	(910.0702)	(904.0387)	(908.3046)
Firm Age	10.7386	10.933	10.8055	10.3433	10.5018
	(5.0347)	(5.6070)	(5.6862)	(5.6928)	(5.7539)
Firm Size	17.4886	15.9258	16.0952	16.312	16.1875
	(19.4440)	(21.0778)	(21.4372)	(21.5712)	(21.4834)
Law Firm	0.2670	0.2910	0.2917	0.2876	0.2896
	(0.4437)	(0.4543)	(0.4546)	(0.4527)	(0.4536)
Lobbying Firm	0.8523	0.9081	0.9078	0.9076	0.9069
	(0.3558)	(0.2889)	(0.2893)	(0.2897)	(0.2906)
Firm-Employee Distance	0.1272	0.1377	0.1385	0.1394	0.1381
	(0.1607)	(0.1672)	(0.1675)	(0.1668)	(0.1664)
N	325	7338	7243	7112	7094

Note. We report means for each sample. Standard deviations are in parentheses. Means from the control samples are mostly not different from the treated sample at the 5 percent significance level, except for lobbyist's revenue, tenure, # of political connections, political contribution, and lobbying firm.

Table 3-4. Discontinuous vs. Continuous Increase: Coarsened Exact Matching[a]

DVs	Exit	Exit (1 year)	Exit (2 years)	Exit (3 years)	Exit (4 years)	Spinout | Exit	Spinout | Exit (1 year)	Spinout | Exit (2 years)	Spinout | Exit (3 years)	Spinout | Exit (4 years)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
# of Client Ties	-0.0022	0.0200***	0.0235***	0.0231***	0.0211*	0.0140**	0.0401***	0.0506***	0.0207	0.0351*
	(0.0027)	(0.0046)	(0.0047)	(0.0055)	(0.0083)	(0.0053)	(0.0112)	(0.0111)	(0.0147)	(0.0157)
Lobbyist's Revenue	-0.0000	-0.0000**	-0.0000***	-0.0000*	-0.0000+	-0.0000	-0.0000	-0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Tenure in Lobbying Firm	-0.0088	-0.2577***	-0.4309***	-0.3559***	-0.2061***	-0.0452	-0.0425	-0.0958*	-0.0501	-0.0610
	(0.0121)	(0.0222)	(0.0245)	(0.0251)	(0.0268)	(0.0301)	(0.0450)	(0.0456)	(0.0520)	(0.0524)
Specialization	-0.0569	-0.9335***	-0.9143***	-0.9511*	-0.3349	0.0881	0.3545	0.3886	0.0244	-1.0182
	(0.1816)	(0.2468)	(0.2508)	(0.3955)	(0.4561)	(0.4184)	(0.5049)	(0.5755)	(0.7101)	(0.9285)
# of Political Connections	0.1938**	0.0063	-0.0358	-0.0750	-0.1275	0.1571	0.4719*	0.4469+	0.4492	-0.0688
	(0.0661)	(0.0965)	(0.0877)	(0.1102)	(0.1804)	(0.1570)	(0.2306)	(0.2414)	(0.3212)	(0.3825)
Political Contribution	0.1123	0.1508	0.1771	0.1576	0.1019	0.7532***	0.8728**	0.6574*	1.2490***	1.2143**
	(0.0935)	(0.1314)	(0.1234)	(0.1656)	(0.2066)	(0.2080)	(0.2933)	(0.2937)	(0.3648)	(0.4218)
Competitive Overlap	-0.0000	-0.0000	0.0001	0.0000	0.0000	0.0002+	0.0003+	0.0001	-0.0001	0.0003
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Firm Age	-0.0123	-0.0516***	-0.0281**	-0.0167	-0.0142	0.0201	-0.0146	-0.0079	-0.0804+	-0.0642
	(0.0109)	(0.0106)	(0.0101)	(0.0147)	(0.0208)	(0.0278)	(0.0335)	(0.0325)	(0.0451)	(0.0448)
Firm Size	0.0005	-0.0037	-0.0048	-0.0103*	-0.0142*	0.0008	-0.0003	-0.0032	-0.0057	-0.0086
	(0.0025)	(0.0036)	(0.0035)	(0.0051)	(0.0069)	(0.0060)	(0.0088)	(0.0082)	(0.0112)	(0.0122)
Law Firm	-0.0676	-0.0443	-0.0312	-0.1221	0.1765	0.4374*	-0.1557	-0.0243	0.2818	1.8757***
	(0.1093)	(0.1310)	(0.1269)	(0.1541)	(0.1962)	(0.2129)	(0.3179)	(0.3238)	(0.3465)	(0.4201)
Lobbying Firm	-1.1800***	-1.2837***	-1.0687***	-0.6746**	-0.2319	-0.1647	-0.8349*	-0.6737+	-0.4481	-0.3218
	(0.1283)	(0.1517)	(0.1733)	(0.2485)	(0.3244)	(0.2796)	(0.3934)	(0.3738)	(0.5066)	(0.6587)
Firm-Employee Distance	0.9116**	1.0367**	1.2560***	1.2404**	1.1714+	-0.0660	-0.0019	-0.7433	-0.6617	-0.0212
	(0.3016)	(0.3856)	(0.3416)	(0.4025)	(0.6265)	(0.5569)	(0.8559)	(0.9157)	(1.1951)	(1.2477)
Discontinuous Increase	**1.5637*** **	**1.6606*** **	**0.6200** **	**-0.1234**	**-0.6640** **	**0.6248***	**0.5510+**	**0.6049+**	**0.4135**	**0.9163+**
	(0.1655)	(0.2039)	(0.2358)	(0.2616)	(0.2325)	(0.2958)	(0.3237)	(0.3507)	(0.4173)	(0.5370)
Constant	-2.1100***	0.0297	1.9555***	1.9738***	1.0563+	-2.1813***	-2.0260*	-1.4551	0.1327	-1.2552
	(0.2062)	(0.2695)	(0.3027)	(0.4473)	(0.5753)	(0.5366)	(0.9197)	(0.9280)	(1.0611)	(1.2281)
Period Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Party Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Chamber Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Party Majority Fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Log pseudolikelihood	-1810.95	-2419.66	-3159.32	-3811.33	-4531.06	-303.74	-265.48	-275.69	-282.30	-189.63
N	9686	7514	7419	7288	7270	555	410	414	425	421

a. Standard errors clustered by connected politicians. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

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